
UNIVERSITY OF MISSOURI COLLEGE OF AGRICULTURE
AGRICULTURAL EXPERIMENT STATION

M. F. MILLER, *Director*

Rural Social Areas In Missouri

As Determined by Statistical Analysis
of County Data

C. E. LIVELY AND C. L. GREGORY



*Rural Sociology Department, Missouri Agricultural Experiment
Station, and the Rural Surveys Section, Division of
Research, Federal Work Projects Administration,
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COLUMBIA, MISSOURI

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INTRODUCTION

The determination of areas in which there is a high degree of similarity with respect to rural social organization and culture follows logically the determination of homogeneous areas for other purposes. For some years agronomists have been distinguishing areas of similarity with respect to soil and other factors affecting plant growth. In like manner, agricultural economists have distinguished type-of-farming areas, and the present tendency is to combine these two approaches for the purpose of distinguishing areas of land use. It is but logical, therefore, that the sociologist should try to assist by distinguishing areas of homogeneity with respect to culture.

In the absence of accurate data bearing upon the subject, it has been assumed that rural social conditions and culture are a function of such bio-physical factors as soil and type of farming. There is, of course, much truth in this assumption. It is possible to admit the relationship without accepting any theory of complete correspondence, however. Indeed, variation in the nature and influence of such factors as social and group ideals, institutions and historical circumstances makes it unwise to assume a perfect degree of correspondence. With the aid of the results of this study, the degree of correspondence of social areas with soil areas and type-of-farming areas may be readily noted. The results of this study should be useful also in the administrative analysis of rural social problems. It seems reasonable to suppose not only that rural social problems vary in nature and intensity from one culture area to another, but also that the method of dealing with them should vary.

The method employed in the determination of rural social areas is described in Appendix C. Although much variation below the

*Acknowledgment is due Melvin W. Sneed, formerly Acting Chairman of the Department of Rural Sociology, for his help during the initial stages of this study.

county level undoubtedly exists, data regarding social conditions on a township basis are very meager, necessitating the use of the county as a unit. Furthermore, statistical measures of many pertinent social factors either do not exist on a county basis or they are too inaccurate to be reliable. Consequently, the number of factors entering into the determination of sub-areas was necessarily limited by the number of reliable measures available. As the number of reliable measures of rural cultural variation increases, it will be possible to set forth more completely the rural social areas of the State.

GENERAL DESCRIPTION OF THE AREAS

Missouri is located near the center of the United States, and in some respects it can be considered the place where the culture of the South merges into that of the North, and where that of the East joins and becomes part of the West. The topography of the State varies from mountainous in the south-central part to a rolling prairie in the north and southwest, and to a level lowland in the southeast. While approximately half of the population is rural and agriculture is the principal rural occupation, there are two large metropolitan cities and many industrial activities. The agriculture of the State also is varied in nature. Cotton farming on small acreages, accompanied by a system of share-cropping and day-wage laboring, predominates in the southeast lowlands, while corn, oats, and hogs are the chief products of the large units of the northwestern prairies. Between these diagonal corners are found fruit farms in the southwest, grazing in the Ozarks, truck farming around cities, and general farming in the central and western parts.

Not only is the State one of physical, economic, and social diversity, but the lines of demarcation with respect to cultural factors are seldom distinct. In view of this fact, the proper boundaries between areas are sometimes so difficult to determine that their location is somewhat arbitrary. The areas as presented here are in terms of major and minor divisions. The major boundaries enclose relatively homogeneous areas with respect to a large number of factors, while the minor lines are based upon fewer elements and break the principal areas into still more homogeneous units.¹

¹The major cultural areas agree essentially with ones outlined on a national scale by A. R. Mangus of the Division of Research, Work Projects Administration (results unpublished at present time). At certain points they also appear to follow type-of-farming areas, soil classifications, and physiographic regions. See Hammar, Conrad H., Roth, Walter S., and Johnson, O. R., *Types of Farming in Missouri*. Missouri Agricultural Experiment Station, Research Bulletin 284, 1938; and Miller, M. F., and Krusekopf, H. H., *The Soils of Missouri*. Missouri Agricultural Experiment Station, Bulletin 264, 1929.

Area A.

Area A is composed of 11 counties located in the northwestern corner of the State and extending along the Missouri River to a point some 60 or 70 miles east of Kansas City. A minor line along the northern and western border of Clay county breaks the area into 2 minor divisions.

This area is often referred to as one of the better sections of the State. Rural levels of living are relatively high and public relief is not common. With respect to the farm population in 1930, approximately 80 per cent of the families had automobiles, about 75 per cent had telephones, and nearly one-half had radios. Electricity and water in the dwelling were reported by 18 and 17 per cent respectively, while the average value of the farm dwelling was about \$2,000. Slightly fewer of the rural-nonfarm families had radios, the proportion for the rural-nonfarm population being 39 per cent. The average monthly rental paid by rural-nonfarm families for dwellings was about \$14, while the average value of owned nonfarm homes was \$2,476. Data for relief expenditures by rural-farm and rural-nonfarm residences are not available. However, an index of farm families receiving relief indicates that not more than 5 per cent received assistance in 1935.

Indices measuring literacy, reading material available, school facilities, school expenditures, and school attendance indicate that the standards of education maintained in Area A are superior to those found in other rural sections of the State. About 1 per cent of the rural-farm and only slightly more of the rural-nonfarm population were illiterate in 1930. Of a list of 6 leading farm journals, there was an average of 1 per rural family in 1930, and about one-sixth of all rural families subscribed to a particular national farm journal. In addition, school expenditures averaged \$48 per pupil in 1935, while in 1930 about 90 per cent of the children aged 7 to 17 years, and 24 per cent of those aged 18 to 20 years, attended school.

Area A has proportionately more foreign-born persons in rural areas than are found in the State as a whole. However, the foreign-born population of rural Missouri is relatively small and perhaps significant only in limited sections. In this area, foreign-born persons are found near Kansas City and St. Joseph more frequently than in the more strictly rural communities. In 1930, they comprised from 2 to 3 per cent of the rural population in Jackson and Buchanan counties.

