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I am submitting herewith a thesis written by Peter Paul Dorner entitled "An Excess Farm Population and the Loss of Farm Wealth." I recommend that it be accepted for nine quarter hours of credit in partial fulfillment of the requirements for the degree of Master of Science, with a major in Agricultural Economics.

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AN EXCESS FARM POPULATION AND THE
LOSS OF FARM WEALTH

A THESIS

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CHAPTER I

INTRODUCTION

Every problem chosen for analysis by an individual working within the limits set by a particular discipline has certain facets which transcend the limits of this discipline regardless of the generality by which this discipline is defined. These aspects of the problem are either ignored as irrelevant, not recognized at all, or they may be recognized but not analyzed within the framework of a particular study. But the fact that these other aspects do exist should not deter one from analyzing one aspect of the problem from a rather particularized viewpoint. This is merely a recognition of the fact that human experiences are interrelated and one particular aspect of human experience is never completely isolated from all other human experiences except in the process of scientific investigation where this is often required in order to work with human experiences at all.

In this thesis we shall attempt to analyze the phenomenon of an excess farm population. The analysis will be built around the following proposition: As a result of annually rearing a population in excess of that number which can be profitably employed in agriculture, farm people experience a tremendous net drain of rurally created wealth. To be sure, there are many consequences of great significance to farm people and to nonfarm people as a result of this experience. As we have already implied, some will be analyzed in considerable detail, some will be recognized but left unanalyzed, and still others will be ignored. We

shall be dealing, then, with some of the expected consequences of an excess farm population.

When one sets out on any course of inquiry he must either have formulated for himself or borrowed from others an idea, or a set of ideas, to give his inquiry direction. For without ideas to serve as a guide, the hodgepodge of human experiences can be expected to reveal to the inquirer very little knowledge useful in the control over situations with which people are presently dissatisfied. On the other hand, just as the observation of human experience without the help of some unifying idea can lead to confusion and frustration so also, if human experience is completely ignored, the formulation of ideas can prove to be an unrewarding mental exercise. The relationship between systems of ideas, or theory, and the fact is one of mutual interdependence. It is analogous to the relationship between the skeleton and the flesh. Neither can maintain life without the other.

This chapter sets forth some of the ideas explored and elaborated on throughout the thesis. Its purpose is to clarify some of the theoretical propositions used as a guide in the inquiry into the problem previously mentioned. For it is necessary to make the ideas sufficiently clear, so that the facts and figures presented to uphold and support these ideas can serve their function. Furthermore, in order for communication to take place, the writer must have made his ideas clear so that the reader can make sense out of the arguments presented.

The problem here explored emerges out of a recognition of the following factors which seem to characterize American agriculture, and

especially the agriculture of the Southern States. First, average farm incomes are low in comparison to the average incomes received by workers in other occupations. Second, farm people are annually rearing a population in excess of agriculture's needs. Third, a large proportion of the farmers' present-day low incomes are invested in rearing this excess population, reducing significantly the amount available for investment in nonhuman resources. Fourth, large investments in the children made annually by people in farming communities never yield the community any return simply because these children upon maturity cannot be profitably employed in farming and must, therefore, move to other occupations. Fifth, as a result of these conditions, farm people find it extremely difficult to accumulate sufficient capital with which to bring about a more favorable combination of factors used in agricultural production which could eventually lead to higher farm incomes.

It should not be inferred from the above statements that this movement of people from the farms, if stopped, would be beneficial to farm people or to any other group. On the contrary, rural-urban migration, under existing conditions, must take place. It is perhaps the greatest single factor working in the direction of establishing equality of opportunities between farm and nonfarm people. The total productivity of the economy would be decreased if this movement did not take place. The migration phenomenon in itself, then, does not create or aggravate the problem previously stated; it actually helps to relieve it.

This, however, is of little comfort to the people of a farming community who have invested a significant part of their present low in-

comes in these migrants. Nor does it give us any understanding of the conditions which create the need for migration to take place. We must go beyond the migration phenomenon to gain some insight into the conditions responsible for the creation of an excess population and which subsequently make migration a necessity.

There are, of course, many conditions which bring about an excess population in agriculture. The most important ones seem to be the demand for the products produced by people in agriculture and the reproduction rates of these people. A logical starting point would seem to be an inquiry into the demand characteristics of agricultural products as compared with the demand characteristics of nonagricultural products.

If we assume that the income elasticity of demand for agricultural products is low relative to the income elasticity of demand for nonagricultural products, then any new resources in the form of labor or capital will tend to shift and accumulate at a faster rate in the non-agricultural industries than they will in agriculture. On the other hand, if real incomes increase 10 percent and if the expenditure for agricultural commodities also goes up by 10 percent, then the income elasticity for agricultural commodities would be unity ($\neq 1$). Under these conditions, agriculture would be expected to hold its own so far as the demand for new productive resources is concerned. Available data, however, lead us to believe that the income elasticity for agricultural commodities is actually quite low relative to the income elasticity of nonagricultural commodities. With a rise in real incomes, there seems to be little doubt but that the relative importance of agri-

culture within our economy will continue to decline.

There is also considerable evidence in support of the proposition that the price elasticity of agricultural commodities is relatively low. Therefore, (all other factors remaining constant) if more resources are shifted to agriculture and total output of agricultural products increases, total revenue and the payment to the resources employed in agriculture will decline. From these prevailing demand conditions for agricultural products one would assume that the movement of resources would be in the farm to nonfarm direction.

It is next to impossible to determine the relative rates of capital accumulation or direction of capital flow between these two sectors of our economy. However, the data on the movement of labor are fairly well established. In looking at the trends with regard to the agricultural population and the agricultural labor force, we find that they have been declining both relative to the total population and labor force and also in absolute numbers. These findings tend to support the assumptions previously stated.

Having made these inquiries, a calculation was made with the purpose of determining, as nearly as possible, the number of people who left the farms for other occupations and locations in the year 1949. This calculation was made from various census reports. The reason for making this calculation needs to be explained.

One of the primary purposes of this thesis is to estimate, as accurately as possible, the cost to rural farm people of rearing a population in excess of that which can be profitably employed in agricul-

ture. As we shall see in Chapter III, we have certain evidence with regard to the costs involved in rearing a child to adulthood. The problem with which we are now confronted is: How do we measure this excess population to which we would like to apply these established cost figures?

In the opinion of the writer, the number of migrants annually leaving the farms would be a conservative measure to employ. It is conservative in the sense that we are assuming that only those leaving the farms are in excess of the number which can be profitably employed. This seems unlikely insofar as the incomes of farm people remain relatively low. But it is perhaps better to stay on the conservative side in making these estimates.

Actually, in speaking of an excess population in agriculture, we are not speaking of a definite number of people, which, if they were to move out of agriculture, would permanently eliminate the excess population. This excess is developing continuously, year after year. As new technologies make workers more productive and as people continue to reproduce, this excess population continues to develop. As this excess is drained off in one particular year, it is merely replaced by a newly created excess to be drained off the next year.

An objection to using the number of off-farm migrants as a measure of the excess population in agriculture may be anticipated. As has already been pointed out, migration in itself does not work to the detriment of farm people but is actually working in the direction of making higher incomes possible. Investment in these migrants rather than migration itself causes the loss to the rural community of capital--

which is commonly defined as any good or resource capable of producing income. The capital loss results from the investment in the excess people in agriculture who, because of the demand conditions previously shown, are capable of making at best only a small contribution to total farm income. Since it does not increase agricultural income, money so invested is "lost" to agriculture whether or not these people leave farming.¹

The capital loss occurs when the family and the community decide to make investments in behalf of the children and not when these children leave the farm as adults. But a recognition of these relationships does not seem to invalidate the use of net out migration of farm people as a conservative measure of the amount of excess population being created annually in agriculture.

In this analysis it is assumed that 1949 is a reasonably representative year with respect to the amount of out migration of farm people. This assumption seems to be justified. In arriving at the figure of net out migration of farm people for the year 1949, two parameters were considered. First, the net natural increase in the farm population for 1949 was calculated. Second, the average yearly change in the total

¹The above statements assume that the marginal productivity of labor is very low. Looking at agriculture in the aggregate, it seems very unlikely that an addition of labor could add significantly to total revenue, given the present demand conditions for agricultural products. While the addition of more labor in farming would probably raise total revenue received, it appears quite certain that the average income received per worker would be even lower than is presently the case.

rural farm population for the 1940 to 1950 period was obtained. Therefore, the year 1949 is representative of that ten year period with regard to the average yearly change in the total farm population. With regard to the net natural increase, the year 1949 is again on the conservative side. This is true because the total farm population has actually declined substantially over this period. This being the case, one would expect that the net natural increase in 1940 would have been larger than the net natural increase in 1949. A factor partially offsetting this is the rise in farm birth rates which took place from 1940 to 1950. However, even when this is taken into consideration, the net out migration as calculated for 1949 seems adequately to represent this last decade. Net out migration was used, then, not because migration is the strategic factor in draining the farm community of capital, but rather as a measure of the amount of excess population being created annually in agriculture. The other half of the equation by which we estimate the amount of farm income withheld from other uses as a result of rearing a population in excess of agriculture's needs is the amount of capital invested per person in this excess population. This second half of the equation we attempt to fill in in Chapter III.

Admittedly, out migration would not be a very adequate measure of agriculture's excess population in times of depression when many people are unemployed. It has been shown that in the past, under such conditions, the movement of people is actually toward the farms. But under conditions such as those prevailing in the 1940-1950 decade, when our economy was operating at or near the full employment level, and very

significant population adjustments were taking place, this measure would seem to fulfill our needs.²

The family and community costs of rearing a child to age fifteen, established in Chapter III, were then applied to the measure of excess population calculated in Chapter II. The resulting figure was taken as the loss of agricultural wealth attributable to rearing this excess population. Certain precautions regarding the interpretation of these results are presented in Chapter III.

The costs of rearing a child to age fifteen rather than to age

²We have already referred to the evidence presented in Chapter III with reference to the cost of rearing a child to adulthood. A few statements covering the ideas basic to the analysis in Chapter III are appropriate.

