A SYSTEM FOR ALLOCATING COOPERATIVE EXTENSION RESOURCES TO COUNTIES

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THESIS

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A SYSTEM FOR ALLOCATING COOPERATIVE EXTENSION RESOURCES TO COUNTIES

By

DANIEL C. PFANNSTIEL

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CHAPTER I

INTRODUCTION OF THE PROBLEM

The county is the basic unit in the administrative organization of the Michigan Cooperative Extension Service. There are differences in the size of the Extension teaching job from county to county. A major administrative problem is to allocate public funds and Extension personnel to each county. Because of these differences a rating scheme to measure the size of the Extension teaching load in the counties is needed so that proper allocation of Extension resources can be made.[1]

A basic policy of the Extension Service in Michigan is to make itself available to all people in need of its services. This is done by providing at least one professional worker to each county regardless of other considerations. This is a worthwhile policy because it provides for accessible outposts and information centers of the agricultural college throughout the state. When funds permit the employment of more workers than this minimum, the counties meriting the additional workers must be determined.

There are varying factors which influence the size of the Extension teaching load. An empirical study will reveal many dissimilarities in population numbers, land area, types of agriculture, and cultural backgrounds. These dissimilarities must be

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[1] C. V. Ballard, Director of the Michigan Cooperative Extension Service, oral communication.

recognized when making personnel assignments as well as when formulating salary schedules for county professional workers. Because of their positions state administrators must make these decisions. Arbitrary judgments, even if valid, are difficult to defend when questioned by county workers and local people. The difficulty is magnified when a county's demands are not commensurate with available funds. An objective means of measuring the Extension teaching load would assure clearer understanding of allocation methods by Extension personnel and the people.

Administrators in all states are confronted with the same problems of allocating limited personnel and financial resources to the several counties of their respective states. Although confined to the state of Michigan the study should be of value to any state desiring a systematized means for spreading Extension resources among its counties.

Definitions of Terms

Allocation of Extension resources. By this is meant the distribution of personnel and funds made available to the Michigan Extension Service for the counties of the state. It is to be understood that operating funds for the Extension Service derive from Federal, state, and county sources. However, county funds were not considered in this system of allocation because these are not under direct control of the state Extension administration.

Extension teaching load. This refers to the amount of Extension educational responsibility in a county. In Extension learning groups, participation is voluntary, causing difficulty in accurate measurement of participating numbers. The definition of an Extension teaching load must not be limited to those actually served, but must include the potential numbers of participants in any county. This is unlike the teaching load of a formal school organization, in which the number of people to be served is actually known, forming a basis for individual teaching assignments.

Classification of counties. This term implies the utilization of a measuring system to determine the size of the Extension teaching load in any county or administrative unit of the Michigan Extension Service.

The Michigan Cooperative Extension Service. The division of Michigan State College charged by law with disseminating agricultural and home economics information to the people of the state,

except those residing at the College, is the Michigan Cooperative Agricultural Extension Service. This organization is cooperative, in accordance with the Smith-Lever Act,[2] being a joint undertaking of the Federal and state governments. The general functions of this organization are outlined in the Smith-Lever Act.[3] This organization was referred to as the Extension Service, the Service, and the Cooperative Extension Service. References to the Federal Extension Service and to the Extension Service of other states were specifically designated.

Administrative unit. An administrative unit is the smallest division of the State Extension Service to cover a specific geographical area. Ordinarily these units are counties, but exceptions are found in other units which are composed of two counties combined or, in two instances, of one and one-half counties. The latter groupings have been made largely due to the spare settlement in parts of the northern Cut-over region of the state.

Extension worker. This term applies to any professional member of the Michigan Extension Service. These workers are cooperative employees of the nation and the state and are cooperatively salaried.

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2 Alfred C. True, A History of Agricultural Extension Work in the United States, 1785-1923, (Washington: United States Government Printing Office, 1928), pp. 195-197.

3 Loc. cit.

County agent. The title of county agent is used to designate county Extension workers who are primarily responsible for the agricultural teaching activities of the Extension Service. Included in this grouping are the positions of County Agricultural Agent, Associate County Agricultural Agent, and the Assistant County Agricultural Agent.

County Home Demonstration Agent. The term as used refers to those county workers who are primarily responsible for the home economics activities carried on within a county.

4-H Club Agent. The county worker chiefly responsible for Extension youth programs of a county is thus designated.

Extension administrators. Extension administrators are those workers responsible for the state leadership of the Michigan Extension Service. Positions included are Director, Assistant Director, State Agricultural Leader, State 4-H Club Leader, State Home Demonstration Leader, Specialist in Extension Training, and the four District Supervisors of the Michigan Service.

Related Materials

Literature on county classification. Little study on county classification has been reported to date. One method of county classification was developed by a group of Michigan Extension Service administrators and specialists.[4] Various factors were selected and weighted which these individuals felt would best reflect the relative Extension teaching load in each county. A more complete discussion of this system occurs in Chapter Three.

A review of existing schemes used by the Extension Service of other states was found in a circular of the Federal Extension Service.[5] This report outlines the formulas used by Georgia, Michigan, North Carolina, South Carolina, Tennessee, and Texas. The information contained in this report on these formulas is also discussed in Chapter Three.

Census data. Most census figures used in this study were based on the 1950 Bureau of the Census reports. The agricultural data on farm numbers and related information came from the preliminary 1950 Census of Agriculture.[6]

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4 Michigan Cooperative Extension Service, "County Classification", (unpublished mimeographed report on file, office of the Director, Michigan Cooperative Extension Service, East Lansing, Michigan).

5 H.W.Gilbertson, "An Analysis of the Sources and Uses of Cooperative Extension Funds," Extension Service Circular No. 475 (Washington: United Stated Department of Agriculture, August 1951), pp.39-48.

6 "Farms, Farm Characteristics, Farm Products," Preliminary 1950 Census of Agriculture, Series AC 50-1 (Washington: Bureau of the Census, September 13, 1951).

Figures on population were obtained from advance reports released by the Bureau of the Census.[7] More complete data was found in a later report.[8] Other census data used in this study are specifically cited where used throughout the text.

Literature on Extension objectives. The chief sources of material on the purpose of the Service were the laws and enactments affecting the organization and the interpretation of these given by Congressmen and leaders of the Extension Service. Specific reference to these materials is made in Chapter Two.

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7 "Population of Michigan: April, 1950," 1950 Census of Population Advance Reports, Series PC-8, No. 21 (Washington: Bureau of the Census, October 7, 1951).

8 "Number of Inhabitants, Michigan," 1950 United States Census of Population, Series P-A22, Preprint of Volume 1, chapter 22 (Washington: United States Government Printing Office, 1951).

General Methods of Research

Establishment of objectives. The first step in a system for allocation of Extension resources in counties was to determine the purpose of the Extension organization. The determination was made by considering the enabling Federal legislation - the Smith-Lever Act of 1914 - and subsequent Federal legislation affecting Extension work - the Capper-Ketcham Act of 1928, the Bankhead-Flanagan Act of 1945, the Research and Marketing Act of 1946, and others.

A study of these laws was used in ascertaining the general purpose of the Service; however, they proved to be written broadly and are not entirely consistent with each other as to a basic purpose of the Service. Therefore, a study was made to determine the intent of these laws by reviewing statements of legislators and others who were instrumental in securing passage of Extension acts. Also, policy opinions of leaders in Extension, from earliest days of Extension to the present, were inspected. The rationale of the Extension Service is then summarized as a basis for developing a system for measurement of the teaching load of the counties in the allocation of Extension resources.

Selection of factors. Objectives of the service were established to aid in selecting those factors to be considered in measuring the size of the Extension teaching load. Present systems for rating counties used by Michigan and other states were evaluated in terms of the objectives of the Extension Service. Those factors

viewed as most effective in measuring the Extension potential in a county were selected.

Population classes. The foregoing analysis resulted in the utilization of population classes as a means for measuring the teaching load in the counties. A review of population categories established by the Bureau of the Census and other organizations was made. This permitted categorizing of the population by place of residence. The number of people in each category for each county was then determined, based on the 1950 Census of Agriculture and Population.

The relative importance of each established population class to the total Extension responsibility was determined with Extension objectives as a basis. These classes were given numerical weights values according to their respective importance. The methods used will be described in greater detail throughout the remainder of the report.

CHAPTER II

OBJECTIVES OF THE EXTENSION SERVICE

The development of a county classification system and the evaluation of present systems required that the rationale of the Extension Service be lucidly established. The aim of this chapter is to examine the legislative enactments and the policy interpretations relating to Extension so that the responsibility could be ascertained. This was difficult because of the nature of the organization. Its simultaneous development in various parts of the country gave rise to some conflicting ideas as to exactly what the Service ought to be doing. The enabling legislative enactments and subsequent acts affecting Extension are not entirely harmonious as to a basic policy. Review was made of these laws, as well as the interpretation of them by instigating legislators and leading Extension personnel. Also this chapter gives an account of the basis for distributing funds that are appropriated for the operation of the organization.

Federal Legislative Acts

Smith-Lever Act of 1914. This was the enabling legislative act of the Extension Service. A complete copy of this law may be found in the Appendix of this report. Section Two of this law reads:

> That cooperative agricultural extension work shall consist of the giving of instruction and practical demonstrations in agriculture and home economics to persons

> not attending or resident in the said colleges in the several communities, and imparting to such persons information on said subjects through field demonstrations, publications, and otherwise; and this work shall be carried on in such a manner as may be mutually agreed upon by the Secretary of Agriculture and the state agricultural college or colleges receiving the benefits of this act.[1]

The colleges referred to in this act were those which received the benefits of the Morrill Act of 1862, granting Federal aid to the states for establishing and supporting agricultural colleges[2] and the Hatch Act of 1887,[3] which established experiment stations to carry on research for the colleges.

The general purpose of the Smith-Lever Act was to carry the results of agricultural research at the state colleges to the farm people. The cooperative nature of the act provided that the land-grant college of the state cooperate with the United States Department of Agriculture in administrating the Extension Service. Within the first year a sum of ten thousand dollars, to be continued annually, was given to each state, which did not require offset by the state. This provision was made to supply funds sufficient for establishing a nucleus organization in each state to draw plans for Service administration and programs. Additional funds over the ten thousand dollars were granted to the states which required an equal amount of offset from state sources. Six hundred thousand

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1 Lincoln D. Kelsey and Cannon C. Hearne, Cooperative Extension Work (Ithaca, New York: Comstock Publishing Company, 1949), p. 398.

2 Alfred C. True, A History of Agricultural Education in the United States, 1785-1923. (Washington: United Stated Government Printing Office, 1929), pp. 99-101.

3 Ibid., pp. 208-210.

dollars was added the first year, and five hundred thousand dollars was to be added each year for seven years. The money distributed to each state was based upon the proportion of rural population of each state to the total rural population of the country based upon the last preceding census.[4]

The intent of this legislation definitely was to help rural people. At the turn of the century, leaders of government were coming to realize that the nation's progress and prosperity depended to a large measure, upon the social and economic health of the rural populace. In particular, interest in helping rural youth stemmed from the feeling of educators about the inadequate rural schools of that time, which were not especially related to farm living. One manifestation of this educational inadequacy was the flow of youth from farm to city.[5]

Senator Vardaman, one of the leaders in Congress supporting the Smith-Lever Act, expressed his opinion on its objectives as follows:

> . . . . how, the purpose of this bill (Smith-Lever) is to help the tillers of the land to discover the hidden riches of the soil, to devise methods of cultivation which will lessen the burden of farm life by shortening the hours of drudgery, and render more productive the land. Its splendid purpose is to improve the man, enlarge his mental horizon, and give intelligent direction to his efforts. The

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[4] Additional discussion of this act may be found in the book of Kelsey and Hearne, op.cit., Chapter Three.

[5] Franklin M. Reck, The 4-H Story, (Ames, Iowa: The Iowa State College Press, 1951), p.vii.

> effort also will add comforts to the country home, lighten the burdens of woman, afford greater opportunities to the boys and girls upon whose shoulders must fall the responsibilities of home and the burden of government.[6]

Dr. Seaman A. Knapp, one of the best known early Extension leaders, hoped the bill would readjust agriculture and give country living an increased dignity.[7] Representative Lever, Chairman of the House Committee on Agriculture and co-author of the Act, hoped the bill would help the farmer with distribution problems, as well as increase his production and aid him in becoming a better citizen.[8]

Theodore Roosevelt was the first president who felt that a system of Extension would benefit the farmer, as evidenced by his statement:

> . . . . there is no greater agricultural problem than that delivering to the farmer the large body of agricultural knowledge which has been accumulated by the National and State Governments, and by the agricultural colleges and schools. Nowhere has the Government worked to better advantage than in the South, where . . . in many places the boll weevil became a blessing in disguise. . . . It is needless to say that every such successful effort to organize the farmer gives a stimulus to the admirable educational work being done . . . to prepare young people for an agricultural life. . . . Education (he concluded) should not confine itself to books.[9]

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6 Kelsey and Hearne, op.cit., pp. 33-34.

7 Ibid., p. 33.

8 Loc. cit.

9 Theodore Roosevelt, "The Man Who Works with His Hands," United States Department of Agriculture Circular No. 24 (Washington: Office of the Secretary, United States Department of Agriculture, 1907), pp. 8, 10-11.

There appeared to be no doubt in the minds of these and other early promoters of the Extension Service that its first and foremost responsibility was to the rural citizenry of the nation. During World War I emergency appropriations from Congress enabled expansion of the program beyond Smith-Lever provisions. Shortages of certain essential agricultural products during the war were responsible for this action. It was felt that the Extension Service could do much to increase production and to educate people in meeting scarcity of certain farm products. The Extension Service record during that period indicates that it did much to achieve this short term objective. This situation probably contributed to the thinking of many early workers which still persists that the main objective of the Service was to increase production, and the higher goals such as better life for the rural people would take care of themselves.

Capper-Ketcham Act of 1928. The maximum funds, outside of emergency war assistance, became available under the Smith-Lever Act in the fiscal year of 1922-1923 and were destined to remain constant from there on. Overproduction and resulting low prices were responsible for widespread rural adversity that certainly could not be overcome by increased production. Public acceptance of, and confidence in, the Extension Service generated feeling that the Service should be enlarged to facilitate its effective treatment of these problems. This led to passage of the Capper-Ketcham

Act of 1928,[10] a complete copy of which may be found in the Appendix of this report. The provisions of this enactment are much the same as the Smith-Lever Act. A sum of twenty thousand dollars was granted to each state, not requiring offset by state sources. A sum of half a million dollars was made available to the states in proportion of their total rural population to the total rural population of the nation.

The value of 4-H Clubs organized under the direction of the Extension Service was instrumental in gaining support of this act. Committee members of Congress listened to testimonies of enthusiastic 4-H Club members who had found personal benefits in Club work. These rural youth told of the help to themselves and their families in the application of improved methods suggested by their Extension workers. This incident is evident within the Act, which specified that the work was to be "with men, women, boys, and girls."[11]

Concern was seen over the fact that a large proportion of men agents was employed, as compared with women agents. Consequently the Act provided that expansion of the Service should be effected with men and women agents in fair and just proportions. Passage of this bill resulted in largely increased 4-H and home ecnnomics activities within the Service.

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10 Kelsey and Hearne, op.cit., pp.401-402.

11 Reck, op.cit., p.231.

Bankhead-Jones Act of 1935.[12] The increase in agencies of the Department of Agriculture that were established for dealing with depression problems resulted in the enlargement of the Extension Service so that it could assist these other agencies through its educational work. Eight million dollars was appropriated the first year, with each state receiving twenty thousand dollars. The remainder of the appropriated amount was to be distributed to each state in proportion to its total farm population to the total farm population of the nation. One million dollars was apportioned in this way. None of the amount appropriated by this Act required state offset. This probably was due to the prevailing poor financial condition of many of the states.

The two major differences between this law and the two previous acts were that farm population instead of rural population was used to apportion the funds, and that the funds provided did not require off set by the state. The first difference is significant evidence that Congress desired Extension activity directed toward those people whose incomes derived from agricultural pursuits, rather than persons who resided in rural areas, but who had other means of income. A copy of this law may be found in the Appendix of this report.

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12 Kelsey and Hearne, op.cit., pp. 404-405.

The Bankhead-Flanagan Act of 1945.[13] The purpose of this Act was to wider expansion of the Extension Service, particularly in county work.[14] The Appendix contains a copy of this Act.

This law is rather lengthy and detailed, so attention is only directed at its major provisions. It provided for four and one-half million dollars each year after the first year, plus an additional four million dollars starting after the second year. In general, the provisions followed the Smith-Lever Act, with some exceptions. These provisions were that only two per cent of the money from this Act could be used for expenses of the Federal Extension Service, and that the apportionment be based on farm population. A half million dollars could be used by the Secretary of Agriculture to assist certain states having special needs as determined by him, provided that it did not exceed ten per cent of the amount already endowed the state by the Act. These "hardship" funds also had to be offset by funds from state sources.

This act emphasized broad matters relating to improvement of rural standards of living, such as better nutrition, rather than those relating to increased agricultural production.[15]

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13 Ibid., pp. 408-409.

14 Ibid., p. 32.

15 Ibid., p. 33.

Miscellaneous Acts. There are some other acts that provided Federal funds for the Extension Service. The Farm Forestry Acts of 1924 and 1937 granted $38,130 to the Extension Service so that it could give increased assistance in educational work pertaining to forestry activities. The Research and Marketing Act of 1946 provided one-half million dollars to promote educational work on matters relating to the Act. Both of these require at least equal offset by the states. The Farm Housing Act of 1949 granted $33,050 to the Service to enlarge its educational work in housing problems. This money does not require offset.

Financing of Extension

Federal Sources. The preceding section lists some of the main sources of funds and bases of apportionment. The manner in which they were distributed can best be shown by the following table, Table I. This Table is based on the 1950-51 fiscal year (July 1, 1950, to June 30, 1951) of the Federal Government.

The significant revelations of this Table are the percentages of the total amount that comprised the various bases of distribution. Seventy-one per cent of all Federal funds were distributed on the basis of farm population, i.e., those persons that the Federal census listed as actually living on producing farms. Fifteen per cent was distributed on the basis of rural population, i.e., all persons living outside centers of population having less than twenty-five hundred inhabitants. This latter group, of course, included farm people also. The remaining 14 per cent was distributed according to special needs to certain states.

TABLE I

BASES FOR DISTRIBUTION OF FEDERAL EXTENSION FUNDS TO STATES AND TERRITORIES, 1950-51, BY ACTS OF CONGRESS*

Acts of Congress	To be paid without offset	Amount of State offset required	Basis of Distribution
Smith-Lever Act, 1914, and extension to Alaska, Hawaii, and Puerto Rico (permanent, annual appropriation)	$ 510,000	$4,208,660.06	$4,208,660.06 Proportion of rural population of State to total U.S. rural population
Capper-Ketcham Act, 1928 and extension to Alaska, Hawaii, and Puerto Rico	$1,020,000	511,828.00	511,828.00 Rural population
			4,720,488.06 -Total on rural population basis - 15 per cent
Bankhead-Jones Act, 1935	$1,408,000		11,020,808.00 Basis farm population, 48 States, Alaska, Hawaii
Bankhead-Flanagan Act, 1945	None	11,790,862.00	11,790,862.00 Basis farm population
			22,811,670.00-Total on farm population basis - 71 per cent
Farm Forestry Acts, 1924 and 1937		88,130.00	Allocated to individual States on basis of special needs and adjustments
Further Development Act, 1939. In conformity with historical base covered in U.S.D.A. organic act of 1944, Title II, Bankhead-Flanagan Act, Sec. 23	$ 555,000.00	500,000.00	
Research and Marketing Act, 1946, Title II, Sec. 204 (b)		528,000.00	
Farm Housing Act, 1949, Title V	33,050.00		
Total 32,174,388.06			
Percentage of total Federal funds	14,546,858.00 45 per cent	17,627,530.06 55 per cent	1,704,230 - Total distributed on basis of need - 14 per cent

* H.W. Gilbertson, "An Analysis of the Sources and Uses of Cooperative Extension Funds" Extension Service Circular 475 (Washington: U.S. Dept. of Agriculture, August 1951), p.15.

State Sources. The State of Michigan is required to match at least the minimum amount of Federal funds which require offset, if Federal funds are to be obtained. This it does at the present time and exceeds this amount considerably. Table Two shows the amounts received from the Federal sources in the fiscal year of 1949-1950. A comparison of Table One and Two revealed that 76 per cent of the Federal funds that accrued to Michigan in the fiscal year of 1950-1951 were based on the farm population of the state as compared with 71 per cent of the Federal funds that accrued to the nation as a whole.[16] The state received 17 per cent, or 2 per cent more than the average, based on total rural population. Only 7 per cent was received based on special need, as compared with 14 per cent for the average of the nation.

The larger amount that the Michigan Extension Service acquired from state sources compared to that acquired from Federal sources in the fiscal year of 1949-1950 is shown in the following table.[17]

Sources	Total	Per Cent of Total
Funds from Federal sources (offset required)	$ 509,567.74	24 per cent
Funds from Federal sources (offset not required)	365,229.40	18
Funds from state and college sources	864,606.49	41
Funds within state from county sources	352,655.00	17
	$2,092,058.63	100 per cent

[16] These tables, although based on two different years, are comparable because the 1940 census enumeration was used in both cases for the bases of distribution. No changes occurred in either year as a result of other conditions.

[17] "Report of Cooperative Extension Work in Agriculture and Home Economics, 1951," United States Department of Agriculture (Washington, D.C.: United States Government Printing Office, 1952) pp. 42,61.

TABLE II

DISTRIBUTION OF FEDERAL EXTENSION FUNDS TO MICHIGAN, 1949-50 FISCAL YEAR BY ACTS OF CONGRESS*

Acts of Congress	To be Paid Without Offset	Amount of State Offset required	Bases of Distribution
Smith-Lever Act, 1914	$ 10,000.00	$129,007.00	Proportion of Mich. Rural Population to Total U.S. Rural Population
Capper-Ketchum Act 1928	20,000.00	15,688.96	same as above
Bankhead-Jones Act 1935	332,829.40	none	Proportion of Mich. Farm Population to Total U.S. Farm Population (including Alaska and Hawaii)
Bankhead-Flanagan Act 1945	none	333,552.22	same as above
Farm Forestry Act 1924	none	1,620.00	Special Need Adjustment
U.S.D.A. Organic Act of 1944. Title II, Bankhead-Flanagan Act, Sec. 23	none	1,620.00	same as above
Research and Marketing Act, 1946, Title II, Sec. 204 (b)	none	28,079.56	same as above
Farm Housing Act Title V	2,400.00	none	same as above
Totals $874,797.14	$365,229.40	$509,567.74	
Per cent of total funds	42 per cent	58 per cent	

Sources	Total	Per cent of Total
Appropriated based on rural population	$144,695.96	17
Appropriated based on farm population	666,381.62	76
Appropriated based on special needs	63,719.56	7
Total	$874,797.14	100

* Table reproduced from statistics found in "Report of Cooperative Extension Work in Agriculture and Home Economics, 1951," United States Department of Agriculture (Washington: United States Government Printing Office, 1952), pp. 42-61.

The table shows that the Michigan Extension Service acquired 58 per cent of its operating funds from sources within the state. The minimum amount for offset was more than twice that required.

The funds appropriated by the state are part of the Michigan State College budget, and as such are free from state legislative specification.[18] This money was made available to constitute the offset necessary for acquiring Federal money, thereby indicating that the Service should operate in the manner specified by Federal laws and enactments. It would, however, be hazardous to come to the same conclusion regarding the amount appropriated by the state over that required and the amount contributed by county governing boards.

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[18] H. A. Berg, Assistant Director of the Michigan Cooperative Extension Service, oral communication.

Interpretation of Extension Objectives

Joint Committee Report. In 1946 a committee was appointed to study and make recommendations on programs, policies, and goals of the Extension Service.[19] The appointment of this committee was recommended in October 1945 by Secretary of Agriculture Clinton P. Anderson to the President of the Association of Land-Grant Colleges and Universities.[20] This recommendation stated:

> Many of the basic extension ideas, particularly with reference to organization, programs, and procedures, were developed prior to and during the First World War. I feel that there are now a number of important basic problems in connection with the Cooperative Extension Service and its relationships with the Department of Agriculture that need careful study and re-evaluation. Some of these problems are fundamental to the effective cooperation of the Department of Agriculture and the land grant colleges to attain maximum results in their joint efforts towards common goals. It seems to me that this is the time for both the colleges and Department to appraise carefully the services and the experience of the Cooperative Extension Service for the past third of a century and to recommend broad extension policies, procedures and relationships.[21]

The committee consisted of an equal number of members from both the Department and the Association.[22] An examination of this study and its findings was of value to this report.

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19 "Joint Committee Report on Extension Programs, Policies, and Goals" (Washington: United States Government Printing Office, 1948), p. iii.

20 Loc. cit.

21 Loc. cit.

22 For names of committee members, see Appendix.

The committee felt that "the primary function of the Cooperative Extension in agriculture and home economics is education."[23] It grouped the contributions of past Extension activities into twelve areas. These were:

1. Applying the Findings of Research
2. Solving Problems through Group Action
3. Understanding Economic and Social Factors
4. Improving Family Diets
5. Improving Other Functions of the Homemaker
6. Work with Rural Youth
7. Counselling of Farm Problems
8. Mobilizing Rural People to Meet Emergencies
9. Contributing to the Science of Government and Education
10. Aiding Esthetic and Cultural Growth of Farm People
11. Contributing to Urban Life
12. Developing Rural Leadership[24]

The committee recognized that the major responsibility of Extension was to farm people; however, it cited the phrase of the Smith-Lever Act which states that Extension's responsibility is to the people of the United States, and it used this as a basis for indicating that Extension should work to some extent with all people interested in agriculture and home economics.[25] The fact that the total farm population is steadily decreasing proportionately was given as the reason for directing Extension efforts toward part-time farmers and non-commercial farmers, to city workers residing in rural areas, and inhabitants of small towns, as well as to actual farm people. The phrase

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23 "Joint Committee Report," op. cit., p. 1.

24 Ibid., pp. 3-5.

25 Ibid., p. 8.

cited was also given for justification of Extension time spent with city dwellers on gardening, landscaping, and home interests. Extension emphasis on rural work is substantiated by:

> The stake of extension in good education, country and even city, is clear. With the increasing complexity of our interwoven life and the increasing application of science to agriculture, anything less than educational parity between country and city is completely unjustified. . . . Until such equality is achieved, extension, as an educational agency, will have to deal with a population group, which in comparison with the city population, will be disadvantaged in terms of the amount and the quality of formal education they will receive.[26]

The committee considered the existing staff of workers too small, but it considered this smallness of size a stimulus to effective organization which would facilitate better assignment of personnel and resources according to need.

Federal Committee Report. Prior to the appointment of the joint committee, the Federal Extension Service of the United States Department of Agriculture organized a committee from its own internal organization to consider the scope of Extension educational responsibility.[27] The committee then categorized these responsibilities into three groups. These were content, operational, and functional. Under the heading of functional responsibilities were placed these groups: the diffusion of information, development of interest in significant problems, encouragement of planning, and stimulation of action upon decisions. The operational responsibility was considered to all people of the country interested in information on agriculture and home economics on an out-of-school

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[26] Ibid., p. 66.

[27] "Report of Committee of the Federal Extension Staff on the Scope of Extension's Educational Responsibility" (Washington: United States Government Printing Office, 1946), p. 1.

basis, regardless of place of residence, age, economic status, or other restricting factors. The committee felt that the operational responsibility was first to the people living on farms, but not solely to them.[28] The content responsibility was felt to be in an evolutionary state, ever changing. The content of Extension programs was determined by the people; therefore, they usually were willing participants in Extension programs.[29]

Other interpretations. Brunner and Yang[30] state that the word objective is frequently used by the Extension worker. For some of these workers one objective was the increase of production through the use of recommended practices. "The real objective of all these lesser objectives is the improvement of the people."[31] These two authors felt that the main task of the Service was helping of rural people by the application of science to their daily lives so that they could help themselves.

Smith and Wilson listed the main objectives of Extension as follows:

1. To increase the net income of the farmer through more efficient use of capital and credit.
2. To promote better homes and a higher standard of living on the farm.

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28 Ibid., p. 2.

29 Ibid., p. 2.

30 Edmund deS. Brunner and E. Hsein Pao Yang, Rural America and the Extension Service (New York: Bureau of Publications, Teachers College, Columbia University, 1949), pp. 147-148.

