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A MEASUREMENT OF AGRICULTURE'S PUBLIC INVESTMENT
IN THE EDUCATION OF 1940 DECADE
FARM-NONFARM MIGRANTS

By

Robert Jackson Bevins

AN ABSTRACT

Submitted to the School for Advanced Graduate Studies of
Michigan State University of Agriculture and
Applied Science in partial fulfillment of
the requirements for the degree of

DOCTOR OF PHILOSOPHY

Department of Agricultural Economics

1960

Approved

Dale E. Halthausen

ABSTRACT

When people migrate they carry with them the investments which have been made in them. This phenomenon has long been recognized and the literature abounds with references and near references to it, but relatively little has been done to systematically estimate the transfer of social capital which off farm migration occasions.

In this study an attempt was made to determine the magnitude of the unamortized agriculturally derived public educational investment which resided in off farm migrants of the 1940 decade. The estimating procedures used involved making estimates of the educational attainment of the migrants and converting these to the number of years of elementary and secondary education and the number of years of college training. Appropriate adjustments were made to allow for the fact that presumably in time the investment in education amortizes itself.

Estimates of the cost of education in 1940 were used to produce estimates of total public investment in the education of off farm migrants. Next, estimates of that proportion of the total public investment derived from agriculture were used to produce estimates of agriculture's contribution.

It appeared that the educational investment made by agriculture in the migrants was about \$2.5 billion in 1940 dollars. This amounted to a little over \$5 billion in terms of 1959 dollars.

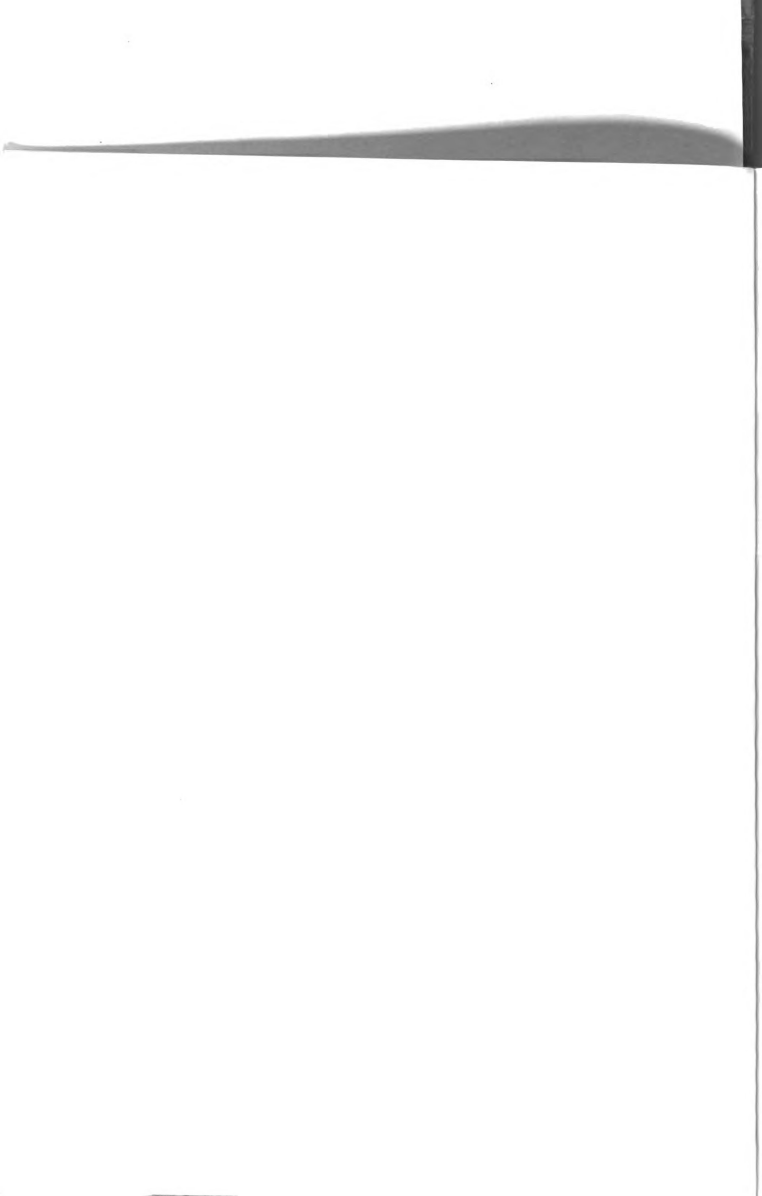
These estimates of agricultural contribution to the social capital of the nonfarm economy could be viewed in perspective only if it was

realized that this drain on agricultural incomes was only a small part of the total drain which resulted from excess population in agriculture. Conservative estimates indicated that family expenses far exceeded the agriculturally derived public investment in the education of these migrants. Government payments over the decade were about \$4.5 billion in terms of 1940 dollars. This suggested that agriculture contributed more to the growth of the nonfarm economy than farmers received in government subsidy, for the drain on agricultural incomes occasioned by the rearing of off farm migrants far exceeded the transfer payments by government to agriculture.

Net new investment in physical farm assets for the 1940 decade was about \$4.6 billion in 1940 dollars. Agriculturally derived public educational investment embodied in the decade's off farm migrants was about \$2.5 billion. This suggests that during the "forties" for every two dollars of net new investment in physical farm assets, about one dollar of investment by agriculture in the education of off farm migrants became part of the social capital of the nonfarm economy.

This study clearly indicated that there is a flow of social capital from agriculture to nonagriculture. At the time of this study it appeared that the society was very cognizant of the nonfarm to farm income transfer through government agricultural programs and only slightly cognizant of the reverse flow of social capital.

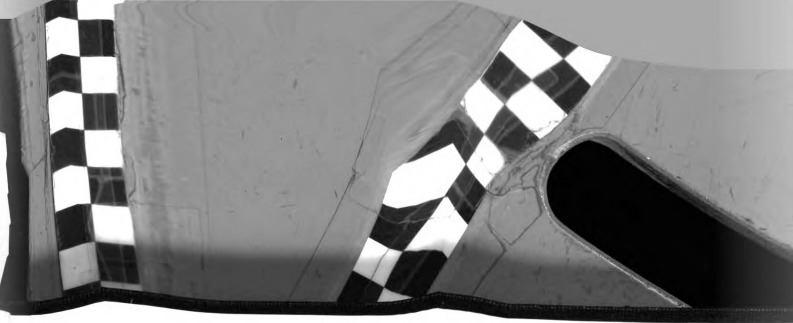
Should the nonfarm sector become aware of the contribution which it appears to be receiving from agriculture it is possible that attempts may be made to find ways by which more "equitable" participation may be



had in the costs of rearing and educating farm people who are destined to make their productive contribution to the nonfarm economy.

The implications are many, but only those with respect to education are dealt with here. For states in which the off farm migrants remain within the state, state aid to schools could help reduce the heavy pressure on the agricultural sector. For those migrants who leave the state, there seems no alternative to federal aid to education, if the intent is to remove the heavy demands upon agriculture that have arisen (and will continue as out migration continues) as a result of the investment that is made in the education of rural youth who then migrate to the nonfarm economy.

From the standpoint of society as a whole there is considerable evidence that a much greater investment than is now being made in the education of most migrants would be justified. In view of the already heavy burden borne by agriculture, it is probably too much to expect that industry to substantially increase its expenditures in the education of off farm migrants, especially since the nonfarm economy would be the major beneficiary of such increased provision of social capital.



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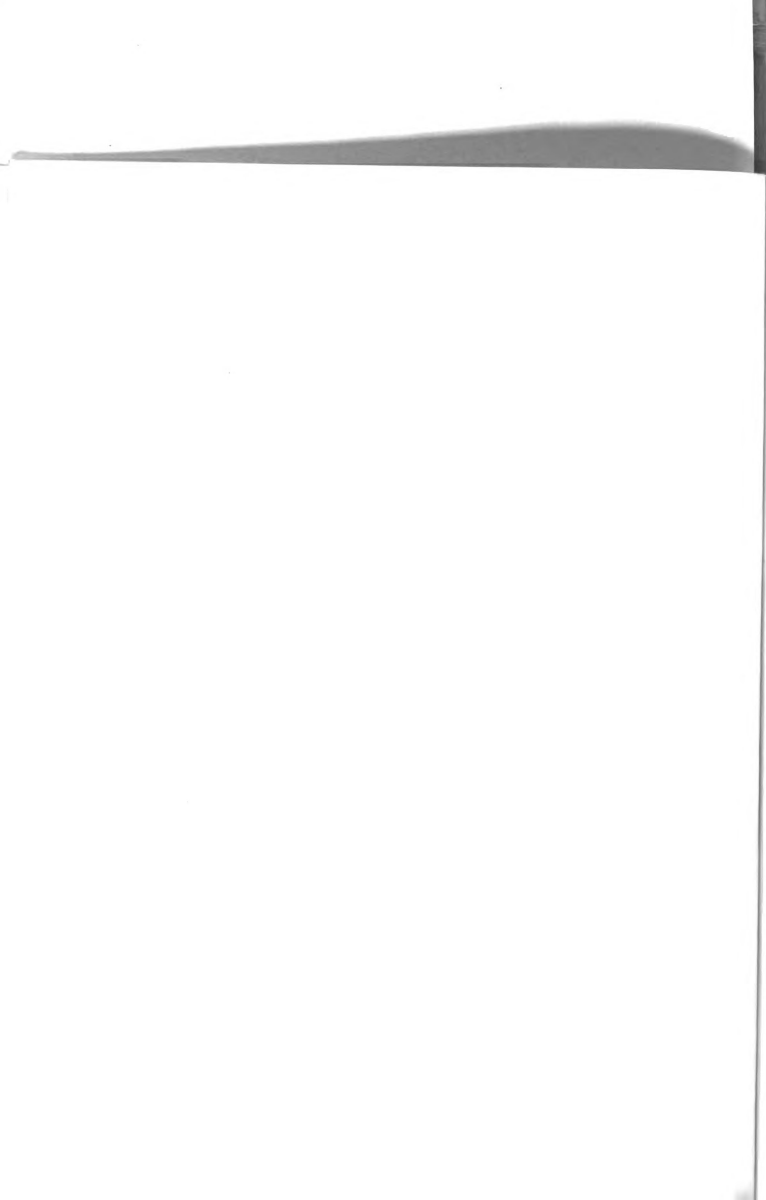
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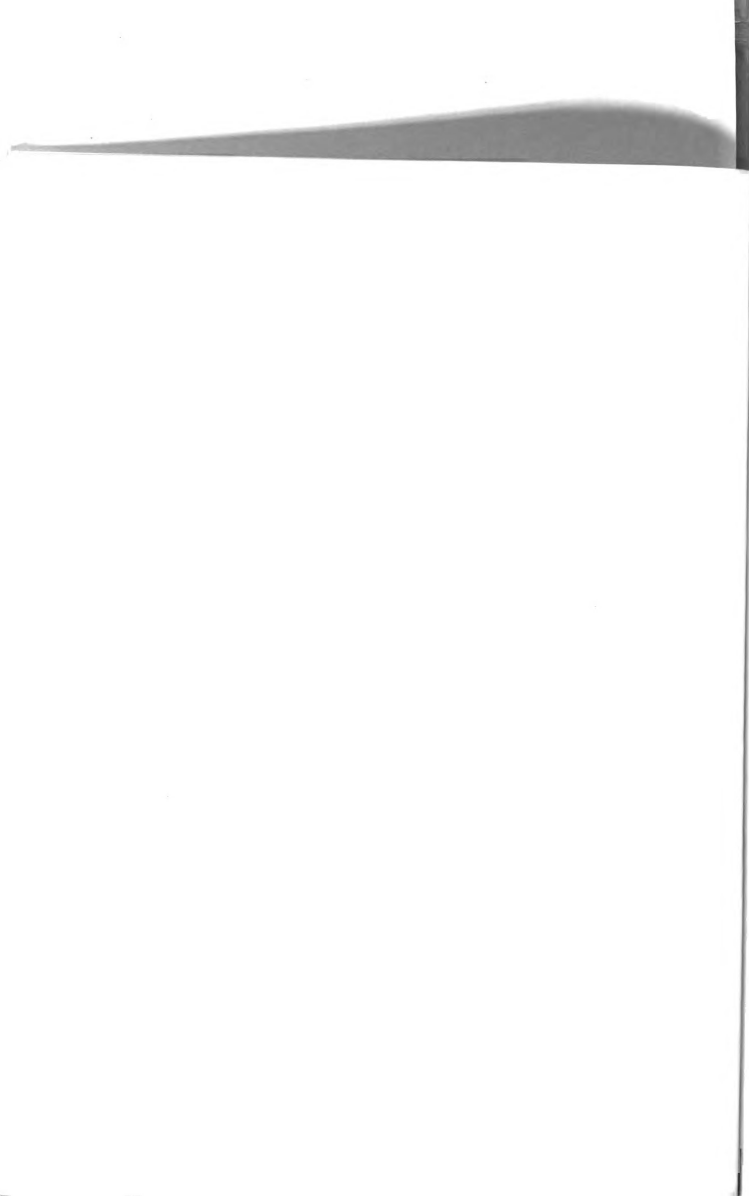
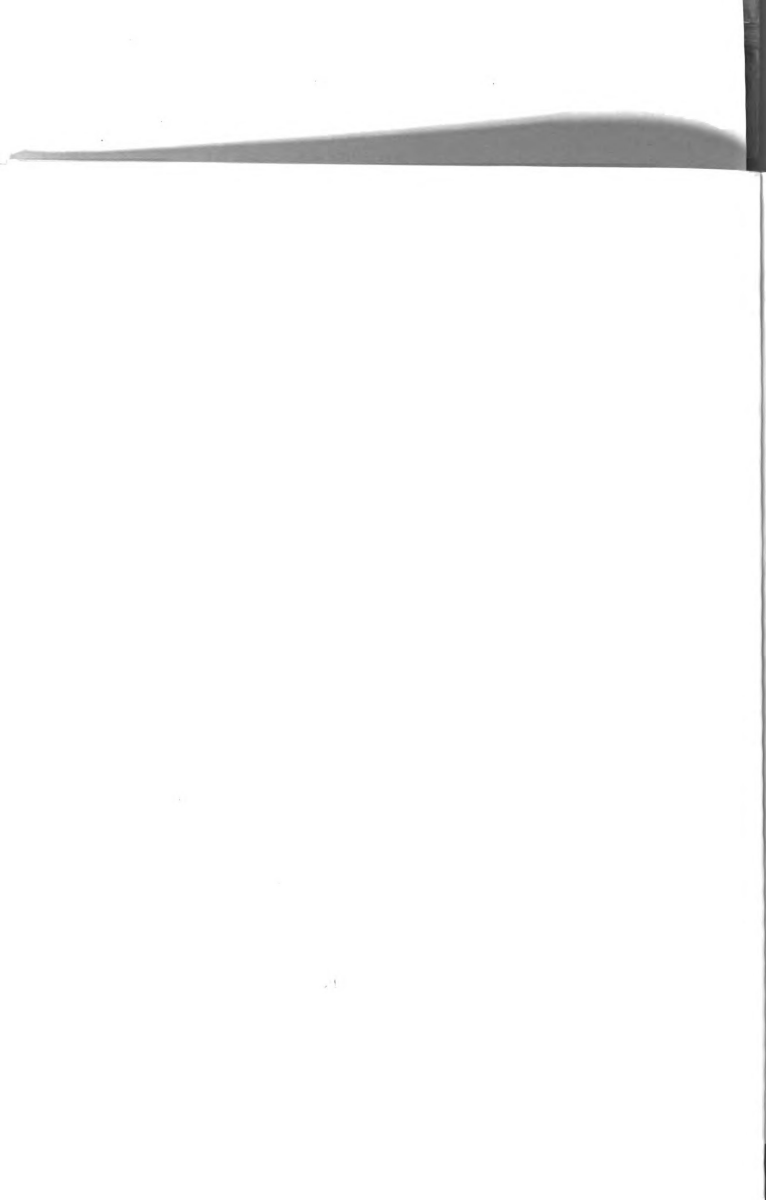


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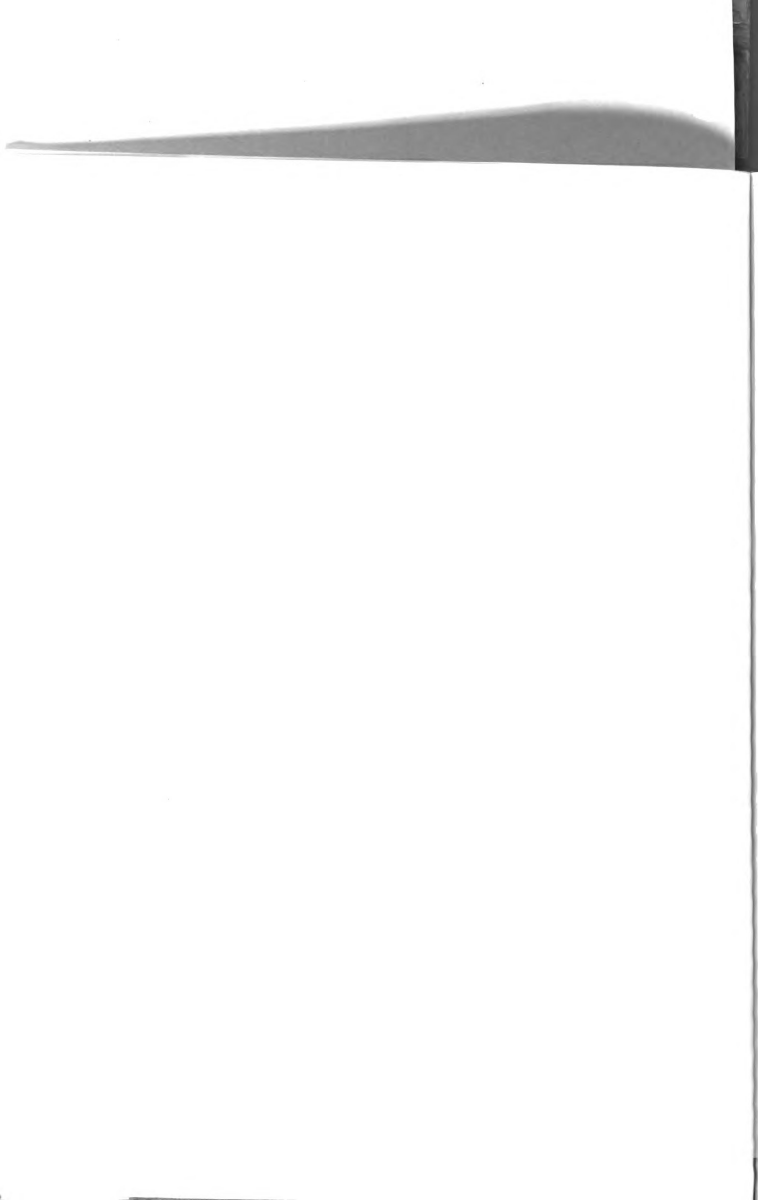
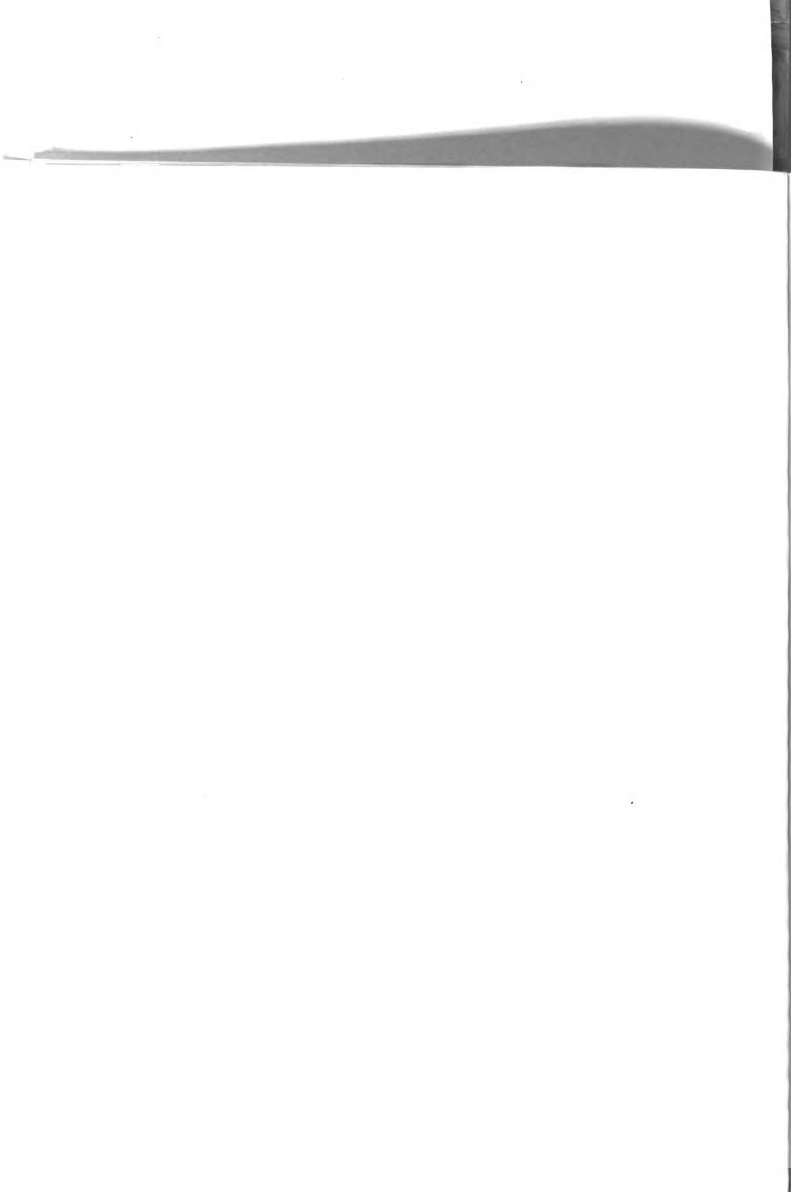


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CHAPTER I

INTRODUCTION¹

The Problem and Its Background

It is generally believed, and there is evidence to suggest, that investment in the human factor is important in relation to the productivity of the society as a whole. In addition, it has implications for the productivity of sectors of society.

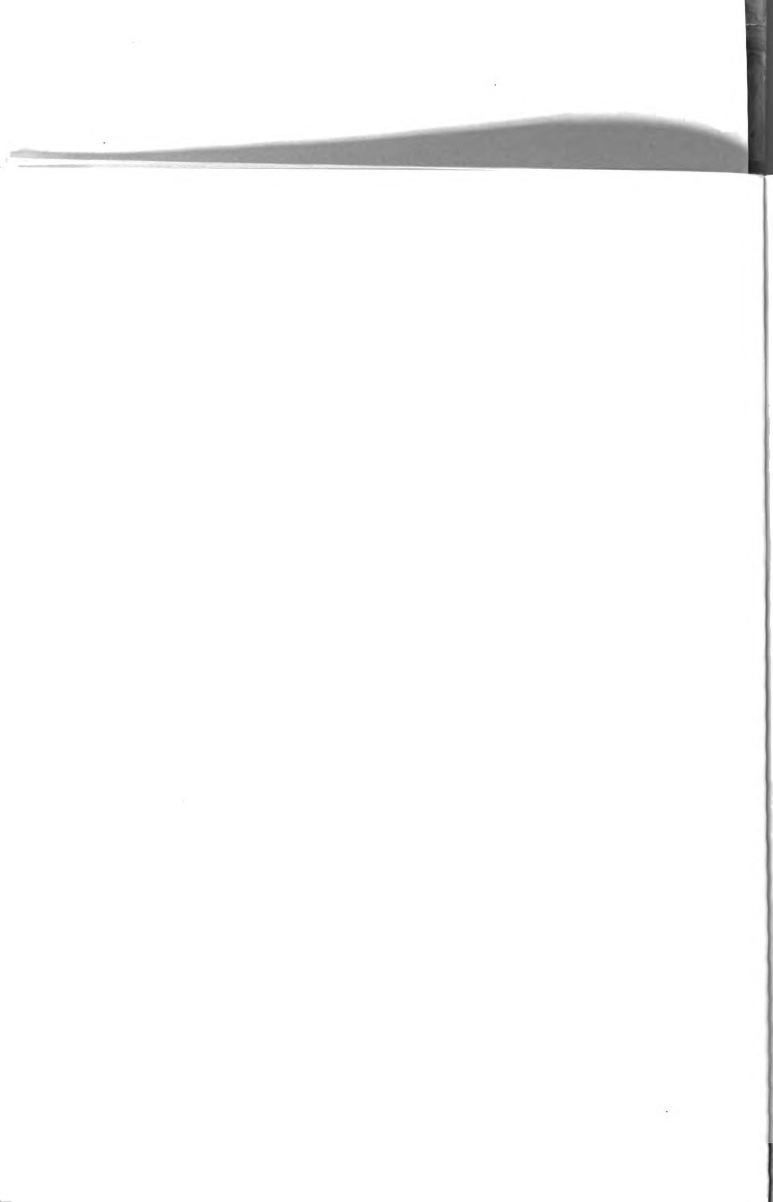
If a nation is viewed as a single unit in which there is a large degree of equality in income and asset ownership, the source of investment made in the human factor is irrelevant. However, when the economic structure of society is viewed as composed of more than one unit and when certain resources tend to flow in one direction, the extent to which a sector contributes to investment, the benefits of which accrue to the other sectors, becomes a relevant consideration.

Each year rather substantial sums are allocated by the agricultural sector for health, education, and welfare of youth who are destined to spend their productive lives in the nonfarm sector.

When people migrate from the agricultural sector of the economy they carry with them the investments made in them by individuals and by the society as a whole. This, coupled with the tremendous off farm

¹The noun agriculture and the adjectives and adverbs which can be derived from it are used frequently in the report of this study. These words are used in a very narrow sense. In this study, agriculture refers to farms and that alone.

Frequent use has been made of the words migrants and migration. In every case, it is to be understood that reference is made to persons who physically migrated from farms and to the process of off farm migration, respectively.



migration in the United States, 8,610,000² for the 1940 decade, suggests the hypothesis that the agricultural sector of the economy provides a substantial contribution to the social capital residing in the nonfarm economy in the form of education.

It may be argued that this social capital paid for by agriculture provides a gain for that portion of the economy receiving the migrants. To the extent that the educational investment in off farm migrants increases their productivity, the nonfarm sector benefits. Also, to the extent that the provision of surplus population by the farm sector negates the investment which the nonfarm sector must make in order to supply its labor needs, the nonfarm sector benefits.³ Stated alternatively, the first proposition is, given that the off farm migrants go to the nonfarm sector, any increase in their productivity resulting from investment in the human agent by the farm sector will increase the benefit accruing to the nonfarm sector. The second proposition refers to the cost of obtaining labor which the nonfarm society would have had to incur had not the farm sector supplied increments of labor through off farm migration.

The fact that the migration of people involves transfers of social capital is hardly a new phenomenon nor has it just been recognized.