The argument might be advanced that, in the technical sense of a cost, rearing children involves no costs at all. This position maintains that, once the child is born, and even for some time preceding the event, the parents have no alternative, on moral grounds at least, but to rear the child. Costs being the resultant of the alternative uses which can be made of resources, rearing of children, therefore, does not involve any cost simply because the parents have no alternative.

That parents have no alternative but to rear their children is quite readily admitted. But to say that the rearing of children involves no cost would seem to be of little consolation to people who are presently raising a large family on a low income. Furthermore, using the concept of opportunity costs in our formulation would give us little insight into the consequences resulting from this burden of rearing an excess population in agriculture. In this analysis, then, the expenditure incurred as a result of rearing children, including an interest charge on the investment, will be treated as bonafide costs to the parents and the community.

One might point out that the relevant opportunity cost is that of society viewing its alternatives rather than that of the family. Viewed in this way, it enables us to see the consequences of a certain set of social processes in terms of their effects on certain segments of the economy.

twenty-one were chosen in order to stay on the conservative side in deriving our estimates. Actually, some people leave agriculture before they reach this age but the great majority leave at an older age than fifteen. This being the case, it was considered unnecessary to make any adjustment for those who might migrate before the investment level corresponding to the fifteen year old was reached. If people leave agriculture at an older age than fifteen, it is very likely that they represent a greater drain of agricultural capital than they would had they left at this age. This will be discussed in greater detail in Chapter III.

In the final chapter of this thesis, some of the expected consequences resulting from an excess population in agriculture are considered. There is almost an endless number of consequences that could be attributed to this phenomenon. Only a few can be analyzed within the limits of this thesis. Most of the emphasis in Chapter IV will be on the effects that the rearing of an excess population in agriculture has on the ability of farmers to get control of the capital required to make the labor in farming more productive. A few consequences of significance to the urban community and society as a whole will also be touched upon.

It is appropriate to make a few statements concerning related aspects of this thesis problem which are not analyzed. In the opinion of the writer, people in agriculture are at an economic disadvantage relative to other groups in our society for two primary reasons. First, the individual farmer has little control over the economic circumstances which determine his well-being as compared to the control exercised by

large scale industries and organized labor. Collective action by farmers has not proved very successful except insofar as it has resulted in political programs advantageous to the farmer. The second condition resulting in an economic disadvantage of the farmer is the fact that agriculture annually produces a large excess population. These people have little alternative but to migrate to other occupations and locations. Stated in another way, farmers are at an economic disadvantage because agriculture has been, and still is, a declining industry in our economy.

As has been pointed out, we shall analyze in this thesis some of the consequences of investing large amounts of money in this excess population. This is just one particular aspect of the total and complex problem of the relative poverty existing in much of this country's agriculture, especially the agriculture of the Southern States.

We must recognize also that there are certain policies and programs which are operating to alleviate somewhat the disadvantaged position of the farmer. However, the relative poverty of agricultural people has not been substantially improved over the last fifty years. (See Table I, Chapter II) The relevant relationships in the analysis that follows are the income differences existing between agricultural and nonagricultural workers, and the loss of wealth suffered by farm people as a result of rearing an excess population. It is not so much a matter of determining who gains the most from the migration phenomenon, or how the agricultural balance sheet balances with regard to wealth lost and wealth gained as a result of migration and certain programs designed to aid the farmer. Rather, it is a matter of recognizing con-

ditions as they exist so that we may see more clearly the public policy alternatives open to us.

CHAPTER II

THE DEMAND CHARACTERISTICS OF AGRICULTURAL
PRODUCTS AND THE SUPPLY OF LABOR

Purpose and Outline of Chapter

In this chapter, we shall take a look at some of the demand characteristics of agricultural products so as to get a better understanding of the relationship between the demand for agricultural products and the number of workers that can be profitably employed in agricultural production. We shall also inspect some of the established trends with regard to the agricultural population and the agricultural labor force. Finally, an inquiry into the annual net increase in the rural farm population will be made. This will enable us to calculate the number of people leaving our farms in a particular year.

The Demand Characteristics of Agricultural Products

That the money incomes of agricultural workers are substantially below the incomes of workers in other occupations is a matter which can hardly be disputed. That is to say, the commodities and services produced, in their present quantities, per average worker in agriculture have less exchange value in the market place than do the commodities and services produced per average worker in other occupations. Table I gives some indication of these income differences.

The statement may be made that these income figures may not be

TABLE I

AVERAGE INCOME OF AGRICULTURAL AND INDUSTRIAL WORKERS,
UNITED STATES, SELECTED YEARS FROM 1910-1951^a

Year	Average Net Income per Person Engaged in Agriculture ^b	Wage Income per Employed Industrial Worker ^c
1910	\$ 374	\$ 605
1915	386	656
1920	766	1488
1925	652	1365
1930	502	1318
1935	452	1118
1940	457	1341
1945	1350	2323
1950	1456	3121
1951	1719	3416

^aSource: U. S. Department of Agriculture, Bureau of Agricultural Economics, Agricultural Outlook Charts 1953, (Washington: Government Printing Office, 1952), p. 13.

^bAggregate income of farm operators (excluding value of inventory changes) plus wages of hired laborers, divided by average employment (Revised Series).

^cAnnual earnings of factory, railroad, and mining workers divided by average employment (Revised Series).

measuring precisely the same thing and are, therefore, not strictly comparable. However, there is no evidence that, were they to be made comparable in all respects, the income situation of the agricultural worker would appear in a more favorable light. Consequently, the conclusion that there exists a very real difference in the income per worker in these two groups seems justified.

It would seem quite reasonable to assume that this income situation is strategically related to the income and price elasticities of demand for the commodities produced by the workers of these two groups.

A number of studies have been conducted in the past regarding this phenomenon. There is little need here to review in detail the findings of these various studies. The conclusion generally reached is that the price and income elasticities for unprocessed agricultural commodities are low relative to nonagricultural commodities, taken in the aggregate. T. W. Schultz¹ quotes from a study by Gerhard Tintner in which Tintner has estimated the price elasticity for the aggregate of agricultural products using annual data from 1923 to 1943. "For these two decades--working with five variables, that is, prices received by farmers, national income, agricultural production, prices paid by farmers, and time--he obtained $-.12$." as the coefficient of price elasticity of demand for the aggregate of agricultural products.

In the Spring of 1948, Waite and Trelogan studied the income-consumption elasticities for selected foods in urban families. They found,

¹T. W. Schultz, The Economic Organization of Agriculture, (McGraw-Hill, 1953) p. 191, quoting Gerhard Tintner, "Multiple Regression for Systems of Equations", Econometrica, Vol. XIV (January 1946)

in general, a very low income elasticity for agricultural commodities. Among the thirty-seven commodities studied, fifteen were found to have negative income elasticity coefficients. Only ten commodities had coefficients of $\neq .50$ and above².

Many similar studies could be cited. While the specific price and income elasticity estimates vary somewhat from study to study, they are consistent in pointing out that these elasticities are quite low.

Evidence with regard to the corresponding coefficients for nonagricultural commodities is not very abundant. The market structure facing the producer of agricultural commodities differs greatly from that facing the producer of nonagricultural commodities. The demand conditions for agricultural products are such that studies of this kind can be conducted with relative ease. They are quite different, as Joel Dean³ points out,

. . . from those prevailing in manufacturing industry, where prices are a combination of rigid official quotations and under-cover concessions, where products are rarely comparable, and where current demand is more closely matched by current production.

He refers to a study by R. H. Whitman⁴, of the short run relation of price to sales for a few selected commodities in Macy's Department Store.

²Warren C. Waite, and Harry C. Trelogan, Agricultural Market Prices, (John Wiley and Sons, Inc., New York, 1951) Chapter 3, p. 41. See also pages 46 and 47 for an elaborate list of references concerning studies of this kind.

³Joel Dean, Managerial Economics, (Prentice-Hall, Inc., New York 1951), Chapter 4, p. 186.

⁴Ibid. pp. 187-190, quoting R. H. Whitman, "Demand Functions for Merchandise at Retail", Studies in Mathematical Economics and Econometrics, (University of Chicago Press, Chicago 1942), pp. 208-221.

In this decidedly short run study where many of the variables could be held constant, the demand schedule for one product showed "... a price elasticity of about -6 (with a standard error of .78) and a correlation coefficient of -.89, which indicates a close relation between sales and prices. Other commodities showed comparable price elasticities and correlations." With reference to income elasticity, Joel Dean⁵ found that, in general, such durables as automobiles, radios, washing machines, refrigerators, and the like, had relatively high coefficients while the nondurables, which would include most raw agricultural products, and the services had relatively low coefficients.

This is, of course, rather sketchy evidence in support of the proposition that the aggregate price and income elasticities of agricultural commodities are low relative to nonagricultural commodities. However, it would seem that a case could be built on logical grounds alone. According to a statement by Professor Schultz,

As incomes increase, the distribution of consumer expenditures among different items changes: the proportion of the income spent on necessities, such as food, decreases, while that spent on luxuries and put into savings increases. This is known as 'Engel's law', based on the study that he published in 1888."⁶

That this "law" has been operative in our economy is quite obvious. This Nation started out as an agrarian society. As resources were developed and new technologies were introduced, a continuous shift

⁵ Ibid. Chapter 4, pp. 202-204.

⁶ T. W. Schultz, Agriculture In An Unstable Economy, (McGraw-Hill Book Company, Inc., New York 1945) Part II, Chapter III, p. 60.

from agricultural to nonagricultural production occurred. Along with this increased productivity and increased incomes came a shifting in the type of commodities demanded. While the demand for all commodities increased somewhat, the demand for nonagricultural commodities increased at a faster rate than the demand for agricultural commodities. This led to more and more of our productive energies being devoted to the production of nonagricultural commodities. This process continues to operate until today we have less than one-fifth of our productive resources devoted to the production of raw agricultural commodities.

With the existing allocation of resources and a relatively low income elasticity for farm produced commodities, the relative demand for productive resources associated with increased incomes would seem to be greater in those industries engaged in the production of nonagricultural commodities. In the event that more resources are actually channeled into agriculture than would be called for under the demand conditions prevailing, a lowering of the income producing capacities of these additional resources as well as those already employed would seem to be the inevitable result.