31 Loc. cit.

3. To develop rural leaders.
4. To promote the mental, social, cultural, recreational, and community life of the rural people.
5. To implant a love of rural life in the farm boys and girls.
6. To acquaint the public with the place of agriculture in the national life.
7. To enlarge the vision of rural people and the nation on rural matters.
8. To improve the educational and spiritual life of the rural people.[32]

Hoffer and Gibson state, "the purpose of agricultural work is to help farmers improve rural life."[33]

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32 Clarence B. Smith and Meredith C. Wilson, The Agricultural Extension System of the United States (New York: John Wiley and Sons, Inc., 1939), pp. 5-6.

33 C. R. Hoffer and D. L. Gibson, "The Community Situation as it Affects Agricultural Extension Work," Special Bulletin 312 (East Lansing, Michigan: Michigan State College Agricultural Experiment Station, October, 1941), p. 5.

Summary

The purpose of the foregoing presentation was to sketch the objectives of the Extension Service. It is seen that individual opinions varied considerably. Broad in scope were the basic laws affecting Extension; therefore, any of the interpretations given might be justified according to these documents.

Qualitatively, certain conclusions that appear to be consistent with the overall intent of these Federal acts and the intent of other appropriating bodies were reached, based on Extension objectives. One readily perceived objective is education. The Extension Service's educational responsibility is: first, to rural farm people, second, to rural non-farm people, and third, to urban people. This ranking could be defended from the standpoint that well over half the funds appropriated by Federal legislative bodies is based on the proportion of farm people and rural people, but none on proportions of urban people.

Quantitatively, the demarcation lines are difficult to delineate. Exactly how much of Extension resources should go to each population class will be considered by this study. That Extension has demands for service from others besides farm people is apparent. Their claims for service as taxpayers to public-supported Extension are not to be overlooked. On the other hand, many governmental organizations exist which benefit only limited segments of the total population.

The difficulty in arriving at a solution of this dilemma stems in part from the broad wording of the Smith-Lever Act which charges

the Service with the teaching of agriculture and home economics to "the people." This is an extensive, liberal charter which appears to be inconsistent with the basis of fund distribution outlined by the same law. The phrase "the people" provides, however, some justification for working with non-farm residents. Contrariwise, the basis of fund distribution, of this and subsequent acts, offers defense for excluding non-farm groups from Extension services.

For many years Extension administrators have been concerned over this question, which is becoming more pressing because of the decreasing proportion of farm population to the total population and because of the heavier demands on the Service from non-farm people.

The fact that the organization has not been able to meet the demands of its primary responsibility - the farm people - should preclude considerations of work with other groups. When the first goal has been approached, activities with other groups might more justifiably be contemplated. But until that time, Extension is charged with directing the major portion of its resources toward rural farm people. Local non-farm people desiring service might contribute to the maintenance of special workers for themselves, thus making added service to them advisable. Unless Extension receives specific direction to work with non-farm people from Federal and state appropriating bodies, the Service should first strive to assist the farm people. When their demands are reasonably well met, service to other groups would be permissable.

Based on the review of basic Extension legislation and objectives it seems clear that Extension resources must be allocated among the

counties according to the rural and the rural farm populations. Extension is financed to perform its educational functions to these people. As a public service Extension has a moral obligation to serve all residence groups as far as possible. However, until legislation is enacted and finances are provided to serve other groups, preference must be given to rural groups in the allocation of Extension resources. This is especially true when funds are inadequate to meet all the demands of this group, which Extension is charged specifically to serve.

CHAPTER III

EVALUATION OF PRESENT COUNTY CLASSIFICATION SYSTEMS

Methods of county classification used in Michigan and other states for allocating Extension resources may be evaluated in terms of the Cooperative Extension Service objectives discussed in the preceding chapter. The other states that have developed classification systems are Georgia, North Carolina, South Carolina, Tennessee, and Texas. In this chapter some of these systems are examined and are evaluated.

Evaluation of the Michigan System

The present Michigan system. The Michigan Extension Service was one of the first to develop a system for county classification.[1] This method was developed by a group of Extension administrators and specialists who selected certain factors on which reliable data were available.[2] They listed six factors as a basis for comparing work situations within the counties. These factors and their reasons given for selection were:

1. Number of farms.
   This factor was considered because
   (a) Each farm, large or small, presents a set of problems, in management, peculiar to itself.
   (b) The interests of rural families center around the farm as a place to live and make a living.
   (c) The number of farms provides a measure of the number of farm families in a county around which the county extension program is built.

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[1] Michigan Cooperative Extension Service, "County Classification" (unpublished mimeographed report on file, Office of the Director, Michigan Cooperative Extension Service, East Lansing, Michigan).

[2] Ibid., p. 3.

2. Number of commercial farms

This factor was used for the same reason as the "number of farms" but in some ways it gives an even better picture of the farms served by a county extension worker because of the definition of a farm used in the census. [This 1940 **Census** of Agriculture defines a commercial farm as any farm that reported a gross income of over two hundred fifty dollars in the year 1939 from sale of agricultural products and where the operator worked less than a hundred days off the farm or reported less income from non-farm work than from sale of his agricultural products.]

3. Rural Population

The rural population of the counties includes all people living outside of **towns** having a population of more than 2,500.

(a) People living in small towns and others living in rural areas, even though they do not depend on the farm for a livelihood add to the extension teaching load. Many extension activities, especially Home Economics Clubs, are organized in and around a small town.

(b) It is the responsibility of the extension agent to serve both the farm and non-farm people.

(c) The funds allocated to the Cooperative Extension Service under the Smith-Lever Act are based on the rural population.

4. Urban Population

Whereas extension workers spend a major portion of their time working with rural people a large urban population materially increases the number of people to be served by an extension agent.

(a) City farmers, pet owners, backyard gardeners and horticultural enthusiasts make ever-increasing demands on a county agent's time.

(b) Agents working in counties dominated by large cities have different problems than those working in strictly rural areas.

(1) They have access to powerful radio stations and they work with large urban newspapers rather than the small town weekly.

(2) They must maintain working relationships with a greater variety of organizations both in and out of the city.

(3) Usually the tax base is greater in the counties with large urban populations, thus making it possible for agents in these counties to obtain bigger county appropriations from the Boards of Supervisors, etc.

5. Farm Income
   Farm income is a major criteria of the extension agent's job within a given county. It reflects:
   (a) The economic importance of the extension agent's job.
   (b) Specialized and highly developed farm enterprises demanding considerable technical knowledge.
   (c) Agricultural production.

   In that the extension job is a continuous one it cannot be accurately measured with an elastic yardstick. Farm incomes fluctuate widely between:
   (a) Different growing seasons
   (b) Different price levels

   The relative differences in the total farm income between counties is fairly consistent except in years of crop failure in some local area. To minimize this possible bias the average farm income of the years 1929 and 1939 were used.
6. Area of the Counties
   This factor was used because of the great variation in size of Michigan counties.
   (a) In larger counties, all other factors being equal, it was recognized that the agent would have to serve more communities and more of his time would be used in traveling from place to place.
   (b) In some sparsely settled counties the roads are poor, farmers are scattered over a large area and are difficult to reach by county workers.
   (c) The larger the county the less accessible the county extension office becomes to the outlying areas, requiring the agent to spend more time away from the office, etc.[3]

This data for the categories of this system were the most recent when the system was devised. Some of the data would have been available, but all were not, so all data were based on the 1940 Census of Population and Agriculture. The committee felt that these six factors were not of equal importance in reflecting the size of a county Extension teaching load, so a formula weight was given to each of the factors as follows:

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[3] Ibid., p. 1-2.

Factor	The Formula Weight	
Number of farms	2	
Number of commercial farms	2	
Rural population	1	
Urban population	1	
Farm income average, 1929-1939	4	4
Area of county	1	

Any city having a population of over sixty thousand persons was considered to present approximately the same sort of Extension problems, regardless of the variations in size. Some Michigan counties are combined as single administrative units because of the extremely low Extension potential existing in certain counties alone.[5]

The method of computation consisted of determining the data for each of the six factors from the 1940 census, calculating the average of the entire state for each factor. The next step was determination of the per cent of the state average, for each county.

These percentages factors were then weighted according to the formula weight for each item and totaled for each county. The county totals were summed and the average was determined. The resulting figure was considered to be the average Michigan Extension county load, which was also considered to be one hundred per cent for purposes of evaluation. The per cent of average of the figure was tabulated, the result of which tabulation was used in ranking counties. Resulting values ranged

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[4] Ibid., p. 3

[5] These county combinations are: Alger-Schoolcraft, Luce-Mackinac, Houghton-Keweenaw, Alcona-Oscoda, Crawford-Kalkaska, Missaukee-Roscommon, Montmorency-Otsego, Osceola-(one-half of) Lake, Mason- (one-half of) Lake.

from 228 at the highest to 25 at the lowest ranking county. The committee[6] deemed the final results to be indicative of the true situation. The final values displayed rather obvious breaks in sequence which were used as a basis for division of the rankings into four classes, Groups One, Two, Three, and Four. Contrary to the original intent the number of counties in each division was not equal. Group One contained 12 counties, Group Two contained 18, Group Three had 20 counties, and Group Four contained 25. These ratings have been used for formulating pay schedule for workers and for assigning workers to the counties. Generally speaking, Group One counties have been assigned four workers, Group Two counties have received three workers, Group Three counties have had two, and Group Four counties have been assigned one worker. Table Four shows the final rankings and per cent of average figures for the counties based on 1940 census data.

The Michigan system (1950 census). The report suggested that the present rating system be revised as soon as the 1950 census figures were available. These figures were becoming available about the time this study was begun. The former method of tabulation being rather laborious and time-consuming, it was examined with the idea of devising a simpler system which would also produce satisfactory results.

The first computation was division of the total number a county had in a particular factor by the product of its per cent of average and the weighting used for the particular factor. For instance, Kent

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[6] Ibid., pp. 6-13.

County had a total of 5,623 farms according to the 1940 agricultural census, which was 225 per cent of the average total farms in the state. The factor total farms had a weighting of two assigned by the committee. Computation was as follows:

$$2 \times 225 = 450$$

$$5,623 \div 450 = 12.5$$

This 12.5 figure was obtained for every county measured. Macomb had 3,969 farms, or 159 per cent of the state average. Using the same procedure the results were:

$$2 \times 159 = 318$$

$$3,969 \div 318 = 125$$

Iosco County had 623 total farms according to the 1940 census, or 25 per cent of the state average. The results for this county were:

$$2 \times 25 = 50$$

$$623 \div 50 = 12.5$$

This provided the basis for assigning one point to each 12.5 farms in a county.

By the same procedure the point system for commercial farms was obtained. Arenac had 800 commercial farms according to the 1940 census, which was 56 per cent of the state average.

$$2 \times 56 = 112$$

$$800 \div 112 = 7.14$$

Branch County had 1,819 commercial farms, or 127 per cent of the average.

$$2 \times 127 = 254$$

$$1,819 \div 254 = 7.16$$

Monroe County had 3,006 commercial farms, which was 210 per cent of the average.

$$2 \times 210 = 420$$

$$3{,}006 \div 420 = 7.16$$

In every case the value was near the 7.16 figure. As the measurements were somewhat rough, this was rounded to 7.0 farms for one point.

The rural population factor was weighted but one point. Therefore, the per cent of average figure in the case could be divided into total rural population directly. Berrien County had 48,102 rural persons in 1940, or 200 per cent of the state average.

$$48{,}102 \div 200 = 240.5$$

Isabella County had 17,569 rural persons which was 73 per cent of the average.

$$17{,}569 \div 73 = 240.7$$

In all instances other than these two the value was consistently near 240.6. This number was rounded to 240 so that one point was given for each 240 rural persons in a county.

These examples are sufficient for illustration. This procedure was used for the remaining factors, and their assigned points were:

One point for each 12.5 total farms in a county
One point for each 7.0 commercial farms in a county
One point for each 240 rural persons in a county
One point for each 206 urban persons in a county[5]
One point for each $8,000 farm income in a county
One point for each 4,800 acres in a county

[5] In this case it was necessary to consider each county which had over sixty thousand urban persons as having only sixty thousand because the committee felt that any urban area of over sixty thousand population presented similar problems to Extension.

The utilization of the points involved dividing the total number of each factor for each county by the corresponding point value. To simplify the procedure the reciprocals of each were determined by dividing each point value into one. This resulted in the following values which could be used as constant multipliers:

Factor	Reciprocal Value
Total farms	0.030000
Commercial farms	0.142857
Rural population	0.004166
Urban population	0.004854
Farm income	0.000125
Area	0.000208

These constants were then multiplied by the corresponding factor for each county, and the resulting points were summed as illustrated below:

Clinton County

3,141 total farms X 0.030000 =	251 points
2,286 commercial farms X .142857 =	327 points
22,249 rural population X .004166 =	108 points
4,422 urban population X .004854 =	21 points
$5,169,500 farm income[6] X .000125 =	646 points
365,000 acres of county X .000208 =	80 points
Total	1,422 points

Since the total number of points used in weighting was eleven, this total of 1,433 points divided by eleven gave the value of 130. The result of the value using the former method was 132. The difference between the values is only two, probably resulting from the rounding off of numbers. For instance:

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6 Average of 1929 and 1939 farm incomes.

Genesee County

5,281 total farms X .080000 =	423 points
2,019 commercial farms X .142857 =	288 points
73,024 rural population X .004166 =	304 points
60,000 urban population[7] X .004854 =	291 points
$4,523,500 farm income[8] X .000125 =	565 points
412,000 area of county X .000208 =	87 points
Total	1,958 points

1958 points ÷ 11 = 178

The value as determined by the former method was 181, the difference being three. In every case the value determined by this method for each county corresponded closely with the numerical value placed by the previous method.

The new data made available by the 1950 census were obtained for each county, and this system of tabulation was used with a file card being kept on each county or administrative unit. The census figures were arranged in rows and each factor was multiplied by the correspond- reciprocal constant. These values were totaled and multiplied by the reciprocal of 11, which was 0.909091. This process was used to establish the final order of ranking.

Table Three contains the 1950 census data that was used to tabulate the rankings. The total number of farms, commercial farms, farm income, and county area were found in the 1950 Census of Agriculture.[9] The total number of farms, according to census definition, given by this report included all units having three or more acres, producing agricultural

7 The actual urban population was 134,920.

8 Average of 1929 and 1939 farm incomes.

9 "Farms, Farm Characteristics, Farm Products," Preliminary 1950 Census of Agriculture, Series AC 50 - 1 (Washington: Bureau of the Census, October 7, 1951).

TABLE III

CENSUS DATA OF 1950 ON SIX FACTORS USED IN PRESENT MICHIGAN COUNTY CLASSIFICATION SYSTEM

A. Agriculture data Name of County or Administrative Unit	Number of Total Farms*	Number of Commercial Farms Having Income of $1200 and over*	Farm Income Average of 1944** and 1949*
Alcona-Oscoda	1,089	529	$ 1,640,108
Alger-Schoolcraft	722	305	1,176,592
Allegan	4,441	2,792	13,343,450
Alpena	1,077	594	1,914,983
Antrim	1,087	547	2,328,447
Arenac	1,164	590	2,257,513
Baraga	553	232	785,694
Barry	2,390	1,414	5,571,710
Bay	2,842	1,912	7,660,833
Benzie	541	186	1,523,713
Berrien	4,774	2,885	16,670,649
Branch	2,404	1,668	7,153,445
Calhoun	3,059	1,747	8,148,995
Cass	2,269	1,233	5,081,875
Cahrlevoix	976	396	1,647,144
Cheboygan	855	276	1,132,723
Chippewa	1,154	529	1,791,416
Calre	777	429	1,739,505
Clinton	2,706	1,914	8,713,896
Crawford-Kalkaska	546	201	826,886
Delta	1,160	688	2,702,276
Dickinson	483	258	1,019,332
Eaton	3,107	2,007	7,873,710
Emmet	901	333	1,300,883
Genesee	3,691	1,653	7,107,041
Gladwin	1,145	622	1,862,867
Gogebic	494	178	640,949
Grand Traverse	1,200	658	4,335,133
Gratiot	2,816	2,165	10,077,258
Hillsdale	3,295	2,023	8,661,952
Houghton-Keweenaw	1,232	706	2,624,159
Huron	3,716	3,091	13,574,233
Ingham	2,531	1,626	7,820,516
Ionia	2,557	1,736	7,881,307
Iosco	696	321	1,063,961
Iron	679	241	904,949
Isabella	2,249	1,576	6,401,487
Jackson	2,854	1,552	7,936,214
Kalamazoo	2,518	1,354	7,174,176
Kent	4,302	2,441	12,784,325

TABLE III, A, CONTINUED

Name of County or Administrative Unit	Number of Total Farms*	Number of Commercial farms Having Income of $1200 and over*	Farm Income Average of 1941.** and 1949*
Lapeer	3,005	2,043	$ 9,363,062
Leelanau	834	461	2,789,335
Lenawee	3,772	2,752	14,336,987
Livingston	1,963	1,179	5,515,405
Luce-Mackinac	547	223	943,836
Macomb	3,112	1,702	10,030,403
Manistee	971	440	1,738,724
Marquette	584	229	1,133,081
Mason-½ Lake	1,708	970	3,825,213
Mecosta	1,672	962	3,633,916
Menominee	1,850	1,194	4,145,214
Midland	1,737	759	3,211,736
Missaukee-Roscommon	1,154	649	2,624,212
Monroe	3,598	2,079	10,869,738
Montcalm	3,061	1,933	7,575,150
Montmorency-Otsego	809	415	1,396,194
Muskegon	1,477	673	3,515,080
Newaygo	2,156	1,089	4,694,695
Oakland	3,107	1,288	8,487,587
Oceana	1,798	950	5,045,928
Ogemaw	896	520	1,595,993
Ontonagon	834	439	1,217,132
Osceola-½ Lake	1,726	971	3,110,796
Ottowa	3,665	2,231	10,908,321
Presque Isle	937	624	2,272,415
Saginaw	4,496	2,960	12,841,000
Sanilac	4,385	3,377	15,192,997
Shiawassee	2,848	1,935	8,267,958
St. Clair	3,631	2,058	8,458,749
St. Joseph	2,034	1,326	5,524,008
Tuscola	3,911	2,706	13,362,460
Van Buren	3,697	1,936	9,943,377
Washtenaw	2,834	1,839	10,114,546
Wayne	2,546	829	5,909,194
Wexford	941	377	1,172,567
Totals	155,589	91,094	$ 419,623,319

* "Farms, Farm Characteristics, Farm Products," Preliminary 1950 Census of Agriculture, Series AC 50-1, (Washington: Bureau of the Census, September 13, 1951).

** "Farms, Acerage, Value, Characteristics, Livestock, Livestock Products, Crops, Fruits, and Value of Farm Products," 1945 Census of Agriculture, Michigan, Volume I, Part 6, (Washington: United States Government Printing Office, 1946), pp. 135-153.

TABLE III, CONTINUED

B. Population* and Land Area Data

Name of County or Administrative Unit	Rural** Population	Urban** Population	Land Area in Acres***
Alcona-Oscoda	8,990	0	794,880
Alger-Schoolcraft	9,730	9,425	1,351,680
Allegan	35,935	11,558	530,560
Alpena	9,054	13,135	363,520
Antrim	10,721	0	305,280
Arenac	9,644	0	235,520
Baraga	8,037	0	578,560
Barry	20,037	6,096	351,360
Bay	32,771	55,690	285,440
Benzie	8,306	0	371,200
Berrien	21,608	8.594	323,840
Calhoun	55,964	64,849	453,760
Cass	21,643	6,542	312,320
Charlevoix	7,752	5,723	264,960
Cheboygan	8,044	5,687	464,000
Chippewa	11,294	17,912	1,011,200
Clare	10,253	0	366,080
Clinton	26,241	4,954	365,440
Crawford-Kalkaska	8,748	0	721,280
Delta	12,912	20,001	755,200
Dickinson	6,869	17,975	484,480
Eaton	25,402	14,621	362,880
Emmet	10,066	6,468	295,040
Genesee	100,704	170,259	412,160
Gladwin	9,451	0	321,920
Gogebic	8,734	18,319	711,680
Grand Traverse	11,624	16,974	296,960
Gratiot	21,741	11,688	362,240
Hillsdale	24,619	7,297	384,640
Houghton-Keweenaw	30,426	12,264	1,007,360
Huron	30,176	2,973	526,080
Ingham	56,973	115,968	357,760
Ionia	24,503	13,655	368,000
Iosco	10,906	0	350,080
Iron	13,644	4,048	766,080
Isabella	17,571	11,393	366,080
Jackson	56,837	51,083	451,200
Kalamazoo	69,003	57,704	362,808
Kent	105,374	182,918	551,680
Lapeer	29,651	6,143	421,760
Leelanau	8,647	0	223,360
Lenawee	39,443	25,186	482,560

TABLE III, B, CONTINUED

Name of County or Administrative Unit	Rural** Population	Urban** Population	Land Area in Acres***
Livingston	22,372	4,353	365,404
Luce-Mackinac	11,686	5,748	1,233,920
Macomb	100,190	84,771	307,840
Manistee	9,832	8,642	357,120
Marquette	15,013	32,636	1,178,240
Mason-½ Lake	13,597	9,506	493,560
Mecosta	12,232	6,736	360,320
Menominee	14,148	11,151	660,480
Midland	21,377	14,285	332,800
Missaukee-Roscommon	13,374	0	695,040
Monroe	54,199	21,467	359,680
Montcalm	24,345	6,668	455,680
Montmorency-Otsego	10,560	0	694,400
Muskegon	54,283	67,257	322,560
Newaygo	18,511	3,056	543,480
Oakland	186,401	209,600	561,280
Oceana	16,105	0	343,040
Ogemaw	9,345	0	367,360
Ontonagon	10,282	0	845,440
Osceola-½Lake	16,426	0	554,880
Ottawa	45,282	28,469	360,960
Presque Isle	8,123	3,873	418,560
Saginaw	60,597	92,918	519,680
Sanilac	30,837	0	615,040
Shiawassee	26,825	19,142	345,600
St.Clair	42,333	49,266	473,600
St.Joseph	20,500	14,571	325,120
Tuscola	32,264	5,994	522,240
VanBuren	33,555	5,629	388,480
Washtenaw	62,705	71,901	458,240
Wayne	203,456	2,231,779	388,480
Wexford	8,203	10,425	360,320
Totals	2,327,456	4,044,309	36,494,080

*

Old census rural and urban definition.

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"Population of Michigan: April 1, 1950," 1950 Census of Population Advance Reports, Series PC-8, No. 21 (Washington: Bureau of the Census, October 7, 1951).

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Farms, Farm Characteristics, Farm Products," Preliminary 1950 Census of Agriculture, Series AC50-1 (Washington: Bureau of the Census, September 13, 1951).

products selling for one hundred fifty dollars or more. Places having fewer than three acres, but having a total sale of agricultural products of one hundred fifty dollars or more, also were counted as farms. This is different from the 1940 definition which counted all places over three acres a farm, regardless of income, and counted those having less than three acres as farms provided the 1939 income was over two hundred fifty dollars.

Commercial farms were defined by the 1950 census as being all farms bringing an income of over two hundred fifty dollars, provided the operator worked less than one hundred days off the farm and made less from non-farm work than was made from the sale of agricultural products. Extension administrators felt, however, that farms having an income of over twelve hundred dollars would better represent commercial farms, and therefore, this definition was employed rather than the one given by the census. Any farm having an income of over twelve hundred dollars was considered a commercial farm, as listed in Table Three.

The farm income listed in Table Three was the average of the income for 1944 and 1949. This was the gross value of all farm products sold. County area was listed by acres according to the census.

The population data were obtained from the 1950 census population reports.[10] The old census definitions of rural and urban populations were used instead of the new ones. The old definition classifies all inhabitants of incorporated cities of 2,500 or more as urban and the

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10 "Population of Michigan: April 1, 1950", 1950 Census of Population Advance Reports, Series PC-8, No. 21 (Washington: Bureau of the Census, October 7, 1951.

remainder of the population as rural. The rural and urban figures were arrived at by summing the number of persons living in incorporated cities of 2,500 or more for each county. This figure subtracted from the total county population yielded the total rural population.

The second column of Table Four shows the rankings and the per cent of average figures for each Michigan county based on data available from the 1940 census. Some time after the counties were ranked by the shortened method the administrative workers of the Extension Service tabulated the results which were listed by rank and per cent of average figures for each county. The fourth column contains the rankings and per cent of average figures as determined by the shorter method of computation. A comparison of these two columns revealed that in no case was a county's rank affected by the shortened method and that usually the values were very clearly equal. Differences probably resulted from rounding off of numbers. Should the present system be continued, the short method of computation would save much time in computing the final results.

The four groupings of counties as determined by the original tabulation based on the 1940 census were noted in the second column of Table Four. The committee report[11] stated that the division between Group One and Group Two counties was selected because of the wide breach in the per cent of average figures of the twelfth ranking county, Ottawa (172), and the thirteenth ranking county, Washtenaw (166). Division between Group Two and Group Three counties was selected between the thirtieth ranking county, Montcalm (130), and the thirty-first ranking

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[11] "County Classification," op. cit., p. 5.

TABLE IV

RANKINGS OF MICHIGAN COUNTIES AND PER CENT OF AVERAGE FIGURES AS DETERMINED BY PRESENT SYSTEM*

Rank	1940 Census Data		Based on 1950 Census Data. Long Method of Tabulation	Based on 1950 Census Data. Short Method of Tabulation
1	Kent		Berrien	Berrien
	228		315	315.5
2	Saginaw		Kent	Kent
	222		285	285.1
3	Berrien		Saginaw	Saginaw
	210		276	276.4
4	Lenawee		Sanilac	Sanilac
	196		272	271.6
5	Sanilac		Lenawee	Lenawee
	195		261	261.2
6	Oakland		Allegan	Allegan
	188	Group I	249	248.9
7	Huron		Huron	Huron
	188		244	244.1
8	Tuscola		Oakland	Oakland
	182		243	243.5
9	Genesee		Tuscola	Tuscola
	181		240	240.1
10	Allegan		Macomb	Macomb
	178		229	228.9
11	Macomb		Washtenaw	Washtenaw
	176		219	218.6
12	Ottawa		Ottawa	Ottawa
	172		216	216.2
13	Washtenaw		Monroe	Monroe
	166		214	213.5
14	St. Clair		Wayne	Wayne
	164		207	207.3
15	Monroe		Genesee	Genesee
	161		201	201.4
16	Calhoun		Calhoun	Calhoun
	152		196	196.0
17	Wayne		St. Clair	St. Clair
	150		196	195.9
18	Jackson		Van Buren	Van Buren
	149	Group II	188	187.5
19	Ingham		Jackson	Jackson
	149		184	183.6
20	Kalamazoo		Gratiot	Gratiot
	141		183	183.4
21	Van Buren		Ingham	Ingham
	140		183	183.1

TABLE IV, CONTINUED

Rank	1940 Census Data	Based on 1950 Census Data. Long Method of Tabulation	Based on 1950 Census Data. Short Method of Tabulation
22	Gratiot Group II	Lapeer	Lapeer
	137 Cont'd.	177	176.7
23	Eaton .	Kalamazoo	Kalamazoo
	135 .	176	175.8
24	Bay .	Bay	Bay
	134 .	175	175.0
25	Lapeer .	Hillsdale	Hillsdale
	134 .	169	168.4
26	Hillsdale .	Shiawassee	Shiawassee
	133 .	165	164.9
27	Shiawassee .	Clinton	Clinton
	132 .	162	162.5
28	Clinton .	Eaton	Eaton
	131 .	161	161.1
29	Ionia .	Montcalm	Montcalm
	131 .	154	154.2
30	Montcalm	Ionia	Ionia
	130	153	152.9
31	Isabella	Branch	Branch
	107 .	138	138.5
32	Branch .	Isabella	Isabella
	105 .	135	135.5
33	Barry .	Barry	Barry
	104 .	116	116.0
34	Muskegon .	St. Joseph	St. Joseph
	99 .	115	115.4
35	Livingston .	Muskegon	Muskegon
	90 .	112	112.5
36	Newaygo .	Livingston	Livingston
	88 .	109	109.5
37	St. Joseph .	Cass	Cass
	88 .	107	107.3
38	Cass .	Newaygo	Newaygo
	85 .	102	101.9
39	Osceola-½Lake.	Menominee	Menominee
	80 .	99	98.7
40	Houghton-Keweenaw	Oceana	Oceana
	78 Group III	87	87.4
41	Mason-½Lake .	Mason-½Lake	Mason-½Lake
	78 .	87	87.4
42	Menominee .	Grand Traverse	Grand Traverse
	75 .	84	84.0
43	Mecosta .	Houghton-Keweenaw	Houghton-Keweenaw
	74 .	84	84.2

TABLE IV, CONTINUED

Rank	1940 Census Data	Based on 1950 Census Data. Long Method of Tabulation	Based on 1950 Census Data. Short Method of Tabulation
44	Chippewa Group III	Mecosta	Mecosta
	71 Cont'd.	80	80.4
45	Oceana .	Midland	Midland
	70 .	80	79.5
46	Midland .	Oseola-½Lake	Osceola-½Lake
	68 .	77	77.2
47	Marquette .	Delta	Delta
	65 .	76	76.1
48	Delta .	Chippewa	Chippewa
	62 .	70	66.9
49	Grand Traverse,	Missaukee-Roscommon	Missaukee-Roscommon
	61	65	64.8
50	Missaukee-Roscommon	Marquette	Marquette
	59	63	62.9
51	Alger-Schoolcraft	Alger-Schoolcraft	Alger-schoolcraft
	54 .	56	56.0
52	Alpena .	Alpena	Alpena
	50 .	53	53.5
53	Alcona-Oscoda .	Presque Isle	Presque Isle
	48 .	53	53.5
54	Luce-Mackinac .	Alcona-Oscoda	Alcona-Oscoda
	47 .	52	51.8
55	Manistee .	Leelanau	Leelanau
	46 .	52	51.6
56	Arenac .	Antrim	Antrim
	45 .	51	51.5
57	Antrim .	Arenac	Arenac
	45 .	50	49.8
58	Gladwin .	Luce-Mackinac	Luce-Mackinac
	44 .	48	48.1
59	Wexford .	Gladwin	Gladwin
	44 .	47	47.3
60	Presque Isle .	Manistee	Manistee
	42 .	47	46.8
61	Otsego-Montmorency	Ontonagon	Ontonagon
	42 .	46	45.9
62	Gogebic Group IV	Otsego-Montmorency	Otsego-Montmorency
	41 .	44	44.3
63	Leelanau .	Ogemaw	Ogemaw
	41 .	42	41.8
64	Emmet .	Clare	Clare
	40 .	42	41.7
65	Iron .	Charlevoix	Charlevoix
	39 .	41	41.5

TABLE IV, CONTINUED

Rank	1940 Census Data	Based on 1950 Census Data. Long Method of Tabulation	Based on 1950 Census Data. Short Method of Tabulation
66	Cheboygan Group IV	Iron	Iron
	38 Cont'd.	40	39.7
67	Ogemaw .	Wexford	Wexford
	38 .	40	39.6
68	Charlevoix .	Dickinson	Dickinson
	38 .	38	38.1
69	Ontonagon .	Gogebic	Gogebic
	37 .	38	38.0
70	Clare .	Emmet	Emmet
	36 .	38	37.9
71	Kalkaska-Crawford	Cheboygan	Cheboygan
	35 .	37	37.0
72	Dickinson .	Kalkaska-Crawford	Kalkaska-Crawford
	35 .	33	32.9
73	Baraga .	Iosco	Iosco
	30 .	32	32.1
74	Iosco .	Benzie	Benzie
	28 .	31	30.6
75	Benzie .	Baraga	Baraga
	25 .	30	29.7

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Michigan Extension Service, "County Classification," (unpublished mimeographed report on file, Office of the Director, Michigan Extension Service, East Lansing, Michigan).

county, Isabella (107), because of an obvious break in the per cent of average values. The division between Group Three and Group Four counties was selected somewhat arbitrarily between the forty-ninth ranking county, Grand Traverse (61), and the fiftieth, Missaukee-Roscommon (59), as there were no distinct breaks in per cent of average values. No such delineation was made for the county rankings which resulted from 1950 census data up until the time this report was written. It may be noted in this instance that definite breaks in value were not as pronounced as they were formerly.

