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Decomposition of Income Distribution Among Farm Families

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The greater reliance of U.S. farm families on off-farm income has implications for the (structure of agriculture and the distribution of income within agriculture. Using annual data on farm households from the Current Population Survey, the degree of income inequality for the x ,j5 and by region is assessed for 1984. The distribution of income among farm families is decomposed by income source. Off-farm income is shown to contribute to higher average " incomes and reduce income inequality at the margin, but only in regions where full-time farming predominates. In the Northeast and South, increases in off-farm income increase regional income inequality.

Decomposition of Income Distribution Among Farm Families

Many farms in the U.S. continue to earn low net farm incomes. This result has occurred despite programs to control the supply of agricultural commodities in the U.S. and despite changes affecting the structure of agriculture that have led to significantly fewer farms over time. While some farm families leave agriculture in response to low or negative net farm incomes, many farmers choose not to exit agriculture altogether despite financial difficulties. Instead, it has been observed that many farm families continue to farm, but rely heavily on income from off-farm employment to provide an income supplement. Employment of farm family members in one or more off-farm jobs has allowed many small and medium-size farms to continue in operation.

For all U.S. farm families, off-farm income has comprised an average 60 percent of farm family income since 1980. The greater reliance on off-farm income witnessed in recent years has resulted in numerous studies attempting to define the determinants of off-farm labor participation, the characteristics of off-farm jobs, and the role of off-farm income in the farm family's income portfolio (e.g., ISumner; Huffman; Kada; and Tweeten; among oth-

ers). Important policy issues have also been raised. Given the dual dependence of many farm families on both farm and off-farm incomes, it has been argued that in addition to traditional farm programs, rural development policies and programs facilitating rural nonfarm employment are needed (OECD). The principal beneficiaries of rural development policies that encourage off-farm employment would be farm families operating small or medium-size farms, i.e., those farms more likely to earn low or negative net farm returns. It has been argued that these farms, which represent the majority of farms operated in the U.S., are less likely to benefit from traditional commodity programs (Cochrane).

To formulate appropriate policies to aid farm families, it is clear that an understanding of the composition of incomes earned by farm families is necessary. In addition, the potential impacts of changes in earnings from different sources should be understood, particularly in terms of the impacts on income distribution among farm families. Thus the principal objectives of this paper are (1) to assess the contributions of off-farm employment to the incomes of families that work off-farm and (2) to determine the distributional implications of income earned from off-farm employment for major regions of the U.S.: the Northeast, South, West and North Central regions.¹ Ahearn, Johnson, and

¹ The Northeast region includes the New England division and the Middle Atlantic division as defined by the Bureau of the Census. Similarly, the North Central region includes the East North Central division

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Strickland showed that increasing off-farm incomes result in a more equal distribution of income among U.S. farm families, in general. This may or may not also be true at the regional level. It is reasonable to expect that regional differences in the effects of off-farm labor income exist due to regional variations in the proximity and types of non-farm employment and in the character and structure of agriculture between regions. Hence, regional variations in the relative contributions (and distributions) of incomes from off-farm work and from farming may exist.

This paper first examines the average contributions of incomes from farming and from off-farm employment for farm families in which both spouses are employed off-farm, families in which only one spouse has off-farm employment, and families with no off-farm work. The distribution of income among farm families is then analyzed for the U.S. in total and by region. The distribution of income within each region is decomposed by income source to determine the effects of increases in income from alternative income sources on regional income inequality. The focus is on the relative distributional effects of income from off-farm employment, and on the implications of these effects for policy.

Variations in Farm Family Income

The Current Population Survey (CPS) conducted monthly by the Bureau of the Census was used as a data source to examine the effects of earnings from alternative sources on the income portfolios of farm families. The CPS data include detailed income, employment, and demographic data for a sample of U.S. households, including farm households. Income data for farm families surveyed in the 1979 or 1985 March CPS were used; incomes in the 1979 and 1985 CPS refer to 1978 and 1984 earnings. Families with both spouses present that reported net farm income and residence on a farm were defined as farm families.

