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*Economics of Welfare,
Rural Development,
and Natural Resources
in Agriculture,
1940s to 1970s*

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editor*

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PART I. The Economics of Rural Poverty

The authors owe a special debt to Sharon Mastenbrook for her work in preparing the original bibliography. Without her assistance the authors would still be enmeshed in the University of Wisconsin Library system some nine years after the task was begun. The official reviewers of the manuscript were: Vernon Briggs, George Brinkman, Varden Fuller, Patrick Madden, T. W. Schultz, and Luther Tweeten. All improved the manuscript greatly in a number of ways. Briggs made us aware of work on rural labor markets; Brinkman better informed us about the Canadian literature; Fuller's critique improved the conception of the manuscript and added material on migration and farm labor; Madden improved the section on resource returns and made us aware of a host of material on health; T. W. Schultz read the manuscript and provided gentle encouragement despite the fact he received the manuscript shortly before he traveled to Sweden to receive the Nobel Prize. Tweeten improved the linkages between the rural poverty and rural community development literature. Volume editor Lee R. Martin was patient, persistent, and helpful throughout the enterprise and did yeoman work in checking the entire bibliography. His perspectives are included at several places in the manuscript. The final conception of the review, our judgments of the literature, and the responsibility for them remain our own, however, and in places differ significantly from those who helped us. Others who helped at various stages on various sections of the review were Charles Benbrook, Joanne Greene, Helen Jensen, Barbara Sherman, and Deborah Streeter. Without the persistence of Ruth Schaaf the final bibliography would remain as she received it in a thousand pieces.

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The Economics of Rural Poverty—
A Review of the Post-World War II
United States and Canadian Literature

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In an ultimate sense all of economics can be viewed as the economics of poverty. Even though the economic status of people is influenced directly and indirectly by every facet of the economy, a review of the literature on the economics of rural poverty cannot usefully be cast so broadly. Conceptual, cultural, and geographic limits must be placed on the exercise if it is to inform future work with the insights and perspectives of the past. In this introductory section, then, we attempt to establish the boundaries of our review and to signal its structure.

Our charge was to review the post-World War II literature on the economics of rural poverty. There is no single economic theory around which the review could be structured. Rather, a cluster of hypotheses, some macro, some micro, is a better description of the state of the theoretical parts of the literature. The clusters do not even bunch along a single continuum but have several dimensions. Each of two prominent macro hypotheses ignores the actions of individuals, concentrating on the environment in which individuals find themselves, yet each speaks to quite different issues. One assigns responsibility for poverty to a sluggish or ill-directed set of macro growth forces. Why some people in a growing economy remain or become poor is left unaddressed. The other view is that poverty is a problem of income and wealth distribution. Macro economic and political forces are seen as distorting what otherwise would be a more even distribution. Implicit is the view that there is sufficient total wealth so that if it were redistributed, poverty would vanish. There are likewise micro

hypotheses about poverty which focus upon the quantity and quality of resources of individuals. Some concentrate on the resources inherent in the individual, whereas others recognize the abilities of individuals to invest in themselves. Others focus on the part public institutions and programs can play in individual investment processes.

Our review has sought to espouse none of these models but to deal with each in a more eclectic manner, which sees the macro national and market forces interacting with the micro forces and processes. This has a number of consequences. The first is that while we attempt to go from macro concerns of income and wealth distributions and of growth to the more micro issues of human capital and individual resource investment, the review turns back on itself at several junctures. This is so simply because when particular facets of human capital and other individual resources are discussed, the interactions of individual actions with particular market forces become crucial. In consequence, the structure of the review is less linear than the authors and perhaps the reader would have wished.

The second result of our eclectic approach is that the tensions among the themes of the several literatures we have reviewed remain despite our attempts at synthesis. In the end, our inability to make a completely satisfactory synthesis is itself a comment on the state of the literature (as well as a comment on the abilities of the reviewers) and poses an important problem for future research.

However, boundaries had to be drawn to attain closure to the project. We have attempted to use our charge, the charges of other reviewers in this series, and our particular biases to attain closure and impress some discipline in the work. The operative words in our charge are "literature," "economics," "rural," and "poverty." Furthermore, another set of reviewers was charged with the responsibility of reviewing the literature on rural area development, community development, and regional economics. This along with our own concept of poverty provided us with a dividing line between the rural area development and the rural poverty literatures.

"Poverty" is taken to be a condition of people. Areas, regions, and nations are poor to the extent to which many of their residents are poor rather than, with some exceptions, the other way around. The focus on the poverty of people rather than of place along with a companion chapter in this volume on rural and community growth and development, we believe, allows us to restrict from our review much of the work that has gone under the titles rural area development, community development, and regional economics. The line must be drawn finely, however, for some recent work in development has rural poverty as a major focus.

As important as the distinction between the rural development and rural

poverty literatures, this view of poverty identifies the condition as stemming from a lack by people of income and income-earning resources, physical and human; from a lack of demand for the resources possessed by the poor; or, from a set of barriers that impede the poor in resource accumulation or in income-earning activities. Such a view also allows a clear focus upon the conditions that result from poverty and the policies that may ameliorate or eliminate them. To qualify as research on poverty, then, the work must establish an explicit relationship between the subject discussed and low-income people, the income distribution, or policies seeking to alter the income distribution in favor of the lower end.

Because our charge is to review the "literature" on rural poverty, we do not review statistics on the numbers of rural poor and the extent of their plight. Such a task we believe to be an exercise in statistical analysis and rightfully lies outside our charge. Nor do we review the state and development of the statistical series relating to the rural poor even though there must be a direct link between the state of the empirical literature and the quantity and quality of the statistics on which it is based. For some analyses of the statistical base see Upchurch [1977], Bonnen [1977], and Bryant [1977b]. We do, however, address the statistical issues in two ways. First, we do include a review of the literature debating and refining the definition of poverty. And at various points in the review our critique of the literature has clear implications for improving the statistical base.

Our review with only rare exceptions begins with the literature in 1945. This neglects some valuable historical materials written during the 1930s and partly funded by the Farm Security Administration. Our bibliographic search included all scholarly economic journals and books, Ph.D. dissertations, governmental documents, and agricultural experiment station materials in the United States and in Canada to the extent the University of Wisconsin Library System and the Wisconsin State Historical Society catalogued them. M.S. theses are not included in Dissertation Abstracts and thus they are included only if cited in other work. We sought to exclude materials from the popular press. The materials on Canada may have been slighted owing to the unavailability of some Canadian materials in the United States.

One geographic and one cultural boundary are impressed on the review by the charge to review the economics of rural poverty. We recognize that a lively debate exists over the concept of rural. We avoid this debate by leaving the distinction between rural and urban up to the researchers contributing to the literature under review. We do this partly because our charge rightfully excludes it. But more important, to adopt any one definition of rural would lead to the arbitrary exclusion of important contributions. The fact of the matter is that the concepts and measurements of rural, urban, farm, nonfarm, metro-

politan, nonmetropolitan all have shifted significantly over the past thirty-five years as the face of the nation has become increasingly urban and metropolitan. To capture and review the literature on rural poverty, therefore, the concept of rural had to be left to the discretion of the writers of the literature themselves and to change as the times necessitated it.

The historical use of the phrase "rural poverty" is in the context of a developed country and in particular in the context of the United States and Canada. The review, therefore, excludes the large amount of research on poverty in the agricultural development literature and is explicitly focused upon the United States and Canada.

Even though it has been impossible at times, we sought to review only the economics and not the sociology, social psychology, and political science of rural poverty. Again in part this was a matter of the charge to us. But equally important, we believe that the literature on "the culture of poverty" which bulked large in the sociological and social psychological literature of the 1960s was largely an arid exercise. Consequently, we have included sociological and demographic literature only sparingly, especially in the later sections that deal with hired labor, human capital, housing, and health. It is here that the noneconomic literature appears to be particularly relevant to the economic literature.

Our beginning point is the literature on the distribution of income and wealth with a focus upon rural people. We begin here because we believe rural poverty to be in large part a problem of income and wealth distribution. In this we apparently disagree with the long-standing view within agricultural economics expressed most forthrightly in 1954 by Erven Long: "the problem of low income can be considered as essentially a detail in the problem of economic growth or development" (as quoted by Bachman [1955]). Although it is true that lagging economic growth is an important contributor to rural poverty, and perhaps the most important facet in the poverty of the less developed countries, in affluent societies such as the United States and Canada, we contend that the distribution questions are more important. The literature on the definitions and measurement of poverty is addressed next since the discussion flows logically out of the consideration of the lower end of the income distribution.

The next two sections discuss the implications of national, regional, and area growth and development implications for rural poverty. Here, since the focus is upon the connections with rural poverty, much of the growth and development literature has been purposely neglected. It is discussed in a companion chapter (Jansma, Gamble, Madden, and Warland [1980]).

Next, attention is turned to an examination of the two pieces of agricultural policy that bear directly upon rural poverty. The first of these reviews

the work on the income distribution consequences of commercial agricultural policy. The second deals with what has been done in the area of small farm policy. Then, since the most direct way of augmenting the resources of the poor is through cash transfers, the work on this subject as it pertains to the rural poor is discussed.

Following these we turn to the human resource itself and discuss the literature on hired farm labor as it pertains to poverty, the work on human capital investments in education and training, and the work on health and health facilities in rural areas. The final three review sections deal with the literature on rural housing, the expenditure patterns of the rural poor, and the literature on the economics of domestic food and nutrition programs. In this last we divert slightly from a strict focus on rural poverty because agricultural economists in this one instance have concerned themselves with all the poor.

In a final section the threads of the review are brought together with suggestions as to the problems that future research should probe.

It should finally be noted that all the citations in the reference section are not referred to in the text. References that appeared to be somewhat tangential to the thread of argument in the text or were of less importance in the particular context of the text were not cited. Consequently, the researcher seeking guidance as to the next steps must consult both the text and the references.

Distribution of Income and Wealth

Much of the literature concerning the distribution of income and wealth does not distinguish between urban and rural households and individuals. Our review reflects this fact and begins with a general review of income distribution theories. A second section contains a discussion of issues pertaining to the measurement and interpretation of data on income and wealth. The final section reports the conclusions from empirical work in this area.

Income Distribution Theories

Much of the economic literature of income distribution theory pertains to the distribution of income among factors of production rather than among individuals and households. It is recognized that the latter stems from the former through the ownership of resources and firms, and that the distribution of income among productive factors does have certain connotations for welfare, especially within the context of economic growth. However, attention here is confined to theories about the distribution of income among individuals and households. Most of these theories seek to explain the determinants of an income distribution that is skewed toward higher incomes.

The first income distribution theories viewed the observed distribution as the steady state of a stochastic process. Many of these models relied on the fact that the product of a large number of independent random variables tends toward the skewed lognormal distribution. In Champernowne's [1953] stochastic model, income determination follows a Markov process in that an individual's income in this period depends on his or her income last period and random factors. He demonstrated that under certain assumptions the stationary income distribution must approximate the Pareto distribution, irrespective of the initial distribution of income. Friedman [1953] introduced the central tenet of economic theory into these stochastic models by admitting the possibility of individuals' making choices. He posited that different individuals may have different attitudes toward risk and that the observed distribution of income is the outcome of individuals' initial incomes and their decisions to participate in a lottery.

Bronfenbrenner [1971] was concerned both with personal and with functional distributions of income, including ideological issues and measurement issues. He used neoclassical marginal productivity theory to analyze income distribution and to explain wage, interest, rent, and profit levels, but included criticisms of that approach as well. From the belief that human attributes such as size, strength, and intelligence are distributed normally, he moved to the skewed distributions of wealth and earnings in the USA and introduced several explanations for this phenomena. Schuh [1977] also used neoclassical theory of income distribution based on the marginal productivity of factors, and microeconomic theory to explain factor shares, personal income distribution, and rural poverty.

Lydall [1968] posited that if individuals work more at higher wage rates, then hours of work and wage rates will be positively correlated and the distribution of earnings will be positively skewed even if hours and wage rates are each distributed symmetrically. Tinbergen [1970] proposed a model of job choice in which the distribution of income stems from the interaction of the supply and demand for attributes. Individuals maximize their utility of income and tension, where the latter is the deviation of individuals' attributes from those required by their jobs. Under some very restrictive assumptions Tinbergen demonstrated that his model would reconcile a lognormal distribution of income with normally distributed attributes.

The human capital theory propounded by Becker [1967] postulates that individuals can alter their potential lifetime earnings by investing in their unobserved human capital, through education for example. Individuals are assumed to choose the income stream that has the highest present value. This model takes into consideration many of the features of the earnings models and predicts relationships among ability, training, and earnings. Becker and

Chiswick [1966] demonstrated that the human capital thesis can be translated into empirically tractable models. Stigler [1967] pointed out that even if all individuals had income streams with the same present value, they might have very different time profiles and this would predicate observed inequality. Stigler suggested further that some income inequality would result from different individuals having different preferences for income and leisure.

There remain several theories of the determination of earnings which are used to make policy prescriptions concerning income inequality but which have not been used to derive a particular shape of the income distribution. Thurow's job competition model and its implications for altering the distribution of income are described by Thurow and Lucas [1972]. Whereas most earnings theories focus on the supply side of the labor market, this model emphasizes the employment process and the structure of the demand for labor. Employers are posited to choose employees on the basis of their characteristics; thus, this model describes a mechanism by which discrimination against minority groups may take place.

Tinbergen [1975] focused on the observed level of income inequality as the outcome of a supply-demand race involving educated labor. If technological change shifts labor demands toward highly educated labor while there is no change in the educational composition of the labor force and elasticities of substitution among workers remain low, wages for highly educated workers will increase. In this way, the gap between highly educated and less-educated workers is widened.

Newhouse [1971] noted greatly different income distribution shapes among cities in the USA. His theory focused on the industry mix of the area and was tested using state data. He reported that the results support the hypothesis that factors other than industry mix do not strongly affect the shape of the income distribution. T. W. Schultz [1953] explained the large regional differences in per capita income in agriculture in the United States by focusing on centers of growth that were primarily urban-industrial. Ruttan [1955a], Tang [1958], Nicholls [1961], and Bryant [1966] found that the impacts of urban industrialization on agricultural development were transmitted mainly through the labor market and in more minor ways through capital and availability of capital from the urban to agricultural sector and credit markets.

There has been little progress in the development of a coherent theory that explains the determinants of the distribution of income between generations. Meade [1964] moved the analysis some distance in a study that noted the role ownership of property plays in the intergenerational transfer of wealth. Boulding [1962] emphasized the importance of such a theory, for he recognized that the distribution of income at a point in time has consequences for the aggregate and for the distribution of income in subsequent periods. An in-

tergenerational model should not be depicted as distinct from an intragenerational model of income determination; rather, the latter is a by-product of the former. Stiglitz [1969] developed a model that examines income and wealth inequality within the context of economic growth.

Although the foregoing theories may be applicable to the distribution of the earnings of rural wage earners, they have less content which would explain the income distribution of farmers. Such a theory would have to take cognizance of the inherent annual variation in income from farms, the fact that farm income is combined with wage earnings on many farms, and the intergenerational transfers of farm resources and earnings.

Measurement Issues

Income and wealth are frequently used as measures of individuals' welfare. The fact that income and wealth can be defined in various ways, both as they relate to welfare and as observable quantities, has led to controversy concerning their use. The most widely accepted definition of income during this period as a measure of welfare is that of Hicks [1969], who defined income to be the maximum amount that an individual can consume during a period and still be as well off at the end of the period as at the beginning. Solomons [1969] pointed out that this definition of income differs greatly from the accounting concept of income. Kaldor [1968] reviewed various theoretical approaches to the definition of income and concluded that most, if not all, are not operational. Owing to the variety of definitional and statistical problems encountered during his study of the relationship between income and consumption in Sweden, Bentzel [1970] was pessimistic about drawing welfare conclusions from income distribution data.

For a discussion of the combination of income and wealth into an index of well-being, see the following section on measurement of poverty. Comparisons of income and wealth distributions between different sectors or regions confront the problems that persons in different categories may have different preferences, and that with the same income and wealth persons in different categories may not have the same command over goods and services. Orshansky [1952] and Puterbaugh [1961] pointed out that this latter problem is particularly acute in rural/urban comparisons, and each computed indexes of retail prices for each of these sectors. Schuler and McKain [1949] compared the welfare of farm and nonfarm families in 1940 on the basis of purchasing power, diet, and other factors. Reid [1951] suggested that the nonmoney income of farm families exceeds that of rural nonfarm families, which in turn is greater than that of urban families. Madden, Pennock, and Jaeger [1968] estimated that for an equivalent level of living, farm families require only 70-80 percent of the income of urban families and that farm owners require less than leasees.

Several authors have emphasized income data problems, some of which are not peculiar to rural data. After illustrating the differences between two sets of survey data on incomes in 1947, Katona and Fisher [1951] suggested that survey data may give more reliable information on trends over time than about conditions in a particular year. Goldsmith [1962] listed the problems inherent in comparing income data from different sources and showed that in 1958 the number of farm and nonfarm families in certain income categories differed substantially between the data provided by the Current Population Survey and the data provided by the Office of Business Economics. Grove [1958] also made this point in his comparison of the distribution of farm operators' incomes in the late 1940s and early 1950s, as based on the Current Population Survey data and on Agricultural Marketing Service data. Wasson, Hurwitz, and Schweiger [1951] discussed the urban/rural definition and the fact that changes in this definition would predicate changes in the characteristics of data drawn from these two populations. Indeed, even the farmer/rural wage earner dichotomy is somewhat arbitrary, for farm families in the United States obtain a substantial proportion of their income from wage earnings. Fitzpatrick and Parker [1965] reported that this is also characteristic of Canadian farmers. It is more difficult to obtain accurate information about farm income than wage earnings. This is because it is easier to disguise misreporting of farm rather than wage income and because farm income can be defined in various ways. Hathaway [1963a] pointed out the need for and the difficulties of including capital gains as farm income. Randall and Masucci [1963] emphasized the problems inherent in imputing the return to farm labor. Subsequent work (USDA, ERS [1967]) proposed an opportunity return wage rate which varied by economic class, according to the age, educational attainment, and sex of the farm operator. Koffsky and Lear [1951] attempted a comparison of distributions of farm income in 1946, unadjusted and adjusted for inventory change and imputed income.

Once the data are obtained, income distributions are usually described by one or two summary statistics. The most common way of measuring income inequality is by splitting up the range of incomes into quintiles, for example, and then reporting the proportion of income-producing units that falls into each quintile. Two statistics frequently used to describe inequality are the variance and Gini coefficient. Doving [1973] indicated that income distributions are a major factor in explaining economic development and found that such distributions can be better portrayed and analyzed with the aid of exponential functions than with currently used tools.

Ranking income distributions by any such measure implies some concept of social welfare. Atkinson [1970] demonstrated that the social welfare functions implicit in many of the commonly used summary statistics have undesir-

able properties and are not in accord with widely accepted social values. Atkinson also pointed out that the social welfare function must be specified before a complete ranking of income distributions can be obtained. The situation is further complicated by the fact that inferences made solely on the basis of income and wealth distributions ignore the underlying characteristics of the income-producing units. For example, the simple comparison of the income distribution of farm families with that of nonfarm families ignores the historical fact that the average number of persons in a farm family is larger than that in a nonfarm family. Also, consideration based only on the income distribution ignores sources of inequality such as age. This point was emphasized by Titmuss [1962] who noted that unless differences in social structure are taken into account the comparison of income distributions can be very misleading.