Evaluation of the Michigan county classification system. The six factors and their relative weights used in classifying the Michigan counties appeared to generally reflect the differences in Extension teaching loads. This was believed because the system's validity had not been seriously questioned in the years of its employment. Empirical study substantiated the difference between any two counties that were considerably apart in final standing when comparison was made. This difference is not so easily apparent when comparing counties that rank close together.

One weakness of the system was found to be the high importance attached to factors which were not harmonious with the objectives discussed in Chapter Two. Neither legislative acts nor interpretations of these acts have stated that the wealthiest and most prosperous farm people were entitled to a greater share of Extension benefits. Yet, out of a total of eleven points used in weighting, four points, or 36.3 per cent, are given to the total farm income of a county. To some extent

farm income may indicate the number of farm persons, but justification on this basis would be unreliable because of the wide divergence in incomes per farm throughout the state. A total weight of two was given to commercial farms, also emphasizing monetary standing. Only farms having income over twelve hundred dollars in 1949 were considered commercial farms. Clearly these two factors would be highly related. To find the relationship, rank correlation of these two factors was determined by ranking every county from high to low values in the number of farms and farm income. The differences between the rankings of each county were determined and squared. The sum of these squared differences for all counties or administrative units was then found, which was D^2. Spearman's rank correlation coefficient[12] was used in determining the rank correlation. The number (N) was 75 in this case.

$$r = \frac{6\Sigma D^2}{N^2(N^2-1)}$$

The rank correlation between the total number of commercial farms (farms reporting an income of twleve hundred dollars or more in 1949) and the farm income (average farm income for the years 1944 and 1949) was found to be +.9609. The high correlation between these two factors substantiated the hypothesis.

The weighting of four for total farm income and two for commercial farms gave a total of six for the factors together, which is six-elevenths or over one-half the entire weighting of the formula, based

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12 E. F. Lindquist, Statistical Analysis in Educational Research, (Boston: Houghton Mifflin Company, 1940) p. 247.

primarily on the monetary nature of a county's agriculture. The committee report reasoned that the farm income for a county reflected the economic importance of the Extension agent's job.[13] Wealthy counties might conceivably have a higher tax base, enabling them to contribute more to Extension programs than the poorer counties could. Income does not merit such a heavy consideration in view of the bases of appropration from state and Federal sources. The legislative acts pertaining to Extension could hardly be construed to intend such a meaning. In fact, as was pointed out in Chapter Two, support of the Extension Service as a help to farmers arose partly from recognition of educational disparity existing between urban and rural people. There is evidence that the medium high income farm groups take the greater share of an Extension worker's time.[14] Gibson's interpretation of this situation was that, Extension participation being involuntary, the more prosperous farmers are more apt to avail themselves of useful information offered by the Extension Service than less prosperous farmers.[15] Gibson makes the conclusion:

> It is not a simple answer to the problem to assert that the common welfare of all rural society would be better served by denying the assistance of county agents to the successful farmers who ask for and use the extension service, and requiring those agents to devote their efforts to arousing the interest of farmers who are not asking for help, perhaps do not think they need it, and may even feel that they are leading more enjoyable lives, measured by their own standards, without it.[16]

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13 "County Classification," op. cit., p. 2

14 D. L. Gibson, "The Clientele of the Agricultural Extension Service," Vol. 26, No. 4, (East Lansing, Michigan: Michigan Agricultural Experiment Station Quarterly Bulletin, May, 1944), p. 7.

15 Ibid., p. 9.

16 Loc, cit.

The additional Federal funds that were made available to the Extension Service during the agricultural depression of the late 1920's were doubtlessly intended to benefit the hard-pressed rural people.[17] Those critics of Extension who claim that its programs are designed to help the more prosperous farmers could make a good point by citing the present Michigan rating system in which over half the classification scheme is based on the financial condition of agriculture within the counties.

The older and lesser objective of Extension, that of increasing agricultural production, appears to be reflected in this dollar-conscious rating scheme. One of the reasons given for considering farm income was that specialized and highly developed farm enterprises demand more technical knowledge on the part of a county worker. The total farm income was recorded, but this did not indicate the diversity in type of agriculture. Conceivably the farm income of any one county might be large because of high value products, such as livestock and certain specialized fruits, without reflecting the greater Extension teaching responsibilities. The objectives of the Service are not more and better crops and livestock, but the improvement of the people served. This consideration would certainly disqualify any rating system which used farm income as an index to Extension responsibility.

One difficulty faced in evaluating this county classification system was the inter-relation of most factors. It was, therefore,

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17 Capper-Ketcham Act, 1928, and Bankhead-Jones Act, 1935.

difficult to determine the exact influence each had in the total rating scheme. The relationship between farm income and total number of farms was roughly measured by using Spearman's rank correlation coefficient.[18] The rank correlation between farm income and total number of farms was +.9688. This gave a better justification for using income because the total number of farms is some indication of the farm population. It will be recalled that the farm population provided 76 per cent of the basis for appropriating Federal funds. However, the average number of persons per farm varies from county to county,[19] which discounted this interpretation. The total number of farms gave the best indication of the farm population to be found among the six factors.

The rank correlation[20] between total number of farms and commercial farms was +.9540. This was true because the number of commercial farms is a part of the total number of farms. The rank correlation[21] between rural population and area was +.0938, which was so small that the two factors could be considered independent. In summation, there was no evidence that the larger counties had a greater number of rural persons.

No other rank correlations were tabulated between the existing possible combinations of factors. The factors of rural population, farm income, total number of farms, and total number of commercial

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18 Lindquist, op. cit., p. 247.

19 See Chapter Five for further discussion.

20 Lindquist, op. cit., p. 247

21 Loc. cit.

farms were obviously related. Area and urban population were the most independent factors.

In order to determine the relationship of any factor with the final rankings, the rank correlation coefficients were determined:

rank correlation between farm income and final rank= +.9605
rank correlation between total number of farms and final rank= +.9597
rank correlation between commercial farms and final rank= +.9202
rank coorelation between rural population and final rank= +.9200
rank correlation between urban population and final rank= +.3402
rank correlation between area of county and final rank= +.0158[22]

An analysis of these correlations supported the hypothesis that a county's final rank in this rating scheme was determined mainly by its total farm income, which was apparently intended. The second highest positive correlation with final rank was the total number of farms. Inclusion of this factor could be better justified because, as stated in Chapter Two, 76 per cent of the total Federal funds that are appropriated to Michigan are based on farm population. Commercial farms correlated rather highly with the final ranking. This would be true because farm income and commercial farm numbers are closely related.

Rural population was correlated positively and highly with the final ranking, which could hardly be criticized in view of Service objectives. Urban population correlated positively with the final results. That it was correlated to all with the final rank was more a result of the fact that the larger urbanized counties were also some of the larger agricultural counties. The main flaw in using this factor at all was that any county having over sixty thousand urban population was not given any credit for the additional numbers. This

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22 Loc. cit.

rating scheme intended to consider lightly the urban factor. If Extension had any responsibility at all to urban people, and if this were to be measured, it would not seem consistent to discount numbers over sixty thousand altogether. This may have been planned to avoid giving a high final standing to the few highly urbanized counties. Even a little weight on this factor would bring the total value up very high because of the exceedingly large number of urban persons residing in a few counties.

Area was weighted but one unit out of the eleven, and the size of a county had little to do with the final rank, as evidenced by its correlation with the final standing. This factor might possibly have been omitted entirely without affecting the final rank of any county.

In no way was this analysis thought to be complete. The purpose was to obtain some general information about the present rating scheme and to see the consistency of the factors used with Extension objectives The weakness of the system was that most of the factors considered were not mutually exclusive. There was also difficulty in analyzing the system because of the nature of the units of measurement used. Numbers of persons, numbers of farms, amount of income, and acres in area were all thrown together for consideration. This was possible because the per cent of average figures of each factor were used before weighting, but comparisons of two factors possessing different scales of measurement was difficult. Even if the system could actually measure teaching loads, the arbitrary delineationof the four groups is not easy to substantiate. The system, however, appeared to be more concerned with the

relative ranking of counties than with measurement of the Extension teaching load.

Evaluation of Systems Used by Other States

North Carolina. A number of other states have developed systems for county classification according to a report of the Federal Extension Service.[23]

North Carolina was reported as using a method of classification based on the county property valuation. The counties that had an assessed property of over twenty million dollars were granted fifty per cent of the total county worker's salary from state and Federal funds. The counties having between seven and twenty million dollars property valuation were granted one per cent more for each million under twenty million from state and Federal sources. Counties with less than six million valuation were granted 65 per cent of their county workers' salaries, with two per cent additional for each million under six million valuation.

The North Carolina system would assume that valuations were equalized throughout the state. As county valuation includes property besides that which is agricultural, it could not be argued that such a measure reflected the Extension teaching load very well. Possibly this system was designed in the realization that the higher valuated counties

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23 H. W. Gilbertson, "An Analysis of the Sources and Uses of Cooperative Extension Funds," Extension Service Circular No. 475, (Washington: United States Department of Agriculture, August 1951) pp. 39-48.

had higher tax incomes and so could pay the greater part of a worker's salary. Such a system distributes Federal funds in a manner inconsistent with the intent.

Texas. Texas had a system whereby counties having a property valuation of less than seven million dollars were termed "hardship counties." If these counties contributed more than twenty per cent of their general funds for Extension, they were given additional assistance from state and Federal funds in order to assure a minimum salary for Extension workers.

Illinois. In Illinois the Federal funds from the Bankhead-Flannagan Act were used for employing youth and 4-H Club agents. These funds were distributed so that three cents was granted for each rural person, five cents for every farm person, and two dollars for each completing 4-H Club member. Special allotments were made to counties of small population. This procedure placed large emphasis upon present work, rather than on the potential teaching load.

Other examples. Other states were listed in the report and were usually similar to the three systems cited. In none of these systems was there any evidence that much effort was made to measure the size of the Extension teaching load.

SUMMARY

The Michigan Extension Service has a classification system at the present time which is used as a guide for allocating resources. This system employs the use of six factors which are combined to determine the rank of all counties. These six factors are: total number of farms, number of commercial farms, rural population, urban population, farm income, and land area. These factors are weighted numerically so that some factors are more important than others.

This method places a high importance on the monetary value of agriculture in a county. The Extension objective is education. Education is to help people help themselves. People are the subjects of education, not the dollars that they possess. Any method for rating counties which does not consider the number of persons to be served as important is inconsistent with the objectives of the Service.

Systems used by other states also do not place much importance on number of individuals which are to receive service. For this reason, all the systems considered in this chapter were considered to be inadequate for measuring the teaching load in a county so that proper allocation of Extension resources can be made.

CHAPTER IV

SELECTION OF FACTORS FOR COUNTY CLASSIFICATION

The two-fold purpose of this chapter is to review some of the factors utilized in present systems and to examine some other factors which might show relative Extension responsibilities to the various counties. As a basis for evaluating the possible indicators, the characteristics of an improved means for classification were established.

Criteria for Selecting Factors

Characteristics of an improved system. As was shown in the previous chapter, the Michigan system was difficult to evaluate because of the nature of the six included factors. In certain ways any one of these factors denoted differences in Extension responsibility from county to county. However, four of these factors were closely interrelated, making it difficult to isolate the effect of any one of the related factors on the total rating scheme. Considering this difficulty, it was concluded that an improved method of classifying ought to consider only those factors which were mutually exclusive - that is, the numerical value of one was not directly dependent on another. The mutually exclusive categories were desired to be reliable, based on measurable data from every county and especially indicative of Extension Service goals and objectives. These four requisites, (1) mutually exclusive categories, (2) reliable and measurable data, (3) reflection of Extension objectives, and (4) similar units of measurement, were designated as criteria in judging the suitability of factors.

Analysis of Factors That Might Be Used

Total number of farms. If considered alone, this factor has the advantage of complete ability to categorize exclusively. The 1950 Census of Agriculture gave the total number of farms in each county of the state.[1] This total number was broken down further into groups of commercial farms and other farms. Commercial farms were those from which the sale of agricultural products in 1949 brought the operator an income of $250 or more and on which the operator worked less than a hundred days off the farm or earned less from outside sources than from the sale of his agricultural products.[2] Commercial farms were classified as follows:

Commercial Farms

Class I (Value of products sold, $25,000 or more)
Class II (Value of products sold, $10,000-$24,999)
Class III (Value of products sold, $5,000-$9,999)
Class IV (Value of products sold, $2,500-$4,999)
Class V (Value of products sold, $1,200-$2,499)
Class VI (Value of products sold, $250-$1,199)[3]

The group of other farms was divided into three sub-classifications: part-time, residential, and abnormal. Part-time farmers were those whose value of products sold was between $250 and $1,199, or those who reported more than a hundred days work off the farm, or who reported more income from another source than sale of agricultural products. Residential farms were those selling less than $250 in agricultural produce. Abnormal farms were those belonging to public or private institutions or those which were community projects.

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1 "Farms, Farm Characteristics, Farm Products, Preliminary 1950 Census of Agriculture, Series AC50-1 (Washington: Bureau of the Census, October 7, 1951).

2 Loc. cit.

3 Loc. cit.

The different groups of total farms have the characteristic of possessing mutually exclusive categories and reliable data. Since Extension is primarily responsible to farm people, this factor would show merit. In light of total Service objectives this could seem somewhat incomplete because some Federal appropriations were based on rural population.[4] A means of classification based on categories of farms does not include persons living in rural areas who are not farmers, such as rural residents who work off the farm and residents of small villages and towns. The Smith-Lever Act can be read to imply that Extension has some responsibility to city dwellers desiring its services. The problem then was to include some just measurement of these population segments. One means would be categorizing this group, giving weight according to the relative importance to the Extension task. The difficulty here would be in measuring numbers of persons with numbers of farms, which would be inconsistent with the established criteria of an identical form of measurement. This handicap might be overcome by converting the non-rural segments into numbers of places of residence, corresponding with numbers of farms as they relate to the farm population. It would be assumed by this reasoning that the number of persons per farm residence would not be significantly altered in changing locations. This assumption would be invalid because the average number of persons per farm varies considerably from county to county. This conversion would not be justifiable, when it is remembered that Federal appropriations are made on the bases of rural farm population and total rural population.

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[4] Smith-Lever Act of 1914, Capper-Ketcham Act of 1928.

Farm Income. The agricultural census taken every five years gives data on the total value of farm produce in each county for the year immediately preceding the census. Generally it is true that high agricultural income within a county implies a correspondingly large number of farm persons in that same county. This figure does supply some information on the relative importance of farming to counties, but it is possible to visualize a county with comparatively few farm persons in proportion to the farm income should each family have a total farm income substantially above the state average. Within the course of a few years there is much fluctuation of farm prices, particularly in regard to certain products. It is conceivable that a county having one highly specialized crop might be the victim of exceedingly low prices while another county which also specialized might be tremendously favored with high prices at the time rating occurred. Other possible weaknesses were mentioned in Chapter Three. For these several reasons, farm income would not appear to be a desirable factor for inclusion in a rating scheme.

Area of counties. This factor alone is not one which reflects the Extension teaching load of a county. If all farms were of uniform size, its use might be better justified throughout the counties. But in Michigan some of the largest counties have the smallest farm populations. It was recognized that a larger county provided extra work for an Extension worker because of the additional traveling time for reaching his clientele and the increased difficulty to participants in contacting him at the county Extension office. The size of a county in acres or

square miles does not reveal adequately the nature of its problems. A large county could have only a concentrated settlement of people in one area, or a small county by having a few or poor roads might present difficulty in accessibility of Extension resources to participants. Also relevant is the site of the county seat. Large counties generally create more difficulties in work for the Extension agent, but this fact in itself could not indicate the number of persons served. This factor might be included among others, but its use would necessitate employment of two different kinds of measurement within one system.

Social groups of people. County Extension work is sometimes made difficult by immigrant groups or groups of foreign extraction. Differences of language and cultural background require more understanding and effort on the agent's part in meeting and serving these people. The presence of such groups is easily recognized, but it would be another matter to assign a value to them so that one county could be compared with another in this respect.

Special considerations. There are other factors that are not without influence on the Extension teaching load of a county. One reason is the many types of farming to be found throughout the state. Some counties have greater land use problems, some have more diversified farming requiring a variety of knowledge by an agent, and other considerations vary - for example, the amount of soil erosion. Under such conditions the agent must be a competent advisor in myriad fields, and he must also spend more time in coordinating the Extension program. Extra time is required by any number of groups, such as the special commodity groups.

These factors are but a few which signify differences in the Extension job among the counties. While the conditions may have some importance attached, no satisfactory means for measurement is known.

Population classes. A study of the basic legislative acts revealed in Chapter Two that Extension has more responsibility to some groups of the population than to others. These laws appeared to be primarily directed toward assistance for farm people, as evidenced by the basis of appropriating funds on farm population. To other people, but to a lesser degree, Extension has responsibility. These others often desiring service are rural non-farm people and urban people.

The expressed objective of Extension is education in agriculture and home economics. The county Extension worker is, therefore, a teacher. This position as teacher differs from the traditional one. The Extension worker's students are voluntary participants. Usually an Extension worker serves a larger group than does the formal classroom instructor, as the organization has aimed to be available to all those desiring its help. The percentage of the population who avail themselves of its services may vary from county to county, depending among other things upon the past influence wielded by Extension and the ability of the workers to arouse interest. In Chapter Three it was seen that some states appropriate Federal and state funds to the counties partly on the basis of current participation in Extension programs. Illinois used a formula whereby twodollars was appropriated for each 4-H Club member completing a project. Other instances of giving extra weight to the size of the current clientele of a particular county can be

found. The procedure may be of value in stimulating county workers to meet more people, but this factor would remain unjustified in the apportioning of Federal funds. The money is not made available on the basis of the number of participants, but on the basis of the total number of persons.

Allotment of Federal funds to the states is made mostly on the bases of farm and rural populations. For this reason, a method of distribution incommensurate with the original intent could hardly be justified.

The advantage of using population groups in a classification system is that data are easily accessible and are reliable, coming as they do from census reports. These may be divided into mutually exclusive categories. Use of this factor alone provides an identical unit of measurement - that is, population numbers. The objectives of Extension can surely be reflected by use of different classes of population. The population can be broken into such classes as urban, rural non-farm, and rural farm people. By numerically weighting these population groups in a proportion that is indicative of Extension's responsibilities to them, the Extension teaching load of a county could be determined. A decided advantage in using population numbers for rating counties is that this basis is the same as that used for Federal appropriations.

SUMMARY

Many are the factors which might create differences in the Extension teaching load among the counties. Although of importance some of the factors were difficult to measure in a manner which would permit comparison with another county. Also some factors alone could not show the total Extension responsibility. The best of these might be combined so that the total responsibility could be measured, but the difficulty in this procedure would be that these factors would require dissimilar means of measurement.

A system of classification based on population classes seems to offer a factor that could best be used to measure relative Extension teaching loads. It is a simple process, not involving the combination of unrelated factors or sub-factors having different means of measurement. The ultimate objective of Extension is the improvement of the people. The responsibility of Extension does not become greater as farm income increases, or area increases, or production increases, but it does become greater as the number of persons the organization is dedicated to serve increases.

CHAPTER V

MICHIGAN POPULATION CLASSES

The number of persons in different population classes was deemed tobe the best means for measuring the Extension teaching load. County classification systems now in use in some states for purposes of allocation of resources did not sufficiently consider this factor, and therefore are inadequate when evaluated in terms of the Service objectives. Extension is charged by law with education to people. It is at the present time primarily responsible for provision of educational programs with rural and especially rural-farm people. To a lesser extent it has some responsibility for serving the remaining population.

The conclusion was reached in the previous Chapter that numbers of people according to classes of population gave the best basis for distributing Extension resources to the counties. The classes of population then could be weighted numerically in a proportion that reflected the importance of any class to the total Extension responsibility.

Before this was feasible, a delineation of the classes and determination of the numbers of persons in each class was essential. This is done in this Chapter on the bases of the 1950 Census of Population and Agriculture.

Population of Michigan

Source of data. Information from 1950 census reports, as made available every ten years by the Bureau of the Census of the United States Department of Commerce, was used in this report. At the time of this study complete data were not forthcoming. Two publications, one containing advance reports[1] and another containing more detail on Michigan inhabitants,[2] were used. An agricultural census is taken every five years, and its preliminary reports were available.[3]

Method of procedure. Places of residence provided the basis for division of Michigan population in 1950 for this study. The major divisions were patterned after a plan employed by Beegle[4] in a bulletin on Michigan population. In his first table he lists the population numbers and percentages of population by places of residence and by counties, using 1940 census data. County populations were divided into two main categories, rural and urban. Rural population was further divided into rural farm and rural non-farm groups. The rural non-farm portion was additionally categorized into rural village and rural non-village groups.

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1 "Population of Michigan: April 1, 1950," 1950 Census of Population Advance Reports, Series PC-8, No. 21 (Washington: Bureau of the Census, October 7, 1951).

2 "Number of Inhabitants, Michigan," 1950 United States Census of Population, Series P-A22, Preprint of Volume 1, Chapter 22 (Washington: Bureau of the Census, United States Government, 1951).

3 "Farms, Farm Characteristics, Farm Products," Preliminary 1950 Census of Agriculture, Series AC50-1 (Washington: Bureau of the Census, September 13, 1951).

4 J. Allen Beegle, "Michigan Population, Composition and Change," Special Bulletin 342 (East Lansing, Michigan: Michigan State College Agricultural Experiment Station, November 1947), pp. 76-78.

Use of places of residence seemed to be the best means for establishing population classes. Rural farm population numbers were properly used in this measuring scheme, as rural farm population provides the basis for appropriating most Federal funds to the Extension Service. The rural non-farm populace may be included because they too would be included in those Federal appropriations made for all rural people.

As complete information was not available from 1950 census releases on these population classes at the time of this study, the numbers were computed by a method described in this chapter. Rural and urban populations for each county were contained in the census, and these figures were utilized in the computation. Other categories influencing the Extension load of a county were established and their respective population numbers were also determined.

Rural and Urban Populations of Michigan. Information on rural and urban numbers for the state of Michigan has been given by the Bureau of the Census ever since 1810.[5] In 1950 the definition of urban population was altered from the meaning given in 1940, but the 1950 reports listed urban population according to each definition so that comparisons could easily be made.

The older definition considered all persons living in incorporated places of twenty-five hundred or more inhabitants to be within the urban population. It also included persons living in obviously urban areas which were unincorporated. Any of the population falling outside these limits was considered rural.

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[5] 1950 Census of Population Advance Reports, op. cit., p. 2.

The 1950 definition of urban population was employed by this report. By definition it included all persons living in:

> . . . (a) places of 2,500 inhabitants or more incorporated as cities, boroughs, towns, and villages; (b) the densely settled urban fringe, including both incorporated and unincorporated areas, around cities of 50,000 or more; and (c) unincorporated places of 2500 inhabitants or more outside of any urban fringe. . . .[6]

The rest of the total population was specified as rural.

Table Five listed the census data on 1950 rural and urban populations for each Michigan county. The change of definition affected only 16 of the 83 counties: Berrien, Calhoun, Clinton, Eaton, Genesee, Ingham, Jackson, Kalamazoo, Kent, Macomb, Muskegon, Oakland, Ottawa, Saginaw, Washtenaw, and Wayne. A comparison of Table Three and Table Five would illustrate the effect of the definition change. The old definition was used in Chapter Two because the present Michigan system was developed before the change of definition. Future Federal appropriations are to be based on official Bureau of Census figures, listing population according to the new definition, which is more realistic. According to the earlier definition many persons whose residences indicated an urban way of life were classified as rural, perhaps because they lived just beyond the city limits. Finally, the new definition permitted the isolation into a separate grouping of suburban persons, who usually make greater demands on Extension workers than do actual city residents because they usually have more acreage, often supporting horticultural and livestock interests.

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[6] Loc. cit.