Nearly one-half of the population of Area A were church members in 1930, and about one-fourth of the farm women were members

of Home Economics Clubs in 1937. In addition, enrollment in 4-H Clubs in 1937, as compared with the 1930 population, indicates that about one-tenth of the rural children 10 to 19 years of age were members.

The people of Area A, like those in better areas generally, have lower birth rates and smaller families than the people of poorer sections. The median size of the rural-farm family in 1930 was 3.5, while in the rural-nonfarm population the median was less than 3. The number of children under 5 years per 1,000 women aged 20-44 years was in most counties sufficient to maintain the population and provide a 25 to 50 per cent surplus. In no county was the farm population failing to reproduce itself in 1930, and in only one county was the rural-nonfarm population failing to do so. On the other hand, the proportion of elderly persons was pronounced. About 8 per cent of the 1930 farm population and nearly 11 per cent of the rural-nonfarm population were aged 65 years or over, while the proportions aged 45 or over were 27 and 31 per cent respectively.

With respect to agriculture, Area A ranks high, being exceeded by no other except possibly the St. Louis county area in which truck and dairy farming predominate. The topography of Area A is level to rolling, and the soil is fertile with a considerable amount consisting of an alluvial belt along the Missouri River. Large farm incomes, high farm values, much farm machinery, and a specialization in the production of corn, oats, and hogs, make farming in this section resemble that carried on in the better areas of Iowa and Illinois. The average value per farm of products used, sold, or traded in 1929 was \$2,796, while the value of farm land per acre (exclusive of buildings) was \$87, and the value per farm of land and buildings was \$7,891. About 16 per cent of the farms reported tractors in 1930, and the average value per farm of all farm machinery was \$620. In addition, high mortgage indebtedness on owner-operated farms and high proportions of farm tenancy occur in this area. In the northern part these two correlatives of fertile soil and large incomes are found almost as frequently as in the heart of the Corn Belt. More than one-half of all owner-operated farms are mortgaged, and the amount of the mortgage usually averages about one-half the value of the farms.

No doubt the difference existing between the culture of minor divisions A-1 and A-2 is, to some extent, the result of the urban influence exerted by Kansas City, St. Joseph, and the smaller towns clustering about these two centers. In some respects, Area A-2

can be considered a metropolitan sub-area in which farm life differs from that of strictly rural areas and, with respect to certain elements, approaches that of the city. That the cultural pattern of the farm communities in Area A-2 is somewhat urban in nature is evidenced by the fact that part-time, truck, and dairy farming, which necessitate frequent trips to markets, have been a means by which urban ways are acquired. In addition, good roads and greater opportunity for shopping in the nearby department stores have been important. A further means by which minor Area A-2 has been urbanized to a greater extent than Area A-1 has been the movement of urban families to suburban farms. This shift seldom carries them more than 30 or 40 miles beyond the city limits, and so has not been significant in the northern section.

The presence of mining in Area A-2 is also important in distinguishing the two cultures. In the southern part of Area A, the ratio of persons engaged in mining to those engaged in farming is approximately 1 to 4, while in the northern part, there is not more than 1 miner to 100 farmers.

Other differences between Areas A-1 and A-2 seem to center around the tenure by which the farms are held and operated. The northern area has a larger proportion of farms and farm land operated by tenants. In 1930, Area A-1 had 40 per cent of the farms operated by tenants, while the proportion in A-2 was 34 per cent. By 1935 these proportions had changed to 44 and 38 per cent respectively. This represented a gain of about 4 per cent to each of the areas. While Area A-1 has a larger proportion of the farms operated by tenants, it is necessary to point out that it also has relatively more tenants related to landlords than Area A-2. In the northern area, 30 per cent of the tenants are related to landlords, while in the southern unit only 24 per cent are so classified.

Area B.

Area B is a large unit including all of the counties north of the Missouri River, except those included in Area A, and extends along the Kansas border as far south as Joplin and Neosho. The area is sub-divided into 6 minor districts. The largest of these minor divisions consists of 18 counties in the north central part of the State. A second sub-area is composed of Adair, Macon, and Randolph counties, and a third is composed of 7 counties, the eastern tier of which borders on the Mississippi River in the neighborhood of the cities of Canton, Hannibal, and Louisiana, while the western tier extends to include Mexico, Paris, and Shelbina. One minor division of Area B, with 6 counties, forms a semi-circle about St.

Louis county; one beginning with Montgomery City, Columbia, and Fayette as northern limits runs south and west to Nevada; and still another includes Barton, Jasper, and Newton counties.

Levels of living in Area B are above those generally found in Missouri and are only slightly below those in the section previously described. About three-fourths of the farm families had automobiles in 1930, and 7 out of 10 had telephones. Radios were reported by about one-third, and water and electricity in the dwellings by 10 and 8 per cent respectively. The value of farm dwellings for this area averaged about \$1,300. Radios were slightly less common among rural-nonfarm families in 1930, the proportion owning such being 31 per cent. The average value of owned rural-nonfarm homes was \$1,858, while the average amount paid for the rental of rural-nonfarm dwellings was \$11 per month. Relief rates in this area have not been high. About 13 per cent of the total population received assistance in December, 1934, and an index of farm families on relief indicates that about 6 per cent received assistance in 1935.

Standards of education in Area B are relatively high. A large proportion of the children of school age attend school, school expenditures are high, and indices relating to the general education of the out-of-school population are higher than the State average. In 1930, 87 per cent of the children 7 to 17 years of age and 23 per cent of those aged 18 to 20 were in school. Average daily attendance records are also high, including more than 80 per cent of those enrolled in 1935, while school expenditures in this same year were about \$40 per pupil enrolled. With respect to illiteracy, only about 1 to 2 per cent of the rural-farm population and fewer than 3 per cent of the rural-nonfarm population aged 10 years or over in 1930 were so classified. In addition, a large number of rural families subscribe to journals and magazines. In 1930, 15 per cent of all rural families were subscribers to a particular national farm journal, and out of a list of 6 leading farm journals, an average of 1 per rural family was reported.