The reported 1978 or 1984 incomes of these families were disaggregated into (1) net farm income; (2) off-farm income from employment; (3) off-farm income from rent, dividends, interest, and other related off-farm sources; (4) government source income; and (5) "other income." Government source income in the CPS includes Social Security and railroad retirement payments, supplemental security income, and public assistance and welfare payments. "Other income" includes private pensions,

alimony and child support, and other forms of autonomous income. Using these data, the relative effects of income from off-farm employment and from operation of the farm are examined by analyzing the earnings of families with versus without off-farm work.

The Income Effects of Off-Farm Work

When families are differentiated by degree of participation in the off-farm labor market, significant income differences are found to exist. These differences are apparent in Table 1 where comparisons are made between families in which both the farm operator and spouse work off-farm (dual earner) families in which only one spouse is employed off-farm (single earner), and those in which neither the farm operator nor spouse has off-farm employment (nonparticipants).

In 1984, 31 percent of the families that farm in the U.S. were classified as dual earners, 40 percent as single earner families, and 29 percent as families with no off-farm work. Dual earner families earned the highest annual incomes, with income from off-farm employment comprising almost 90 percent of total family income in 1984. Dual earner families, which are more common in the Northeast and South, averaged \$31,010 in total income. In comparison, single earner families reported earning considerably less, an average \$18,980 in 1984. Among single earner families, an average 58 percent of total family income was earned from off-farm employment and 28 percent from farming. On the basis of the CPS samples, families in which neither the operator nor spouse worked off-farm earned the lowest average total family incomes (\$12,320).

In contrast, the highest average net farm incomes were earned by full-time farm families in which neither the operator nor spouse worked off-farm. These families, which are most prevalent in the North Central region, earned an average \$8,060 from farming in 1984. This compares to \$5,290 average net farm income for single earner families, and only \$1,760 for dual earners.

These differences emphasize that families that farm in the U.S. are heterogeneous with respect to the sources of income relied upon to support the farm family. Some families continue to rely principally if not solely on farm-related income. Other families combine farm and nonfarm employment to generate adequate incomes. Some of these families depend almost solely on income from off-farm employment to support the family and the farm, while others depend heavily on the off-farm work of one spouse and the on-farm work of the other.

and the West North Central division, the West includes the Mountain and Pacific divisions, and the South includes the East South Central, West South Central, and South Atlantic divisions.

Table 1. Selected Characteristics of U.S. Farm Families Differentiated by Participation in Off-Farm Employment.

Characteristics	Dual	Earners	Single	Earners	Nonparticipants ^a	
	1978	1984	1978	1984	1978	1984
	n = 511	n = 369	n = 719	n = 470	n = 593	n = 345
	(dollars)					
Mean income						
Net farm income	2,505	1,760	6,468	5,285	9,106	8,062
Off-farm employment income ¹⁵	18,995	27,894	11,019	11,057	0	0
Other income ⁰	1,684	1,358	2,946	2,639	4,052	4,256
Total family income	23,184	31,012	20,433	18,981	13,158	12,318
	(percent of total) ^d					
Region of residence						
Northeast	31.40	33.82	45.35	36.76	23.26	29.41
North Central	25.43	28.98	37.16	39.70	37.41	31.32
South	32.09	36.21	39.05	39.66	28.86	24.14
West	26.33	29.69	44.08	40.61	29.59	29.69
Total U.S.	28.03	31.17	39.44	39.70	32.53	29.14
Residence in SMSA	20.55	18.97	15.86	11.28	11.64	11.88

^a Neither farm operator nor spouse works off-farm.

^b Includes income earned as wages and salaries from off-farm employment and self-employment income from off-farm work.

^c Includes principally government transfer payments, pensions, rent, dividends, interest payments, and trust income.

^d Percentages for region of residence represent the farm families in each participation category as a percent of the total number of farm families in each region. Percentages for residence in an SMSA represent the percent of farm families in each participation category reporting residence in an SMSA.

Data Source: Current Population Surveys (CPS), March 1979 and 1985.