²Gladys K. Bowles, Farm Population, Net Migration from the Rural-Farm Population, 1940-50, Statistical Bulletin No. 176, (Washington: Agricultural Marketing Service, United States Department of Agriculture, June 1956), p. 17.

³These two types of benefit are not necessarily mutually exclusive. The benefits which occur in the real world are a mixture of the two.



Pareto calculated the presumed economic loss to Italy resulting from emigration, a problem also investigated by Beneduce and Coletti.⁴ Since the beginning of the century, migratory movements, of particular importance in Italy's case, have attracted attention. Studies dealing with the economic value of emigrants, assimilation, and eugenic effects of emigration have been contributed by Savorgnan, L. Livi, DeVergottini, Gini, Mortara, Lasorsa, and Parenti and Pienfrancesco.⁵

Baker and Manny discussed the transfer of wealth from farms to cities and suggested this had been associated with the failure of wealth to be accumulated on the farms.⁶

Japanese industrial development, according to Tobata, owes much to agriculture for agriculture's education of youth who then moved to industry.⁷

Brinley Thomas pointed out the boost which periodic injections of labor give to a developing economy and he implied that this assistance is greater because the recipient of this labor does not have to bear the cost of the up-bringing of the labor.⁸

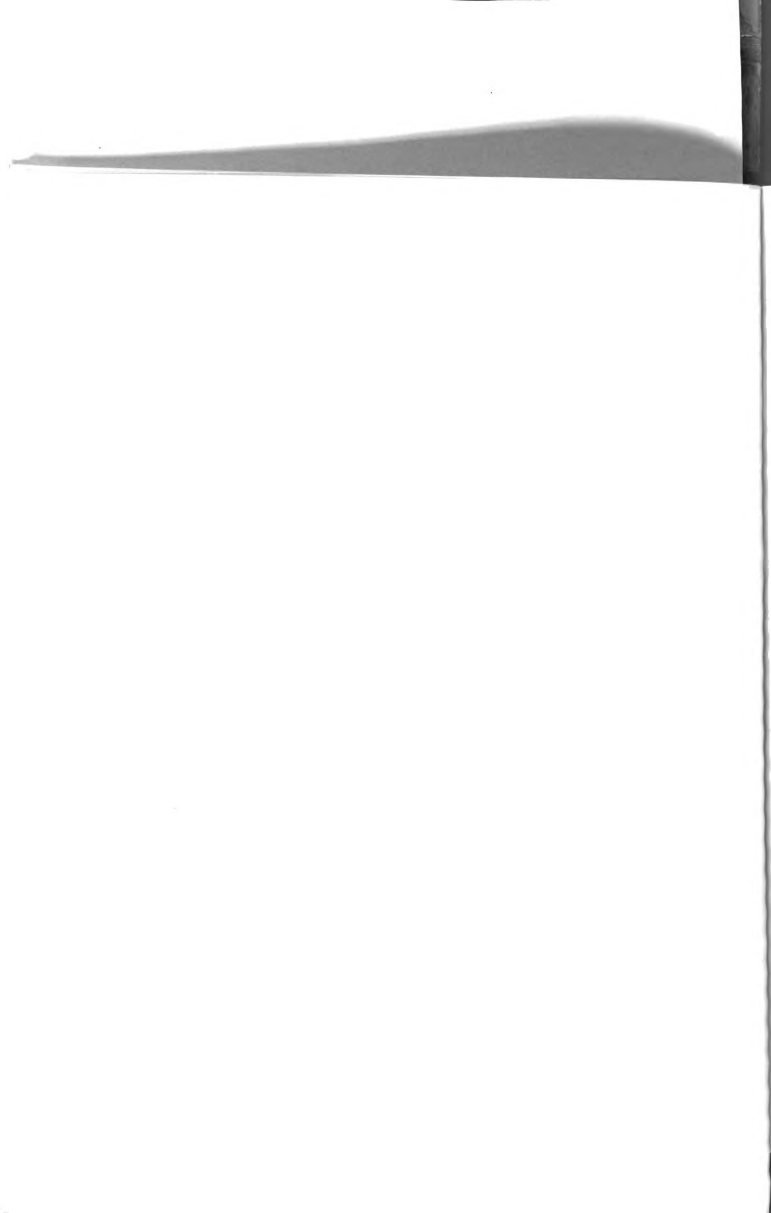
⁴Allessandra Costanzo, "Contributions of Italy to Demography", Chapter 10, The Study of Population, edited by Philip M. Hauser and Otis Dudley Duncan, (Chicago: University of Chicago Press, 1959), p. 229.

⁵Loc. cit.

⁶O. E. Baker and T. B. Manny, "Population Trends and the National Welfare," Bureau of Agricultural Economics, United States Department of Agriculture, mimeo, 1935, p. 7.

⁷Seichi Tobata, An Introduction to Agriculture of Japan, (Tokyo: Maruzen Company Limited, 1958), pp. 17-18.

⁸Brinley Thomas, Migration and Economic Growth, (Cambridge: The University Press, 1954), pp. 30-31.



Henry C. Taylor suggested that the movement of population from country to city, which has been so great in recent years in the United States, resulted in the transfer of a vast amount of wealth from the agricultural industry.⁹ This wealth, according to Professor Taylor, must be replaced from some source if the wealth of farmers is not to decline.¹⁰ Likewise Hoffer pointed out that "cityward migration of youth is a drain on the country."¹¹

Lewis argued that the area from which migrants come has to bear the cost of educating them only to lose them when they reach the productive years. As the young leave, the proportion of older people and dependents in the population rises and the demands on the remaining working age people is correspondingly larger.¹² Here Lewis was referring especially to demands for publicly financed services such as education and health.

In his Economics of Migration, Isaac stated that it has been argued that the source of migrants bears the cost of maintaining the migrants during their unproductive years while it is the place to which they migrate which derives the direct benefit of their productive energies. This, he suggested, was true and he pointed out that the gain may be considerable.¹³

⁹Henry C. Taylor, Outlines of Agricultural Economics, (New York: The MacMillan Company, 1925), p. 272.

¹⁰Loc. cit.

¹¹C. R. Hoffer, Introduction to Rural Sociology, (New York: Richard R. Smith, Inc., 1930), p. 36.

¹²W. Arthur Lewis, The Theory of Economic Growth, (Homewood, Illinois: D. Irwin, Inc., 1955), pp. 359-360.

¹³Julius Isaac, Economics of Migration, (New York: Oxford University Press, 1947) pp. 228-230.



In a study of four townships in Whitman County, Washington, in 1931 and 1932, Yoder reported that the facts seemed to bear out the theory of some agricultural economists and rural sociologists that one of the results of migration of farm population to cities is the transfer of wealth from farming communities to the cities.¹⁴

Duncan suggested "that there is a continued drain of agricultural wealth to the city in the form of the costs of education and rearing of the migrants who leave the farms at the thresholds of their most productive years."¹⁵

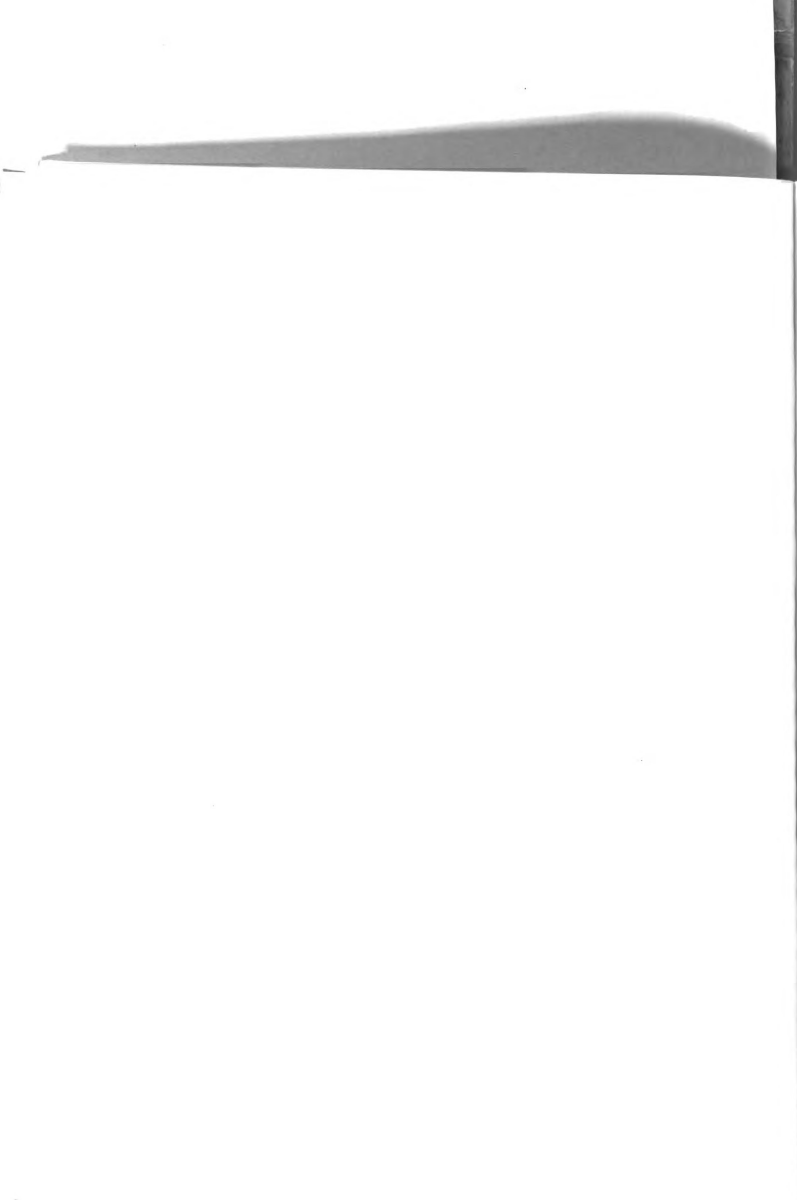
An interesting observation was found in the work of Lively and Taeuber.

"Although the effects of net migration from country to city have generally been regarded as beneficial to both in terms of population redistribution and plane of living, whether the quality of the residual population is lowered has not been satisfactorily settled. Migration seriously depletes the wealth of rural communities which bear the cost of rearing children for the cities, while the payment of inheritance claims to migrants offers another channel through which rural wealth is lost to urban areas. Moreover, where rural migration is both rapid and severe, it causes maladjustments in rural organizations and institutions."¹⁶

¹⁴Fred R. Yoder, "Migration of Population and the Flow of Farm Wealth", Journal of Farm Economics, Volume XIX, No. 1, (February 1937), pp. 358-359 and Fred R. Yoder and A. A. Smick, Migration of Farm Population and the Flow of Farm Wealth, Bulletin No. 315, Agricultural Experiment Station, State College of Washington, Pullman, Washington, September 1935.

¹⁵Otis Durant Duncan, The Theory and Consequences of Mobility of Farm Population, Experiment Station Circular No. 88, May 1940, Oklahoma Agricultural and Mechanical College, Stillwater, p. 21.

¹⁶C. E. Lively and Conrad Taeuber, Rural Migration in the United States, (Washington: Works Progress Administration, 1939), p. xx.



Rutledge, after looking at Cache County, Utah, and examining some of the consequences of heavy outmigration concluded that while migration has been praised as a remedy for farm depression, there are negative aspects which have been overlooked, namely the purchasing power transfers which result.¹⁷

According to Professor Schultz, "the necessary cost inherent in maintaining the social efficiency of the individual--a cost that constantly rises in our society--is, as things now stand, borne primarily by the family and locality."¹⁸ This is one of the main reasons why the transfer of social capital from the farm sector puts pressure on that sector as it attempts to "maintain social efficiency."

There is considerable justification for reporting that the literature contained much reference to the flow of farm wealth as a result of off farm migration. The material just discussed certainly bears out such a contention. In addition, the literature contains much about peripheral problems, enough to justify the conclusion that the recognition of the phenomenon of investment transfers has been implied by writers who did not specifically mention it.¹⁹

¹⁷R. M. Rutledge, "The Relation of the Flow of Population to the Problem of Rural and Urban Economic Inequality," Journal of Farm Economics, Volume XII, No. 3, (July 1930), pp. 427 f.f. and p. 439.

¹⁸Theodore W. Schultz, Agriculture in an Unstable Economy, (New York: McGraw-Hill Book Company, Inc., 1945), p. 206.

¹⁹For examples see C. T. Pihlbad and C. L. Gregory, "Selection Aspects Among Missouri High School Graduates," American Sociological Review, Volume XIX, No. 3, (June 1954), pp. 314-324, and Gilbert A. Sanford, "Selective Migration in a Rural Alabama Community," American Sociological Review, Volume V, No. 5 (October 1940), pp. 759-766.



Despite this rather wide allusion to the flow of farm wealth, relatively little has been done to either develop a satisfactory conceptual apparatus or systematically investigate its nature and its magnitude. One notable exception is the work of Dorner²⁰ who investigated the loss of wealth to Tennessee farmers as a result of having reared excess population. The loss for 1949 was calculated at about \$600 per farm and this calculation did not include the investment by society as a whole.²¹

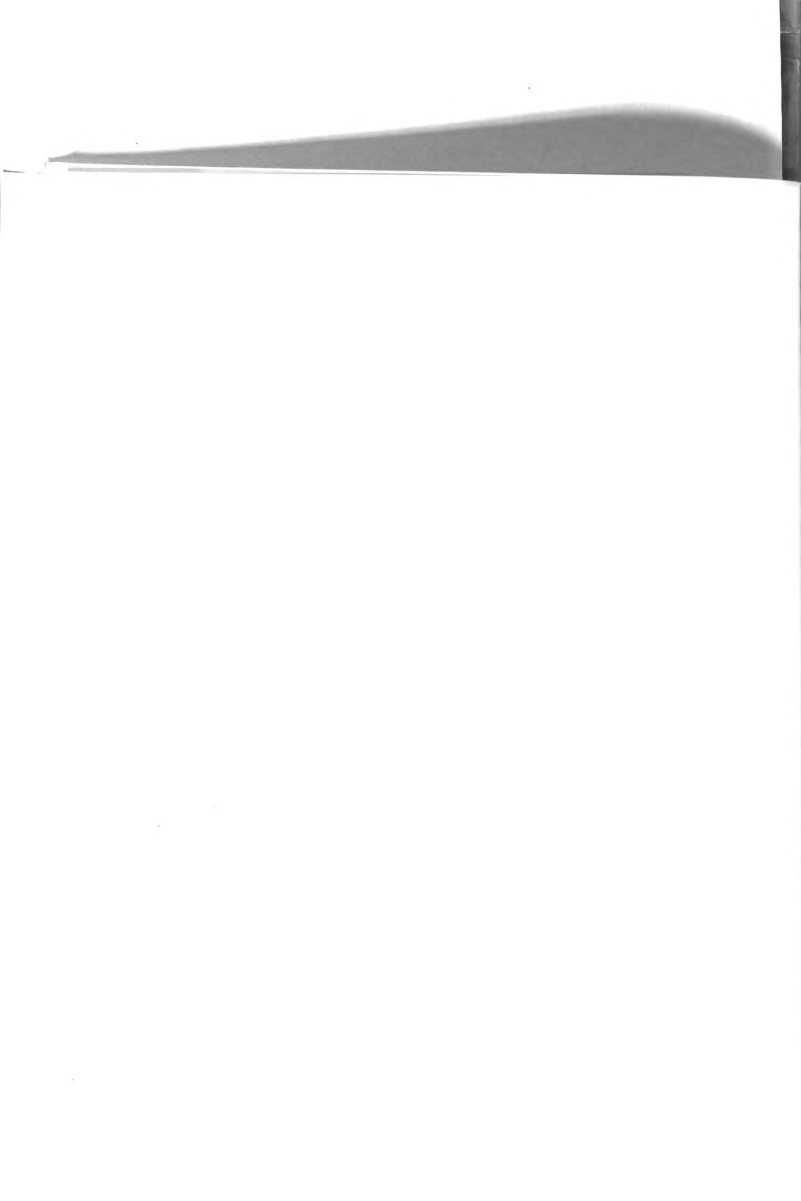
In a kindred study, Tarver investigated the costs of rearing and educating farm children, but he did not go further and specifically relate to the social expenditures made by agriculture and involved in the off farm movement.²² Baker has a related study²³ which was conducted some years earlier.

²⁰Peter Dorner, An Excess Farm Population and the Loss of Farm Wealth, unpublished master's thesis, Department of Agricultural Economics and Rural Sociology, University of Tennessee, 1953.

²¹Erven J. Long and Peter Dorner, "Excess Farm Population and the Loss of Agricultural Capital," Land Economics, Volume XXX, No. 4, (November 1954), pp. 367-368.

²²James D. Tarver, "Costs of Rearing and Educating Farm Children", Journal of Farm Economics, Volume XXXVIII, No. 1, (February 1956), pp. 144-153.

²³O. E. Baker, "Rural-Urban Migration and the National Welfare." Annals of the Association of American Geographers, Volume XXIII, No. 2 (June 1933), pp. 86-87 and Two Trends of Great Agricultural Significance, United States Department of Agriculture, Extension Service Circular No. 306, June 1939, p. 6.



Marshall stated that "the most valuable of all capital is that invested in human beings",²⁴ and he pointed out the difficulty that whoever may incur the expense of investing in developing the abilities of the workman²⁵ finds in a free society this investment the property of the workman.²⁶

From a study of the literature, it appeared that while there were references made to the investments made in the rearing and educating of farm people, somewhat less has been done in adequately relating this to off farm migration and the resulting transfer of agriculturally derived social capital.

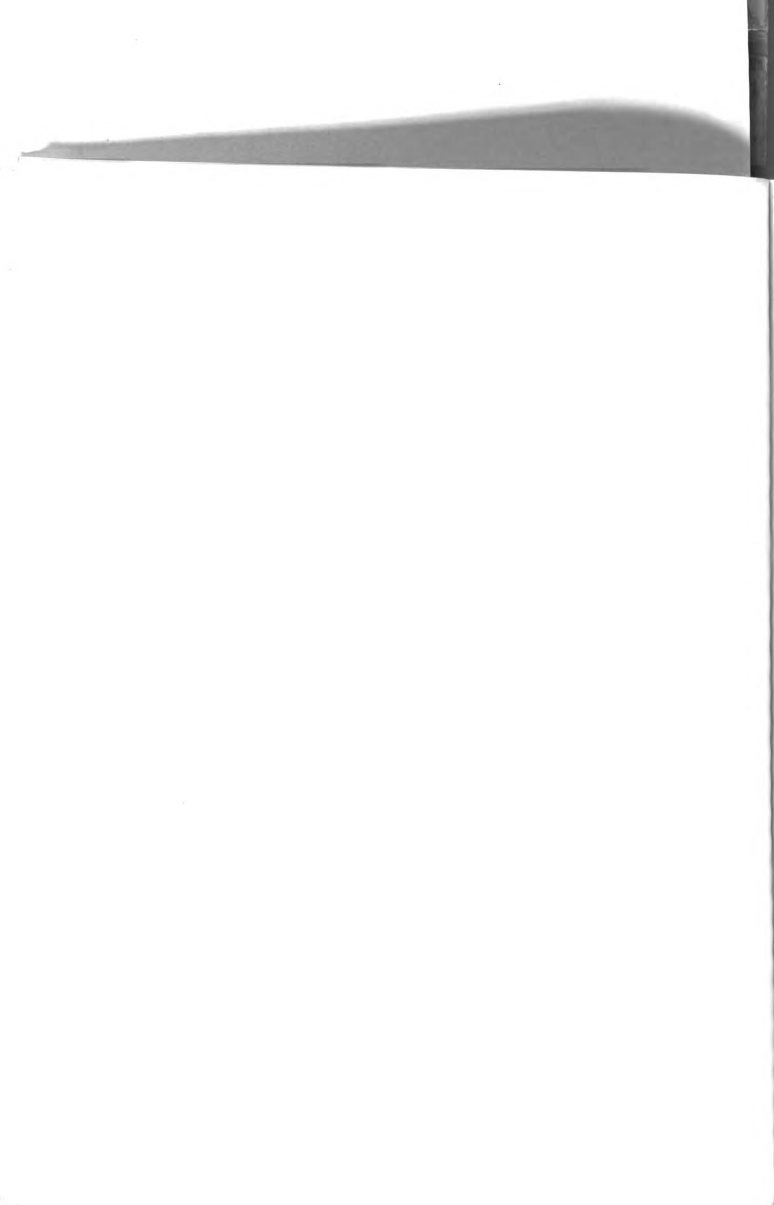
Scope and Objective of the Study

In view of the widespread discussions in the public forum at the time of this study, it would have been desirable to investigate all the capital flows, both real and social, and all the income transfers which take place between the farm and the nonfarm economies. Unfortunately such was far too ambitious an undertaking, given the limits of time and other resources which, of necessity, had to be imposed upon this study. A much smaller area of inquiry, therefore, had to be delineated.

²⁴Alfred Marshall, Principles of Economics, eighth edition, (London: MacMillan and Co. Ltd., 1956), p. 469.

²⁵For a discussion of early calculations of the amount of capital investment made in people see footnote, Marshall, op. cit. pp. 469-470. Here he refers to the work of Petty, Cantillon, Smith, Engel, and Farr.

²⁶Marshall, op. cit., p. 470.



The problem, then, with which this study was concerned was an estimation of the magnitude of the agriculturally derived social capital transferred by the off farm migration of people who take with them public investment in their education. Stated alternatively, the purpose of this study was to estimate the contribution made by agriculture through the tax system to the education of rural people who then left agriculture and carried with them this investment as they joined the nonfarm economy. Such transfers of social capital represented, in a sense, a contribution by agriculture to nonagriculture.

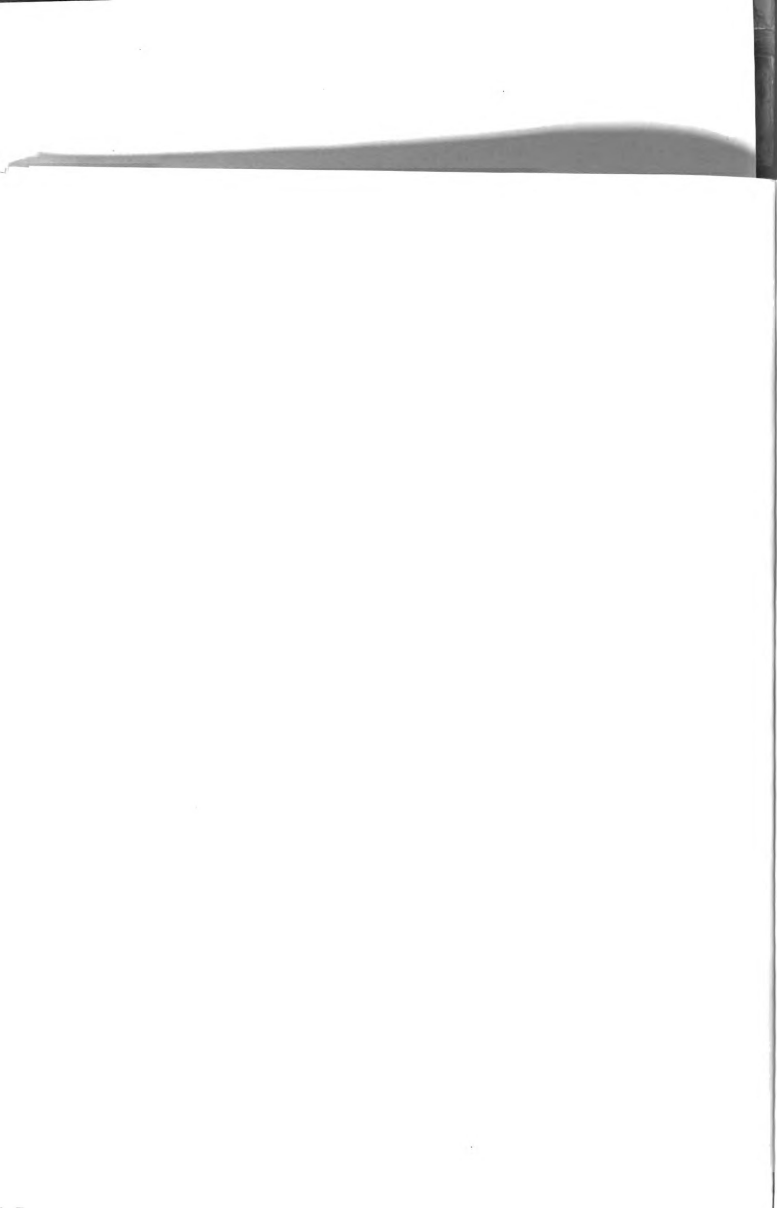
How large was this transfer? It was the hypothesis of this study that the amounts were considerable.²⁷

Long and Dorner offered no evidence to the contrary when they stated the following:

"Finally, above and beyond these expenditures borne directly by families are certain expenditures borne only indirectly by the families in the form of public tax funds. There are, no doubt certain costs shared by the community as a whole with regard to such items as medical care and recreation. These items are considered to be of minor importance and have not been incorporated in this analysis. Perhaps the largest item of this kind is the support of the educational system."²⁸

²⁷The writer was well aware of the fact that this was a hypothesis which could not be tested precisely for the reason that "considerable" was not quantitatively defined. Yet the alternative was to hypothesize that the amount was less than, equal to, or more than some arbitrary amount and there was little justification of this unless one wished to be "scientific" in what is in reality a pseudo sense. Therefore, in one way of thinking this study had no hypothesis to test. It assumed the existence of a phenomenon and attempted to measure its magnitude.

²⁸Long and Dorner, op. cit. p. 367.



Here Long and Dorner suggested that the support of education via the tax system was a relatively small portion of the costs which a family incurred in rearing children. They were not referring to the aggregative figure for the entire economy.

Obviously, any measurement made had to be made for some definite time period. The period chosen for consideration was the 1940 to 1950 decade, a period during which rather substantial off farm movement took place and the most recent for which anything approaching adequate data existed.

The geographical area covered in this study was the continental United States, the forty-eight contiguous states.

Reason for the Study

Off farm migration is a phenomenon of great importance and far reaching consequences.²⁹ "The movement of masses of people . . . is not a matter in which any government, given the widened conception of government now generally accepted, ought to disinterest itself."³⁰ A society viewing this or any phenomenon can devise rational response only if the nature of the phenomenon is understood. To add to the understanding of off farm migration, in the hope that this would provide a more adequate

²⁹See, for example the following: (1) George M. Beal and Wallace E. Ogg, "Secondary Adjustments from Adaptations of Agriculture", Chapter 13, Problems and Policies of American Agriculture, (Ames: Iowa State University Press, 1959), edited by Earl O. Heady, pp. 226-249; (2) Glenn L. Johnson and Joel Smith, "Social Costs of Agricultural Adjustment--with Particular Emphasis on Labor Mobility," Chapter 14, Problems and Policies of American Agriculture, op. cit., pp. 250-271.

³⁰A. M. Carr-Sanders, introduction to Julius Isaac, op. cit., p. xi.



basis for intelligent response to the phenomenon, was the reason for undertaking this study.