In brief then, the demand situation for agricultural and nonagricultural commodities seems to be of the following nature. In an expanding industrial economy like that of the United States, where per capita incomes and consumption are rising, the demand for agricultural products increases at a slower rate than the demand for nonagricultural products, in the aggregate. Under these conditions, we would expect that the increased productive energies of the society would be channeled more and

more into the production of nonagricultural products. Current or newly acquired savings and youths maturing into the labor force would be expected to move to the industries producing nonagricultural products at a faster rate than to an industry engaged in the production of raw agricultural products. If the situation were to be reversed, with the demand conditions prevailing, it could only result in greater production of agricultural products, (at least until the point of diminishing total productivity were reached - which seems far off for American agriculture) lower prices for these products, and still lower incomes for agricultural workers than is presently the case. If not lower prices, than we would certainly expect an aggravation of the present surplus problem unless greatly expanded markets for agricultural products could be secured.

The Supply of Agricultural Labor

It is extremely difficult, if not impossible, to attempt to measure the relative flow of capital in the two directions indicated above. Available data are not in a form to shed much light on this question. However, the present study is more concerned with evidence regarding the movement of capital invested in labor. We shall take a look, then, and see what have been the historical trends with regard to the agricultural population and the agricultural labor force.

We see from Table II that not only has the farm population declined relative to the total population, but it has declined in absolute numbers as well. Perhaps of greater significance to this analysis would

TABLE II

FARM POPULATION AND THE PERCENT FARM POPULATION
IS OF THE TOTAL UNITED STATES POPULATION,
SELECTED YEARS FROM 1910-1951^a

Year	Farm Population	
	Number (000)	Percent of Total U. S. Population
1910	32,077	34.9
1920	31,566	29.7
1930	29,447	24.0
1940	29,047	22.0
1950	24,335	16.1
1951	23,276	15.1

^aSource: U. S. Department of Agriculture, Agricultural Statistics
1952, (Washington: Government Printing Office, 1952) Table 653, p. 635.

be the relationship between the farm labor force and the total civilian labor force in the United States. Table III illustrates this trend.

Here again we see the same trend: A decline in farm workers both relative to the total civilian labor force and in absolute numbers as well. This relative and absolute decline in numerical importance of the farm labor force is about as we would expect under the demand conditions for agricultural products previously specified. Above and beyond the demand conditions, there is on the supply side the increased productivity per worker resulting from various technological improvements. This increased productivity per worker has apparently proceeded at a faster rate than increases in demand brought about by population growth and higher incomes. These demand and supply conditions are largely responsible for the decline in numbers of workers engaged in agricultural production. Table IV shows the substantial increase in farm labor productivity over the past few decades.

These trends all point out the fact that in agriculture today we have fewer people producing more products than ever before. The shifts in labor resources from agriculture to other industries is clear enough. But even after all this, the relative income situation of the agricultural worker as against the industrial worker has not been changed significantly, as we have seen in Table I. The "causes" regarding this situation are undoubtedly varied and complex. The concern of this thesis, however, is to get a clearer understanding of the effects of an excess population in agriculture on the possibilities which farm people have in gaining control of capital which might then be used to improve their

TABLE III

TOTAL FARM EMPLOYMENT, TOTAL CIVILIAN LABOR FORCE,
AND THE PERCENT FARM EMPLOYMENT IS OF THE TOTAL,
UNITED STATES, SELECTED YEARS FROM 1930-1951^a

Year	Total Farm Employment ^b (000)	Total Civilian Labor Force ^c (000)	Total Farm Employment as a Percent of the Total Civilian Labor Force
1930	11,161	49,820	22.4
1935	11,654	52,870	22.0
1940	11,671	55,640	20.9
1945	10,813	53,860 ^d	20.1
1950	10,351	63,099	16.4
1951	10,022	62,884	15.9

^aThese particular years were chosen to get comparability of the data. Total farm employment was taken from Agricultural Outlook Charts 1953, Op. cit., p. 16. Total civilian labor force was taken from U. S. Department of Commerce, Bureau of the Census, Statistical Abstract of the United States 1952, (Washington: Government Printing Office, 1952) Table 207, p. 178.

^bIncludes family and hired workers.

^cIncludes employed and unemployed but excludes Armed Forces personnel.

^dReduction due to large numbers in the Armed Forces.

TABLE IV

FARM OUTPUT PER MAN-HOUR, UNITED STATES,
SELECTED YEARS FROM 1910-1952^a

Year	Index Numbers (1935-39=100)
	Output per Man-Hour
1910	74
1920	81
1930	87
1940	112
1950	164
1951	162
1952	170 ^b

^aSource: Agricultural Outlook Charts 1953, Op. cit., p. 19.

^bPreliminary.

income situation. Trends so far established do not give us a complete picture of the actual magnitude of the movement of people from agriculture to other industries. This insight can be obtained only by taking into consideration birth and death rates and calculating the annual net natural increase in the agricultural population. An inquiry into these relationships follows.

The Magnitude of Net Outmigration from Farming

In trying to determine the net outmigration of people from rural farm areas, two factors must be considered. The first consideration is the net natural increase in the rural farm population as measured by the excess of births over deaths for a given year. The second component is the change in absolute numbers in the rural farm population that has occurred for that particular year studied. Subtracting the change in absolute numbers in the rural farm population from the net natural increase for the corresponding year will very nearly approximate the net outmigration for that year.

The figures in Table V include both rural farm and rural nonfarm people. In this analysis, we are primarily interested in the net natural increase of the rural farm population. Therefore, the proportions of the rural population made up of rural farm and rural nonfarm must be established. These proportions are shown in Table VI.

Before one can determine how the net natural increase in the rural population is to be proportioned as between the rural farm and the

TABLE V

RURAL BIRTHS AND RURAL DEATHS AND THE NET NATURAL
INCREASE IN RURAL POPULATION, UNITED STATES
AND TENNESSEE, 1949^a

	Rural Births	Rural Deaths	Net Natural Increase
United States	1,466,212	528,949	937,263
Tennessee	49,245	16,232	33,013

^aSource: Statistical Abstract of the United States 1952, Op. cit.,
Table 66, p. 64, and Table 75, p. 71.

TABLE VI

THE PROPORTIONS OF THE RURAL POPULATION MADE UP OF
RURAL FARM AND RURAL NONFARM,
UNITED STATES AND TENNESSEE, 1950

	Percent Rural Farm	Percent Rural Nonfarm
United States ^a	37.3	62.7
Tennessee ^b	50.2	49.8

^aSource: U. S. Department of Commerce, Bureau of the Census, 1950 Census of Agriculture, Vol. II, General Report, Statistics by subjects, (Washington: Government Printing Office, 1952) The 1950 percentages in Table VI applied to the 1949 net natural increase in Table V will not give a completely accurate picture. However, it is unlikely that the bias would be significant in either direction. 1950 data were used here because the corresponding 1949 data were not available. Furthermore, these percentages are based on the census definition of urban used prior to 1950. It was considered necessary to use this definition as the data in Table V are also based on this "old" urban definition.

^bSource: U. S. Department of Commerce, Bureau of the Census, 1950 United States Census of Population, Tennessee, General Characteristics, (Washington: Government Printing Office, 1952)

rural nonfarm categories, one other factor must be considered. This factor is the rate at which these two groups tend to reproduce themselves. The measure of fertility chosen is the number of children under five years old per one thousand women between the ages of fifteen to forty-nine years. A rather surprising trend over the last decade has been the greater increase in fertility for the rural nonfarm population than for the rural farm population. Table VII illustrates this trend for the rural farm and rural nonfarm population of the United States.

The same trend holds true for the rural farm and the rural nonfarm population of Tennessee. In 1950, the corresponding figures for Tennessee were: rural farm - 498, and rural nonfarm - 505.⁷

The fertility rate of these two groups being so nearly equal, it seemed reasonable to use the percentages established in Table VI without further correction. Applying these percentages in Table VI to the net natural increase in the rural population shown in Table V, we obtain the net natural increase in the rural farm population shown in Table VIII.

To get a total picture of the magnitude of movement of people from

⁷1950 United States Census of Population, Tennessee, Op. cit. Again, 1949 data were not available and it was assumed that the differences between 1949 and 1950 would not be significant. These figures are again based on the urban definition used previous to 1950. The difference in the size of these measures for the United States and Tennessee is primarily due to the following difference in definition: for the United States the definition was "the number of children under five years old per one thousand married women, fifteen to forty-nine years old, with husband present." For Tennessee, all women were included in calculating this measure from the Census data. However, it was felt that the relationship between rural farm and rural nonfarm would not be greatly affected.

TABLE VII

NUMBER OF OWN CHILDREN PER 1000 WOMEN 15 TO 49 YEARS
 OLD, RURAL FARM AND RURAL NONFARM POPULATION OF
 THE UNITED STATES, APRIL 1940, 1947, AND 1949^a

	1940	1947	1949
Rural Farm	618	641	631
Rural Nonfarm	516	568	632

^aSource: Statistical Abstract of the United States 1953, Op. cit., Table 39, p. 41. The corresponding figures for the U. S. urban population for these three years were 369, 477, and 503. This indicates that the differences in birth rates between urban and rural people are becoming less pronounced. However, wide differences still exist.

TABLE VIII

NET NATURAL INCREASE IN THE RURAL FARM POPULATION,
UNITED STATES AND TENNESSEE, 1949

	Net Natural Increase
United States	349,599
Tennessee	16,573

the farms to other occupations, the figures in Table VIII must be raised or lowered depending upon the change in absolute numbers of the rural farm population for the year 1949. The best measure that could be obtained was the average change in the farm population in the 1940-1950 decade shown in Table IX.

Now the picture is about complete. Subtracting the average yearly change, Table IX, from the net natural increase, Table VIII, (subtracting a negative number from a positive being equivalent to addition of the two numbers) we find that for the total United States rural farm population of 1949, apparently 1,066,383 people moved from the farms to other locations and occupations. The comparable figure for Tennessee is 42,147. These are indeed large numbers of people to be migrating from our farms in one particular year.