Not many of the persons in this area are foreign-born. For the entire area the average in 1930 was 1.3 per cent for the rural-farm and 1.5 per cent for the rural-nonfarm population. As in Area A, the foreign-born persons in Area B are found most frequently in the environs of cities. The largest proportions were reported in Gasconade, Warren, and Jefferson counties. Even there, foreign-born persons were not in excess of 5 per cent of the total rural population.

Area B has lower birth rates and smaller families than any other rural section of Missouri. The median size of the rural-farm family in 1930 was 3.4, while in the rural-nonfarm population it was only 2.8. The number of children under 5 years per 1,000 women aged 20-44 years in 1930 was sufficient to maintain the rural population in all counties except Lewis and Monroe, but in only 2 counties (Cole and Newton) was the number great enough to provide a 50 per cent surplus. In no county was the rural-farm population failing to reproduce itself, and in 6 counties the surplus of children above replacement needs amounted to 50 per cent. On the other hand, the rate of reproduction of the rural-nonfarm population was very low. In 13 counties the number of children under 5 years was insufficient to maintain the population, while in 2 counties only was the number sufficient to indicate a 50 per cent surplus.

A low birth rate is usually accompanied by a relatively large number of older people. Such is the case in Area B. In 1930, the proportion of the rural-nonfarm population aged 45 or over amounted to 34 per cent. In the rural-farm population it was 30 per cent. Correspondingly, the proportions aged 65 years or over were 12 per cent and 8 per cent respectively.

Apparently organizations fare relatively well in Area B. In 1930, approximately 45 per cent of the total population were church members and the index measuring cooperation in Agricultural Extension programs was about 25 per cent above the State average. In 1937, about one-sixth of the farm women were members of Homemakers' Clubs and around 9 per cent of the rural children 10 to 19 years were members of 4-H Clubs.

Indices relating to farming suggest that agriculture in Area B is of a higher type than that found in the southern sections of the State. The topography is rolling to hilly, and although there is very little level land, it is only along the larger streams that the surface is badly dissected and too steep for cultivation.² The type of farming for the majority of this area has been classified as "Meat Production," with the principal crops being corn and oats.³ The average value per farm of products used, sold, or traded in 1929 was \$1,700, while farm land (exclusive of buildings) was \$38 per acre. Total farm values including both land and buildings averaged about \$4,300 per farm.

Agriculture is more commercialized in Area B than is that which prevails in the hilly sections. Only about 15 per cent of the farm products in 1929 were used by the operator's family, and only about

²Miller, M. F. and Krusekopf, H. H., op. cit.

³Hammar, Conrad H., Roth, Walter S., and Johnson, O. R., op. cit.

7 per cent of the farms were classified as self-sufficing. Other evidence of the commercial nature of farming is to be found in the high indices of mortgage indebtedness and the high indices of farm machinery. About one-half of the owner-operated farms are mortgaged and the amount of the mortgage indebtedness averages about one-half of the value of the farms. Approximately .13 per cent of the farms reported tractors in 1930, while the average value of all farm machinery was \$435 per farm.

The culture in two of the minor divisions of Area B is influenced to a considerable extent by persons engaged in mining. The minor area which includes Kirksville, Macon, and Moberly (B-2), has about 1 miner to 10 farmers, while in the area which is composed of Barton, Jasper, and Newton counties, there is 1 miner to 4 farmers. Perhaps some of the miners live and work in urban places; however, it is thought that the majority of them are located in the rural areas, and contribute a unique element to the rural culture.

Another rather unique minor division of Area B is the one that surrounds St. Louis county. Perhaps it is safe to say that urban practices diffusing out from St. Louis, St. Charles, Washington, and other cities have been important in shaping the culture of the rural people directly surrounding these centers. Here, as around Kansas City, truck and part-time farming, good roads, large department stores, and movement between city and farm have furnished ways by which new customs could be acquired.

Other differences between the minor divisions center around farm tenure relations. Areas B-2 and B-5 have the smallest proportions of tenancy. Area B-5 has had smaller increases in tenancy, and has more tenants related to landlords than the other 5 areas. Areas B-3 and B-5, with slightly more than 1 farm laborer to 3 farm operators, have a higher proportion of farm laborers than the rest of Area B. Highly correlated with the tenure by which the farm is held and operated is the movement from one farm to the next, or between city and farm. The greatest amount of shifting comes in Area B-6 which also has the highest proportion of tenancy and the smallest proportion of tenants related to landlords, while the least amount of shifting is found in Area B-5 where not more than 30 per cent of the farm operators are tenants and where 40 per cent of the tenants are related to landlords.

Area C.

This area is composed of 33 counties and is divided into minor units C-1, C-2, C-3, and C-4. Minor Area C-1 includes 12 counties and extends from the Lake of the Ozarks to the Arkansas border.

Minor division C-2, with 14 counties, extends from the Missouri River on the north to West Plains on the south, and from Springfield on the west to Steelville on the east. Division C-3 includes the mining area which has St. Francois county as its core, while C-4 is composed of Perry and Cape Girardeau counties.

With respect to culture, Area C represents something intermediate between that found in the North and that prevailing in the extreme South. The index of rural-farm plane of living is 20 per cent below the State average, while that for the rural-nonfarm population is 15 per cent lower than the State average. Slightly more than one-half of the farm families had automobiles in 1930, while slightly less than one-half had telephones. Radios were reported by 13 per cent, and water and electricity in dwellings by only 4 per cent and 5 per cent respectively. The average value of the rural-farm home in 1930 was approximately \$800. Radios were reported proportionately more by the rural-nonfarm than by farm families. In 1930, about 1 in 5 of the former had a radio. The average value of the owned rural-nonfarm homes in 1930 was between \$1,600 and \$1,700, while the average amount paid for rent was approximately \$10 per month. Relief rates are much higher in Area C than in Areas A and B. It is estimated that approximately 20 per cent of the total population received assistance in December, 1934, and that about 15 per cent of the farm families received assistance during 1935.