TABLE V

RURAL AND URBAN POPULATION OF MICHIGAN COUNTIES, 1950 CENSUS (NEW URBAN DEFINITION)*

County	Rural	Urban	Total
Alcona	5,856	0	5,856
Alger	5,668	4,339	10,007
Allegan	35,935	11,558	47,493
Alpena	9,054	13,135	22,189
Antrim	10,721	0	10,721
Arenac	9,644	0	9,644
Baraga	8,037	0	8,037
Barry	20,087	6,096	26,183
Bay	32,771	55,690	88,461
Benzie	8,306	0	8,306
Berrien	57,570	58,132	115,702
Branch	21,608	8,594	30,202
Calhoun	38,632	82,181	120,813
Cass	21,643	6,542	28,185
Charlevoix	7,752	5,723	13,475
Cheboygan	8,044	5,687	13,731
Chippewa	11,294	17,912	29,206
Clare	10,253	0	10,253
Clinton	24,522	6,673	31,195
Crawford	4,151	0	4,151
Delta	12,912	20,001	32,913
Dickinson	6,869	17,975	24,844
Eaton	24,911	15,112	40,023
Emmet	10,066	6,468	16,534
Genesee	69,106	201,857	270,963
Gladwin	9,451	0	9,451
Gogebic	8,734	18,319	27,053
Grand Traverse	11,624	16,974	28,598
Gratiot	21,741	11,688	33,429
Hillsdale	24,619	7,297	31,916
Houghton	27,508	12,263	39,771
Huron	30,176	2,973	33,149
Ingham	37,585	135,356	172,941
Ionia	24,503	13,655	38,158
Iosco	10,906	0	10,906
Iron	13,644	4,048	17,692
Isabella	17,571	11,393	28,964
Jackson	46,600	61,325	107,925
Kalamazoo	43,375	83,332	126,707
Kalkaska	4,597	0	4,597
Kent	61,475	226,817	288,292

TABLE V, CONTINUED

County	Rural	Urban	Total
Keeweenaw	2,913	0	2,913
Lake	5,257	0	5,257
Lapeer	29,651	6,143	35,794
Leelanau	8,647	0	8,647
Lanawee	39,443	25,186	64,629
Livingston	22,372	4,353	26,725
Luce	5,345	2,802	8,147
Mackinac	6,341	2,946	9,287
Macomb	56,229	128,732	184,961
Manistee	9,882	8,642	18,524
Marquette	15,013	32,636	47,654
Mason	10,968	9,506	20,474
Mecosta	12,232	6,736	18,968
Menominee	14,148	11,151	25,299
Midland	21,377	14,285	35,662
Missaukee	7,458	0	7,458
Monroe	53,504	22,162	75,666
Montcalm	24,345	6,668	31,013
Montmorency	4,125	0	4,125
Muskegon	36,300	85,245	121,545
Newaygo	18,511	3,056	21,567
Oakland	109,073	286,928	396,001
Oceana	16,105	0	16,105
Ogemaw	9,345	0	9,345
Ontonagon	10,282	0	10,282
Osceola	13,797	0	13,797
Oscoda	3,134	0	3,134
Otsego	6,435	0	6,435
Ottawa	42,535	31,216	73,751
Presque Isle	8,123	3,873	11,996
Roscommon	5,916	0	5,916
Saginaw	47,576	105,939	153,515
Sanilac	30,837	0	30,837
Schoolcraft	4,062	5,086	9,148
Shiawassee	26,825	19,142	45,967
St. Clair	42,333	49,266	91,599
St. Joseph	20,500	14,571	35,071
Tuscola	32,264	5,994	38,258
Van Buren	33,555	5,629	39,184
Washtenaw	47,908	86,698	134,606
Wayne	76,332	2,358,903	2,435,235
Wexford	8,203	10425	18,628
Totals	1,868,682	4,503,084	6,371,766
Percentage of Total Michigan Population	29.33	70.67	100.0

*"Number of Inhabitants, Michigan," 1950 United States Census of Population, Series P-22, Preprint of Volume 1, Chapter 22, (Washington: United States Printing Office, 1951).

The change in number of urban and rural populations resulting from the change in definition was noteworthy. Table Five showed that the urban population of Michigan in 1950 was 4,503,034, or 70.67 per cent of the total population. The urban population showed a steady increase in proportion to the total population, as illustrated below:

Year	Per Cent Urban
1950 (new definition)	70.7
1940 (old definition)	64.3
1930	68.2
1920	61.1
1900	47.2
1880	24.8
1850	7.3 [7]

Urban Population Categories

Population of cities. The number of urban persons living in Michigan is not at all used as a basis for appropriating Federal funds to Extension. There fore, considering this fact alone, no consideration of this group by Extension would be justified. However, the urban population does bear some significance to the Extension teaching load. First, it was stated by the Smith-Lever Act that Extension was responsible for certain educational services to the people. Second, these urban people do contribute a large share toward the taxation which makes Extension possible. The legislative acts pertaining to Extension also appeared to have been directed toward rural people, farm people in particular. At the expense of the entire public was the general welfare

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7 1950 Census of Population Advance Reports, op. cit., p. 2.

of the people, all of whom were affected economically by rural conditions.

The importance of urban people to Extension having been cited, it was necessary to further divide this group into city and suburban categories. It was assumed that these two classes were of unequal importance to Extension. Smaller cities also might depend to a greater extent on the rural areas than larger cities, and their citizens probably have more agricultural interests because of larger home lots and closer association with rural areas. It is easy to reach greater numbers in the larger cities because of the mass communication facilities available, such as newspaper, radio, and television.

For these reasons the urban population was sub-divided on the basis of size. Table Six illustrated these sub-divisions. The county and name of each city in the county were listed. Part A of Table Six listed those counties with cities containing from 2,500 to 4,999 inhabitants. Part B similarly listed cities having 5,000 to 9,999 inhabitants; Part C, 10,000 to 24,999; Part D, 25,000 to 49,999; Part E, 50,000 to 99,999; Part F, 100,000 to 249,999; and Part G, cities of 1,000,000 or more. The totals for each category were given. All cities, incorporated or not, were placed in their respective categories, even if they were in an urban fringe area for a larger city.

Census reports available at the time of this study listed the population of all incorporated and unincorporated areas of a thousand inhabitants or more alphabetically by city (or other urban area) and county.[7]

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[7] Ibid., pp. 3-7.

Suburban population. The suburban population was the remainder of the total urban population after the foregoing portions had been removed. Those left were the inhabitants of the fringe areas of cities having fifty thousand or more population, which may be seen in Part H of Table Six. The minor civil divisions with suburban inhabitants were included, with the information coming from photostatic copies of work sheets[8] from the Bureau of the Census. The sheets listed all the additional places that were classified as urban by expansion of the urban definition. The total suburban population, shown on Table Six, is 345,187.

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[8] These photostatic copies were obtained from J. F. Thadden of the Department of Sociology and Anthropology, Michigan State College, East Lansing, Michigan. He received these copies from Howard G. Brunsman, Chief, Population and Housing Division, Bureau of the Census, Department of Commerce, Washington 25, D.C., in a letter dated December 7, 1951.

TABLE VI

CATEGORIES OF MICHIGAN URBAN

POPULATION BY COUNTIES (1950)*

A. Cities of 2,500-4,999 People			
County	City	Population	County Total
Alger	Munising	4,339	4,339
Allegan	Allegan	4,801	11,558
	Otsego	3,990	
	Plainwell	2,767	
Bay	Essexville	3,167	3,167
Berrien	Fair Plain	4,134	4,134
Calhoun	Englewood Park-Brownlee Park	4,171	4,171
Charlevoix	Boone City	3,028	5,723
	Charlevoix	2,695	
Clinton	St. Johns	4,954	4,954
Delta	Gladstone	4,831	4,831
Dickinson	Norway	3,258	3,258
Eaton	Eaton Rapids	3,509	8,015
	Grand Ledge	4,506	
Genesee	Fenton	4,226	7,116
	Mt. Morris	2,890	
Gogebic	Bessemer	3,509	6,853
	Wakefield	3,344	
Gratiot	St. Louis	3,347	3,347
Houghton	Houghton	3,829	7,040
	Laurium	3,211	
Huron	Bad Axe	2,973	2,973
Ingham	Mason	3,514	3,514

TABLE VI, CONTINUED

A. (Continued)

County	City	Population	County Total
Ionia	Belding	4,436	7,243
	Portland	2,807	
Iron	Iron River	4,048	4,048
Jackson	Michigan Center	3,012	10,237
	Vandercook	3,190	
	Woodlawn Orchards-Knollwood Park	4,035	
Lenawee	Hudson	2,773	6,793
	Tecumseh	4,020	
Livingston	Howell	4,353	4,353
Luce	Newberry	2,802	2,802
Mackinac	St. Ignace	2,946	2,946
Macomb	Romeo	2,985	2,985
Monroe	Milan (part)	695	695
Newaygo	Fremont	3,056	3,056
Oakland	Holly	2,663	18,532
	Huntington Woods	4,949	
	Northville (part)	259	
	Pleasant Ridge	3,594	
	Rochester	4,279	
	Walled Lake	2,788	
Ottawa	Virginia Park	2,747	5,822
	Zeeland	3,075	
Presque Isle	Rogers City	3,873	3,873
St. Clair	Algonac	2,639	13,541
	Marine City	4,270	
	Marysville	2,534	
	St. Clair	4,098	

TABLE VI, CONTINUED

A. (Continued)

County	City	Population	County Total
Shiawassee	Durand	3,194	3,194
Tuscola	Caro	3,464	5,994
	Vassar	2,530	
Washtenaw	Chelsea	2,580	8,780
	Esatlawn	4,127	
	Milan (part)	2,073	
Wayne	Northville (part)	2,981	2,981
Total			192,868

B. Cities of 5,000-9,999 People

Barry	Hastings	6,096	6,096
Berrien	Benton Heights	6,160	11,384
	Buchanan	5,224	
Branch	Coldwater	8,594	8,594
Calhoun	Marshall	5,777	5,777
Cass	Dowagiac	6,542	6,542
Cheboygan	Cheboygan	5,687	5,687
Dickinson	Iron Mountain	9,679	14,717
	Kingsford	5,038	
Eaton	Charlotte	6,606	6,606
Emmet	Petosky	6,468	6,468
Gratiot	Alma	8,341	8,341
Hillsdale	Hillsdale	7,297	7,297
Houghton	Hancock	5,223	5,223
Ionia	Ionia	6,412	6,412

TABLE VI, CONTINUED

B. (Continued)

County	City	Population	Total County
Kent	East Grand Rapids	6,403	6,403
Lapeer	Lapeer	6,143	6,143
Macomb	Center Line	7,659	7,659
Manistee	Manistee	8,642	8,642
Marquette	Ishpeming	8,962	15,434
	Negaunee	6,472	
Mason	Ludington	9,506	9,506
Mecosta	Big Rapids	6,736	6,736
Montcalm	Greenville	6,668	6,668
Ottawa	Grand Haven	9,536	9,536
Oakland	Clawson	5,196	10,463
	Oak Park	5,267	
Schoolcraft	Manistique	5,086	5,086
St. Joseph	Sturgis	7,786	14,571
	Three Rivers	6,785	
Van Buren	South Haven	5,629	5,629
Wayne	Garden City	9,012	56,456
	Grosse Pointe	6,283	
	Grosse Pointe Farms	9,410	
	Melvindale	9,483	
	Plymouth	6,637	
	Trenton	6,222	
	Wayne	9,409	
Total			268,076

TABLE VI, CONTINUED

C. Cities of 10,000-24,999 People

County	City	Population	County Total
Alpena	Alpena	13,135	13,135
Berrien	Benton Harbor	18,769	42,137
	Niles	13,145	
	St. Joseph	10,223	
Calhoun	Albion	10,406	23,567
	Springfield Place-Lakeview	13,161	
Chippewa	Sault Ste. Marie	17,912	17,912
Delta	Escanaba	15,170	15,170
Gogebic	Ironwood	11,466	11,466
Grand Traverse	Traverse City	16,974	16,974
Ingham	East Lansing	20,325	20,325
Isabella	Mt. Pleasant	11,393	11,393
Lenawee	Adrian	18,393	18,393
Macomb	East Detroit	21,461	74,127
	Mt. Clemens	17,027	
	Roseville	15,816	
	St. Clair Shores	19,823	
Marquette	Marquette	17,202	17,202
Menominee	Menominee	11,151	11,151
Midland	Midland	14,285	14,285
Monroe	Monroe	21,467	21,467
Muskegon	Muskegon Heights City	18,828	18,828
Oakland	Berkley	17,931	51,168
	Birmingham	15,467	
	Hazel Park	17,770	
Ottawa	Holland	15,858	15,858

TABLE VI, CONTINUED

C. (Continued)

County	City	Population	County Total
Shiawassee	Owosso	15,948	15,948
Washtenaw	Willow Run	11,365	29,667
	Ypsilanti	18,302	
Wayne	Allen Park	12,329	108,544
	Ecorse	17,948	
	Grosse Pointe Park	13,075	
	Grosse Pointe Woods	10,381	
	Inkster	16,728	
	Livonia	17,534	
	River Rouge	20,549	
Wexford	Cadillac	10,425	10,425
Total			579,142

D. Cities of 25,000-49,999 People

Calhoun	Battle Creek	48,666	48,666
Muskegon	Muskegon	48,429	48,429
Oakland	Ferndale	29,675	76,573
	Royal Oak	46,898	
St. Clair	Port Huron	35,725	35,725
Washtenaw	Ann Arbor	48,251	48,251
Wayne	Hamtramck	43,355	155,904
	Highland Park	46,393	
	Lincoln Park	29,310	
	Wyandotte	36,846	
Total			413,548

E. Cities of 50,000-99,999 People

Bay	Bay City	52,523	52,523
Ingham	Lansing	92,129	92,129

TABLE VI, CONTINUED

E. (Continued)

County	City	Population	County Total
Jackson	Jackson	51,088	51,088
Kalamazoo	Kalamazoo	57,704	57,704
Oakland	Pontiac	73,681	73,681
Saginaw	Saginaw	92,918	92,918
Wayne	Dearborn	94,994	94,994
Total			515,037
F. Cities of 100,000-249,999 People			
Genesee	Flint	163,143	163,143
Kent	Grand Rapids	176,515	176,515
Total			339,658
G. Cities of 1,000,000 + People			
Wayne	Detroit	1,849,568	1,849,568
Total			1,849,568
H. Suburban Population			
Berrien	South Bend Urban Fringe		527
	Niles Township	527	
Clinton	Lansing Urban Fringe		1,719
	DeWitt Township	1,719	
Eaton	Lansing Urban Fringe		491
	Delta Township	491	
Genesee	Flint Urban Fringe		31,598
	Burton Township	10,516	
	Flint Township	6,705	
	Genesee Township	6,372	
	Grand Blank City	998	
	Grand Blanc Township	529	
	Mount Morris Township	6,478	

TABLE VI, CONTINUED

H. (Continued)

County	Civil Division	Population	County Total
Kalamazoo	Kalamazoo Urban Fringe		25,628
	Comstock Township	2,374	
	Cooper Township	856	
	Kalamazoo Township	19,952	
	Parchment City	1,179	
	Portage Township	1,267	
Kent	Grand Rapids Urban Fringe		43,899
	Alpine Township	647	
	Byron Township	655	
	Gaines Township	828	
	Grand Rapids Township	6,205	
	Grandville City	2,022	
	Paris Township	5,711	
	Plainfield Township	1,484	
	Walker Township	4,599	
	Wyoming Township	21,748	
Ingham	Lansing Urban Fringe		19,388
	Delhi Township	2,331	
	Lansing Township	13,958	
	Meridian Twonship	3,099	
Macomb	Detroit Urban Fringe		43,961
	Clinton Township	3,907	
	Erin Township	1,716	
	Harrison Township	1,729	
	Lake Township	18	
	Warren Township	36,591	
Oakland	Detroit Urban Fringe		56,511
	Bloomfield Township	269	
	Farmington City	2,325	
	Farmington Township	3,379	
	Royal Oak Township	18,496	
	Southfield Township	10,571	
	Tray Township	2,579	

TABLE VI, CONTINUED

H. (Continued)

County	Civil Division	Population	County Total
	Pontiac Urban Fringe		
	Avon Township	1,225	
	Bloomfield Township	163	
	Pontiac Township	3,538	
	Sylvan Lake City	1,165	
	Waterford Township	9,555	
	West Bloomfield Township	3,246	
Muskegon	Muskegon Urban Fringe		17,988
	Fruitport Township	440	
	Muskegon Township	7,988	
	North Muskegon City	2,424	
	Norton Township	5,882	
	Roosevelt Park City	1,254	
Saginaw	Saginaw Urban Fringe		13,021
	Bridgeport Township	432	
	Buena Vista Township	4,429	
	Carrollton Township	3,181	
	Saginaw Township	2,349	
	Spaulding Township	591	
	Thomas Township	1,018	
	Zilwaukee Township	1,021	
Wayne	Detroit Urban Fringe		90,456
	Browntown Township	1,430	
	Dearborn Township	18,796	
	Ecorse Township	8,545	
	Gratiot Township	9,148	
	Grosse Ile Township	3,956	
	Grosse Pointe Shores Village	1,014	
	Riverview Village	1,432	
	Nankin Township	17,360	
	Redlord Township	17,128	
	Romulus Township	3,677	
	Taylor Township	7,970	
Total			345,187

"Populationof Michigan: April 1, 1950" 1950 Census of Population Advance Reports, Series PC-8, No. 21C (Washington: Bureau of the Census, October 7, 1951.)

Rural Farm Population

Method of estimation of 1950 rural farm population. The remaining non-urban population was rural. No figures were available for accurate subdivision of this classification.

The 1950 agricultural census listed the total number of farms for each Michigan county.[9] Because the rural farm population included only those persons living on farms the number of farms in a county gave some indication of the county farm population. The previous census was examined in order to arrive at a figure by which the total number of farms could be multiplied to estimate the farm population for 1950.

In 1940 reports the total farm population for the state was 860,202 and the total number of farms was 187,589. Dividing 860,202 by 187,589 gave a result of 4.59, which was the average number of persons per farm. In 1930 the total number of farm persons was 775,436, and the total number of farms was 169,372. By the same process of division a result of 4.53 was obtained. These two figures were virtually the same, so almost no change in the average number of persons per farm occurred between 1930 and 1940. Assuming then that no great change in this value occurred from 1940 to 1950, an estimate of the total state farm population was made by multiplying 4.59 times the number of farms reported in 1950, which was 155,589. The result of this multiplication was 714,415, which was used to represent an estimate of the 1950 rural farm population.

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9 Preliminary 1950 Census of Agriculture, op. cit.

The use of this state average factor would not be justified for the individual counties because of the considerable fluctuation above and below this value. Table Seven listed the number of farm persons and the number of farms for 1930 and 1940 for each county in Michigan. The average number of farm persons for 1930 ranged from a high of 6.40 for Luce County to a low of 2.80 for Keweenaw. The value in 1940 varied from a high of 5.61 for Clare County to a low of 2.14 for Keweenaw. Comparisons between the values of each of these years for individual counties did not vary much. Most counties changed less than 0.50 from 1930 to 1940. Therefore, use of the value of the average number of persons per farm in 1940 for the individual counties to estimate farm population did not seem unwise.

Part A of Table Eight listed the average number of persons per farm for each county in column b. In column c the total number of farms reported per county was given. An estimate of a county's total farm population for 1950 was made by multiplying the 1940 average number of persons per farm times the 1950 number of farms. As soon as the farm population data for 1950 becomes available they should be used in this county classification system because they would be assuredly accurate and much more easily obtainable.

Rural farm categories. The 1950 Census of Agriculture listed different economic classes of farms. The two main divisions of total farms were commercial farms and other farms. Commercial farms were further sudivided into classes of farms based on farm income reported in 1949. Other farms were subdivided into part-time farms, residential

TABLE VII

AVERAGE NUMBER OF MICHIGAN FARMS PERSONS PER FARM BY COUNTIES (1930 AND 1940 CENSUS)

COUNTY	1930 CENSUS			1940 CENSUS		
	Rural Farm Population*	Number of Farms**	Average Number of Persons per Farm	Rural Farm Population*	Number of Farms**	Average Number of Persons per Farm
Alcona	3,715	789	4.71	3,574	792	4.51
Alger	3,008	511	5.89	2,676	568	4.71
Allegan	21,915	5,300	4.13	23,466	4,775	4.91
Alpena	5,462	1,033	5.29	6,438	1,362	4.73
Antrim	5,281	1,141	4.63	5,663	1,249	4.53
Arenac	5,753	1,202	4.79	6,207	1,359	4.57
Baraga	3,788	713	5.31	3,686	850	4.34
Barry	11,048	2,656	4.16	12,696	3,111	4.08
Bay	15,372	2,901	5.30	16,352	3,190	5.13
Benzie	2,510	616	4.07	3,624	798	4.54
Berrien	24,210	5,390	4.49	25,757	5,324	4.84
Branch	11,494	2,750	4.18	12,104	2,792	4.34
Calhoun	13,099	3,205	4.09	15,697	3,523	4.46
Cass	10,094	2,437	4.14	10,585	2,466	4.29
Charlevoix	4,431	1,029	4.31	4,892	1,124	4.35
Cheboygan	4,564	1,052	4.34	5,417	1,122	4.83
Chippewa	6,629	1,446	4.58	6,585	1,584	4.16
Clare	4,256	893	4.77	5,046	899	5.61
Clinton	15,330	2,964	5.17	14,803	3,141	4.71
Crawford	526	116	4.53	535	101	5.30
Delta	6,487	1,384	4.69	6,509	1,426	4.56
Dickinson	2,281	513	4.45	2,735	623	4.39
Eaton	13,786	3,385	4.07	14,904	3,354	4.44
Emmet	4,737	1,023	4.63	5,425	1,120	4.84
Genesee	17,183	2,907	5.91	24,865	5,281	4.71
Gladwin	5,335	1,107	4.82	6,569	1,296	5.15
Gogebic	3,464	726	4.77	3,996	842	4.75
Grand Traverse	6,004	1,332	4.51	6,985	1,614	4.33
Gratiot	15,354	3,315	4.63	15,827	3,346	4.73

TABLE VII, CONTINUED

COUNTY	1930 CENSUS			1940 CENSUS		
	Rural Farm Population *	Number of Farms**	Average Number of Persons per Farm	Rural Farm Population*	Number of Farms**	Average Number of Persons per Farm
Hillsdale	14,569	3,544	4.11	15,330	3.601	4.26
Houghton	8,315	1,840	4.52	7,651	1,644	4.65
Huron	20,172	4,155	4.85	20,515	4,155	4.94
Ingham	12,383	2,961	4.18	14,688	2,999	4.90
Ionia	12,810	2,833	4.52	13,702	3,041	4.51
Iosco	3,185	632	5.04	3,338	741	4.50
Iron	3,640	801	4.54	3,654	857	4.26
Isabella	12,606	2,507	5.03	14,139	2,619	5.40
Jackson	12,955	2,908	4.45	15,191	3,386	4.49
Kalamazoo	12,771	2,731	4.68	13,936	2,909	4.79
Kalkaska	2,303	490	4.70	3,008	690	4.36
Kent	19,671	4,422	4.45	24,868	5,623	4.42
Keweenaw	286	102	2.80	300	140	2.14
Lake	2,409	551	4.37	2,854	697	4.09
Lapeer	14,856	3,276	4.53	16,028	3,444	4.65
Leelanau	5,152	1,100	4.68	5,551	1,119	4.96
Lenawee	20,146	4,453	4.52	19,390	4,186	4.63
Livingston	9,900	2,122	4.67	10,378	2,236	4.64
Luce	1,139	178	6.40	1,032	189	5.46
Mackinac	2,211	415	5.33	2,448	511	4.79
Macomb	14,895	2,951	5.05	17,868	3,969	4.51
Manistee	5,539	1,172	4.73	5,817	1,338	4.35
Marquette	4,282	1,006	4.26	4,383	1,030	4.26
Mason	7,356	1,637	4.49	7,941	1,853	4.27
Mecosta	8,721	2,063	4.23	9,542	2,144	4.45
Menominee	9,432	1,961	4.81	9,972	2,002	4.98
Midland	8,246	1,784	4.62	9,922	2,113	4.70
Missaukee	5,013	1,072	4.68	5,934	1,214	4.89
Monroe	17,422	3,803	4.58	18,583	4,165	4.46
Montcalm	15,015	3,650	4.11	15,665	3,685	4.25

TABLE VII, CONTINUED

COUNTY	1930 CENSUS			1940 CENSUS		
	Rural Farm Population*	Number of Farms**	Average Number of Persons per Farm	Rural Farm Population*	Number of Farms**	Average Number of Persons per Farm
Montmorency	1,797	397	4.53	2,223	500	4.45
Muskegon	7,652	1,626	4.71	10,179	2,277	4.47
Newaygo	10,147	2,335	4.35	12,682	2,799	4.53
Oakland	12,406	2,405	5.16	19,300	4,036	4.78
Oceana	8,792	2,012	4.37	9,429	2,015	4.68
Ogemaw	4,422	985	4.49	4,859	1,080	4.50
Ontonagon	5,347	1,134	4.72	5,097	1,239	4.11
Osceola	7,689	1,831	4.20	8,146	1,929	4.22
Oscoda	1,210	220	5.50	1,227	247	4.97
Otsego	2,237	440	5.08	2,745	514	5.34
Ottawa	17,657	3,896	4.53	19,432	4,369	4.45
Presque Isle	5,013	921	5.44	5,812	1,105	5.26
Roscommon	762	160	4.76	955	197	4.85
Saginaw	23,764	4,827	4.92	25,700	5,362	4.79
Sanilac	19,795	4,569	4.33	21,125	4,897	4.37
Schoolcraft	1,766	357	4.95	1,812	382	4.74
Shiawassee	14,579	3,063	4.76	15,140	3,246	4.66
St. Clair	17,471	3,627	4.82	19,939	4,533	4.41
St. Joseph	9,482	2,367	4.01	9,913	2,336	4.24
Tuscola	21,042	4,459	4.72	22,067	4,590	4.81
Van Buren	17,195	4,334	3.97	18,322	4,348	4.21
Washtenaw	14,642	3,259	4.49	15,021	3,363	4.47
Wayne	11,132	2,043	5.45	16,093	3,552	4.53
Wexford	4,921	1,149	4.28	5,583	1,336	4.18
Totals	775,436	169,372		860,202	187,589	
Average Number of People per Farm			4.58			4.59

*

"Characteristics of the Population, Michigan," 1940 Census of Population, Second Series, (Washington: United States Government Printing Office, 1942), pp. 77-81

**

"Uses of Land, Principal Crops and Classes of Livestock with Statistics for Counties, Michigan," 1940 Census of Agriculture, First Series (Washington: United States Government Printing Office, 1941), pp. 10-17.

farms, and abnormal farms. Extension has varying responsibility to these groups which were for this reason used to estimate the number of persons in each category for each county.

One such subdivision was commercial farms having an income of twelve hundred dollars or more. So far as the Extension educational program was concerned, this was the most important group. The number of such farms in a county for 1950 was determined by adding the number of farms for each income class above the twelve hundred dollar limit. This number was multiplied by the same factor used to estimate the total farm persons in this class. The number of farms per county in this category was shown in Table Eight, Part A, column e. The estimated population of this class was shown in column f of the same table. Commercial farms were the sum of Class One through Class Five farms.

Class Six farms were the only ones remaining under commercial farms. They reported an income between $250 and $1199 in 1949. These farm incomes indicated a comparable low level of living, implying that a different educational approach would be needed for these farmers. The number of farms in this category and the estimates of their population were listed in columns g and h of Table Eight, Part A.

Other farms constituted the other major classification of farms as given by the 1950 census. Part-time farms were here included, being those farms reporting a 1949 income between $250 and $1,999, or those on which the operator reported more than a hundred days of work off the farm, or on which he reported income from non-farm sources

greater than the income from agricultural products sold in 1949. The number of farms reported for each Michigan county in 1950 appeared in column i of Table Eight, Part B, with column j giving an estimate of the population living on such farms.

Another classification of other farms was residential farms, or those reporting in 1949 a sale of agricultural products of less than $250. The number of farms in this category and the estimates of population living on such farms were listed in columns k and l, respectively, of Table Eight, Part B.

The remaining group of other farms was abnormal farms, which were public and private institutional farms and community projects. There were 142 of these. The number of such farms and their estimates of population were located in columns m and n, respectively, of Table Eight, Part B.

The totals for each class of farms and the estimates of the total population for each class were placed at the end of Table Eight. The estimate of population in each case was determined by the average number of persons per farm in 1940. This procedure rested on the assumption that there was no variation in the average number of persons per farm. This undoubtedly was not entirely true, but no other means of determination was available. As soon as 1950 farm population data are available for each county they should be used.