Was the transfer of social capital from agriculture to nonagriculture unique? Is it not common in our society for youth reared by one occupational group to enter another occupational group? Obviously, it is common, but the movement from agriculture was atypical in at least two respects. First, few movements of people from one occupational group to another have been as persistent or as consistent in direction as has the movement of people off the farm. Second, in few cases has an occupational group been the recipient of deliberate income transfers from the rest of society via government.

Several facts appear to make relevant a study of the magnitude of the investment in the education of off farm migrants which is borne by agriculture. Such investment is a contribution to the social capital of the nonfarm economy and constituted a use of agricultural incomes which otherwise might have been used to provide increased physical capital for the agricultural industry, increased levels of living, or for other purposes. The income transfers which agriculture received were a similar drain on the income of the nonfarm sector.

In view of the rather general concern for the costs of the farm programs and the extensive review the problem was receiving in the press at the time of this study, it seemed worthwhile to study the drains on agricultural income which were of benefit to the nonfarm economy, for it appeared that such phenomenae were not generally recognized.

That an economist should choose to study pecuniary sums was not surprising, but why, it well may be asked, was this particular drain on



agricultural incomes chosen for study? Has investment in the education of off farm migrants some special significance?

In an attempt to answer this question, it was necessary to build a framework within which the costs of rearing children could be analyzed. Costs were broken into two types -- capital or investment and noncapital or noninvestment. The first type was defined so as to include (1) that minimal level of outlay for food, shelter, health, and clothing necessary to sustain life and (2) any sums spent for such things as health and education so long as these expenditures resulted in the increased productivity of the individual. The second type included any expenditure not included in the first.³¹ In short, the capital items had implications with respect to the productivity of the human agent and the noncapital items had no such implications. It was reasoned that these capital expenditures, because of their contribution to the increased productivity of the off farm migrant, had important implications for the nonfarm society. Presumably, because the capital expenditures had been made, the gain to the nonfarm society through off farm migration was greater than it would have been had not the investment been made. Thus, it appeared that no segment of society could afford to ignore the importance of such capital or investment expenditures.

³¹While these two categories were set up as mutually exclusive, it must be recognized that a specific expenditure may involve elements of both. For instance, a pair of shoes in January may well be a capital item while a second pair would be a noncapital item.



Expenditures for education may be part investment and part noninvestment, or consumption, in nature. In some societies it may well be that a relatively large part of educational expenditure has been used to provide education for which the economy had little economic demand; however, in the United States our education has been such that it appeared that the expenditures for education were by and large capital or investment in nature. Of these costs of education there were two components -- that borne by the family directly and that borne by society through its contributions to the tax funds. The costs borne directly by the family were largely discretionary in nature,³² but those borne through the tax system were not so discretionary.

The taxes levied on farm people to support the education of off farm migrants fell on both families from which there came off farm migrants and on families from which there was no exodus to the nonfarm sector. In addition, there were families that furnished off farm migrants and contributed little to the tax support of their education. The varied sources and incidence of the taxes alluded to above made it clear that it was not possible to view them as voluntary consumption expenditures made by the families which contributed the migrants.

³²The family borne costs were largely discretionary in nature only with respect to some absolute minimal level. With respect to some culturally acceptable level, a much smaller share of the family borne costs was discretionary.



Once a decision as to the level of public educational expenditure had been made through the tax rate,³³ no real choice was left to farm people. Indeed, even the tax rate was not completely discretionary since certain minimal levels of education were imposed by society as a whole.³⁴ These expenditures for education were by and large a commitment which was institutionalized and had to be met. As a relatively fixed commitment, it was of special importance to farm people who found that it had to be met without regard to its return, a return which was to accrue mainly to the nonfarm economy through the increased productivity of the off farm migrant.³⁵

Thus it seemed that the portion of public investment in the education of off farm migrants paid for by agriculture was of particular importance. It was a drain on the resources of the farm sector over which individual families had limited control and from which the nonfarm sector would derive the major benefit through the increased productivity of the off farm migrant. Indeed, it was a type of forced savings. Because of the implications for productivity, it seemed quite possible that a fairly small capital transfer of this nature, i.e., social capital, might well be of more far reaching importance to the society than a much larger volume of noncapital expenditure made in the rearing of off farm migrants.

³³The decision as to tax rate was of particular importance to farmers since much of the school tax was raised from real estate taxes. That the real estate tax may not be according to earning capacity is well known.

³⁴Indeed, it is doubtful if the farm sector was the instigator or even supported in early days the laws requiring school attendance of all children below a certain age.

³⁵To avoid confusion, it should be noted that the topic of discussion here is the education of off farm migrants, not that of all farm children.

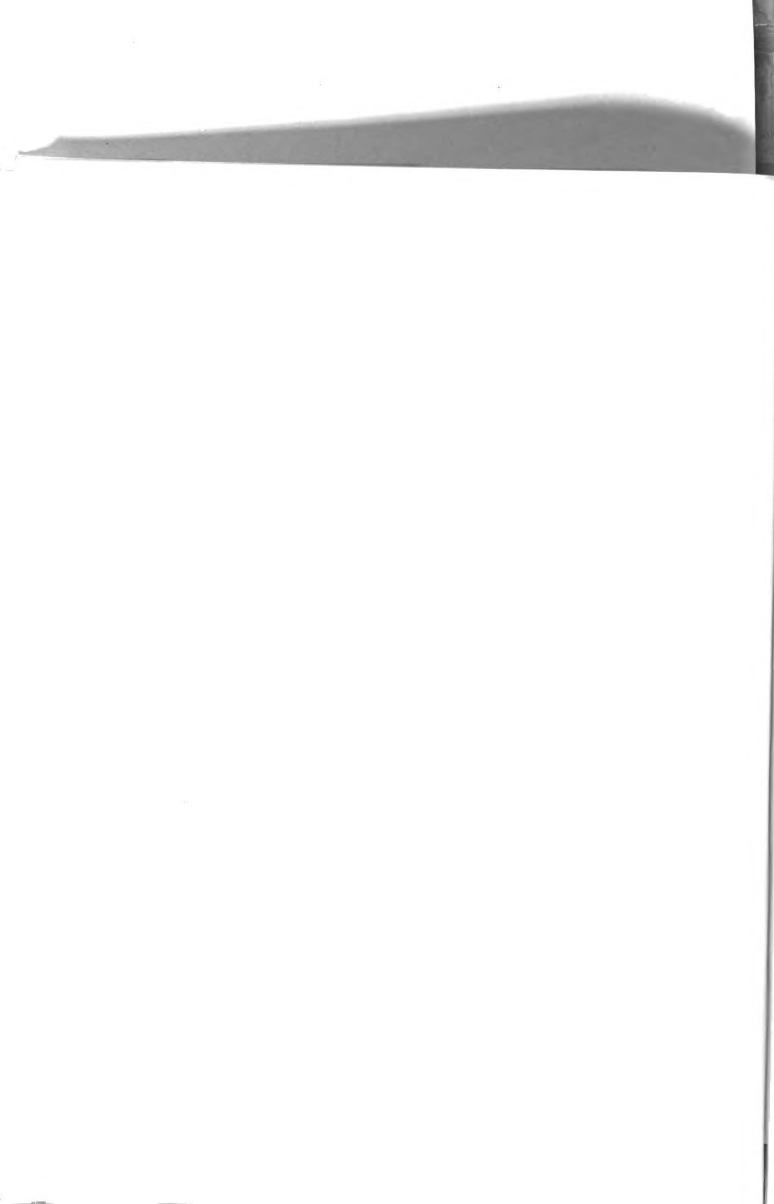


From the public relations standpoint, it is to agriculture's advantage that this and other contributions from agriculture to the non-farm economy be better understood and more widely recognized. It seemed likely that the society was informed about transfers made to agriculture but unaware or poorly informed about transfers in the other direction. It was hoped that this study would contribute to a more general understanding of the fact that transfers from sector to sector were two way phenomenae.

When it was realized that according to some estimates³⁶ agriculture in the two decades ahead was expected to require one-fifth to one-third fewer workers and that it was likely that there would be a one-fourth to one-third million net out migration annually during the period, it became very important that these transfers of social capital be recognized, for manpower adjustments affect both the area from which the migrants come and the areas to which they go and, in addition, they affect the operation of the entire economy.³⁷

³⁶J. Carroll Bottum, "The Impact of Anticipated Trends and Shifts of Population upon American Agriculture." A paper presented to the American Agricultural Industries Conference, Cornell, June 1956, Cornell University School of Business and Public Administration in cooperation with the New York State College of Agriculture, Ithaca, pp. 6-7.

³⁷William H. Metzler, "Implications of Changes in Rural Manpower in the South", an address prepared for delivery before the Association of Southern Agricultural Workers, Birmingham, February 5, 1957, p. 7.



CHAPTER II

THE ESTIMATING PROCEDURE

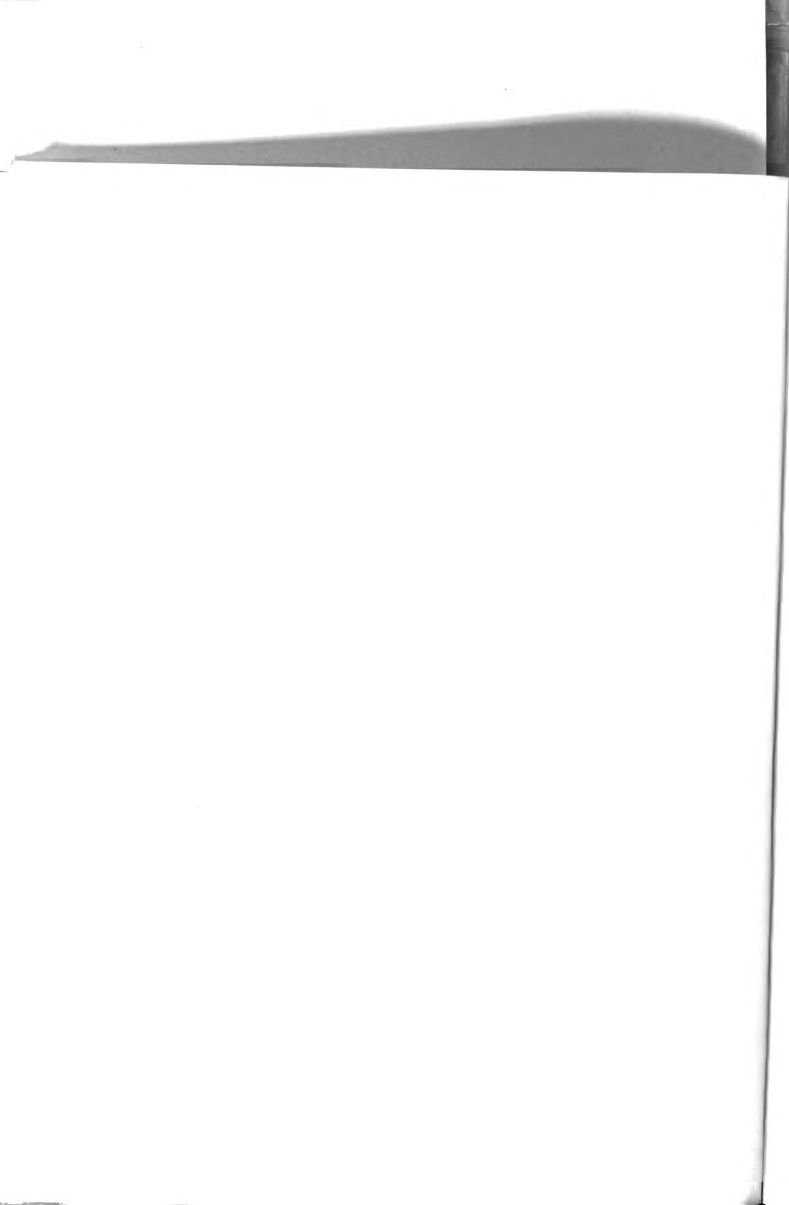
The final aim of this study, as has already been pointed out, was to estimate agriculture's investment in nonfarm social capital which had its origin in agriculture's public investment in the education of persons who migrated from farms in the period 1940 to 1950.

Extent of Off Farm Migration

The first question with which this study had to deal was the number of persons migrating from agriculture during the period in question. The basic data on the extent of off farm migration were derived from the work of Bowles¹, hereinafter referred to as Net Migration. Estimates of net loss by age were given for United States Economic Subregions, hereinafter referred to as subregions. Estimates of the same type were provided for states. Lastly, estimates of out migration were given for state economic areas, hereinafter referred to as areas. No age estimates were given with the area totals.

From table 5 of Net Migration, net out migration from agriculture was obtained for each state. This figure was also broken into age categories. Thus it was possible to obtain for each state data like that in TABLE II-1.

¹Gladys K. Bowles, Farm Population, Net Migration from the Rural Farm Population, 1940-50, Statistical Bulletin No. 176, (Washington: Agricultural Marketing Service, United States Department of Agriculture, June, 1956).



To clarify the above presentation, it should be noted that on the basis of criteria of economic homogeneity the United States was broken into economic regions; the regions into economic subregions; and the subregions into state economic areas.² In Net Migration, data were given for each of these breakdowns and, in addition, data were given for states.

The Educational Level Distributions

The next step was to derive educational level distributions for off farm migrants so that these could be applied to the net change figures to produce estimates of the amount of education obtained by the migrants from agriculture.

It was noted that the state boundaries were political in nature and thus did not necessarily enclose areas which exhibited a large measure of economic homogeneity. It was also reasoned that if the educational level of migrants from various homogeneous economic portions of the state significantly differed, any educational distribution for the state would yield misleading results unless migration from the various portions was at the same rate.³

²Donald J. Bogue and Calvin L. Beale, Economic Subregions of the United States, Series Census-BAE, No. 19, United States Department of Commerce and United States Department of Agriculture, June 1953, pp. 1-4. See this for a brief discussion of the criteria of economic homogeneity.

³The reasons for this will become clear a little later when the discussion to assume that migrants were representative of the rural farm population is discussed. Had it been possible to produce directly a state educational level distribution for the migrants, the use of state boundaries would have presented no problem, for the varying migration rates from different economic areas would have been incorporated in the synthesis of such a distribution.



TABLE II - 1 Net change in rural farm population due to migration, Michigan, 1940-50

Age in 1940	Total (000)
0-4	+ 2
5-9	-12
10-14	-45
15-19	-46
20-24	-18
25-29	-3
30-34	— ^a
35-39	—
40-44	-3
45-49	-4
50-54	-7
55-59	-10
60-64	-9
65 and over	-10
Total	-163
Computed Sum b.	-165

^aThis indicates less than 500 in the category

^bThis sum was computed since due to rounding error the state total did not always equal the sum of the age groups.

Source: Bowles, op. cit., Table 5.



Thus it was felt that state educational distributions might well be inadequate. To get around the problem of intra-state economic heterogeneity and still allow the use of available state migration data and the ultimate synthesis of estimates of state educational losses, it was decided to break each state into the subregions which composed it.⁴ Precisely, how this procedure was useful will become clear a little later.

For each of the subregions composing a state, data similar to that of TABLE II - 1 were obtained from Table 7 of Net Migration. The next step was to obtain from Table 9 of Net Migration an estimate of net change in rural farm population for each state economic area. A tabular presentation of this is shown in TABLE II - 2. A similar table was prepared for each state.

Note that TABLE II - 2 shows net loss. For convenience, from here on the figures are given in terms of net loss, not net change as in the original data from Net Migration. This amounts to multiplying the original data by -1. Thus the absense of a sign indicates a net loss and the use of a minus sign indicates a net gain.

In TABLE II - 2 the losses of each state economic area were allocated to the United States Economic Subregion of which the state economic area was a part. Thus from TABLE II - 2 it may be determined that of the 120,000 migrants in subregion 66, 50,000 came from Michigan. Further, it may be seen that these 50,000 migrants came from Michigan State

⁴It should be noted that the subregions may not be entirely included within any one state.

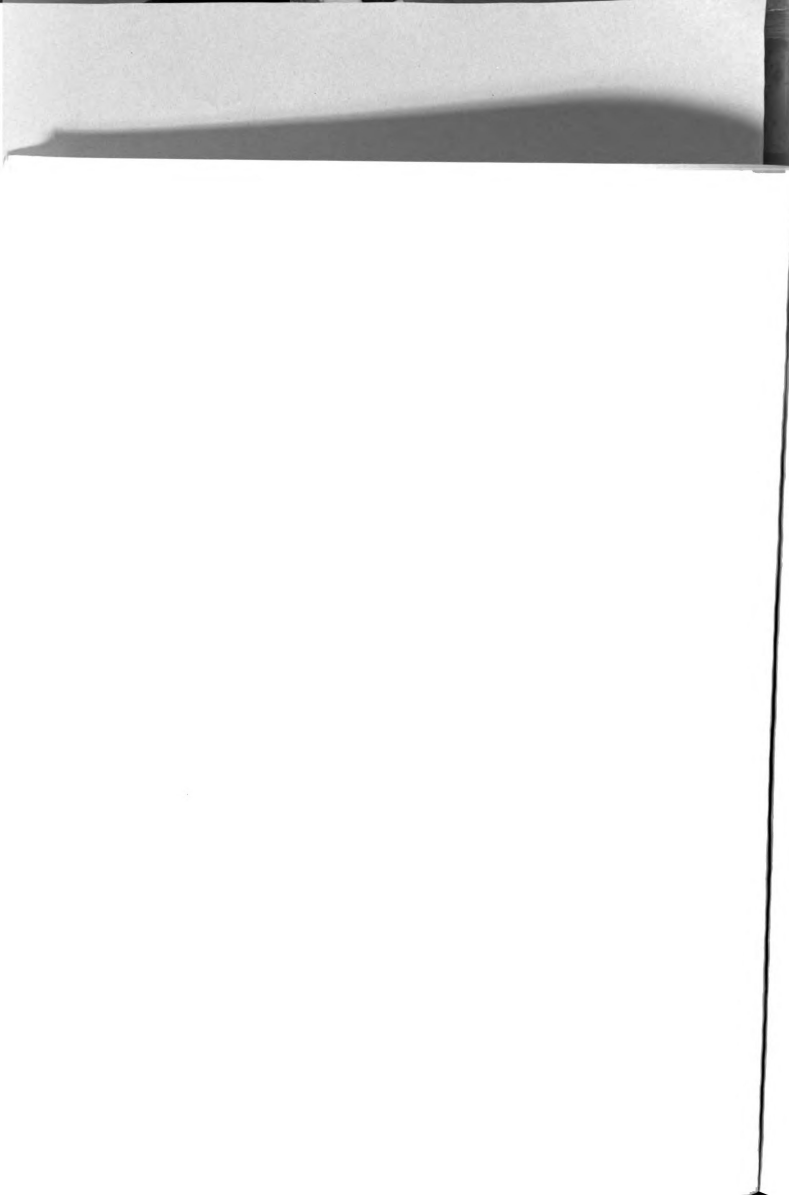


TABLE II - 2 Net loss in rural farm population due to migration, Michigan, 1940-50

		U.S. Economic Subregions Composing Michigan ^a			
Age in 1940	Michigan (000)	# 66 (000)	# 49 (000)	# 50 (000)	# 48 (000)
0-4	-2	4	-1	-1	---
5-9	12	11	6	2	21
10-14	45	27	20	8	24
15-19	46	27	22	8	10
20-24	18	12	8	3	2
25-29	3	5	1	---	---
30-34	---	3	---	-1	---
35-39	---	3	---	---	1
40-44	3	3	1	---	3
45-49	4	4	2	---	4
50-54	7	5	3	1	---
55-59	10	6	5	2	6
60-64	9	5	4	2	5
65 and over	10	5	5	2	7
Sum	163	120	75	26	88
Computed Sum ^b	165	120	75	26	88

Michigan Economic Area					
1	10	10			
2	9	9			
3	9			9	
4a	18	18			
4b	13	13			
5a A	22		22		
5b	14		14		
6a B	13			13	
6b	4			4	
7 CDE	22		22 ^c		
8 F	16		16		
9a	7				7
9b G	6				6
Sum	163	50	74	26	13

Michigan area losses allocated to subregions of which areas are part

See following page for footnotes.



Footnotes to TABLE II - 2

^aThe subregions are not necessarily completely within Michigan.

^bThese sums were computed since due to rounding error the total loss for the states and subregions did not always equal the sum of the age groups.

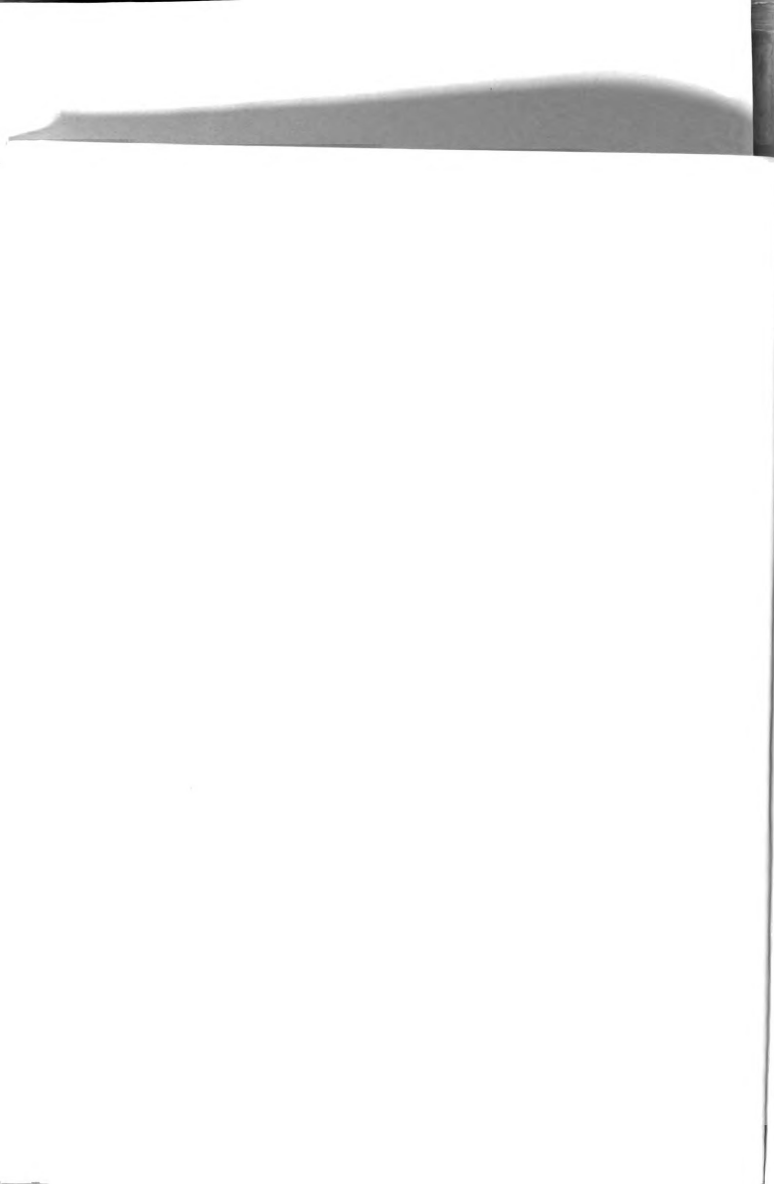
^cMuskegon was in United States Subregion 50 but its designation, C, was such that it could not be separated from erroneous inclusion in United States Subregion 49. Since Muskegon was a relatively small component of 7 CDE the error introduced was small.

Sources: Bowles, op. cit., Tables 5, 7, and 8.

Economic Areas 1, 2, 4a, and 4b. It may also be determined that of Michigan's 163,000 migrants, 50,000 were from Michigan's portion of United States Subregion 66. The interpretation of TABLE II - 2 may be continued analogously.

The data on losses in the state economic areas were given only as totals and without age distributions. This was unfortunate since from examination of the subregions, it was apparent that the age distribution varied widely among subregions. It seemed probable that, this being the case, there would be considerable variation between the state economic areas in one subregion and those in another. To preserve the effects of any variation in the age distribution of a state's migrants from different subregions, it was decided to assume that the losses from that portion of a subregion within a state had the age distribution of the losses of the entire subregion.

At this point, given the basic data and the assumptions already discussed, it was possible to synthesize an age distribution for the losses from each state's portion of a subregion. The next step in getting an estimate of the total education of the migrants should have been to apply to each age category an educational distribution of the relevant migrant population. Unfortunately, the literature failed to yield any such distributions and the only alternative became to develop a method by which the desired migrant educational distributions could be estimated. What was done was to develop an educational distribution for off farm migrants on the assumption that those who left the farm were representative of those who stayed.



This assumption of no selectivity with respect to education was open to serious question, for studies of off farm migration have produced many hypothesis with respect to educational selectivity in migration.

For example, studies in Minnesota in which a comparison of net migration between cities and farms by economic and social groups suggested that the cities attracted the extremes while the farm attracted and held the mean strata in society.⁵ However, further study failed to substantiate a conclusion that farmers are declining in native ability due to migrations of a select group to towns and cities.⁶ Bogue and Hagood⁷ reported that migration to cities was highly selective with respect to education.

"In addition to selecting those persons who were better educated than persons of the same age at the place of origin, it also selected persons who were better educated than persons of the same age at the place of destination. The two major exceptions to this were migrants originating in populations which had a level of education considerably below that of the city.

"(a) Although migration selected the better educated of the farm population, the average educational attainment of the farm population is still below that of the urban population to which they migrated. (b) Possibly because of the major social and economic

⁵Carl C. Zimmerman and O. D. Duncan, "The Migration to Towns and Cities," Journal of Farm Economics, Volume X, No. 4, (October 1928), p. 506.

⁶Zimmerman and Duncan, op. cit., p. 515. It should be noted that while these studies do not bear directly upon educational attainment, they do throw some light on it if, as seems likely, educational attainment is fairly highly correlated with class position. In fact, Zimmerman and his students suggested that this was probably true with respect to education. See Otis Durant Duncan, The Theory and Consequences of Mobility of Farm Population, Experiment Station Circular No. 88, May 1940, Oklahoma Agricultural and Mechanical College, Stillwater, p. 20.

⁷Donald J. Bogue and Margaret Jarman Hagood, "Differential Migration in the Corn and Cotton Belts", Subregional Migration in the United States, 1935-40, Volume II, Scripps Foundation Studies in Population Distribution No. 6, p. 57.

changes under way in the South, the migration of the nonwhite Cotton Belt population contained disproportionately large numbers of the least well educated as well as the better educated."⁸

Hamilton reported that migration rates from the rural farm areas for the 1940-50 decade were the heaviest for the lower levels of education.⁹ However, this same study revealed higher rates of migration from both extremes of education in North Carolina.

Martin reported that positive educational selectivity of off farm migrants was important in the early years of a migrational stream and less important as the stream became developed.¹⁰ This and similar evidence¹¹ led Hathaway to suggest that the pattern of educational selectivity may have changed.¹²

As late as 1959 Bogue discussed the paucity of data on migrants and pointed out that comparatively little information had been obtained about the characteristics of migrants in each stream.¹³

⁸Loc. cit.

⁹C. Horace Hamilton, "Educational Selectivity of Rural-Urban Migration: Preliminary Results of a North Carolina Study", p. 6. This paper may be found in Proceedings of the 1957 Annual Conference, Milbank Memorial Fund, pp. 110-122.