The level of education prevailing in this section, as measured by school attendance and expenditures, illiteracy rates, and subscriptions to magazines, is slightly below the State average and places this area somewhere between that found in the northern sections and that of the more southern and southeastern parts. About 3 per cent of the 1930 rural-farm population 10 years of age and over were illiterate, while 4 per cent of the rural-nonfarm were so classified. In 1930, approximately 85 per cent of the children 7 to 17 years of age and 19 per cent of those 18 to 20 years of age attended school, while in 1935 the average daily attendance in rural districts was about three-fourths of those enrolled. Journals and magazines are found less frequently here than in the northern sections. About 8 per cent of the rural families subscribed to a particular national farm journal in 1930, and from a list of 6 leading farm journals an average of 0.7 per family was reported.

Foreign-born persons are of little significance in Area C. For the entire area, only 1 per cent of the rural population was reported as foreign-born in 1930. The largest proportions were re-

corded for Phelps county where 3.7 per cent of the rural-farm population and 2.2 per cent of the rural-nonfarm population were so classified.

Area C has fairly large families and fairly high birth rates. In 1930, the median size of the rural-farm family was 3.9, while in the rural-nonfarm population it was 3.1. The birth rate was sufficiently high that the number of children under 5 years of age was about 65 per cent greater than the number required to maintain a stationary population. There is great variability in the birth rate of this area, however. Certain counties were producing children at a rate 50 to 75 per cent higher than certain other counties. In the rural-farm population, only 5 counties were producing fewer than a 50 per cent surplus of children above replacement needs. At the other extreme, two counties (Iron and Madison) were producing more than 100 per cent surplus. In the rural-nonfarm population, 2 counties were failing to reproduce themselves in 1930, and an additional 18 counties had fewer than a 50 per cent surplus of children under 5 years of age. On the other hand, one county (Washington) was producing 130 per cent more children than was necessary to maintain the population.

With the relatively high birth rate, the population of the area may be said to be fairly young. Only 7 per cent of the rural-farm and 9 per cent of the rural-nonfarm were aged 65 or over in 1930, and the percentages aged 45 or over were 25 and 27 respectively.

During prosperous times the rural-urban migration from this area tends to be heavy, but in times of depression, migration slackens sharply. At such a time, failure to leave the country, together with some return migration, causes the rural population to increase rapidly. During the depressed period, 1930-1935, the number of persons living on farms increased 8.2 per cent.

The extent of participation in Agricultural Extension programs and in church work suggests a lower degree of organized social life in this area than in the areas previously described. While a little more than one-third of the population were church members in 1930, it is estimated that only about 7 or 8 per cent of the farm women were members of Homemakers' Clubs in 1937, and that about 5 per cent of the rural children 10 to 19 years of age belonged to 4-H Clubs. Perhaps much of the lack of participation in organized groups is accounted for in terms of the poorer facilities for communication, for as a rule, all-weather roads are not as numerous here as in the northern sections of the State, and as pointed out previously, a much lower proportion of the farm families has automobiles.

The topography of Area C varies from hilly to mountainous, with the roughest portions being located in Camden, Crawford, Washington, Stone, and Christian counties. Much of the land is covered with trees and brush, and agriculture consists of dairying, fruit raising, meat production, or some type of farming which can be adapted to the physiography. Along the streams, fairly fertile soils and fairly large crop yields are found, but for the most part, agriculture is not on a profitable basis. The average value per farm of products used, sold, or traded in 1929 was about \$1,200, while the average value per capita of the farm population was \$253. About one-fourth of the farm products were used by the operator's family in 1929, and about one-sixth of the farms were classified as self-sufficing. The extent of self-sufficient farming and the moderate returns therefrom are indicated also by the low index of mortgage indebtedness and the low proportions of tenancy. The index of mortgage indebtedness for this area is 35 per cent below the State average, while that measuring the amount of tenancy is from 5 per cent below the State figure in minor Area C-1 to 30 per cent below in minor Area C-3.

The average value of farm land per acre (exclusive of buildings) was \$23 in 1930, while the average value of the farm including both land and buildings was about \$2,700. Farm machinery is not used extensively in Area C. Only 4 per cent of the farms reported tractors in 1930, and the average value per farm of all farm machinery was \$271.

Perhaps the most outstanding difference in the minor divisions of Area C is accounted for in terms of the mining industry which is more important in Area C-3 than in any other section of the State. St. Francois county, which is somewhat a core for the area, has two persons engaged in the extraction of minerals for one engaged in farming, while in Washington county, the numbers in the two industries are almost equal.

Fundamentally, the dissimilarities between minor Areas C-1 and C-2 seem to be based largely upon certain differences in type of farming. Probably type of farming is in turn a product of the topography and character of the soil, for although Camden and Stone counties are rough, the rest of Area C-1 is less hilly and has a more commercialized type of agriculture than Area C-2. This slight shift toward more commercial farming is reflected in a larger proportion of the farms operated by tenants, fewer tenants related to landlords, and a greater tendency for tenancy to increase. In Area C-1, one-third of the farms were operated by tenants in 1930,

and in Area C-2 one-fourth were so classified. Between 1930 and 1935, tenancy increased about 5 per cent in each area, while between 1920 and 1930, Area C-1 gained 7 per cent and Area C-2 gained 3 per cent. In addition, Area C-1 had 25 per cent of its tenants related to landlords in 1930, while in Area C-2, 30 per cent were related.

Area C-4, which consists of Perry and Cape Girardeau counties, borders on the Mississippi River, and no doubt the culture therein is influenced to some extent by persons engaged in fishing and river transportation. For the most part, however, Area C-4 is much like Area C-2, differing in the fact that Area C-4 has a few more farm laborers, a larger proportion of the farm tenants related to landlords, and slightly less movement on the part of the farm operators from one farm to another.

Area D.

This area consists of 11 counties located in the extreme south central part of Missouri, and is divided into minor units D-1 and D-2. Minor division D-1—with 3 counties—forms the southwestern part of Area D, while unit D-2—with 8 counties—lies to the northeast. Area D is not contiguous when the State of Missouri is considered separately; however, it forms part of a large subregion and, as shown on the map, becomes continuous as it is extended into Arkansas.