As has already been implied in Chapter I, the rearing of children to adulthood is a costly process. If we are to have highly productive citizens, and subsequently an increased level of living, a rather high level of investment in the future citizen for such things as food, clothing, education, medical care, etc. will be required. The magnitude of investments in farm children will be the subject of the next chapter.

TABLE IX

RURAL FARM POPULATION AND THE AVERAGE YEARLY CHANGE
FOR THE UNITED STATES AND TENNESSEE, 1940-1950

	Rural Farm Population for		Average Yearly Change 1940-1950
	1940	1950	
United States ^a	30,216,188	23,048,350	-716,784
Tennessee ^b	1,271,944	1,016,204	- 25,574

^aSource: 1950 Census of Agriculture, Vol. II, General Report,
Op. cit.

^bSource: 1950 United States Census of Population, Tennessee, Op.
cit.

CHAPTER III

THE LOSS OF FARM WEALTH VIA THE FAMILY AND COMMUNITY INVESTMENTS MADE IN CHILDREN

Purpose and Outline of Chapter

In this chapter, we shall establish some empirical benchmarks as to the costs involved in rearing a child from infancy to adulthood; i.e. to that age where the child is capable of joining the labor force and becoming a productive individual. These costs, or investments from the standpoint of the individual upon whom these costs are incurred, will be calculated as direct costs borne by the individual family and indirect costs borne by the public. These costs of rearing the child, or total investment represented by an adult, will be broken down by various cost items. Furthermore, a classification based on disposable net cash income will be made so as to determine the relationship between investment in the child and the income of the family of which he is a member.

Finally, an estimate of the aggregate capital invested in this excess farm population will be made. For this purpose, the empirical benchmarks with regard to the cost of rearing the child will be applied to the figures of population movement out of farming as established in the preceding chapter.

The analysis presented in this chapter will treat the human agent as a factor in the production process just as is land, buildings, and

equipment. With due respect for human beings, one must nevertheless recognize that the human agent has a good deal in common with the other factors of production. In other words, a certain amount of time must elapse and a certain investment is required before the human agent becomes productive at all. In the early stages of life, the entries in the account are all on the cost side. The funds used to cover these costs, while the child is dependent, normally come out of the family's income.¹

Source of Data and Definitions

The data presented in this chapter were taken from Rural Spending Ways", a Research and Marketing Act project sponsored jointly by the Tennessee Agricultural Experiment Station and the College of Home Economics, the University of Tennessee, under the direction of Dr. Josephine Staab.²

The survey sample was designed to select, according to laws of probability, a sample of white owner-operator farm families of a specified composition living in the open country of Tennessee and to secure a self-weighting sample. An appraisal of the sample indicated there were no wide discrepancies between the survey and the 1950 Census. The sample for the state-wide survey was designed, drawn, and evaluated under

¹See Louis I. Dublin and Alfred J. Lotka, The Money Value of A Man (Revised Edition, The Ronald Press Company, New York 1946) Chapter IV.

²The writer wishes to express his sincere appreciation to Dr. Staab in making this data available. Without her assistance and cooperation, this study would not have been possible. A comprehensive analysis of all the data obtained in this survey will appear in College of Home Economics publications which are now in progress.

the supervision of qualified statisticians.³

The eligibility requirements of families from whom schedules were to be taken were:

I. White operator of a farm raising \$400 worth or more of farm products in 1949 who

A. Lived on the same farm January 1, 1949 and at the time of interview.

B. Owned the farm in part or in full on December 31, 1949.

C. Lived in the farm dwelling he owned.

D. Was one of the co-heads of the family as well as owner-operator of the farm.

E. Excluded were:

1. Owner-operators who did not live on the farm they owned.

2. Farm operators who were heirs to estates in probate.

3. Resident landlords.

4. Owner-operators who raised less than \$400 worth of farm products annually.

II. Husband and wife family

A. With no children or only unmarried children under 22 years of age living at home at the time of the interview and during the report year.

B. Which was in existence January 1, 1949.

C. Excluded were:

³Josephine Staab, "A Summary of Income-Expenditure Relations of Farm Families Using Three Bases of Classification", College of Home Economics, University of Tennessee (Mimeographed).

1. Husband and wife owner-operator families with married children living at home as well as those with unmarried children 22 years of age or over.
2. All broken owner-operator families regardless of the composition of the household.⁴

The sampling rate was set at .75 percent of all white owner-operators of farms in Tennessee for the year 1949 meeting the requirements specified.

A term used frequently in the following analysis needs to be defined at this point. The term referred to is disposable net cash income. Disposable net cash income is composed of the net cash farm income, net earnings from other employments, net income from crafts and boarders, net rent from property, interest and dividends and regular contributions from persons not in the family, less federal and state income taxes. A further consideration, and one which will be discussed later in this chapter, is the fact that incomes and expenditures were calculated from the price level existing in the year 1949.

The following tables, X, XI, and XII, were computed from these data. Income categories were arbitrarily chosen so as to get a fairly even distribution of cases in each income group. The number of children in each group was not sufficient to permit a breakdown by single years; therefore, the children were grouped by five year age intervals.

Value of food consumed includes both the expenses for purchased

⁴Josephine Staab, "Income-Expenditure Relations of Farm Families Using Three Bases of Classification", (Unpublished Ph. D. thesis, The University of Chicago, March 1953), Chapter II.

food and the farm value of farm produced food. This item was reported by families as total expense for purchased foods and total value of farm produced food without being broken down as to the value of food consumed per individual in that family. The allocation of this lump sum (expense of purchased foods and total value of farm produced food were combined in the analysis) to individual family members was accomplished through the use of previously established "adult male equivalent food consumption units."⁵

Clothing expenditures were reported separately for each individual in the family. This was also true for education expenditures.

Recreation, medical, and personal expenditures were reported for individual family members as far as these expenditures could be so identified. In many cases, however, a part of these expenditures were reported for the family as a unit. In these cases, this lump sum was allocated equally among all the family members.

Death losses were computed by taking the cost of rearing a child to a specified age times the expected mortality⁶ at that age. This cost

⁵Louis I. Dublin, and Alfred J. Lotka, The Money Value of a Man, (Revised Edition, The Ronald Press Company, New York 1946) Chapter IV, p. 50, Table 13, quoting Faith M. Williams and Alice C. Hanson, "Money Disbursements of Wage Earners and Clerical Workers in Eight Cities in the East North Central Region. 1934-36", Bulletin No. 636, U. S. Department of Labor Statistics; Table C, p. 432 and Table D, p. 433.

According to this system, an adult male is considered as 1.00, an adult female as .82, a one year old of either sex as .48, a ten year old male as .84, a ten year old female as .76, etc.

⁶Statistical Abstract of the United States 1952, Op. cit., Table 82, p. 77.

was then divided by the expected survivors to that age. Interest charges on the expenditures were computed at two percent, compounded semi-annually.⁷

Tables X, XI, and XII do not include family overhead expenses as a cost of rearing the child. Included in overhead expenses are such cost items as house rent, household furnishings, and household operation which, in turn, includes such items as fuel, light, refrigeration, and telephone. These overhead expenses were not included as a cost in rearing children because it was found that within a given income level, these expenses were about the same for all families. In fact, indications from the data are that these overhead expenses tend to decline as families grow in size. Apparently the larger families cannot afford to spend as much for these items.

Another item excluded from these tables is the expenditure made by parents for life insurance on their children. This item was included in family savings and could not be isolated. The people conducting the survey have informed the writer that this was a very insignificant item among the families included in the survey. It may well be an item of considerable significance in some areas.

Finally, there is one item whose value in dollars and cents could not be determined: the service rendered by the mother in rearing the child. The mother, in the majority of homes, gives full working day to home occupations of one kind or another. A large share of her time is

⁷Interest was computed from standard annuity tables.

TABLE X

ESTIMATED COST OF BRINGING UP A CHILD TO SPECIFIED AGE, FOR TENNESSEE FARM FAMILIES^a WITH DISPOSABLE NET CASH INCOMES OF \$1250. AND UNDER; BY FOUR SELECTED AGE PERIODS OF THE CHILD AND BY ITEM OF EXPENDITURES; 1949 PRICE LEVEL. (NO. OF FAMILIES=73; NO. OF CHILDREN =203; AVERAGE DISPOSABLE NET CASH INCOME=\$813.)

Age of Child	Value ^b of Food Consumed	Expend-iture for Clothing	Expend-iture for Recreation	Expend-iture for Education	Expend-iture for Medical Care	Expend-iture for Personal Items	Allow-ance for Loss by Death	Total Cost Exclud- ing Interest Charges	Allowance for Interest on Ex- penditure at 2%	Total Cost Includ- ing Interest Charges
5	\$ 500	\$ 75	\$ 20	\$ -	\$ 85	\$ 10	\$19	\$ 709	\$ 40	\$ 749
10	1110	230	40	25	110	25	25	1565	167	1732
15	1925	440	65	70	140	45	35	2720	414	3134
21	2939	848	119	130	236	111	68	4451	928	5379

^aSee eligibility requirements stated previously.

^bThe value of food consumed is made up of both purchased food and the value of farm produced food. Food purchased represents 38.2 percent of the total and the value of farm produced food represents 61.8 percent of the total.

TABLE XI

ESTIMATED COST OF BRINGING UP A CHILD TO SPECIFIED AGE, FOR TENNESSEE FARM FAMILIES^a WITH DISPOSABLE NET CASH INCOMES OF \$1251-2200; BY FOUR SELECTED AGE PERIODS OF THE CHILD AND BY ITEM OF EXPENDITURE; 1949 PRICE LEVEL. (NO. OF FAMILIES=71; NO. OF CHILDREN=173; AVERAGE DISPOSABLE NET CASH INCOME=\$1746.)

Age of Child	Value ^b of Food Consumed	Expenditure for Clothing	Expenditure for Recreation	Expenditure for Education	Expenditure for Medical Care	Expenditure for Personal Items	Allowance for Loss by Death	Total Cost Excluding Interest Charges	Allowance for Interest on Expenditure at 2%	Total Cost Including Interest Charges
5	\$ 605	\$ 105	\$ 35	\$ -	\$105	\$ 20	\$24	\$ 894	\$ 51	\$ 945
10	1415	330	115	35	160	50	32	2137	220	2357
15	2440	610	160	100	205	85	45	3645	552	4197
21	3808	1072	238	196	259	169	88	5830	1232	7062

^aSee eligibility requirements stated previously.