Empirical Evidence

Controversy exists over the way income distribution in the United States has changed since the 1940s, although all agree that average income has grown during this time. Social scientists have not specified a normative income distribution in their research. Their empirical analyses have measured an observed distribution and compared it with complete equality (i.e., the 45 degree line in a Lorenz curve analysis) or with measured inequality in some prior period or among a separate group of observations. That is, the analysis of the relevant question of what the target should be has remained elusive. Measuring changes over time has been useful to determine if we are moving toward more or less equality, but here the results for the post-World War II period appear confusing.

Taussig and Danziger [1976] documented this and provided explanations in separate articles from a conference on trends in income inequality, held in 1976. They emphasized the divergent conclusions drawn from recent empirical analyses with a series of citations from analyses made in the 1970s. First, Browning [1976] concluded that there had been a marked trend toward equality over the 1952-72 period. The trend was particularly apparent for the lowest quintile. Budd [1970] said that tentative conclusions about changes in the size distribution of income from the immediate postwar years to the 1960s could be drawn from evidence from a number of different distributions. This evidence pointed to a gain by the middle and upper part of the distribution, relative to the lower groups and the upper tail. Henle [1972] reported that a more unusual aspect of the data pertained to the 1958-70 trend. In three of the four groups (all wage and salary recipients, all year-round full-time wage and salary recipients, and all earners) there was a slow but persistent trend toward inequality. In contrast, Paglin [1975] found a decline in interfamily inequality of incomes in the twenty-five-year period 1947-72.

Reynolds and Smolensky [1977] stated that their empirical analysis had shown that inclusion of all government spending and taxation in household incomes significantly reduced effective income differences among income classes in each year but that dispersion in these "post-fisc" income distributions had not changed significantly between 1950 and 1970. Finally, T. W. Schultz [1975] said that income inequality, as measured by the log variance, had apparently increased substantially among both men and women since World War II (1947-70).

While these excerpts are lifted from the context of the analyses, they indicate the apparently conflicting results. Taussig and Danziger reported that some of these differences can be explained by differences in the income concept, in recipient unit used in the analyses, in the income accounting period, or in inadequacies and biases over time in the available data sources. The consensus of the conference was that a perfect data source would reveal less inequality in any one year than that shown by the commonly used Current Population Survey data and a slightly greater trend toward less inequality over time.

The unequal distribution of property income was pointed out by Projector, Weiss, and Thoresen [1969]. Orshansky [1965a, 1965b, 1968] described in some detail the characteristics of persons with low incomes. The lower incomes of individuals in the South is the most important regional difference in the income distribution. Podoluk [1968] reported that in all the Canadian provinces, rural incomes were substantially lower than incomes of urban residents, and that differences between urban and rural incomes were greater in provinces whose population earned relatively lower incomes. In a comparison of the United States and Canadian income distributions, she noted [1970] that Canadian incomes have also grown steadily and that the income distributions in the two countries have similar degrees of inequality.

Since 1940 the incomes of urban families have exceeded those of rural non-farm families, which in turn have been greater than those of families residing on farms. Boyne [1965] reported that the money incomes of farm operators' families declined relative to those of other families over the period 1948-62. Based on the Gini coefficient, the income distribution of farmers' and farm managers' families was shown to be more unequal than that of any other occupational group. This is substantiated by Coffey's [1968] conclusion that the distribution of farm families' incomes is more unequal than it is for all families. Bean [1952] suggested that the difference between farm and nonfarm income persists even when the distribution of farm incomes is adjusted for the higher proportion of farmers residing in the South. The relatively low income of farm families continued until the 1970s despite substantial outmigration from the agricultural industry and despite the increasing earnings of farmers or farm families from off-farm work. Since then, commercial farmers'

income (adjusted for wealth, cost of living, etc.) has averaged more than non-farm incomes. The rural division of farm and nonfarm is based solely on place of residence. Both farm and rural nonfarm persons derive their incomes from heterogeneous occupations; indeed farm residents need not receive income from farming (prior to the 1974 change in farm definition) and in fact may not even work in the agricultural industry. Boyne's analysis suggests that the family income of farm laborers and foremen is less unequal than that of farmers but more unequal than the family income of other employed persons. Counties in the USA were classified on a rural-urban scale and socioeconomic characteristics compared over time by Hines, Brown, and Zimmer [1975]. They found that the population of toally rural counties had relatively low levels of current and potential socioeconomic status whereas the more urbanized nonmetropolitan counties compared favorably with metropolitan counties. Nagel [1974] discovered that the low income of American Indians stems from chronic unemployment, for most are employed by farmers in seasonal work.

Growth in wages, salaries, and other off-farm income for farm families during the late 1960s improved mean incomes and probably reduced income inequality, according to Reinsel [1972]. Merriam and Skolnick [1968] described the growing involvement of the United States government in social welfare programs over the years 1929-66. The problems associated with evaluating the distribution of the tax burden were discussed by Musgrave [1964]. In a study of the distributive effects of government actions Pechman [1969] concluded that the effective federal tax rate is proportional in the lower and middle income brackets, and progressive in the upper brackets, whereas state and local taxes are regressive throughout the income range. Also, Pechman judged that if the incidence of the benefits of public expenditure are taken into account, the public budget redistributes income from those in the upper income classes to the poor. The ramifications of changing the income distribution by taxation, public expenditure, and other means were discussed by A. G. B. Fisher [1950]. Weisbrod [1969] commented on criteria for choosing among alternative ways available to the public sector for redistributing income.

In comparing the well-being of groups of individuals or families there appears to be a need for identifying more precisely the characteristics of these groups, and for integrating income and net worth approaches. Attention is frequently focused on the income distribution only. The development of descriptions of income and wealth distributions that take into account the characteristics, such as age structure, of the units of analysis would greatly facilitate an interpretation of these distributions. At present it is virtually impossible to explicate the underlying determinants of observed distributions of income and wealth.

It is also true that income distribution theories and measurement address only part of the poverty question. Incomes may be equally distributed and yet all may be poor. Or incomes may be quite unequally distributed with no one poor. Without a definition of poverty, income and wealth distributions are useless. Given the definition of poverty, income and wealth distribution studies can be very helpful in examining the extent and severity of poverty, and the income and wealth consequences of public programs can be examined to ascertain the extent to which they aid or exacerbate poverty. We now turn to the issues of the definition and measurement of poverty.

Definition and Measurement of Poverty

There has been substantial written discussion and some controversy between disciplines regarding the concept of poverty. In general, economists have defined poverty as income insufficient to meet minimum consumption needs. Within this narrow definition, economic literature has mainly focused either on how to define income or on where to draw the line between the poor and nonpoor. Definitions of rural poverty have received particular attention.

In 1963 the U. S. Council of Economic Advisers established poverty lines of \$3000 for families and \$1500 for single individuals. Two years later Orshansky [1965a] developed a set of poverty lines for the Social Security Administration, and they became and remain the basis of calculation of "official" definitions of poverty for governmental purposes. Orshansky's contribution was to provide a rationale for drawing a line between the poor and nonpoor. She noted that average expenditures for food were found by the USDA, Agricultural Research Service [1957] to comprise about a third of the typical family's budget. Using the USDA's Low Cost Food Plan, she then determined that the poverty line should be three times the current cost of this plan for each family size. To adjust for home-grown food, the corresponding poverty lines for farm families were set at 60 percent of the standard line.

Bonnen [1966b] provided a general critique of Orshansky's guidelines, and a specific critique of her farm adjustment, pointing out that just because farmers' food expenditures are 40 percent less than those of nonfarmers does not imply that their expenditures for all other items are also 40 percent less. The Social Security Administration subsequently raised the farm/nonfarm ratio to 70 percent and finally to 85 percent based on the findings of Madden, Pennock, and Jaeger [1968] in their study for the President's National Advisory Commission on Rural Poverty of farm/nonfarm cost-of-living differentials.

Watts [1967] developed the Iso-Prop Index to compare families of different sizes and in different geographic locations. It was based on the proposition that families who "spend an equal fraction on necessities are taken to be equally poor." His findings do not refute Orshansky's (and, in fact, lend some

support to the one-third food expenditure assumption), but merely refine them, especially in providing a basis for adjusting among regions and between urban and rural nonfarm families. The studies by Madden et al. and by Watts on refining the poverty line stand as the only work published in the 1960s on the relative purchasing power of rural people. Prior work is that of Puterbaugh [1961] and the important study of Koffsky [1949].

Weisbrod and Hansen [1968] incorporated assets into the measure of economic well-being by converting net worth into an income flow (through an annuity) and adding it to current income. Using a simple \$3000 poverty threshold, they showed that the number of poor families declines about 15 percent if net worth is taken into account. More significant, perhaps, is the change in the makeup of the poor. The percent of the aged who are poor declines by one-fourth to one-third, depending on the rate of interest used to convert net worth into an annuity.

Carlin and Reinsel [1973] applied the Weisbrod-Hansen technique to 1966 farm family income and asset data. They calculated the annuity value of productive farm net assets based on the expected life of the spouse and added this imputation to observed farm family labor earnings as a measure of economic well-being. They found that well-being is more equally distributed among farm families in all regions of the United States than is observed income and that many low-income farm families appear to be substantially better off when wealth is considered. They suggested a government-sponsored program in which older persons with low income but sizeable assets could convert the latter to a monthly income stream by giving a lien against their equity in the property to the government, to be exercised at the death of the surviving spouse.

The implications of the work on permanent income and life-cycle income during the 1950s and early 1960s were not incorporated into measurements of poverty until Gardner's [1975] work. Gardner developed a measure of farm poverty based on "full income," defined as the purchasing power available for consumption in a normal year, keeping wealth intact. Full income is current year income (minus transitory income) plus unrealized capital gains and the value of nonmarket services provided by owned housing, home-grown food, and do-it-yourself services. These items are quantitatively more important for farm people than for nonfarm people and for farm poor than for farm nonpoor. Full income does not annuitize wealth (as did Weisbrod-Hansen and Carlin-Reinsel), but rather counts as income the increase in wealth during the accounting period. Market rates of return to human resources, land, and capital were used to calculate full family income. Gardner estimated that mean full income for farm families in the United States during 1970 was \$15,000 compared with the observed mean current income of \$6,253. After adjusting the federal poverty line upward to be consistent with the full in-

come concept, he found that (for alternative procedures) there were from 5 percent to 14 percent of farm families in poverty, compared with 20 percent using current income measures. The essence of the Gardner approach is to distinguish between the "permanent" and "transitory" poor. The former are those with full income below the poverty line, whereas the latter are those with current income below the poverty line and full income above it. These are useful distinctions for policy purposes because the appropriate programs for each may well be radically different.

Garfinkel and Haveman [1977a, 1977b] developed an "earning capacity" concept as an alternative to money income as a measure of economic status. It was designed to measure the ability of a living unit to generate income if its physical and human capital was used to capacity. Estimates of earning capacity were developed for each of the 50,000 families interviewed in the 1971 Current Population Survey, using four separate regression equations in which the observed variation in earnings of black and white heads and spouses were explained by age, years of schooling, marital status, and location. These estimated labor earnings were adjusted for weeks worked and child care costs and summed with observed family income from assets, i.e., interest, dividends, rents, alimony, and miscellaneous sources other than government transfers, for each of the 50,000 families. By this earning capacity criterion, Garfinkel and Haveman found only 3 percent of the poor to be farmers, compared with 13 percent by current income criteria. They suggested that most farmers who are poor by current income criteria have sufficient human capital to do better economically if they were willing to leave their farms, except older farmers who would find it difficult to switch occupations and locations late in life.

In concept, consuming net assets through an annuity (or consuming the increase in net assets) does not affect the labor earnings (i.e., wages) of the wage earner. However, if a farm operator consumes his farm assets, the marginal value product of his labor will decline, i.e., his labor earnings will decrease. Whereas this does not invalidate the notion that some measure of assets is important in determining economic well-being, it does highlight the difficulty of applying the notion to the self-employed. There remains the task, therefore, of resolving the problem of the interdependence of assets and earnings for the self-employed and the implications of this problem for the striking of poverty lines for farm people.

The literature on poverty measurement reviewed thus far relates almost solely to absolute measures of poverty, the only adjustment made being for changes in price level. They neglect the idea, strongly held by some scholars, that poverty is a relative matter and must be defined relative to the wealth, income, or consumption of other sections of society. This is a minor theme in the literature and is represented by Fuchs [1965], Smolensky [1965], and

Madden [1974]. Both Fuchs and Smolensky discussed poverty in terms of income and wealth. For instance, one proposed definition is that the poverty line might be set at one-half the income of the median family (Fuchs [1965, p. 74]). This, of course, implies not only that the poor will always be with us but furthermore that they will always be a constant fraction of the population, the latter idea being potentially unsettling to those who look to "improvement" in social conditions as a result of social policy. Madden [1974] discussed poverty measures in the broader context of social indicators and related poverty to a number of social indexes like morbidity, mortality, health status, and expenditures.

Whereas relative poverty measures capture the long-run reality and poverty measures are determined in part by the wealth and culture of the society, practical policy imperatives restrict short-run measures to absolute concepts.

Economic Growth, Unemployment, and Poverty

All economists argue the importance of full employment and rapid national economic growth in reducing the incidence of poverty. The bases of the argument are that as the aggregate demand for goods and services increases, so also does the demand for the income-earning resources of the poor. Consequently, the rates of return to the poor's resources rise. Those who are already employed receive higher wages and/or take higher paid jobs; those who are unemployed find work. As their incomes rise, they move over the poverty line. Some economists have argued that a full-employment, rapid-economic-growth policy, vigorously pursued, is sufficient to eradicate poverty without additional programs in aid of the poor. L. E. Galloway [1965] is prominent among those who have espoused such a position. In short, they argue against the existence of a hard core of poverty, untouched and untouchable by national growth.

Against this view are ranged those economists who argue that full employment is merely a precondition for the eradication of poverty, that there exist several groups in society which are relatively or absolutely unaffected by economic growth and full employment. As a result, special programs are needed for such groups. The arguments are based on some combination of three points. First, some of the poor have so few resources that even if they were fully employed their incomes would be inadequate. Second, institutional restraints such as discrimination, job and credit rationing, price fixing, and locational isolation prevent the rates of return of the poor's resources to rise sufficiently to lift them out of poverty. Third, some of the poor, like the female heads of households with small children and the elderly, cannot or should not work. Consequently, their economic fate is unrelated to full employment and national economic growth. A variant of this last argument is that the el-

derly, who receive fixed incomes, are hurt rather than helped by growth because of the accompanying inflation. Some of the empirical research representative of this position is that of Aaron [1967], W. H. L. Anderson [1964], R. X. Chase [1968a, 1968b], R. X. Chase and Laber [1969], and Thurow [1967b].

This body of work does indeed indicate that the incidence of poverty among some types of households is relatively untouched by national growth and full employment. Specifically, the incidence of poverty among households with female heads, with nonwhite heads, and with elderly heads declines more slowly with national economic growth than it does for their opposites. The research also shows that the incidence of poverty among farm households declines more rapidly with growth than it does among nonfarm households. But there is no assurance given by such results that migration from farm to nonfarm status and to continued poverty is not the real result. V. Fuller [1970] reviewed the off-farm migration literature. The issue of how well rural-to-urban migrants fare is complicated and is well analyzed by Fuller. He concludes that the results are too diverse to be subject to any simple summary.

Undoubtedly, the bulk of the poverty-related research by agricultural economists is a variant and an elaboration of this latter or "structuralist" position. The work begins with the historical observation that the incidence of national economic growth and change has not been uniform among sectors of the economy or among geographic regions. Although agriculture has been affected more than other sectors, casual observation indicates a long history of low returns to resources in agriculture relative to other sectors and consequently a concentration of poverty in agriculture. Moreover, there exist specific geographic areas, predominantly rural in nature, that seemingly have been bypassed by growth and change and hence contain a concentration of the poor. We will treat the literature on low returns in agriculture first.

Underemployment in Agriculture

Until the mid-1960s, much of the research on low returns in agriculture was concerned only with aggregate, national farm-nonfarm comparisons. This was because the research was much more concerned with explaining the farm output surplus problem and consequent lower average incomes in American agriculture than with determining why some farm people were poor. Nevertheless, the research has contributed to an explanation of why resources have been "underpaid" in agriculture and hence to an explanation of general poverty in the agricultural sector.

Two distinct but continually merging and recombining streams are recognizable in this literature. One stream has dealt with the problem of measuring the extent to which resources in agriculture are underpaid relative to similar

nonfarm resources. The approach taken in this stream has been to recognize that farm people own and control different amounts and types of human and physical capital and of land than do nonfarm people and that farm people devote different quantities of these resources to income-earning pursuits. Farm income is then adjusted for these differences. Any remaining excess of non-farm income over farm income measures the extent to which resources in agriculture are underpaid.

Willett [1956] appears to have been the first post-World War II researcher to work this stream. He concerned himself with the extent to which the labor of black farmers and farm managers was underpaid. He found that the ratio of their labor income to that of urban blacks in the South in 1949 was 0.31, with no adjustment for age, education, or returns to capital. With these adjustments the ratio ranges between 0.66 and 0.86, depending on the return to capital assumed. D. Gale Johnson's work [1958] was more comprehensive for it dealt with all farmers and adjusted for more differences in resources than did Willett's. Hathaway [1963a, chapter 2] revised and updated Johnson's work. On a national average this work indicates that in 1959 farmers were underpaid by perhaps 15 percent. Equally important, the work shows that a significant portion of the difference between farm and nonfarm income can be attributed to the fewer and lower-quality resources, especially labor, devoted to income-earning pursuits in agriculture.

This type of work culminated in 1967 with a report to Congress prepared by the Economic Research Service of the USDA and entitled *Parity Returns Positions of Farmers* [1967]. This work followed and expanded upon the work done by Tweeten [1965c]. After disaggregating farmers by economic class, the research rigorously showed that it is the rates of return to resources on the very small farms—those with less than \$10,000 annual gross sales—that make it appear that the returns to all resources in agriculture are below those obtainable in the nonfarm economy. Similar work in Canada has been done by Brinkman and Gellner [1977]. All have confirmed the less-sophisticated work done more than a decade previously by McElveen and Bachman and entitled *Low Production Farms* [1953]. This study had identified low returns to resources on small farms as well as diseconomies of size and a lack of capital assets as the sources of inadequate incomes on these farms.

More recent work, such as that by Reinsel [1972], recognized the trend to off-farm work of farmers and the increased share of off-farm income to those with farm earnings, though the ability of low-income farmers to take advantage of this possibility to raise income is often limited by the same factors that hold down farm income.

None of this work addresses the issue of the income agriculture obtains from capital gains on its land and other capital assets, with the exception of

the work on parity returns (USDA, ERS [1967]). They found capital gains to be very important in assessing the parity returns position of farmers. An interesting question is whether the rate of capital gains has been greater on large than on small farms. Larson and Carlin [1974] attempted to take account of the ability to sustain losses in determining the economic status of people with farm earnings. Those able to sustain a relatively large loss in a single year, though with low current money income, could be considered as having a relatively high economic status. Until the size and distribution of income from capital gains on assets in agriculture are estimated, this stream of research cannot be considered complete.

The other stream of research, which as been tangled up with the issue of whether farmers are underpaid, has attempted to explain the observed and seemingly continuous low returns to resources in agriculture. The work is peripheral to the problem of rural poverty because it again focuses on the farm output surplus problem in American agriculture and, clearly, even though returns to resources may be low, farmers need not be poor. But it does provide a dynamic backdrop against which rural poverty can be viewed.