¹⁰Joe A. Martin, Off Farm Migration: Some of Its Characteristics and Effects upon Agriculture in Weakley County, Tennessee, Bulletin 290, August 1958, Agricultural Experiment Station, University of Tennessee, Knoxville, pp. 6-9.

¹¹Ben H. Luebke and John F. Hart, "Migration from a Southern Appalachian Community," Land Economics, Volume XXXIV No. 1, (February 1958) p. 50.

¹²Dale E. Hathaway, "Migration from Agriculture: The Historical Record and its Meaning," Journal Article No. 2544, 1959, Michigan Agricultural Experiment Station, East Lansing, p. 5. This page number citation refers to a typed draft of the article. This paper was presented at the joint winter meetings of the American Economic Association and other associations and is soon to be published in the American Economic Review.

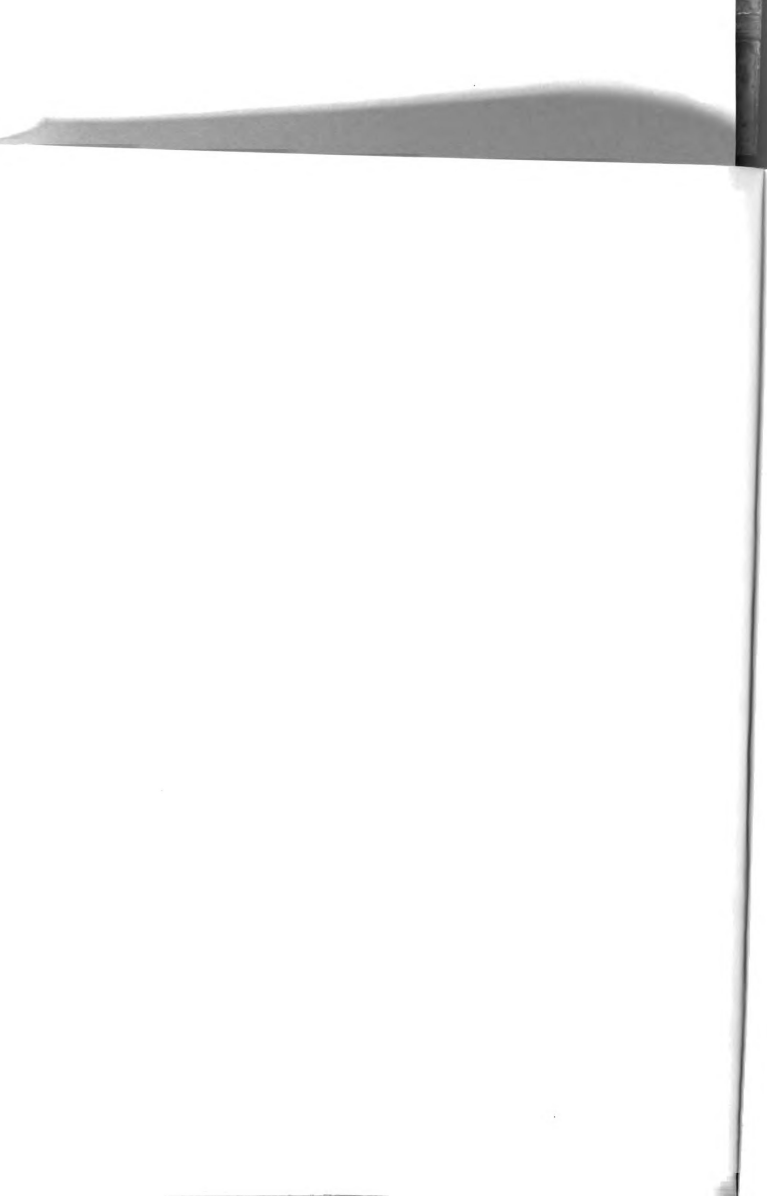
¹³Donald J. Bogue, "Internal Migration", Chapter 21, The Study of Population, edited by Philip M. Hansen and Otis Dudley Duncan, Chicago: University of Chicago Press, 1959), p. 501.

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The existence of such diverse conclusions regarding the educational selectivity of off farm migrants made the selection of an adjustment coefficient impossible. Indeed, it seemed that there might be some doubt even as to its direction.

In view of this diversity of conclusions regarding educational selectivity of migration, the neutral assumption of no educational selectivity seemed the most reasonable choice. If positive educational selectivity did exist, that is, if increased amounts of education were associated with increased rates of migration, the amount of education held by migrants would be underestimated, a conservative error. If the migration process selected the extremes in educational attainment, there would result a compensating error in the underestimating of the contribution of the extremes and the overestimation of the contribution of the group with medium educational attainment. In either case, the error introduced seemed to be tolerable.

Now, getting back to the computation of the educational distribution of off farm migrants by using data on the educational level of rural farm people, considerable effort was expended in searching various sources including the most obvious, the 1950 census materials. As might have been expected, the search of the census materials was most rewarding, but unfortunately, the 1950 census materials gave rural farm educational level data by age groups only for states. There were no data for the state portions of subregions and it was these that were needed if the already synthesized age distributions of migrants were to be used as a basis for estimating the amounts of education held by migrants.



Additional search of the published materials was conducted, but this time the 1940 census was included. For the rural farm group, twenty-five and older in 1940, the 1940 census provided educational distributions by county.¹⁴

Since the counties in each state's portion of each subregion were known,¹⁵ it was possible to aggregate the county data in such a way as to produce distributions for state portions of subregions.¹⁶

It was assumed that those twenty-five and older in 1940 had completed their education. Therefore, the 1940 educational distribution of those twenty-five and older was used as an approximation of the 1950 educational distribution of those thirty-five and older.¹⁷

Since there existed no county data for rural farm people under thirty-five in 1950 comparable to that in the 1940 census for those twenty-five and older in 1940, a compromise was made. The state data on rural farm educational levels were used.¹⁸ Implicit in this was the assumption that for this age group, there were no significant differences

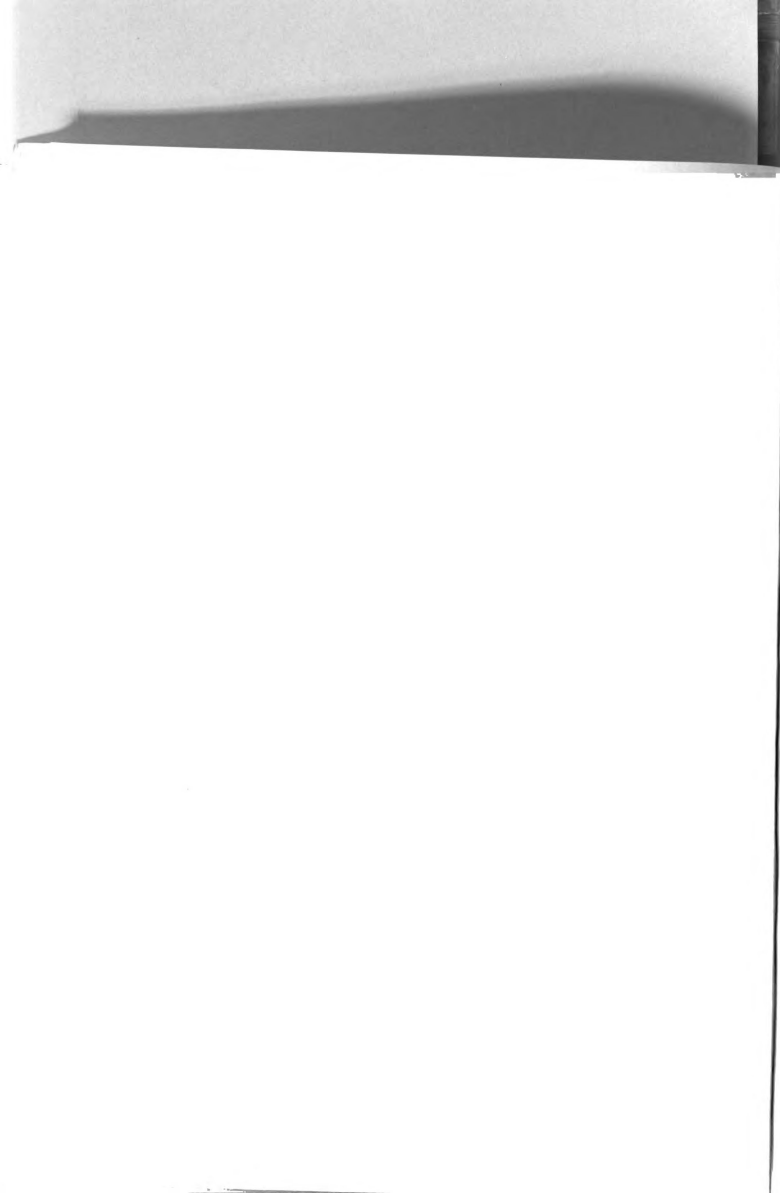
¹⁴Sixteenth Census of the United States: 1940, Population, Volume II, "Characteristics of the Population," Bureau of the Census, United States Department of Commerce, Table 27.

¹⁵Donald J. Bogue and Calvin L. Beale, Economic Subregions of the United States, Series Census-BAE, No. 19, United States Department of Commerce and United States Department of Agriculture, June 1953, Table A.

¹⁶This procedure will be discussed more fully later.

¹⁷This ignored the fact that there were deaths in the decade. Since it must be assumed that death was selective of the older ages, a bias downward in the 1950 educational distribution was introduced to the extent that the younger people were better educated than the old. This error was adjudged to be tolerable.

¹⁸Seventeenth Census of the United States: 1950, "Detailed Characteristics," 1950 Population Census Report, Series P-C, Bureau of the Census, United States Department of Commerce, Tables 64 and 65.

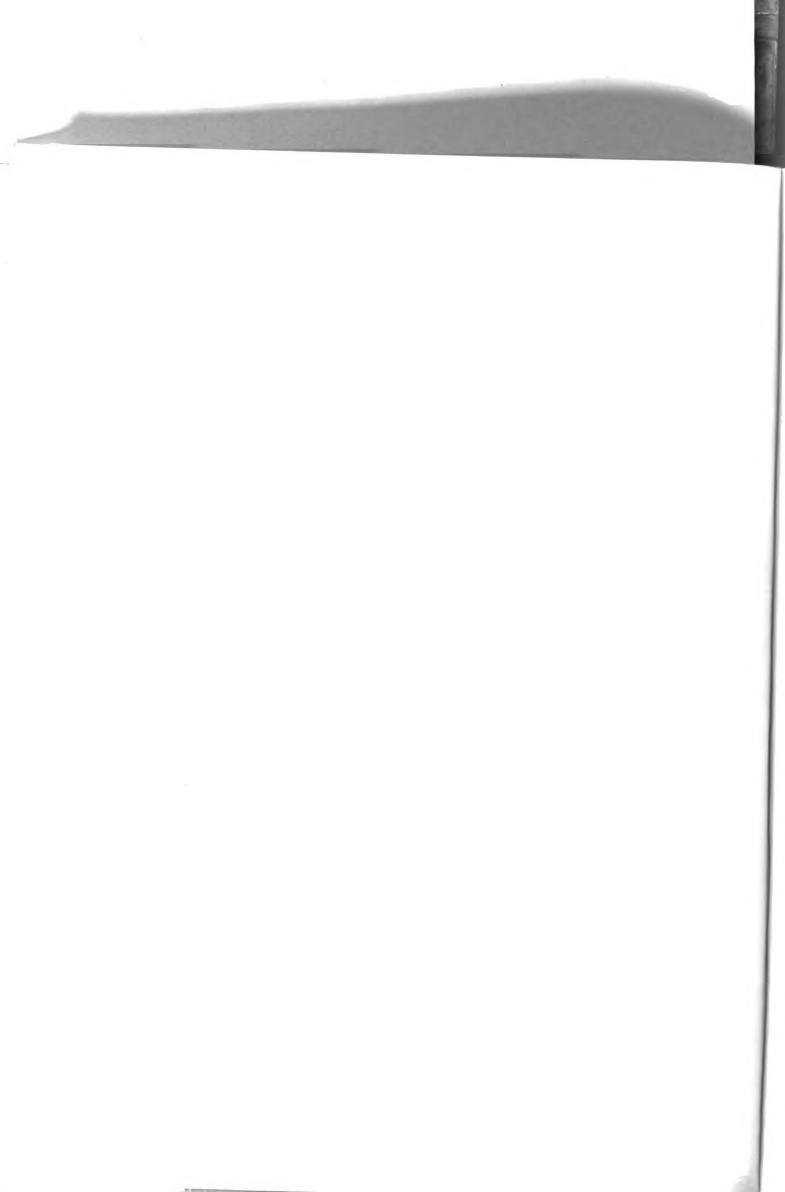


among the educational attainments of the various state portions of subregions within a single state. That this was an unrealistic assumption was probably true, but it was felt that there were probably smaller differences for those under thirty-five than for those thirty-five and older. With improving standards and amounts of education, it seemed likely that there might well be a lessening of the differences within a state.

The only real alternative would have been to ignore all differences in educational attainment within a state and to do this would have robbed the analysis of any refinement introduced by the use of educational level data for state portions of subregions. It seemed preferable to use the more refined data even though completely comparable data were not available for those less than thirty-five in 1950, for by so doing the results of any disparity in educational attainments of various state portions of subregions were at least partially reflected in the final computations of the amounts of education held by migrants.

Thus whatever the merits of the decisions, the basic data from which the educational distribution were computed were taken from county data in the 1940 census and state data from the 1950 census.

Since the data on migrants from Net Migration used age categories as previously shown in TABLE II - 1, it was necessary to compute the educational distributions on the basis of these age categories. The 1940 ages, however, were inappropriate so ten years was added to each category to get an age category for 1950. These 1950 categories were then combined to make them comparable to the educational distributions



which could be computed from the census materials. These age of migrants in 1950 categories were the following: 10-14, 15-19, 20-24, 25-29, 30-34, and 35 and over.

A problem arose, however, for if the 1950 educational distribution of the migrants were applied to the comparable 1950 age group of migrants, this was tantamount to assuming that all migration took place in 1950. Such, obviously, was not the case.

One way around this problem was to apply the 1950 age education distribution of five years less to each 1950 age distribution of migrants. This was the method chosen. This solution carried with it the implicit assumption that all the migration took place in 1945 or, what was the same thing, that the rates of outmigration in the various regions were constant over the 1940-50 decade.

This assumption of a constant rate of migration over the decade was a conservative one. Some data¹⁹ indicated otherwise, but when it was realized that such sources counted members of the armed forces as leaving agriculture when they entered service, the argument that many off farm migrants were counted prematurely had validity.

One fairly minor problem arose with respect to the assigning of the educational distributions to be applied to the category of migrants thirty-five and older in 1950. To use an educational distribution of an age category five years younger gave a nonsense solution. What was an

¹⁹See Statistical Abstract of the United States, 1958, United States Department of Commerce, Table No. 788, p. 611.



age category of thirty years and over minus five years?²⁰ Thus, for this group the 1940 twenty-five and older educational distribution was used. Since most of those twenty-five and older in 1940 were through school, this departure from the use of five year younger educational distributions did not cause difficulty. After all, the reason for using a five year younger educational distribution in the first place had been to allow for education acquired after 1940.

TABLE II - 3 shows the age groups of migrants and the educational distribution with which they were matched to generate estimates of the educational level of the migrants.

TABLE II - 3 Age groups of migrants and educational distribution with which they were matched.

Age of Migrants 1950	Number of Migrants	1950 Educational Distribution
10-14	xxx	5-9
15-19	xxx	10-14
20-24	xxx	15-19
25-29	xxx	20-24
30-34	xxx	25-29
35 and over	xxx	35 and over ^a

^aThis is the 25 and older distribution computed from the 1940 Census.

²⁰Thirty-five and over was the age category for the migrants. An educational distribution for a group five years younger was wanted. A discrete amount could not be subtracted from an open ended category such as thirty and over.



The actual computation of the various educational distributions has been illustrated in Appendix A, but it will clarify this presentation to develop to some extent this procedure here.

From Table A, Economic Subregions of the United States,²¹ herein-after referred to as Economic Subregions, the counties by state from each United States Subregion were obtained. For each of these counties an educational distribution of rural farm population, twenty-five and older in 1940 was obtained from the 1940 Census.²² A percentage educational distribution was then computed so that no years through four or more years of college equaled 100 percent.²³ Such a distribution was obtained for the portion of each United States Subregion belonging to each state.

The 5-9, 10-14, 15-19, 20-24, and 25-29 educational distributions, as has already been explained, were computed from the 1950 Census figures on the educational level of the rural farm population in each state.²⁴ Figures for both the male and the female population were combined. Again,

²¹Donald J. Bogue and Calvin L. Beale, Economic Subregions of the United States, Series Census-BAE, No. 19, United States Department of Commerce and United States Department of Agriculture, June 1953.

²²Sixteenth Census of the United States: 1940, op. cit., Table 27.

²³This involved allocating the no report category to the other groups in the same proportion in which they occurred. This assumed that there was no educational level bias in the no report category.

²⁴Seventeenth Census of the United States: 1950, "Detailed Characteristics," 1950 population Census Report, Series P-C, Bureau of the Census, United States Department of Commerce, Tables 64 and 65.



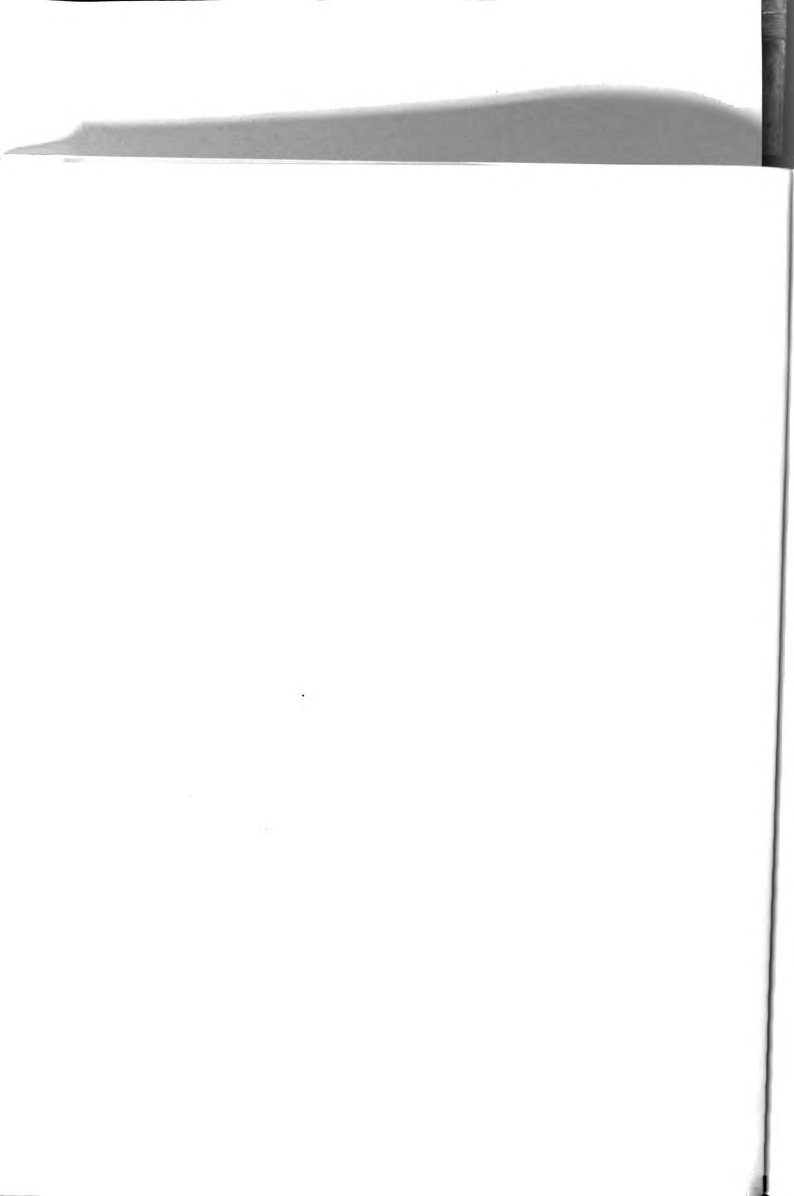
a percentage educational distribution was computed for each category so that no years through four or more years of college equaled 100 percent.²⁵

Since the percentage educational distributions gave a percentage figure for such educational categories as 1-2 years, 3-4 years, 5-6 years, 7-8 years, 9-11 years, and 13-15 years; these percentages were evenly divided among the years included in the category. Thus an estimate was produced which had seventeen categories--no years through four or more years of college--and a percentage figure for each educational level category.

The presentation of TABLE II - 3 and an earlier statement that the losses from that portion of a subregion within a state were assumed to have the age distribution of all losses from the entire subregion, implied the method of developing the estimates of the number of migrants within each age category for each portion of a subregion contained within a state.

It will be recalled that losses from state areas were assigned to the subregion of which they were a part. (See TABLE II - 2, lower right.) Assuming that the loss had the same age distribution as the subregion to which it belonged seemed more justifiable than assuming the loss had the age distribution of the entire state. The subregions exhibited a

²⁵As with the group twenty-five and older in 1940, this involved allocating the no report category to the other groups in the same proportion in which they occurred. This assumed that there was no educational level bias in the no report category.



greater degree of homogeneity²⁶ than did the states. One minor problem, however, did occur. The allocating of the losses had been done on the basis of the actual sum²⁷ so that the fractions by which the loss was multiplied would sum to one.

The final step in getting an estimate of the educational level of the migrants in each state was to sum the estimates for that portion of each subregion within the state.

The step by step process by which the estimates for each state were derived is presented in Appendix A.

Determining the Portion of Investment in the Education of Migrants Paid by Agriculture

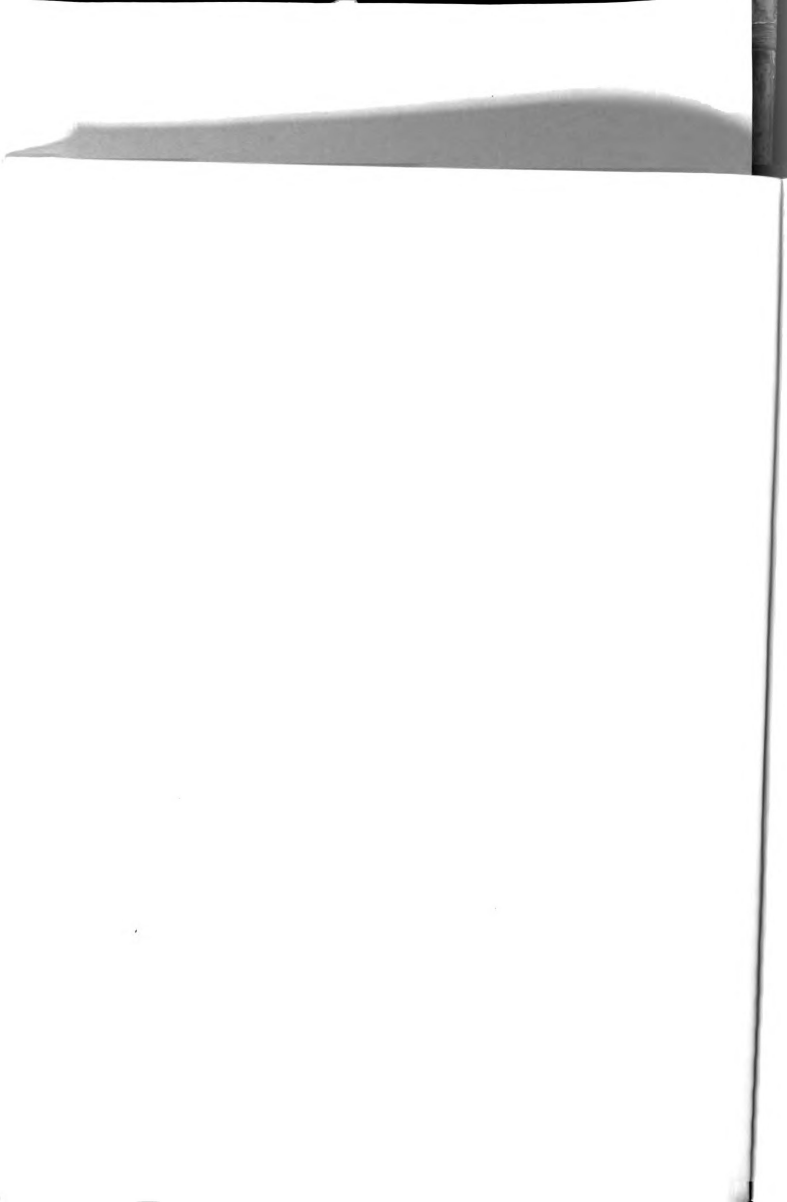
Once the state estimates of the educational level of the migrants had been computed, the next concern was the attaching of a "price tag" to them.

The estimated educational level of 1940-50 net off farm migration was only an estimate of the years of education held by the migrants. Unfortunately, there was little clue as to when this education had been obtained. True, it was known that such off farm movement was essentially a phenomenon of youth²⁸ but such was hardly sufficient knowledge to allow classification of the education as to the time at which it was obtained. Since such could not be done, it became impossible to value

²⁶See Bogue and Beale, op. cit. pp. 1-2 for the criteria for sub-regions.

²⁷See Footnote b, TABLE II - 1.

²⁸T. Lynn Smith, The Sociology of Rural Life, (New York: Harper and Brothers, 1946), pp. 186-187.

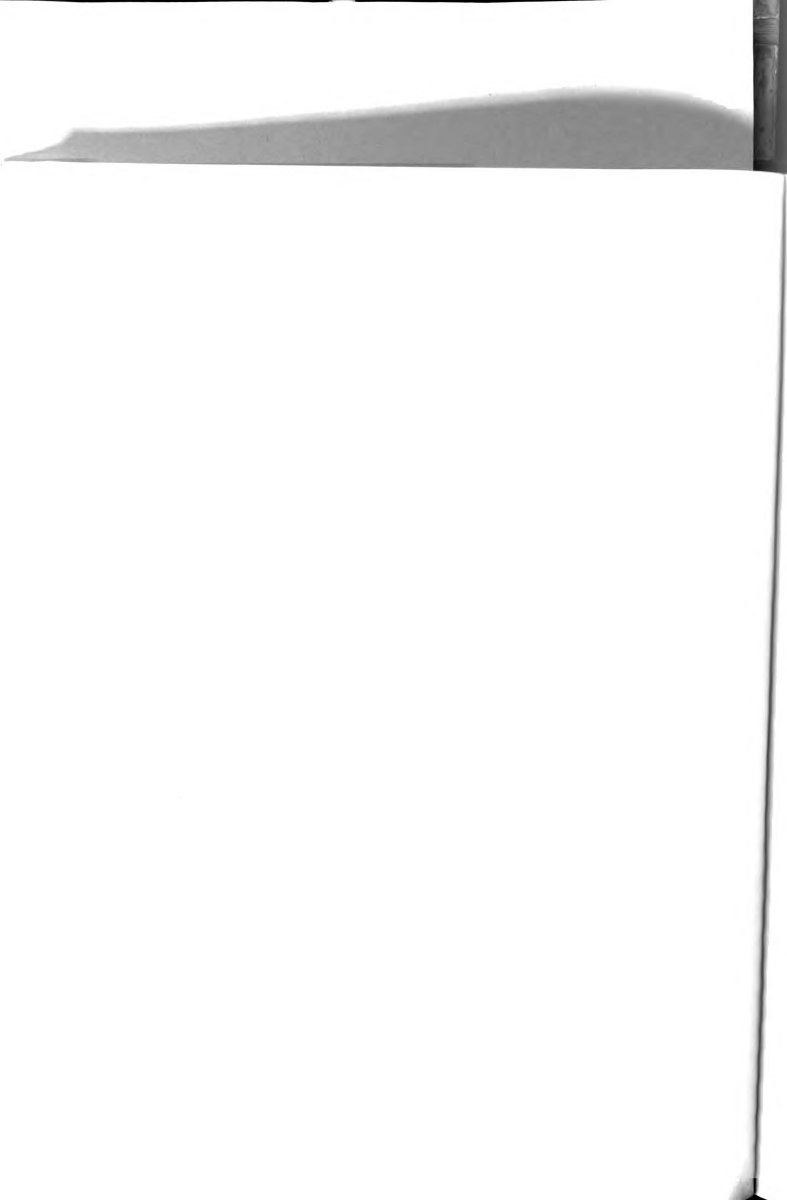


the educational investment in terms of its cost in public expenditure. Rather, there seemed to be no alternative to valuing the educational investment on the basis of the cost of education at some given time. The time chosen was 1940.