^bThe value of food consumed is made up of both purchased food and the value of farm produced food. Food purchased represents 44.5 percent of the total and the value of farm produced food represents 55.5 percent of the total.

TABLE XII

ESTIMATED COST OF BRINGING UP A CHILD TO SPECIFIED AGE, FOR TENNESSEE FARM FAMILIES^a WITH DISPOSABLE NET CASH INCOMES OF \$2201. AND OVER; BY FOUR SELECTED AGE PERIODS OF THE CHILD AND BY ITEM OF EXPENDITURE; 1949 PRICE LEVEL. (NO. OF FAMILIES=69; NO. OF CHILDREN=192; AVERAGE DISPOSABLE NET CASH INCOME=\$3180.)

Age of Child	Value ^b of Food Consumed	Expenditure for Clothing	Expenditure for Recreation	Expenditure for Education	Expenditure for Medical Care	Expenditure for Personal Items	Allowance for Loss by Death	Total Cost Excluding Interest Charges	Allowance for Interest on Expenditure at 2%	Total Cost Including Interest Charges
5	\$ 665	\$ 140	\$ 35	\$ -	\$155	\$ 25	\$ 28	\$1048	\$ 59	\$1107
10	1570	400	100	30	255	65	37	2457	255	2712
15	2650	725	175	100	300	100	52	4102	632	4734
21	4060	1415	289	226	396	196	102	6684	1407	8091

^aSee eligibility requirements stated previously.

^bThe value of food consumed is made up of both purchased food and the value of farm produced food. Food purchased represents 52.7 percent of the total and the value of farm produced food represents 47.3 percent of the total.

spent on behalf of the children. An evaluation of this has not been made, and we must be satisfied with pointing out the fact.

Above and beyond these expenditures borne directly by the family 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 were considered to be of minor importance and have not been incorporated into this analysis. Perhaps the largest item of this kind is the support of the educational system. An estimate regarding this community expenditure was made. As nearly as can be determined from data available, the farm people of Tennessee spend approximately \$20 per child per year for education out of locally collected taxes.⁸

The Loss of Farm Wealth

In the previous chapter we observed that, in 1949, apparently 42,147 people moved from the farms to other locations and occupations. In terms of investments made by both the family and the community, how much wealth did these migrants represent? First, we must decide upon

⁸ Based on data obtained from State of Tennessee, Department of Education, "Annual Statistical Report for the Scholastic Year Ending June 30, 1950". The measure used was: Total Revenue Receipts from the county for county public schools, grades 1 through 12, minus county school funds apportioned to city and special district schools, divided by net enrollment in all county schools, grades 1 through 12, white and negro. The \$20 represents an average for 26 primarily rural counties in Tennessee.

an investment figure to use. Insofar as these migrants included children from tenant farmers as well as from owner-operators, Negro as well as white, and for that matter, people of various ages,⁹ perhaps the most reasonable investment figure would be that established in Table X. These families had an average disposable net cash income of \$813. If all farm incomes in the state were averaged, this figure would probably be most representative of any established in the preceding tables.

The investment figure used was \$3,134. This is the total cost of rearing a child to age fifteen. As has been indicated in Chapter I, age fifteen was chosen so as to keep our estimates on the conservative side.

The wealth represented by these 42,147 migrants, therefore, would be estimated at $42,147 \times \$3,134$ or a total of \$132,088,698. This represents the expense borne directly by the families. Added to this would be the community expense of education. If we assume that the average migrant had an eighth grade education, then \$20 per child per year for eight years would result in a \$160 expenditure per person. An estimate of the indirect family or community expenditures would be $42,147 \times \$160$ or a total of \$6,743,520. The total loss of wealth to Tennessee farmers as a result of having reared this excess population would be estimated at \$138,832,218 for the year 1949. The number of farms in Tennessee in 1950 was reported¹⁰ as 231,631. This represents, therefore, an average

⁹This matter of age distribution of the migrants will be discussed later in this chapter.

¹⁰Statistical Abstract of the United States 1952, Op. cit.,
Table 636, p. 621.

loss per Tennessee farm of about \$600 for the year 1949. This loss is the resultant of rearing a population in excess of agriculture's needs.¹¹

Some Comments on the Interpretation of the Findings

Several factors need to be kept in mind with respect to the interpretation of these findings. First of all, the costs referred to are not all out-of-pocket costs. As has been shown (see footnote to Tables X, XI, and XII), a considerable proportion of the value of the food consumed was made up of farm produced food. This, therefore, is not an out-of-pocket cost but rather a sacrifice of income. From an economic standpoint, however, it appears justifiable to include this as a cost of rearing the child because, had the child not been there to consume this produce, the resources could probably have been put to a use in which a marketable commodity would have been produced. Actually, a little over two-thirds of the value of home produced food was made up of meat, milk, and eggs for which commodities most farmers already have a ready market.

Another factor is the allowances for expenses incurred on account of children that do not live to adulthood. While again quite appropriate from an accounting point of view, they will not be felt by the parents as items of cost applicable to the surviving children.

Finally, the interest computed on the investments made in the

¹¹ Calculations for the United States have not been made because the data on the costs of rearing children are not available. With certain assumptions about incomes and expenditure habits, however, the data presented in this chapter could be put to that use.

children needs to be considered. While again not representative of an out-of-pocket cost, it is nevertheless a type of opportunity cost in the sense that it represents foregone income that might have been received had there not been a child upon which to spend the money. That is to say, money spent on these children could be conservatively expected to earn this much interest if put to some other use.

Another item to keep in mind is that the figures for the cost of bringing up a child presented in this chapter have been derived from data observed over a short period of time; namely, the year 1949. Such basic data cannot be expected to represent exactly a situation lasting over a period of fifteen years or more. In view of the fact that real incomes have risen over the past fifteen years, it seems only reasonable to assume that families in 1949 would have spent more on their children than they would have fifteen or more years ago. This assumption is supported by the fact that these families have relatively low incomes and, as seen in Tables X, XI, and XII, the income elasticities associated with these expenditures in behalf of the children appear fairly high.

This factor, it would seem, would necessitate slight downward modifications in the figures arrived at in this analysis, after price-level corrections had been made. In view of the fact that we have been conservative in deriving these estimates, however, it seems improbable that a significant error resulted from this difference in incomes over a period of time.

Still another factor to be considered is the age at which people migrate. Data were not available from which to determine the age dis-

tribution of the people that actually left Tennessee farms in 1949. An indication, however, that the great majority of migrants are young people is the fact that for all migrants in the United States (rural and urban) from April 1, 1948 to April 1, 1949, 73 percent were less than thirty-five years old. The median age of all migrants was 25.2 years.¹²

In an analysis of migration data compiled by the Census Bureau for the 1935-40 period, it was found that for all rural farm out-migrants over eighteen years of age, 64.2 percent were between the ages of eighteen and thirty-four years.¹³ There are, of course, people of all ages moving from the farms to the cities. But the great majority are in the younger age groups.

It might be argued that some consideration must be made with regard to the productivity of these migrants before they left agriculture. To the extent that these migrants made some contribution to agricultural production before they left, it might be reasoned that the costs involved in rearing them were offset or regained. On the other hand, one may argue that if a person will eventually migrate from the farm to some other occupation and location, the longer he remains in farming, the greater will be the loss to agriculture for the following reasons. First, this individual, if he were to move, would very probably be much more productive than he is presently in farming. Therefore, the agri-

¹²U. S. Department of Commerce, Bureau of the Census, "Current Population Reports, Population Characteristics," Series P-20, No. 28, Table 2, p. 7.

¹³Edmund deS. Brunner, "Internal Migration in the U. S., 1935-40," Rural Sociology 13:9-22, March 1948.

cultural community would eventually share in this increased productivity. Secondly, it is conceivable that the longer the individual remains in agriculture, the more wealth he will actually have accumulated. But it is very unlikely that he will donate this wealth to the agricultural community. On the contrary, he will very likely take this wealth along to his new location.

The analysis of these relationships, however, are related to a much broader issue than has been undertaken in this thesis. These are factors to be considered in an analysis of the general problem of a declining agriculture in an expanding industrial economy. They cannot be analyzed within the framework of this study.

In conclusion it must be pointed out that the inference that farm people should greatly alter their habits of reproduction is not intended. An out movement of people from agriculture would be expected even if birth rates would sharply decline. As has been shown in Chapter II, the population in agriculture is decreasing in absolute numbers and, therefore, a surplus would be created even without present day high birth rates. To be sure, agricultural people would be better off financially if they had fewer children to rear. But this would hardly eliminate the problem of a surplus population in agriculture.

Having analyzed and having gained some insight with respect to the reasons for, the size of, and the capital loss resulting from rearing an excess population in agriculture, one cannot help but speculate somewhat on some of the consequences resulting from this phenomenon. A theoretical treatment of some of these expected consequences will be undertaken in the following chapter.

CHAPTER IV

SOME EXPECTED CONSEQUENCES OF AN EXCESS POPULATION IN AGRICULTURE

Purpose and Outline of Chapter

There is much that might be said about the consequences of the movement of an excess population out of agriculture. In fact, many of these consequences may be considered as falling outside the sphere of economic analysis. Therefore, as the chapter title implies, only some of these expected consequences will be analyzed.

Various approaches might be taken in presenting the analysis made in this final chapter. However, in the interests of clarity and what appeared to be a logical organization, the following scheme was adopted. First, we shall try to get a better understanding of the kind of people that migrate. Second, we shall examine some of the consequences to the migrant himself. Third, we shall inspect some of the more important consequences to the people remaining in the rural community. Fourth, the consequences to the people in the receiving community will be briefly appraised. A statement regarding the implications of this problem to society as a whole will also be made.