The literature points out that at least in this century aggregate demand for farm products has lagged behind aggregate supply as national growth has proceeded. This has resulted in a secular decline in the relative price of farm products. Accompanying and magnifying these changes have been technical change and changing farm input prices leading to the substitution of nonfarm-produced inputs for farm-produced inputs, capital for labor, and to steadily increasing optimum farm firm size measured in terms of output. As a result, there has been a secular and large decline in the demand for labor in agriculture of all types—farm operator, unpaid family, and hired. These results are all well documented and will not be pursued here.

The more relevant avenue to pursue is why an almost continuous and very large net farm to nonfarm migration since the mid-1920s has not drained enough labor out of agriculture to equalize returns. Economists have offered a medley of explanations, some complex and some simple. These will be covered briefly with, if not the originator of the explanation cited, at least one who has vigorously espoused it. Nonfarm job rationing limiting alternative nonfarm employment combined with differentially large rural birth rates and easy entry into agriculture were cited by Hendrix [1959]. Asset fixity in agriculture wherein it neither pays the owners of resources in agriculture to employ them elsewhere nor to employ more in farming is an important element in the explanations of Glenn Johnson [1958] and Hathaway [1963b]. Lack of full employment and thus an inadequate demand for labor in nonfarm jobs has been argued by many and empirically linked to migration rates by Bishop [1961] and Sjaastad [1961]. Cochrane [1958] offered his treadmill hypo-

thesis whereby the competitive agricultural structure combined with the inelastic demand for farm products and continuing technical change bring about, for all but the early adopters, low returns to their resources. And Tweeten [1969] argued that differential adjustment rates to increasing optimum firm size results in low returns to the resources of those who fail to expand. T. W. Schultz [1975] proposed that the inability to cope with a complex environment is a result of possessing relatively little skill or human capital. Those who do not adjust are those relatively less able to deal with disequilibria.

Although each of these arguments is logically sound and at least potentially mutually consistent, there is no empirical research the authors know of which constitutes very direct evidence in support of most of these hypotheses. In combination these hypotheses present a persuasive rationalization of continuing low returns in agriculture, but there remains the task of determining the extent to which low returns in agriculture contribute to both individual poverty and to area rural poverty. Tweeten [1970] and Tweeten and Brinkman [1976] appear to be the only scholars who have taken the idea of low returns to capital and labor as signals of the need to adjust, along with the idea that some people and areas have not the ability to adjust, and used them as the basis for a theory of poverty, both of individuals and of rural areas. It is discussed in the next section, which deals with growth and area poverty.

Regional and Area Growth and Poverty

Although agricultural economists have taken a structural position vis à vis the relationship between rural poverty and national economic growth, the same cannot be said of the relationships between regional and area growth and rural poverty. Indeed, much of the economic research on rural poverty in the United States has taken the form of investigations of the linkages between regional growth and the geographically concentrated character of rural poverty.

The work on regional development of rural areas began with rural poverty as a central concern and in fact moved in a parallel fashion with Post-World War II political thinking about depressed areas. Levitan [1964] can be consulted for a history of the politics leading up to the passage of the Area Development Act of 1962, as can Cochrane [1965] for a brief review of the Rural Development Program, the USDA's attempt at rural rejuvenation during the 1950s. The work and political thinking in recent years, however, have merged with the general work on the economics of regional growth and settlement pattern policy to the relative neglect of the rural poor. We are here concerned with reviewing the part of the regional growth literature that dwells directly on rural poverty, even though it is difficult to separate a focus on growth from a long-run focus on rural poverty. Persons most interested in the regional growth literature should read John Meyer's review of regional economics [1963].

The intellectual stimulus for the work relating pockets of rural poverty with area growth came from T. W. Schultz's [1950] seminal paper entitled "Reflections on Poverty within Agriculture." Schultz gathered the growth and locational strands of his industrial-urban development hypothesis from economic history and from economic development literature (see Colin Clark's [1940] *Conditions of Economic Progress*, for instance) and placed them together with his about to become seminal ideas on the relationships of growth and capital embodied in the human agent. Growth, in his view, is of an industrial-urban character and occurs unevenly geographically in various growth loci. He postulated that industrial-urban growth made the factor and product markets faced by rural people in the surrounding area more efficient, increased the proportion of the surrounding population that enters into productive activity and increases their capacity to produce (in modern parlance, increases the capital embodied in the surrounding rural population). Pockets of rural poverty, therefore, are postulated to be in the hinterlands of and remote from centers of industrial-urban development and are places where poor people with little human capital are confronted with inefficient product and factor markets (Schultz [1953, chapters 8-10]).

The empirical research stimulated by this complex and dynamic argument has confirmed most of its subhypotheses but has emphasized the labor market as an important transmitter of growth to local rural populations. Nicholls [1961], Tang [1958], and Ruttan [1955a, 1955b] did important work in the South and elaborated the argument substantially. Bishop [1954, 1955] did some theoretical work on the relationships of industrialization and part-time farming but did no empirical testing of his ideas. Sisler [1959], Bryant [1966], and Hathaway, Beegle, and Bryant [1968] used national data and gave a cross-sectional perspective to the ideas. Norman and Castle [1967] while testing another hypothesis about the occurrence of low-income rural areas also tested Schultz's ideas for the Northwest.

If Schultz's analysis is weak anywhere it is in his view that industrial-urbanization is a necessary attribute of growth. Subsequent analysis of the linkages between rural poverty and regional growth, while agreeing with Schultz over the long-pull, points out that for short historical periods demand forces can stimulate regional and local growth (Borts [1968]). Thus, North's [1959] espousal of export base theory and emphasis on a region's natural resource-based industries as engines of local and regional growth for certain periods, typically early in the history of a region, appears to be the explanation for the reported weakness of proximity to industrial-urban centers as a factor explaining inter-area rural income differences in the Plains and Mountain regions. Such an explanation is also consistent with the evidence found by Nicholls and Tang in the South that differences in natural resource endow-

ments played a role in explaining inter-area income differences in the South before 1900.

More recently Katzman [1974], by reformulating the Von Thunen paradigm in neoclassical terms, drew parallels between the spatial variations in resource prices predicted by the Von Thunen principle and those predicted by the urban-industrial impact model. The two predict similar relationships between rural and urban development.

Tweeten [1970] and Tweeten and Brinkman [1976] have attempted a theory of economic stagnation that in its most general form seeks to explain both area and individual poverty. The framework has three elements: (i) The necessity to make adjustments as signaled by low returns to labor and capital. Low returns may be brought about by a number of economic and social forces among which are deficient demand for the products of the community, depletion of its natural resources, technological change, and social upheavals of various kinds. (ii) Characteristics of the community that mitigate against adjustment and thus prevent low returns to resources from recovering. Tweeten and Brinkman identify seven characteristics they believe give communities the capacity to adjust. They are: low birthrates, high education levels, good transportation and communication networks, a "mobility ethic," a culture compatible with areas to which migrants are attracted, few institutional barriers to mobility like racial discrimination, and proximity to urban-industrial complexes. Obviously, the converse of each of these characteristics is hypothesized to mitigate against adjustment. (iii) The adjustments that do take place serve to rationalize insufficient adjustment and, therefore, to inhibit further change. Here Tweeten and Brinkman refer to the deterioration of community social overhead capital that accompanies a continuation of low resource returns within a community. Subsequently, the deterioration results in a lower level of human capital embodied in the residents of the community. This itself impedes mobility of factors and ultimately leads, along with the climate of stagnation, to a set of social and political behaviors referred to by some sociologists and anthropologists as "the culture of poverty." Failure to adjust breeds further failure and a set of attitudes and values that make virtues of immobility, a lack of social organization, and poverty.

This framework has two positive merits. It links the explanation of rural poverty with the pervasive and long-standing low returns that have characterized the important industries in rural areas (agriculture, mining, forestry, fisheries) at various times. And, it provides a scenario by which lack of adjustment to the low returns is translated into area poverty and ultimately to a set of social behaviors and attitudes identified by sociologists as endemic in poverty-stricken rural areas.

Reflection on the ideas embodied in the framework make clear, however,

that what Tweeten and Brinkman have done is to elaborate the Schultzian industrial-urban hypothesis more fully and to set it in a framework that is consistent with export base theory. Clearly, the seven characteristics listed as stimulating adjustment are all characteristics of urban-industrial areas. Clearly also the converses of the seven are all typical of rural, hinterland areas. But, Tweeten and Brinkman [1976] fail to draw upon the stream of literature begun by Schultz. What remains is the drawing together of the two sets of ideas into a consistent whole, investigating the merged theory for new hypotheses and empirically testing them.

Emanating from Schultz's ideas, although by no means unique to them is the policy implication that an important antipoverty strategy is the stimulation of economic growth in low-income rural areas. The strategy has two aspects: (1) that of inducing local industrialization, and that of (2) building those institutions and facilities in low-income rural areas that lead to large investments in human beings and lead to greater mobility of factors: i.e., social overhead capital such as schools, training facilities, libraries, and health and medical facilities. Ruttan [1958] analyzed the prospects for local industrialization, and Maki [1968] drew the implications for investments in infrastructure as a poverty policy from the literature of regional economics. Tweeten and Brinkman [1976] made an important attempt to weave the two together. Suffice it to say that whereas the weight of scholarly research and opinion places high priority on policies to invest in social overhead capital (see N. M. Hansen [1970] for instance), the weight of efforts to induce local growth has been on the side of stimulating local industrialization. Bryant [1969] attempted an analysis of rural industrialization as a poverty policy and expressed pessimism about its efficacy on the basis of his analysis; nevertheless, empirical research needs to be done on the payoffs to the rural poor from local and area growth.

Income Distribution Consequences of Farm Programs

The income distribution consequences of farm programs were a subject of interest in the 1960s and 1970s but apparently not in the two decades following World War II. With the exception of Swerling's [1959] article, we found no research on this topic published in the forties and fifties. Swerling proposed not to support farmers' incomes by prices but only those whose income had fallen temporarily below some lower bound. In general, economists' eyes have been focused more toward the issues of equity and away from those of growth only as the social events of the last fifteen years have unfolded.

The literature is not easily categorized and partitioned, an indication, perhaps, of the experimental nature of the techniques employed and the lack of consensus on appropriate methods for exploring equity issues.

Of the literature concerned with the effects of farm programs on farm income vis à vis nonfarm income, the most important appear to have been commissioned by the U. S. government, perhaps to document the importance of farm programs to farm income as political pressure began to mount against them. These studies are of high quality. They were reviewed and updated by Wilcox [1965] in a study in which he estimated that realized net farm income would have declined by about 50 percent in 1964-65 in the absence of farm programs.

The majority of the work has been on the effects of farm programs on the distribution of income within agriculture. This includes investigations of the distribution of farm program benefits by economic class of farm, by geographic region, and by commodity. Bonnen's work on cotton [1968a], that of Herendeen [1966], and that of Schultze [1971] incorporated equilibrium frameworks of various degrees of sophistication by which changes in supply and/or demand behavior in the presence and absence of price support programs were considered. Herendeen and Schultze both presented estimates of the effects of price support programs on realized net farm income per farm by economic class of farm. Herendeen's results indicate that removal of the major price support programs in 1960 would have reduced realized net farm income inequalities among economic classes of farms for the United States as a whole. However, there are regional anomalies in which the income distribution by economic class of farm would be worsened by removal of farm programs because of specialization among large farms in unsupported commodities. These are short-run results and Herendeen agreed with K. L. Robinson [1965] that the larger farms would regain their former positions in the income distribution in the long-run because large farms supposedly ride out adversity better than small ones.

Charles Schultze [1971] used data from the mid-1960s and a more sophisticated equilibrium model than that used by Herendeen. Again, he estimated the effect of removing price support programs on net realized farm income per farm by economic class of farm. His results confirm Herendeen's and indicate that net program benefits are distributed proportionately with gross program benefits. Both studies strengthen the conclusions drawn in the popular press of the early 1970s from naive observations about how the programs work.

Bonnen's work on the 1964 cotton program [1968a] took into account demand elasticity effects on cotton prices as a consequence of removal of the program and estimated gross program benefits by allotment size, state, region, and for the United States. He found gross program benefits to be between 25 and 50 percent of gross income from cotton production. These benefits are distributed among allotment sizes more unequally than is income among

farmers and farm managers. Furthermore, his estimates indicate that the West has benefited from the cotton program at the expense of the Southeast where the bulk of the farm poor reside.

Bonnen's work on other price support programs [1968b] contained Lorenz distributions and Gini coefficients of gross farm price support program benefits for each of the major price support programs by size of acreage classes. Tweeten and Schreiner [1970] attempted to complete the link between price support program benefits and net income by economic class of farm. They concluded that both direct payments and heightened farm prices due to farm price programs raised the net incomes of commercial farmers by much more than the net incomes of marginal farmers. Since the farm poor are not commercial farmers, farm price programs are biased against the poor. Tweeten and Ray [1975] redid Tweeten's earlier analyses with 1970 data and came to similar conclusions. Tweeten¹ made the further point that while commodity program benefits are proportional with farm output, the extent to which commodity programs alter economics of size also must be factored into the question of program benefit distribution. He contended that commodity programs flatten the economics of size curve slightly thereby reducing the benefits to large farmers slightly. Bonnen found that all price support programs benefit farms with large acreages of the supported commodity at the expense of farmers with small acreages.

McKee and Day [1968] computed Gini coefficients for interstate distributions of gross program benefits for all major programs intended to benefit farmers. They found that 41 percent of all payments made under payment programs intended to benefit farmers exacerbate interstate income inequalities and that 80 percent of the loans made under loan programs meant to benefit farmers worsen interstate income distributions. Grove [1965a] followed by Guither [1969] documented the trends in the distribution among states of the payments on a per farm basis, for the early 1960s. Since the interstate adjustments in the income distribution caused by farm programs could be among affluent farmers, these last three studies are less revealing than Bonnen's.

Schnittker [1970] discussed the income distribution effects of existing and prospective farm programs. He outlined some of the tradeoffs between program cost, net income benefits, equity, and political acceptability.

The Herendeen and Schultze studies attempted to get at the distribution of program benefits on net farm income. However, if program benefits are capitalized into land values, the distribution of land ownership by economic class of farm and by farm and nonfarm owners is the crucial element in determining the beneficiaries of farm programs.

Gardner and Hoover [1975] analyzed the effects of the 1969 federal agri-

cultural commodity programs on the distribution of net farm income. Using states as the unit of analysis and a concept of normal (i.e., "permanent") rather than current cash income, their analyzes showed that the absence of farm commodity programs would have made the distribution of farm income more equal. They explored the impact of allotment and quota programs on the net income to land and reported substantial capitalization of this benefit into land values. The distribution of federal tobacco program benefits to the owners of allotments by capitalization into real estate values was estimated by Shuffett and Hoskins [1969] and by Seagraves [1969].

The Great Plains and Corn Belt gained more from federal farm programs relative to the Northeast, West, and Great Lakes regions. Landowners appear to have gained more than the owners of the other factors of production, according to K. L. Robinson [1965].

Reinsel and Krenz [1972] estimated the capitalized value of farm program benefits by commodities and found that in 1970 they summed to \$16.5 billion, about 8 percent of the value of farm real estate. They saw a wide variation among states, reflecting program uncertainties and differences in human resource alternatives.

Other research deals with nonprice support programs and their effects on farmers. McKee and Day [1968] also computed interstate Gini coefficients for other programs administered by the USDA and meant to benefit all people, such as the needy family food programs, rural housing programs, electric and telephone loans, and the like. They found that all these programs favor low-income states. Herr [1968] studied in depth the characteristics of new borrowers under the various loan programs administered by the FmHA to gauge the extent to which the programs dealt with the rural poor. Of course, the proportion of new borrowers who were among the rural poor varied by program, but the farm ownership and farm operating capital loan programs were least oriented toward the rural poor. Tweeten and Ray [1975] used Herr's data and on the basis of it argued that more than one-fifth of the total volume of FmHA loans went to low-income farmers. In the same study Tweeten and Ray analyzed programs of the Economic Development Administration and expenditures for public elementary and secondary schooling. The former were found to be biased away from rural areas and the latter biased away from divisions and regions with the most rural poverty. Tolley [1959] investigated the impacts of land reclamation programs on agriculture; he estimated that "one worker for every twenty remaining in Southern agriculture has been displaced by Western [land] reclamation—" (p. 180) and noted the consequent substitution of Western for Southeastern production.

Kalter and Stevens [1971] pointed out that the income distributional effects of investments in public resources have not been evaluated on an equal

basis with their contribution to national economic growth. They developed such a model and illustrated its use with a case study of the distribution of expected flood control, water supply, and recreation benefits of a proposed federal reservoir project. The distribution of the benefits to three income classes of residents was estimated. Their model proved useful but emphasized the numerous empirical difficulties and need for improved data.

Infanger and Butcher [1974] applied fiscal incidence analysis to a representative area in the Columbia Basin irrigation project and concluded that the redistributive impact of this public irrigation project was clearly not in favor of lower income groups. D. E. Hansen and Schwartz [1977] examined the income distributional effects of a use-value land tax program for a sample of landowners in Sacramento County, California. To qualify for agricultural use value, landowners agreed to retain the land in agricultural or open-space use for ten years initially. Respondents were categorized by income, and it was found that a relatively large percentage of the after-income tax program benefits accrued to the lower-income groups. The Gini coefficients declined from 0.51 for the preprogram distribution to 0.45 for the postprogram distribution.

T. A. Miller [1974] separated payments made to farmers under the 1972 cotton, feed grain, and wheat programs into a payment to compensate for income foregone on the land diverted from crop production (\$1.9 billion) and an income supplement (\$1.6 billion) to farm income while price support levels are permitted to fall to world market levels. Egbert and Hiemstra [1969] evaluated the effect of giving income supplements to all poor people in the United States (for the purpose of increasing their food consumption) as a way of solving the farm overproduction problem. A \$3.3 billion increase in food stamps would result in about a 2 percent increase in demand for farm products, and the researchers estimated that in 1967 the United States could readily support an increase of 25 percent in livestock products and 15 percent in food grains. They concluded that it is unlikely that people could consume this much.

In sum, studies of the income distribution effects of governmental programs are relatively recent and consequently suffer from the inadequacies of all new work: inappropriate data and the absence of good models. Work of this type needs to be applied to different programs, theoretically improved, and extended. This is an area in which much creative work needs to be done.

Small Farms and Small Farm Policy

Much of the historical and current concern over farm size and structure of American agriculture stems from a concern for that "will-o'-the-wisp," the family farm, and there has been and remains a deep interest in the well-being

of families on the smallest farms. This literature about these farms and about the place of their owners among the rural poor is large.

During the early 1950s there were three major studies sponsored by the U. S. government: *Underemployment of Rural Families* by Wilcox and Hendrix [1951] for the Joint Economic Committee, McElveen and Bachman's [1953] *Low Production Farms* published by the USDA, and *Development of Agriculture's Human Resources: A Report on Problems of Low-Income Farmers* by the USDA [1955] (also see Bachman [1955]). Each identified the poverty stricken in U. S. agriculture by reference to the lower end of the distribution of farms by size of gross farm sales; each identified the attributes of small farms and the families residing on them; and each made recommendations to alleviate the conditions.

The characteristics of farms and farm families are by now well-known: few acres, low capital-labor ratio, low ratio of operating to fixed capital, operators who are poor managers, older than the average age of all farmers or very young, and with little or no formal education or skills useful in nonfarm employment. The recommendations concerning what to do about them are well known also: ownership and operating credit along with technical and managerial assistance for those who are boxed in, health and medical assistance, training for nonfarm employment and relocation assistance for those able to migrate to the nonfarm sector, local industrialization to supply full- and part-time nonfarm employment for some, and in one report a recommendation for governmental purchase of small farms, consolidation, and sale back to the private sector. This last recommendation has been part of public policy in northern Europe and Canada.