The choice of 1940 as the date from which educational expenditures were taken was, to a rather considerable extent, an arbitrary decision. Yet there seemed to be some argument for the choice of 1940. From the age distribution of the migrants it could be inferred that a majority of the educational investment took place prior to 1940. Yet, much education of migrants did take place in the 40's when educational costs were rapidly rising. On the other side, a great deal of the education was obtained prior to 1930 but very little came before 1920. The large drop in school expenditures caused by the depression was in opposition to the rising secular cost trend. It thus became defensible to look at the 1920 to 1940 period as one in which the investment per pupil per year was relatively stable when compared to the years since 1940.

The use of the 1940 figure then underestimates the cost of educational investment since 1940, but it overestimates that before 1940. The overestimation error seemed to be larger, but since there had been a general rise in the price level over time, it did not seem unreasonable to value some of the education at more than its initial cost.

When everything was considered the 1940 figure seemed the most reasonable. Yet the defense of the use of the 1940 figure did not have to be unassailable, for all that could be said with rigor was that the education was valued at cost of production in 1940. Thus, whatever were its merits and its demerits, the cost of education in 1940 was used.

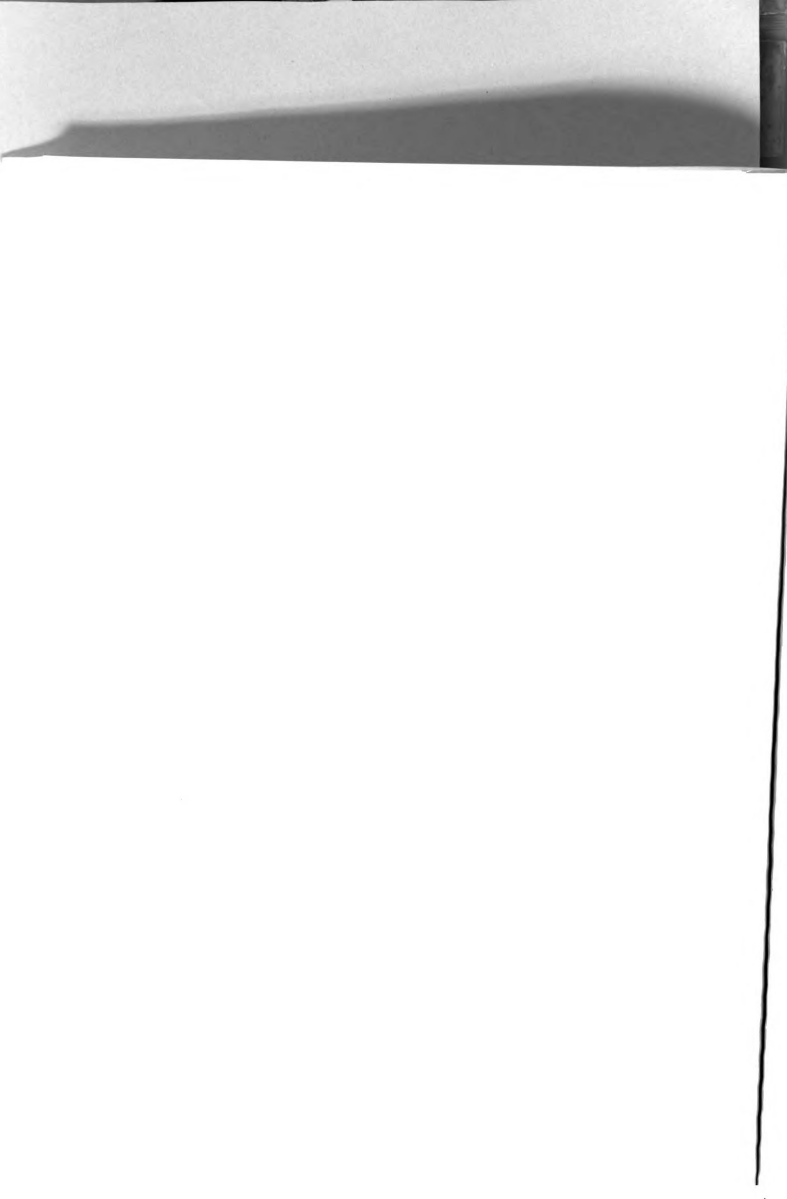


Since, presumably public investment in education was self amortizing because of the increased individual productivity resulting from the investment, it was reasoned that the unamortized public educational investment for each migrant would decrease over the productive life of the migrant. To allow for this, the amount of education held by migrants was adjusted to eliminate the contribution of those fifty years and older at the time of migration.²⁹ Had this not been done, the investment in an eighteen year old migrant with twelve years of education would have been valued the same as that in a seventy-five year old man with twelve years of education. The differences in productive potential after migration certainly had to be accounted for in some fashion.

It must be admitted that the use of fifty years of age as a cut off point was arbitrary. It seemed reasonable, however, for the alternative of valuing the educational investment at a figure which decreased with the age of the migrant would have introduced some refinement, but only at the cost of rather considerable additional complications in computation.

To introduce and clarify the remainder of the computational procedures, a brief preview is in order. Two estimates, designated Estimates 1 and Estimates 2, of the unamortized public investment in the education of migrants for states and the United States were made. To Estimate 1, three estimates of the percentage contribution of agriculture were applied to produce three estimates of the cost to agriculture

²⁹For the computation of this adjustment, please see Appendix B.



of the educational investment in migrants. These were designated Transfer Estimate 1a, Transfer Estimate 1b and Transfer Estimate 1c. To Estimate 2 two estimates of the percentage contribution of agriculture were applied to produce two estimates of the total contribution of agriculture. These were designated Transfer Estimate 2d and Transfer Estimate 2e.

To produce Estimate 1 of total unamortized public educational investment figures on current expense, interest, and capital outlay per rural pupil in average daily attendance, 1939-40 by states,³⁰ were multiplied by the number of years of elementary and secondary education included in net off farm migration, adjusted to exclude those fifty and older at migration. This produced state by state estimates of the total public educational investment in migrants. In addition it was possible to get estimates for the United States, both by direct computation and by summing the state figures.

In order to estimate the amount of this investment which was paid for by agriculture, estimates of the percentage contribution of agriculture to the tax revenues were needed. Unfortunately, there were no available estimates of the percentage contribution of the agricultural sector to public revenues going for the support of the education of rural youth.

Data did exist, however, which could be used to produce estimates which should give at least some insight into the nature of agricultural contributions.

³⁰Statistics of State School Systems, 1939-40 and 1941-42", Biennial Survey of Education, Federal Security Agency, United States Office of Education, Volume II, Chapter III, p. 131.



Estimates of percent of receipts from taxation and appropriation from state, county, and local sources, by state, 1939-40, state school systems, were available.³¹ By combining county and local sources an estimate of the contribution of agriculture was made. Such an estimate failed to allow for contributions made to state and federal funds which were in turn returned and spent on education at the local level. On the side of overestimation, to the extent that the rural areas included tax paying nonagricultural establishments, there was an error. Thus, there were errors of both overestimation and underestimation. It was hoped that they might thus at least roughly compensate for each other and give a usable estimate, especially when aggregated, of agriculture's contribution to the educational investment of the off farm migrant. In any case this did present a measure of the local community investment in the education of off farm migrants.

This estimate of the percentage of the total that the agricultural contribution comprised was multiplied by the total estimated investment, Estimate 1, in the education of the migrants and thus an estimate of the investment from agriculture was obtained for each state. The state estimates were summed for a United States total. This produced Transfer Estimate 1a.

Because there was reason to believe that the data on percent of receipts from taxation and appropriation from state, county, and local sources might reflect differences in the tax structures of the states as well as differences in the ultimate source of public funds, other means of estimation were also used.

³¹Ibid., p. 23.

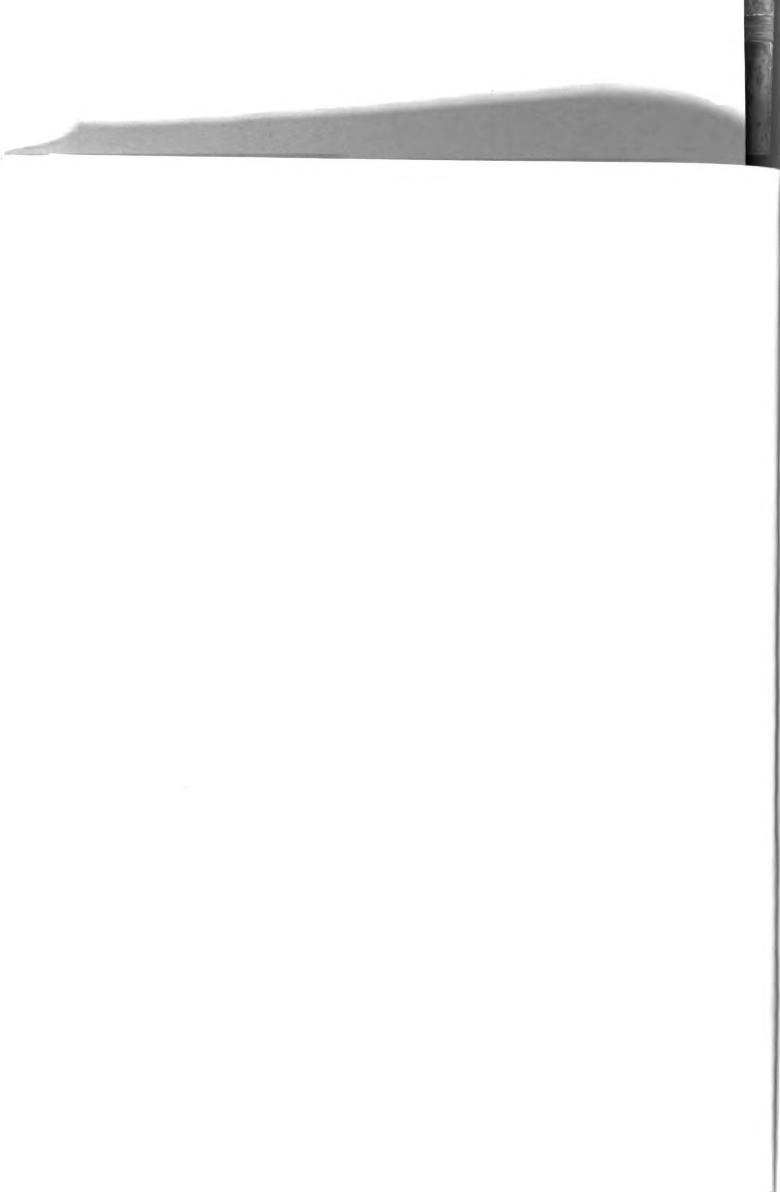
To each state estimate of total public education investment, Estimate 1, the county plus local percentage contribution, United States average³² was applied. This then was summed state by state to give a United States estimate of agricultural contribution to public education investment of off farm migrants. This was designated Transfer Estimate 1b.

Transfer Estimate 1b was not open to the criticism of Transfer Estimate 1a regarding the possible reflection of variations in state tax structures, but to the extent that the percentages used to derive Transfer Estimate 1a reflected real differences in the ultimate source of public funds, the method used to derive Transfer Estimate 1b did introduce error. To evaluate these various errors was not possible. Nevertheless, they had to be pointed out so that the reader would be aware of the problem.

A third transfer estimate, Transfer Estimate 1c, was computed. This computation involved the use of a percentage estimate of the non-federal and nonstate revenues used in the financing of public schools in rural counties.³³ This percentage, 47.2 percent, was multiplied by Estimate 1 of the total state public educational investment in net off farm migrants. The state estimates of the agricultural investment in the education of the migrants were summed to give a national estimate.

³²Loc. cit.

³³Statistics of Rural Schools, A United States Summary, 1955-56, Circular No. 565, May 1959, Office of Education, United States Department of Health, Education, and Welfare, p. 16. Admittedly, similar data for 1940 would have been preferable. It seemed, however, that the use of the 1955-56 figure would if anything underestimate the local contribution because of the trend toward increased federal and state support. Thus the error was a conservative one. Despite the obvious inadequacies of the use of this estimate of local contributions as an estimate of local contributions as an estimate of the agricultural contribution, it was felt that its use could be justified on the basis of a lack of more precise estimates.



As was explained earlier two estimates of the total public investment in the education of the migrants were generated. The first estimate, Estimate 1, gave both state and national estimates. Estimate 2, the computation of which has not yet been explained, yielded only a national estimate of the total public investment in the education of migrants.

To produce Estimate 2 of the total public investment in the education of migrants, the total number of years of elementary and secondary education represented in the national migrant group, adjusted to exclude those fifty and older at migration, was multiplied by the 1940 United States expense, interest, and capital outlay per rural pupil in average daily attendance.³⁴

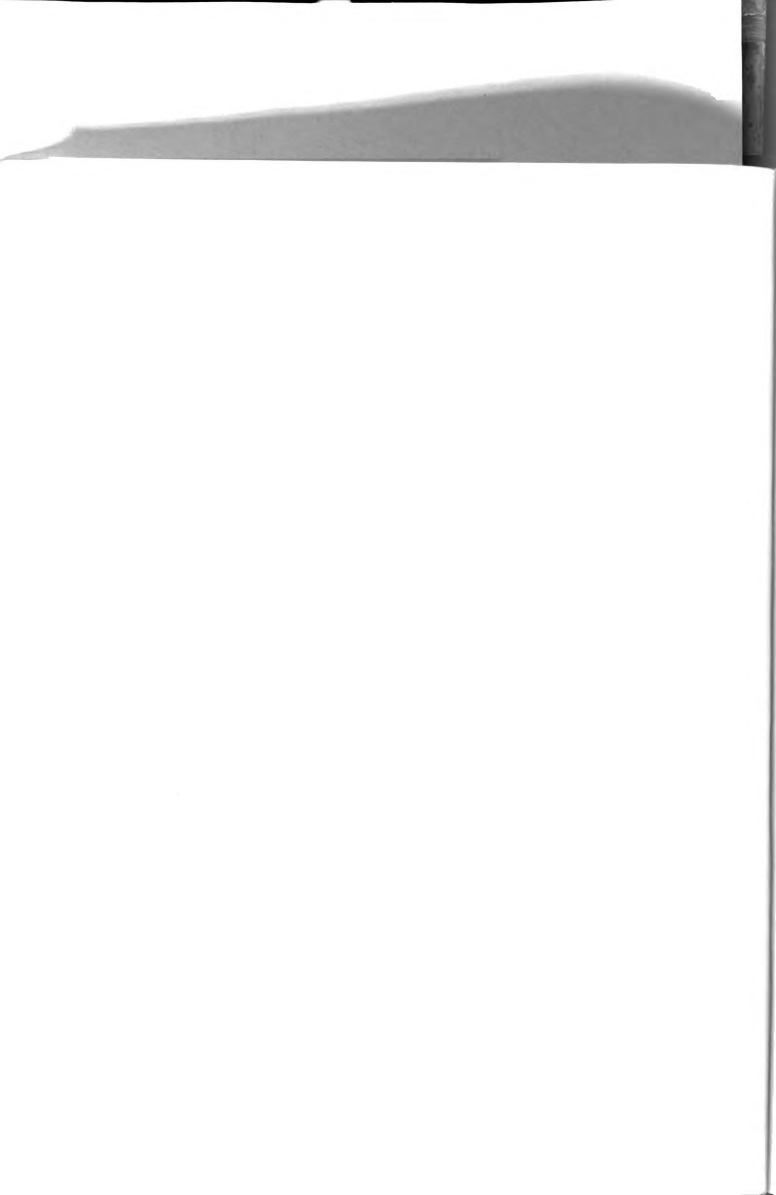
Transfer Estimate 2d was produced by multiplying Estimate 2 of total public investment in the education of migrants by the 69.4 percent, the county plus local percentage contribution to receipts from taxation and appropriation from state, county, and local sources, 1939-40, state school systems, United States average.³⁵

The computation of Transfer Estimate 2e differed from that of Transfer Estimate 2d only in that in place of 69.4 percent, 47.2 percent was used. 47.2 percent was the percentage estimate of the nonfederal and nonstate revenues used in the financing of public schools in the rural counties.³⁶

³⁴"Statistics of State School Systems, 1939-40 and 1941-42", op. cit., p. 131.

³⁵Ibid., p. 23.

³⁶Statistics of Rural Schools, A United States Summary, 1955-56, op. cit., p. 16. Refer to Footnote 33, this chapter.



For a further explanation of the computation of the extent of the social capital transfers, see Appendix B.

It should be noted that no account was taken of the investment in college education. This was necessitated by the lack of knowledge as to what proportion of the college training was obtained in publicly supported schools and how much contribution per pupil agriculture made to his education. This caused a downward bias but not a very large one since the college educated off farm migrant represented a small percentage of total migrants. Further mention of this problem is made in Chapter III.

Weaknesses in the Procedure

The writer was keenly aware of several weaknesses inherent in the estimating procedures used. It must be remembered, however, that one had to deal with data which were available or which could be produced within the limits of time and resources available.

The first area of real weakness was the assumption of no educational selectivity in off farm migration. This assumption probably did not seriously bias the type of estimates made in this study, but were adequate data on educational selectivity, it would have been desirable to use them.

Almost inevitable is criticism based on the failure to break the migration streams into white and nonwhite. The error introduced by this failure seemed tolerable. Remember that the object of this study dealt with educational investment, not numbers of people in various race categories. Thus even in states where nonwhites represented a significant proportion of the off farm migration, the method used did not ignore them. The educational distribution of the rural farm sector took into

account all race groups. The cost figures for rural educational expenditure were a weighted average. This meant that both the educational level estimates and the cost figures did include the nonwhite segment. Even if the findings of Bogue and Hagood³⁷ held, the errors introduced would seem to be a conservative one of underestimation, for the positive educational selectivity of whites was opposed by disproportionately large numbers of the least well as well as the better educated nonwhites.

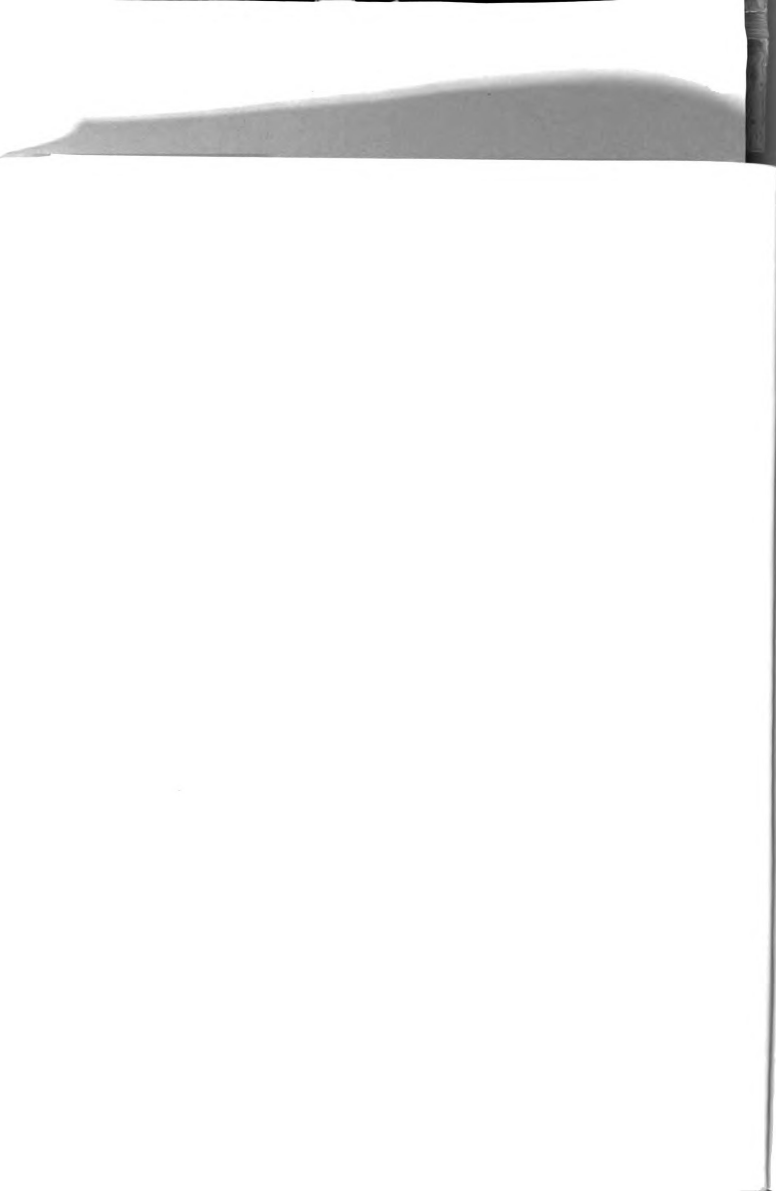
Serious criticism may be directed at the estimates of the percentage contribution of agriculture to total public investment in the education of off farm migrants. Such criticism is not without foundation, but the problem faced here was a paucity of data. These estimates used were selected, not as the best estimates which could be produced by extensive research, but as the best estimates that could be made on the basis of existing information. To go further would have constituted an additional research effort using time and other resources not available for this study.

Data Needed

It became increasingly obvious that too little was known about the characteristics of the off farm migrant group. Census material did not even begin to adequately deal with this group. We need to have a "before" and "after" view of these people. The special tabulations of the 1950 Census³⁸ gave an essentially "after" picture.

³⁷Bogue and Hagood, op. cit., p. 57. See quote this chapter, pp. 23-24

³⁸See United States Census of Population: 1950, Volume IV, Special Reports, Part 4, Chapter C, "Population Mobility - Farm-Nonfarm Movers," United States Bureau of the Census, Washington, 1957.



Of particular interest would be a tabulation which shows the time of and age at migration. Adequate data of this sort did not appear to be available.

Migration is a phenomenon of groups as well as individuals. Adequate data are needed so that we may know to what extent there was migration of families as well as individuals who because of their youth have not established conjugal family ties.

Despite the argument that the failure to breakdown off farm migration by race did not seriously bias the results of this study, it was without doubt, desirable that adequate data by race be collected.

Lastly, there was real need for state by state studies which investigate the source and disbursement of revenues by economic sector. Only with such studies could reasonably reliable estimates of the contribution of agriculture to the education of off farm migrants be made.

Had data of the type discussed in this section been available, it would have been possible to remove many of the "bugs" from this study. Until such data are available, studies of this type will find that too often an inadequate or even questionable method of attack is dictated by the necessity of using the data available. To be forced to develop methods which allow use of the data is seldom preferable to first developing method and then using data which fit the method.

CHAPTER III

RESULTS

The Amount of Education Transferred to the Nonfarm Economy

The level of education of the off farm migrants of the 1940-50 decade was of interest. So far as the researcher knows no estimates comparable to those developed in this study have been published.

TABLE III - 1 is a tabular presentation of these estimates. Because of its nature this table might be particularly interesting to sociologists.

It was of interest to know how many years of education were represented in the net off farm migration of the 1940-50 decade. TABLE III - 2 gives estimates for states and for the United States of the number of elementary and secondary years of education and the number of years of college represented in net off farm migration.

Data from TABLES III - 1 and III - 2 were used to make the regional comparisons shown in TABLE III - 3. The South appeared as the region of heavy off farm migration, but it showed up relatively less heavily as a contributor to the body of education held by the migrants at the time of migration. A group of midwestern states - Ohio, Michigan, Indiana, Illinois, Wisconsin, Minnesota, Iowa, and Missouri - and a group of southern states - South Carolina, Georgia, Florida, Tennessee, and Alabama - had approximately the same number of off farm migrants. The migrants from these midwestern states had approximately 1.4 times as many years of college training as did the migrants from this group of states in the South. Even so, the South (as defined in TABLE III - 3) accounted for more than half the years of education carried by off farm

TABLE III - 1 Estimated educational level of 1940-50 off farm migrants at time of migration, states and United States^a

Years of Education	Political Unit							
	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Florida
No. years	37,521	11,124	28,426	670	3,691	132	418	4,641
Elementary School								
1	23,196	1,906	18,846	306	1,918	-7	252	3,001
2	25,524	2,055	21,045	521	2,014	31	268	3,579
3	31,345	2,396	25,318	1,257	2,216	142	354	4,484
4	33,763	2,393	26,946	2,061	2,394	256	408	5,062
5	46,517	2,778	34,442	3,089	3,395	568	671	6,460
6	53,887	2,927	37,345	3,649	3,513	676	777	7,114
7	51,127	3,752	46,069	8,749	8,573	2,797	1,419	8,437
8	49,900	4,723	58,560	12,965	12,214	4,128	1,727	10,124
High School								
1	36,773	2,464	26,513	7,994	5,871	2,135	948	6,999
2	27,700	2,417	23,065	7,867	5,254	2,234	951	5,669
3	19,673	1,974	16,453	6,755	4,567	1,487	766	4,420
4	31,791	3,987	28,687	17,411	13,108	6,050	1,568	8,941
College								
1	2,515	628	2,051	2,690	1,411	471	124	841
2	2,133	542	1,804	2,121	1,177	586	134	699
3	1,424	293	1,159	1,049	672	366	60	458
4 and over	2,261	641	1,291	1,846	1,012	948	155	1,071
No. of off farm migrants	477,000	47,000	398,000	81,000	73,000	23,000	11,000	82,000

^aIn some cases there is net in migration to the farm population and this situation is indicated by a minus sign.