Distribution of Income Among Farm Families

The total incomes of farm families are comprised of incomes earned from several sources, with net farm income and off-farm income from employment representing the principal components (See Table 1). It is likely that the incomes received from different sources are distributed differently across the population of farm families in the U.S. For example, government transfer payments may be principally paid to families in the lower income brackets, whereas dividends and interest income may be largely earned by higher income families. Differences may also exist between regions. This may be in part due to the extent of industrialization, particularly rural industrialization, within a region. The degree of industrialization may affect the accessibility and availability of off-farm employment opportunities for farm families, as well as the level of income earned off-farm. Families within a reasonable commute of rural towns or even metro or suburban areas may be more likely to have off-farm work, although this relationship remains unclear when location variables are compared across studies (Findeis, Hallberg and Lass). In addition, the size distribution of farm operations and the

prevalence of certain enterprises or enterprise mixes within regions may also influence the amounts of income from alternative sources, specifically from off-farm employment (OECD). Enterprises (e.g., dairy) that constrain the amount of time available to the farm operator for off-farm work have been shown to affect participation in off-farm work (e.g., see Salant, Saupe, and Belknap).

Measuring the Distribution of Income

To examine intraregional differences in the distribution of income by source, the income distribution among farm families in each region can be decomposed. The Gini coefficient frequently used in studies of income distribution can be used to summarize the degree of concentration of a given income distribution. Further, the Gini coefficient can be decomposed by income source to illustrate the effects of alternative income sources on total income inequality.

The approach adopted here to calculate Gini coefficients for total farm family income and for selected disaggregated sources of family income was suggested by Pyatt, Chen and Fei. This approach provides a formulation of the relationship

between the Gini coefficient for total family income and measures of inequality reflective of income earned from alternative income sources. Ahearn et al. used a similar approach to obtain estimates of these measures for a sample of U.S. farmers, but used grouped data analyzed at the national level. The Gini coefficients and measures of inequality calculated here are based on individual family data, with the analysis extended to the regional level.

For individual family data, the Gini coefficient for total family income (G_t) equals the sum of the cross-products of three terms related to each of k income sources considered. These terms for the i th income source ($i = 1, \dots, k$) are (1) the proportion of income from each income source in total income, S_i ; (2) the "pseudo" Gini coefficient for the distribution of the i th income source, G_i and (3) a correlation effect, R_i , depending on the respective ranks of families according to total income and income from the i th source. These terms are determined as follows:

$$\begin{aligned} (1) \quad S_i &= \bar{Y}_i / \bar{Y}, \\ (2) \quad G_i &= [2/nY_i] [\text{Cov}(Y_i, \rho(Y_i))], \\ (3) \quad R_i &= \text{Cov}(Y_i, \rho(Y)) / \text{Cov}(Y_i, \rho(Y_i)), \end{aligned}$$

where:

S_j = share of income from i th income source as a proportion of total income;

\bar{Y}_i = mean of total family income;

\bar{Y} = mean of income from i th income source;

$\rho(Y_i)$ = rank² of observations by i th income source;

$\rho(Y)$ = rank² of observations by total family income;

G_i = "pseudo" Gini coefficient for income from i th income source;

n = number of observations;

Y_i = income from i th income source;

R_i = correlation effect for i th income source.

The Gini coefficient for total income (G_t) is therefore:

$$(4) \quad G_t = \sum_{i=1}^k G_i R_i S_i.$$

The three terms defined by equations (1) through (3) (i.e., G_i , R_i , S_i) are used to assess the effects of alternative income sources on total income inequality. Based on methodologies developed by Pyatt et al. and Lerman and Yitzhaki, the following relative measures are used in this study to analyze

le income distribution among farm families more intensively:

- a) *Proportional Contribution to Inequality* (P_i): P_i is given by the ratio of the i th income source's contribution to inequality to the overall Gini coefficient:

$$(5) \quad P_i = G_i R_i S_i / G_t.$$

- b) *Relative Inequality* (I_i): I_i is the ratio of the proportional contribution to inequality to the i th source's share of total income, and can be written:

$$(6) \quad I_i = (G_i R_i S_i / G_t) - (S_i).$$

- c) *Relative Marginal Effect* (M_i): M_i is the i th source's marginal effect relative to the overall Gini coefficient and is given by the difference between the proportional contribution to inequality and the share of total income from the i th source:

$$(7) \quad M_i = (G_i R_i S_i / G_t) - S_i.$$

It should be noted that the sum of the relative marginal effects equals zero,

Distributional Effects of Alternative Income Sources

To estimate the Gini coefficients and related measures necessary to analyze the distribution of farm family incomes in the U.S. and by region, data on farm families from the 1985 March Current Population Survey were again used. The total incomes of farm families were decomposed by five sources of income and the contribution of each income source to total inequality was analyzed. The five types of income analyzed included net farm income, off-farm income from employment, off-farm income from other sources, government source income and "other income," as previously defined. Based on these data, the Gini coefficient for total income among U.S. farm families equals 0.476. (Table 2) This result is remarkably similar to the 1966 Gini coefficient of 0.475 determined by Carlin and Reinsel for total farm family (cash) income. The result, however, is lower than the 1984 Gini coefficient of 0.60 calculated by Ahearn et al. on the basis of total farm family (cash and noncash) income, but higher than the 1966 Carlin and Reinsel Gini coefficient of 0.414 for farm family well-being based on estimates of farm family net worth. The inclusion of nonmonetary income and consideration of net worth provide better indicators of farm family well-being, but data on nonmonetary

² Observations are ranked in ascending order, with ties assigned an average rank.

Table 2. Contribution of Sources of Income to Overall Inequality Among U.S. Farm Families.

	(1)	(2)	(3)	(4)	(5)	(6)
	Share in Total	Pseudo Gini Index	Contribution to Total Inequality	Proportional Contribution to Inequality	Relative Inequality Ratio	Relative Marginal Effect
Income Source	(S _i)	(G _i)	(G _i R _i S _i)	(P _i)	(I _i)	(M _i)
Off-farm income	0.204	1.328	0.141	0.296	1.451	0.092
Off-farm labor income	0.602	0.614	0.268	0.563	0.935	-0.039
INTDIV income ³	0.122	0.903	0.056	0.118	0.967	-0.004
Government income	0.043	0.886	0.002	0.004	0.093	-0.039
Other income	0.030	0.920	0.009	0.019	0.633	-0.011
Total family income	1.000	0.476 ^b	0.476 ^a	---	---	---

Source of **Income Data: Current Population Survey, March 1985. Reported incomes in the 1985 March Survey are for 1984.**

^aINTDIV income includes rent, dividends, interest payments and trust income.

^bThe calculated index for total family income is the conventional Gini coefficient for total income, G_t.

$$^c \text{Note that } G_t = \sum_{i=1}^k G_i R_i S_i.$$

income and net worth measures are not available from the CPS. The lower U.S. Gini coefficient determined in this study may indicate that farm incomes are more unequally distributed when non-monetary income is included than would be the case if cash incomes alone are considered.

When the U.S. results are further disaggregated by region (Table 3), the Gini coefficients for the Northeast, South, West, and North Central regions are shown to range from 0.416 to 0.509. The results indicate a more equal distribution of income for farm families in the Northeast and South (Gini coefficients of 0.416 and 0.425) relative to family incomes of farmers in the West and North Central regions (Gini values of 0.482 and 0.509, respectively).

Tables 2 and 3 also indicate the share (proportion of total income) and pseudo Gini values for net farm income, off-farm income, and the other income sources considered. When farm income alone is considered, a very unequal distribution results, an observation substantiated by the pseudo Gini values for net farm income. The values exceed one³ in the U.S. and in all regions. This results from the dichotomy that exists among farm families in the U.S.: many families that farm earn relatively low net farm incomes, while a few farm families earn high net returns from farming. These results indicate that net farm income is more unequally

distributed among families reporting farm incomes than is total family income.

Inequality is reduced when other sources of income are considered. The pseudo Gini values reported in column (2) of Tables 2 and 3 suggest that incomes from sources other than farming are responsible for reducing the inequality created by the net farm income component. The pseudo Gini values for off-farm labor income in particular are significantly lower (0.414 to 0.635). As shown in Table 3, off-farm income from off-farm employment is more equally distributed in the West (a pseudo Gini of 0.414) relative to other regions of the U.S. where the pseudo Gini values range from 0.568 to 0.635. For the U.S., the pseudo Gini for off-farm labor income equals 0.614.

It is interesting to note that off-farm labor income contributes significantly to inequality on an absolute basis due to the size of the off-farm income component in comparison to earnings from other sources. (See columns (3) and (4) of Tables 2 and 3.) However, the relative inequality ratios (column (5)) indicate that, when compared to off-farm income, net farm income contributes a greater proportion to inequality among families than the proportion it contributes to total family incomes. This result holds true at both the national and regional levels except in the South where off-farm income contributes a greater proportion to inequality among families.