Definition of a Small Farm

The term "small farm" lost its unambiguous meaning, synonymous with low income, during the 1970s. In his presidential address to the AAEEA, Stanton [1978] noted that farm size had been of interest since the beginning of the profession and continued to be of interest because of concerns about poverty, the distribution of ownership of farm resources (structure), and the efficiency of farm firms and the farming industry. In the 1970s most research on size focused on economies and diseconomies of size and the control of agricultural resources.

Two phenomena contributed to the diversity in the meaning of small farm. One was the reversal in outmigration from rural areas to net immigration. Many new rural residents retained their urban employment but lived on a small acreage. This allowed them to pursue agricultural interests and if this included sales of farm products they became small farmers. At the same time, there was an increase in part-time and full-time off-farm employment by both the

head and spouse of farm families. By the late 1970s one-half of the farm operators and spouses worked off the farm, and aggregate nonfarm income of all farm families in the United States exceeded farm income eight of ten years in the decade.

The growing public and congressional concern about the small farm issue and structure of agriculture was emphasized in the Food and Agriculture Act of 1977 when Congress authorized extended small-farm research and extension programs at the Land Grant Universities, and required an annual report by the secretary of agriculture on these activities. Within the Economic Development Division of the USDA two major issues were identified within this concern. The first centered on structure, the changes in agriculture that make it difficult for moderate-size farms to compete effectively. The second was the need for small, low-income farmers to achieve higher levels of living. They noted that the tendency had been to identify small farms in terms of sales but that this was not a reliable indicator of total net family income. The sales definition did not allow research or policy discussion to focus on income problems of small farmers or to delineate between structural and low income questions.

The federal Food and Agriculture Act of 1977 used gross sales of less than \$20,000 annually as the criterion to define a "small farm," thus including 70 percent of all farmers. These farmers were small in terms of sales but were not all economically disadvantaged. The total net family income of small farmers so defined was about \$16,000, compared with \$26,000 for large farmers. A profile of the small farm population, based on data from secondary sources, demonstrated that this large population (1.99 million farms) was extremely diverse (Emerson [1978]). Small farms tended to be relatively free of debt, averaged 85 percent of family income from nonfarm sources, and two-fifths of the heads worked off the farm 200 or more days per year. In contrast, 15 or 20 percent of the small farm population fell below the poverty line in 1976, and the 90 percent of all minority farmers who were small farmers tended to be heavily dependent on the farm earnings component of total family income. While documenting this great diversity, Emerson concluded that the appropriate small farm unit of analysis should be the family and their human resources, not the farm business firm. They noted that some small farm operators and their families had very limited or no nonfarm alternatives. Thus the need for a criteria different from gross sales to define "small farmer" in a meaningful way.

For purposes of policy analysis, Wood [1978] found it useful to identify and categorize the heterogeneous small farm population by objective function: what does the farm operator wish to achieve? Limited resource farmers, the largest and first of his categories, are currently operating farm units that consistently fail to generate adequate family income by standards of either the

family or society. The limiting resources can be capital, management, language, education, or market access. Two significant subcategories are those who would like to become larger operators and those who seek an economic opportunity to succeed within the current framework. Each would prefer to depend upon farming as sole source of income. A second category includes many farm families who have turned to off-farm employment as a supplement to farm income. A more recent phenomenon is the use of farming by nonfarm people either to supplement income or to increase net worth. While probably small in scale in acreage or product, this category may not fit more traditional views of family agriculture. Hobby farming, a third category, has traditionally been for those with substantial personal income seeking methods of converting that income into capital gains, but has become more general in both appeal and access. By net farm income standards, many hobby farms would be "small farms." For persons whose objective is a rural life style, the small farm is viewed principally as a rural residence with amenities for family living. Farm life may be enjoyed without dependence upon the vagaries of farm income, and product sales may cover cash costs, taxes, and mortgage payments.

A relatively new type of small farmer in a family unit indicates that economic survival is the objective but does not pay particular attention to income. The purpose is not to maximize income but merely to cover simple family needs. Self-sufficiency is a characteristic. A counterculture category of small farms could encompass some farms already identified, but a small cadre of serious efforts at communes and other economic and social experiments have their own characteristics. Protesting against present economic and social institutions and trying to seek alternatives represent a small but increasing component of small farms. With both producer and consumer support, organic production processes lend themselves to the small farm category. Work by Klepper et al. [1977] suggests, however, that the converse is not true; organic production may be feasible on commercial-sized farms. From a policy perspective, this category may not require special consideration except for proposed changes in market grades and standards. Frequently ignored in discussions of small farms is Wood's final category—the currently functioning family farm operation that is apparently economically viable. The objective function of these farm families appears to be a combination of providing family income while remaining sufficiently small to permit management of resources without either increased risk of capital loss or the possibility of exceeding managerial and family labor capabilities.

Marshall and Thompson [1976] noted that it is important to study small farmers because of questions of their economic viability and efficiency, their vulnerability to price instability, the paradox of using capital- and energy-inten-

sive, labor-saving technology in labor surplus areas in light of environmental concerns, and because of their diversity. They focused on the aspects of farming concerned with human resource development and quality of life, the need for changing institutions, and the social costs of the American agricultural system. They found the quantitative dimensions of the problems faced by small farmers to be blurred by definitional issues and lack of comparability among the major secondary data sources (i.e., Census of Population, Census of Agriculture, and the Special Reports and Current Population Surveys of the Census Bureau). The thirteen southern states were their geographical area of interest.

An early concern of the National Rural Center's small farms project, begun in 1975, was an operating definition of the clientele of interest (Madden [1978]). Its panel of small farmers, academicians, action groups, and federal agency persons included the following concepts of its definition: a) the family must rely on farm income for a substantial share of its livelihood (recognizing that most have off-farm income), b) the family must contribute the majority of the farm labor, and c) family income can be no more than moderate. This was essentially the same definition that was developed in California by a citizen and state agency panel charged with studying the viability of the small family farm in that state (W. E. Myers [1977]). The USDA [1979] has adopted almost the same definition.

Small Farm Characteristics and Extension Education

In 1954 a special grant of \$7 million was made by Congress for more intensive on-farm education in addition to the regular Federal Extension appropriation of \$31.6 million. A national effort was initiated to intensify the agricultural extension process (Rieck and Pulver [1962]). States employed special agents to work individually with farmers to articulate goals, measure their farm resources, and plan action to achieve those goals. Some evaluations of differences among participators and controls were made (D. E. Johnson and Wilkening [1961]). These intensive on-farm programs in many states served as the models for educational programs for small farms in the 1970s. The USDA Extension Committee on Organization and Policy [1967] noted that 70 percent of the nation's farms received gross income under \$10,000 at that time and presented recommendations for effective extension educational programs for small farms. These programs were initiated on a demonstration or trial basis in several states (see, e.g., J. G. West et al. [1975]). In general, the programs made use of paraprofessionals supervised by county or area extension agents (see, e.g., Strickland and Soliman [1976]).

R. L. Thompson and Hepp [1976] used Census data and telephone interviews with a sample of small farms to describe the financial and demographic

characteristics of lower Michigan small farmers for the purpose of increasing the effectiveness of extension programs directed toward small farms. Woodworth, Comer, and R. J. Edwards [1978] interviewed a sample of farmers in west central and south central Tennessee and found basic differences in the characteristics, aspirations, and attitudes of small, part-time, part-retired, and large farmers. They believed these differences to be important in understanding agricultural potential, agricultural program impact, and the future structure of agriculture. Opportunities for increasing farm income of limited resource farmers were identified (Comer and Woodworth [1976]).

Limited resource farmers were reported as a persistent problem throughout Canada, with 40 percent subsisting on total family income below the Canadian poverty threshold in 1970 (Brinkman, Driver, and Blackburn [1977]). Agriculture Canada, the Department of Regional and Economic Expansion, and Provincial Ministries of Agriculture and Food provided programs to help improve their economic well-being. As a first step to providing additional assistance, a study of limited resource farmers was initiated in the mid-1970s. It began with a classification of limited resource farmers in Ontario by general groups reflecting differences in individual and social constraints on behavior, farm resource base, farm and nonfarm employment, and sources and levels of income. It proceeded with linear programming analyses of case farms to describe farm improvement potentials and related financial and public assistance needs, all as targets for public programs for improving the well-being of small farmers. Studies by Blackburn, Brinkman, and Driver [1979], Driver, Brinkman, Blackburn, and Houghton [1979], and Blackburn, Brinkman, Driver, and Wilson [1979] all contributed to this effort in Canada.

Policies and Reorganization

Emerson [1978] identified five highly interactive factors related to the trend toward larger, fewer, and more specialized farms: technology, resource mobility, financing, risk and uncertainty, and public policy. Regarding public policies, he indicated the following might decelerate the current trend toward larger-than-family-size farms: (a) Commodity program benefits could be targeted to small, diversified farms and be made nontransferable, or be eliminated and replaced by an income transfer to all poor farm and nonfarm people. (b) Public research and information could be directed exclusively at small and part-time farming by including diversified farming, labor-intensive technology, and direct marketing as topics. (c) Low-cost government credit could be made available to small farms, or the government might purchase farmland and lease it to small operators. (d) Tax laws could prohibit farm losses to offset nonfarm income, eliminate investment credit for farmers, introduce a graduated proper-

ty tax, or tax the manufacture of size-increasing technology. (e) Vertical integration could be prohibited. And (f) the government could subsidize dispersed rural industrialization to ensure off-farm employment for farm families.

Barkley [1978] noted the nonfarm effects of changes in agricultural technology (and their impact on farm size), including adverse effects on rural communities. Heady and Sonka [1974] reported that the public sector invested \$70 billion in direct and indirect programs designed to reduce the sacrifice made by the commercial agricultural sector during the structural change of recent decades but that little attention was given to the nonfarm sector in rural areas. They studied the impact on major rural nonfarm economic groups of changing the size distribution of farms that make up American agriculture, using a national linear programming model with multipliers relating crops output to income in rural communities and industries. They concluded that a structure of smaller (than typical) farms would lead to greater income generation in rural communities at a relatively modest cost to consumers in higher food costs. A multidisciplinary task force examined family farm issues in California (Madden [1978]). Its judgment was that greater community benefits resulted from family farms than from larger units.

If the income of a farmer is, in society's judgment, unacceptably low and if nonfarm work is not a viable alternative, the principal alternatives are permanent public transfer or increased farm earnings. An early effort to estimate the impacts of improved technology and efficient management on poverty level farms was the study by Back and Hurt [1961]. More recently, the practical upper limit of farm earnings for a sample of small farms in Appalachian Kentucky was estimated through linear programming by F. J. Stewart, Hall, and E. D. Smith [1979]. They found that incomes could be increased substantially by selecting more profitable enterprises and/or by improved technical management, with existing levels of capital. They acknowledged that estimating the costs and benefits of a program to improve the incomes of small farms was complicated, that it was not clear how much could be achieved, nor what the public benefits would be. Their estimates, however, suggested that even a modest level of achievement with such a program may be a very cost-effective antipoverty effort.

Cash Transfers

This section reviews analyses of cash transfers that are conditioned on family income or employment status: specifically "welfare" (public assistance and food stamps), unemployment insurance, public service employment, and social security. The amount of income transferred to the rural sector by these programs exceeds that from rural-specific programs, such as agricultural com-

modity or rural development programs. Although these transfer programs have more influence on the economic well-being of rural people—and especially those with low *earned* incomes—than the more rural-specific programs, they have received much less attention by agricultural economists.

There are two primary research issues regarding these cash transfer programs. The first focuses on eligibility criteria, participation rates, and benefit levels. Except for a concern with lack of coverage of agricultural workers under social security and unemployment insurance, only recently has research focused on benefit levels or participation. Results of this research have revealed substantially lower benefits in predominantly rural states and much less participation in these programs by eligible rural families than among their urban counterparts.

The second major issue is the distribution of benefits among rural families and its effect on rural poverty. As will be indicated below, few studies address this issue, and those that do are quite recent.

Public Assistance and Welfare Reform

Most of the economic analysis of public assistance occurred in the 1970s and was motivated by the prospect of welfare reform; existing programs were analyzed to provide a basis for comparing the antipoverty effects of welfare reform proposals. Agricultural economists were late in entering this relatively new area of research, thus most of the early analysis focused on the U. S. population as a whole, without addressing the differential effects of existing or proposed programs on rural versus urban poverty. A notable exception is Landis's [1949] book in which he reviewed a broad range of services to the rural sector. Citing a 1946 study by the Social Security Administration, he noted that a higher fraction of people age sixty-five and over were receiving Old Age Assistance in nonmetropolitan counties than in metropolitan counties, though their average benefits were smaller. The same observation was made for children in female-headed households under the Aid to Families with Dependent Children (AFDC) program. The data did not permit controlling for eligibility, however, and Landis noted that the higher fraction of beneficiaries in rural than in urban areas may have been due to a lower level of earned income, fewer retirees eligible for social security benefits, and/or the relative inadequacy of the county-level general assistance programs (county relief) in rural areas.

The first definitive research on participation rates of eligibles and benefit levels that focus on urban/rural differences was Green's [1968] work for the President's National Advisory Commission on Rural Poverty. Using the 1960-61 Survey of Consumer Expenditures as a data base, Green estimated the effect on urban, rural nonfarm, and rural farm poverty of the cash transfer sys-

tem (public assistance, unemployment compensation, social security, veterans pensions and compensation, and other public pensions). Fewer poor rural farm families (40-56 percent) received any form of assistance than did rural nonfarm (60-85 percent) and urban families (66-95 percent). Moreover, a much smaller percentage of the rural than the urban poor received aid from the one program that targets most of its money on the pretransfer poor—public assistance, or “welfare,” which includes Aid to Families with Dependent Children (AFDC), Old Age Assistance, and Aid to the Blind and Disabled. Thus, whereas 42 percent of pretransfer poor urban families were pulled out of poverty by the transfer system, only 27 percent of poor rural families were raised above the poverty line. Green’s study was the first to document the “urban bias” in the distribution of public assistance payments. More refined estimates, using later and more comprehensive data bases, generally supported Green’s earlier findings. For example, Lurie [1970] estimated that in 1966 only 10 percent of pretransfer poor farm families received public assistance versus 26 percent of nonfarm families. Carlin, Hendricks, and Christian [1977] estimated that in 1976 farm and rural nonfarm families eligible for AFDC received 70 and 81 percent, respectively, of their share of benefits compared with 118 percent for urban families in metropolitan areas.

At least one study of every major welfare reform proposal since 1969 has analyzed the effects of reform on rural poverty (the proposal of the President’s Commission on Income Maintenance Programs by Lurie [1970], the Family Assistance Plan (FAP) by Hines and Jordan [1971] and by Daft [1970a], the Allowance for Basic Living Expenses (ABLE) by Carlin, Hendricks, and Christian [1977], the Income Supplement Plan (ISP) by Bawden [1977b], and the Program for Better Jobs and Income (PBJI) by Carlin and Ghelfi [1978]). Since each of the proposals differs somewhat, antipoverty effectiveness varies. But the common finding among all studies is that, compared with the current public assistance program, the rural poor would gain significantly more than the urban poor under a universal income maintenance program. This is principally because benefit levels in AFDC are lower in predominantly rural states, fewer predominantly rural states extend benefits to two-parent families under AFDC, more rural than urban poor are in two-parent families, and participation of poor rural families in the public assistance and food stamp programs is lower than that of urban families.

A major concern of policy makers in considering a guaranteed annual income is the potential work disincentive which could result. The work response of rural families to a negative income tax was tested in selected counties in Iowa and North Carolina (Bawden [1970, 1971]). The work effort of rural nonfarm husbands declined only slightly, if at all, and hours worked by their wives declined about 25 percent. Off-farm work of farm families also declined,

which was partly offset by increased hours worked on the farm by husbands and wives (Kerachsky [1977b], Primus [1977], Saupe [1977], Bryant and Hager [1977a], University of Wisconsin, IRP [1976]).

Food Stamps

Although the Food Stamp Program was enacted in 1964, it was operating in less than half of the counties in the United States by 1970, at a cost of \$550 million. During the 1970s, however, benefits were increased substantially, and since 1974 all counties were required to offer the program. By 1976 the size of the program had increased tenfold. It is mentioned under cash transfers because it has become more than a nutrition program; it is the only federal "welfare" program for those ineligible for public assistance—over one-half of the rural poor—and a major support supplement for public assistance recipients. The work on it is reviewed along with other food programs in the section entitled Domestic Food and Nutrition Programs.

Unemployment Insurance

Jointly administered by federal and state agencies, the U. I. Program was established in all states by 1938. Agricultural workers, however, were excluded from coverage. Since the 1950s, legislators have proposed extending coverage to agricultural workers. A lack of substantive information on the effects of extending coverage was the major reason given for rejecting the proposed extensions. Research by agricultural economists on programmatic effects of extended coverage has only been forthcoming since the early 1970s. This research is largely in response to a regional research project mandated by Congress in 1971 (see Elterich [1977, 1978] and Elterich and Bieker [1975a, 1975b, 1976]). Once results of this research became available, policy makers moved to include agricultural workers in all states under temporary coverage through the Special Unemployment Assistance Act of 1974.

The literature in this area was focused on providing knowledge of patterns of agricultural employment, including duration of unemployment and length of job search (Sheppard [1969]), the balance of agricultural to nonagricultural work among multiple jobholders (Holt [1971]), as well as the effects of extension of the U. I. Program to agriculture (Seaver and Holt [1974]). Sheppard noted that income from farming accounts for only a small portion of total income for the agricultural population because 60 percent of farm operators' income and 75 percent of the income of other family workers is earned off the farm.

In January 1978, U. I. coverage was permanently extended to agricultural workers. This extension, in conjunction with differences in U. I. statutes among states, could affect several areas of economic concern (Elterich and

Bieker [1975a, 1975b, 1976]): the costs and locations of agricultural production, the costs of hired workers relative to family labor, the differences in benefits and the corresponding potential influence on interindustry mobility of workers, and labor supply decisions. From a computer simulation of benefit levels and the costs by differences in state statutes, Elterich and Bieker found that significantly different proportions of workers across states would be insured and would become benefit exhaustees. There would be significantly different program costs to employers, and there would be significantly different benefit payments even after cost-of-living adjustments are made. In another study, Elterich [1977] found that U. I. benefits would also vary by farm type, since, for example, fruit and vegetable farms experience seasonal employment peaks and declines whereas dairy and poultry farms tend toward a more even distribution of employment.

There is little in the economic literature on the effects of U. I. on the poverty status of farm workers or low-income rural nonfarm wage earners. U. I. is a form of social insurance and therefore is not intended to be solely for the poor. However, considering the low economic status of the farm and rural nonfarm labor force, it is an important component of the cash transfer system for the poor.

Public Service Employment

In 1971 a national public service employment program (PSE) was formulated to relieve the effects of extensive unemployment. The program was first conducted under the Emergency Employment Act of 1971 and later under titles II and IV of the Comprehensive Employment and Training Act of 1973. As a countercyclical labor market tool, PSE programs are oriented toward the provision of income, employment, and services with the goal of both lowering unemployment rates and providing training opportunities to particular target groups. However, funding allocation for the creation of PSE programs has reflected a strong urban bias. P. L. Martin's [1977] study of the distribution of public employment funds since 1971 found that rural areas did not receive funds in proportion to their total unemployment. He contended that most federal programs are likely to be reactions to problems as they are identified in urban areas. They tend, therefore, to be more responsive to urban needs and use an urban context on which to base administrative requirements. Zimmerman [1975] pointed out that even when federal funds are allocated to rural areas, local decision makers do not always act on behalf of the neediest participants but rather in ways that are politically least risky. This is not, however, a criticism that can be limited to rural decision makers.