Source: Computed

TABLE III - 1 Continued

Years of Education	Political Unit								
	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine
No. years	40,296	1,193	6,039	1,501	5,569	5,502	18,819	53,741	554
Elementary School									
1	26,993	682	3,859	1,382	3,138	3,543	13,709	23,644	284
2	30,305	702	3,971	1,437	3,146	3,428	15,693	25,063	350
3	37,241	933	4,627	2,038	3,635	3,718	21,133	29,708	632
4	39,503	1,105	5,470	2,813	4,482	4,120	23,862	30,817	834
5	46,340	1,596	9,122	4,881	7,906	6,330	29,431	31,283	1,305
6	48,840	1,698	9,129	5,400	8,134	6,539	33,784	32,604	1,593
7	55,083	5,567	30,601	16,291	32,180	23,717	48,311	29,683	4,754
8	45,661	8,836	51,150	24,662	48,414	35,244	76,275	23,833	8,137
High School									
1	32,607	5,008	16,601	11,864	14,537	11,044	18,402	17,773	4,051
2	23,899	5,396	16,576	12,674	14,277	11,975	16,708	13,835	3,597
3	30,278	4,708	14,908	9,537	12,797	11,510	12,551	12,810	2,903
4	23,309	12,373	48,590	38,113	49,766	40,880	30,788	13,855	8,048
College									
1	3,139	1,611	3,596	2,246	4,399	4,187	3,318	1,963	675
2	3,297	1,366	2,674	1,545	3,029	2,941	2,666	1,461	536
3	1,669	688	1,748	985	1,808	1,586	1,479	1,121	326
4 and over	2,540	538	2,339	1,671	1,783	1,916	2,071	1,806	421
No. of off farm migrants	491,000	54,000	231,000	139,000	219,000	178,000	369,000	345,000	39,000

TABLE III - 1 Continued

Years of Education	Political Unit						
	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana Nebraska
No years	1,754	-1,094	1,985	7,114	36,585	9,557	2,663 4,551
Elementary School							
1	1,363	-476	1,448	4,456	26,302	7,525	1,337 2,884
2	1,476	-439	1,761	4,398	29,158	7,573	1,384 2,715
3	2,042	-425	2,957	5,051	36,100	9,065	1,548 2,810
4	2,569	-416	4,168	6,305	38,555	10,553	1,658 3,398
5	4,344	-328	6,432	10,633	43,039	14,772	2,263 5,687
6	5,063	-144	7,019	11,015	43,613	16,144	2,359 5,620
7	9,226	181	17,635	36,831	44,406	34,148	6,912 19,221
8	8,337	945	34,930	65,614	50,634	61,333	9,461 29,053
High School							
1	4,825	1,226	15,551	17,002	25,930	18,224	3,432 8,951
2	3,970	1,089	15,605	15,576	22,401	19,848	3,427 9,558
3	3,818	982	11,948	13,008	17,743	15,837	2,837 8,238
4	8,174	3,721	35,114	35,825	29,588	46,461	8,660 32,068
College							
1	841	340	2,552	3,768	2,718	4,247	1,119 3,158
2	594	413	1,787	2,510	2,543	3,140	839 1,817
3	400	110	925	1,558	1,424	1,657	532 1,236
4 and over	1,204	315	1,183	1,336	2,261	1,916	569 1,035
No. of off farm migrants	60,000	6,000	163,000	242,000	453,000	282,000	51,000 142,000

TABLE III - 1 Continued

Years of Education	Political Unit						
	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota
No Years	183	-95	772	9,121	582	30,306	4,991
Elementary School							
1	105	-21	405	3,013	385	19,924	3,305
2	99	3	426	3,308	704	23,885	3,157
3	95	27	499	3,527	1,404	32,031	3,351
4	106	104	603	3,698	2,096	34,523	3,612
5	135	234	973	4,029	4,670	44,047	5,568
6	135	330	1,062	4,539	5,771	46,154	5,761
7	312	1,172	2,530	5,674	17,910	54,800	16,550
8	403	2,185	3,438	7,023	22,873	44,281	29,293
High School							
1	228	1,023	1,395	3,678	10,829	29,477	5,687
2	235	886	1,493	3,561	12,125	23,580	5,464
3	181	879	1,140	2,832	9,766	23,745	4,581
4	584	2,345	3,855	6,514	25,171	22,715	13,456
College							
1	57	287	356	764	2,128	2,497	2,163
2	57	240	307	617	1,866	1,843	1,597
3	30	132	185	483	1,262	1,298	832
4 and over	55	269	561	619	2,458	2,894	632
No. of off farm migrants	3,000	10,000	20,000	63,000	122,000	438,000	110,000

TABLE III - 1 Continued

Years of Education	Political Unit						
	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota
No Years	279	22,700	-721	966	536	24,820	3,444
Elementary School							
1	507	13,759	-296	905	197	16,668	2,103
2	769	15,568	-187	1,114	226	19,034	1,957
3	1,949	16,149	68	2,033	250	24,022	1,976
4	3,613	17,863	396	3,158	153	25,685	2,393
5	6,731	26,534	673	7,394	194	28,082	3,758
6	8,030	28,007	809	9,130	7	29,874	3,927
7	23,320	47,685	2,620	25,231	62	33,108	12,538
8	35,738	65,655	4,675	46,591	-379	25,533	20,883
High School							
1	19,520	31,251	3,054	15,885	-269	18,921	4,799
2	20,463	29,777	3,083	15,233	-379	14,849	4,776
3	15,513	24,600	2,694	10,931	-163	18,177	4,280
4	56,858	53,569	7,081	37,665	-861	13,067	13,358
College							
1	3,173	5,373	806	2,329	-258	1,760	2,294
2	2,324	3,900	539	2,139	-116	2,040	1,233
3	1,616	2,527	321	1,537	-60	1,185	728
4 and over	2,597	3,083	385	2,759	-140	3,175	553
No. of off farm migrants	203,000	408,000	26,000	185,000	-1,000	300,000	85,000

TABLE III - 1 Continued

Years of Education	Political Unit					
	Tennessee	Texas	Utah	Vermont	Virginia	Washington West Virginia
No Years	18,344	90,565	1,064	421	16,567	-2,101 4,619
Elementary						
1	13,302	41,221	397	252	10,567	-757 3,118
2	14,975	45,773	396	319	11,737	-593 3,565
3	18,989	49,296	448	458	15,628	124 4,973
4	21,588	49,173	505	659	18,183	900 6,018
5	28,399	67,377	702	1,096	24,232	1,665 9,708
6	31,489	69,093	732	1,394	26,752	1,901 11,911
7	39,691	83,759	1,860	3,754	37,029	6,528 17,971
8	58,831	91,914	2,490	6,687	26,192	11,136 29,208
High School						
1	20,067	68,797	2,147	2,115	17,154	7,483 10,660
2	18,107	66,677	2,451	2,223	14,258	7,262 9,292
3	13,219	60,416	2,352	1,747	17,646	6,361 6,406
4	27,748	90,987	5,439	4,455	21,698	16,884 15,391
College						
1	2,666	11,467	796	389	2,714	2,046 1,408
2	2,260	9,007	518	405	2,387	1,301 1,133
3	1,383	5,733	356	258	1,401	869 622
4 and over	1,942	8,745	347	368	2,855	991 957
No. of off farm migrants	333,000	910,000	23,000	27,000	267,000	62,000 137,000

TABLE III - 1 Continued

Years of Education	Political Unit		
	Wisconsin	Wyoming	United States
No years	3,930	997	515,242
Elementary School			
1	3,144	527	304,221
2	3,342	549	337,284
3	4,053	578	412,253
4	5,232	571	453,911
5	8,886	863	598,886
6	9,564	863	645,523
7	28,269	2,512	1,010,555
8	54,352	3,366	1,329,188
High School			
1	13,568	1,551	605,705
2	13,271	1,579	555,654
3	10,629	1,450	481,890
4	35,019	4,205	1,054,079
College			
1	2,611	499	102,933
2	2,652	349	80,952
3	1,331	249	49,051
4 and over	1,147	292	71,763
No. of off farm migrants	201,000	21,000	8,609,000 ^b

^bNote that this is the sum of the state totals. Due to rounding error this does not equal 8,610,000, Bowles' estimate for the United States

TABLE III - 2 Estimates of number of years of education represented in net off farm migration 1940-50, states and United States.

Political Unit	Number of Years	
	Elementary and Secondary	College
Alabama	2,921,755	20,097
Arizona	259,428	5,155
Arkansas	2,501,971	14,300
California	741,990	17,463
Colorado	582,122	9,829
Connecticut	219,968	6,533
Delaware	86,208	1,192
Florida	571,315	7,897
Georgia	2,905,906	24,900
Idaho	486,862	8,559
Illinois	1,957,874	23,544
Indiana	1,262,583	14,975
Iowa	1,882,959	23,013
Kansas	1,518,964	22,491
Kentucky	2,456,801	21,371
Louisiana	1,718,335	15,472
Maine	345,107	4,409
Maryland	463,772	8,045
Massachusetts	93,544	2,756
Michigan	1,433,841	13,633
Minnesota	1,947,439	18,806
Mississippi	2,654,886	21,120
Missouri	2,218,257	23,162
Montana	401,915	6,669
Nebraska	1,197,987	14,640
Nevada	23,694	481
New Hampshire	96,328	2,239
New Jersey	164,810	3,769
New Mexico	386,111	5,923
New York	1,101,476	19,478
North Carolina	2,674,138	21,653
North Dakota	827,094	10,381
Ohio	1,903,092	23,057
Oklahoma	2,995,594	33,086
Oregon	262,611	4,387
Pennsylvania	1,635,643	22,254
Rhode Island	-24,799	-1,230
South Carolina	1,758,666	22,095
South Dakota	674,722	9,156
Tennessee	2,205,055	19,103
Texas	6,012,202	81,660
Utah	204,572	4,288

TABLE III - 2 Continued

Political Unit	Number of Years	
	Elementary and Secondary	College
Vermont	229,500	3,445
Virginia	1,767,800	23,111
Washington	631,574	11,219
West Virginia	1,022,644	9,488
Wisconsin	1,662,289	16,496
Wyoming	172,475	3,112
United States	61,219,080	698,682

Source: Computed

TABLE III - 3 A comparison of the contribution to net off farm migration and years of education held by the net off farm migrants, by regions,^a United States, 1940-1950.

Region	Percent of Net U. S. off farm Migration	Percent of Years of Education Held by Net Off Farm Migrants	
		Elementary and Secondary	College
Northeast	5	6	9
North Central	25	30	31
South	64	57	49
West	6	7	11

^aThe regions were defined as follows: Northeast - Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and Pennsylvania; North Central - Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas; South - Delaware, Maryland, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, and Texas; and West - Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, and California.

Source: Computed

migrants. Thus the years of education were greatest in the South, but this was more than offset by the increased levels of educational expenditure in the regions outside the South. While the South contributed more than half of the migrants and more than half of the years of school attendance received by its migrants, it contributed less than half of the agriculturally derived public educational investment in the 1940-1950 off farm migrants.¹

¹This last part of the statement anticipates some of the data presented later in this chapter in TABLE III - 8. It should be noted that the Appalachian, Southeast, Delta, and Texas-Oklahoma regions of TABLE III - 8 comprise what in TABLE III - 3 was designated as South.



TABLE III - 4 Estimates of number of years of education represented in net off farm migration 1940-50, states and United States, adjusted to eliminate the contribution of those 50 and older when they migrated.

Political Unit	Number of Years		Political Unit	Number of Years	
	Elementary and Secondary	College		Elementary and Secondary	College
Alabama	2,621,842	17,422	Nebraska	898,811	10,119
Arizona	225,802	4,296	Nevada	17,805	333
Arkansas	2,220,344	12,219	New Hampshire	57,393	1,172
California	432,778	8,914	New Jersey	98,195	1,973
Colorado	430,712	6,678	New Mexico	329,672	4,911
Connecticut	164,253	4,489	New York	690,711	10,831
Delaware	70,963	925	North Carolina	2,432,219	19,103
Florida	494,445	6,834	North Dakota	645,805	7,540
Georgia	2,870,718	24,497	Ohio	1,402,252	15,585
Idaho	375,134	6,114	Oklahoma	2,570,774	19,823
Illinois	1,485,490	16,500	Oregon	135,414	1,940
Indiana	960,988	10,536	Pennsylvania	1,239,296	15,570
Iowa	1,351,856	15,067	Rhode Island	-14,065	-607
Kansas	1,160,358	15,896	South Carolina	1,581,201	19,202
Kentucky	2,192,345	18,393	South Dakota	492,485	6,117
Louisiana	1,525,553	13,228	Tennessee	1,956,968	16,325
Maine	333,408	4,211	Texas	5,234,073	68,074
Maryland	363,572	5,872	Utah	161,361	3,154
Massachusetts	53,054	1,361	Vermont	160,662	2,187
Michigan	1,081,629	9,486	Virginia	1,573,513	19,825
Minnesota	1,515,095	13,597	Washington	365,736	5,678
Mississippi	2,433,566	18,822	West Virginia	939,208	8,477
Missouri	1,835,184	18,092	Wisconsin	1,232,873	11,240
Montana	300,116	4,582	Wyoming	130,861	2,181
			U. S. A. ^a	51,233,606	553,793

^aDue to rounding error the United States total may not equal the sum of the state total.

Source: Computed

As explained in CHAPTER II, the number of years of education was adjusted to eliminate the contribution of those fifty or older when they migrated. These adjusted estimates are presented in TABLE III - 4.

The Extent of the Educational Investment of Agriculture
in Net Off Farm Migrants

The estimates of total investment in the education of net off farm migrants by state, Estimate 1, are presented in TABLE III - 5. These estimates were based on 1939-40 figures on current expense, interest, and capital outlay per rural pupil in average daily attendance. They include no allowance for college training and therefore had a downward bias. This bias, however, was not great because a small percentage of the off farm migrants had college training.

The estimated transfer from agriculture, or agriculture's contribution to this total educational investment in net off farm migrants, is presented in TABLE III - 6.

If an arbitrary allowance of one hundred dollars per year of college training were allowed as the agricultural contribution to the college training, the estimate of total agricultural contribution to the education of off farm migrants for the 1940 decade was somewhat increased. The estimates which included this allowance for college training are presented in TABLE III - 7.

These estimates of the transfer in educational investment which agriculture sustained as a result of off farm migration support the hypothesis that the transfer was considerable.

It should be pointed out that the estimates of transfer for the United States probably had greater reliability than did the individual

TABLE III - 5 Estimates of the total public investment in the elementary and secondary education of net off farm migrants less than fifty years old at migration, 1940-50, valued at 1940 costs of education.

Political Unit	Estimate of Total Public Investment	Political Unit	Estimate of Total Public Investment
Alabama	\$103,431,667	Nebraska	70,035,353
Arizona	33,019,026	Nevada	3,473,043
Arkansas	76,846,106	New Hampshire	6,810,827
California	88,152,551	New Jersey	12,898,895
Colorado	42,338,990	New Mexico	33,263,905
Connecticut	20,819,068	New York	167,131,341
Delaware	11,603,870	North Carolina	117,403,211
Florida	34,888,039	North Dakota	51,154,214
Georgia	114,398,112	Ohio	149,536,153
Idaho	37,434,622	Oklahoma	180,108,426
Illinois	207,597,228	Oregon	15,128,452
Indiana	89,583,301	Pennsylvania	128,143,206
Iowa	136,956,531	Rhode Island	-940,527
Kansas	119,458,856	South Carolina	69,509,596
Kentucky	94,029,677	South Dakota	47,731,646
Louisiana	113,058,733	Tennessee	84,736,714
Maine	20,457,915	Texas	406,687,472
Maryland	33,397,724	Utah	17,423,761
Massachusetts	8,288,626	Vermont	14,984,945
Michigan	101,608,228	Virginia	81,098,860
Minnesota	156,145,691	Washington	42,845,972
Mississippi	75,975,931	West Virginia	65,406,445
Missouri	132,243,359	Wisconsin	102,217,500
Montana	41,980,226	Wyoming	17,509,202
		United States (Sum of States)	\$3,778,012,689
		United States (Computed)	\$4,402,503,764

Source: Computed

TABLE III - 6 Estimates of agricultural contribution to the public educational investment in net off farm migrants less than fifty years old at migration, 1940-50, 1940 costs of education^a

Political Unit	Transfer Estimate 1a	Transfer Estimate 1b	Transfer Estimate 1c	Transfer Estimate 2d	Transfer Estimate 2e
Alabama	\$42,820,710	\$71,781,577	\$48,819,747		
Arizona	26,018,993	22,915,204	15,584,980		
Arkansas	41,496,897	53,331,197	36,271,362		
California	46,015,632	61,177,870	41,608,004		
Colorado	40,010,345	29,383,259	19,984,003		
Connecticut	18,986,990	14,448,433	9,826,600		
Delaware	847,082	8,053,086	5,477,027		
Florida	16,816,035	24,212,299	16,467,155		
Georgia	47,818,411	79,392,290	53,995,909		
Idaho	32,942,467	25,979,628	17,669,142		
Illinois	186,422,310	144,072,476	97,985,891		
Indiana	59,841,645	62,170,811	42,283,318		
Iowa	135,450,010	95,047,833	64,643,483		
Kansas	105,482,170	82,904,446	56,384,580		
Kentucky	54,725,272	65,256,596	44,382,008		
Louisiana	48,728,314	78,462,761	53,363,722		
Maine	17,205,106	14,197,793	9,656,136		
Maryland	26,083,622	23,178,020	15,763,726		
Massachusetts	7,443,187	5,752,307	3,912,232		
Michigan	54,868,443	70,516,110	47,959,084		
Minnesota	101,182,408	108,365,109	73,700,766		
Mississippi	46,649,221	52,727,296	35,860,639		
Missouri	84,900,237	91,776,891	62,418,865		
Montana	38,453,887	29,134,277	19,814,667		
Nebraska	69,264,964	48,604,535	33,056,687		
Nevada	2,768,016	2,410,292	1,639,276		
New Hampshire	6,436,232	4,726,714	3,214,710		
New Jersey	12,163,658	8,951,833	6,088,279		
New Mexico	10,212,019	23,085,150	15,700,563		

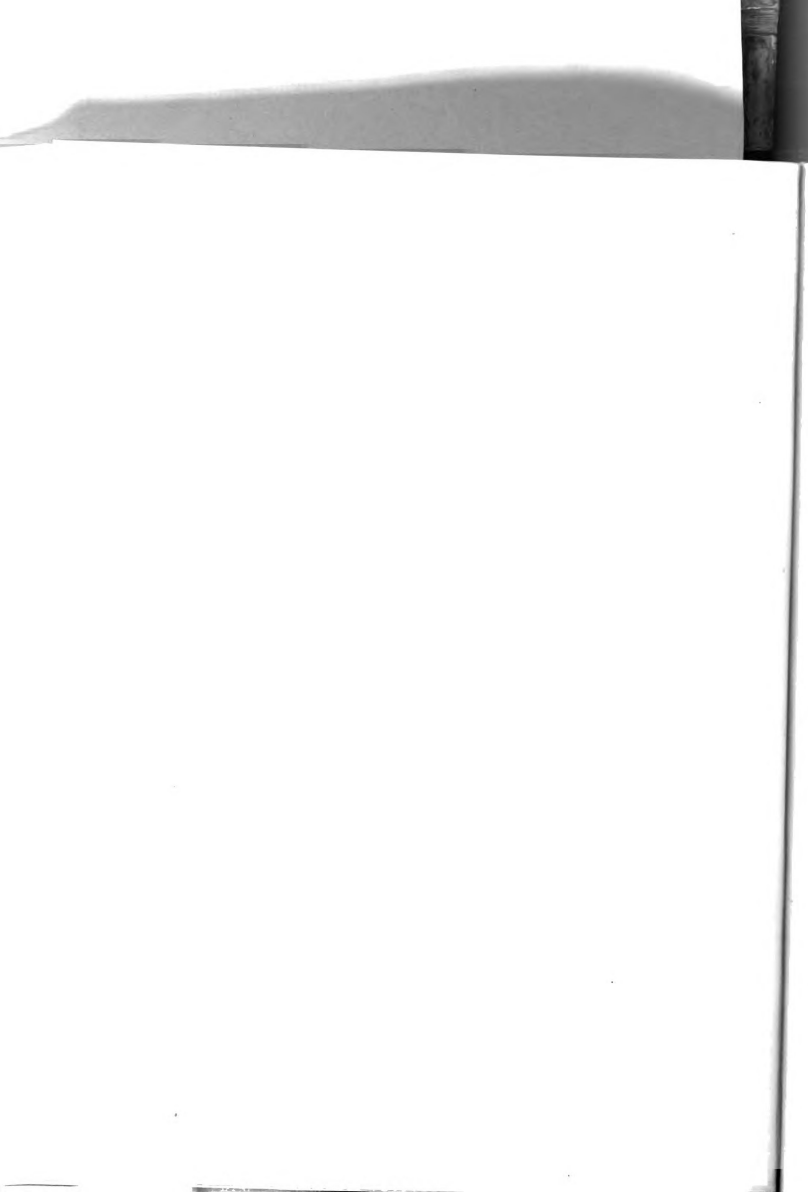


TABLE III - 6 Continued

Political Unit	Transfer Estimate 1a	Transfer Estimate 1b	Transfer Estimate 1c	Transfer Estimate 2d	Transfer Estimate 2e
New York	110,473,816	115,989,150	78,885,993		
North Carolina	33,812,125	81,477,829	55,414,316		
North Dakota	43,788,077	35,501,025	24,144,789		
Ohio	93,161,023	103,778,090	70,581,064		
Oklahoma	107,704,839	124,995,248	85,011,177		
Oregon	15,067,938	10,499,146	7,140,629		
Pennsylvania	100,976,847	88,931,385	60,483,593		
Rhode Island	- 839,890	- 652,725	- 443,929		
South Carolina	34,824,308	48,239,660	32,808,529		
South Dakota	43,674,456	33,125,762	22,529,337		
Tennessee	55,672,021	58,807,280	39,995,729		
Texas	238,725,546	282,241,106	191,956,487		
Utah	10,227,748	12,092,090	8,224,015		
Vermont	12,422,519	10,399,552	7,072,894		
Virginia	52,957,556	56,282,609	38,278,662		
Washington	16,581,391	29,735,105	20,223,299		
West Virginia	31,133,468	45,392,073	30,871,842		
Wisconsin	83,102,828	70,938,945	48,246,660		
Wyoming	16,476,159	12,151,386	8,264,343		
United States	\$2,481,996,988	\$2,621,940,809	\$1,783,221,990	\$3,055,337,612	\$2,077,981,776

^aThese estimates include no allowance for college training.

Source: Computed



TABLE III - 7 Estimates including \$100 per year of college training of agricultural contribution to public educational investment in net off farm migrants less than 50 years old at migration, 1940 costs of education.

Political Unit	Transfer Estimate 1a	Transfer Estimate 1b	Transfer Estimate 1c	Transfer Estimate 2d	Transfer Estimate 2e
Alabama	\$44,562,910	\$73,523,777	\$50,561,947		
Arizona	26,448,593	23,344,804	16,014,580		
Arkansas	42,718,797	54,553,097	37,493,262		
California	46,907,032	62,069,270	42,499,404		
Colorado	40,678,145	30,051,059	20,651,803		
Connecticut	19,435,890	14,897,333	10,275,500		
Delaware	939,582	8,145,586	5,569,527		
Florida	17,499,435	24,895,699	17,150,555		
Georgia	50,268,111	81,841,990	56,445,609		
Idaho	33,553,867	26,591,028	18,280,542		
Illinois	188,072,310	145,722,476	99,635,891		
Indiana	60,895,245	63,224,411	43,336,918		
Iowa	136,956,710	96,554,533	66,150,183		
Kansas	107,071,770	84,494,046	57,974,180		
Kentucky	56,564,572	67,095,896	46,221,308		
Louisiana	50,051,114	79,785,561	54,686,522		
Maine	17,626,206	14,618,893	10,077,236		
Maryland	26,670,822	23,765,220	16,350,926		
Massachusetts	7,579,287	5,888,407	4,048,332		
Michigan	55,817,043	71,464,710	48,907,684		
Minnesota	102,542,108	109,724,809	75,060,466		
Mississippi	48,531,421	54,609,496	37,742,839		
Missouri	86,709,437	93,586,091	64,228,065		
Montana	38,912,087	29,592,477	20,272,867		
Nebraska	70,276,864	49,616,435	34,068,587		
Nevada	2,801,316	2,443,592	1,672,576		
New Hampshire	6,553,432	4,843,914	3,331,910		
New Jersey	12,360,958	9,149,133	6,285,579		

TABLE III - 7 Continued

Political Unit	Transfer		Transfer		Transfer	
	Estimate 1a	Estimate 1b	Estimate 1c	Estimate 2d	Estimate 2e	
New Mexico	10,703,119	23,576,250	16,191,663			
New York	111,556,916	117,072,250	79,969,093			
North Carolina	35,722,425	83,388,129	57,324,616			
North Dakota	44,542,007	36,255,025	24,898,789			
Ohio	94,719,523	105,336,590	72,139,564			
Oklahoma	109,687,139	126,977,548	86,993,477			
Oregon	15,261,938	10,693,146	7,334,629			
Pennsylvania	102,533,847	90,488,385	62,040,593			
Rhode Island	-900,590	-713,425	-504,629			
South Carolina	36,744,508	50,159,860	34,728,729			
South Dakota	44,286,156	33,737,462	23,141,037			
Tennessee	57,304,521	60,439,780	41,628,229			
Texas	245,532,946	289,048,506	198,763,887			
Utah	10,543,148	12,407,490	8,539,415			
Vermont	12,641,219	10,618,252	7,291,594			
Virginia	54,940,056	58,265,109	40,261,162			
Washington	17,149,191	30,302,905	20,791,099			
West Virginia	31,981,168	46,239,773	31,719,542			
Wisconsin	84,226,828	72,062,945	49,370,660			
Wyoming	16,694,259	12,369,486	8,482,443			
United States	\$2,534,875,388	\$2,674,819,209	\$1,836,100,390	\$3,110,716,912	\$2,133,361,076	

Source: Computed

state estimates. This was particularly true for the New England states. In New Hampshire, Massachusetts, and Connecticut the net out migration estimates were understated somewhat because of the change in designation from urban in 1940 to rural in 1950 of parts of certain towns.² In Rhode Island the apparent net in migration resulted from problems connected with the change in designation from urban in 1940 to rural in 1950 of parts of certain towns. In these instances change in the definition of residence from urban farm to rural farm was indicated rather than actual movement from nonfarm areas to farms.³

Some Relative Comparisons of Agriculture's Investment in
the Education of Migrants with Other Uses of Funds

There are dozens of comparisons which could be made to help bring into perspective the importance of agriculture's contribution to the social capital of the nonfarm economy.

Perhaps, first it should be noted that the transfers investigated in this study comprised only a small portion of the drain on agricultural incomes, a drain which resulted from the production of population in excess of replacement needs in agriculture. The expenditures which families made in their children who migrated certainly represented a drain of great magnitude.

²Gladys K. Bowles, Farm Population, Net Migration from the Rural Farm Population, 1940-50, Statistical Bulletin No. 176, (Washington: Agricultural Marketing Service, United States Department of Agriculture, June 1956), pp. 28-30 and 166.

³Ibid. pp. 30 and 166.