Finally, comparisons of the pseudo Gini values for income received as rent, dividends, interest payments, and trust income (INTDIV income); government transfer payments; and "other income" indicate pseudo Gini values higher than for off-farm income from employment but lower than

³ Since negative incomes are included, it is possible to get pseudo Gini values greater than 1. Pyatt et al. suggest that using negative incomes is justified for the approach used here if the average value of the particular source of income is positive for the entire population. Kinsey commenting on Ahearn et al., observed that a Gini coefficient calculated using negative incomes receded to zero will underestimate the inequality of income distribution.

Table 3. Contribution of Sources of Income to Overall Inequality by Region Based on CPS Sample, 1985.

	(1) Share in Total	(2) Pseudo Gini Index	(3) Contribution to Total Inequality	(4) Proportional Contribution to Inequality	(5) Relative Inequality Ratio	(6) Relative Marginal Effect
Net farm income	0.136	1.320	0.061	0.147	1.081	0.011
Off-farm labor income	0.688	0.568	0.308	0.740	1.076	0.052
INTDIV income ^a	0.086	0.863	0.022	0.053	0.616	-0.033
Government income	0.058	0.891	0.010	0.024	0.414	-0.034
Other income	0.033	0.914	0.015	0.036	1.091	0.003
North Central:						
Net farm income	0.229	1.378	0.183	0.360	1.572	0.131
Off-farm labor income	0.562	0.635	0.243	0.477	0.849	-0.085
INTDIV income ³	0.141	0.829	0.069	0.135	0.957	-0.006
Government income	0.046	0.887	0.008	0.016	0.348	-0.030
Other income	0.022	0.916	0.006	0.012	0.545	-0.010
Total family income	1.000	0.509 ^b	0.509 ^c	---	---	---
South:						
Net farm income	0.184	1.127	0.079	0.186	1.011	0.002
Off-farm labor income	0.640	0.577	0.288	0.678	1.060	0.038
INTDIV income*	0.101	0.843	0.039	0.092	0.911	-0.009
Government income	0.038	0.881	0.006	0.014	0.368	-0.024
Other income	0.040	0.924	0.014	0.033	0.825	-0.007
Total family income	1.000	0.425 ^b	0.425 ^c	---	---	---
West:						
Net farm income	0.211	1.436	0.158	0.328	1.632	0.127
Off-farm labor income	0.611	0.414	0.268	0.556	0.910	-0.055
INTDIV income ³	0.118	0.829	0.050	0.104	0.881	-0.014
Government income	0.039	0.901	0.000	0.000	0.000	-0.039
Other income	0.032	0.913	0.007	0.015	0.469	-0.017
Total family income	1.000	0.482 ^b	0.482 ^b	---	---	---

^{a,b,c} Refer to data source and footnotes for Table 2.

for net farm income. As indicated in Table 3, the pseudo Gini values range from 0.829 to 0.924 for these alternative income sources. These findings suggest that incomes from these sources are not as evenly distributed across farm families as off-farm income from employment but more evenly distributed than net farm income.

Relative Marginal Effects

The relative marginal effects estimated for each region provide valuable information to policymakers, since these effects indicate the direction of changes in the regional income distribution within agriculture brought about by encouraging increases in income from a particular source. The relative marginal inequality values for the U.S. (Table 2)

indicate that with the exception of income from farming, increases from each of the income sources can be expected to reduce income inequality at the margin. Of these sources, off-farm income from employment and government transfer payments have the largest relative marginal effects. Proportional increases in net farm income can be expected to contribute to a more unequal distribution of income among farm families in the U.S.

A comparison of regional differences indicates differences between those regions where farms are on average smaller and dual earners are more prevalent, i.e., the Northeast and South, and those regions such as the West and North Central regions which are characterized by larger farms and perhaps fewer off-farm employment opportunities. The relative marginal effects for alternative income

sources in the West and North Central regions are similar in direction to the effects for the U.S. in total, but differ in magnitude. In both regions, the magnitudes of the relative marginal effects for net farm and off-farm income are higher than for the U.S. In the West and North Central regions a one percent increase in net farm income can be expected to increase G_t by approximately 0.13 (compared to 0.09 for the U.S.), and thus contribute to greater inequality. A one percent increase in off-farm income reduces the inequality measure by 0.085 in the North Central region and by 0.055 in the West. This compares to a reduction of 0.039 for the U.S. in aggregate.