Martin also discussed the differing recession employment climates of rural and urban areas, pointing out that in rural areas, where there are fewer poten-

tial employers, exhaustive search for work can be carried out more quickly. The unemployed are more likely, therefore, to drop out of the labor force, leading to a lower measured unemployment rate. The effect of higher proportions of self-employed in rural areas also lowers the unemployment rate since, as Martin pointed out, unemployment rates among the self-employed tend to be low. The consequence is that rural areas may receive smaller PSE allocations because these funds are tied to official unemployment rates.

Social Security

When the Social Security Act of 1935 was adopted, certain categories of workers were excluded from coverage. Self-employed individuals as well as agricultural workers were among the groups excluded since, it was argued, the nature of their work and earnings patterns presented special administrative problems. Literature on social security in the 1940s is primarily concerned with providing arguments in support of broadening coverage to rural farm workers and with presenting survey evidence directed at the issue of equity. Falk and Cohen [1946] pointed to the diminished degree of security provided by smaller farms as reliance on commercial production increased. D. K. Andrews [1945] looked at variability in funding capability between states. He contended that federal matching grants are based on regressive principles; since there is a positive correlation between industrialization and income, poorer agricultural states receive less federal assistance. Other work focusing on the effects of exclusion and the need for equity includes Ducoff [1945], K. H. Parsons [1946], and Benedict [1946]. Parsons's article documents the differences of opinion which existed regarding compulsory coverage of farm workers. Whereas some analysts would extend coverage to all farm operators and wage earners, Parsons favored inclusion of only farm wage workers, with an optional voluntary annuity program for tenants and owner operators.

Empirical research from the 1940s consisted mainly of broad descriptive analyses of such issues as the earnings of agricultural wage workers (Ducoff [1945]), occupational stability as an indicator of adequacy of wages, and the programmatic implications of different definitions of "agricultural labor" (Altmeyer [1945]).

The 1954 amendments of Old Age and Survivors Insurance (OASI) broadened coverage to 3.5 million farmers and more than 2 million farm laborers. Literature during this decade reflects a concern for the effect of OASI on capital formation and movement (Wunderlich [1956]), increases in farm production and investment (Christiansen and Coughenour [1957]), and the practical difficulties of classifying beneficiaries in the program (Ellickson [1958]). Throughout the literature reviewed one notes a consistently standard approach of providing descriptive snapshots of categories of included or excluded farm

workers and attempts to improve upon measurement of their entitlement status and benefit levels. These selections seldom focus on the implications of exclusion in terms of poverty and inequality. Baill's [1955] summary analysis of four surveys of farmers and OASI is notable for including some discussion of the plight of low-income farmers. Baill discovered that most farm operators (excluded from OASI until 1955) were unable to accumulate capital assets in amounts that would provide for their economic security in old age. He found regular farm workers even less economically prepared for retirement than farm operators, with more than 50 percent having no assets other than an automobile or truck. In general, however, concern for the rural poor is noticeably absent in the agricultural economics literature of the past four decades.

In the 1960s and 1970s, there was a continuation of descriptive studies of the farm population in its broadest scope. Literature during this time is almost exclusively limited to studies of selected farming and living patterns and their relationship to OASI (Sampson [1961], L. Nelson [1961], Folkman and Hamilton [1961], Bauder, Duncan, and Tarver [1962], Taves and Hansen [1963], Lukaczer [1965, 1969]). Major issues in these studies included multiple jobholding among covered farm wage workers, comparability of coverage across the categories of farm population, and differential attachment of covered versus uncovered workers to employers. Reinsel [1966] used tabulations of social security and federal income tax returns in his examination of adequacy of farm incomes and variations in earnings patterns by region. Kestenbaum's [1978] effort at extending the methodology developed to ascertain counts of identified farm workers covered by OASI is one of the few selections in the area of social security and rural workers to be found in the 1970s.

Empirical studies on social security can almost universally be described as static descriptions derived from what has admittedly been inadequate data. Blank [1961] pointed out that clarification and specificity are needed in definitions of the farm population and income. The use of divergent definitions by large survey sources (e.g., Census of Population, Current Population Survey, Census of Agriculture) has made systematic comparisons of studies as well as the use of multiple data sources by researchers nearly impossible.

Concluding Remark

As early as 1966, Bonnen observed that "potentially far more important in alleviating rural poverty are the many new programs being created outside the Department of Agriculture" [1966b, p. 455]. Given the growth in income transfer programs since 1966, this observation is even more significant today. As recent research has pointed out, many of these programs are structured to have an urban bias, dispensing disproportionately fewer benefits to the rural poor. If the problem of rural poverty had received more attention by agricul-

tural economists in the past, it is probable that earlier and more comprehensive research would have been generated. This could have heightened the sensitivity of policy makers to the needs of the rural poor and led to a reduction in the urban bias that has characterized these transfer programs.

Rural Labor Markets

It is difficult to identify literature on "rural labor markets" that is distinct from that on farm and hired labor markets. And it is equally difficult to separate the literature on the hired farm labor market and farm labor policy from that dealing strictly with farm laborers' poverty and the policies dealing with it. The former difficulty occurs because until the 1970s there was no literature on rural labor markets, and agricultural economists have done little of the work that does exist. In the latter case the facts that such a large part of the regular hired work force is poor and that most farm labor policies have great income distribution impacts or at least are alleged to have, mean that the two are almost inextricably intertwined.

This section begins with a review of the relatively scanty and more recent literature on rural labor markets. Then comes a small section on off-farm migration. The relatively larger literature on hired farm labor is dealt with next. Throughout an attempt will be made to restrict the focus to that part of the literature dealing with rural poverty.

Clearly, the bulk of the literature on rural as opposed to strictly farm labor markets came in the 1970s from the University of Texas Center for the Study of Human Resources under the leadership of Ray Marshall. Indeed, Marshall's 1971 report to the Office of Economic Opportunity entitled *Human Resource Development in the Rural South*, his book *Rural Workers in Rural Labor Markets* [1974], and the imaginative and comprehensive analysis of primary data on the rural labor markets of four Southern counties by Rungeling, Smith, Briggs, and Adams [1977] constitute the majority of the total work in the area. A subsidiary but nevertheless important review of employment and training problems and programs in rural areas by Leonardson and Nelson [1977] completes the field.

In both the OEO-funded study [1971] and his book Marshall (and his associates) turn to work in agricultural economics regional and community development to get firm handles on the size, structure, and growth of labor demand in rural areas. He concludes: "although agricultural employment is declining in rural areas, nonfarm employment has grown relatively fast, particularly in the nondurable goods manufacturing sector. Moreover, at least in the South, rural manufacturing growth is not an urban fringe phenomenon, because growth has been faster in rural counties fifty miles from SMSA's than in the SMSA's themselves" (Marshall [1974, p. 86]). The jobs afforded by

such nonfarm rural growth are characterized by low skills and low wage rates. Rural whites have benefited more than rural blacks because the growth of nonfarm labor demand has tended not to be in the counties with the heaviest black populations, and because blacks have been discriminated against. Regarding the labor supply side of the market, Marshall paints the usual picture of an excess labor pool, poorly educated, poorly trained, with low skills and too little information. Both the economic forces (low density, remoteness from urban areas, and inadequate local labor demand) and the political forces (lack of interest in training by local business and industry, and political resistance to training for jobs out of the community) impede the creation and development of good manpower programs. The Leonardson and Nelson [1977] review does glean some imperatives from the little rural manpower research that has been done. What becomes clear is that economic development, manpower development, and welfare programs must be orchestrated as pieces in an overall strategy if public policy is to help and not hinder the rural poor.

Analytically more interesting is the Rungeling, Smith, Briggs, and Adams [1977] study. This represents the only serious attempt to analyze econometrically local rural (Southern) labor markets and their income and wealth consequences and to compare them with national and urban studies. Indeed, a reading of the classic Morgan et al. [1962] *Income and Welfare in the United States* along with the Rungeling, Smith, Briggs, and Adams book [1977] is instructive, for they are similar in conception although the rural study delved deeper into such labor economic issues as labor force participation, hours worked, job search, underemployment and manpower training than did Morgan et al. On the basis of a four-county survey, Rungeling et al. found poor health to have powerful effects on rural people's wage rates, labor force participation, hours and weeks worked, and job-search effectiveness. They computed indexes of subemployment that were superior to previous indexes. And they analyzed the participation in training programs and participants' subsequent use of the training received. With respect to the farmer (participation), race, sex, age, and education all had powerful effects while sex, age, and education affected subsequent use. In sum, although one can criticize the authors in places for not using more appropriate estimating techniques (logit, for instance) and for ignoring some similarities (between spouses' work behavior and among welfare programs), the study has set a standard for all future work on rural and farm labor markets.

Both the Rungeling et al. and the Marshall [1974] studies dealt at some length with racial discrimination in rural labor markets. However, neither did the now usual econometric work to estimate the impacts of racial discrimination on wages, hours, job-search, and so on. A better analysis of the issue is

that of Smith, Briggs, Rungeling, and Smith [1978]. The only study directed specifically at racial discrimination in agriculture is the fascinating one by Tang [1959]. He showed that the consequences of discrimination increase as economic growth proceeds.

Off-Farm Migration

The literature on the massive exodus from farming that has occurred in the past sixty years is large and various. Rather than treat it extensively here, we refer the reader to the excellent summaries and reviews by Hathaway [1960], Fuller [1970], and Fuller and Van Vuuren [1972]. The relation between off-farm migration and rural poverty was never made completely clear. Off-farm migration was looked upon as the major device by which incomes of those remaining in agriculture could be raised. In this regard the writers focused on average farm income, noted that improvements had not been forthcoming, and argued for more rapid off-farm migration. (See Fuller and Van Vuuren [1972, pp. 145-148] and Fuller [1970, chapter 4].) What was absent was an analysis of how off-farm migration affected the distribution of income within agriculture, especially with respect to the lower end. Such an analysis has yet to be done.

More work has been done on the welfare consequences of those who left agriculture. Fuller [1970] reviewed this literature extensively and put great stress on two micro studies, one by E. D. Smith [1956] and another by Hathaway and Perkins [1968]. Smith's work pointed to the fact that better information on the types of jobs available in the destinations of the off-farm migrants is insufficient to affect migration. The Rungeling, Smith, Briggs, and Adams work [1977] would confirm Smith's 1956 conclusion that family and friends were the most useful sources of information. Hathaway and Perkins [1968] concluded that the mobility process (they focused on job mobility rather than residence migration) increased the inequality of income distribution between commercial farmers and low-income farmers, between blacks and whites, and between income groups upon leaving farm jobs. Rural poverty may, therefore, be simply exchanged for nonfarm and urban poverty rather than being reduced. Fuller's own judgment [1970] was that off-farm job mobility and residence migration is a very heterogeneous process with very heterogeneous results that are obscured rather than clarified by aggregative analyses. It is clear that much more work is warranted at the micro level, patterned after the Hathaway and Perkins [1968] and Rungeling, Smith, Briggs, and Adams [1977] studies. Much more emphasis needs to be placed on job-search processes, on the role of training supplied by schools, manpower agencies, and employers, and on the employment and income histories of migrants.

Hired Farm Labor

The literature on hired farm labor has a much longer history than that on rural labor, stretching from well before World War II to the present. This literature focuses less on linkages with poverty, however, than does the more recent work on rural labor markets.

In perhaps no other specialty of agricultural economics do the several concepts of rural and the several ways national data are collected cause more trouble than in that on the farm labor market. Fuller and Mason [1977] and Fuller and Van Vuuren [1972] did admirable jobs of explicating the various concepts and analyzing the several statistical series on hired farm labor for conclusions about the size, structure, and trends with respect to the hired farm labor force. Fuller and Mason's conclusions are most succinct:

The aggregate of persons doing some farm wage work is extremely heterogeneous and the market for hired farm labor is characterized by casual employment relationships. Farm labor in the U.S. lacks market structure and is seldom a chosen life-time occupation. Of the nearly 2¾ million who did some farm work in 1974, it was the chief activity for only 695,000. Contrary to popular conception hired farm labor is not dominated by migrants [p. 63].

Fuller and Van Vuuren [1972] go further: "Accordingly, the dominant characteristic of the hired farm labor market is clear. It is an open, ready-access market for the salvage of zero and low opportunity cost time, and its earnings record reflects this dominant characteristic" [p. 154].

The major themes in the hired farm labor literature are: the causes of the continuous excess of hired farm labor in the period covered and the problems that stem from excess labor; the debate over the systematic exclusion of agriculture and of hired farm workers from nearly all the social and labor legislation enacted in this country until 1940 and their subsequent gradual but as yet incomplete inclusion; the impacts of public programs to import seasonal foreign farm labor (i.e., Public Law No. 78 and its predecessor institutions); and the plight of domestic migratory farm laborers and policies dealing with them. A minor theme was that dealing with sharecroppers who have been defined as being part of the hired farm work force. This theme was dropped in the 1950s with the demise of sharecropping as an institution. Since it is a small feature of the literature of the 1940s and 1950s, it will be treated first.

There are essentially three important pieces of work dealing with the sharecropper: Farm Tenure Conference, Committee IV [1949] made up of Vance, Smith, and Clawson; Perlo [1953]; and Day [1967]. Sharecroppers are dealt with by Vance, Smith, and Clawson in the context of a large article on both

hired farm labor and the sharecropper. They argued that the plight of sharecroppers resulted from the same oversupply of labor that afflicts all of agriculture, as well as from their low skills, lack of access to land and financial capital, and the racial discrimination practiced against them. Perlo dealt with sharecroppers in a much more detailed, extensive, and angry fashion in an excellent analysis of the institution from a radical perspective. Day [1967] provided a sophisticated, quantitative analysis of the large role technical change played in the demise of the institution in the United States.

Of the literature on the causes of excess hired farm labor and its resulting social and economic problems, Ducoff [1945, 1949], Farm Tenure Conference, Committee IV [1949], Duffy and King [1946], Weatherford [1957], Hadley [1956], Jones and Christian [1965], Padfield and Martin [1965], Hathaway and Perkins [1968], Tolley and Farmer [1967], Schuh [1968], Schmitz and Seckler [1970], Fuller [1970], Fuller and Van Vuuren [1972], and Fuller and Mason [1977] all must be consulted. What emerges from this literature is a view of the hired farm labor market as the major residual pool of low-skill labor in the economy; this pool is separated into a small regular hired farm work force and a large number of casual seasonal farm workers. A variety of factors have contributed importantly to this condition through time. Technical change (first of a mechanical nature and subsequently chemical and biological) has led in agriculture to the continuous substitution of capital for labor and of high- for low-skill labor throughout the post-World War II period and before. The seasonal aspect of the market creates instability in farm employment. The low skill levels of farm labor along with rural labor markets with few nonfarm jobs (and even fewer with a seasonal employment pattern different from that of agriculture) lowers significantly the annual hours worked by hired farm laborers, resulting in very low annual income. The exclusion of agriculture from coverage by minimum wage laws, Unemployment Insurance, Workmen's Compensation, the Fair Labor Standards Act, and Social Security is alleged to have worsened the excess of farm labor by damming up in agriculture those who did not possess the productivity necessary to make their employment profitable to employers in industries covered by these laws and programs. Racial discrimination, powerful farm employer associations, along with the denial of collective bargaining rights to farm labor and the importation of foreign harvest labor under Public Law No. 78 and its antecedents all were used to ensure plentiful supplies of cheap farm labor and all were alleged to have presented the betterment of domestic farm labor conditions. And high birth rates, little or no investment in the children of farm laborers, and the flow of illegal aliens from the Caribbean basin, particularly from Mexico, continuously replenished the labor pool. The rigorous empirical grounding for these conclusions has been less than adequate, however.

Two sometimes competitive and sometimes complementary prescriptions have been put forward and analyzed to correct the poverty, powerlessness, and working conditions of the hired farm work force, including domestic migratory workers. Indeed, most of the work focuses upon domestic migratory and seasonal labor to the neglect of regular hired farm workers. The first prescription sees the solution as being the immediate inclusion of agriculture and of hired farm workers under minimum wage laws, Unemployment Insurance, Workmen's Compensation, and the Fair Labor Standards Act. The naive version of this prescription focuses solely on the positive effects such programs have upon income, income security, worker health, and working conditions. A more sophisticated version prescribes, in addition, a host of public health, housing, and education programs to protect and augment the human capital of the families of hired farm labor.

The second prescription stresses the negative employment effects of blanketing agriculture under nonfarm labor legislation and opts instead for decreasing rapidly the supply of hired farm labor by a host of training, counseling, and relocation assistance programs along with the development of nonfarm jobs in rural areas. An early version of this prescription was to provide farm labor and especially sharecroppers with access to capital and land so that they could ascend the agricultural ladder to owner-operator status.

More sophisticated prescriptions realized that the inclusion of agriculture under the panoply of social and labor legislation would raise labor costs, stimulate the further substitution of capital for labor and skilled for unskilled labor, and result in a much smaller number of workers employed as hired farm workers. In consequence, training, counseling, relocation, and rural development programs were seen as necessary accompaniments to the inclusion of agriculture under labor and social legislation if the hired farm workers put out of work were to have a means of earning their livelihood.

The literature dealing with policy debates is almost entirely of a qualitative rather than quantitative nature. It begins with Ham [1945] who discussed wage stabilization issues left over from World War II. Duffy and King [1946] and Farm Tenure Conference, Committee IV [1949] represented the two prescriptions during the forties. Duffy and King stressed the inclusion of agriculture under nonfarm labor and social legislation, whereas Vance, Smith, and Clawson spoke to the issues of providing alternative opportunities for hired farm laborers and sharecroppers. In the 1950s L. H. Fisher [1953] dealt with the issues in the context of California, D. G. Johnson [1958] spoke to the issue of farm labor mobility including farm laborers and farm operators, and V. Fuller [1959] analyzed an employment service for agriculture which would serve hired farm workers by finding both farm and nonfarm jobs.

The flow of studies on hired farm labor and migratory labor increased

dramatically in the 1960s, as did all work on poverty-related subjects. Of note are four reports dealing with these issues: National Advisory Committee on Farm Labor [1965, 1967], U.S. Senate Committee on Labor and Public Welfare [1965], and the U.S. President's National Advisory Commission on Rural Poverty [1968a]. In addition, Higgins [1961], Daniel [1961], Lamar B. Jones and Christian [1965], V. Fuller [1967a, 1967b], Aller [1967], Hoffman and Seltzer [1968], and Henry [1969] all analyzed various aspects of the policy and program issues. Of particular note, G. R. Dawson [1965], Hathaway [1969], and Cunningham [1969] dealt with issues related to the regular as opposed to the migratory hired farm work force. And an article by Colberg [1968] along with the subsequent debate it stimulated (Finkel; J. W. Robinson and Walker; J. F. Robinson and Roderick; and Colberg, all in 1970) illustrate the various views held on the subject of the inclusion of agriculture under minimum wage laws. Agriculture was first covered by federal minimum laws in 1967. Three empirical studies of the effects of minimum wage laws for agriculture are the U.S. Department of Labor [1969] study and those of Gardner [1972] and Lianos [1972]. The Department of Labor study concluded that the action led to rising wage rates with no decline of farm employment. Gardner [1972] concluded that the farm wage rate was increased by approximately 13 percent and that this led to a decrease in hired farm employment by approximately 18 percent. Lianos [1972] restricted his attention to southern agricultural workers and found that the employment of hired and family labor fell in response to the introduction of minimum wages in the South. Although more studies are needed to settle the issue, it appears that the predictions of neoclassical theory as to the effects of establishing wage floors are correct.