Tarver concluded that an expenditure of more than \$15,000, at prices prevailing in 1954, was required to rear and educate a farm child in the United States through age 18.⁴ Included in this figure was slightly less than \$3,000⁵ for education, so a \$12,000 estimate not including education was reasonable. Using an index of the purchasing power of the dollar as measured by consumer prices,⁶ this \$12,000 for 1954 converted to \$6,264 in terms of 1940 prices. A rough conversion of the 8,610,000 off farm migrants 1940-50 to adult educational equivalents yielded an estimate of 7,349,000.⁷ This times \$6,264 was \$46,034,136,000. Even if it had been assumed that those migrants fifty and older in 1945 had remained in agriculture long enough to return to agriculture the investment made in them, adjustment of the 7,349,000 adult equivalents to exclude this group would have reduced the figure only to 5,965,000 adult equivalents. Five million nine hundred sixty five thousand times \$6,264 was \$37,364,760,000, an expenditure of significant size. Were it argued that Tarver's estimate was too high, it would still have been difficult to reduce it enough to get an estimated drain of inconsequential size. If \$3,000 instead of the \$6,264 figure were used, the estimate

⁴James D. Tarver, "Costs of Rearing and Educating Farm Children" Journal of Farm Economics, Volume XXXVIII, No. 1, (February 1956), p. 153.

⁵Ibid., p. 149.

⁶See Statistical Abstract of the United States, 1955, (Washington: United States Department of Commerce, 1955), Table No. 373, p. 316.

⁷Those in the 1945 5-9 age category were valued at 1/4 adult equivalent, those 10-14 at 1/2, and those 15-19 at 3/4. The remainder were valued at a full adult equivalent.



of family expenditure would have been nearly \$18 billion. If it were arbitrarily assumed that only ten percent of these family-borne expenditures for rearing off farm migrants was investment as defined in Chapter I, this meant an investment of about \$1.8 billion in social capital. If a five percent figure were used, the investment would still total almost \$.9 billion, a sizeable figure.

Realized net income of farm operators including government payment for 1940 through 1949 adjusted to 1940 price levels by the use of a consumer price index was \$83,961,000,000.⁸ Taking the \$18 billion and ignoring the additional educational investment, it could be seen that this expenditure exceeded twenty percent of the realized net income of farm operators including government payments for the decade. The \$37 billion figure exceeded forty percent. That the rearing of excess farm population consumed a sizeable portion of agricultural incomes is clear.

Government payments under rental and benefit, soil conservation, price adjustment, price parity, Sugar Act, and production for 1940-49, reduced to 1940 price levels on the basis of a consumer price index, amounted to \$4,532,000,000.⁹ Even by the most conservative estimate of family expenses of \$18 billion, this expenditure by agriculture amounted to about four times the amount received in government payments. While the relevance to this comparison, except as it showed the relative magnitude of family borne expenditures in rearing off farm migrants,

⁸For the derivation of this figure, see Appendix C.

⁹See Appendix C for the derivation of this figure.

could have been questioned, a comparison of the \$4.5 billion in government payments and the portion of the public investment in the education of off farm migrants borne by agriculture is valid, for both constitute a drain on the incomes of sectors. If to the \$2.5 billion estimate (See TABLE III - 8) of agriculturally derived public investment in the education of off farm migrants the arbitrary estimate of \$1.8 billion in family borne investment alluded to above is added, it appears that the investment expenditure by agriculture in the social capital which moved with off farm migrants amounted to almost as much as government payments to the industry. If only five percent of family borne expenditures in rearing migrants were assumed to be investment in nature, the agricultural investment figure would be about \$3.4 billion, still a sizeable portion of the \$4.5 billion in government payments.

Calculations based on the work of Tostlebe¹⁰ indicated that what may be termed net new investment in physical farm assets valued at 1940 prices was about \$4.6 billion over the decade 1940-50. TABLE III - 8 shows a regional breakdown of this investment and a comparable breakdown of the investment made by agriculture in the education of off farm migrants. Perhaps the most interesting conclusion to be drawn from TABLE III - 8 is that for every two dollars of net new investment in physical farm assets during the 1940 decade, one dollar of agricultural income invested in the public education of off farm migrants found its way into the social capital of the nonfarm economy.

¹⁰Alvin S. Tostlebe, Capital in Agriculture: Its Formation and Financing Since 1870, a study by the National Bureau of Economic Research, (Princeton: Princeton University Press, 1957), pp. 54-57 and 66-69.

TABLE III - 8 Net new investment in physical farm assets and agricultural investment in the education of off farm migrants, valued at 1940 prices, United States, 1940-50

Region ^a	Net New Investment ^b (Billions of Dollars)	Educational Investment ^c (Billions of Dollars)
Northeast	.1	.2
Appalachian	.5	.3
Southeast	.5	.2
Lake States	.4	.2
Corn Belt	.6	.5
Delta States	.3	.2
Great Plains	.5	.2
Texas-Oklahoma	.4	.4
Mountain	.6	.2
Pacific	.7	.1
United States	4.6	2.5

^aIn this table the regions and the states in each as follows: Northeast (Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont); Appalachian (Delaware, Kentucky, Maryland, North Carolina, Tennessee, Virginia, and West Virginia); Southeast (Alabama, Florida, Georgia, and South Carolina); Lake States (Michigan, Minnesota, and Wisconsin); Corn Belt (Illinois, Indiana, Iowa, Missouri, and Ohio); Delta States (Arkansas, Louisiana, Mississippi); Great Plains (Kansas, Nebraska, North Dakota, and South Dakota); Texas-Oklahoma (Oklahoma and Texas); Mountain (Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming); and Pacific (California, Oregon and Washington).

^bTostlebee (See footnote 10, this chapter, for citation) gave estimates of the value of physical farm assets in terms of both constant (1910-1914) and current prices, by selected groups and regions for the census years 1870-1950. To derive the regional estimates of the 1940-50 net new investment, the following procedure was used: The 1950 regional value of physical farm assets in constant prices was divided by the 1940 regional value of physical farm assets also in terms of constant prices. The quotient derived was multiplied by the 1940 regional value of physical farm assets in terms of current dollars. This product provided an estimate of the 1950 regional value of physical farm assets in terms of 1940 prices. The process was repeated for each region. Then the 1940 regional estimates of physical farm assets, in terms of current prices, were subtracted from the computed 1950 regional estimates of 1950 physical farm assets in terms of 1940 prices. The resulting differences were used as estimates of "regional net new farm asset investment" for the 1940 decade in terms of 1940 prices.

^cThese figures are averages of the three state estimates presented in TABLE III - 7.

CHAPTER IV

CONCLUSIONS AND IMPLICATIONS

That the migration of people from farms involves a rather considerable transfer of investment derived from the receipts of the farm sector now seems clearly established. The estimates made in this study indicate that during the 1940 decade agriculturally derived investment in the elementary and secondary education of off farm migrants under fifty years of age at migration amounted to \$2,404,095,385 in 1940 dollars if an average of the five estimates, ranging from \$1,783,221,990 to \$3,055,337,612, is used.¹ In 1959 dollars the range of the estimates was from \$3,699,630,685 to \$6,338,874,714 and an average of the estimates was \$4,987,749,761.² Inclusion of college training at the rate of \$100 per year of college training increased estimated investment to \$2,457,974,594 in 1940 dollars if an average of the five estimates ranging from \$1,836,100,390 to \$3,110,716,912 is used. In 1959 dollars the range was from \$3,809,336,909 to \$6,453,769,527 and the average was \$5,099,532,353.

While the \$4.5 billion, valued at 1940 prices, of government payments to farmers for the 1940 decade exceeded the estimates of agriculture's investment in the social capital of the nonfarm economy, it must

¹For all the investment estimates the education was valued at 1940 educational costs.

²For the conversion to 1959 dollars the average of the first ten months of the 1959 consumer price index published by the Department of Commerce was used. This index converted to a 1940 base was 48.2. The source of the 1959 consumer price index was Survey of Current Business, United States Department of Commerce; December 1959, p. S-7.

be remembered that these estimates of investment were derived by methods which likely underestimate the true magnitude. Because of the conservative nature of these estimates of investment, the writer speculates that had the true parameters been known, much of the spread between government payments and investments would have disappeared.

Another view of the magnitude of the investment resulting from agricultural support of the public education of off farm migrants may be made by comparing it with net new investment in physical farm assets for the 1940 decade. It appears that for every two dollars of net new investment in physical farm assets during the "forties", one dollar of agricultural investment, in the public support of the education of off farm migrants was transferred from the agricultural sector through off farm migration.

The magnitude of the transfer through investment in education comes into perspective only when it is realized that this represented a relatively small part of the total expenditure made by farm people in off farm migrants. The largest single item was undoubtedly family expense incurred in rearing children. Rough calculations based on conservative figures suggested that the expenditures by farm families in rearing 1940-50 off farm migrants amounted to at least \$18 billion, based on 1940 costs of rearing children. A reasonable case could have been built for a considerably larger estimate of almost twice the \$18 billion figure.

These estimates of agricultural expenditure on off farm migrants who left the farm during the 1940 decade must be considered in the light of a decade total of slightly less than \$84 billion of realized net income to farm operators including government payments of about \$4.5 billion.³

³These figures are in terms of 1940 price levels.

It must be concluded that despite income transfers from the non-farm sector to agriculture, these transfers fell far short of the expenditures incurred by agriculture in the rearing of the off farm migrant. Indeed, it was quite possible that the investment portions⁴ of this expenditure were as large as the income transfers to agriculture through government payments. Had investment been defined with respect to some culturally acceptable level of expenditure, there is no doubt that the investment would have far exceeded the transfers via government payments.

That the transfer of social capital from the agricultural sector has implications for the farm sector, the nonfarm sector, and the society as a whole is self evident.

Long and Dorner⁵ suggested that (1) the large proportion of the farmers' earnings which are invested in off farm migrants reduces the amount available for investment in nonhuman resources, (2) a large part of the investment made in the production of farm people does not yield the farm sector any return because these people cannot be profitably employed in farming, and (3) the loss of agricultural capital invested in off farm migrants together with capital rationing contribute to the difficulty farm people have in accumulating sufficient capital to get

⁴To qualify as investment the expenditure must increase productivity.

⁵Ervin J. Long and Peter Dorner, "Excess Farm Population and the Loss of Agricultural Capital", Land Economics, Volume XXX, No. 4, (November 1954), p. 364.

a proper balance of capital and labor at a proper scale of operations. These suggestions seem justified.

The nonfarm sector receives a contribution from agriculture to the extent that agricultural investment in off farm migrants lessens the investment the nonfarm sector must make in order to secure labor replacements and necessary expansion in the labor force.⁶ That this contribution was of considerable magnitude for the 1940 decade seems clear.

The fact that agriculture contributes substantially to the social capital of the nonfarm sector might be used as a justification for the support of rural education on other than a purely local basis. State aid to education might be sufficient in some states, but where most off farm migrants leave the state, nothing short of federal aid to education can cope with the imbalances created by the large contribution for educational expense which is borne by the local farm people.

Since much off farm migration, in fact, does involve out of state movement, it appears that the most equitable support of this burden would be through federal aid to education. Such aid could reduce the burden now resting heavily on low income farm areas from which further out-migration must take place. This would release funds for other purposes in these low-income, capital-scarce areas. While it cannot be proved that not just increased consumption or leisure in the farm sector would be the result, the writer believes that the major result would be

⁶Ducoff estimated that one-half of the expansion in the nonagricultural labor force from 1930-1954 came from migration from the farm population. See Louis J. Ducoff, "Trends and Characteristics of Farm Population in Low Income Farming Areas," Journal of Farm Economics, Volume XXXVII, No. 5, (December 1955) p. 1407.



a higher rate of real capital formation in agriculture. If such did take place, the increased rate of capital formation in agriculture might well result in an increased rate of off farm migration and returns to agricultural labor more comparable to returns in nonfarm employment. Such would represent a more efficient allocation of the nation's resources.

A second and very important implication of federal aid to education is that the social capital attached to off farm migrants could probably be created in a form more amenable to ready use in the nonfarm sectors. Greater resources available for education and the greater possibilities for nonfarm technical training could go far to helping achieve this end.

It may be argued that the society receiving the migrants did already make a contribution to the total investment in the off farm migrants. Such is true, but the question is whether the magnitude of the contribution of the nonfarm sector is equitable in view of its gain in human resources through off farm migration.

It can be argued that despite the large investment, whatever be its source, made in off farm migrants, the amount is insufficient to insure the receiving society with entrants able to fit into the new social order. In view of the present magnitude of educational investment in relation to other expenditures by farmers, it appears unlikely that farmers, at present income levels, can be expected to greatly increase their investment in education. If this be true, the nonfarm sector is the only other possible source of increases. In view of the transfer of social capital to the nonfarm society, it would seem that the nonfarm society might well increase its investment in off farm migrants.

A recent survey by the Michigan Department of Corrections⁷ showed that persons born out of Michigan made up 35 percent of the state's population but 54.5 percent of its prison population. Michigan residents who were natives of the South were responsible for 31 percent of commitments but accounted for only 9.5 percent of the population.

It must be presumed that a large proportion of these Southern born Michigan residents were of rural origin. It can be hypothesized that had these people been the object of greater investment, they would have been better able to be assimilated into the receiving society and the crime rate would have been lower. If this hypothesis be true, it can be further suggested that investment by the receiving society in the migrants at the point of origin might well have been a paying proposition when the real costs of social disorganization, the expenses involved in criminal confinement, and a cost of criminal confinement not usually recognized, the waste in human resources which it entails, are considered.

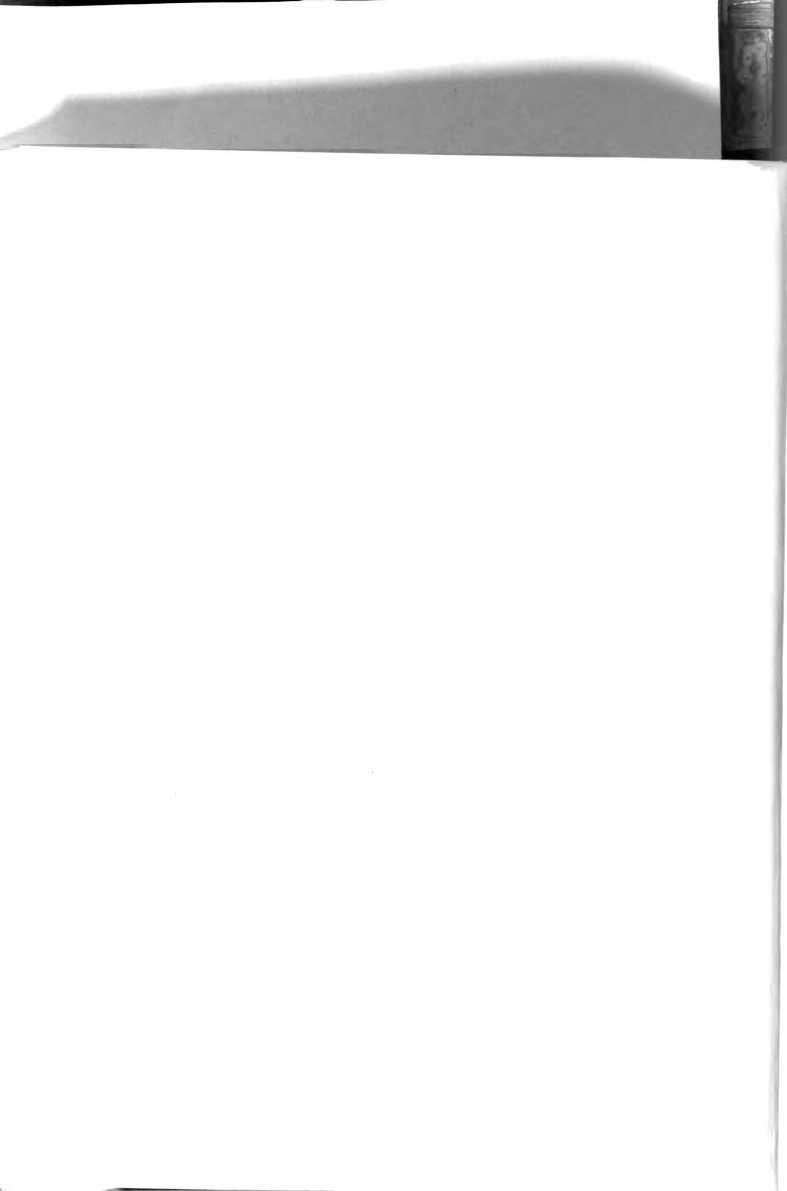
Investment in excess farm population does not appear to be a profitable venture for agriculture, but, if as generally believed, investment in the human agent has high returns, then from the standpoint of society as a whole, it would appear to be a profitable venture. Can agriculture be expected to increase an investment when its benefits accrue largely to the nonfarm sector? If such cannot be expected, then there is reason to suggest that through the public forum consideration might be given to the possibility of devising means whereby that portion of society which benefits from the investment in off farm migrants can share more fully in the making of that investment.

⁷Bill Sinnott, "Non-Natives Cause Most Crime in State," The State Journal, Lansing, Michigan, November 3, 1959, p. 16.

In the light of present public dissatisfaction with both the method by which income transfers are made to agriculture and the existence of the transfers themselves, it seems important for agriculture that the existence and magnitude of the farm contribution to the social capital of the nonfarm economy be recognized.

Additional study is needed to determine the situation in the 1950 decade before relevant public policy and action can be mapped, but this study of the 1940 decade offers enough insight to suggest the hypothesis that although increased income transfers to the farm sector may have reduced the relative net agricultural expenditure in off farm migrants, these expenditures still far exceed the transfer to agriculture.

By way of speculation, a look may be taken at the distribution of assets within agriculture. It seems likely that off farm migration and the means by which income transfers from the nonfarm economy have been made, have combined to increase the disparity of asset distribution within agriculture. Since these income transfers are affected mainly through the pricing system, the area of greatest agricultural productivity receives disproportionately large per capita amounts of these transfers. On the other hand, the areas of low agricultural productivity supply a disproportionately large share of off farm migrants. Thus, perhaps those within agriculture who make the major contribution to the migrational stream suffer a disproportionate drain on their incomes.



CHAPTER V

SUMMARY

When people migrate they carry with them the investments which have been made in them. This phenomenon has long been recognized and the literature abounds with references and near references to it, but relatively little¹ has been done to systematically estimate the transfer of social capital which off farm migration occasions.

The limited resources available for this study precluded a thorough investigation of all the transfers which take place as a result of off farm migration and only one part of the phenomenon was chosen for study.

An attempt was made to determine the magnitude of the agriculturally derived public educational investment which resided in off farm migrants of the 1940 decade. The estimating procedures used involved making estimates of the educational attainment of the migrants and converting these to the number of years of elementary and secondary education and the number of years of college training. Next, an adjustment was made to remove the contribution to the educational total of those who were fifty or older at the time of migration.²

Estimates of the cost of education in 1940 were used to produce estimates of total public investment in the education of off farm migrants.

¹For a notable exception see Ervin J. Long and Peter Dorner, "Excess Farm Population and the Loss of Agricultural Capital," Land Economics, Volume XXX, No. 4, (November 1954), pp. 361-368.

²This adjustment was made to compensate for the fact that, presumably in time the investment in education amortizes itself.

Next, estimates of that proportion of the total public investment derived from agriculture were used to produce estimates of agriculture's contribution.

It appeared that the educational investment made by agriculture in the migrants was about \$2.4 billion in 1940 dollars without allowance for college training and about \$2.5 billion if an arbitrary allowance of \$100 per year of college training were included. This amounted to a little over \$5 billion in terms of 1959 dollars.

These estimates of agriculturally derived public investment in the education of off farm migrants could be viewed in perspective only if it was realized that this drain on agricultural incomes was really only a small part of the total drain which resulted from excess population in agriculture. Conservative estimates³ indicated that family expenses incurred in rearing 1940 decade off farm migrants far exceeded the agriculturally derived public investment in the education of these migrants. Government agricultural payments over the decade amounted to about \$4.5 billion 1940 dollars. This suggested that agriculture contributed more to the growth of the nonfarm economy than farmers received in government subsidy, for the drain on agricultural incomes occasioned by the rearing of off farm migrants far exceeded the transfer payments by government to

³These estimates of the privately borne costs were not an integral part of this study. The estimates derived were rough, indeed, but they gave some indication of the relative magnitude of the public and private costs.

agriculture. Such was certainly true for the 1940 decade and it was probably still true, though, perhaps to a lesser extent, for the 1950 decade.⁴

Net new investment in physical farm assets for the 1940 decade was about \$4.6 billion in 1940 dollars. Agriculturally derived public educational investment embodied in the decade's off farm migrants was about \$2.5 billion if the education is valued at 1940 costs. This suggests that during the "forties" for every two dollars of net new investment in physical farm assets, about one dollar of investment by agriculture in the education of off farm migrants became a part of the social capital of the nonfarm economy.

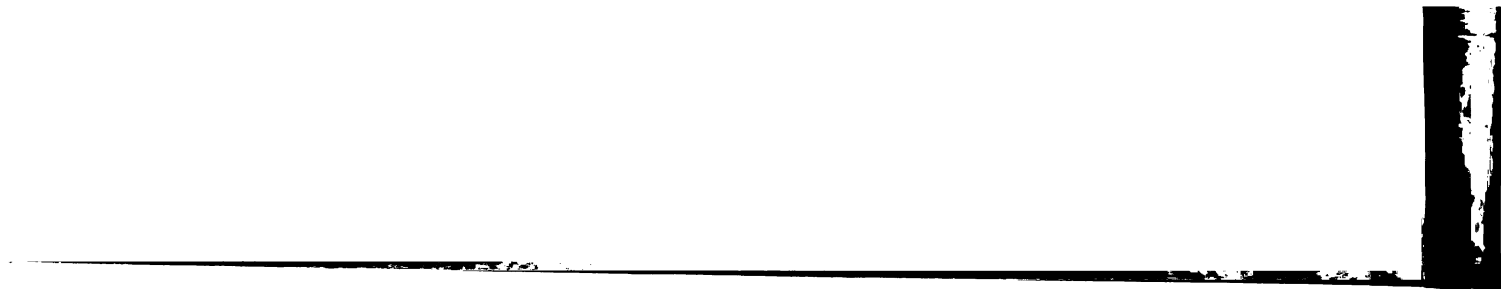
This study clearly indicated that there is a flow of social capital from agriculture to nonagriculture. At the time of this study it appeared that the society was very cognizant of the nonfarm to farm income transfer through government agricultural programs and only slightly cognizant of the reverse flow of social capital. In view of this, it was reasoned that it was to agriculture's advantage that the farm contribution to social capital be more widely recognized and better understood.

Should the nonfarm sector become aware of the contribution which it appears to be receiving from agriculture, it is possible that attempts may be made to find means by which more "equitable" participation may be had in the costs of rearing and educating farm people who are destined to make their productive contribution to the nonfarm economy. The

⁴This hypothesis regarding the 1950 decade was not in any way tested by this study.

implications are many, but only those with respect to education are dealt with here. For states in which off farm migrants remain within the state, state aid to schools could help reduce the heavy pressure on the agricultural sector. For those off farm migrants who leave the state, there seems no alternative to federal aid to education, if the intent is to remove the heavy demands upon agriculture that have arisen (and will continue as outmigration continues) as a result of the investment that is made in the education of rural youth who then migrate to the nonfarm economy.

From the standpoint of society as a whole there is considerable evidence that a much greater investment than is now being made in the education of most migrants would be justified. In view of the already heavy burden borne by agriculture, it is probably too much to expect this industry to substantially increase in the near future its expenditures for the education of off farm migrants, especially since the nonfarm economy would be the major beneficiary of such increased provision of social capital.



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APPENDICES

APPENDIX A¹

COMPUTATION OF THE EDUCATION LEVEL OF OFF FARM MIGRANTS

The purpose of this appendix is to illustrate more fully than was done in Chapter II the method used to estimate the number of off farm migrants in each state in each of seventeen educational level categories--no education through four or more years of college. Nevertheless, the presentation used in this appendix assumes a careful reading of Chapter II. As a result no attempt was made to spell out every detail. Instead this appendix should be used as a supplement to Chapter II.

TABLE A - 1 illustrates the process by which the losses were recorded and allocated to the United States Economic Subregion from which they came.

TABLE A - 2 illustrates the procedure used in computing the age 5-9 rural farm percentage educational distribution.

Precisely the same procedure was used for the 10-14, 15-19, and 20-24 distributions. An only slightly modified method was used for the 25-29 distribution. The rationale was precisely the same, but the source was different and the original data were given in slightly different form. TABLE A - 3 illustrates the method used to get the 25-29 percentage educational level distribution.

The counties of each state were grouped according to the subregion to which they belonged. Then for each group of counties a percentage educational level distribution was computed. See TABLE A - 4 for an example.

¹For identification of sources referred to in this appendix, see the last page of text of this appendix.

TABLE A - 1 Loss^a of rural farm population due to migration, Michigan, 1940-50, by age and by state economic area; allocation of state economic area losses to United States economic subregions to which state economic areas belong; and losses to each United States economic subregion comprising Michigan, by age.

Michigan		U. S. Economic Subregions Composing State				
		66	49	50	48	
Age	Loss	Loss	Loss	Loss	Loss	
1940	(000)	(000)	(000)	(000)	(000)	
	b ₁	b ₂	b ₃	b ₄	b ₅	
0 - 4	-2	4	-1	-1	--	
5 - 9	12	11	6	2	5	
10 - 14	45	27	20	8	21	
15 - 19	46	27	22	8	24	
20 - 24	18	12	8	3	10	
25 - 29	3	5	1	--	2	
30 - 34	--	3	--	-1	--	
35 - 39	--	3	--	--	--	
40 - 44	3	3	1	--	1	
45 - 49	4	4	2	--	3	
50 - 54	7	5	3	1	4	
55 - 59	10	6	5	2	6	
60 - 64	9	5	4	2	5	
65 & over	10	5	4	2	7	
Sum	163	120	75	26	88	
Actual sum ^c	165	120	75	26	88	

	d ₁	d ₂	d ₃	d ₄	d ₅	d ₆
State Economic Areas						
1	10	10				
2	9	9				
3	9				9	
4a	18	18				
4b	13	13				
5a, A	22		22			
5b	14		14			
6a, B	13				13	
6b	4				4	
7C,D,E	22		22 ^e			
8F	16		16			
9a	7					7
9b, G	6					6
Computed Sum ^f	163	50	74	26		13

See following page for footnotes.

Footnotes to TABLE A - 1

^aNote that the numbers in this table are in terms of loss, not net change. This amounts to multiplying the original data by a minus one. Thus, negative figures indicate in migration.

b₁Source 1, TABLE 5
b₂Source 1, TABLE 7
b₃Source 1, TABLE 7
b₄Source 1, TABLE 7
b₅Source 1, TABLE 7

^cThis Actual Sum was computed since, due to rounding to the nearest thousand for each category, the sum of the age category losses may not equal the state loss.