It was not the aim of this chapter to develop the actual present situations in each county, but the purpose was to develop a means

TABLE VIII

ESTIMATE OF 1950 MICHIGAN RURAL FARM POPULATION BY COUNTIES

A. ESTIMATE OF TOTAL AND COMMERCIAL FARM POPULATIONS

a County	b 1940 Average Number of Persons per Farm	c Total Number of Farms 1950*	d Estimate of Total 1950 Farm Population (d= b X c)	e Number of Commercial Farms over $1200 Income, 1950*	f Estimate of Population on Commercial Farms Having Over $1200 Income (f= b X e)	g Number of Commercial Farms $250-$1199 Income, 1950*	h Estimate of Population Commercial Farms $250-$1199 Income (h= b X g)
Alcona	4.51	825	3,721	384	1,732	153	690
Alger	4.71	429	2.020	204	961	51	240
Allegan	4.91	4,441	21,805	2,792	13,709	308	1,512
Alpena	4.73	1,077	5,095	594	2,810	160	757
Antrim	4.53	1,078	4,883	547	2,478	116	525
Arenac	4.57	1,164	5,319	590	2,696	227	1,037
Baraga	4.34	553	2,401	232	1,007	46	200
Barry	4.08	2,390	9,751	1,414	5,769	215	877
Bay	5.13	2,842	14,580	1,021	9,855	189	970
Benzie	4.54	541	2,455	186	844	69	313
Berrien	4.84	4,774	23,106	2,885	13,963	382	1,849
Branch	4.34	2,404	10,432	1,668	7,239	210	911
Calhoun	4.46	3,059	13,643	1,747	7,792	250	1,115
Cass	4.29	2,269	9,734	1,233	5,290	215	922
Cheboygan	4.83	855	4,130	276	1,333	166	802
Charlevoix	4.35	976	4,246	396	1,723	161	700
Chippewa	4.16	1,154	4,801	529	2,201	199	828
Clare	5.61	777	4,360	429	2,407	134	752
Clinton	4.71	2,706	12,746	1,914	9,015	187	881
Crawford	5.30	66	350	24	127	9	48
Delta	4.56	1,160	5,289	688	3,137	131	597
Dickinson	4.39	483	2,121	258	1,131	77	338
Eaton	4.44	3,107	13,795	2,007	8,911	275	1,221
Emmet	4.84	901	4,361	333	1,612	126	610
Genesee	4.71	3,691	17,385	1,653	7,786	242	1,140
Gladwin	5.15	1,146	5,897	622	3,203	178	917
Gogebic	4.75	434	2,348	178	845	33	157
Grand Traverse	4.33	1,200	5,195	668	2,849	133	576

TABLE VIII, CONTINUED

A. (Continued)

a	b	c	d	e	f	g	h
Gratiot	4.73	2,816	13,319	2,165	10,240	218	1,031
Hillsdale	4.26	3,295	14,037	2,023	8,618	462	1,968
Houghton	4.65	1,228	5,711	689	3,204	130	605
Huron	4.94	3,716	18,358	3,091	15,270	303	1,497
Ingham	4.90	2,531	12,402	1,626	7,967	174	853
Ionia	4.51	2,557	11,531	1,737	7,834	246	1,109
Iosco	4.50	696	3,133	321	1,445	126	567
Isabella	5.40	2,249	12,144	1,576	8,510	216	1,166
Jackson	4.49	2,854	12,814	1,552	6,968	191	858
Kalamazoo	4.79	2,518	12,062	1,354	6,486	159	762
Kalkaska	4.36	480	2,093	177	772	116	506
Kent	4.42	4,302	19,015	2,441	10,789	277	1,224
Keweenaw	2.14	54	116	17	36	0	0
Lake	4.09	434	1,775	169	691	111	454
Lapeer	4.65	3,005	13,974	2,043	9,500	261	1,214
Leelanau	4.96	884	4,385	461	2,287	166	823
Lenawee	4.63	3,772	17,465	2,752	12,742	247	1,144
Livingston	4.64	1,963	9,108	1,179	5,471	207	960
Luce	5.46	158	862	58	317	14	76
Mackinac	4.79	389	1,863	170	814	70	335
Macomb	4.51	3,112	14,036	1,702	7,676	250	1,128
Manistee	4.35	971	4,224	440	1,914	139	605
Marquette	4.26	584	2,489	229	976	69	294
Mason	4.27	1,491	6,367	885	3,779	227	969
Mecosta	4.45	1,672	7,440	962	4,281	284	1,264
Menominee	4.98	1,850	9,212	1,194	5,946	186	926
Midland	4.70	1,737	8,164	759	3,567	168	790
Missaukee	4.89	1,038	5,076	617	3,017	147	719
Monroe	4.46	3,598	16,046	2,079	9,272	235	1,048
Montcalm	4.25	3,061	13,008	1,933	8,215	349	1,483
Montmorency	4.45	385	1,713	165	734	65	289

TABLE VIII, CONTINUED

A. (Continued)

a	b	c	d	e	f	g	h
Muskegon	4.47	1,477	6,602	673	3,008	114	510
Newaygo	4.53	2,156	9,767	1,089	4,933	259	1,173
Oakland	4.78	3,107	14,853	1,288	6,157	252	1,205
Oceana	4.68	1,798	8,415	950	4,446	216	1,011
Ogemaw	4.50	896	4,032	520	2,340	125	563
Ontonagan	4.11	884	3,634	439	1,804	87	358
Osceola	4.22	1,509	6,368	886	3,739	220	928
Oscoda	4.97	264	1,312	145	721	33	164
Otsego	5.34	424	2,264	250	1,335	61	326
Ottawa	4.45	3,665	16,310	2,231	9,928	255	1,135
Presque Isle	5.26	937	4,928	624	3,282	91	479
Roscommon	4.85	116	563	32	155	36	175
Saginaw	4.79	4,496	21,535	2,960	14,178	343	1,643
Sanilac	4.31	4,385	18,900	3,377	14,555	409	1,763
Schoolcraft	4.74	293	1,389	101	479	38	180
Shiawassee	4.66	2,848	13,271	1,935	9,017	220	1,025
St. Clair	4.41	3,631	16,013	2,058	9,076	341	1,504
St. Joseph	4.24	2,084	8,835	1,326	5,622	201	852
Tuscola	4.81	3,911	18,812	2,706	13,016	379	1,823
Van Buren	4.21	3,697	15,564	1,936	8,151	343	1,444
Washtenaw	4.47	2,884	12,891	1,839	8,220	208	930
Wayne	4.53	2,546	11,532	829	3,755	165	747
Wexford	4.18	941	3,934	377	1,576	146	610
Totals		155,589	714,528	91,740	422,286	15,084	69,071
Average Number of Persons per Farm, 1950	4.59						

TABLE VIII, CONTINUED

B. Estimate of Other Farm Population

a County	b 1940 Average Number of Persons per Farm	i Number of Part-time Farms 1950*	j Estimate of Part-time Farm Population (j= b X i)	k Number of Residential* Farms, 1950	l Estimate of Residential Farm Population (l= b X k)	m Number of Abnormal* Farms 1950	n Estimate of Abnormal Farm Population
Alcona	4.51	139	627	144	649	5	23
Alger	4.71	63	297	110	518	1	4
Allegan	4.91	777	3,815	559	2,745	5	24
Alpena	4.73	144	681	179	847	0	0
Antrim	4.53	184	834	231	1,046	0	0
Arenac	4.57	225	1,028	122	558	0	0
Baraga	4.34	161	699	109	473	5	22
Barry	4.08	445	1,816	316	1,289	0	0
Bay	5.13	471	2,416	261	1,339	0	0
Benzie	4.54	108	490	178	808	0	0
Berrien	4.84	887	4,293	613	2,967	7	34
Branch	4.34	304	1,319	221	959	1	4
Calhoun	4.46	422	1,882	639	2,850	1	4
Cass	4.29	406	1,742	415	1,780	0	0
Charlevoix	4.35	150	653	269	1,170	0	0
Cheboygan	4.83	225	1,087	188	908	0	0
Chippewa	4.16	259	1,077	167	695	0	0
Clare	5.61	113	634	101	567	0	0
Clinton	4.71	351	1,653	253	1,192	1	5
Crawford	5.30	15	80	18	95	0	0
Delta	4.56	156	711	185	844	0	0
Dickinson	4.39	99	435	49	215	0	0
Eaton	4.44	475	2,109	350	1,554	0	0
Emmet	4.84	200	968	242	1,171	0	0
Genesee	4.71	744	3,504	1,043	4,913	9	42
Gladwin	5.15	155	798	190	979	0	0
Gogebic	4.75	146	694	137	651	0	0
Grand Traverse	4.33	201	870	207	896	1	4

TABLE VIII, CONTINUED

B. (Continued)

a	b	i	j	k	l	m	n
Gratiot	4.73	257	1,216	176	832	0	0
Hillsdale	4.26	437	1,862	373	1,589	0	0
Houghton	4.65	202	939	207	963	0	0
Huron	4.94	152	751	170	840	0	0
Ingham	4.90	397	1,945	333	1,632	1	5
Ionia	4.51	336	1,515	236	1,064	2	9
Iosco	4.50	107	482	142	639	0	0
Iron	4.26	130	554	221	941	0	0
Isabella	5.40	251	1,355	197	1,064	9	49
Jackson	4.49	512	2,299	598	2,685	1	4
Kalamazoo	4.79	496	2,376	501	2,400	8	38
Kalkaska	4.36	61	266	126	549	0	0
Kent	4.42	709	3,134	871	3,850	4	18
Keweenaw	2.14	12	26	25	54	0	0
Lake	4.09	42	172	112	458	0	0
Lapeer	4.65	465	2,162	235	1,093	1	5
Leelanau	4.96	152	754	105	521	0	0
Lenawee	4.63	436	2,019	332	1,537	5	23
Livingston	4.64	299	1,387	278	1,290	0	0
Luce	5.46	32	175	53	289	1	5
Mackinac	4.79	72	345	77	369	0	0
Macomb	4.51	470	2,120	690	3,112	0	0
Manistee	4.35	185	805	207	900	0	0
Marquette	4.26	83	354	202	861	1	4
Mason	4.27	193	824	176	752	10	43
Mecosta	4.45	203	903	223	992	0	0
Menominee	4.98	183	911	287	1,429	0	0
Midland	4.70	444	2,087	366	1,720	0	0
Missaukee	4.89	137	670	137	670	0	0
Monroe	4.46	626	2,792	657	2,930	1	4
Montcalm	4.25	433	1,840	345	1,466	1	4

TABLE VIII, CONTINUED

B. (Continued)

a	b	i	j	k	l	m	n
Montmorency	4.45	93	414	62	276	0	0
Muskegon	4.47	217	970	473	2,114	0	0
Newaygo	4.53	364	1,649	439	1,989	5	23
Oakland	4.78	629	3,007	925	4,422	13	62
Oceana	4.68	334	1,563	287	1,390	1	5
Ogemaw	4.50	92	414	159	715	0	0
Ontonagan	4.11	126	518	232	954	0	0
Osceola	4.22	267	1,127	136	574	0	0
Oscoda	4.97	67	333	19	94	0	0
Otsego	5.34	44	235	69	368	0	0
Ottawa	4.45	550	2,448	608	2,706	21	93
Presque Isle	5.26	109	573	113	594	0	0
Roscommon	4.85	19	92	29	141	0	0
Saginaw	4.79	661	3,166	532	2,548	0	0
Sanilac	4.31	348	1,500	251	1,082	0	0
Schoolcraft	4.74	48	228	106	502	0	0
Shiawassee	4.66	355	1,654	338	1,575	0	0
St. Clair	4.41	598	2,637	634	2,796	0	0
St. Joseph	4.24	302	1,280	255	1,081	0	0
Tuscola	4.81	410	1,972	415	1,996	1	5
Van Buren	4.21	630	2,652	783	3,296	5	21
Washtenaw	4.47	381	1,703	449	2,007	7	31
Wayne	4.53	626	2,835	918	4,159	8	36
Wexford	4.18	214	895	204	853	0	0
Totals		24,023	110,117	24,600	112,401	142	653
Average Number of Persons per Farm 1950	4.59						

* "Farms, Farm Characteristics, Farm Products," Preliminary 1950 Census of Agriculture, Series AC-50-1 (Washington: Bureau of the Census, September 13, 1951) p.2.

whereby the situations could be measured. Therefore, the estimates were used for purposes of comparison, although use of the census data would simplify the determination of population classes. The total farm population for 1950 could then be divided by the 1950 total number of farms for each county. This value could be multiplied by the number of farms in each category to determine the farm population for each class. This procedure will still be based on the assumption that the average number of persons per farm remained constant among the different classes of farm population.

Rural Non-Farm Population

Rural village population. It was possible to arrive at a definite value for the number of persons in this class for each county because the population of each village was listed in the 1950 census reports. Rural village inhabitants were defined as all persons living in incorporated villages, towns, or cities of less than twenty-five hundred inhabitants, or all persons living in unincorporated places of over one thousand and less than twenty-five hundred inhabitants.

The rural village category was further divided into rurban and non-rurban classes. The word rurban was used because it simply expressed the situation. Rurban village population included only those village persons who were located in areas contiguous to an urban center of twenty-five hundred and less than fifty thousand population. For Extension purposes this group of people is essentially the same as suburban, being in reality within an urban fringe. The difference was found in that rurban groups live outside cities of less than fifty thousand population while suburbanites are located outside cities of fifty thousand or more.

The remaining rural village population was classified as non-rurban, including all persons living in villages of less than twenty-five hundred, as listed by 1950 census reports. The counties having such population were listed in Table Nine, Part A, along with the villages of the particular county, their populations, and the total non-rurban village population.

Part B of Table Nine listed similarly the rurban population.

TABLE IX

1950 MICHIGAN RURAL NON-FARM VILLAGE POPULATION BY COUNTIES*

A. Non Rurban Village Population			
County	Village	Population	County Total
Alcona	Harrisville	485	894
	Lincoln	409	
Alger		0	0
Allegan	Douglas	447	4,385
	Fenville	639	
	Hopkins	531	
	Martin	407	
	Saugatuck	770	
	Wayland	1,591	
Alpena		0	0
Antrim	Bellaire	693	3,643
	Central Lake	692	
	Ells Rapids	839	
	Ellsworth	369	
	Mancelona	1,000	
Arenac	Au Gres	442	2,782
	Omer	321	
	Standish	1,136	
	Sterling	444	
	Turner	193	
	Twining	196	
Baraga	Baraga	942	3,313
	L'Anse	2,376	
Barry	Freeport	452	3,283
	Middleville	1,047	
	Nashville	1,374	
	Woodland	410	
Bay	Auburn	869	2,092
	Pinconning	1,223	
Benzie	Benzonia	407	4,001
	Beulah	458	
	Elberta	597	
	Frankfort	1,853	
	Honor	269	
	Lake Ann	99	
	Thompsonville	313	

TABLE IX, CONTINUED

A. (Continued)

County	Village	Population	County Total
Berrien	Baroda	344	11,989
	Berrien Springs	1,761	
	Bridgeman	977	
	Coloma	1,041	
	Eau Claire	480	
	Galien	610	
	Grand Beach	105	
	Michiana	102	
	New Buffalo	1,565	
	Paw Paw Lake	1,625	
	Stevensville	480	
	Three Oaks	1,572	
	Watervliet	1,327	
Branch	Bronson	2,106	5,545
	Quincy	1,527	
	Sherwood	362	
	Union City (part)	1,550	
Calhoun	Athens	758	3,059
	Burlington	329	
	Homer	1,301	
	Tekonsha	647	
	Union City (part)	14	
Cass	Cassopolis	1,527	3,517
	Edwardsburg	615	
	Marcellus	1,014	
	Vandalia	360	
Charlevoix	Boyne Falls	236	2,015
	East Jordan	1,779	
Cheboygan	Mackinac City (part)	605	923
	Wolverine	318	
Chippewa	De Tour	611	611
Clare	Clare	2,440	4,013
	Farwell	694	
	Harrison	884	

TABLE IX, CONTINUED

A. (Continued)

County	Village	Population	County Total
Clinton	DeWitt	824	5,083
	Eagle	145	
	Elsie	145	
	Fowler	911	
	Hubbardston (part)	675	
	Maple Rapids	645	
	Ovid	1,410	
	Westphalia	459	
Crawford	Grayling	2,066	2,066
Delta	Garden	399	399
Dickinson		0	0
Eaton	Bellevue	1,168	4,971
	Dimondale	774	
	Mulliken	411	
	Olivet	887	
	Potterville	624	
	Sunfield	400	
	Vermontville	707	
Emmet	Alanson	319	2,752
	Harbor Springs	1,626	
	Mackinac City (part)	365	
	Pellston	442	
Genesee	Clio	1,963	7,495
	Davison	454	
	Flushing	2,226	
	Gaines	352	
	Linden	933	
	Montrose	937	
	Otisville	592	
	Otter Lake (part)	38	
Gladwin	Beaverton	794	2,672
	Gladwin	1,878	
Gogebic		0	0
Grand Traverse	Fife Lake	347	771
	Kingsley	424	
Gratiot	Ashley	449	4,194
	Breckenridge	935	
	Ithaca	2,377	
	Perrinton	383	

TABLE IX, CONTINUED

A. (Continued)

County	Village	Population	County Total
Hillsdale	Camden	380	5,304
	Jonesville	1,594	
	Litchfield	852	
	Montgomery	397	
	North Adams	499	
	Reading	1,125	
	Waldron	427	
Houghton	Copper City	336	5,560
	Hubbell	1,690	
	Lake Linden	1,462	
	South Range	712	
	Trimountain-Painesdale	1,360	
Huron	Caseville	482	9,309
	Elkton	854	
	Harbor Beach	2,349	
	Kuide	571	
	Owendale	307	
	Pigeon	1,015	
	Port Austin	724	
	Sebewaing	1,911	
	Ubly	743	
Ingham	Dansville	433	5,725
	Leslie	1,543	
	Stockbridge	1,098	
	Webberville	600	
	Williamston	2,051	
Ionia	Clarksville	339	4,722
	Hubbardston (part)	321	
	Lake Odessa	1,596	
	Lyons	683	
	Muir	466	
	Pewamo	432	
	Saranac	885	
Iosco	East Tawas	2,040	3,933
	Tawas City	1,441	
	Whittemore	452	
Iron	Alpha	378	2,694
	Crystal Falls	2,316	
Isabella	Shepherd	899	899

TABLE IX, CONTINUED

A. (Continued)

County	Village		Population	County Total
Jackson	Brooklyn		862	4,125
	Concrod		730	
	Grass Lake		878	
	Hanover		377	
	Parma		630	
	Springport		598	
Kalamazoo	Augusta		898	9,969
	Austin Lake		2,032	
	Climax		524	
	Galesburg		1,200	
	Portage		1,677	
	Richland		389	
	Schoolcraft		1,078	
	Vicksburg		2,171	
Kalkaska	Kalkaska		1,250	1,250
Kent	Caledonia	61	619	9,505
	Canovia (part)		153	
	Cedar Springs		1,378	
	Kent City		506	
	Lowell		506	
	Rockford		2,191	
	Sand Lake		394	
	Sparta		2,327	
Keweenaw	Ahmeek		360	1,491
	Mohawk-Fulton		1,131	
Lake	Baldwin		835	1,149
	Luther		314	
Lapeer	Almont		1,035	5,991
	Clifford		330	
	Columbiaville		789	
	Dryden		476	
	Imlay City		1,654	
	Metamora		390	
	North Branch		832	
	Otter Lake		485	
Leelanau	Empire		251	1,317
	Northport		582	
	Suttons Bay		484	

TABLE IX, CONTINUED

A. (Coninued)

County	Village	Population	County Total
Lenawee	Addison	438	9,648
	Blissfield	2,365	
	Britton	517	
	Clayton	467	
	Clinton	1,344	
	Deerfield	725	
	Morenci	1,983	
	Onsted	486	
	Manitou Beach-Devils Lake	1,273	
Livingston	Brighton	1,861	4,022
	Fowlerville	1,466	
	Pinckney	695	
Luce		0	0
Mackinac	Mackinac Island	572	572
Macomb	Armada	961	7,555
	Memphis (part)	485	
	New Baltimore (part)	1,806	
	New Haven	1,082	
	Richmond	2,025	
	Utica	1,196	
Manistee	Bear Lake	364	1,400
	Copenish	255	
	Kaleva	346	
	Onekama	435	
Mason	Custer	260	1,857
	Fountain	247	
	Freesoil	208	
	Scottville	1,142	
Marquette	Republic	1,092	1,092
Mecosta	Barryton	445	1,352
	Mecosta	305	
	Morley	413	
	Stanwood	189	
Monominee	Daggett	341	1,642
	Powers	510	
	Stephenson	791	
Midland	Coleman	1,024	1,024
Missaukee	Lake City	709	1,225
	McBain	506	

TABLE IX, CONTINUED

A. (Continued)

County	Village	Population	County Total
Monroe	Carleton	1,039	5,693
	Admore	971	
	Howard City	791	
	Lakeview	975	
	McBride	223	
	Pierson	169	
	Sheridan	535	
	Stanton	1,123	
Montmorency	Hillman	442	442
Muskegon	Casnovia (part)	159	6,233
	Fruitport	638	
	Montague	1,530	
	Ravenna	551	
	Whitehall	1,819	
	Wolf Lake	1,591	
Newaygo	Grant	646	3,338
	Hesperia	330	
	Newaygo	1,385	
	White Cloud	977	
Oakland	Clarkstown	722	13,972
	Commerce	1,075	
	Lake Orion	2,385	
	Lake Orion Heights	1,075	
	Leonard	391	
	Milford	1,924	
	Orchard Lake	696	
	Ortonville	702	
	Oxford	2,305	
	South Lyon	1,312	
	White Lake-Seven Harbors	1,385	
Oceana	Hart	2,172	5,697
	Hesperia (part)	430	
	New Era	247	
	Pentwater	1,097	
	Shelby	1,500	
	Walkerville	233	
Ogemaw	Prescott	281	2,825
	Rose City	445	
	West Branch	2,098	
Ontonagon	Ontonagon	2,307	2,307

TABLE IX, CONTINUED

A. (Continued)

County	Village	Population	County Total
Osceola	Ebart 1,578	1,578	5,409
	Hershey	239	
	LeRoy	243	
	Marion	879	
	Reed City	2,241	
	Tuston	229	
Oscoda		0	0
Otsego	Gaylord	2,271	2,681
	Vanderbilt	410	
Ottawa	Coopersville	1,371	2,472
	Hudsonville	1,101	
Presque Isle	Millersburg	281	1,976
	Onaway	1,421	
	Posen	274	
Roscommon	Roscommon	877	877
Saginaw	Chesaning	2,264	6,083
	Frankenmuth	1,208	
	Merrill	809	
	Oakley	333	
	St. Charles	1,469	
Sanilac	Applegate	244	8,410
	Brown City	878	
	Carsonville	487	
	Croswell	775	
	Deckerville	719	
	Forestville	124	
	Lexington	594	
	Marlette	1,489	
	Melvin	204	
	Minden City	359	
	Peck	471	
	Port Sanilac	247	
	Sandusky	1,819	
Schoolcraft		0	0
Shiawassee	Bancroft	615	4,837
	Byron	439	
	Laingsburg	942	
	Morricy	501	
	New Lothrop	459	
	Perry	1,203	
	Vernon	678	

TABLE IX, CONTINUED

A. (Continued)

County	Village	Population	County Total
St. Clair	Capack	1,104	3,527
	Emmett	230	
	Memphis (part)	315	
	New Baltimore	237	
	Yale	1,641	
St. Joseph	Burr Oak	814	6,164
	Centreville	879	
	Colon	1,000	
	Constantine	1,514	
	Mendon	844	
	White Pigeon	1,113	
Tuscola	Akron	431	6,629
	Cass City	1,762	
	Fairgrove	570	
	Gagetown	401	
	Kingston	371	
	Mayville	888	
	Millington	1,043	
	Reese	632	
	Unionville	531	
Van Buren	Bangor	1,694	10,789
	Bloomingdale	455	
	Breedsville	239	
	Decatur	1,664	
	Gobles	622	
	Hartford	1,838	
	Lawrence	679	
	Lawton	1,206	
	Paw Paw	2,382	
Washtenaw	Dexter	1,307	4,228
	Manchester	1,388	
	Saline	1,533	
Wayne	Belleville	1,722	4,697
	Flat Rock	1,931	
	Rockwood	1,044	
Wexford	Buckley	194	1,790
	Harrietta	152	
	Manton	1,085	
	Mesick	359	
Total			307,878

TABLE IX, CONTINUED

B. Rurban, Village Population

County	Village	Population	County Total
Bay	Winona Beach	1,295	1,295
Berrien	Shoreham	391	391
Calhoun	Level Park-Oak Park	1,304	3,800
	Sunrise Heights	1,094	
	Verona Park	1,342	
Dickinson	East Kingsford-Skidmore	1,279	1,279
Gogebic	Ramsey-Anvil	1,466	1,466
Houghton	Calumet	1,256	1,256
Iron	Mineral Hills	333	4,485
	Stambaugh	1,969	
	Caspian	1,608	
	Gaastra	575	
Jackson	Brookline	1,504	6,867
	Riverside-Hillsdale Gardens	1,012	
	Southland-Woodland	2,425	
	Woodville	1,926	
Manistee	East Lake	376	
Midland	Bullock	1,894	1,894
Monroe	South Monroe	2,275	6,802
	Columbus Grove	1,013	
	Detroit Beech-Woodland	1,966	
	Patterson Gardens	1,548	
Oakland	Bloomfield Hills	1,468	1,591
	Lake Angelus	123	
Ottawa	Beechwood Oaklawn	1,567	4,845
	Ferrysburg	1,454	
	Spring Lake	1,824	
Shiawassee	Corunna	2,358	2,358
St. Clair	South Park	2,391	3,784
	Sporlingville	1,393	
Washtenaw	East Ann Arbor	1,826	2,922
	Packard Homesite	1,096	
Total			45,411

*

"Population of Michigan: April 1, 1950," 1950 Census of Population Advance Reports, Series PC-8, No. 21 (Washington: Bureau of the Census, October 7, 1951), pp. 3-7.

Rural non-farm non-village population. The number in this population class was determined by elimination. The estimate of the total rural farm population and the total rural village population were subtracted from the county's total rural population to obtain an estimate of the rural non-farm non-village population. Included were those persons residing in unincorporated hamlets of less than one thousand persons and those persons residing in the open country who did not report any sale of agricultural products in 1949. Table Ten illustrated the method of determining the number of persons in this category.

TABLE X

ESTIMATE OF 1950 MICHIGAN RURAL NON-FARM NON-VILLAGE POPULATION BY COUNTIES

County a	b Total Rural Population from Table V	c Estimated Total Rural Farm Population	d Rural Non-Farm Village Population (Urban and Non-urban) From Table IX	e Estimate of Rural Non-Farm Non-Village Population (e= b-c-d)
Alcona	5,856	3,721	894	1,241
Alger	5,668	2,020	0	3,648
Allegan	35,935	21,805	4,385	9,745
Alpena	9,054	5,095	0	3,959
Antrim	10,721	4,883	3,643	2,195
Arenac	9,644	5,319	2,782	1,543
Baraga	8,037	2,401	3,318	2,318
Barry	20,087	9,751	3,283	7,053
Bay	32,771	14,580	3,387	14,804
Benzie	8,306	2,455	4,001	1,850
Berrien	57,520	23,106	12,380	22,034
Branch	21,608	10,432	5,545	5,631
Calhoun	38,632	13,643	6,859	18,130
Cass	21,643	9,734	3,517	8,392
Charlevoix	7,752	4,246	2,015	1,491
Cheboygan	8,044	4,130	923	2,991
Chippewa	11,294	4,801	611	5,882
Clare	10,253	4,360	4,018	1,875
Clinton	24,552	12,746	5,083	6,693
Crawford	4,151	350	2,066	1,735
Delta	12,912	5,239	399	7,224
Dickinson	6,869	2,121	1,279	3,469
Eaton	24,911	13,795	4,971	6,145
Emmet	10,066	4,361	2,752	2,953
Genesee	69,106	17,385	7,495	44,226
Gladwin	9,451	5,897	2,672	882
Gogebic	8,734	2,348	1,466	4,920
Grand Traverse	11,624	5,195	771	5,658
Gratiot	21,741	13,319	4,194	4,228
Hillsdale	24,619	14,037	5,304	5,278
Houghton	27,508	5,711	6,316	14,981
Huron	30,176	18,358	9,309	2,509
Ingham	37,585	12,402	5,725	19,458
Ionia	24,503	11,531	4,722	8,250
Iosco	10,906	3,133	3,933	3,840
Iron	13,644	2,893	7,179	3,572
Isabella	17,571	12,144	899	4,528
Jackson	46,600	12,814	10,992	22,794

TABLE X, CONTINUED

a	b	c	d	e
Kalamazoo	43,375	12,062	9,989	21,344
Kalkaska	4,597	2,093	1,250	1,254
Kent	61,475	19,015	9,505	32,955
Keweenaw	2,918	116	1,491	1,311
Lake	5,257	1,775	1,149	2,333
Lapeer	29,651	13,974	5,991	9,686
Leelanau	8,647	4,385	1,317	2,945
Lenawee	39,443	17,465	9,648	12,330
Livingston	22,372	9,108	4,022	9,242
Luce	5,345	862	0	4,483
Mackinac	6,341	1,863	572	3,906
Macomb	56,229	14,036	7,555	34,638
Manistee	9,882	4,224	1,776	3,332
Marquette	15,018	2,489	1,092	11,437
Mason	10,968	6,367	1,857	2,744
Mecosta	12,232	7,440	1,352	3,440
Menominee	14,148	9,212	1,642	3,294
Midland	21,377	8,164	2,918	10,295
Missaukee	7,458	5,076	1,225	1,157
Monroe	53,504	16,046	12,495	24,963
Montcalm	24,345	13,008	5,955	5,382
Montmorency	4,125	1,713	442	1,970
Muskegon	36,300	6,602	6,288	23,410
Newaygo	18,511	9,767	3,338	5,406
Oakland	109,073	14,853	15,563	78,657
Oceana	16,105	8,415	5,679	2,011
Ogemaw	9,345	4,032	2,825	2,488
Ontonagon	10,282	3,634	2,307	4,341
Osceola	13,797	6,368	5,409	2,020
Oscoda	3,134	1,312	0	1,822
Otsego	6,435	2,264	2,681	1,490
Ottawa	42,535	16,310	7,317	18,908
Presque Isle	8,123	4,928	1,976	1,219
Roscommon	5,916	563	877	4,476
Saginaw	47,576	21,535	6,083	19,958
Sanilac	30,837	18,900	8,410	3,527
Schoolcraft	4,062	1,389	0	2,673
Shiawassee	26,825	13,271	7,195	6,359
St. Clair	42,333	16,013	7,311	19,009
St. Joseph	20,500	8,835	6,164	5,501
Tuscola	32,264	18,812	6,629	6,823
Van Buren	33,555	15,564	10,789	7,202
Washtenaw	47,908	12,891	7,150	27,867
Wayne	76,332	11,532	4,697	60,103
Wexford	8,293	3,934	1,790	2,479
Total	1,868,682	714,528	353,289	800,865

Summary

The population classes based on place of residence were established because each represented a separate group of people requiring disproportionate shares of Extension resources within a county. Each category was mutually exclusive because the value of each class was not dependent directly on any other class. The total of all these classes within a county would be the total population of that county. Tables Eleven and Twelve give complete summarization of population numbers of the various classes for the entire state of Michigan based on 1950 census data.