Notable also in the 1960s was an article by Schmidt [1966] which figured the cost of including California farm workers under Unemployment Insurance and which discussed a negative income tax as an additional supplementary income source. This was the first quantitative analysis of a program for hired farm labor. Bryce [1970a, 1970b, 1970c], Erenburg [1972], and Elterich and Bieker [1975a, 1975b, 1976] all dealt with programs for hired farm labor in the 1970s, the Elterich and Bieker piece being one of the few that attempted to provide quantitative estimates of the impacts of a particular program, in this case Unemployment Insurance.

The final major theme, that of the importation of foreign harvest labor, is now largely of historical interest but was extremely lively over a period in excess of twenty years. Wirtz [1965] provided a good discussion of the history of the importation of foreign farm labor, from its inception as a result of shortages in the labor force during World War II, through the institution of Public Law No. 78 in 1951 which authorized and regulated the activity, to

its abolition in 1964. Hadley [1956] argued that the foreign labor program stimulated the illegal alien problem and increased racial discrimination against Americans of Mexican descent; A. N. Thompson [1956] canvassed the arguments for and against the importation of farm labor. V. Fuller [1959] questioned why the United States simultaneously imported foreign farm labor and sought to find nonfarm job opportunities for its domestic farm workers. Daniel [1961] analyzed the way in which Public Law No. 78 was used to lower the supply of domestic farm workers and to forestall unionization. The U.S. Senate Committee on Labor and Public Welfare [1965] examined Public Law No. 78 and the impact of its lapsing. Lamar B. Jones [1966, 1967] analyzed the impact of Public Law No. 78 from its institution in 1951 to its end in 1964. And V. Fuller [1967b] pointed out that domestic workers did substitute for foreign workers with the lapsing of Public Law No. 78, that wage rates did rise, but that average earnings fell because short-term employment increased. Schmitz and Seckler [1970] estimated the social welfare consequences of the tomato harvester in California in a fine piece of quantitative analysis of technical change spurred by the lapsing of Public Law No. 78.

Part and parcel of the history of Public Law No. 78 is its effect on the Chicanos of the Southwest. In a much needed analysis Briggs [1973] dealt not only with the effects of Public Law No. 78 on Chicanos working in rural areas and on their welfare but also with the effects of other United States-Mexican border and labor policies on Spanish-Americans who live or work in rural America. Briggs dealt extensively with Public Law No. 78, with illegal entrants, especially from Mexico, with Mexican workers who commute across the border on a daily basis, and with the "twin plants program." He argued persuasively that the combined effects of illegal entrants and commuters are to flood the rural and urban border markets with cheap, unskilled labor. He maintained that this keeps wage rates down and unemployment rates up, forcing Chicanos into the migratory farm labor pool. The "twin plants program" is a program whereby American companies manufacture parts in the United States, export them to branch assembly plants just inside Mexico which return the assembled product to the United States for sale. Briggs argued that although the foreign trade laws were passed by the United States and Mexico to provide work for Mexican farm workers at the cessation of the bracero program (when Public Law No. 78 lapsed), actually mostly females have been employed in the branch assembly plants. In consequence, the pressure of excess male Mexicans on the United States border has not been lessened and the presence of the low-wage industrial belt just south of the United States border impedes industrial development attempts on the United States side.

Over the entire history of research on the poverty of hired farm workers, there has been much qualitative analysis, some of it excellent. However, there

has been too little dispassionate, quantitative analysis of the effects of the various programs and policies on the workers themselves, on agriculture, and on the nonfarm economy. Nor has there been any attempt at general equilibrium analyses of several programs together. Correction of these deficiencies seems to be crucial if the current state of the literature in this area is to be advanced.

Human Capital

That an important part of poverty can be explained by a lack of resources in the form of education, training, and health has been, perhaps, the major hypothesis about this topic during the past twenty-five years.² Because of its preeminence in both theory and policy, the major theoretical ideas are first discussed. The research on human capital specific to rural people then follows. Education and training are treated in this section; the work on health is covered in the next.

Human Capital Theory

Human capital is conceived to be any attribute that augments the marginal product of a person's labor or that augments life and therefore the length of time a person is productive. Education, training, health, physical strength, stamina, skill, and, in some circumstances, beauty are all therefore to be considered human capital.

An individual is presumed to invest in human capital until the marginal returns over the remainder of the person's life equal the marginal costs of the capital investment. Since the equilibrium wage rate is equal to the value of labor's marginal product and since a unit of labor is construed to be an hour of labor times the embodied human capital, individuals with little human capital command low wage rates, thus earning low labor incomes. A clear exposition of this view was provided by Welch [1966a]. Becker [1964] and Oi [1962] distinguished between general and job-specific human capital and showed that labor turnover, stemming from either quits or fires, is less for individuals with much job-specific human capital. And Ben-Porath [1967] demonstrated that formal education and on-the-job training are likely to be positively correlated. Thus, not only will wage rates be lower for those with little human capital, but turnover will be higher and periods of employment shorter and less frequent, all of which depresses labor income further.

In a series of studies Mincer [1958, 1962a, 1962b, 1970, 1974], Chiswick and Mincer [1972], Becker [1967], and Becker and Chiswick [1966] examined the income distribution consequences of human capital theory. Becker and Chiswick focus on rates of return to human capital and note that differ-

ential rates of returns for different levels of schooling could be the result of a segmented capital market with several supply curves for capital, one for each different level of schooling. These intersect a single demand for human capital schedule, yielding a rate of return at each intersection. They refer to this as the "egalitarian approach." Or several demand curves for human capital, the number depending on the distribution of native ability in the population, intersect a single supply curve of capital, thus creating a rate of return for each level of formal schooling. This they refer to as the "elite approach." The former view of reality predicts that rates of return decline as formal schooling increases, whereas the latter view implies the reverse. Of course, each implies quite different policy prescriptions. The empirical evidence is mixed: see, for instance, Becker [1964, 1975], Becker and Chiswick [1966], Hanoch [1967], and Carnoy and Marenbach [1975]. On balance, the evidence provides slightly more support for the egalitarian view.

But it is Jacob Mincer who is responsible for the most exhaustive tracing of the implications of human capital for the distribution of income and wealth. He [1974] investigated the implications both for the distribution of mean earnings by age and for the variance in earnings by age in the population. The theory predicts that mean earnings will rise with age and then fall or at least level off, with the rise being more dramatic with increased levels of human capital. More important, the theory predicts a U-shaped age profile of the variance in earnings. Most investments in human capital (formal schooling and on-the-job training) occur early in peoples' careers and for this reason earnings will be low for young people. The variance in earnings at young ages is created by a distribution of young people making different investments in human capital. The variance declines with age, however, as current investment and returns to earlier investments tend to cancel each other out. Later, the variance increases again as returns to previous investments predominate.³ Mincer's analysis also provides the rationale for concluding that on-the-job training (termed experience by Mincer) is a very important contributor to total human capital and to the distribution of earnings. Mincer's empirical work on the earnings of white nonfarm males in 1960 confirmed his hypotheses and showed that at most 7 percent of the variance in the earnings of a random sample of white nonfarm males can be explained by the distribution of their education. However, at the "overtaking age" (the age at which the returns to previous investments in education are about equal to current investment) approximately one-third of the variance in earnings can be attributed to schooling (Mincer [1974, p. 17]). And about 50 percent is explained by the distribution of schooling and post-school investments together.

The major countertheory to human capital is the screening or signaling hypothesis. See Spence [1974] for a rigorous treatment of the framework

and application to a broad array of issues. The view of the screening hypothesis is that schooling simply identifies and ratifies productivity, it does not augment it. What makes formal education worth the cost is that employers, in the absence of prior knowledge about productivity of potential employees, use education as a "screening" device. In contrast, individuals are aware of their individual productivities and use education as a means "to signal" productivity to potential employers. The empirical implications thus far deduced from the screening hypothesis are identical to those deduced from human capital theory with one exception. It is that the self-employed have no use for education if the screening hypothesis is correct. This is because the self-employed, being employers of their own labor so to speak, do not have the same information problem possessed by employers of other people's labor. In consequence, the rate of return to education of the self-employed should be zero or at least should be lower than for wage and salary workers, and the self-employed should have lower mean levels of education than wage and salary workers. Wolpin [1974] compared self-employed with wage and salary workers and found similar school completion distributions and similar rates of return to schooling. Wolpin's findings, therefore, provide confirmation for the human capital rather than the screening hypothesis.

Another major theme in the human capital literature is the debate over ability versus education. This is the genetics versus environment debate in statistically sophisticated new clothes. Griliches [1977] and Welch [1975] both give excellent summaries of the progress of this particular literature. Two major points emerge. One is that, in an attempt to hold all the relevant factors impinging on ability constant so as to remove the bias from the estimated effect of education, one can easily overcompensate and introduce still greater bias. The other point is that, even with ability controlled for, education continues to contribute importantly to income.

It is finally to be noted that the idea of human capital arose first in the economic literature in the context of growth, not income distribution. T. W. Schultz [1950, 1951, 1956, 1960, 1961a, 1961b, 1961c, 1962a, 1962b, 1962c, 1963, 1964a, 1964b, 1965a, 1965b] focused the attention of both economics and agricultural economics on human capital as one of the important "unconventional" contributors to economic growth. See L. R. Martin [1963] for an excellent early analysis of the potential of human capital in agricultural and rural development. This first focus upon human capital in the growth context and on growth as the solution to rural poverty (Schultz [1950, 1951]) partly explains the relative lack of empirical research on the income distribution implications of human capital for rural poverty. It is also true, however, that since education is a community-supplied good with many public good attributes, agricultural economists perhaps have regarded it as

something for rural sociologists and public finance economists to be concerned with. Tweeten and Brinkman [1976], however, provided an excellent review of the empirical literature on the economics of education as it applies to rural America as well as to the issues of financing rural schools.

Human Capital in the Rural Poverty Literature

Indeed, with the exception of beginning discussions of education as a contributor to growth, it was rural sociology and agricultural education which were responsible for the early post-World War II literature on rural education. Little of it referred directly to rural poverty. A volume edited by Butterworth [1945b] contains analyses of and guidelines for rural school curricula, finances, and criteria for consolidation and redistricting. Beers, Ford, and Montgomery [1957] analyzed rural education and the educational status of rural people and noted the high positive correlation between the education of commercial farm operators and the economic class of farm they operate. They also found that rural education is less than equal to urban education in every aspect (salaries, budgets, school size, enrollments, drop-outs, progress in grade, etc.) and pointed out that the results of these inadequacies are visited upon urban areas through rural to urban migration. Their solution was to reiterate support for school consolidation, and federal support for rural education. The more recent work by Sher [1977] raised serious doubts about the justification for very large-scale school consolidation. He cited evidence that as rural schools are consolidated, higher transportation costs more than offset any further savings in administration or other sources of economies of size. Tweeten, Lu, White, and Holland [1974] confirmed this finding and showed that transportation costs push per-pupil costs up faster the more sparsely settled the population. Furthermore, Sher [1977] found no evidence that large-scale consolidated schools provide higher educational quality than do schools of somewhat smaller size.

Much use was made of the 1960 Census, various Current Population Surveys, and other surveys by sociologists and agricultural economists in conducting farm-nonfarm analyses of the education and schooling status of the population, including schooling status, progress in grade, drop-outs, enrollment, and college intentions and attendance (Folkman [1961], Nam and Cowhig [1962], Cowhig [1962a, 1962b, 1963a, 1963b, 1963c], Hathaway, Beegle, and Bryant [1968], and a collection of studies in Burchinal [1965]). All these studies showed that though progress was made toward equality with the urban population from 1950 to 1960, equality was not reached. They also showed southern whites and nonwhites lagging behind their northern counterparts. Few similar analyses appear to have been done after the 1970 Census. Clift, Anderson, and Hullfish [1962] published an excellent treat-

ment of black education in the United States and the implications to that date of the 1954 Supreme Court decision on integration.

This stream of literature was advanced by the Coleman et al. report entitled *Equality of Educational Opportunity* [1966]. The report utilized a national survey of school children and school facilities done in 1964 and focused upon questions of the extent and effects of segregation and discrimination in the nation's schools. Of interest in the present context is the authors' finding that nonmetropolitan Southern school facilities were deficient (with respect to resources per student) relative to the nation as a whole and that black schools in the South were even more deficient. These studies of a sociological nature, along with work on the occupational achievements process, were summarized and updated by Haller [1968]. Haller also placed some emphasis on the factors that affect educational achievement. He concluded that "the rural southern and southwestern blacks are clearly the students who are least prepared for satisfactory achievement in the modern occupational structure" [p. 159].

Despite the accumulated evidence that rural and especially rural black schools in the South were deficient in almost all school facility and teacher attributes, the work of Coleman et al. [1966], M. Smith [1972], and Jencks et al. [1972] concluded that it is the socioeconomic background of the students rather than school facilities, teachers, and programs that account for most of school achievement. After controlling for socioeconomic and racial characteristics of students, school achievement differed only in quite minor ways among rural, city, central-city metropolitan, and suburban metropolitan students. Such results have been confirmed in studies by Armor [1972] and Tweeten, Lu, White, and Holland [1974].

Price [1971] appears to be the only scholar who studied the trends in the 1960s of schooling status, progress in grade, drop-outs, etc., for rural people, and his work was concentrated in the South. He found that during the 1960s the gap in education levels between rural southern blacks and whites increased, whereas it narrowed for the urban South.

Schultz [1964a] marshaled the sociological and demographic evidence with respect to rural people to show that investment in rural farm children lagged far behind that in urban children, and investment in rural black children lagged even farther behind. His explanation of the underinvestment included discrimination, a lack of knowledge of the returns to education, a lack of resources to invest, and a low demand for investment in education owing to rural people's bias toward land and away from people. The policy implications he drew were to reorient agricultural college curricula and research toward the social sciences; to augment rural adult education; and to invest more in rural schooling and in research and extension programs on education.

Hines's [1969] work on the determinants of current school expenditures per student by state shed some light on Schultz's hypotheses. It substantiated the belief that state and local aid to education is biased against nonwhites and low-income people, whereas federal aid to education is biased against rural people and high-income people. Hines did not examine North-South differences in state and local versus federal aid to education.

Not until the 1970s was experimental work done on the effects of welfare programs on the educational performance and aspirations of poor rural children. Middleton, Haas, and Haas [1977] analyzed teenagers of families in the Rural Income Maintenance Experiment (RIME) and found that participation by their parents in the experimental welfare program had no effect on their aspirations and expectations with respect to school or their school attitudes and behavior. Similar results were found with urban teenagers in a similar experimental welfare program (Middleton and Allen [1977]). However, Maynard and Crawford [1977] and Maynard [1977], operating within a human capital framework, studied the school performance of children of parents participating in the RIME. The school performances of North Carolina children in elementary school improved, whereas those of Iowa children and teenagers in both states did not. The conclusion is that although welfare programs may have positive effects on the school performance of young children, the behavior of teenagers is unchanged.

Policy recommendations, other than those for consolidating schools and increasing federal and state aid to education and to training, have been scarce. Tweeten and Brinkman [1976, chapter 5] pointed out that per-student transportation costs are the crucial determinant of optimal school size in sparsely settled areas. Bishop [1965] argued for direct cash payments to induce poor farm youths to stay in school. As well as a carrot for farm youth, Bishop suggested a stick for their parents in the form of lowered welfare payments to families with children who are truants or who drop out. Another suggestion is to increase the rigor and quality of rural schooling and to let the long-run results demonstrate the high payoffs (Tweeten [1967]). Proposals to reduce inequities among school districts caused by the dependence of school funding on local property taxes were summarized by Tweeten and Brinkman [1976, chapter 5]. These proposals are more comfortably discussed from a community development perspective and are not discussed here.

The interrelations between education and the labor market in the context of Southern development were discussed at several conferences sponsored by the Agricultural Policy Institute in the early 1960s. L. R. Martin [1961] showed that the ratio of white to nonwhite incomes in the South rose more quickly with years of school completed than in the rest of the United States.

Nicholls [1962], L. A. Thompson [1962], and Schaller [1962] reviewed recent social and economic history in the South and the role played by education. Bishop and Tolley [1962] projected employment by industry for the South under alternate education assumptions. Rosen [1962] discussed the changes in the demand for labor by skill and education levels owing to post-World War II technological changes and considered the possibilities of the then new Manpower Development and Training Act of 1962. Weisbrod [1962a, 1962b] suggested that the payoff to increased labor market information is high and that education may have a higher rate of return in the South than elsewhere. Mincer [1962a, 1962b] argued that the high rate of return to education in the South may be the result of relative occupational immobility and an excess of poorly educated people in the South. Consequently, on-the-job training may have a higher payoff in the South than further investments in education. T. W. Schultz [1962a] questioned the ability of the farm population to adapt to the high rate of technical change and offered the hypothesis that an important part of depressed income was attributable to low levels of education. Gisser's work [1965] clearly linked rates of adaptation of agriculture to education.

J. E. Williams [1965] reported that racial discrimination, states rights, and a philosophy of rural fundamentalism had caused the South to lag behind the North in the initiation of Manpower Development and Training Act (MDTA) programs. Mayberry [1965] reported on an MDTA project run by Tuskegee Institute which attempted to teach arithmetic, reading, and vocational skills to a group of farm people who were unlikely to migrate. McGuinness [1968] focused on the Elementary and Secondary Education Act of 1965. He argued that most of the funds were being expended on children in grade six or less and that the findings after three years of experience were that more reading and mathematical skills needed to be taught, more racial integration achieved, and physical impairments in the children determined. A. W. Martin [1968] described the integration of vocational educational programs and local economic development programs in South Carolina. Finally, F. Ray Marshall [1971], in a piece unconnected with the Agricultural Policy Institute, reviewed rural to urban migration experience, economic development programs, manpower development and retraining programs, and manpower relocation projects all during the 1960s and all with respect to the possibilities of alleviating rural poverty. He concluded that economic development will supply an inadequate number of jobs for rural people; that rural education should reduce the emphasis on vocational agriculture and home economics and introduce in their stead training for nonagricultural jobs; that federal standards need to be set to force the upgrading of rural schools and to reallocate funds to black schools. Finally, he judged the rural-to-urban

mobility and relocation projects during the 1960s a qualified success but doubted that any benefit-cost study would confirm his judgment.

A small but very important thread in the human capital literature is devoted to weaving the relationships among quantity and quality of rural education and the inputs into the rural educational system. Welch [1966a] distinguished between the quality and quantity of schooling, attempted to decompose the two from earnings profiles of rural farm males in 1959 and to relate the measure of schooling quality to various measures of inputs into rural education systems. He found teacher salaries augment quality as does low teacher/student ratios. Work by Stinson and Krahmer [1969] with North Dakota data support Welch's conclusions. Welch [1967] used a subsample of the same data he had used in his 1966 study and a model of racial discrimination (which differed significantly from Becker's path-breaking work [1971]) in an attempt to break down the nonwhite/white rural farm income differential into the part due to differences in ownership of physical capital, the part due to discrimination against nonwhite physical labor in the labor market, the part due to discrimination in the form of inferior quality of schooling among nonwhites, and the part due to inferior quantity of schooling among nonwhites. This is the only work of which the reviewers are aware which attempts an empirical study of racial discrimination in rural areas.