Characteristics of Migrants

It is, of course, impossible to define all migrants with a partic-

ular set of classifications. However, certain characteristics seem to be somewhat more prevalent among migrants than they are among nonmigrants. With regard to the age at which people migrate, we have seen in the preceding chapter that young people are far more migratory than older people. As one writer has stated,

The one generalization about migration differentials which can be considered definitely established, although even this cannot be stated precisely, is the following: there is an excess of adolescents and young adults among migrants, particularly migrants from rural areas to towns, compared with the nonmigrating or the general population.¹

(See Figures I and II of this chapter.)

It would appear reasonable to assume that rural-urban migration would be more selective of females than of males. One of the reasons for this may be that the job opportunities for females are greater in the cities than on the farm. An analysis of the migrants in the period 1935-40 lends support to this assumption. "The ratio of males to females among all farm migrants was 109.8 to 100 but among those who migrated to the city, there were only 92.5 males to 100 females."²

There is some evidence that rural-urban migration is also selective of the more highly educated. According to a study of the census data on internal migration for the period 1935-40, the following conclusion was reached.

Migration to cities was found to be highly selective with respect to education. In addition to selecting those persons

¹ Dorothy Swaine Thomas, "Research Memorandum on Migration Differentials", Social Science Research Council, 1938, Bulletin 43, p. 11.

² Edmund deS. Brunner, Op. cit., p. 14.

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 was still below that of the urban population to which they migrated. (b) Possibly because of major social and economic changes underway in the South, the migration of the non-white Cotton Belt population contained disproportionately large numbers of the least well educated as well as the better educated.³

Further evidence on this point comes from a study made in Lincoln County, Tennessee.⁴ In this study it was found that with a given level of family wealth, those people with more education were more migratory than those with less education. It was also found that the more highly educated moved over longer distances.

Consequences to the Individual

Having some understanding as to the age, sex, and educational characteristics of the migrants, let us inquire into some of the consequences that might be expected as a result of rearing an excess population in agriculture. One of the consequences, especially with the relatively low incomes of farm families, is that a fairly low investment

³Donald J. Bogue, and Margaret Jarman Hagood, Scripps Foundation Studies in Population Distribution, No. 6, Part IV, "Sub-regional Migration in the United States, 1935-40: Differential Migration in the Corn and Cotton Belts", Vol. II, p. 57.

⁴Results of this study by R. B. Hughes, Agricultural Experiment Station, University of Tennessee, have not yet been published.

is made in behalf of the individual members of these families. The first question of relevance is, What are the consequences to an individual as a result of being a member of a family with a low income?

The effects of low income on the investments made in the child can be seen in Tables X, XI and XII in Chapter III. We see from the data there analyzed that the investment in the individual to age twenty-one varies from \$4383 in families with average incomes of \$813, to \$5742 in families with average incomes of \$1746, to \$6582 with average incomes of \$3180.⁵ We notice also that all expenditure categories are affected. There is complete consistency in the relationship between family incomes and investments in the children. One could only infer, as will be further elaborated later on in this chapter, that an individual receiving the benefits of a larger investment in such things as education, recreation, medical care, clothing, food, etc., would be better prepared to see and create for himself the opportunities required for achieving a high level of living.

Another consequence of this excess population in agriculture, and in fact as we have seen in Chapter II, one of the causes of this excess, is that farm families have relatively high birth rates and therefore large families are more prevalent than among urban people. High birth rates are spoken of as a consequence of an excess population in agriculture because this population excess tends to lower incomes received, and lower incomes are closely associated with high birth rates

⁵ These figures exclude charges for loss by death and interest on the investment.

in our culture. A further elaboration of this point will also come later in this chapter. The second question of relevance then is, what are the consequences to an individual as a result of being a member of a large family with a low income? Tables XIII and XIV give us some insight into these relationships.

The bases of classification used in Tables XIII and XIV need to be clarified. The age of the average child was computed by summing the ages of all the children of a given family and dividing by the number of children. This was considered a very strategic factor in the classification because the investment in the child varies widely depending upon the age of the child. (See Tables X, XI, and XII, Chapter III.) The mother's educational level was used for the following reasons. First of all, it was found that a very high correlation existed between the years of schooling of the father and the mother. It will be noticed also that substantial differences in income are associated with the educational level of the mother. This is explained by the fact that the educational level of the parents was highly correlated, and that people with more education tend to be more productive. Second, it was assumed that the investments made in the children would be more nearly associated with the educational level of the mother than with the educational level of the father insofar as the mother is generally more influential with regard to family policies relating to the rearing of the children.

Tables XIII and XIV seem to indicate quite clearly that children in large families have less investment made in their behalf than do children in small families, with a given income level. This does not

TABLE XIII

FAMILY EXPENDITURES ON CHILDREN IN THE YEAR 1949, FOR TENNESSEE FARM FAMILIES,^a BY AGE OF THE AVERAGE CHILD, EDUCATION OF THE MOTHER, AND FAMILY SIZE, FOR SEVERAL EXPENDITURE ITEMS

	Age of Average Child 0-10			
	Mother's Education Less than 8 Years		Mother's Education 8 Years or More	
	Families with 1 or 2 Children	Families with 3 Children or More	Families with 1 or 2 Children	Families with 3 Children or More
No. of Families	8	20	63	29
Ave. No. of Children per Family	1.625	4.850	1.492	4.103
Ave. Age of All Children	6.462	8.216	5.319	7.227
Ave. of Mother's Education	4.125	5.250	10.333	10.483
Ave. Family Disposable Net Cash Income	\$1065	\$1103	\$2102	\$2209
Item of Expenditure	Average Expenditure per Child			
Food	\$ 126	\$ 130	\$ 161	\$ 158
Clothing	31	29	44	36
Recreation, Education, Medical, and Personal	28	21	51	31

^aSee eligibility requirements outlined in Chapter III.

TABLE XIV

FAMILY EXPENDITURES ON CHILDREN IN THE YEAR 1949, FOR TENNESSEE FARM FAMILIES, ^a BY AGE OF THE AVERAGE CHILD, EDUCATION OF THE MOTHER, AND FAMILY SIZE, FOR SEVERAL EXPENDITURE ITEMS

	Age of Average Child 11-21			
	Mother's Education Less than 8 Years		Mother's Education 8 Years or More	
	Families with 1 or 2 Children	Families with 3 Children or More	Families with 1 or 2 Children	Families with 3 Children or More
No. of Families	17	12	36	28
Ave. No. of Children per Family	1.294	3.750	1.556	4.428
Ave. Age of All Children	15.909	13.667	14.893	12.944
Ave. of Mother's Education	5.118	4.417	9.861	9.321
Ave. Family Disposable Net Cash Income	\$1476	\$1563	\$1990	\$2128
Item of Expenditure	Average Expenditure per Child			
Food	\$ 220	\$ 147	\$ 249	\$ 171
Clothing	69	31	92	66
Recreation, Education, Medical, and Personal	50	18	74	35

^aSee eligibility requirements outlined in Chapter III.

seem to be the case in families where the children are young, especially with regard to food and clothing expenditures, as seen in Table XIII. This is probably due to (1) the fact that the magnitude of expenditures is smaller and can be met more easily even in families with low incomes and (2) the possibility that at this younger age there are certain minimum essentials which must be provided if life is to be maintained.

But as children grow older, as shown in Table XIV, there is a very significant drop in the investments made in children in the large families. It might be argued that the children in these larger families are slightly younger than the children in the small families and would therefore require less in terms of food, clothing, etc. Although this slight age differential holds true for the data presented in Table XIV, the higher incomes of these families would very likely be more than enough to offset these age differences.

There is a good deal of evidence available, which need not be reviewed here, showing the relationship between incomes and birth rates. These two factors are found to be highly correlated. That is to say, low incomes are associated with high birth rates.

We have seen in the preceding chapter that the investments made in children in low-income families are considerably below those made for children in high-income families. Added to this consideration is the fact that children in large families have smaller investments made in their behalf than do children in smaller families. With the combined and simultaneous effects of low income and large families, a situation which characterizes a large part of Southern agriculture, the results

must almost of necessity be a low level of investment in the children.

It does not seem highly unreasonable to assume that the greater the investment in the human agent, to a certain point at least, the more productive will be the individual. There may, of course, be exceptions, but this would seem to hold in the aggregate. Under these conditions, it is extremely difficult to conceive of an equality of economic opportunity in our competitive society for these children as against those who have had the benefit of greater capital investments in such items as education, medical care, food, etc. A further consideration is that if migration is selective of those representing the higher investments, then those remaining in agriculture are even at a greater disadvantage. This is true because these conditions might be expected to perpetuate themselves as follows: low incomes = large families = low investment in the children = low productivity = low incomes = large families, and so on.

Above and beyond the economic consequences of being a member of a large family with a low income, consequences which are felt by the migrant and nonmigrant alike, there are certain social and psychological consequences which are felt by the migrant as he moves from his familiar rural environment to the less familiar urban environment. Certain adjustments will be required in this new situation if the migrant is to achieve some feeling of security and stability in his new location. This,

however, is incidental to our analysis and will not be analyzed.⁶

Consequences to the Rural Community

The second set of consequences which we shall analyze are those felt by the people remaining on the farms in the rural communities. It is appropriate, first, to theorize what the effects would be if no migration occurred. Suppose the 10,000,000 or so people who left the farms in the United States for other occupations in the 1940-1950 decade were still on the farms today.

It is, of course, extremely difficult to visualize exactly what condition our economy would be in today if this were actually the case. One thing seems quite certain. The total productivity of the economy would be lower than it is at present. This seems true because under these conditions, the labor engaged in agricultural production would be so plentiful and cheap that not nearly as much capital would have been introduced into agriculture as is presently the case. While total physical product might be greater for agriculture under these conditions, it is very doubtful whether the value of that product would be as great as it is today. Value of the product would be low because the smaller population outside of agriculture would weaken the demand. Also, the price elasticity discussed in Chapter II would have the effect of reducing the

⁶A good treatment of some of the aspects of this problem can be found in: Howard W. Beers, and Catherine P. Heflin, "Rural People in the City", Bulletin 478, and "Urban Adjustments of Rural Migrants", Bulletin 487, Kentucky Agricultural Experiment Station, University of Kentucky, Lexington.

total revenue as the quantity of production increased.