This is the Ozark Mountain section of Missouri, and in many respects is one of the rural problem areas of the State.⁴ The farm plane of living index is only 50 per cent of the State average, and the rural-nonfarm plane of living is 30 per cent lower than the State figure. In 1930, about 2 farm families out of 5 had automobiles, 1 out of 5 a telephone, and only 1 out of 20 a radio. Water in the dwelling was reported by 1.3 per cent of the farm families, and electricity by only 1.9 per cent. The value of farm dwellings in this area averaged about \$500 each in 1930. Rural-nonfarm families reported radios more frequently than farm families, the proportion for the former being 14 per cent. The average amount paid for rent on nonfarm dwellings was about \$8.50 per month, while the average value of owned nonfarm homes was approximately \$1,300. Relief rates are higher in this area than in any other section of the State. It is estimated that nearly one-third of the total population was receiving relief in December, 1934, and that about one-fifth of all farm families received assistance during 1935.

⁴Beck, P. G., and Forster, M. C., *Six Rural Problem Areas*. Washington, Federal Emergency Relief Administration, Research Monograph I, 1933, p. 9.

Standards of education in Area D are as low as in any section of Missouri. About 5 per cent of the rural population 10 years of age and over were illiterate in 1930, and school attendance was not high. About 85 per cent of all children 7 to 17 years of age and 18 per cent of those 18 to 20 years of age attended school, but average daily attendance in rural school districts in 1935 was only about half of the enrollment. School expenditures are also low. In 1935, the average expenditure per pupil enumerated was about \$20, while in the State as a whole it was approximately \$35. Only about 5 per cent of all rural families subscribed to a particular national farm journal in 1930, and out of a list of 6 leading farm journals the average number per family was 0.5.

Practically all of the rural population in Area D is native-born. In the area, as a whole, native-born persons accounted for more than 99 per cent of the total, and in none of the counties did the foreign-born make up as much as 2 per cent of the rural population.

High birth rates and large families are distinguishing characteristics of Area D. The median size of the rural-farm family in 1930 was 4.2; for the rural-nonfarm family it was 3.4. In no other section of Missouri is the rate at which children are being born so high as in this area. In 6 of the 11 counties more than twice as many children were being born in 1930 as was necessary to maintain a stationary rural population, and in only one county was the rate lower than 75 per cent above replacement needs.

As might be expected in an area of high birth rates, the proportion of the population in the upper age groups is relatively small. Only about 6 per cent of the rural-farm and 7 per cent of the rural-nonfarm population were aged 65 or over in 1930. The proportion aged 45 or over was equal to 22 per cent in both populations. This area is subject to heavy losses of population through emigration during periods of prosperity but the slacking of migration during depression combined with returning migrants causes the population to increase rapidly. During the period, 1930-35, the farm population increased 13 per cent.

The low degree of participation in organized groups and activities is evidenced by the small percentage of the population that are church members, and by the lack of participation in Agricultural Extension programs. Only about 20 per cent of the population in Area D were church members in 1930, and only about 7 per cent of the farm women were members of Homemakers' Clubs in 1937. In addition, it is estimated that the number of persons enrolled in

4-H Clubs in 1937 was not more than 4 to 5 per cent of the rural population aged 10 to 19 years.

Agriculturally, Area D is poor and much of the land now being farmed should be removed from cultivation. Only 48 per cent of the land area is in farms, and much of the farm operator's income is earned from nonfarm sources. The topography of this section is hilly to mountainous. The once abundant timber supply is now practically exhausted. Farming consists of grazing, dairying, and the raising of a few crops in the fertile valleys adjoining the larger streams. Many of the farm operators are former timber workers who became stranded and are now being maintained in part by relief funds. Farm incomes are lower than in any other section of Missouri. In 1930, the average value per farm of all farm products used, sold, or traded was only \$880, while the average per farm inhabitant was \$170. Farm land (exclusive of buildings) was valued at \$13 per acre, while the value of the average farm including both land and buildings was about \$1,600. The majority of the farms in Area D are operated by owners, and mortgage indebtedness is relatively low. About 40 per cent of the owner-operated farms are mortgaged, and the ratio of the debt to the value of the farm is usually about one-third. The amount and value of farm machinery is likewise lower here than in other sections of Missouri. The average value per farm in 1930 was \$172, and less than 3 per cent of the farms reported tractors.

Although the distinction between minor divisions D-1 and D-2 is one of degree, the difference is great enough to distinguish the 2 areas. Area D-1 is scarcely as rough as D-2, and the agriculture appears to be not only slightly different in type but also somewhat better developed.⁵ In Area D-1, farm tenancy is more common than in D-2 and farming is farther above the subsistence level. In this area, 35 per cent of the farm land was rented by tenants and part-owners in 1930, while in Area D-2 only 30 per cent was so operated. Between 1930 and 1935, the proportion of farms operated by tenants in D-1 increased by 3 per cent, and in D-2 by 1 per cent. In addition to the higher rate of tenancy in Area D-1, there is also a higher rate of population mobility. In this area, 23 per cent of the farm operators had been on their present farms less than 1 year on January 1, 1935, while in Area D-2 only 18 per cent were so classified.

⁵Hammar, Conrad H., Roth, Walter S., and Johnson, O. R., *op. cit.*

Area E.⁶

Area E is composed of the 7 southeastern counties of the State, and is commonly called the Southeast Missouri Lowlands. For purposes of this analysis, the area is not sub-divided.