TABLE XI

SUMMARY OF 1950 MICHIGAN URBAN POPULATION*

Category	Number of Cities	Population	Per Cent of Michigan Urban Population	Per Cent of Total Michigan Population
Cities 2500-4999	55	192,868	4.28	3.02
Cities 5000-9999	38	268,076	5.95	4.21
Cities 10,000-24,999	37	579,142	12.86	9.09
Cities 25,000-49,999	10	413,548	9.18	6.49
Cities 50,000-100,000	7	515,037	11.44	8.08
Cities 100,000-249,999	2	339,658	7.54	5.33
Cities 250,000-499,999	0			
Cities 500,000-999,999	0			
Cities over 1,000,000	1	1,849,568	41.08	29.03
Suburban	16	345,187	7.67	5.42
Totals		4,503,084	100.00	70.67

*

"Number of Inhabitants, Michigan," 1950 United States Census of Population, Series P-A 22, Preprint of Volume 1, Chapter 22 (Washington: United States Government Printing Office, 1951), p. 10.

TABLE XII

SUMMARY OF 1950 MICHIGAN RURAL POPULATION

Category	Population	Average Population per County	Per Cent of Michigan Rural Population	Per Cent of Total Michigan Population
Rural Farm Population on Commercial Farms with over $1200 Income	422,286	5,088	22.60	6.63
Rural Farm Population on Commercial Farms with $250-$1199 Income	69,071	832	3.70	1.08
Rural Part-time Farm Population	110,117	1,327	5.89	1.73
Rural Residential Farm Population	112,401	1,354	6.02	1.76
Rural Abnormal Farm Population	653	8	0.03	0.01
Rural Non-farm Non-rurban Village Population	307,873	3,709	16.48	4.83
Rural Non-farm Rurban Village Population	45,411	547	2.43	0.71
Rural Non-farm Non-village Population	800,865	9,649	42.85	12.57
Totals	1,868,682	22,514	100.00	29.32

CHAPTER VI

PROPOSED METHODS FOR ALLOCATING EXTENSION RESOURCES

It was concluded in Chapter Four that the most important measure of the Extension county load is a consideration of the population numbers in the classes having varying importance to Extension. A means for determining the relative sizes of the Extension teaching loads was deemed essential to the proper allocation of funds to the counties. Two main reasons for using population class numbers were that operating funds originate on that basis and that the scope of Extension work is primarily determined by the number of persons to be served. Two methods are proposed in this chapter for allocating the limited Extension resources.

One method is based on the Federal legislation appropriating funds for Extension. This system can readily be justified from a legal point of view. It also involves simple mathematical procedures. No consideration is given to urban population since this class is not presently included in the bases for appropriation.

The other proposed method is based on Extension acts as well as the broader concepts of Extension expressed in recent policy statements.[1] Some consideration is given to urban residents. All major classes are sub-divided.

Either of the two methods would prove useful to Extension administrators faced with the ever-present problem of spreading limited resources among the counties.

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[1] "Joint Committee Report on Extension Programs, Policies, and Goals" (Washington: United States Government Printing Office, 1948).

Method Based on Federal Appropriations

Basis of Federal appropriation to Michigan. The amount of Federal funds appropriated to the Michigan Extension Service in the fiscal year of 1950-1951 was listed on Table Two of Chapter Two. It was seen that 76 per cent of the total amount was based on the total rural farm population of the state. Seventeen per cent of the total funds in that year was based on special needs of the state as determined by the Secretary of Agriculture.

Procedure. Development of this means of allocation rested on the assumption that state Extension funds coming from the Federal government were intended to be used in the manner indicated by the basis of their appropriation. No specification was made as to exact use of funds by the state, so the method of Federal appropriation seemed a likely guide. No consideration was made of the county portion of the total budget because this part was not under direct control of state Extension administration.

The purpose of this system was to determine the amount of Federal and state funds to be allotted to each county based on the Federal allocation system. The 1951-1952 budget of the Michigan Extension Service was used in this procedure. The funds of this budget were:

Federal Funds (all sources)	$ 893,335.00
State Funds (all sources)	1,041,137.00
Total	$1,934,472.00

[2]

[2] The 1951-1952 Michigan Cooperative Extension Budget (on file, Office of the Extension Director, Michigan State College, East Lansing, Michigan).

The object was to find the total amount to which each rural person and each rural farm person was entitled according to the Federal system of allocation. It was recalled that seven per cent of the Federal funds was based on special needs, having nothing to do with population numbers. To include this part to equal one hundred per cent, three per cent was added to the 17 per cent based on rural population, while the remaining four per cent was added to the 76 per cent based on farm population. Therefore, the approximation was made that twenty per cent of the total state and Federal funds was appropriated on the basis of total rural population, and that eighty per cent of the total was appropriated on the basis of rural farm population.

To the nearest dollar, the proportions of the state and Federal funds for these two categories for the year of 1951-1952 would be:

Basis of Appropriation	Per Cent	Amount
Total rural population	20	$ 386,894
Total rural farm population	80	1,547,578
Total State and Federal Funds	100	$1,934,472

According to Table Five of Chapter Five, the total Michigan rural population was 1,868,682, and this group received $386,894 in appropriations. Dividing the number of rural persons into the amount of funds available for them the result was:

$$\$386,894 \div 1,868,682 = \$0.20704$$

This was approximately 21 cents appropriated in the year 1951-1952 from Federal and state sources for each rural person in Michigan. From Table Eight of Chapter Five the estimate of the 1950 rural farm population was

found to be 714,528. Dividing similarly to the previous method the result was:

$$\$1,547,578 \div 714,528 = \$2.16587$$

Approximately $2.17 then was appropriated for each rural farm person of Michigan.

In Table Thirteen these values were multiplied by the corresponding number of persons in each class for every county. Column a contained a list of all Michigan counties. Column b contained the 1950 rural population for each county. Column c was the result of each county's rural population multiplied by $0.20704. Column d was similarly multiplied by $2.16587 which gave the result in column e. For example, Alcona County had 5,856 rural population and 3,721 rural farm population.

$$\$\ 0.02704 \times 5,856 = \$1,212$$

$$2.16587 \times 3,721 = \underline{8,059}$$

$$\text{Total} \qquad \$9,271$$

The $9,271 figure represented the theoretical amount of the state and Federal funds for the year 1951-1952 that should have been available to Alcona County.

The totals for all the administrative units of the Michigan Service were listed in the third column of Table Fourteen. These values were used to rank the 75 units from highest to lowest.

The amounts for each administrative unit represent purely theoretical values. Actually no county received as much as was shown in Table Fourteen because the procedure did not take into account the supporting Extension activities carried on for the counties. Such activities

TABLE XIII

AMOUNT OF 1950-1952 FEDERAL AND STATE FUNDS AVAILABLE TO MICHIGAN COUNTIES DETERMINED BY BASIS OF FEDERAL ALLOCATION OF FUNDS TO MICHIGAN*

a County	b 1950 Rural Population	c Funds Based on 1950 Rural Population ($0.20704 per person)	d Estimate of 1950 Rural Farm Population	e Funds based on 1950 Rural Farm Population ($2.16587 per person)
Alcona	5,856	$ 1,212	3,721	$ 8,059
Alger	5,668	1,174	2,020	4,375
Allegan	35,935	7,440	21,805	47,227
Alpena	9,054	1,875	5,095	11,035
Antrim	10,721	2,220	4,883	10,576
Arenac	9,644	1,997	5,319	11,520
Baraga	8,037	1,664	2,401	5,200
Barry	20,087	4,159	9,751	21,119
Bay	32,771	6,785	14,580	31,578
Benzie	8,306	1,720	2,455	5,317
Berrien	57,520	11,909	23,106	50,045
Branch	21,608	4,474	10,432	22,594
Calhoun	38,632	7,998	13,643	29,549
Cass	21,643	4,481	9,734	21,083
Charlevoix	7,752	1,605	4,246	9,196
Cheboygan	8,044	1,665	4,130	8,945
Chippewa	11,294	2,338	4,801	10,398
Clare	10,253	2,123	4,360	9,443
Clinton	24,522	5,077	12,746	27,606
Crawford	4,151	859	350	758
Delta	12,912	2,673	5,289	11,455
Dickinson	6,869	1,422	2,121	4,594
Eaton	24,911	5,158	13,795	29,878
Emmet	10,066	2,084	4,361	9,445
Genesee	69,106	14,308	17,385	37,654
Gladwin	9,451	1,957	5,897	12,772
Gogebic	8,734	1,808	2,348	5,085
Grand Traverse	11,624	2,407	5,195	11,252
Gratiot	21,741	4,501	13,319	28,847
Hillsdale	24,619	5,097	14,037	30,402
Houghton	27,508	5,695	5,711	12,369
Huron	30,176	6,248	18,358	39,761
Ingham	37,585	7,782	12,402	26,861
Ionia	24,503	5,073	11,531	24,975
Iosco	10,906	2,258	3,133	6,786

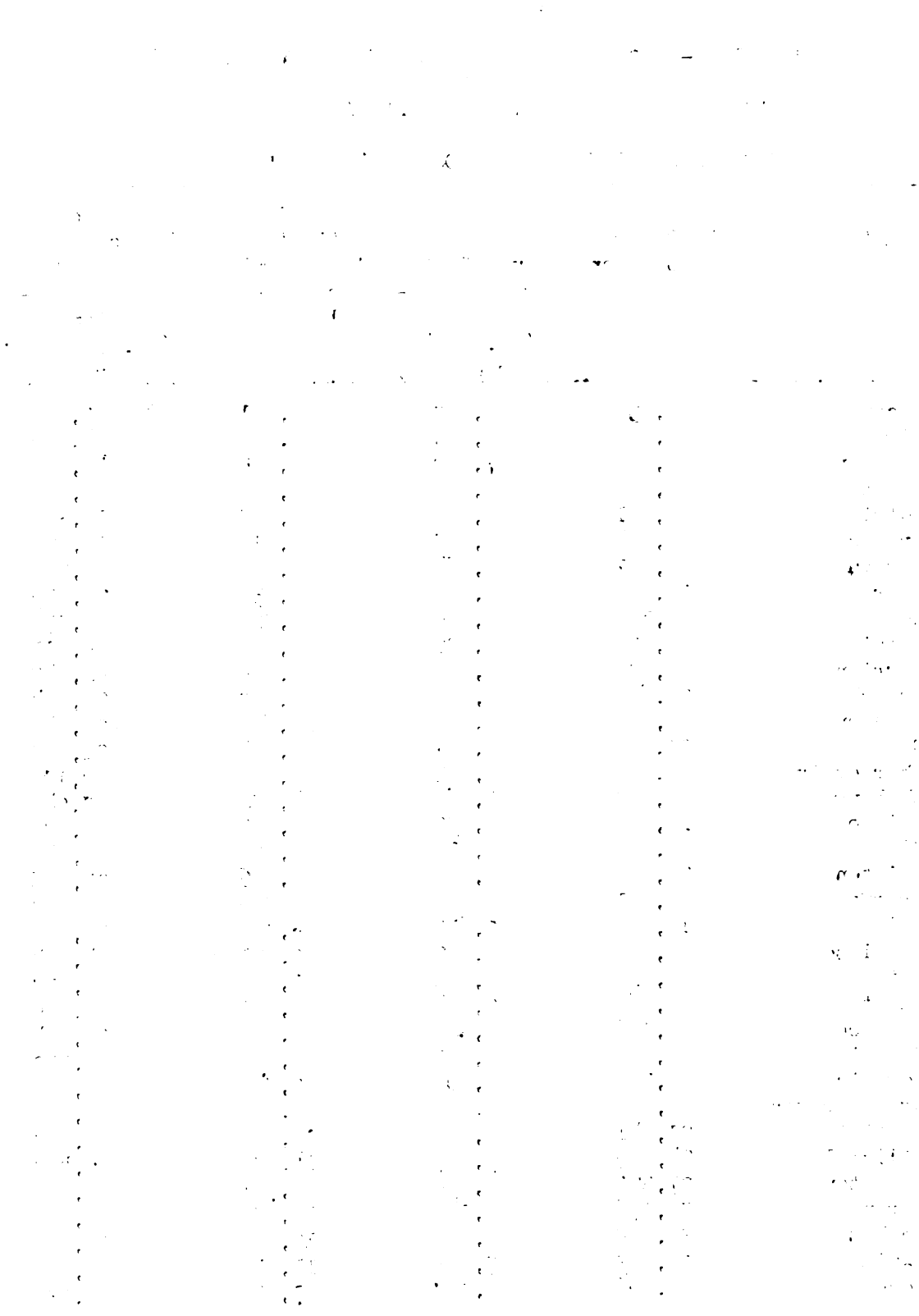

TABLE XIII, CONTINUED

a	b	c	d	e
Iron	13,644	$ 2,825	2,893	$ 6,266
Isabella	17,571	3,638	12,144	26,302
Jackson	46,600	9,648	12,814	27,753
Kalamazoo	43,375	8,980	12,062	26,125
Kalkaska	4,597	952	2,093	4,533
Kent	61,475	12,727	19,015	41,184
Keweenaw	2,918	604	116	251
Lake	5,257	1,088	1,775	3,844
Lapeer	29,651	6,139	13,974	30,266
Leelanau	8,647	1,790	4,385	9,497
Lenawee	39,443	8,166	17,465	37,827
Livingston	22,372	4,632	9,108	19,727
Luce	5,345	1,107	862	1,867
Mackinac	6,341	1,313	1,863	4,035
Macomb	56,229	11,642	14,036	30,400
Manistee	9,882	2,046	4,224	9,149
Marquette	15,018	3,109	2,489	5,391
Mason	10,968	2,271	6,367	13,790
Mecosta	12,232	2,533	7,440	16,114
Menominee	14,148	2,929	9,212	19,952
Midland	21,377	4,426	8,164	17,682
Missaukee	7,458	1,544	5,076	10,994
Monroe	53,504	11,077	16,046	34,754
Montcalm	24,345	5,040	13,008	28,174
Montmorency	4,125	854	1,713	3,710
Muskegon	36,300	7,516	6,602	14,299
Newaygo	18,511	3,833	9,767	21,154
Oakland	109,073	22,582	14,853	32,170
Oceana	16,105	3,334	8,415	18,226
Ogemaw	9,345	1,935	4,032	8,733
Ontonagon	10,282	2,129	3,634	7,871
Osceola	13,797	2,857	6,368	13,792
Oscoda	3,134	649	1,312	2,842
Otsego	6,435	1,332	2,264	4,904
Ottawa	42,535	8,806	16,310	35,325
Presque Isle	8,123	1,682	4,928	10,673
Roscommon	5,916	1,225	563	1,219
Saginaw	47,576	9,850	21,535	46,642
Sanilac	30,837	6,384	18,900	40,935
Schoolcraft	4,062	841	1,389	3,008
Shiawassee	26,825	5,554	13,271	28,743
St. Clair	42,333	8,765	16,013	34,682
St. Joseph	20,500	4,244	8,835	19,135
Tuscola	32,264	6,680	18,812	40,744
Van Buren	33,555	6,947	15,564	33,710

TABLE XIII, CONTINUED

a	b	c	d	e
Washtenaw	47,908	$ 9,919	12,891	$ 27,920
Wayne	76,332	15,804	11,532	24,977
Wexford	8,203	1,698	3,934	8,521
Totals	1,868,682	$ 386,894	714,528	$1,547,571

included state and district administration and maintenance of subject matter specialists at the college or within the districts. This amount might have been subtracted before, but the step would have been difficult. The main reason for omitting the step was that the purpose of this method was to determine the relative amounts of Extension resources due to the administrative units within the state, standing on the assumption that these supplementary Extension activities were made available to each county in a manner proportionate with the monies distributed.

Extension units. In evaluating the present Michigan system of county classification in Chapter Three, it was stated that the four arbitrary classifications of counties were not advisable because more differences in Extension responsibility were seen within any one group than between the last county of one group and the first county of the succeeding group. To overcome the weakness of this system two procedures were developed whereby counties were not grouped arbitrarily, but were grouped according to a graduated scale of the determined theoretical values.

One procedure designated the lowest ranking county as one Extension teaching unit. From Table Fourteen it was observed that Dickinson County provided this base. Dickinson County had $6,016 as its theoretical share of state and Federal funds. This value was divided into the value for every other administrative unit to determine how much more than one unit each had. The values for each administrative unit were shown in the fourth column of Table Fourteen. On this basis Extension units

ranged from one unit for Dickinson at the lowest to 10.3 units for Berrien County at the highest. The total number of Extension units was 321.

Another means for using the Extension unit was division of the total number of professional county workers into the total state and Federal funds. At the time of this study the total number of county workers employed by the Michigan Extension Service was:

Type of Position	Number of Workers
County Agricultural Agents	75
Associate County Agricultural Agents	2
Assistant County Agricultural Agents	10
District Horticultural Agents	4
County Home Demonstration Agents	56
County 4-H Club Agents	54
Total	201[3]

The actual number of county workers being in a state of flux, two hundred agents were considered instead of 201 for facility of calculation. The total amount of Federal and state funds for 1951-1952 was $1,934,472, which gave a result of $9,672 when divided by two hundred. The value represented the amount of Extension funds for each worker. Then $9,672 was divided into the total amount of funds for each county or administrative unit, the result of which gave the number of Extension teaching units per county. The last column of Table Fourteen depicted these results.

The latter means of determining teaching unit appeared to have more merit than the former means. The total number of units in the latter

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3 Personnel List of the Michigan Cooperative Extension Service (on file, Office of the Extension Director, Michigan State College, East Lansing, Michigan).

TABLE XIV

RANKINGS AND EXTENSION UNITS OF MICHIGAN EXTENSION ADMINISTRATIVE UNITS DETERMINED BY BASIS OF ALLOCATION OF FUNDS TO MICHIGAN

Rank	Administrative Unit	Total 1951-1952 Federal and State Funds Available to Each Michigan Administrative Unit. Sum of Columns c and e of Table XIII	Extension Units Using Low Administrative Unit as Base ($6016)	Extension Units Using Average ($9672) Amount of Funds Available for Each Professional Worker
1	Berrien	$ 61,954	10.3	6.5
2	Saginaw	56,492	9.4	5.9
3	Oakland	54,752	9.1	5.7
4	Allegan	54,667	9.1	5.7
5	Kent	53,911	8.9	5.6
6	Genesee	51,962	8.6	5.4
7	Tuscola	47,424	7.9	5.0
8	Sanilac	47,319	7.9	4.9
9	Huron	46,009	7.6	4.8
10	Lenawee	45,993	7.6	4.8
11	Monroe	45,831	7.6	4.8
12	Ottawa	44,131	7.3	4.6
13	St. Clair	43,447	7.2	4.5
14	Macomb	42,042	7.0	4.4
15	Wayne	40,781	6.8	4.3
16	Van Buren	40,657	6.7	4.2
17	Bay	38,363	6.4	4.0
18	Washtenaw	37,839	6.3	4.0
19	Calhoun	37,547	6.2	3.9
20	Jackson	37,401	6.2	3.9
21	Lapeer	36,405	6.0	3.8
22	Hillsdale	35,499	5.9	3.7
23	Kalamazoo	35,105	5.8	3.7
24	Eaton	35,036	5.8	3.7
25	Ingham	34,643	5.8	3.6
26	Shiawassee	34,297	5.7	3.6
27	Gratiot	33,348	5.5	3.5
28	Montcalm	33,214	5.5	3.5
29	Clinton	32,683	5.4	3.4
30	Ionia	30,048	5.0	3.1
31	Isabella	29,940	5.0	3.1
32	Branch	27,068	4.5	2.8
33	Cass	25,564	4.2	2.7
34	Barry	25,278	4.2	2.6
35	Newaygo	24,987	4.1	2.6
36	Livingston	24,359	4.0	2.5

TABLE XIV, CONTINUED

Rank	Administrative Unit	Total 1951-1952 Federal and State Funds Available to Each Michigan Administrative Unit. Sum of Columns c and e of Table XIII	Extension Units Using Low Administrative Unit as Base ($6016)	Extension Units Using Average ($9672) Amount of Funds Available for Each Professional Worker
37	St. Joseph	$ 23,379	3.9	2.4
38	Menominee	22,881	3.8	2.4
39	Midland	22,108	3.7	2.3
40	Muskegon	21,815	3.6	2.3
41	Oceana	21,560	3.6	2.3
42	Osceola-½ Lake	19,115	3.2	2.0
43	Houghton-Keweenaw	18,919	3.1	2.0
44	Mecosta	18,647	3.1	1.9
45	Mason-½ Lake	18,527	3.1	1.9
46	Missaukee-Roscommon	14,982	2.5	1.6
47	Gladwin	14,729	2.4	1.5
48	Delta	14,128	2.3	1.5
49	Grand Traverse	13,659	2.3	1.4
50	Arenac	13,517	2.2	1.4
51	Alpena	12,910	2.1	1.3
52	Antrim	12,796	2.1	1.3
53	Alcona-Oscoda	12,762	2.1	1.3
54	Chippewa	12,736	2.1	1.3
55	Presque Isle	12,355	2.1	1.3
56	Clare	11,566	1.9	1.2
57	Emmet	11,529	1.9	1.2
58	Leelanau	11,287	1.9	1.2
59	Manistee	11,195	1.9	1.2
60	Charlevoix	10,801	1.8	1.1
61	Montmorency-Otsego	10,800	1.8	1.1
62	Ogemaw	10,668	1.8	1.1
63	Cheboygan	10,610	1.8	1.1
64	Wexford	10,219	1.7	1.1
65	Ontonagon	10,000	1.7	1.0
66	Alger-Schoolcraft	9,398	1.6	1.0
67	Iron	9,091	1.5	.9
68	Iosco	9,044	1.5	.9
69	Marquette	8,500	1.4	.9
70	Luce-Mackinac	8,322	1.4	.9
71	Crawford-Kalkaska	7,102	1.2	.7
72	Benzie	7,037	1.2	.7
73	Gogebic	6,893	1.1	.7
74	Baraga	6,864	1.1	.7
75	Dickinson	6,016	1.0	.6
	Total	$1,934,463	321.0	201.5

instance was 201.5, or approximately the same as the number of county workers. This method could be used in allocating workers to the counties. With units expressed to the tenth, the following number of workers could be assigned in that manner:

Number of County Workers	Extension Units
7	6.5 to 7.4
6	5.5 to 6.4
5	4.5 to 5.4
4	3.5 to 4.4
3	2.5 to 3.4
2	1.5 to 2.4
1	0.5 to 1.4

This would be the only feasible method of assigning workers to the counties, unless, in case of fractions, one agent divided his time between two or more counties or administrative units.

This way of determining Extension units has another advantage. If funds became available which permitted an increase, for example, of fifty workers to the county staff, the total state and Federal budget could be divided by 250 instead of 200 to determine the amount of money constituting an Extension teaching unit. For this example the result would be $7,738 instead of $9,672 as was true for two hundred workers. This value could be divided into the theoretical amount of Extension funds for each county to determine the number of Extension teaching units. The same procedure would be possible if circumstances forced a reduction in the county staff.

Method Based on Weighted Population Classes

Justification for using weighted population classes. Four Criteria were established in Chapter Four for determining factors to be utilized in measuring the teaching load of a county. It was concluded also that the best means of measuring the Extension teaching load within a county would be by the employment of population classes and their weights, signifying their relative importance to Extension responsibility. Three general groups of population based on place of residence were considered, these being urban, rural farm, and rural non-farm people.

Justification for using urban population. It has been cited that 76 per cent of the funds coming to Michigan from the Federal Treasury was based on the state's rural farm population. There was no appropriation specifically based on urban numbers from Federal or state sources. For this reason the first section of this chapter did not consider urban people, but it was thought wise to also develop a system which considered them.

The justification for considering the urban factor was based on four items. First, it was noted that urban residents are taxpayers contributing to the support of Extension. Second, the broad wording of the Smith-Lever Act could be interpreted to mean that service is owed to everyone. Third, funds supplied by the state of Michigan have been more than the minimum amount required to obtain Federal funds. Fourth, an urban area in a county adds to its teaching load.

It was indicated by Table Five of Chapter Five that the urban population of Michigan in 1950 was approximately 71 per cent of the state total, while the rural population constituted only 29 per cent of the

total. By confining Extension services to rural people, the majority of the people would be paying for service to a minority, though undoubtedly this could be found for many government agencies. But it would seem that all persons desiring the services of public supported agencies, such as the Extension Service, should have that service granted. Evidence has been found that urban people manifested an interest in the educational service offered by the Extension Service.[4] It would be difficult for a public agency in a democratic society to deny service to people on the grounds that they happened to live in an urban area.

The charter of the enabling legislation, the Smith-Lever Act, for Extension reads "that in order to aid in diffusing among the people of the United States useful and practical information on subjects relating to agriculture and home economics . . .",[5] which would surely justify work with urban people.

Most urban people would probably have little need for agricultural information as compared with their need for home economics information because homes have similar problems regardless of place of residence. Concerning home economics in Extension, Kelsey and Hearne stated:

> While home economics as taught by the Extension Service was directed originally to the rural population, there is now a growing understanding of the enormous opportunities, and need for work among homemakers of the cities and suburbs, where the quality and quantity of the diet of consumers directly affect the lives of multitudes of citizens as well as the markets for farm produce.[6]

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[4] L. M. Busch and H. E. Smith, "A Study of Rural-Urban Fringe Residents of Fort Wayne, Allen County, Indiana," Extension Studies Circular 11 (Lafayette, Indiana: Agricultural Extension Service, Purdue University, June 1951), p. 2.

[5] Lincoln D. Kelsey and Cannon C. Hearne, Cooperative Extension Work, (Ithaca, New York: Comstock Publishing Company, 1949), p. 397.

[6] Ibid., p. 8.

In Chapter Two it was demonstrated that the state of Michigan contributed 41 per cent to its total Extension budget, while the Federal government contributed 24 per cent requiring offset from state funds. The state then contributed almost twice the amount necessary to receive Federal funds. The state has made no specification as to the use of these funds, but it might be inferred that the amount above the minimum required for offset could have been intended for some urban activities.

It could be argued that even though an urban area was restricted from Extension services, its presence within the county would indirectly add to the work of the Extension program. An agent's office would usually be in an urban area, removed from the rural population. The larger the city, the more true this would be. A larger number of organizations would make demands on an agent's time than would do so in strictly rural areas. In addition the urban and urban fringe residents themselves would surely make requests of the agent, as they have done in the past. So the argument for considering urban people was further supplemented.

Distribution of weights. The weighting employed by this system of measuring the Extension teaching load considered a total weighting of all population classes as one hundred per cent. The total per cent was divided among the three main classes of population so that eight per cent of the weight was assigned to the urban population, 17 per cent to rural, and 75 per cent to the rural farm population. Assignment of weights was based in part on the method of Federal apportionment of funds to the state. The 75 per cent weight given to the rural farm population corresponded closely with the 76 per cent of the Federal funds which was

based on rural farm population. Similarly the 17 per cent weight assigned to the rural non-farm population corresponded with the 17 per cent of Federal funds based on rural population. The remaining eight per cent was assigned to the total urban population of Michigan to give this factor some consideration in the total weighting scheme.

Differentiation of weights within major population classes. A panel of Extension administrators helped to develop the distribution of weights for the major population classes and for the sub-classes. Their opinions were based on experience and observation as Extension administrators.

The differentiation of weights for all sub-classes were made on the assumption that the important group of the Extension clientele was the full-time commercial farm population because they seemed to have the greatest need and use for information available from the Extension Service, especially for agricultural subjects. While their home economics need might not be greater than that of other classes, it was obviously the desire of lawmakers that the group be served first, judging from the method of Federal appropriation. Therefore, this class received the heaviest weighting.