The major criticisms of Welch's [1966] work (by Martin and Rivlin) are that partial equilibrium studies of rural farm people in isolation from urban people and markets introduce large biases into empirical estimates. The same criticism can be leveled at Carroll's work [1969], which estimated the first rates of return to rural education. Carroll used a sample of rural people in ten Southeastern counties and found the rates of return no higher than other estimates after account is taken for differences in technique (see, for instance, Hines, Tweeten, and Redfern [1970], Hanoch [1967], Becker and Chiswick [1966], Becker [1964, 1975], and W. L. Hansen [1963]). Since the rate of return was estimated only for rural people in ten Southeastern counties, both rural-to-urban migration and inter-regional migration due to education is denied. Thus rates of return may be importantly biased downward. This is a species of bias on which Welch [1975] and Griliches [1977] have concentrated. Although not directed to this issue and concerned mostly with the question of spillovers of the benefits of education from rural to urban areas, the Hines and Tweeten [1968] work linking migration and education does support the hypothesis that rates of return calculated on the basis of a rural sample neglect the return to education which occurs indirectly because education also stimulates rural-urban migration.

The most thorough investigation of the relationship between human capital and rural poverty has been done by Tweeten [1967] and Tweeten and

Brinkman [1976]. In addition to synthesizing the available literature linking education both to rural poverty and to rural area growth, they identified the importance of education to both occupational mobility and to rural-urban migration. They also identified a number of areas of fruitful research. Among these are: establishing rates of return to rural education so as to include the payoffs to occupational mobility and rural-urban migration; researching the determinants of educational quality; determining the incidence of the costs and benefits for increased education of rural youth including spillovers accruing to urban areas receiving rural migrants; evaluating special education programs for rural youth; pursuing the economics of vocational education; and searching for incentives to increase the educational attainment of rural youth. These topics with few exceptions (see, for instance: White and Tweeten [1973], Bieker and Anshel [1973, 1974], Boisvert and Mapp [1974], Gisser [1968], Holland [1974], Kiesow [1973], Rosenzweig [1976, 1977]) have not been dealt with since Tweeten's work was done; none have been resolved; and none have been diminished in importance by subsequent events. Tweeten's research agenda, then, unfortunately remains current some twelve years after it was put forth.

Health Status, Health Service Facilities, and Health Programs

The research on rural health status, facilities, and programs in large part has nothing to do with rural poverty. Rather, it is concerned mostly with the problems of delivering health services to people dispersed in space. Cordes [1975] argues that "rural persons typically live in small communities or in the open countryside and at a considerable distance from larger population centers. The special problems created in delivering services due to this type of settlement pattern are problems of availability, accessibility, and choice" [p. 2]. These problems are visited upon the rural poor and nonpoor alike. In consequence, the entire literature in the rural health field might have been reviewed or, alternatively, none of it might have been reviewed. A middle course has been attempted here, namely, reviewing the major items on health status and then concentrating on the pieces that appear to apply more directly to the rural poor than to other rural people. In recent years several excellent reviews and treatments of rural health have appeared and can be turned to for more general coverage. These are: Cordes [1975, 1977], Cordes and Lloyd [1978], Kane and Westover [1975], Kane, Dean, and Soloman [1978], and Hassinger and Whiting [1976]. These cover all the social science research on rural health, whereas the present review attempts to review the narrower economic literature.

The social sciences have generally neglected the linkages between health

and the poverty of rural people; moreover, economists and agricultural economists have been unusually absent from this field. Rural sociologists, planners, and social workers have been by far the most active. Economists are latecomers, appearing in any numbers only in the late 1960s and 1970s. Most of what is reviewed in this section, therefore, has not been done by economists or agricultural economists. Nonetheless, the themes and issues have substantial economic content.

In the 1940s Mott and Roemer [1948] as well as Ensminger and Longmore [1949] made use of national data on morbidity, mortality, and life expectancy, as well as of Selective Service data on medical conditions of men rejected for military service during World War II, to trace the trends in the health of rural and urban people and to identify their health problems. Both sets of researchers found that in 1900 life expectancy was longer and mortality and morbidity lower among rural than urban people. By 1939 urban health conditions had become equal to the rural and have surpassed them in the aggregate ever since.⁴ The mechanization of agriculture, the fact that public health services are an urban phenomenon, and the greater incidence of poor nutrition among rural people are all factors cited as responsible for the trends. In addition, Hollingsworth, Klem, and Baney [1947] put together another valuable statistical sourcebook on the receipt and costs of medical care as they relate to family income for both rural and urban people. And a USDA Interbureau study [1945] discussed the health problems of rural people: few physicians or hospitals, poor sanitation, and weak public health and welfare programs.

None of these studies presented cogent and coherent economic analyses either of the health problems facing rural people or of the conditions bringing them about. Although the concept of supply was relevant and used by these writers, the sociological, and perhaps medical, concept of need replaced the concept of demand. However, this was not a special defect of the work on rural health but premeated the entire health field. Not until the development of human capital theory and its application in the modern economics of health was this to be partly rectified.

The policy issues of the 1940s as reflected in the literature on rural health revolved around: the debate about compulsory health insurance brought about in part by the introduction of the Truman Bill (Stillman [1949], G. W. Bachman and Meriam [1948]); prepaid medical plans and voluntary group health insurance for farmers (McVay [1947], Mertz [1947]); child health services (Hubbard, Pennell, and Britten [1948]); and attracting physicians to rural areas (F. A. Humphrey [1947]). None of these studies did much more than to cite national statistics and engage in literary discussions of the issues. Bachman and Meriam [1948], interestingly enough, did argue that rural health problems were intractable and that only economic growth and migration

would solve them. These two themes reverberate through all the literature on rural poverty and continue to be at the forefront.

In retrospect, the program of major importance instituted during the 1940s was the Hill-Burton Act of 1946, which financed the spread of county hospitals across the United States (and, of course, of racially segregated ones throughout the South). It is interesting that the literature review threw up no discussions of this landmark act during *or* after its passage in the 1940s.

There were few changes in the kinds of analyses of rural health conditions during the 1950s. Several studies were regional (Cobb [1951]) or local (Anderson and Alksne [1957], Garnett [1954]). Several others dealt with Indian Americans, historically the most important of which was a U.S. Public Health Service study [1959] which recounted the history of attempts to provide Indian Americans with health services.

Policy issues and analysis on them ranged from rural health cooperatives (H. L. Johnston [1950], the Hill-Burton Act (Roemer [1951], McGibony and H. L. Johnston [1954]), and compulsory and voluntary health insurance (Frothingham [1950], Hay [1958]) to facilities and services for Indian Americans (L. J. Marsh [1957], Perrott and West [1957], Shaw [1957]). This literature continued to rely on national data, did little other than to present the data, and engaged in muted advocacy of a particular side of the particular policy or program under discussion.

Output of research on rural health and poverty more than quadrupled during the 1960s as witness to the social concerns of the 1960s. Furthermore, there began to be research of a theoretical nature, postulating or questioning causal relations and testing or estimating them empirically. In this regard Hurley [1968] used rural and urban data from New Jersey to investigate the relationship between mental retardation and poverty. Straus [1965] argued that rurality, poverty, and ill health were all causally interconnected. Enroth [1967] studied the supply of physicians to poor rural areas (Eastern Kentucky) and tried to isolate the factors that encourage physicians to remain in such areas and the incentives to induce more physicians into rural areas. W. H. Stewart [1965] contrasted the health conditions of the rural poor in less- and well-developed countries. Krakowski, Werboff, and Hoffnar [1968] computed income elasticities for health expenditures by education and concluded that most of the effects of rurality are really caused by poor education and low income. In another analysis Turk [1969] showed that the population size of rural communities is important in mediating the relationship between health needs and the supply of health services. And Tucker [1968] argued that while a whole set of demand shifters are expanding the demand for health and medical services in rural areas, the supply of such services is severely con-

strained. Rural health policy should be concentrated on the supply side, therefore. Finally, a truly large number of studies linking fertility and rural poverty appeared. Prominent among these are the Beegle [1968] and Hathaway, Beegle, and Bryant [1968] work on inter-county rural fertility differences, Campbell's [1968] calculations of the net benefits from preventing a birth, Jaffe's [1968] work on fertility attitudes of the rural poor, and Whitney's [1968] fruitless across-country attempt to discover a positive correlation between welfare payments (including family allowances) and fertility.

At the national level the 1956 National Health Survey was used by Beirman [1961] to survey health needs by income. Eichhorn and Ludwig [1966] employed national data to link poverty, rurality, and race with high morbidity. And Cowhig and Stewart [1960] used the 1956 survey of farm family living conditions to examine cross-tabular relationships among medical expenses, health insurance, age, income, source of income, education, and race. Roemer [1968] surveyed national statistics about rural health conditions and discussed the programs in place to meet the problems. Goldbloom [1965] did a similar study for Canada.

The health conditions and problems of the aged and, in particular, the rural aged came under study during the 1960s. Alleger [1966] studied rural Florida families and found that the aged lacked the means to pay for health care. Youmans [1961b] linked the health status of the aged in Kentucky with poverty and rurality. And the Agricultural Marketing Service published a study (Cowhig and Stewart [1960]) based on the 1956 survey of farm family living which related the medical expenditures of older farm families with family size, race, region, income, and education. Evident in all the analytical work during the 1960s was an increase in the sophistication of empirical analysis as well as a greater focus upon particular groups of rural people.

Of course, work on health policy issues and the rural poor also exploded during the 1960s. Levitan [1969] should be consulted for an overall evaluation of health programs funded by the Office of Equal Opportunity. Larsen [1963], Sellers [1966], Gilbert and O'Rourke [1968] and P. Booth [1968] all focused upon various aspects of the health of farm workers, Workmen's Compensation, and accident insurance. Larsen and Sellers worked with national farm accident rates and interstate coverage of farm workers by Workmen's Compensation. Booth studied the benefit, claim, and contribution experiences of farm workers under California's disability insurance program. Gilbert and O'Rourke [1968] also looked at the California experience and concluded that the way to improve the health and health coverage of farm workers was through collective bargaining in which accident and disability insurance was part of the bargain. H. L. Johnston and Lindsay [1965] and

Lindsay and H. L. Johnston [1966] discussed the role of the Migrant Health Act of 1962 in alleviating some of the health problems of migrant workers and their families.

Many case studies of rural community health projects financed privately, by unions, or by the Office of Economic Opportunity (OEO) were published during the 1960s (e.g., Andrus [1968], Bost [1966], Carter [1967], Draper [1960], Lesser and Hunt [1968], and Manny [1960]). Most are descriptive and of a hortatory nature. Little appears to have been done in the area of Indian health (Wagner and Rabeau [1964]).

Research output in the rural health field during the 1970s continued at the fast pace of the 1960s. The analytical and statistical quality of the studies improved greatly, and the work on health policies was much more informed by economic theory.

Reminiscent of the general analyses of the previous decades was that of Doherty [1970] who used national morbidity, mortality, and health services data to argue (as did Straus [1965]) that morbidity, rurality, and poverty were intertwined. More representative of the work in the 1970s was Lefcowitz's [1970] too simple but much more sophisticated analysis which used similar data to determine whether poverty is the result of ill health or vice versa. He concluded that the former is the correct view and argued on that basis that poverty policy should concentrate on increasing the health services supplied to poor people.

Herman [1972] isolated the interesting fact that the poor use hospital services more than do the nonpoor, whereas the nonpoor use the services of physicians and dentists more than do the poor. Aycock [1970] reviewed the supply of health services and health professionals in the rural South (mainly in South Carolina) and argued that the Hill-Burton Act has supplied rural communities with sufficient facilities but that the supply of health professionals is lacking. These two studies taken together with that of Feldstein [1971] suggest that capital in the form of hospitals has been substituted for physician labor in the rural health field, raising the productivity of physicians and lowering that for facilities beyond that warranted by the demand. E. D. Charles, Jr. [1971, 1972] investigated the regional distribution of physicians and the various incentive schemes used to attract physicians to rural areas. He concluded that the efforts have failed because the small supply of doctors gives them unlimited locational choice.

Feldstein [1971], Beck [1974], and Kerachsky [1977a] all did very interesting work on the effects of various public programs upon the demand and utilization of health services and facilities. Feldstein's work concentrated on the Medicare program and used interstate data to explain the interstate variation in the proportion of enrollees with supplementary insurance, hospital admissions, extended care admissions, and health insurance benefits. Income,

urbanity, race variables allow conclusions to be drawn about the impact of the Medicare program on the rural poor. It is the only known instance of an empirical analysis of a national health program in which empirical implications for rural poor may be drawn. Beck's study of health insurance in Saskatchewan revealed that the requirement of a copayment from the patient reduces the demand for health services by the poor by 18 percent. Kerachsky, using experimental data from the Rural Income Maintenance Experiment, sought to estimate econometrically the consequences for health status and health services utilization by the rural poor of a negative income tax type of welfare program. It is, to our knowledge, the only study outside the nutrition field in which the linkages between welfare programs and health have been plumbed.

The work of Ream [1971] and Kolodrubetz [1974] concentrated on the health of farm workers. The former brought up to date the research on the still scanty coverage of farm workers by Workmen's Compensation, and the latter rediscovered the fact that farm workers and the self-employed (including farmers) continue to be the occupations least covered by group health insurance plans.

Two other policy studies in the 1970s deserve mention. The first, by C. Edwards and Doherty [1971], used a queuing model of hospital services demand in a multicounty rural area in Michigan to determine that there are sufficient hospital beds to meet peak load demands only if all the hospitals cooperate fully. The latter, by Kushman [1977], redesigned the Index of Medical Underservice used by the state of California to identify communities lacking health services so as to correct biases in the index against the rural and nonwhite disadvantaged.

The work since 1970 on the health aspects of rural poverty has had much more economic content, has been much more problem and policy specific, and has been much more analytical and empirical than previous research. All of this is to the good. It remains true, however, that typically the work directly relating to poverty has not been done by agricultural economists. In the 1970s economists interested in welfare policies and labor policies replaced the rural sociologists, planners, and social workers who had done the work previously.

Studies of the incidence of the benefits of health programs like Medicare, Medicaid, and the several alternative national health insurance schemes need to be made with particular emphasis on the rural poor. Little or nothing of a systematic nature is known of the determinants of health status in general and with respect to the rural poor in particular. Research on the relative effectiveness of nutrition, public health, and health services in altering the basic health status of rural people in general and specifically the rural poor is crucial. In the absence of such research, the justification of the concentration on increasing health services must rest on equity grounds alone.

Housing

The literature on the economics of housing in rural areas and in particular of housing occupied by the rural poor can be characterized by the same terms as those used to characterize the housing the rural poor occupy: scraps and pieces. And because it is focused upon rural areas in general, much of the housing literature has only tangential reference to the rural poor. This section reviews the little there is of it.

It is fair to say both for the United States and for Canada that the work of the 1940s and 1950s on the economics of housing of the rural poor was almost entirely composed of general surveys of rural housing conditions and surveys of housing legislation relevant to rural areas. Pieces by Beyer and Rose [1957], Burroughs [1948], and Grayson [1950] were typical of this material for the United States, and L. C. Marsh [1949] provided the descriptive set piece for the 1940s and 1950s for Canada. The Grayson piece was an excellent summary of housing policy in the United States during the twentieth century through to the Housing Act of 1949. It also evaluated the legislation in terms of equity and the coverage it provided rural people. Grayson concluded that the housing programs of the 1940s were biased against rural areas because of the structure of the programs, inadequate mortgage credit, and a high-cost rural construction industry.

There was a continuation of descriptive studies of rural housing conditions in the 1960s. Representative of these were studies by Bird, Beverly, and Simmons [1968] at the national level and based on 1960 census data; by Yeager [1962] for the Cotton Belt; by Spurlock [1968] for the Ozarks using 1960 census data as well as sample data; and by W. P. Janssen [1966] for the prairie provinces of Canada. And a U.S. Department of Health, Education and Welfare study [1969] of 8.5 million welfare recipients investigated their housing conditions. It noted but did not emphasize the greater percentage of rural Southern recipients with inadequate housing. In all of these, rural housing was found to be inferior to urban housing in quality as measured by the standard indexes—presence of plumbing, running water, and whether dilapidated—and the poor quality was highly associated with low income.

In the area of housing policy, D. Williams [1966] reviewed the legislative history of rural housing loan programs of the Farmers Home Administration from the 1949 Housing Act to the Demonstration Cities and Metropolitan Development Act of 1966. This can be put together with the Grayson piece in 1950 for historical perspective from the turn of the century to 1966. Malotky [1969] updated the history to 1968. Montgomery [1967] provided a similar historical review relevant to the housing needs of the rural aged.

Appearing for the first time in the 1960s was a small set of studies concen-

trating on the supply side of the housing market. Stimulated by the War on Poverty, several pieces appeared on self-help housing, or "sweat equity." Of a descriptive nature were studies by Laidlaw [1966] for Canada, Margolis [1964] for the United States, and Margolis [1967] for the Caribbean, Canada, and the United States. Of a somewhat more analytic nature was a piece by Shenkel [1967] who analyzed 500 self-help constructed structures in southern, eastern, and midwestern states. The analysis suffers all the defects of program evaluations attempted with *ex post* data collected on the program and with no control group. In five studies, J. R. Hurst, Rose, and Yeager [1961]; Rose, J. R. Hurst, and Yeager [1961]; Spurlock [1968]; D. Williams [1966]; and R. L. Hurst [1969] looked at the sources of housing credit in the South and estimated the total cost of upgrading the quality of rural housing. In the Williams study, a comparison was made between rural home buyers who had and had not used FHA credit. None of these studies dealt directly with the rural poor but, of course, the overlap is substantial.

Also appearing in the 1960s were a few studies of the housing of migratory workers. The bulk of the work is of a political, legal or sociological nature with very little economic content. An article in *Farm Labor Developments* (U.S. Department of Labor, Manpower Administration [1968]) did present a general discussion of migratory housing, the regulations pertaining to on-the-job aspects of migrants' housing, and the government programs for improving such housing. Brann [1968] provided a descriptive analysis and a survey of the state and federal regulations pertaining to on-the-job housing of migrants. And Reno [1970] gave a major emphasis to migrant housing in a 160-page treatment of farm housing for the Rural Housing Alliance.

The rural housing trends and conditions stream in the literature was continued by R. E. Freeman [1970], who presented an excellent historical analysis along with urban, rural, and farm comparisons of housing quality, housing starts, and credit. The link between low income and poor housing was reaffirmed along with the historically consistent lower quality of housing among farmers than among other rural people at comparable levels of income. In contrast, utilizing multiple regression methods, Spurlock [1970] found that among rural Ozark families neither house tenure nor farm residence status affected quality of housing after income, education, and occupation (white collar, blue collar, etc.) are held constant.

Also concentrating on housing conditions were reports by Owens [1972] on rural blacks in Texas, by R. Bird [1973] on the proportion of rural poor with deficient housing, and by D. N. Johnson [1970], who computed housing deficiencies for Oregon welfare recipients some of whom were rural.

Spurlock [1971] studied the credit market in the Ozarks and concluded that conventional lenders do little to swell the quantity of mortgage credit in

the area by utilizing available government programs. Typical of findings for other areas in other times was his conclusion that rural people have limited access to long-term, low-equity, amortized loans.

The best of the work in the 1970s, indeed of the entire post-World War II era, focused upon the impacts of the Rural Income Maintenance Experiment on the housing decisions of participants. In this study, A. C. Johnson, Jr. [1977] found that families receiving experimental welfare payments of the negative income tax type bought more homes, bought them earlier in the life cycle, and probably purchased higher-quality housing than did families in the control group. Expenditures for home improvements were unaffected by the receipt of experimental welfare payments. An excellent critique of this study by Michael [1978] is contained in Palmer and Pechman [1978].