Cotton, corn, share-cropping, and day-wage laborers are the terms that describe the agricultural organization of this section. Agriculture produces well and per worker income is higher than in many other Missouri counties, but the level of living is lower than in any other area of the State. In 1930, slightly more than one-third of the farm families had automobiles, 1 in 10 had a telephone, and only 1 in 30 a radio. Only 1 per cent of the farm families reported water piped into the dwelling, and less than 2 per cent reported electricity in the dwelling. The average value of all farm dwellings in 1930 was \$580, and no doubt many of those inhabited by share-croppers and day laborers would fall below this figure.⁷ Relatively more of the rural-nonfarm than farm families had radios, the proportion for the rural-nonfarm being 16 per cent. The average value of owned rural-nonfarm homes in 1930 was about \$1,200, while the average monthly rental paid by non-owners was \$9. Relief rates in this section have not been as high as in either Area C or D, but the prevailing low level of living suggests that it is lack of public resources rather than lack of need that has caused the incidence of relief to be low. It is estimated that about 14 per cent of the total population received assistance in December, 1934, and that about 10 per cent of the farm families received aid during 1935.

Standards of education, as measured by illiteracy, school attendance and expenditures, and subscriptions to magazines, are inferior to those generally found in Missouri, and are also indicative of the low culture prevailing in this section. About 8 per cent of the rural-farm and 6 per cent of the rural-nonfarm population 10 years of age and over were illiterate in 1930. Of a list of 6 leading farm journals, the number of subscriptions in 1930 averaged less than one for every two rural families. The school system has been referred to as "a multiplicity of one-room school districts, with poorly trained and low-paid teachers;"⁸ and school attendance, even with a split term for "cotton vacation," has been labeled "most irregular."⁹ About 83 per cent of the rural population 7 to 17 years

⁶For a more complete description of the social and economic conditions, see: White, Max R., Ensminger, Douglas, and Gregory, Cecil L., Rich Land—Poor People. Indianapolis, Farm Security Administration, Research Report No. 1, 1938.

⁷Ibid., pp. 40-41.

⁸Ibid., p. 7.

⁹Ibid., p. 7.

of age and 15 per cent of that 18 to 20 years attended school in 1930, but average daily attendance was low. In 1935, the average daily attendance in rural districts was only slightly more than one-half of those enrolled.

Foreign-born persons in this area are of little or no significance. In 1930, they accounted for less than 0.5 per cent of the total rural population. Negroes, however, are more important in the rural population of Area E than in any other section of Missouri. In 1930, Negroes accounted for about 10 per cent of the rural-farm, and for about 5 per cent of the rural-nonfarm population. In 1935, approximately 20,000 Negroes, or more than two-thirds of all those on farms in Missouri, were on farms in this area.

Birth rates are almost as high in Area E as in Area D. The medium size of the rural-farm family in 1930 was 4.3, while for the rural-nonfarm it was 3.5. For the farm population, 5 of the 7 counties were producing more than twice as many children as were necessary to maintain a stationary population, and in the remaining 2 counties birth rates were more than 75 per cent above replacement requirements. The population of the area is relatively young. Only about 5 per cent of the rural-nonfarm and only 3 per cent of the rural-farm population were aged 65 or over. The proportions 45 years or over were 22 per cent for the rural-nonfarm and 17 per cent for the rural-farm population. In addition to high birth rates, Area E has had considerable immigration from southern cotton-producing states, and between 1930 and 1935 the number of persons living on farms increased by 14 per cent.

The large families and small farms make the density of the rural population greater here than in any place in the State and should serve as a basis for a rich community social life. However, indices measuring the proportion of the population that are church members and participation in Agricultural Extension programs place this area below all others in the State in these respects. About 23 per cent of the 1930 population were church members, and only about 7 per cent of the farm women were members of Homemakers' Clubs in 1937. In addition, it is estimated that in 1937 less than 5 per cent of the rural population 10 to 19 years of age were members of 4-H Clubs.

With respect to some phases of agriculture, Area E ranks as high as any section of Missouri, but in other aspects, its position is much lower. The topography is level, the soils are fertile, and crop production is high. However, in some of the counties as many as 90 per cent of the farms are operated by tenants and much of

the operator's income must go for the rent on the land. In addition, expensive drainage systems to prevent overflows and to reclaim swamp areas have been constructed and the tax burden is heavy.

The principal crops are cotton and corn and almost all of the land in farms is in cultivation. Farm values are somewhat lower than those generally found in the State, but farm incomes are above the State average. In 1930, the average value of all farm products used, sold, or traded was approximately \$1,500 per farm, while the average value per farm inhabitant was about \$260. Only about 6 per cent of the farms were classified as self-sufficing in 1930, and only about 13 per cent of the farm products were used by the operator's family. Farm land (exclusive of buildings) averaged about \$47 per acre in 1930, while the average value of the farms including both land and buildings was about \$2,600. Farm mortgages are fairly numerous in this section. More than one-half of the owner-operated farms are mortgaged, and in most cases the amount of the debt is about one-half of the value of the farm. As indicated earlier, tenants—most of whom are share-croppers—and day-wage laborers are abundant; labor is cheap and most of the farming operations are carried on with a minimum of farm machinery. Only 5 per cent of the farms reported tractors in 1930, and the average value of all farm machinery per farm was about \$230.

In a culture such as described above, mobility rates are generally high and movement from farm to farm is a yearly event for many families. Nearly one-half of the tenants and more than one-third of all farm operators—including both tenants and owners—had been on their present farms less than 1 year on January 1, 1935. Mobility rates for day laborers are even greater than for farm operators. Many of the laborers move to farms in the spring, work through the cropping season, and return in the fall to a non-farm residence where they work on roads, levees, etc.¹⁰

Area F.

This area is composed of St. Louis county, but does not include St. Louis City. More than one-half of the population in this county lives in places of 2,500 or larger, and only about 7 per cent live on farms. Some agriculture is carried on in St. Louis county, but manufacturing, commerce, and other nonagricultural activities employ a large proportion of the population. Those engaged in farming are usually producing goods that are readily consumed

¹⁰Ibid., p. 53.

in St. Louis City and its adjoining suburbs, and are influenced in their mode of life by urban contacts. In view of these considerations, Area F is relatively unimportant in a discussion of rural social areas and is included primarily to complete the picture for the State.