The remaining classes were correspondingly given lighter weights. The lightest weighting was given to the large metropolitan population who seemed to have the least need for Extension information.

Distribution of weights within the rural farm population. The rural farm population was defined in Chapter Five to include all rural people living on farms reporting the sale of agricultural products in 1949. An

estimate of the 1950 Michigan rural farm population was given, and the class was further divided into four categories. These were: rural farm people living on farms reporting sale of $1,200 or more in agricultural products for 1949, rural farm people living on farms reporting $250 to $1,199 sale of agicultural products for that year, rural farm people living on part-time farms, and rural farm people living on residential farms.

Out of the total of 75 per cent weight assigned to the total rural farm population, people living on commercial farms selling over $1,200 were given a 25 per cent weighting. Another 25 per cent weight was assigned to commercial farms reporting a sale of agricultural products between $250 and $1,199. At one time it was supposed that the lower income group had some outside income, but the agricultural census definition indicates that persons in this group had less income from other sources than they did from the sale of agricultural products and that the operator had worked less than a hundred days off the farm.[7] It was judged that this group must have a comparable need for Extension assistance. Although equal weight was given, this low income group was kept separate from the other commercial farm group because knowledge of its numbers within a county would be helpful, as the assistance required might differ in nature from that needed by a higher income group.

The third category of farm population was the group in which the farm operator reported an income between $250 and $1,199 and reported

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7 "Farms, Farm Characteristics, Farm Products," Preliminary 1950 Census of Agriculture, Series AC 50-1 (Washington: Bureau of the Census, September 13, 1951).

other income in excess of the value of farm products sold, or reported more than one hundred days of work off the farm.[8] This group was somewhat more removed from the full-time farm people and consequently less in need of Extension information, so it was assigned a weight of 15 per cent.

Out of the total 75 per cent weight given to the rural farm population, ten per cent remained after the three preceding assignments. This was assigned to the residential rural farm population. According to the definition given in Chapter Five, this group was comprised of those farm people living on farms reporting less than $250 income from the sale of agricultural products in 1949. Their need for Extension services was considered to be the smallest, and a lighter weighting was therefore assigned.

Distribution of weights within the non-farm population. All rural people not living on farms were placed in this major class, which included three sub-groups: rurban, village, and non-village. The 17 per cent weight given to this major class was divided so that eight per cent weighting was assigned to the rural non-village inhabitants, seven per cent to the rural non-rurban village inhabitants, and two per cent to the rurban inhabitants. The heaviest weighting was assigned to the non-village group because they resided in the open country, which presumably would give them some interest in agriculture, but not as great

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[8] Loc. cit.

an interest as would be manifested by the residential farm people. The village non-rurban population was weighted slightly less because it was felt that the agricultural interests might be fewer. The rurban group, as defined in Chapter Five, included all inhabitants living in villages contiguous to cities of twenty-five hundred to fifty thousand population. It was felt that this group would be much more urbanized than either of the other groups in this major class; therefore, an even lighter weighting was given.

Distribution of weights within the urban population. The eight per cent weight allotted to urban population was distributed as follows:

Urban Population Category	Per Cent Weight
Cities of 2,500 to 4,999	2.2
Cities of 5,000 to 9,999	1.0
Cities of 10,000 to 24,999	0.7
Cities of 25,000 to 49,999	0.6
Cities of 50,000 to 99,999	0.5
Cities of 100,000 to 249,999	0.4
Cities of 250,000 to 499,999	0.3
Cities of 500,000 to 999,999	0.2
Cities of 1,000,000 or more	0.1
Suburban	2.0
Total	8.0

The heaviest weighting in this major class was assigned to cities having 2,500 to 4,999 population because these small urban areas were frequently located close to rural activity, often lacking much industry and

depending on rural support of economic enterprises. These small towns have been much used by county workers as centers of organized rural activity. They also might have more small livestock and horticultural interests than the crowded larger towns.

The suburban group was weighted next heavily. The two per cent weighting was the same as that assigned to the rural non-farm non-village group because their need for Extension was thought to be similar. These urban fringe residents, although under the influence of the large cities they surround, were considered to have larger tracts of land and to desire Extension assistance with agricultural and home problems.[9]

The remaining city categories based on size were weighted lighter as the size of the city increased. The decreasing weights were used because it seemed that the value of Extension assistance decreased as the population rose.

Procedure. The final weightings for all the population classes were listed in columns c of Tables Fifteen, Sixteen, and Seventeen. The weightings were listed in decimal form instead of per cent. The weights could not be multiplied directly by the corresponding population numbers of each class for the county or state, as would have been feasible had the population been exactly the same for each class. The assigned percentage weightings being based in part on the method of Federal appropriation, care was taken that these percentages should not exceed the state total.

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9 Busch and Smith, op. cit., p. 2.

The entire weighting scheme was reduced to a score system, thereby effecting clarity and simplicity. In order to deal with smaller numbers the total state population was divided by one hundred:

$$6,371,766 \div 100 = 63,718$$

The 63,718 value was considered to be the total number of points for all population classes in all the counties. A total number of points was allotted to each major category of population by multiplying the weight value of the class times the 63,718 points. The results were:

Major Population Class	Weight	Score
Urban population	8 per cent	5,098
Rural farm population	75 per cent	47,788
Rural non-farm population	17 per cent	10,832
Total population	100 per cent	63,718

The scores were calculated for each major class to be consistent with the assigned weight values.

The manner of adjustment for these figures was illustrated in Table Fifteen. Column a listed the urban population, Column b listed the corresponding state totals, column c gave the assigned weights, and column d contained the raw products of column b multiplied by column c, which were the unadjusted scores for each value. The total for this column was 26,147, which was divided into the 5,098 score, giving the quotient of .195, termed the adjustment factor. The adjustment factor was multiplied times each weight value, as shown in column e of Table Fifteen. These adjusted weights were multiplied by the population of

each sub-class to give the total number of points allotted it, shown in column f. By dividing the raw values of column b by the raw values of column f, the number of persons in the class making one point was determined. These final values were listed in column g of Table Fifteen.

The same procedure was used for scoring the rural farm and the rural non-farm populations. Rural farm results were listed in Table Sixteen, and rural non-farm results were listed in Table Seventeen.

The necessity for adjusting the weight values was demonstrated. If the weights had not been adjusted, the total number of points would have been the totals of columns d in all three tables. The per cent of the total score for each major class would have been:

Major Population Class	Unadjusted Score	Unadjusted Percentage	Adjusted Percentage
Urban	26,147	9.9	8.0
Rural farm	150,661	57.2	75.0
Rural non-farm	86,528	32.9	17.0
	263,337	100.0	100.0

Had the unadjusted weightings been used, the score would have been inconsistent with the original assigned weightings.

Individual administrative scores. The adjusted weighting for each sub-class of population was multiplied by the corresponding number of persons in the class for each county or administrative unit. The score for each class was determined, and these were totaled to give the final score for each county, as demonstrated in Table Eighteen. The

TABLE XV

MICHIGAN URBAN POPULATION CLASSES AND WEIGHTINGS

Urban Population Class	1950 Population	Weight Factor	Value of Weighted Population d = b X c	Corrected Weight Factor e= c X 0.195	Value of Corrected Weighted Population f= e X b	Number of People per One Point Value g= b ÷ f
a	b	c	d	e	f	g
Cities 2,500-4,999	192,868	.022	4,243	.004290	827	233
Cities 5,000-9,999	268,076	.010	2,681	.001950	523	513
Cities 10,000-24,999	579,142	.007	4,054	.001365	791	732
Cities25,000-49,999	413,548	.006	2,481	.001170	484	854
Cities 50,000-99,999	515,037	.005	2,575	.000975	502	1,026
Cities 100,000-249,999	339,658	.004	1,359	.000780	265	1,281
Cities 250,000-499,999	0	.003	0	.000585	0	0
Cities 500,000-999,999	0	.002	0	.000390	0	0
Cities 1,000,000 and over	1,849,568	.001	1,850	.000195	361	5,123
Suburban	345,187	.020	6,904	.003900	1,345	256
Totals	4,503,084	.080	26,147		5,098	

.01 X 6,371,766 = 63,718 Total points in rating scheme
.08 X 63,717.66 = 5,098 points allotted to urban population
5098 ÷ 26,147 = .195 correction factor for urban weights

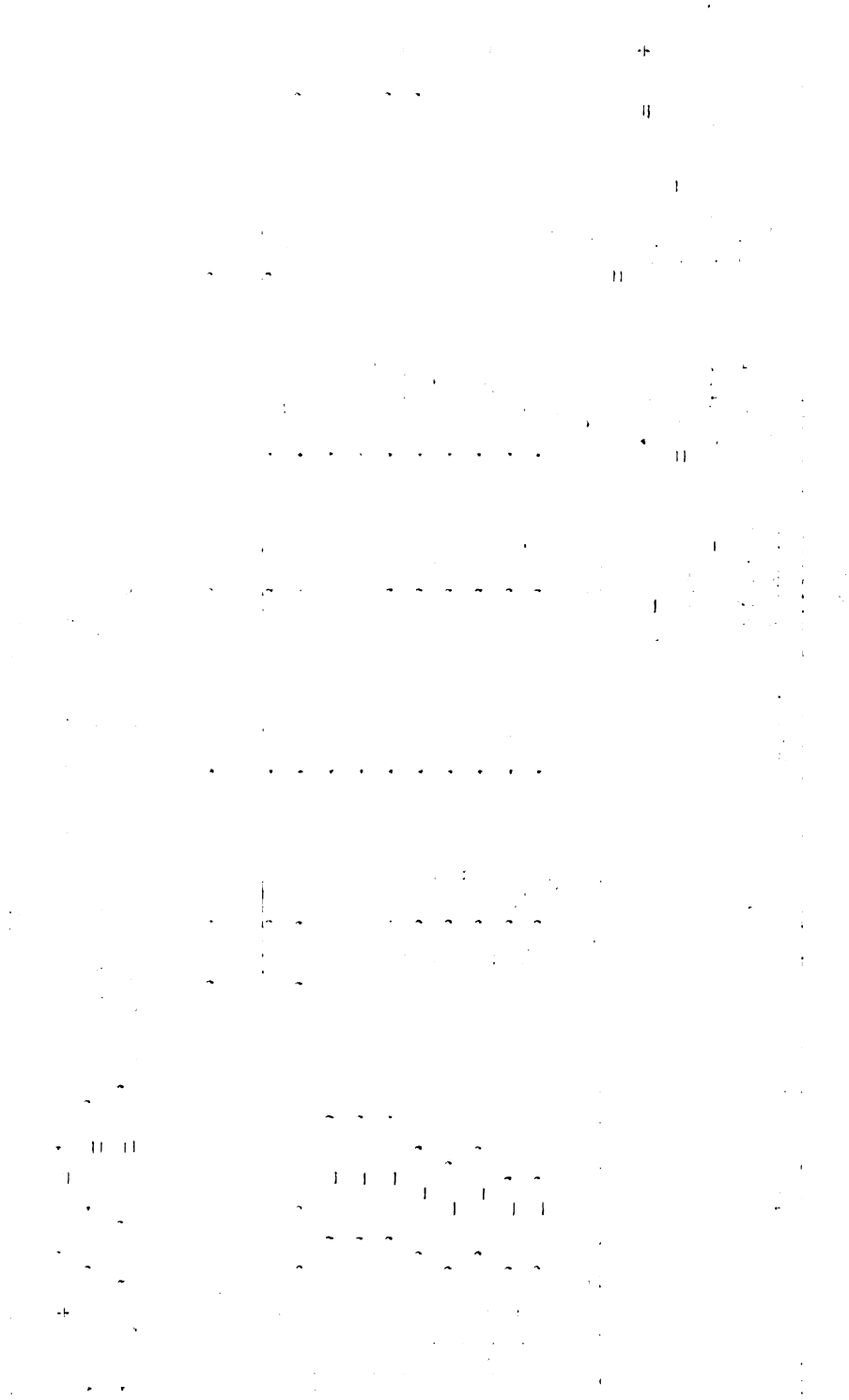

TABLE XVI

MICHIGAN RURAL FARM POPULATION CLASSES AND WEIGHTINGS

Rural Farm Population Classes	1950 Estimated Population	Weight Factor	Value of Weighted Population d=b X c	Corrected Weight Factor e= c X .3172	Value of Corrected Weighted Population f= e X b	Number of People per One Point Value g = b ÷ f
a	b	c	d	e	f	g
Population of Farms Reporting $1200 or more income in 1949	422,286	.25	105,571	.07930	33,487	13
Population of Farms Reporting $250 to $1199 income in 1949	69,071	.25	17,268	.07930	5,477	13
Population of Part-time Farms	110,117	.15	16,517	.04758	5,238	21
Population of Resident and Abnormal Farms	113,054	.10	11,305	.03172	3,586	32
Totals	714,528	.75	150,661		47,788	

.01 X 6,371,766 = 63,718 Total points in rating scheme
.75 X 63,718 = 47,788 points allotted to rural farm population
47,788 ÷ 150,661 = .3172 correction factor for rural farm weights

TABLE XVII

MICHIGAN RURAL NON-FARM POPULATION CLASSES AND WEIGHTINGS

Rural Non-farm Population Class	1950 Population	Weight Factor	Value of Weighted Population d = b X c	Corrected Weight Factor e = c X .1252	Value of Corrected Weighted Population f = e X b	Number of People per One Point Value g = b ÷ f
a	b	c	d	e	f	g
Rurban Village	45,411	.02	908	.002504	114	398
Non-Rurban Village	307,878	.07	21,551	.008764	2,697	114
Non-Village (Estimated)	800,865	.08	64,069	.010016	8,021	100
Totals	1,154,154	.17	86,528		10,832	

.01 X 6,371,766 = 63,718 Total points in rating scheme
.17 X 63,718 = 10,832 points allotted to rural non-farm weights
10,832 ÷ 86,528 = .1252 correction factor for rural non-farm weights

population categories for the counties were listed in column a, with the number of persons in each category listed in column b. Column c gave the adjusted weightings, and column d contained the score, with totals being given.

To determine the score for each county this procedure was used. Final county scores were shown in Table Nineteen. It wasnoted that the final county scores totaled 63,721, which was three more than the 63,718 originally established. Variance probably resulted from the rounding of all scores to whole numbers.

Extension units. It was cited in this chapter that the total number of county Extension workers was approximately two hundred. The total score for the state, 63,721, was divided by two hundred to find the value of the number of points for an Extension unit. The quotient of this division was 318.61, which was considered to be the value in points equaling one Extension unit. Each administrative unit's score was next divided by 318.61 to obtain the number of Extension units, and the results were listed in the last column of Table Nineteen. Using this system the Extension units ranged from a high of 7.9 for Wayne County to a low of 0.6 for Benzie County.

The number of workers could be assigned according to units in the following manner, expressed in tenths:

Extension Units	Number of County Workers
7.5 to 8.4	8
6.5 to 7.4	7
5.5 to 6.4	6
4.5 to 5.4	5
3.5 to 4.4	4
2.5 to 3.4	3
1.5 to 2.4	2
0.5 to 1.4	1

By this method at least one worker would be allotted to an administrative unit with as many as eight allotted to the highest scoring counties.

TABLE XVIII

EXAMPLE OF SCORING PROCEDURE FOR COUNTIES

(INGHAM COUNTY)

Population Class	1950 Population	Corrected Weight Factor	Score d = b X c
a	b	c	d
Cities 2,500-4,999	3,514	.004290	15
Cities 5,000-9,999	0	.001950	0
Cities 10,000-24,999	20,325	.001365	28
Cities 25,000-49,999	0	.001170	0
Cities 50,000-99,999	92,129	.000975	90
Cities 100,000-249,999	0	.000780	0
Cities 250,000-499,999	0	.000585	0
Cities 500,000-999,999	0	.000390	0
Cities 1,000,000 and over	0	.000195	0
Suburban	19,388	.003900	76
Rural Farm ($1200 +)	7,967	.079300	632
Rural Farm ($250-$1,119)	853	.079300	68
Rural Farm (Part-time)	1,945	.047580	93
Rural Farm (residential and abnormal)	1,637	.031720	52
Rural Non-farm Rurban Village	0	.025040	0
Rural Non-farm Non-rurban Village	5,725	.008764	50
Rural Non-farm Non-village	19,458	.010016	195
Totals	172,941		1,299

TABLE XIX

RATINGS AND EXTENSION UNITS OF MICHIGAN ADMINISTRATIVE UNITS DETERMINED BY BASIS OF WEIGHTED POPULATION CLASSES

Rank	Administrative Unit	Score	Extension Units 318.61 points = 1 unit
1	Wayne	2,527	7.9
2	Oakland	2,335	7.3
3	Berrien	1,980	6.2
4	Kent	1,959	6.1
5	Saginaw	1,881	5.9
6	Genesee	1,821	5.7
7	Allegan	1,663	5.2
8	Macomb	1,611	5.1
9	Huron	1,513	4.7
10	Lenawee	1,513	4.7
11	Sanilac	1,508	4.7
12	Tuscola	1,486	4.7
13	Monroe	1,393	4.4
14	St. Clair	1,383	4.3
15	Ottawa	1,371	4.3
16	Washtenaw	1,329	4.2
17	Ingham	1,299	4.1
18	Bay	1,250	3.9
19	Calhoun	1,224	3.8
20	Kalamazoo	1,221	3.8
21	Jackson	1,190	3.7
22	Van Buren	1,170	3.7
23	Lapeer	1,149	3.6
24	Eaton	1,106	3.5
25	Hillsdale	1,091	3.4
26	Gratiot	1,087	3.4
27	Shiawassee	1,073	3.4
28	Clinton	1,042	3.3
29	Montcalm	1,023	3.2
30	Ionia	983	3.1
31	Isabella	932	2.9
32	Branch	862	2.7
33	Muskegon	834	2.6
34	Barry	766	2.4
35	Livingston	764	2.4
36	Cass	754	2.4
37	St. Joseph	746	2.3
38	Newaygo	722	2.3
39	Menominee	695	2.2
40	Houghton-Keweenaw	652	2.0
41	Midland	636	2.0
42	Oceana	621	1.9

TABLE XIX, CONTINUED

Rank	Administrative Unit	Score	Extension Units 318.61 points = 1 unit
43	Osceola-½ Lake	584	1.8
44	Mason-½ Lake	576	1.8
45	Mecosta	572	1.8
46	Delta	474	1.5
47	Missaukee-Roscommon	463	1.3
48	Grand Traverse	429	1.3
49	Gladwin	428	1.3
50	Arenac	402	1.3
51	Chippewa	402	1.3
52	Alpena	400	1.3
53	Presque Isle	392	1.2
54	Alcona-Oscoda	370	1.2
55	Antrim	366	1.1
56	Clare	353	1.1
57	Leelanau	340	1.1
58	Manistee	336	1.1
59	Montmorency-Otsego	327	1.0
60	Emmet	326	1.0
61	Ogemaw	324	1.0
62	Marquette	322	1.0
63	Charlevoix	319	1.0
64	Cheboygan	300	0.9
65	Alger-Schoolcraft	298	0.9
66	Wexford	298	0.9
67	Ontonagon	289	0.9
68	Luce-Mackinac	282	0.9
69	Iosco	275	0.9
70	Iron	254	0.8
71	Gogebic	231	0.7
72	Dickinson	226	0.7
73	Crawford-Kalkaska	211	0.7
74	Baraga	197	0.6
75	Benzie	195	0.6
	Total	63,721	

Summary

Two methods for measuring the county Extension teaching loads were proposed in this chapter for the allocation of resources. Both methods were based on population classes, which were thought to provide the best indication of Extension responsibility. Urban population was excluded from consideration by the first method, while the second method was proposed on the premise that Extension owes something also to the tax-contributing urban dwellers.

The first proposed method, patterned after the method of Federal appropriations to the state, was derived from the percentage of funds appropriated for each population class. Approximately 80 per cent of the funds was based on the state's rural farm population and 20 per cent was based on the total rural population. Using a recent Michigan Extension budget, it was determined that 21 cents was allotted for each rural person, and $2.17 for each rural farm person. These numbers were multiplied by the corresponding population class numbers for each county to arrive at a theoretical amount of money to represent the share of the total budget contributed by each county population class. This amount was termed theoretical because it did not account for the supporting activities of Extension work outside the county. The theoretical amounts were used in ranking the counties.

Extension units for this method could be obtained by either of two procedures, one of which considered the lowest ranking county to be equal to one Extension unit. The other procedure considered an

Extension unit to equal the total state budget for Extension divided by the number of county professional workers in the state. The latter procedure for determining Extension units was judged to be the better because it reflected the average work load per agent.

The second proposed method, using weighted population classes, was based on the assumption that Extension has some responsibility to all people because all people are as tax payers supporting the Service. It was further assumed that the need for Extension services, relating to subjects of home economics and particularly to agriculture, diminished as a population class became further removed from full-time farming activities. Consequently the population groups least concerned with farming received lighter weightings.

Three main population classes established for the second method were urban, rural non-farm, and rural farm. With the advice of a panel of Extension administrators and with a consideration of Federal appropriating methods, the major classes and their respective sub-classes were assigned numerical weights. The rural farm class was assigned a weighting of 75 per cent which corresponded to the 76 per cent of appropriations received by this class. Seventeen per cent was assigned to the rural non-farm class, and 8 per cent was given to urban population. These weightings were numerically adjusted to account for differences among the various sub-classes. The adjusted weightings were converted to point values so that a specified number of persons living on a full-time commercial farm were valued one point, and

114 rural non-farm non-village persons were valued one point. Each county or administrative unit was scored by determining the number of points for each county and totaling the points. The resulting final scores were used to rank the counties.

Extension units for the second method were obtained by dividing the number of county professional workers into the total number of points for the state. The resulting value was designated as one work unit, which was divided into the score for each administrative unit to obtain the number of Extension work units per county.

Both proposed methods considered the population factor alone for reasons given. It was not the intent of this study to imply that factors other than population are of no importance to the allocation of resources to the counties. The purpose of this study was to offer means for rating counties so that a definite objective result was available as a basis for allocation. Other factors not considered could be logically employed once a county was scored by either of the proposed means.

The advantage of the first proposed method is that it can be more readily justified from a legal point of view under existing legislation. Its computations are simple, and it could be easily explained to Extension workers and local people.

The advantage of the second proposed system is that it adheres more closely to what Extension has been doing for the past 35 years. Even though both methods are highly correlated positively, the second

is a more refined means for measuring the teaching load. It is more flexible, and it is directed more toward future expansion of the Service. It considers some service feasible to all groups of people.

Admittedly the assigned weightings used in the second method might not meet with the approval of some administrators because the direction and scope of Extension activity vary from state to state. However, the aim in proposing this method was to present a means for using weighted population classes. State Extension administrators and their staffs desiring to use this method could easily re-assign the class weightings to fit their respective programs.

Either or both of the proposed methods for measuring the Extension teaching load should be useful to those individuals responsible for allocating resources from the state level to the counties.

CHAPTER VII

SUMMARY AND CONCLUSIONS

One of the responsibilities of state Extension administrators in Michigan and other states is the allocation of state and Federal resources to the counties. Extension objectives should be reflected by any system for allocating resources. To assure proper allocation it is essential that information be available for indicating the size of the Extension teaching job within the counties in relation to the total state responsibility.

The objective of this study was to develop a means for measuring the teaching load within the counties as a basis for spreading resources.

The first step undertaken by this study was a determination of the objectives of the Cooperative Extension Service by an examination of laws pertaining to the organization. Interpretations of Extension leaders and instigating legislators were considered. The Smith-Lever Act of 1914 was the Federal enactment which created the formal Extension organization. It provided that the organization should teach practical agriculture and home economics subjects to the people of the United States. The act provided that the Service be a cooperative undertaking of the national government and states to be administered jointly. Federal funds would be made available to participating states based on their rural populations, provided offset was made from state sources. The subsequent Capper-Ketcham Act of 1928 made similar provision for funds.

In 1935 the Bankhead-Jones Act made more Federal funds available. A notable departure from previous appropriation procedures was the provision that the distribution to states be based on farm population, rather than rural population, and that no state offset be required. The Bankhead-Flannagan Act of 1945 permitted further expansion of the Service. The method of apportionment was based on farm population, with state offset required.

The cited laws and other minor acts formed a complex means for allocating funds to the states. An analysis of the Federal funds for Michigan during a recent year revealed that 76 per cent was based on the farm population, 17 per cent was based on the rural population, and 7 per cent was based on special needs. No Federal money was appropriated for the urban population.

Policy statements of legislators and Extension leaders aided in concluding that Extension's responsibility is, first, to the rural farm population, second, to the remaining rural population, and last, to other residential groups. Many of the statements, especially the more recent ones, indicated that Extension has some responsibility to urban people even though this group was not specifically financed. This recognition was apparently based on the wording of the Smith-Lever Act, ". . . the people of the United States, . . ." and the fact that all citizens, rural or urban, are tax payers supporting Extension.

An examination and evaluation of county classification systems now in use by several states was the next step, aimed at ascertaining

their values in measuring Extension responsibility. Those systems examined were employed in the states of North Carolina, Texas, Illinois, and, chiefly, Michigan.

The Michigan Service has utilized a system developed some years ago, which employed the measurement of six factors: farm income, rural population, urban population, number of commercial farms, total number of farms, and county land area. The factors were numerically weighted according to their adjudged importance. Out of a total of 11 weighting points, four were assigned to farm income, two each to total number of farms and number of commercial farms, and one each to the remaining three factors. An evaluation resulted in the conclusion that this system did not adequately reflect Extension objectives because undue emphasis was placed on the monetary value of a county's agriculture. Some of the factors were so highly interrelated that it was difficult to determine the effect of any one factor on the final standing of a county. Some justification for using urban population can be made, but the system currently employed in Michigan does not credit counties having over sixty thousand urban people with any number in excess of this. Another weakness was found in the manner of grouping counties. The counties were ranked by per cent of average values and placed arbitrarily into four groups. More differences were discovered within any group than between the low ranking county of one group and the high ranking county of a succeeding one.

The system had a further disadvantage in its complex and time-consuming method of computation. To overcome this handicap, this study offered a means for shortening computation tasks should the present system continue in use. The short method consisted of reducing the present procedure to a point system so that one point was allotted for a certain number of units for each factor. One point each was given for every 12.5 farms, for 7.0 commercial farms, for 240 rural people, for 206 urban people, for $8,000 farm income, and for 4,800 acres of land area. The number of points for each county was determined by dividing each of the values equal to one point into the corresponding factor data for each county. The points were summed and divided by the total of weighting points, yielding virtually the same results as the longer method of computation.

The other states using county classification systems reviewed in this study placed large emphasis on such factors as county property valuation and the number of persons actually served. These systems were judged to fall short in measuring the actual teaching load so that proper allocation of resources could be made.

The third undertaking of thisstudy was the selection of factors which might be utilized in measuring the teaching load. Four criteria for evaluating factors were established: mutually exclusive categories, reliable and measurable data, reflection of Extension objectives, and similar units of measurement. Some of the factors considered were

number of farms, farm income, land area, social groupings of people, types of agriculture, diversity of agriculture, and population classes. Using these criteria, population classes were judged to be the best means for measuring the teaching load.

The population of Michigan in 1950 was grouped into classes which seemed to have varying importance to Extension. The three main groupings, according to place of residence were: urban, rural farm, and rural non-farm. These major classes were divided into sub-classes. The urban class was categorized according to the size of the city. Urban people not living within cities were placed in another urban sub-class, suburban. The number of persons in each urban sub-class was determined for each county of the state, using 1950 census reports.

Census data for the rural farm population were not complete at the time of this study, and these figures were estimated. The number of farms in each county was found in preliminary reports of the 1950 Census of Agriculture. The rural farm population and the populations of its sub-classes were estimated by multiplying the 1940 average number of persons per farm in a county times the 1950 number of farms in the county. Sub-classes were established according to the agricultural census listing of farm types. The sub-class groupings were: commercial farms reporting an income of over $1,200, commercial farms reporting $250 to $1,199 income, part-time farms, residential farms, and abnormal farms.

The total rural non-farm population was obtained for each county by subtracting the estimated total rural farm population from the total rural population. The rural non-farm portion was divided into three sub-groups: rurban village, non-rurban village, and non-village. The number of persons in the first two classes was obtained from census reports. The non-village portion was the remainder of the rural non-farm population. The village population located contiguous to a city was termed rurban for this report because the group was thought to be similar to the suburban group and different from village population located in separate rural areas.

To assure proper allocation of Extension resources to the counties, a knowledge of the relative sizes of the Extension loads is essential. Population class numbers were concluded to be the best means for measurement, considering the four criteria established for evaluating factors. Population classes were also judged to be the most reliable indication of the teaching loads because the scope of an educational agency such as Extension is primarily determined by the number of persons to be served. It also should be remembered that Extension receives operating funds on the basis of numbers within certain population classes. For these reasons two methods for determining the size of the teaching load were developed using classes of population. The major difference between the two methods was that one considered the urban population while the other did not.