On the nonfarm side of production, there would, of course, be fewer workers engaged in production with a resulting decreased total output. Furthermore, with greater numbers of people in farming having incomes below present levels, the purchasing power of the total population would be greatly reduced. In general then, one would conclude that a lack of rural-urban migration would eventually result in a situation of stagnation and severe depression. This is especially likely to occur when we consider the much higher birth rates of farm as against urban people.

The knowledge that these 10,000,000 people are no longer employed, or underemployed, in farming is quite comforting. However, the farm people of the Nation have apparently shared a larger proportion of the burden of this adjustment and reaped a smaller proportion of its benefits than did the nonfarm people. The burden referred to here is the loss of farm wealth resulting from rearing this large number of people who are in excess as far as farm production is concerned but are highly productive in other occupations.

This loss of farm wealth is in various forms. In the preceding chapter we have seen the magnitude of investments made in the human agent. There are several other very significant ways in which farm wealth is lost as a result of this excess population and their subsequent migration to the cities. First, there is the cost involved in moving from one location to another. This is generally borne by the migrant or his family. Second, there is the highly significant factor of inheri-

tance. As a general rule, the children who leave the farm to go to the cities share in the inheritance upon the death of the parents. Money paid to the migrant by his brothers or sisters remaining on the farm constitutes a further capital drain on agriculture. A third factor, only indirectly related to the problem of an excess farm population, is the fact that farmers rent land and borrow capital from persons other than farm operators. The rent and interest paid to the nonfarm sector in this way is estimated to be a very large sum. The relation that these payments have to the problem of an excess population in agriculture is the fact that farmers sacrifice the control or ownership of capital as a result of the direct expenditures on children, the cost of moving, and the inheritance going to these migrants. We shall elaborate on this later.

From a study conducted in 1935, covering the 1920-1929 period, the following estimates were made.⁷ The cost to all U. S. farmers in the form of direct investments made in the 6,300,000 farm migrants for the 1920-29 period was estimated at \$14,000,000,000. The loss of farm wealth brought about by inheritance was estimated at between \$3,000,000,000 and \$4,000,000,000. And the movement of wealth from farm to city in the form of interest and rent paid to persons other than farm operators was estimated at about \$18,000,000,000. "The total movement from these four

⁷ Fred R. Yoder and A. A. Smick, "Migration of Farm Population and Flow of Farm Wealth". State College of Washington, Agricultural Experiment Station, Pullman, Washington, Bulletin No. 315, September 1935, quoting O. E. Baker and T. B. Manny, "Population Trends and the National Welfare", and "Facts and Observations as to rural-urban migration and declining birthrate", Bureau of Agricultural Economics, U. S. Department of Agriculture. (Mimeographed, 1935)

sources appears to have been about \$35,000,000,000 during the decade, or \$3,500,000,000 a year, which was about one-third of the average annual gross income of all farmers during the decade."⁸

Just what the corresponding figures for the 1940-50 decade would be has not been estimated. It seems quite clear, however, that the relative importance of farm wealth lost from these causes has not diminished. Actually, we have had approximately 4,000,000 more migrants in this later decade.

The over-all significance of this to the economy of the farm community is difficult to evaluate. One thing is quite certain. If the farm community did not have this excess population to rear, or if it were not required to carry the total financial burden involved, the present day capital supply position of agriculture would be greatly improved. In other words, this population phenomenon seems to be one of the basic factors responsible for the capital starvation in agriculture in general and in southern agriculture in particular.

The farmer's alternatives under present conditions are limited. He can invest heavily in the children so as more nearly to assure their productivity and economic well-being in the future. With the present low incomes, this can be done only at the expense of the farmer's own economic well-being, at the expense of capital required to maintain the farm plant, and at the further expense of capital required to bring about

⁸ Ibid. p. 21.

certain adjustments and more favorable combinations of resources within agriculture.

On the other hand, the farmer could conceivably invest less in his children than he is at present. This would give him a little more capital available for investments in his business. This smaller investment in the children, however, can have certain consequences that are not too desirable. Most parents would perhaps reject this alternative on moral grounds. If investments in the children are decreased, it would very likely result in lower levels of health, less education, recreation, etc. These conditions would not seem to be conducive to the development of a vigorous personality required to meet the challenge of migrating to a new job and a new and strange location. If the migration does take place, the productivity of society will presumably be lower than if these migrants had had the benefits resulting from good health, education, and recreational activities. Again, one could hardly feel secure in saying that these children had an equal opportunity for securing economic well-being for themselves and their offspring as compared with the nonmigrant city dweller. In the event that migration is retarded as a result of low investments in the children, the agricultural labor and capital problem would only be intensified. Such is the nature of the dilemma.

Let us assume a third alternative. Suppose the farm community did not have to bear the entire financial burden of rearing this excess population. Suppose also that greater investments were made in these children than is presently the case and that every encouragement possible

was given to farm children to broaden their experiences through more education and greater participation in certain constructive recreational activities. What consequences might we expect from this situation?

Under these conditions, the farmer would have more capital available for investment in his business. It seems quite likely that, with the present demand conditions for agricultural products, as more capital is invested in farming, even more people would be required to leave agriculture than at present. However, the people then remaining would be more productive and could achieve higher incomes. There is the possibility that as more capital is accumulated within agriculture, credit will be easier to obtain because of the increased collateral. As incomes increase, birth rates tend to decline and to that extent the continuous development of an excess population in farming might be diminished.

It may well be that in the short run the increased availability of capital would result in the bidding up of land values, thereby dissipating the effects of this increased capital. In fact, the argument might rightfully be advanced that this high price of land is one of the basic causes of capital shortages in agriculture today. What is needed, it may be reasoned, is not more capital in terms of dollars, but rather a lower dollar value of land to bring it in line with the productivity potentials of this resource and a greater investment in other forms of capital. This is readily admitted. But this development is not likely to occur so long as farm people's limited experiences lead them to value farming as an occupation more highly than other ways of making a living.

It seems reasonable to assume that these values are changed as people's experiences are broadened through the media of education, recreation and the like. And this gets us back again to the investments in the children required to give them the benefits of these experiences.

In the long run, in the opinion of the writer, a greater investment made in farm children would work toward this end of a better capital-labor balance in farming. But so long as the bulk of these investments must come out of present day low farm incomes, progress in this direction will likely be very slow.

There is another factor tending to alter the consequences of an excess farm population which must be considered. This factor is the distance people must move in order to find better employment opportunities.

If job opportunities are nearby, it seems that the consequences of an excess population in farming, which has little alternative but to move, would be more favorable to the people remaining in the rural community than if job opportunities are far removed. Some of these more favorable consequences which we might expect are: (1) the reduced cost of moving, (2) a stronger demand for locally produced farm commodities, (3) a larger tax base because of the greater productivity, (4) more savings and the possibility of the greater availability of credit.

If the employment opportunities are far removed from the present rural community, these benefits would not be realized. Furthermore, as has been pointed out earlier, there seems to be a relationship between education and distance of movement. The movement to greater distances

would perhaps result in being more selective of the highly educated and would again lead to the intensification of this problem.

There is some evidence that the areas with the greatest population excess are also the areas with the fewest job opportunities. This creates the necessity for long distance migration. For example, the East South Central and the West South Central regions experienced a net loss, through migration, of their civilian population for the 1940-1950 decade of 2,313,000 people.⁹ The corresponding figure for the State of Tennessee is 160,000. It is, of course, not known whether these people all originated on farms. But undoubtedly a large proportion of these people were farm migrants. We would expect this because these regions are more agricultural than the rest of the Nation and we know also that the agricultural population declined substantially in this period. Recalling again the investment figures, computed in Chapter III, it seems quite clear that this area has suffered a tremendous capital loss as a result of rearing this excess population.

The consequences to this larger region are the same as to the rural community previously used as our observational unit. A large share of the earnings of these people is used in the rearing of a population in excess of that which can be profitably employed in that region. The over-all effects are again a lack of capital to be used in bringing about better resource combinations, which would make higher productivity possible, and a lower level of consumption for the people in this

⁹ Statistical Abstract of the United States 1952, Op. Cit., Table 12, p. 15. States included in these two regions are Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, and Texas.