Rural levels of living are high in St. Louis county. In 1930, three-fourths of the farm families had automobiles, approximately one-half had radios, and about 45 per cent had electricity in the dwellings. Running water in the dwellings was reported by 35 per cent of the farm families, and telephones by approximately one-third. The average value of the farm dwelling was about \$2,900. Rural-nonfarm families had proportionately more radios than the rural-farm, the proportion for the former being 55 per cent. The average value of the owned rural-nonfarm home in 1930 was approximately \$4,500, while the average monthly rental paid by non-owners was about \$26. In comparison with other areas, relief rates in St. Louis county have not been high. About 15 per cent of the total population received aid in December, 1934, and approximately 5 per cent of the farm families received assistance in 1935.

The standards maintained by the schools in Area F are above those generally found in Missouri. In 1930, about 88 per cent of the children 7 to 17 years of age and 23 per cent of those 18 to 20 years attended school, while the average daily attendance in rural districts in 1935 was almost 80 per cent of those enrolled. School expenditures are higher here than in any part of the State, being nearly \$75 per pupil enrolled in 1935. Indices relating to the circulation of farm journals place this county on a par with Area E. However, it is probable that much reading matter is purchased at the news stands and that the circulation of farm journals does not provide a fair measure of the reading matter used.

Foreign-born persons are more common in the rural population of St. Louis county than in any other rural area of Missouri. In 1930, foreign-born persons accounted for 6.5 per cent of the rural-farm and for 6.2 per cent of the rural-nonfarm population.

The population in Area F is younger than that of the State as a whole. About 4 per cent of the rural-nonfarm and 7 per cent of the rural-farm were 65 years of age or over in 1930. The proportions 45 years of age and over were 20 per cent for the rural-nonfarm and 28 per cent for the rural-farm. In spite of the relatively youthful population, however, Area F has a low birth rate and small families. The median rural-farm family in 1930 consisted

of 3.8 persons, and the median rural-nonfarm family consisted of 3.4 persons. Measured in terms of the number of children required to maintain a stationary population, the birth rates for both the farm and the nonfarm population were such as to provide not more than 25 per cent above replacement requirements.

Between 1930 and 1935, the number of persons living on farms in St. Louis county increased by 18 per cent. Most of this was the result of the movement of families from St. Louis City to the rural areas. Usually such moves are for short distances and association with the city is maintained by automobile or other means. In view of this, many of the persons living in Area F do not depend entirely upon the rural communities for their social life. Perhaps the low percentage of persons that are church members and the lack of participation in Agricultural Extension programs is a reflection of this situation. In 1930, about 21 per cent of the total population were church members, and only about 5 per cent of the farm women were members of Homemakers' Clubs in 1937. The number enrolled in 4-H Clubs in 1937 indicates that about 3 per cent of the rural youth aged 10 to 19 years were members.

Agriculture in St. Louis county consists mostly of part-time, truck, and dairy farming. Farm incomes are large, and farm land values, which are influenced to a considerable extent by location, are high. In 1930, the average value of all farm products was \$1,700 per farm, or \$314 per farm inhabitant. The value of farm land (exclusive of buildings) was \$216 per acre, and the average value of both land and buildings was about \$9,500 per farm. Many of the farms in this area have motor trucks, and more than one-fourth have tractors. The average value of all farm machinery in 1930 was about \$600 per farm. There is about 1 farm laborer per farm. Tenancy and mortgage indebtedness are no higher than in the Ozark sections of the State.

APPENDIX A.—AVERAGE VALUES FOR FACTORS USED IN THE DETERMINATION OF MAJOR AREAS¹

FACTOR	AREA					
	A	B	C	D	E	F
Index of Farm Plane of Living	154.4	119.5	77.7	48.5	43.5	203.4
Per Cent of Farms Reporting Water Piped in Dwelling, 1930	17.4	10.3	4.3	1.3	1.0	34.7
Per Cent of Farms Reporting Telephones, 1930	73.5	71.9	42.7	18.3	10.2	32.8
Per Cent of Farms Reporting Automobiles, 1930	77.9	73.1	57.9	40.4	38.3	74.6
Average Value in Dollars of Farm Dwellings, 1930	1870	1346	828	492	582	2899
Per Cent of Farms Reporting Radios, 1930	45.6	32.2	12.5	4.4	3.8	47.1
Per Cent of Farms Reporting Electricity in Dwelling, 1930	17.8	8.2	5.0	1.9	1.8	44.3
Index of Rural-Nonfarm Plane of Living	142.4	108.1	85.4	69.7	68.5	258.2
Per Cent of Rural-Nonfarm Families Reporting Radios, 1930	39.0	30.9	19.6	14.3	16.2	55.1
Median Value in Dollars of Owned Rural-Nonfarm Homes, 1930	2476	1858	1655	1359	1172	4478
Median Monthly Rental Value in Dollars of Rural-Nonfarm Homes, 1930	13.54	10.83	9.56	8.73	8.73	26.28
Index of Age of the Population	102.6	107.8	96.0	86.8	79.7	95.2
Per Cent of Rural-Farm Population 65 Years of Age and Over, 1930	7.1	8.2	7.1	5.8	3.2	7.0
Per Cent of Rural-Farm Population 45 Years of Age and Over, 1930	27.1	29.4	25.4	21.6	16.9	28.1
Per Cent of Rural-Farm Population 15 Years of Age and Over, 1930	70.3	70.8	65.6	61.6	59.9	71.9
Per Cent of Rural-Nonfarm Population 65 Years of Age and Over, 1930	10.7	12.3	9.0	6.7	5.4	4.1
Per Cent of Rural-Nonfarm Population 45 Years of Age and Over, 1930	30.7	33.8	26.7	22.1	21.8	19.9
Per Cent of Rural-Nonfarm Population 15 Years of Age and Over, 1930	73.1	74.8	69.3	65.4	66.0	69.6
Index of Fertility of the Population	87.4	85.5	111.2	126.6	131.4	95.5
Median Size Rural-Farm Family, 1930	3.48	3.42	3.85	4.15	4.27	3.84
Median Size Rural-Nonfarm Family, 1930	2.93	2.76	3.13	3.44	3.46	3.43
Birth Rate per 1,000 Population (Excluding Cities 10,000 and Over), 1930	14.6	15.2	19.2	18.9	22.9	14.5
Average Number of Children Under 5 Years of Age per 1,000 Women, 20 to 44 Years of Age, Rural-Farm Population, 1930	548	554	742	883	867	508
Average Number of Children Under 5 Years of Age per 1,000 Women, 20 to 44 Years of Age, Rural Population, 1930	559	551	741	883	841	535
Index of Foreign-Born Population	146.6	113.8	82.5	51.4	26.9	509.7
Per Cent of Rural-Farm Population Foreign-Born, 1930	1.7	1.3	1.0	.7	.3	6.5
Per Cent of Rural-Nonfarm Population Foreign-Born, 1930	2.0	1.5	1.0	.5	.4	6.2
Index of Literacy and General Education of the Population	121.5	115.5	87.6	71.9	57.1	90.2
Per Cent of Rural-Farm Population 10 Years of Age and Over Illiterate, 1930	1.3	1.5	3.3	4.7	7.9	1.3
Per Cent of Rural-Nonfarm Population 10 Years of Age and Over Illiterate, 1930	1.9	2.6	3.9	4.4	5.9	1.8
Average Number of Journals per Rural Family (6 Leading Farm Journals), 193097	.99	.66	.48	.45	.50
Per Cent of Rural Families Subscribing to a Particular National Farm Journal, 1930	17.7	15.0	8.0	4.0	6.1	2.0