The first proposed method was patterned after the procedure followed in allocating funds to the state. An analysis of the Federal funds available to Michigan revealed that approximately 80 per cent was based on the state's rural farm population and 20 per cent was based on the total rural population. Assuming that state funds were similarly appropriated, it was determined that $2.17 of a recent Michigan state and Federal budget was allotted for each rural farm person and 21 cents was allotted for each rural person. These values were multiplied by the corresponding number of persons in the two classes to determine the amount contributed by them to the total budget. The groupings were made mathematically using some base to avoid arbitrary decisions, such as are necessary under the present Michigan system. The base was termed one Extension teaching unit, equal to the theoretical amount of money of the lowest ranking county employing full-time workers. In the other method the base was considered to equal the total amount of the budget divided by the number of county professional workers in the state. In both cases the assigned base values were divided into the theoretical amount of money to be received by each county or administrative unit to determine the number of Extension units.

One advantage of the first proposed method is that it corresponds closely with the intent of laws, therefore being readily justified legally. Also, the computations are relatively simple, and the procedures involved could be easily explained to Extension workers and

local people. The method could be adjusted yearly to reflect appropriation changes. One disadvantage is that rural people only are considered. It was pointed out in the study that the existence of a city within the county increased an agent's work, even though the urban class was discounted.

Recognition of some of the first method's limitations led to the development of another method for measuring the teaching load. This alternative method considered all population groups to be of some importance however disproportionate, to Extension responsibility. The second method was further based on the assumption that the need for Extension service diminished as a class became further removed from full-time commercial farms.

The three main population groups for this method were: urban, rural non-farm, and rural farm classes. They were assigned numerical weightings with the advice of a panel of Extension administrators and with a consideration of Federal appropriating methods. The rural farm class was assigned a weighting of 75 per cent; the rural non-farm class, 17 per cent; and the urban class, 8 per cent. The weightings were further divided among the respective sub-classes, with the resulting weightings being numerically adjusted to account for population differences. The adjusted weightings were converted to point values for the sake of simplification. A specified number of persons in each class constituted one point, with the number of points being obtained for each sub-class in a county. The results were summed and used in ranking the counties or administrative units.

Work units for the second method were obtained by dividing the total number of points for the state by the number of county professional workers. The result was divided into the value for each county or administrative unit to obtain the number of work units in each. The numbers were used to group the administrative units.

An advantage of the second proposed method is that it offers a more refined means for measuring the teaching load. It reflects the objectives of Extension as presently interpreted. The urban population was included which seems justifiable in that urban residents too are tax-payers and that they have some need for Extension services. The system is flexible enough to permit a change in weightings.

The aim in proposing this method was to present a means for using weighted population classes. The weightings used in this report do not represent the direction of Extension programs throughout the several states, as this varies. One more advantage is that this method opens the way for further expansion of the Service, particularly in urban areas.

The main disadvantage of the second system is the complexity of its computations. Population classes and their respective numbers are much more involved in the second method, as is the final computing procedure. It would be more difficult to explain this method to interested persons.

The population factor alone was considered in both methods. It was not intended to imply that other factors are of no importance in allocating resources. Other factors could be considered once a county was rated by either of the proposed methods.

The objective of this study was to offer a means for determining the size of the Extension teaching load as a basis for allocating Extension resources. Either method should be of value to those charged with making such assignments.

BIBLIOGRAPHY

Bailey, Joseph C., Seaman A Knapp. New York: Columbia University Press, 1945. 397 pp.

Baker, Gladys, The County Agent. Chicago: The University of Chicago Press, 1939. 226 pp.

Brunner, Edmund de S., and E. Hsin Pao Yang, Rural America and the Extension Service. New York: Bureau of Publications, Teachers College, Columbia University, 1949. 210 pp.

Kelsey, Lincoln D., and Cannon C. Hearne, Cooperative Extension Work. Ithaca, New York: Comstock Publishing Company, 1949. 424 pp.

Lindquist, E. F., Statistical Analysis in Educational Research. Boston: Houghton Mifflin Company, 1940. 266 pp.

Martin, O. B., The Demonstration Work. San Antonio, Texas: The Naylor Company, 1941. 257 pp.

Reck, Franklin M., The 4-H Story. Ames, Iowa: The Iowa State College Press, 1951. 308 pp.

Smith, Clarence B., and Meredith C. Wilson, The Agricultural Extension System of the United States. New York: John Wiley and Sons, Inc., 1930. 402 pp.

True Alfred C., A History of Agricultural Extension Work in the United States, 1785-1923. Washington: United States Government Printing Office, 1928. 290 pp.

_____, A History of Agricultural Education in the United States, 1785-1925. Washington: United States Government Printing Office, 1929. 436 pp.

United States Department of Agriculture, Revised Edition of Laws Applicable to the United States Department of Agriculture, 1945. Vols. I and II. Washington: United States Government Printing Office. 1723 pp.

Young, Pauline V., Scientific Social Surveys and Research, second edition. New York: Prentice-Hall, Inc., 621 pp.

Bureau of the Census, "Characteristics of the Population, Michigan," 1940 Census of Population, Second Series. Washington: United States Government Printing Office, 1942. 134 pp.

_____, "Farms, Acerage, Value, Characteristics, Livestock Products, Crops, Fruits, and Value of Farm Products," 1945 Census of Agriculture, Michigan, Volume I, Part 6. Washington: United States Government Printing Office, 1946. 178 pp.

_____, "Farms, Farm Acerage and Value, and Selected Livestock and Crops," 1935 Census of Agriculture. Washington: United States Government Printing Office, 1936. 24 pp.

_____, "Farms, Farm Characteristics, Farm Products," Preliminary 1950 Census of Agriculture, Series AC 50-1. Washington: Bureau of the Census, September 13, 1951. (The reports are available for each individual county.)

_____, "Farm Mortgages, Taxes, Labor, Facilities, Expenditures, and Miscellaneous Farm Information; Fruits, Vegetables and Minor Crops, Michigan," 1940 Census of Agriculture, Second Series. Washington: United States Government Printing Office, 1941. 59 pp.

_____, "Photostatic Copies of Census Worksheets for 1950 Michigan Population." These copies were obtained from J. F. Thaden, Department of Sociology and Anthropology, Michigan State College. He received these as an enclosure of a letter from Howard G. Brunsman, Chief, Population and Housing Division, Bureau of the Census, Department of Commerce, Washington 25, D. C. in a letter dated December 7, 1951.

_____, "Number of Inhabitants, Michigan," 1940 Census of Population, First Series. Washington: United States Government Printing Office, 1941. 23 pp.

_____, "Population of Michigan: April 1, 1950," 1950 Census of Population, Advance Reports, Series PC - 8, No. 21. Washington: Bureau of the Census, October 7, 1951. 12 pp.

_____, "Number of Inhabitants, Michigan," 1950 United States Census of Population, Series P - A 22, Preprint of Volume 1, Chapter 22. Washington: United States Government Printing Office, 1951. 40 pp.

_____, "Uses of Land, Principal Crops and Classes of Livestock with Statistics for Counties, Michigan," 1940 Census of Agriculture, First Series. Washington: United States Government Printing Office, 1941. 59 pp.

_____, "Value of Farm Products, Farms Classified by Major Source of Income and by Total Value of Products, Michigan," 1940 Census of Agriculture, Third Series. Washington: United States Government Printing Office, 1941. 59 pp.

Extension Service of the United States Department of Agriculture, "Report of Committee of the Federal Extension Staff, on the Scope of Extension's Educational Responsibility." Washington: United States Government Printing Office, 1946.

_____. "Report of Cooperative Extension Work in Agriculture and Home Economics, 1951." Washington: United States Government Printing Office, 1952. 61 pp.

Beegle, J. Allan, "Michigan Population, Composition and Change," Special Bulletin No. 342. East Lansing, Michigan: Michigan State College Agricultural Experiment Station, November, 1947. 103 pp.

Gibson, D. L., "The Clientele of the Agricultural Extension Service," Vol. 26, No. 4. East Lansing, Michigan: Michigan State College Agricultural Extension Service," Vol. 26, No. 4. East Lansing, Michigan: Michigan State College Agricultural Experiment Station, May 1944. 10 pp.

Hoffer, C. R., and D. L. Gibson, "The Community Situation as It Affects Agricultural Extension Work," Special Bulletin 312. East Lansing, Michigan: Michigan State College Agricultural Experiment Station, October 1941. 35 pp.

Miller, Paul A., and J. Allan Beegle, "The Farm People of Livingston County, Michigan." East Lansing, Michigan: Michigan State College Extension Service and Department of Sociology and Anthropology, June, 1947. 40 pp.

United States Department of Agriculture and Association of Land-Grant Colleges and Universities, "Joint Committee Report on Extension Programs, Policies, and Goals." Washington: United States Government Printing Office, August 1948. 72 pp.

Beach, L. M. and F. E. Smith, "A Study of Rural-Urban Fringe Residents of Fort Wayne, Allen County, Indiana," Extension Studies Circular 11. Lafayette, Indiana: Purdue University Cooperative Extension Service, June 1951. 6 pp.

Curry, Donald G., "A Comparative Study of the Way Selected County Agricultural Agents Perform Their Role." Unpublished Master's thesis, Michigan State College of Agriculture and Applied Science, East Lansing, Michigan, 1951. 182 pp.

Gilbertson, H. W., "An Analysis of the Sources and Uses of Cooperative Extension Funds," Extension Service Circular No. 475. Washington: United States Department of Agriculture, August 1951. 64 pp.

Michigan Cooperative Extension Service, "County Classification." Unpublished mimeographed report on file, Office of the Director, Michigan State College Cooperative Extension Service, East Lansing, Michigan. 7 pp.

_____, "Personal File." Unpublished material on file, Office of the Director, Michigan State College Cooperative Extension Service, East Lansing, Michigan.

_____, "The 1951-1952 Michigan Cooperative Extension Budget." On file, Office of the Director, Michigan State College Cooperative Extension Service, East Lansing, Michigan.

Report of Workshop on Extension Administration Oct. 21- Nov. 2, 1946. Extension Service and Farm Foundation. Madison, Wisconsin: University of Wisconsin, 1946. 143 pp.

Roosevelt, Theodore, "The Man Who Works with His Hands," United States Department of Agriculture Circular No. 24. Washington: Office of the Secretary, United States Department of Agriculture, 1907.

Stone, John T., "Development, Organization, Policies; Michigan Cooperative Extension Service." Unpublished mimeograph Report. East Lansing, Michigan: Michigan State College Cooperative Extension Service, 19 pp.

APPENDIX

APPENDIX A

FEDERAL LEGISLATIVE ENACTMENTS

The Smith-Lever Act of 1914.[1]

AN ACT To provide for cooperative agricultural extension work between the agricultural colleges in the several States receiving the benefits of an act of Congress approved July second, eighteen hundred and sixty-two, and of acts supplementary thereto, and the United States Department of Agriculture

Be it enacted by the Senate and the House of Representatives of the United States of America in Congress assembled, That in order to aid in diffusing among the people of the United States useful and practical information on subjects relating to agriculture and home economics, and to encourage the application of the same, there may be inaugurated in connection with the college or colleges in each State now receiving, or which may hereafter receive, the benefits of the act of Congress approved July second, eighteen hundred and sixty-two, entitled "An act donating public lands to the several States and Territories which may provide colleges for the benefit of agriculture and the mechanic arts" (Twelfth Statutes at Large, page five hundred and three), and of the act of Congress approved August thirtieth, eighteen hundred and ninety (Twenty-Sixth Statutes at Large, page four hundred and seventeen and chapter eight hundred and forty-one), agricultural extension work which shall be carried on in cooperation with the United States Department of Agriculture: Provided, That in any State in which two or more such colleges have been or hereafter may be established the appropriations hereinafter made to such State may direct: Provided further, That, pending the inauguration and development of the cooperative extension work herein authorized, nothing in this act shall be construed to discontinue either the farm management work or the farmers' cooperative demonstration work as now conducted by the Bureau of Plant Industry of the Department of Agriculture.

Sec. 2. That cooperative agricultural extension work shall consist of the giving of instruction and practical demonstrations in agriculture and home economics to persons not attending or

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[1] Lincoln D. Kelsey and Cannon Chiles Hearne, Cooperative Extension Work (Ithaca, New York: Comstock Publishing Company, 1949), pp. 397-398.

resident in said colleges in the several communities, and imparting to such persons information on said subjects through field demonstrations, publications, and otherwise; and this work shall be carried on in such manner as may be mutually agreed upon by the Secretary of Agriculture and the State agricultural college or colleges receiving the benefits of this act.

Sec. 3. That for the purpose of paying the expenses of said cooperative agricultural extension work and the necessary printing and distributing of information in connection with the same, there is permanently appropriated, out of any money in the Treasury not otherwise appropriated, the sum of $480,000 for each year, $10,000 of which shall be paid annually, in the manner hereinafter provided, to each State which shall by action of its legislature assent to the provisions of this act: Provided, That payments of such installments of the appropriation hereinbefore made as shall become due to any State before the adjournment of the regular session of the legislature meeting next after the passage of this act may, in the absence of prior legislative assent, be made upon the assent of the governor thereof, duly certified to the Secretary of the Treasury: Provided further, That there is also appropriated an additional sum of $600,000 for the fiscal year following that in which the foregoing appropriation first becomes available, and for each year thereafter for seven years a sum exceeding by $500,000 the sum appropriated for each preceding year, and for each year thereafter there is permanently appropriated for each year the sum of $4,100,000 in addition to the sum of $480,000 hereinbefore provided: Provided further, That before the funds herein appropriated shall become available to any college for any fiscal year plans for the work to be carried on under this act shall be submitted by the proper officials of each college and approved by the Secretary of Agriculture. Such additional sums shall be used only for the purposes hereinafter stated, and shall be allotted annually to each State by the Secretary of Agriculture and paid in the manner hereinbefore provided, in the proportion which the rural population of each State bears to the total rural population of all the States as determined by the next preceding Federal census: Provided further, That no payment out of the additional appropriations herein provided shall be made in any year to any State until an equal sum has been appropriated for that year by the legislature of such State, or provided by State, county, college, local authority, or individual contributions from within the State, for the maintenance of the cooperative agricultural extension work provided in this act.

Sec. 4. That the sums hereby appropriated for extension work shall be paid in equal semiannual payments on the first day of January and July of each year by the Secretary of the Treasury upon

the warrant of the Secretary of Agriculture, out of the Treasury of the United States, to the treasurer or other officer of the State duly authorized by the laws of the State to receive the same; and such officer shall be required to report to the Secretary of Agriculture, on or before the first day of September of each year, a detailed statement of the amount so received during the previous fiscal year, and of its disbursement, on forms prescribed by the Secretary of Agriculture.

Sec. 5. That if any portion of the moneys received by the designated officer of any State for the support and maintenance of cooperative agricultural extension work, as provided in this act, shall by any action or contingency be diminished or lost or be misapplied, it shall be replaced by said State to which it belongs, and until so replaced no subsequent appropriation shall be apportioned or paid to said State, and no portion of said moneys shall be applied directly or indirectly, to the purchase, erection, preservation, or repair of any building or buildings, or the purchase or rental of land, or in college-course teaching, lectures in colleges, promoting agricultural trains, or any other purpose not specified in this act, and not more than five per centum of each annual appropriation shall be applied to the printing and distribution of publications. It shall be the duty of each of said colleges annually, on or before the first day of January, to make to the governor of the State in which it is located a full and detailed report of its operations in the direction of extension work as defined in this act, including a detailed statement of receipts and expenditures from all sources for this purpose, a copy of which report shall be sent to the Secretary of Agriculture and to the Secretary of the Treasury of the United States.

Sec. 6. That on or before the first day of July in each year after the passage of this act, the Secretary of Agriculture shall ascertain and certify to the Secretary of the Treasury as to each State whether it is entitled to receive its share of the annual appropriation for cooperative agricultural extension work under this act, and the amount which it is entitled to receive. If the Secretary of Agriculture shall withhold a certificate from any State of its appropriation, the facts and reasons therefor shall be reported to the President, and the amount involved shall be kept separate in the Treasury until the expiration of the Congress next succeeding a session of the legislature of any State from which a certificate has been withheld, in order that the State may, if it should so desire, appeal to Congress from the determination of the Secretary of Agriculture. If the next Congress shall not direct such sum to be paid, it shall be covered into the Treasury.

Sec. 7. The Secretary of Agriculture shall make an annual report to Congress of the receipts, expenditures, and results of the cooperative agricultural extension work in all of the States receiving the benefits of this act, and also whether the appropriation of any State has been withheld, and if so, the reasons therefor.

Sec. 8. That Congress may at any time alter, amend, or repeal any or all of the provisions of this act.

Approved, May 8, 1914 (38 Stat. L. 372).

The Capper-Ketchum Act of 1928.

AN ACT To provide for the further development of agricultural extension work between the agricultural colleges in the several States receiving the benefits of the act entitled "An act donating public lands to the several States and Territories which may provide colleges for the benefit of agriculture and the mechanic arts," approved July 2, 1862, and all acts supplementary thereto, and the United States Department of Agriculture.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That in order to further develop the cooperative extension system as inaugurated under the act entitled "An act to provide for cooperative agricultural extension work between the agricultural colleges in the several States receiving the benefits of the act of Congress approved July 2, 1862, and all acts supplementary thereto, and the United States Department of Agriculture," approved May 8, 1914, there is hereby authorized to be appropriated, out of any money in the Treasury not otherwise appropriated, for the purpose of paying the expenses of the cooperative extension work in agriculture and home economics, and the necessary printing and distributing of information in connection with the same, the sum of $980,000 for each year, $20,000 of which shall be paid annually, in the manner hereinafter provided, to each State and the Territory of Hawaii which shall by action of its legislature assent to the provisions of this act. The payment of such installments of the appropriations hereinbefore made as shall become due to any State or Territory before the adjournment of the regular session of the legislature meeting next after the passage of this act may, in the absence of prior legislative assent, be made upon the assent of the governor thereof, duly certified to the Secretary of the Treasury. There is hereby authorized to be appropriated for the fiscal year following that in which the foregoing appropriation first becomes available, and for each year thereafter, the sum of $500,000. The additional sums appropriated under the provisions of this act shall be subject to the same conditions and limitations as the additional sums appropriated under such act of May 8, 1914, except that (1) at least 80 per centum of all appropriations under this act shall be utilized for the payment of salaries of extension agents in counties of the several States to further develop the cooperative extension system in agriculture and home economics with men, women, boys, and girls; (2) funds available to the several States and the Territory of Hawaii under the terms of this act shall be so expended that the extension agents appointed under its provisions shall be men and women in fair and just proportions; (3) the restriction on the use of these funds for the promotion of agricultural trains shall not apply.

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2 Ibid., pp. 401-402.

Sec. 2. The sums appropriated under the provisions of this act shall be in addition to, and not in substitution for, sums appropriated under such act of May 8, 1914, or sums otherwise annually appropriated for cooperative agricultural extension work.

Approved, May 22, 1928 (45 Stat. L. 711).

[3]

The Bankhead-Jones Act of 1935.

AN ACT To provide for research into basic laws and principles relating to agriculture and to provide for the further development of cooperative agricultural extension work and the more complete endowment and support of land-grant colleges

TITLE II

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled.

Sec. 21. In order to further develop the cooperative extension system as inaugurated under the act entitled "An act to provide for cooperative agricultural extension work between the agricultural colleges in the several States receiving the benefits of the act of Congress approved July 2, 1862, and all acts supplementary thereto, and the United States Department of Agriculture," approved May 8, 1914 (U.S.C., title 7, secs. 341-348), there is hereby authorized to be appropriated, out of any money in the Treasury not otherwise appropriated, for the purpose of paying the expenses of cooperative extension work in agriculture and home economics and the necessary printing and distribution of information in connection with the same, the sum of $8,000,000 for the fiscal year beginning after the date of the enactment of this title, and for the fiscal year following the first fiscal year for which an appropriation is made in pursuance of the foregoing authorization the additional sum of $1,000,000, and for each succeeding fiscal year thereafter an additional sum of $1,000,000 until the total appropriations authorized by this section shall amount to $12,000,000 annually, the authorization to continue in that amount for each succeeding fiscal year. The sums appropriated in pursuance of this section shall be paid to the several States and the Territory of Hawaii in the same manner and subject to the same conditions and limitations as the additional sums appropriated under the act of May 8, 1914, except that (1) $980,000 shall be paid to the several States and the Territory of Hawaii in the proportion that the farm population of each bears to the total farm population of the several States and the Territory of Hawaii, as determined by the last preceding decennial census, and (3) the several States and the Territory of Hawaii shall not be required to offset the allotments authorized in this section. The sums appropriated pursuant to this section shall be in addition to, and not in substitution for, sums appropriated under such act of May 8, 1914, as amended and supplemented, or sums otherwise appropriated for agricultural extension work. Allotments to any State or the

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[3] Ibid., pp. 404-405.

Territory of Hawaii for any fiscal year from the appropriations herein authorized shall be available for payment to such State or the Territory of Hawaii only if such State or the Territory of Hawaii complies, for such fiscal year, with the provisions with reference to offset of appropriations (other than appropriations under this section) for agricultural extension work.

Sec. 22. In order to provide for the more complete endowment and support of the colleges in the several States and the Territory of Hawaii entitled to the benefits of the act entitled "An act donating public lands to the several States and Territories which may provide colleges for the benefit of agriculture and the mechanic arts," approved July 2, 1862, as amended and supplemented (U.S.C., title 7, secs. 301-328; Supp. VII, sec. 304), there are hereby authorized to be appropriated annually, out of any money in the Treasury not otherwise appropriated, the following amounts:

(a) For the fiscal year beginning after the date of the enactment of this act, and for each fiscal year thereafter, $980,000; and

(b) For the fiscal year following the first fiscal year for which an appropriation is made in pursuance of paragraph (a) $500,000, and for each of the two fiscal years thereafter $500,000 more than the amount authorized to be appropriated for the preceding fiscal year, and for each fiscal year thereafter $1,500,000. The sums appropriated in pursuance of paragraph (b) shall be in addition to sums appropriated in pursuance of paragraph (a) and shall be allotted and paid annually to each of the several States and the Territory of Hawaii in the proportion which the total population of each such State and the Territory of Hawaii bears to the total population of all the States and the Territory of Hawaii, as determined by the last preceding decennial census. Sums appropriated in pursuance of this section shall be in addition to sums appropriated or authorized under such act of July 2, 1862, as amended and supplemented, and shall be applied only for the purposes of the colleges defined in such act, as amended and supplemented. The provisions of law applicable to the use and payment of sums under the act entitled "An act to apply a portion of the proceeds of the public lands to the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts established under the provisions of an act of Congress approved July second, eighteen hundred and sixty-two," approved August 30, 1890, as amended and supplemented, shall apply to the use and payment of sums appropriated in pursuance of this section.

Approved, June 29, 1935.

4

The Bankhead-Flannagan Act of 1945.

AN ACT To provide for the further development of cooperative agricultural extension work

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That title II of the Act entitled "An Act to provide for research into basic laws and principles relating to agriculture and to provide for the further development of cooperative agricultural extension work and the more complete endowment and support of land-grant colleges," approved June 29, 1935 (the Bankhead-Jones Act), is amended by adding at the end thereof the following new section:

"Sec. 23. (a) In order to further develop the cooperative extension system as inaugurated under the Act entitled 'An Act to provide for cooperative agricultural extension work between the agricultural colleges in the several States receiving the benefits of the Act of Congress, approved July 2, 1862, and all Acts supplementary thereto, and the United States Department of Agriculture,' approved May 8, 1914 (U.S.C., title 7, secs. 341-343, 344-348), particularly for the further development of county extension work, there are hereby authorized to be appropriated, out of any money in the Treasury not otherwise appropriated, for the purpose of paying the expenses of cooperative extension work in agriculture and home economics, including technical and educational assistance to farm people in improving their standards of living, in developing individual farm and home plans, better marketing and distribution of farm products, work with rural youth in 4-H Clubs and older out-of-school youth, guidance of farm people in improving farm and home buildings, development of effective programs in canning, food preservation, and nutrition, and for the necessary printing and distribution of information in connection with the foregoing, the following sums:

"(1) $4,500,000 for the fiscal year ending June 30, 1946, and each subsequent fiscal year;

"(2) An additional $4,000,000 for the fiscal year ending June 30, 1947, and each subsequent fiscal year; and

"(3) An additional $4,000,000 for the fiscal year ending June 30, 1948, and each subsequent fiscal year.

"(b) The sums appropriated pursuant to this section shall be paid to the several States and the Territory of Hawaii in the same manner and subject to the same conditions and limitations as the additional sums appropriated under such Act of May 8, 1914 (the Smith-Lever Act), except that -

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4 Ibid., 408-409

"(1) not more than 2 per centum of the sum appropriated pursuant to this section for each fiscal year shall be available for paying expenses of the Extension Service in the United States Department of Agriculture;

"(2) $500,000 of the sum so appropriated for each fiscal year shall be allotted among the States and the Territory of Hawaii by the Secretary of Agriculture on the basis of special needs due to population characteristics, area in relation to farm population, or other special problems, as determined by such Secretary: Provided, That not to exceed 10 per centum shall be allotted under this subparagraph to any one State or the Territory of Hawaii for any fiscal year: Provided further, That these funds shall be matched by the State or Territory receiving them, on the same basis as other funds under this Act; and

"(3) the remainder of the sum so appropriated for each fiscal year shall be paid to the several States and the Territory of Hawaii in the proportion that the farm population of each bears to the total farm population of the several States and Territory of Hawaii, as determined by the census of 1940.

"(c) The sums appropriated pursuant to this section shall be in addition to and not in substitution for sums appropriated under such Act of May 8, 1914, as amended and supplemented, or sums otherwise appropriated for agricultural extension work. Allotments to any State or the Territory of Hawaii for any fiscal year from the appropriations herein authorized shall be available for payment to such State or the Territory of Hawaii only if such State or the Territory of Hawaii complies, for such fiscal year, with the provisions with reference to offset of appropriations (other than appropriations under this section and section 21 of this title) for agricultural extension work."

Sec. 2. Section 21 of such Act of June 29, 1935, is amended by striking out "(other than appropriations under this section)" and inserting in lieu thereof "(other than appropriations under this section and section 23 of this title)."

Approved, June 6, 1945 (59 Stat. L. 231).

APPENDIX B

MEMBERS of Joint Committee Which Reported on Extension Programs Policies and Goals.[6]

Appointed by the Department:

Edmund de S. Brunner, Professor of Rural Sociology, Columbia University, New York.
P. V. Cardon, Special Assistant to the Chief, Bureau of Plant Industry, Soils, and Agricultural Engineering, United States Department of Agriculture.
David Meeker, Director of Education, Dearborn Motors Corporation, Detroit, Michigan.
W. A. Minor, Assistant to the Secretary, United States Department of Agriculture.
Thomas E. Wilson, Chairman of the Board, Wilson & Co., Chicago, Illinois.

Appointed by the land-grant colleges and universities:

Walter C. Coffey, President Emeritus, University of Minnesota.
Herman L. Donovan, President, University of Kentucky.
Roy M. Green, President, Colorado Agricultural and Mechanical College.
John A. Hannah, President, Michigan State College.
John R. Hutcheson, Chancellor, Virginia Polytechnic Institute.
H. P. Rusk, Dean and Director, College of Agriculture, University of Illinois.

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6 "Joint Committee Report on Extension Program, Policies, and Goals," (Washington: United States Government Printing Office, 1943), p. III.

APPENDIX C

Development of Weightings Used in Proposed Method Based on Weighted Population Classes

In the section describing the second proposed method for allocating resources in Chapter Six, reference was made that the final weightings were developed with the advice of a panel of Extension Administrators and with consideration of the way Federal Monies are appropriated to the states. The opinions of the administrators, felt most competent to pass judgement, were obtained by asking them individually to indicate the relative importance of the population classes to Extension. They were asked to use the population classes developed in Chapter Five and to distribute a total weighting of one hundred per cent among the classes. They were requested that this should be done according to the way they believed the Extension Service should spend its limited resources to fulfill its responsibility to the people of the state.

The following state administrative personnel participated: Extension Specialist in Training; the State 4-H Club Leader and four Assistant State Club Leaders; the State Home Demonstration Leader and four assistant State Home Demonstration Leaders; the State Leader of Agricultural Programs and three District Supervisors. The results of their individual judgements as to the weights were compiled and averaged. These final compiled weights were those listed in tables Fifteen, Sixteen, and Seventeen. The State Extension Administrative Staff reviewed these weightings and as a group they agreed that the weightings expressed the objectives of the Administrative Staff.