The housing market faced by the rural poor may be characterized by low demand because of the poor's low income; a thin or absent credit market, again partly because of the poor's poverty; probably widespread racial and sex discrimination, especially against blacks, in both credit and land markets; a tiny rental market; and a very thin, low quality construction industry largely a result of the sparse settlement pattern. Although the link between income and housing has been confirmed repeatedly as has the absence of adequate credit, there has been little hard economic analysis of the housing and credit markets faced by the rural poor, of how public credit and construction programs impact on them, and of the distributional consequences of the programs. Hardly any research has been done on what appears to be the commonest substitute for a cheap house, the mobile home, even though casual observation confirms that mobile homes are the almost ubiquitous private solution to the low-cost housing problem in the rural United States. Meeks [1979] presented the first analysis of the demand for mobile homes. It, however, is seriously weakened by lack of appropriate data.

Consumption Patterns

That the rural poor's expenditures on items other than food and housing has been little studied is partly a result of data inadequacies. Most of the work done in this particular area is a product of the late 1940s and early 1950s, and the 1970s. Both the early and the more recent work seem to be stimulated by the availability of good bodies of data as well as by policy-induced debates within economics.

In the late 1940s and early 1950s the focus of the work was upon the consumption function arising out of the work of Keynes [1936]. Brady and R. Friedman [1947], Cochrane [1947], Cochrane and Grigg [1946], Duesenberry [1949], M. Friedman [1957], and Reid [1952] all utilized data col-

lected during the 1930s and early 1940s to estimate consumption functions for rural farm people as well as for farmers as a separate class. The rural poor were included simply as data points at the low end of the income distribution. All these studies confirmed that the average propensity to consume falls as income rises and thus contributed to the literature on the emerging relative and permanent income hypotheses.

In the studies by Cochrane [1947], by Cochrane and Grigg [1946], and by Pennock and Speer [1949], Engel curves for a variety of expenditures were estimated for rural families *and* farm families. Although the rural poor were not singled out for special study, these studies do confirm the notion that Engel curves for items commonly considered "necessities" do flatten out at lower income levels than for those commonly considered to be "luxuries"; i.e., "necessities" become inelastic at lower income levels than do "luxuries."

It does not appear that the expenditure patterns of the rural poor were studied explicitly until the Holmes [1964], Pennock [1964], Weisgerber [1966], and Carlin [1971] studies. The first used the 1961 Survey of Consumer Expenditures, whereas the second and third studies each used samples of families from low-income rural areas. The Holmes work provided added evidence in favor of the permanent income hypothesis. Pennock's work confirmed the hypothesis that home-produced goods and services form a higher proportion of total consumption for low- than for high-income people. And Weisgerber found house tenure, family size, and source of income to be major determinants of expenditures. Carlin analyzed the effects of welfare payments on expenditures.

The Rural Income Maintenance Experiment, which applied experimental negative income tax type of welfare payments to a large group of Iowa and North Carolina families, stimulated most of the consumption expenditure work done in the 1970s. Hager and Bryant [1977a, 1977b] found that rural recipients of experimental welfare payments used them to purchase clothing in much the same way that they used income earned by the wife, suggesting that the rural poor regard clothing in part as an investment and thus allocate transitory income to augmenting clothing stocks. In two portfolio analyses Bryant [1977a], and Bryant and Hager [1977b] investigated the effects of experimental welfare payments on durables, nonreal estate debts, liquid assets, and farm operating capital of rural wage-working and farmer participants in the experiment. Over the long run an increase in income maintenance payments induced families to increase their holdings of durables, cars, liquid assets, and their holdings of nonreal estate debts to both financial and non-financial institutions and parties. Black families had larger absolute responses in part because their initial holdings were much lower than white families. In a study of the household capital / labor ratios of poor farm families, Bryant [1976] found that the ratio increased with both increases in income and

wage rates. These findings are consistent with those of Pennock [1964] and with other work on the economics of time. Kerachsky [1977a] investigated the utilization of health care and the state of the health of participants in the Rural Income Maintenance Experiment. Recipients of the experimental welfare payments were expected to utilize health care facilities and to be in a better state of health than families in the control group. Experimental effects on these two variables turned out to be very weak or absent. All the Rural Income Maintenance Experiment studies of consumption have been critiqued by Michael [1978].

Two other studies of the consumption patterns of the rural poor during the 1970s are those of Sturdivant and Cocanougher [1974] and of Newton [1971]. The former utilized data from two small towns in Texas and California, whereas the latter used data on the rural poor in Oregon. The Texas-California study concluded that low-income consumers in small towns suffer less from discriminatory merchandising practices than do the urban poor because the same stores service both rich and poor in small towns. Newton tested hypotheses about the rural poor's consumption and search behavior from the perspectives of both conventional economic theory and from radical theory. Her conclusions were that the consumption behavior of the rural poor conform with that predicted by conventional theory.

Much more needs to be learned about the consumption and saving patterns of the rural poor. In particular, we need to find out about the marginal propensities of the poor to augment both their net worth and their human capital. Poor households seem to behave in their consumption patterns little differently than economic theory would suggest. Thus, the hypothesis of a "culture of poverty" which radically separates the consumption patterns of the poor from those of the rich may be taken to be false.

Domestic Food and Nutrition Programs

Although agricultural economists and economists have not been prominent investigators of the linkages between rural poverty and health, they have long been interested in food and nutrition policy and programs: the Food Distribution Program,⁵ the School Lunch and Breakfast Programs, and the other nutrition programs operated at one time or another by the USDA. As might be expected, the initial interest of agricultural economists was engaged by the prospect that such programs could operate to support farm prices and incomes. Only in later years has the economic research addressed questions that arise only if one regards such programs as part of the panoply of poverty programs. Between agricultural economists and economists there has been some specialization: agricultural economists have addressed questions of the nutritive

value of such programs and of participation, and economists have addressed questions of the economic value of such programs, issues of equity and efficiency, and how food programs relate to other welfare programs. The work is reviewed here because it represents the one instance in which agricultural economists have engaged in extensive research on poverty policy and programs, albeit not on rural poverty specifically.

With the exception of the Gold, Hoffman, and Waugh [1940] analysis of the original Food Stamp Plan, the Southworth and Klayman [1941] evaluation of the School Lunch Program, and the Sullivan [1942] document on the Relief Milk Distribution Program, the published literature on domestic food and nutrition programs is contained in the post-World War II period. It is also true that with the exception of a minor theoretical error and the subsequent filling in of theoretical and empirical details, Herman Southworth's article [1945] entitled "The Economics of Public Measures to Subsidize Food Consumption" stands as the landmark piece of research on the subject. In it he raises the major issues of in-kind welfare programs, and in particular food programs, and subjects them to analysis at both the household and the market level. From his analysis a number of threads in the literature may be traced.

The major thread followed by agricultural economists before the 1970s is that of the impact of such programs upon the food sector. J. D. Coppock [1947] provided the first major analysis of this question. The most rigorous analysis of the aggregate food demand shifting potentials of programs like the Food Stamp Program was done by Wetmore, Abel, Learn, and Cochrane [1959]. Their analysis provided the empirical basis for dismissing such programs as a politically feasible major price and income support program. Frye [1962], Havas and Frye [1963] and Havas [1964] did analyses of the effect of the Pilot Food Stamp Program on retail food sales. Mittelhammer and West [1975] used an indifference framework to analyze the link between participation in the Food Stamp Program and the demand for food. West and Price [1976] analyzed the effect of food programs on food consumption and derived the effect on food consumption of income from food programs. This particular thread ends with Nelson and Perrin [1976] posing the more general question of the impacts of the Food Stamp and School Lunch Programs on national income accounts.

Another thread pursued by agricultural economists, typically in conjunction with nutritionists, has been the measurement of the impacts of food programs upon the diets and nutritional intakes of recipients. Southworth [1945] presumed, as have most economists, that it was sufficient to rely on a presumed high and positive correlation between food expenditures and the nutritional content of recipients' diets. The results of analyses of the various food consumption surveys by USDA since that time should have effectively

dislodged this notion. Reese and Edelson [1962] used data from the Pilot Food Stamp Program to estimate the quantities of nutrients purchased by participating families. They also directed a similar study of recipients in two Mississippi counties (USDA, ARS [1967]). Madden and Yoder [1972] used twenty-four-hour recall data to determine the differences in nutritional intake by Pennsylvania families participating in the Food Distribution Program, the Food Stamp Program, and families not participating in either. J. F. O'Connor, Madden, and Prindle [1977] examined the same question with the same technique with respect to experimental negative income tax payments. Lane [1978] estimated the levels of nutritional achievement of food programs on California families. Feaster and Perkins [1973] compared the diets of families in the Expanded Food and Nutrition Program with those who were not. And Matsumoto [1970] argued that education programs might be a better means than food programs to raise the nutritional adequacy of the diets of the poor. Wunderle [1971] evaluated the nutritional consequences of the Pilot Food Certificate Program. By far the most ambitious and rigorous attempt at nutritional evaluation of the consequences of food programs has been undertaken by a team of agricultural and home economists in Washington (Price, Hard, et al [1975]). Their analysis was of the School Lunch and School Breakfast Programs. Further work in this direction must pay close attention to the techniques and methods used and developed by this team. Refinements of their methods might be used to pursue the nutritional consequences of the Food Stamp Program further. Future work also needs to be fully aware of the validity of the twenty-four-hour recall technique in collecting nutrition intake data. Madden, Goodman, and Guthrie [1976] and Gersovitz, Madden, and Wright [1978] need to be consulted in this regard.

The final thread identified by Southworth [1945] attacks a set of public finance and welfare economic questions about food programs: questions of participation, of the equity and efficiency of the programs isolated from other programs, of the equity and efficiency of food programs in conjunction with other poverty programs, of the net economic benefits of the programs to recipients, of the impacts they have upon recipients' consumption patterns, and the impacts of particular programs' rules and regulations on the consumption and work behavior of both eligible and recipient families.

With respect to participation, two issues have been raised. Since most food programs are or were voluntary at the local level, there is the question of why some local jurisdictions (typically counties and school districts) do not choose to extend the program to their residents. Given that a local jurisdiction extends a food program to its residents, the second question is why do some families and individuals choose not to participate. Of course, these two questions must be answered in assessing the effectiveness of food programs. Southworth [1945] did not deal with the first of these two issues. While there may

be unpublished, internal agency documents of the jurisdiction participation questions, the only published analysis deals with the School Lunch and Breakfast Programs (Price, Hard, et al. [1975]). The second question (participation by families and individuals), Southworth [1945] dealt with only briefly. Bryant [1971] developed the theory of participant demand functions and published some empirical work on participation in the Food Stamp Program (Bryant [1972a, 1972b]). Nelson [1972] analyzed the determinants of participation in the Food Stamp Program in Michigan counties. Smith and Roe [1978] investigated participation in the Food Stamp Program among hired farm workers. West and Hoppe [1973] did innovative work on the School Lunch Program by examining the price elasticity of demand for school lunches. Love [1969, 1970] analyzed participation in the Food Stamp Program and the School Lunch Program in St. Louis and in Missouri. Sexauer, Blank, and Kinnucan [1976] analyzed participation in the Food Stamp Program in Minnesota. Seagrave [1975] investigated the effects of the 1974 recession on participation in the Food Stamp Program. Holmer [1976] has done the best econometric time series analysis of the participation question at the national level, and it is to his work that future econometric work on food program participation must refer. He was the first to recognize that the participation question is one of the determinants of a "rate." Consequently, his econometric model was phrased in terms of differential equations. MacDonald [1977] in his admirable book on the Food Stamp Program addressed and answered the question of nonparticipation in the Food Stamp Program at the household level: a large part of family-to-family variance in participation has to do with the purchase requirement and stamp allotment schedule which makes it not worthwhile for the least poor of those eligible to participate. The question must be reopened now, however, since the purchase requirement has been eliminated. Using the Family Income Dynamics data, Coe [1977] found results suggesting that lack of information about the program may explain the lack of participation among some groups. However, the major determinant of participation found by all studies is the unemployment rate. This finding plus the fact that the Food Stamp Program is the only federal program open to all Americans solely on the basis of need makes it a very important welfare program in the United States fulfilling a function it was not originally intended to have.

The net benefits of food and nutrition programs have been addressed by a variety of people in a number of ways. Forscht and Platt [1976] estimated the income distribution consequences of the Food Stamp Program. Coppock [1947], Paarlberg [1963], Hoover and Maddox [1969], Segal [1970a, 1970b], Clarkson [1975], Price, Hard, et al. [1975], and MacDonald [1977] all wrote extensive general analyses and evaluations of one or several of the programs. The last three mentioned are technically the most developed.

In his original piece, Southworth [1945] offered a theoretical argument which would overestimate the cash value of the subsidy embodied in the food subsidy. MacDonald [1977] presented an excellent summary of the empirical studies of the welfare benefits of food stamps done by Galatin [1973], Smolensky, Steifel, Schmundt, and Plotnick [1974], Smeeding [1975], and Clarkson [1975, 1976], along with his own estimates. Similar work on the other food programs needs to be done. Also, since the purchase requirement of the Food Stamp Program has been eliminated, the work on the welfare benefits of the program needs to be redone. Theoretically, unless there is "stamp illusion," the current design of the program makes it identical to a cash income maintenance program from the standpoint of recipients.

An interesting issue of some policy importance is that of the effects of food subsidies on nonfood components of recipients' budgets. The only work to address this question was that of Hu and Knaub [1976] who found that food stamps induce some substitution of food expenditures for housing expenditures. Such a finding, if confirmed for other food programs or for the Food Stamp Program under present rules, raises important questions about the interrelations among in-kind programs as well as between food programs and cash welfare programs.

Most of the attention of analysts has been on the equity and efficiency consequences of the payment schedules of food programs. Many equity and efficiency questions also arise out of the treatment of income and assets in the determination of eligibility and out of the treatment of income on the basis of which payments are made. Such issues as whether current monthly income or a weighted average of recent months' income is used to determine program eligibility and the extent to which family assets are used as part of the basis on which eligibility rests alter both the horizontal (e.g., farm, non-farm) and vertical equity of food programs as well as the target efficiency of the programs. The only work of this sort has been done by Peskin [1975], who analyzed the distributional consequences of altering the shelter deduction in the Food Stamp Program. Also, little attention has been paid to administrative, operating, and outreach efficiency and equity of food programs. An exception is the Bendick, Campbell, Bawden, and Jones report [1976], which addressed these questions with respect to the Special Supplemental Food Program for Women, Infants, and Children (WIC). Much more of this type of work needs to be done.

Little if any of the work on food and nutrition programs has concentrated upon the rural poor. From work like that of Sexauer, Blank, and Kinnucan [1976] it is known that the rural poor participate in food programs at lower rates than do urban poor. P. L. Martin and Lane [1977] found food stamp benefits per poor person to be lower in rural than in urban counties. Equity

considerations require these issues to be pursued and the reasons revealed. It is also not known whether there are differential rural / urban nutritional impacts of the program on recipients. Much more work needs to be done on the cross-commodity (food and nonfood) effects of food and other in-kind welfare programs on both rural and urban people. It would be ironic if the net effect of all the in-kind programs was to cancel out each of the individual program effects.

Finally, a major defect of the work on food programs by agricultural economists is that although their discussions of the theoretical impacts of food programs have been good, their econometric work has been less than adequately informed by the theory. The consequence of this has been the introduction of biases of unknown size. A case in point is the theoretical work by Mittelhammer and West [1975] and the econometric work by West and Price [1976]. The former study was an in-depth discussion of the theoretical impacts of the food stamp issuance schedule on consumer behavior—a discussion which clearly recognized the interdependencies among income, family size, and the food stamp subsidy. Yet these interdependencies were not subsequently recognized in the otherwise excellent econometrics of the latter work. Welding such program detail with detailed econometrics will extract the best from both modern institutional economics *and* modern econometrics.

Conclusion

Within each section of this review, judgments have been made about which directions in future rural poverty research would be the most fruitful. It remains, then, for the conclusion to provide an overall review of the field.

The literature on rural poverty has followed rather than led the public policy debate on the different issues. Since this is a weakness of all the social sciences, agricultural economics cannot be indicted specifically. It also seems to be true that those areas within the literature which most closely abut traditional fields in agricultural economics or abut active areas in economics are the most advanced. The field of small farms and small farm policy is one case in point. It has developed naturally out of the work on economies of size and scale that has been a major thread in agricultural economics almost since its inception. Likewise, the cash transfer issue, although quite foreign as an issue within agricultural economics, has generated a reasonably advanced but small literature with respect to the rural poor, in part because of the flood of work in labor economics and public finance on the issue.

The rural poverty literature interlocks greatly with that on rural development, so much so that in some instances the two are inextricable. A number

of presuppositions could have been responsible for this intertwining. One is a continuation of the view that poverty is simply a detail of lack of growth. Another is that agricultural economists have been much more concerned with the fate of rural communities and with the farm sector than with the fate of the particular people that happen to inhabit them at any one time. This latter view is certainly consistent with the historical emphasis on outmigration as a farm policy. Or there has been a basic failure to distinguish between the permanent and the transitory poor and the appropriate policies for each. The latter group simply needs temporary income supplementation in the form of welfare programs based on an income criterion. The former group, the permanent poor, needs income supplements as well as resource investments if its members are to be removed from the ranks of the permanent poor. The resource investment may need to take place either within the community in which the person resides or within the person, depending both on the person's characteristics and those of his or her community.

Fundamental work must be done in further defining permanent and temporary poverty, in learning about the characteristics and determinants of each, in discovering the extent to which these determinants can better be addressed by national and rural growth policies, or by human resource programs, and in determining whether the human resource programs are more effective when targeted directly to the rural poor or when targeted at rural people generally. Gardner's [1975] work on a full-income measure of poverty is critical and needs to be pushed much further. It cannot be pushed, however, until we have longitudinal panel data on rural households so that the life-cycle income streams can be discovered and used as the basis proper for "full" or "permanent" income and "transitory" income computations.

The literature in some areas has progressed little throughout the post-World War II period. Rural housing and health are two prominent cases lying far from the center of agricultural economics; hired farm labor is another problem area within the traditional scope of our profession. The lack of studies of rural as opposed to farm labor markets is especially important. Early work by Nicholls [1961], Tang [1958], and Ruttan [1955a], that arose out of the industrial-urban development hypothesis needs to be joined with the more modern concentration on labor force participation, hours and weeks worked, determinants of wage rates, and on the work on job-search and training by Rungeling, Smith, Briggs, and Adams [1977] and by F. Ray Marshall [1974].

Much of the prescriptive writing in the field has been less than adequately informed by underlying empirical work. Similarly, the empirical work has been too much characterized by descriptive analyses which are tangential to program formulation and appraisal. Recently, there have been more instances of policy prescription and analysis that have been more informed with empiri-

cal analysis and of empirical analysis that is more directed toward questions relevant to policy formulation, analysis, and appraisal. This needs to happen much more frequently. It requires economists who are willing and able to perform rigorous theoretical analysis of questions, programs, and policy alternatives; to translate economic hypotheses into econometric hypotheses and then collect the data to estimate and test the latter; and, equally important, to translate scientific results into prose accessible and useful to the public and public decision makers.

Notes

1. We are indebted to Tweeten's review of the manuscript for this point.
2. Lest economists be more than usually arrogant in imagining this hypothesis to be uniquely their own, it should be pointed out that Coleman and his associates [1966] are sociologists and social psychologists and that the basic idea of human capital lies at the heart of child psychology.
3. Paraphrased from Welch [1975].
4. Only Scobie [1972] has suggested recently that health conditions may be worse among inner-city residents than among rural people. He cites data from Harlem to support his contention.
5. Initially named the Commodity Distribution Program and presently operating only in a few local jurisdictions.

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