These results reveal an interesting phenomenon that may be specific to these two regions. The positive relative marginal inequality values for net farm income show the effect of wide variations in the distributions of net farm income in these regions. Programs and technological improvements that contribute to higher net farm incomes may benefit families with large farm operations more than farmers operating small farms, resulting in a wider income gap between these two groups. On the other hand, policies and programs to increase incomes from off-farm sources will benefit low income farmers and lead to more equal distributions of income in the West and North Central regions.

In contrast, an increase in either net farm or off-farm income in the Northeast or South can be expected to increase income inequality at the margin among farm families. This outcome is surprising, but understandable given the structure of agriculture and the greater prevalence of off-farm employment in these regions. In the Northeast and South greater proportions of families that farm are dual earner families, and in the South fewer farm families work exclusively at farming. As observed in Table 1, families in which one or both spouses work off-farm earn significantly higher total incomes on average than nonparticipants.

In both the Northeast and South, it is likely that the total incomes earned by some part-time farmers exceed the incomes of middle and low income full-time farmers. Hence, proportional increases in off-farm labor income in these regions contribute to greater income inequality. The study results show that a one percent increase in net farm income in the South results in only a 0.002 increase in the Gini coefficient, whereas a one percent increase in off-farm labor income increases G_t by 0.038. Similarly, in the Northeast these sources increase the inequality measure by 0.011 and 0.052, for one percent increases in net farm income and off-farm labor income, respectively. It is observed that increases in government transfer payments reduce

income inequality in all regions considered. Except in the Northeast, increases in rent, trust, interest and dividend income have relatively small impacts on inequality.

Implications for Policy

The results of this study emphasize that the income profiles of families that farm in the U.S. vary substantially. Some families rely principally on income from farming to support the farm family, with no income from off-farm employment. These families, which are found in greatest numbers in the North Central region and to the least extent in the South, are dependent principally on the farm operation alone and on traditional agricultural policies and programs. To the extent that government farm payments are tied to production, large, full-time farms benefit more from traditional agricultural programs than do small and medium-size farms. Many of the latter will find it difficult to survive in the long run without significant off-farm income or a restructuring of traditional farm programs to be based more on need and less on production.

Among small and medium-size farms, the proportion of family income earned off-farm has increased significantly in recent years. It would be erroneous to assume that these farm families are all families with low net farm incomes that hold part-time, off-farm jobs to survive in farming. Certainly, this is true for some families, those that are low income or capital deficient. Rural development programs that focus on human capital development (e.g., vocational-technical training and career orientation programs) or serve to create and retain rural employment opportunities (i.e., rural employment creation, expansion, and retention programs) can help these families. Should some families eventually leave agriculture, previous employment off-farm can provide farm family members with the necessary skills and experience needed for transition to off-farm work. The provision of new jobs in rural areas also allows displaced farm families to remain in their rural communities. Rural development policies that encourage the development of off-farm rural employment opportunities serve to aid both low income families that leave agriculture and families that prefer to pursue dual employment on-farm and off-farm.

On the other hand, it appears that many families that farm and simultaneously work off-farm earn relatively high family incomes. However, it would be equally erroneous to assume that families that combine on-farm and off-farm work are all high income families who are principally interested in

pursuing a country lifestyle. Again, this may be true for some families employed off-farm, but not all. To the extent that these families are employed in rural jobs, rural development efforts to raise the incomes of rural people in general could benefit these families as well.

The results of this study indicate that not only do the income profiles of farm families differ significantly, but that increases in off-farm income have differential effects between regions as well. This is most likely a reflection of the dichotomy between low income and high income part-time farm families. In regions such as the Northeast and South where off-farm jobs may be more readily accessible, increases in off-farm income may actually contribute to greater income inequality. In these regions, a larger proportion of families earning high total incomes are dual earner families where both the farm operator and spouse are employed off-farm. In contrast, where full-time farming is the norm, off-farm employment (particularly among low income families) may lead to a more equal distribution of income among farm families. Increases in off-farm income from employment were shown to decrease income inequality in the North Central and West regions, while increases in net farm income contributed to greater inequality.

Policymakers should recognize that rural development programs as well as traditional farm programs serve farm families. Rural development programs should integrate agricultural development with economic development activities (Buttel; Hoiberg and Lasley) to better serve farm families and those rural industries on which farm families depend.