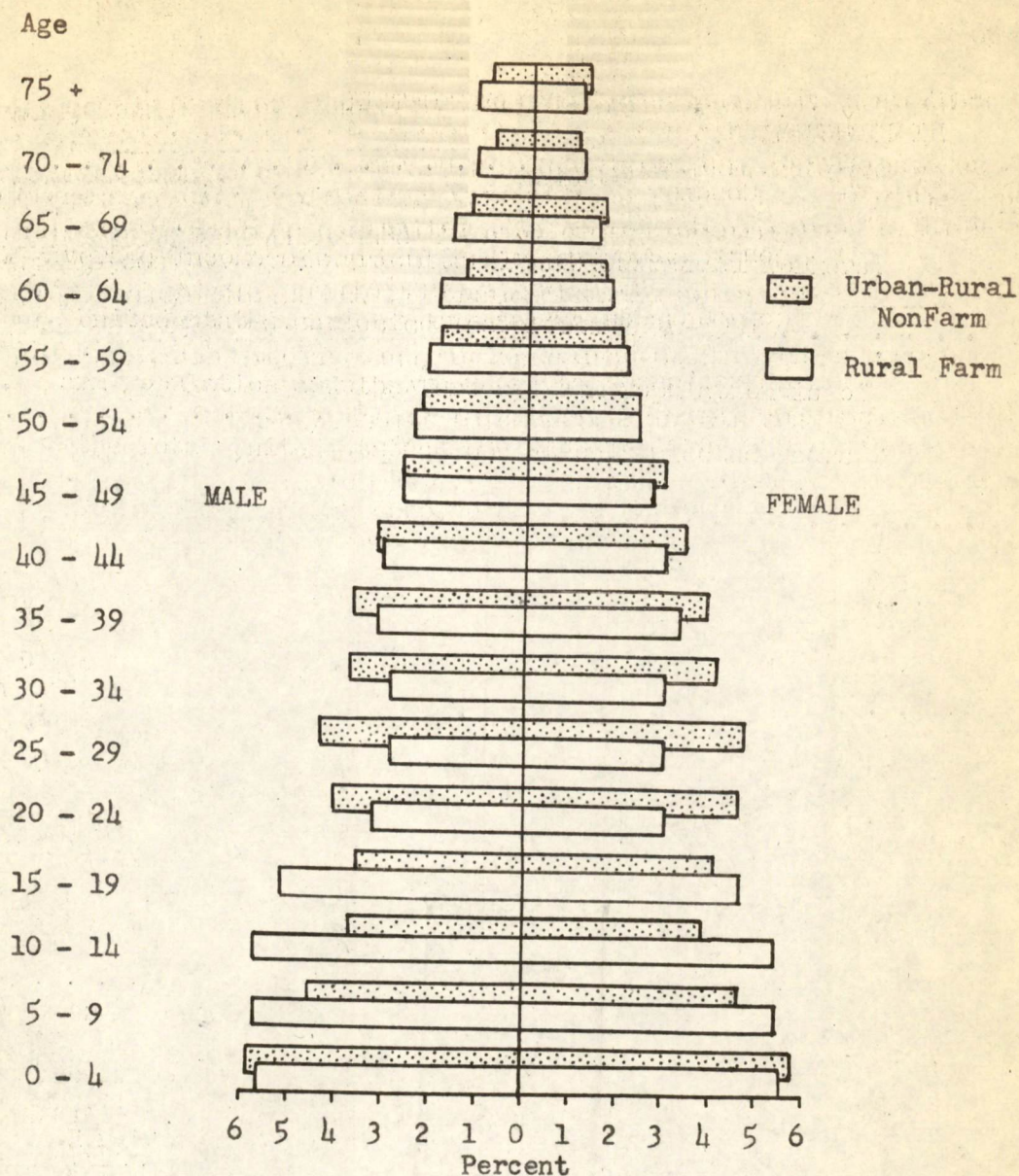
region.

Consequences to the Urban Community and Society in General

This excess farm population and the migration of people has consequences for the receiving community as well as for the communities from which these people move. The first consideration is that the urban community inherits, so to speak, these individuals from the farm community. The farm community has made the major investments in these migrants while the urban community reaps the greatest benefit from their productivity.

Figures I and II show the differences in the age distribution of the rural farm as against the urban and rural nonfarm populations. We can see that the rural farm population has a much larger percentage in the age groups under twenty years of age. In this period of life, the entries on an individual's balance sheet are primarily on the cost side. These are the least productive years, from the standpoint of economic productivity. On the other hand, the nonfarm population has a much larger percentage of people in the most productive ages, from twenty to fifty years. Up in the age groups over sixty years, the farm population, especially for Tennessee males, has again a larger proportion of the total than does the nonfarm population. In these age groups people are again not highly productive and in many cases must be supported from the current productivity of the younger people in the community.

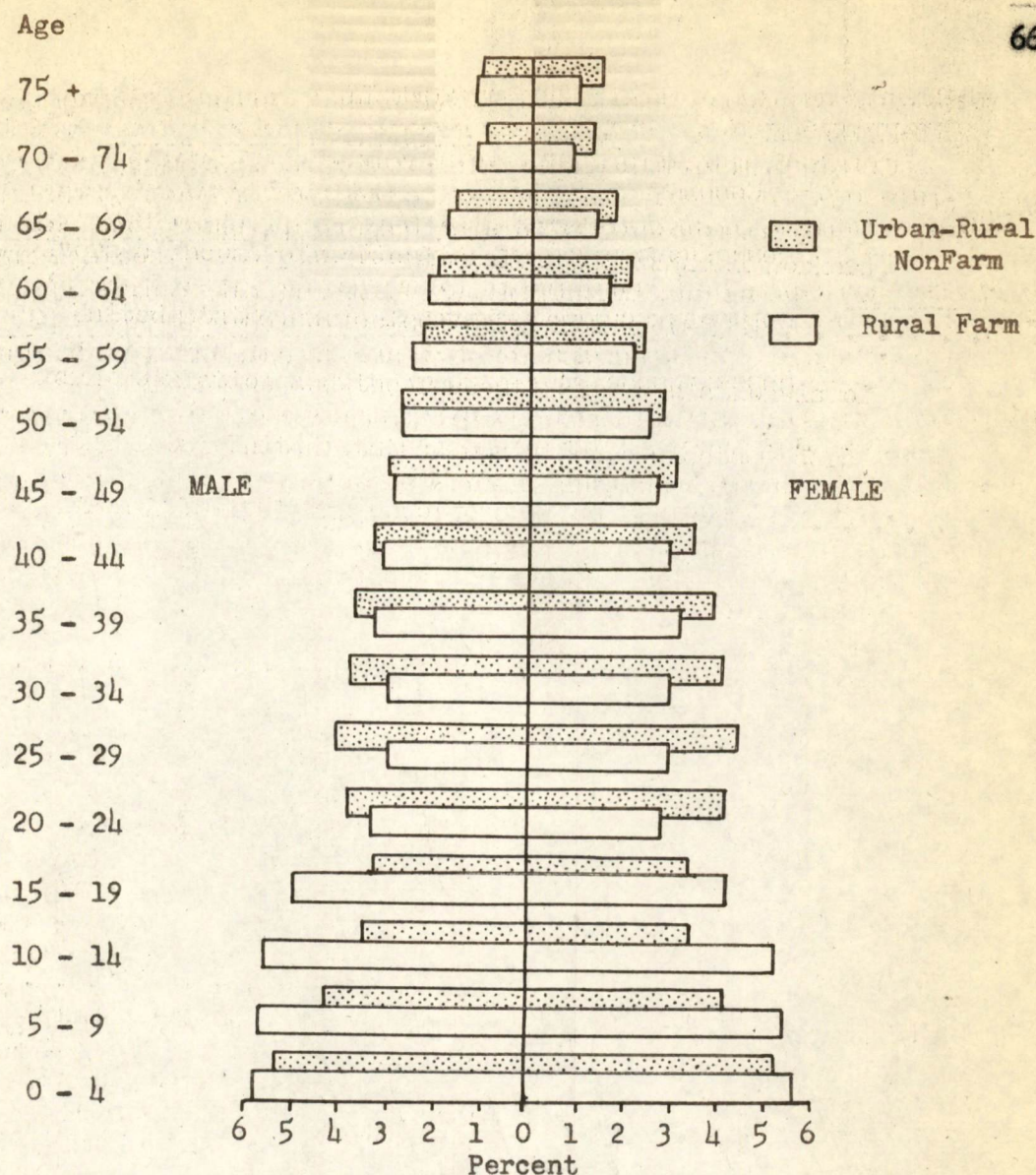
Given these age distributions of the two populations, it seems reasonable to conclude that the farm community makes the major invest-



Source: U. S. Department of Commerce, Bureau of the Census, 1950 United States Census of Population, Tennessee; General Characteristics, (Washington: Government Printing Office, 1952).

Figure 1

Age and Sex Distribution of the Urban-Rural
NonFarm and Rural Farm Population
of 1950 for Tennessee



Source: U. S. Department of Commerce, Bureau of the Census, 1950 United States Census of Population, Detailed Characteristics, (Washington: Government Printing Office, 1953).

Figure 2

Age and Sex Distribution of the Urban-Rural
NonFarm and Rural Farm Population
of 1950 for the United States

ments in these migrants while the urban community reaps the greatest benefit from their productivity.

An objection to these statements may be anticipated. A case may be made for the idea that the people in the urban community would be better off if these people had not moved. This, it may be reasoned, is true because the migrants from rural areas compete with the labor in the urban community and tend to make labor cheap.

It is extremely doubtful that this is actually the case. First of all, the demand situation for nonagricultural products would be greatly weakened if this movement did not take place. In the 1940-1950 period alone, over 10,000,000 people in the United States changed from a farm occupation to a nonfarm occupation. Had they all remained in farming, per capita farm incomes would undoubtedly be much lower than they are today. The over-all demand for nonagricultural products would be greatly reduced. Second, in a dynamic economy where resources, other than human, are not fixed but rather are being constantly developed to provide for a greater productivity per person, it seems unlikely that the society would be better off if the human resources were limited to the extent that these developments could not take place. As long as we have full employment, we can be reasonably sure that the development of resources has not lagged behind the growth in population. Full employment has been the norm for the past ten years or so. Under these conditions, it is difficult to conceive how any group in society could benefit from a slowing down of migration.

The foregoing elaboration was intended primarily to point out that the nonfarm community derives some benefits from the fact that they are

on the receiving end of the migration flow. The questions that these receiving communities might well ask are the following: "What kind of people are moving to our community? What experiences have they had which will enable them to adjust to the new conditions? What can we do to increase the productivity of future migrants?"

Under present conditions, if farmers choose to invest heavily in their children, the urban community very probably inherits a more productive individual than would be the case if farmers chose otherwise. At the present time this responsibility of determining how much shall be invested in the children rests primarily with the family. However, the consequences of these decisions to invest or not to invest in the children substantially above the minimum levels are felt by many people far removed from the individual family where the decision is made. We need to keep in mind that as a result of this movement of people from one state to another, many of the present and future citizens of the wealthier cities and states will have been educated, or left uneducated, by the poorer communities. As one writer points out,

There is a tendency for people to move from areas where the level of educational support is below the national average to those states where it is above. The more progressive states, from an educational point of view, cannot afford to be unconcerned about the general level of education elsewhere. Migration could well nullify the effects of their superior educational programs.¹⁰

Finally, a word might be said about the general concern with this problem of society as a whole. It becomes a truism to say that as long as a large number of people are potentially capable of greatly increased

¹⁰ Edmund deS. Brunner, Op. cit., p. 17

productivity, society would generally find it advantageous to help in the creation of some acceptable means to bring about these changes. In an economy where the economic well being of a particular group is largely dependent on the productivity and economic well being of every other group, and where the interdependency of one group on the other is such that in the event that a large group in that society is living in economic depression over extended periods of time, general economic instability and consequent social unrest are the almost inevitable result, the problem discussed in this thesis is a real cause for concern.

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