^d₁Source 1, TABLE 8. Note that source gives 7,D,E,H, as a category. This appears to have been a mistake so it was recorded as 7,C,D,E. Note also that Muskegon, C, is in United States Economic Subregion 50, but its designation, C, was such that it could not be separated out. Thus in the computations Muskegon is erroneously included in United States Subregion 49. Since Muskegon accounts for a relatively small percentage of 7,C,D,E, it is felt that this does not introduce intolerable error.

^d₂Source 1, TABLE 8

^d₃ - ^d₆ Here the losses from the State Economic Areas are allocated to the United States Economic Subregions of which they are a part.

^ePlease see footnote ^d₁.

^fThis sum is computed and due to rounding error it may not equal the losses of a subregion when the subregion is entirely contained within the state.

TABLE A - 2a Computation of the rural farm educational level percentage distribution for those age 5-9, Michigan 1950.

Amount of Education	Age and Sex										Per- cent c	
	5-M	5-F	6-M	6-F	7-M	7-F	8-M	8-F	9-M	9-F		Sum ^b
No Years	6,850	6,285	6,700	5,860	2,975	2,520	485	305	100	95	32,175	46.47
Elementary School												
1	15	55	590	785	3,800	3,810	2,945	2,515	520	215	15,250	22.03
2	25	35	75	65	525	595	3,150	3,585	2,950	2,460	13,465	19.45
3			10	15	55	40	450	650	2,765	3,195	7,180	10.37
4					10	5	35	40	375	585	1,050	1.52
5							10	20	30	40	100	0.14
6										15	15	0.02
7												
8												
High School												
1												
2												
3												
4												
College												
1												
2												
3												
4 and over												
No report	560	710	245	335	420	400	205	190	165	120	3,350	
Sum	7,450	7,085	7,620	7,060	7,785	7,370	7,280	7,305	6,905	6,725	72,585	100.00

Grand Sum - No Report = 72,585-3,350 = 69,235

^aThese data were derived from Source 2, TABLE 64.

^bThese sums were computed. The sums given at the bottom were from the data. Thus there was an easy check on the accuracy of the figures copied from the original data.

^cThe percentages were computed on the basis of the grand sum minus the sum of the no report category. This assumed no educational level bias in the no report category.

TABLE A - 3^a Computation of the rural farm educational level percentage distribution for those age 25-29, Michigan, 1950

Amount of Education	Age and Sex			Percent ^c
	25-29M	25-29F	Sum ^b	
No years	90	100	190	0.51
Elementary School				
1 and 2	65	60	125	0.33
3 and 4	250	100	350	0.93
5 and 6	530	300	830	2.21
7	755	565	1,320	3.52
8	5,520	4,185	9,705	25.88
High School				
1	1,230	1,390	2,620	6.99
2	1,510	1,695	3,205	8.55
3	780	1,050	1,830	4.88
4	6,655	7,865	14,520	38.73
College				
1	400	590	990	2.64
2	340	480	820	2.19
3	85	165	250	0.67
4 and over	410	330	740	1.97
No report	305	290	595	
Sum	18,925	19,165	38,090	100.00
Grand Sum - No Report = 38,090 - 595 = 37,495				

^aThese data were derived from Source 2, Table 65.

^bThese sums were computed. The sums given at the bottom were from the data. Thus there was an easy check on the accuracy of the figures copied from the original data.

^cThe percentages were computed on the basis of the grand sum minus the sum of the no report category. This assumed no educational level bias in the no report category.

TABLE A - 4^a Computation of the rural farm educational level percentage distribution for rural farm people age 25 and over, Subregion 48, Michigan, 1940.

Amount of Education	Counties in Subregion 48, Michigan										Sum ^b	Percent ^c
	Area 9a			Area 9b				Area G				
	Branch	Hillsdale	Lenawee	Barry	Calhoun	Cass	St. Joseph	Kalamazoo				
No years	95	53	65	34	116	81	42	56	542	0.87		
Elementary												
1-4	275	290	390	222	323	376	216	80	2,372	3.81		
5-6	539	605	723	517	603	598	432	610	4,627	7.43		
7-8	3,668	4,155	5,361	3,654	4,607	3,082	2,900	3,515	30,942	49.71		
High School												
1-3	1,160	1,687	2,004	1,357	1,749	982	992	1,520	11,451	18.40		
4	873	1,340	1,485	753	1,030	730	852	1,070	8,133	13.07		
College												
1-3	307	449	676	368	418	310	248	477	3,253	5.23		
4 and over	59	113	150	83	133	110	73	203	924	1.48		
No Report	84	77	181	55	129	51	131	211	919			
Sum	7,060	8,769	11,035	7,043	9,108	6,320	5,886	7,942	63,163	100.00		

Grand Sum - Sum of No Report = 63,163 - 919 = 62,244

^aThese data were derived from Source 3, Table 26.

^bThese sums were computed. The sums at the bottom were given in the data. Thus there was an easy check on the accuracy of the figures copied from the original data.

^cThe percentages were computed on the basis of the grand sum minus the sum of the no report category. This assumed no educational level bias in the no report category.

The next step was to take the state losses from each subregion and apply to them the age distribution of the losses for the entire subregion. This is illustrated in TABLE A - 5.

When the loss due to migration in the state's portion of each subregion had been assigned the age distribution of the entire subregion and when the number of migrants in each of the six age categories had been computed, the next step was to apply the relevant percentage educational level distributions so as to obtain for each portion of a subregion within a state an estimate of the number of migrants in the seventeen educational categories - no years through four or more years of college. The procedure is illustrated in TABLE A - 6.

The result portion of TABLE A - 6 was obtained by multiplying the various constants (C's) by each of the percentages given in the relevant percentage educational level distribution. Since $C_1 = 0$ (See TABLE A - 5), the 10-14 result row has only zero or no entry. C_2 was not equal to zero and $C_2 \text{ times } 0.62\% = 5$. $C_2 \text{ times } 0.43\% = 3$. Thus each entry in the result table was the product of a C and a percentage.

Computations similar to that of TABLE A - 6 were performed for each state's portion of each subregion which comprised the state. Obviously the C's changed in each computation, but only the 35 and over percentage level distribution changed as computations for each state's portion of a subregion were made.

To produce the final educational level distribution of losses from the state off farm migration losses, the results of the various state portion of subregion computations were summed. Thus for a state the end

TABLE A - 5 Computation of age distribution of Michigan loss from United States Economic Subregion 48.

Age in 1950 ^a	Proportion of Loss in Each Age Category in U.S. Subregion 48 ^b	Loss in Michigan's Portion of Subregion 48	Number in Each Age Category for Michigan's Portion of Subregion 48 ^c	
10-14	0/88	13,000	0	= C ₁
15-19	5/88		738.6363595	= C ₂
20-24	21/88		3,102.2727099	= C ₃
25-29	24/88		3,545.4545256	= C ₄
30-34	10/88		1,477.2727190	= C ₅
35 and over	28/88		4,136.3636132	= C ₆
			<u>12,999.9999272</u>	

^aNote that this is a 1950 age. Ten years were added to convert the 1940 age to the 1950 age.

^bRefer to TABLE A - 1. These fractions were taken from the distribution of loss in the Subregion. Note that those 35 and older in 1950 have been combined into one category. The original source of this data was Source 1, Table 7.

^cThe total loss from the state's portion of the Subregion was multiplied by the proportion of loss in each age category (Column 2) to give the number of net off farm migrants in each age category. For simplicity in later tables illustrating computations, these numbers were designated as constants - C₁, C₂, etc.

TABLE A - 6 Computation of education level of loss due to off farm migration 1940-50, Michigan portion of United States Economic Subregion 48.

Age Category for State's Portion of Subregion	Number in Each Age Category	Percentage Educational Level Distribution														
		Elementary School								High School				College		
No Years	1	2	3	4	5	6	7	8	1	2	3	4	1	2	3	4 & +
10-14	46.47	22.03	19.45	10.37	1.52	0.14	0.02									
15-19	0.62	0.43	2.53	10.85	18.61	20.98	18.95	16.23	9.14	1.50	0.13	0.03				
20-24	0.47	0.18	0.18	0.19	0.40	0.58	1.98	6.09	20.40	20.69	19.04	15.47	13.31	0.81	0.15	0.01
25-29	0.62	0.18	0.24	0.26	0.41	0.66	1.26	3.15	21.86	7.71	9.19	5.81	42.62	2.76	1.84	0.63
30-34	0.51	0.33	0.33	0.93	0.93	2.21	2.21	3.52	25.88	6.99	8.55	4.88	38.73	2.64	2.19	0.67
		2	2	2	2	2	2									
35 & over	0.87	3.81	3.81	3.81	3.81	7.43	7.43	49.71	49.71	18.40	18.40	18.40	13.07	5.23	5.23	1.48
	4	4	4	4	4	2	2	2	2	3	3	3		3	3	

Age 1950	No Years	Elementary School								High School			College				Sum	
		1	2	3	4	5	6	7	8	1	2	3	4	1	2	3		4 &
10-14																		
15-19	5	3	19	80	138	155	140	120	68	11	1							740
20-24	15	6	6	6	12	18	61	189	633	642	591	480	413	25	5		2	3,104
25-29	22	6	9	9	15	23	45	112	775	273	326	206	1,511	98	65	22	28	3,545
30-34	8	2	2	7	7	16	16	52	382	103	126	72	572	39	32	10	29	1,475
35 & over	36	39	39	39	39	154	154	1,028	1,028	254	254	254	541	72	72	72	61	4,136
Sum	86	56	75	141	211	366	416	1,501	2,886	1,283	1,298	1,012	3,037	234	174	104	120	13,000

result of all these computations was an estimate of the number of off farm migrants in each of the seventeen educational level categories.

See TABLE A - 7.

For Michigan the 163,000 net farm loss, 1940-50, was distributed among the seventeen educational levels as shown in TABLE A - 7.

The entire process was repeated for each of the forty-eight states and a table like TABLE A - 7 was derived for each state.

The existence of net in migration complicated the method demonstrated in but one way. It necessitated the performing of algebraically correct operations.

Sources Referred to in Appendix A

- Source 1. Gladys K. Bowles, Farm Population, Net Migration from the Rural Farm Population, 1940-50, Statistical Bulletin No. 176, (Washington: Agricultural Marketing Service, United States Department of Agriculture, June 1956).
- Source 2. Seventeenth Census of the United States: 1950, "Detailed Characteristics", 1950 Population Census Report, Series P-C, Bureau of the Census, United States Department of Commerce. (P-C 22 for Michigan).
- Source 3. Sixteenth Census of the United States: 1940, Population, Volume II, "Characteristics of the Population", Bureau of the Census, United States Department of Commerce.



TABLE A - 7 Estimated level of education at time of migration
of Michigan net farm loss due to migration, 1940-50

Years of Education	Number of Migrants
No Years	1,985
Elementary School	
1	1,448
2	1,761
3	2,957
4	4,168
5	6,432
6	7,019
7	17,635
8	34,930
High School	
1	15,551
2	15,605
3	11,948
4	35,114
College	
1	2,552
2	1,787
3	925
4 and over	1,183
Sum	163,000

Source: Computed



APPENDIX B

ESTIMATING THE AGRICULTURAL CONTRIBUTION TO NONFARM SOCIAL CAPITAL

This appendix is intended as a supplement to Chapter II. No attempt was made to develop this appendix as a document which can stand alone, yet, in order to make it intelligible, there was necessarily some duplication of Chapter II.

For each state the seventeen educational categories were multiplied by the appropriate number of years of elementary and secondary education. This then was summed for the state.

The number of years of college education was handled in analogous fashion.

For an illustration of these procedures see TABLE B - 1.

The number of years of elementary and secondary education represented in net off farm migration was adjusted to eliminate the contribution of those who were fifty or older when they migrated. Given the assumptions about migration already discussed, this meant eliminating the effect of those fifty and older in 1945.

The procedure followed was to get the per capita number of years of elementary and secondary education, United States rural farm average, 1950, for those 5-49 and those 50 and over.¹ The no report category was assumed to have no educational level bias. Categories spanning more than one year of educational attainment were broken into smaller

¹The source of these data was Seventeenth Census of the United States: 1950, "Detailed Characteristics," 1950 Population Census Report, P-C1, Bureau of the Census, United States Department of Commerce, Tables 114 and 115.

TABLE B - 1 Computation of number of years of elementary and secondary education and number of years of college education represented in net off farm migration, 1940-50, Michigan

Years of Schooling	No. of off farm migrants	No. of Years of elementary and secondary education per person in each educational category	No. of years of elementary and secondary education in each educational category	No. of Years of college per person in each educational category ^a	No. years of college in each educational category
No Years	1,985	0	0	0	0
Elementary School					
1	1,448	1	1,448	0	0
2	1,761	2	3,522	0	0
3	2,957	3	8,871	0	0
4	4,168	4	16,672	0	0
5	6,432	5	32,160	0	0
6	7,019	6	42,114	0	0
7	17,635	7	123,445	0	0
8	34,930	8	279,440	0	0
High School					
1	15,551	9	139,959	0	0
2	15,605	10	156,050	0	0
3	11,948	11	131,428	0	0
4	35,114	12	421,368	0	0
College					
1	2,522	12	30,624	1	2,522
2	1,787	12	21,444	2	3,574
3	925	12	11,100	3	2,775
4 and over	1,183	12	14,196	4	4,732
Sum	163,000		1,433,841		13,633

^aNo allowance was made for post graduate work.

Sources - Computed from data given in TABLE III - 1.

categories by dividing by the number of years. That is, if there were 100 persons with 1-2 years of education, it was assumed 50 had one year and 50 had 2 years. The ratio between the per capita years of education for the 5-49 and the 50 and older age group was determined and this ratio was used as the basis for the adjustment of the state data. The implicit assumption was that the ratio of the educational level of the two groups was the same for all states. The method did not imply, however, that the levels of education in all states were equal for comparable age groups.

The actual adjustment to eliminate the effect of those fifty and older at migration can best be shown algebraically.

- A = number of years of elementary and secondary education in the migrant group of a state
- A' = number of years of elementary and secondary education in the migrant group of a state after exclusion of the contribution of those 50 and over at migration
- P = number of people in the migrant group
- p_1 = proportion of migrants less than 50 in 1945
- p_2 = proportion of migrants 50 and over in 1945
- X = number of years of elementary and secondary education per capita for the p_1 group
- Y = number of years of elementary and secondary education per capita for the p_2 group

By examination of United States rural farm data, 1950, as explained above, the following equation may be written:

$$(1) X = kY \text{ where } k \text{ is some constant}$$

We can also write the following:

$$(2) p_1 PX + p_2 PY = A \text{ where } X \text{ and } Y \text{ are the only unknowns.}$$

This gives a set of simultaneous equations. The solution for Y may be obtained by rewriting equation (2) in terms of Y.

$$(3) p_1 P kY + p_2 PY = A$$

Solving for Y equation (4) is obtained

$$(4) \quad Y = \frac{A}{p_1 P_k p_2 P}$$

With Y known, A' is easy to calculate, for the following relation holds:

$$(5) \quad A' = A - p_2 P Y$$

A' was obtained for each state. For estimates involving only United States data the procedure was completely analogous.

The adjustment of the number of years of college training to exclude the effects of those fifty and older was also an analogous procedure.

The adjusted number of years of secondary and elementary education in each state was multiplied by current expense, interest, and capital outlay per rural pupil in average daily attendance.² This gave an estimate of total public educational investment for each state, which, as explained in Chapter II was designated Estimate 1. This is illustrated in TABLE B - 3.

Then for each state, the Estimate 1 of total public investment in the education of off farm migrants was multiplied by county plus local percent of receipts from taxation and appropriation from state, county, and local sources, 1939-40, state school systems,³ to give an estimate of the agricultural contribution to the state public investment in the education of off farm migrants. This was designated Transfer Estimate 1a and it is illustrated in TABLE B - 4.

²See TABLE B - 2, Column 5, for the source of these estimates.

³See TABLE B - 2, Column 4, for the source of these estimates.

Transfer Estimate 1b is illustrated by TABLE B - 5. Estimate 1 of total public investment was multiplied by county plus local percent of receipts from taxation and appropriation from state, county, and local sources, state school systems, United States average.⁴

Transfer Estimate 1c, illustrated in TABLE B - 6, utilized the Estimate 1 of total state public investment and the percent of nonfederal and nonstate revenues in the financing of public schools in rural counties, United States average.⁵

The state estimates derived by each of the three methods were summed to give United States Estimates.

Transfer Estimates 2d and 2e yielded no state estimates, only United States estimates. In order to use both methods, it was first necessary to compute an estimate of total United States Public educational investment in off farm migration. As pointed out in Chapter II, this was designated Estimate 2. This was done by taking the adjusted number of years of elementary and secondary education represented in off farm migration in each state and summing these for a United States total. This United States total was then multiplied by the current expense, interest, and capital outlay per rural pupil in average daily attendance, United States average.⁶ For an illustration of the computation of Estimate 2, see TABLE B - 7.

⁴See TABLE B - 2, Column 4, for the source of this figure.

⁵See Footnote, TABLE B - 6 for source of this figure.

⁶See TABLE B - 2, Column 5, for the source of this figure.

TABLE B - 2 School system data, United States, 1939-40

	Percent of Receipts from Taxation and Appropriation from State, County, and Local Sources, 1939-40, State School Systems				Current Expense, Interest, and Capital Outlay Per Rural Pupil in Average Daily Attendance
	State	County	Local	County plus Local	
Alabama	58.6	22.8	18.6	41.4	\$ 39.45
Arizona	21.2	38.2	40.6	78.8	146.23
Arkansas	46.0	3.8	50.2	54.0	34.61
California	47.8	2.0	50.2	52.2	203.69
Colorado	5.5	20.7	73.8	94.5	98.30
Connecticut	8.8	0	91.2	91.2	126.75
Delaware	92.7	0	7.3	7.3	163.52
Florida	51.8	17.0	31.2	48.2	70.56
Georgia	58.2	16.6	25.2	41.8	39.85
Idaho	12.0	25.6	62.4	88.0	99.79
Illinois	10.2	0.1	89.7	89.8	139.75
Indiana	33.2	0.6	66.2	66.8	93.22
Iowa	1.1	2.6	96.3	98.9	101.31
Kansas	11.7	14.4	73.9	88.3	102.95
Kentucky	41.8	26.6	31.6	58.2	42.89
Louisiana	56.9	30.2	12.9	43.1	74.11
Maine	15.9	0	84.1	84.1	61.36
Maryland	21.9	31.3	46.8	78.1	91.86
Massachusetts	10.2	0	89.8	89.8	156.23
Michigan	46.0	0.5	53.5	54.0	93.94
Minnesota	35.2	1.6	63.2	64.8	103.06
Mississippi	38.6	20.0	41.4	61.4	31.22
Missouri	35.8	0.4	63.8	64.2	72.06
Montana	8.4	20.4	71.2	91.6	139.88
Nebraska	1.1	1.0	97.9	98.9	77.92
Nevada	20.3	58.4	21.3	79.7	195.06
New Hampshire	5.5	0	94.5	94.5	118.67
New Jersey	5.7	14.9	79.4	94.3	131.36
New Mexico	69.3	13.2	17.5	30.7	100.90
New York	33.9	0	66.1	66.1	241.97
North Carolina	71.2	20.7	8.1	28.8	48.27
North Dakota	14.4	8.7	76.9	85.6	79.21
Ohio	37.7	1.5	60.8	62.3	106.64
Oklahoma	40.2	6.4	53.4	59.8	70.06
Oregon	0.4	25.9	73.7	99.6	111.72
Pennsylvania	21.2	0	78.8	78.8	103.40
Rhode Island	10.7	0	89.3	89.3	66.87
South Carolina	49.9	5.3	44.8	50.1	43.96
South Dakota	8.5	3.5	88.0	91.5	96.92

TABLE B - 2 Continued

	Percent of Receipts from Taxation and Appropriation from State, County, and Local Sources, 1939-40, State School Systems				Current Expense, Interest, and Capital Outlay Per Rural Pupil in Average Daily Attenden- dance
	State	County	Local	County plus Local	
Tennessee	34.3	49.6	16.1	65.7	\$ 43.30
Texas	41.3	0	58.7	58.7	77.70
Utah	41.3	35.5	23.2	58.7	107.98
Vermont	17.1	0	82.9	82.9	93.27
Virginia	34.7	37.7	27.6	65.3	51.54
Washington	61.3	5.5	33.2	38.7	117.15
West Virginia	52.4	47.6	0	47.6	69.64
Wisconsin	18.7	9.6	71.7	81.3	82.91
Wyoming	5.9	27.6	66.5	94.1	133.80
United States	30.6	6.8	62.6	69.4	85.93
Column Number	1	2	3	4	5

Sources: Columns 1-3 "Statistics of State School Systems, 1939-40 and 1941-42", Biennial Surveys of Education in The United States, Federal Security Agency, United States Office of Education, Volume III, p. 23.

Column 4 Computed

Column 5 "Statistics of State School Systems, 1939-40 and 1941-42", op. cit., p. 131

TABLE B - 3 Computation of total state public investment in elementary and secondary education of off farm migrants.

(Estimate 1)

Adjusted Years of Elementary and Secondary Education Represented in Off Farm Migration 1940-50, Michigan	1,081,629
Times Current Expense, Interest, and Capital Outlay per Rural Pupil in Average Daily Attendance, Michigan	<u>X</u> \$93.94
Estimate 1 of Total State Investment in Education of Off Farm Migrants, Michigan	\$101,608,228.26

Sources: Row 1 - TABLE III - 4
 Row 2 - Column 5, TABLE B - 2
 Row 3 - Computed - This is recorded in TABLE III - 5.



TABLE B - 6 Computation of agricultural contribution to the public investment in elementary and secondary education of off farm migrants.

(Transfer Estimate 1c)

Estimate 1 of Total State Contribution to Education of Off Farm Migrants, Michigan	\$101,608,228.26
--	------------------

Times Percentage of Nonfederal and Nonstate Revenues in the Financing of Public Schools in Rural Counties, United States Average	X 47.2%

Estimate of Agricultural Con- tribution to Public Support of Education of Off Farm Migrants, Michigan	\$47,959,083.74
--	-----------------

- Sources: Row 1 - TABLE B - 3
 Row 2 - Statistics of Rural Schools, A United States
 Summary 1955-56, Circular Number 565, May 1959,
 Office of Education, United States Department
 of Health, Education, and Welfare, p. 16.
 Row 3 - Computed - This is Recorded in TABLE III - 6



Transfer Estimate 2d, an estimate of the agricultural contribution, was derived by multiplying the Estimate 2 by 69.4 percent⁷, the county plus local percent of receipts from taxation and appropriation from state, county, and local sources, 1939-40, state school systems, United States average. Please see TABLE B - 8.

Transfer Estimate 2e, an estimate of the agricultural contribution to public support of the education of off farm migrants differed from Transfer Estimate 2d only in that 47.2 percent⁸ was substituted for 69.4 percent. For an illustration, please see TABLE B - 9.

⁷See TABLE B - 2, Column 4, for the source of this figure.

⁸See footnote, TABLE B - 9 for source of this figure.

TABLE B - 7 Computation of total United States public investment
in elementary and secondary education of off farm migrants,
1940-50.

(Estimate 2)

Adjusted Years of Elementary and
Secondary Education Represented in
Off Farm Migration, 1940-50, United
States

51,233,606

Times Current Expense and Interest
Per Rural Pupil in Average Daily
Attendance, United States 1939-40

X \$85.93

Total Public Educational Investment
in Off Farm Migrants, 1940-1950, United
States

\$4,402,503,763.58

Sources: Row 1 - TABLE III - 4
Row 2 - Column 5, TABLE B - 2
Row 3 - Computed - this is recorded in TABLE III - 5.

TABLE B - 8 Computation of total agricultural contribution to the public investment in elementary and secondary education of off farm migrants, 1940-50.

(Transfer Estimate 2d)

Total Public Educational Investment in Off Farm Migrants, 1940-1950, United States	\$4,402,503,763.58
Times County Plus Local Percent of Receipts from Taxation and Appropriation from State, County, and Local Sources, State School Systems, 1939-40, United States Average	<u>X 69.4%</u>
Estimate of Agricultural Contribution to Public Support of Education of Off Farm Migrants, United States	\$3,055,337,611.92

Sources: Row 1 - TABLE B - 7
 Row 2 - Column 4, TABLE B - 2
 Row 3 - Estimated - this is recorded in TABLE III - 6

APPENDIX C

REALIZED NET INCOME OF FARM OPERATORS AND GOVERNMENT PAYMENTS TO FARMERS

The tables in this appendix give the basic data from which some of the calculations presented in Chapter III were made.

TABLE C - 1 Consumer price index, United States, 1940-49

	Consumer Price Index 1947-49 = 100	Consumer Price Index Converted to 1940 = 100
1940	166.9	100.0
1941	159.0	95.8
1942	143.5	86.0
1943	135.1	80.9
1944	133.0	79.7
1945	130.0	77.9
1946	119.9	71.8
1947	104.7	62.7
1948	97.3	58.3
1949	98.2	58.8
	(1)	(2)

Sources:

Column 1 - Statistical Abstract of the United States, 1955,
United States Department of Commerce, Table No.
373, p. 316.

Column 2 - Computed

TABLE C - 2. Realized net income of farm operators including government payments, United States, 1940-49.

	Realized Net Income of Farm Operators Including Government Payments	Consumer Price Index Adjusted to 1940 Base	Realized Net Income of Farm Operators In- cluding Govern- ment Payments Adjusted to 1940 Price Levels
	(Million Dollars)		(Million Dollars)
1940	4298	100.0	4298
1941	6052	95.8	5798
1942	8849	86.0	7610
1943	11540	80.9	9336
1944	11970	79.7	9540
1945	12286	77.9	9571
1946	14193	71.8	10191
1947	16774	62.7	10517
1948	15604	58.3	9097
1949	13593	58.8	7993
			<u>83,951</u>
	(1)	(2)	(3)

Sources:

Column 1 - Agricultural Statistics, 1954, United States Department of Agriculture, Table 604, p. 428.

Column 2 - Computed, see TABLE C - 1.

Column 3 - Computed.

TABLE C - 3 Government payments to farmers, United States,
1940-1949.

Government Payments ^a (Million Dollars)		Consumer Price Index Adjusted to 1940 Base	Government Payments Adjusted to 1940 Price Levels (Million Dollars)
1940	724	100.0	724
1941	544	95.8	521
1942	650	86.0	559
1943	645	80.9	552
1944	776	79.7	618
1945	742	77.9	578
1946	772	71.8	554
1947	314	62.7	197
1948	257	58.3	150
1949	185	58.8	109
			4,532
	(1)	(2)	(3)

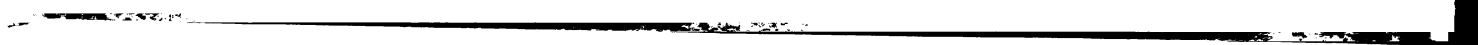
Sources:

Column 1 - Agricultural Statistics, 1954, United States Department of Agriculture, Table 663, p. 479.

Column 2 - Computed See TABLE C - 1.

Column 3 - Computed.

^aIncludes payments under rental and benefit, soil conservation, price adjustment price parity, Sugar Act, and production programs.

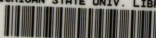


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