At the same time, policymakers must be cognizant of the dilemma created by the dichotomy between low income and high income farm families when assessing program options. Decision makers must recognize the prominent role played by off-farm income in supplementing low net farm returns and reducing income disparity among farm families, at least in some regions. Policies and programs should facilitate a smooth transition from farm to nonfarm occupations for farmers suffering farm income losses, or encourage the alternative of combining farm and off-farm work. Programs that provide farm family members with skills consistent with available off-farm employment opportunities or facilitate the creation of off-farm jobs consistent with the time requirements of on-farm work should be encouraged. These programs would principally benefit farm families in need.

It is also necessary to target programs to meet the needs of farming communities in different regions. In recent years the impacts of low net farm

incomes have been of major economic significance in farm-dependent regions where not enough non-farm jobs exist for those who prefer to pursue dual employment or choose to leave agriculture altogether. Two such regions identified here are the West and North Central regions. The negative signs of the relative marginal inequality effects for off-farm income in these regions suggest that motivating farmers to pursue off-farm employment is a desirable policy to reduce the existing income disparity among farm families.

References

- Ahearn, Mary, Jim Johnson and Roger Strickland. "The Distribution of Income and Wealth of Farm Operator Households." *American Journal of Agricultural Economics* 67(1985j):1087-94.
- Buttel, Frederick. "Farm Structure and Rural Development." In *Farms in Transition*, eds. David Brewster, Wayne Rasmussen, and Garth Youngberg. Iowa State University Press, Ames. 1983.
- Carlin, Thomas, and Edward Reinsel. "Combining Income and Wealth: An Analysis of Farm Family 'Well-Being'." *American Journal of Agricultural Economics* 55(1973):38-44.
- Cochrane, Willard W. "Saving the Modest-Sized Farm Or, The Case for Part-Time Farming." *Choices*. Second Quarter 1987:4-7.
- Findeis, Jill L., M. C. Hallberg, and Daniel Lass. "Off-Farm Employment: Research and Issues." Paper presented at the AAEA Organized Symposium: Off-Farm Employment and Labor Adjustments," 1987 Annual Meeting of the American Agricultural Economics Association, East Lansing, Michigan. August 1987.
- Huffman, Wallace E. "Farm and Off-Farm Work Decisions: The Role of Human Capital." *The Review of Economics and Statistics* 62(1980):14-23.
- Hoiberg, Eric O. and Paul Lasley. "Part-time and Limited Resource Farms and Economic and Social Growth in Rural Areas." In *Interdependencies of Agriculture and Rural Communities in the Twenty-first Century: The North Central Region* (Conference Proceedings), eds. Peter K. Korsching and Judith Gildner. The North Central Regional Center for Rural Development. 1986.
- Kada, Ryohei. *Part-Time Family Farming: Off-Farm Employment and Farm Adjustments in the United States and Japan*. Center for Academic Publications, Tokyo, 1980.
- Kinsey, Jean. "Measuring the Well-Being of Farm Households: Farm, Off-Farm, and In-Kind Sources of Income: Discussion."¹¹ *American Journal of Agricultural Economics* 67(1985):! 105-07.
- Lerman, Robert, and Shlomo Yitzhaki. "Income Inequality Effects by Income Source: A New Approach and Application to the U.S." *The Review of Economics and Statistics* 67(1985):151-56.
- Organization for Economic Cooperation and Development (OECD). *Part-Time Farming: United States. Agricultural Policy Reports*. Paris. 1977.

- pvatt, Graham, Chau-Nan Cnen, and John Fei. The Distribution of Income by Factor Components." *World Bank Reprint Series: Number 162*. 1980.
- c_jant, Priscilla, William Saupe, and John Belknap. "Highlights of the 1983 Wisconsin Family Farm Survey." College of Agriculture and Life Sciences, University of Wisconsin, Madison. 1985.
- c_umnner, Daniel. "The Off-Farm Labor Supply of Farmers." *American Journal of Agricultural Economics* 64(1982):499-509.
- Tweeten, Luther. "Economic Instability in Agriculture: The Contributions of Prices, Government Programs and Exports." *American Journal of Agricultural Economics* 65(1983):922-931.
- U.S. Department of Commerce, Bureau of the Census. *Current Population Survey: Annual Demographic File*, March, 1979 and March, 1985.