Ratio Farm Population, 1935 to 1930, x 100	100.3	103.4	108.2	112.6	113.6	118.1
Index of Relief Status of the Population	62.3	70.7	130.5	193.1	87.2	69.4
Per Cent of Total Population on Relief, 1934	13.0	13.4	23.0	32.1	13.8	15.2
Index of the Per Cent of Farm Families on Relief, 1935	4.2	6.3	15.0	22.4	10.5	4.9
Index of Proportion of Children in School	105.9	102.8	97.4	94.0	91.4	103.1
Per Cent of Children Aged 7-17 Years Attending School, 1930	88.9	87.4	85.7	83.3	83.0	87.6
Per Cent of Children Aged 18-20 Years Attending School, 1930	24.2	23.0	18.7	18.4	15.2	23.0
Index of Pupils per Teacher	108.0	111.7	92.1	87.2	60.0	94.2
Average Number of Pupils Enrolled per Teacher (Rural School Districts Only), 1935-1936	20.4	17.2	28.2	28.4	45.7	31.8
Per Cent of Total Enrollment in Average Daily Attendance (Rural School Districts Only), 1935-1936 ...	80.5	81.4	72.7	68.0	58.2	78.7
School Expenditures in Dollars per Pupil Enumerated, 1935-1936	48	39	30	22	26	74
Index of Participation in Extension Programs	154.6	125.4	67.4	62.3	50.5	39.5
Average Number of Home Economics Club Members per 100 Farms, 1937	22.9	16.7	8.0	7.4	6.6	5.0
Per Cent of Rural Population, Aged 10-19 Years, 4-H Club Members, 1937	9.4	8.7	5.2	4.8	3.5	2.8
Per Cent of Total Population Church Members, 1930	42.0	45.9	37.0	22.0	22.6	21.0
Index of Farm Incomes	159.0	112.0	74.6	48.0	118.4	121.3
Per Cent of Farm Products Used by Operator's Family, 1929	10.3	15.3	22.2	29.1	12.5	14.9
Average Value in Dollars per Farm of Products Used, Sold, or Traded, 1929	2796	1733	1186	883	1531	1734
Average Value in Dollars per Acre of Land in Farms of Products Used, Sold, or Traded, 1929	20	11	8	6	20	28
Per Cent of Farms Self-Sufficing, 1929	4.7	7.1	16.1	27.0	6.3	4.4
AAA Payments in Dollars per Farm Operator, 1935	229	120	47	40	130	17
Average Value in Dollars per Rural-Farm Inhabitant of Products Used, Sold, or Traded, 1929	620	415	253	170	265	314
Index of Farm Values	193.2	108.9	70.4	52.8	75.9	289.8
Average Value in Dollars of Farm Land per Acre, 1930	87	38	23	13	47	216
Average Value in Dollars of Farm Land and Buildings per Capita, 1935	1883	1126	619	336	474	2104
Average Value in Dollars of Farm Land and Buildings per Farm, 1935	7891	4361	2683	1604	2616	9414
Index of Farm Mortgages and Indebtedness	137.7	125.8	65.9	36.6	120.7	48.7
Per Cent of All Owner-Operated Farms Mortgaged, 1930	52.7	50.5	45.4	41.5	53.8	34.5
Ratio of Farm Mortgage Debt to Value (Full Owners Owning No Other Farm Land), 1930	43.7	49.8	38.6	33.4	48.1	31.5
Average Amount of Mortgage Debt in Dollars per Farm Full Owner-Operated Farms, 1930	6095	4042	1845	996	3203	4330
Index of Farm Machinery	154.9	107.1	79.6	61.6	84.4	339.6
Average Value in Dollars of Farm Implements per Acre, 1930	4.72	2.97	2.02	1.26	3.02	10.63
Per Cent of Farms Reporting Tractors, 1930	15.9	12.8	4.3	2.3	5.2	26.1
Average Value in Dollars of Farm Implements per Farm, 1930	620	435	271	172	229	601
Per Cent of Total Land Area in Farms, 1930	89.6	87.4	72.2	48.3	65.1	55.4
Average Number of Doctors per 1,000 Population, 1930	1.37	1.22	.90	.54	.80	.54

¹These are arithmetic averages of the county values. Since the areas are relatively homogeneous for these factors, there is little difference between the arithmetic averages and the medians.

APPENDIX B.—AVERAGE VALUES FOR FACTORS USED IN THE DETERMINATION OF MINOR AREAS¹

FACTOR	AREA							
	A-1	A-2	B-1	B-2	B-3	B-4	B-5	B-6
Index of Proportion of Tenancy	119.1	105.1	105.9	85.0	103.4	104.8	87.8	121.5
Per Cent of Farms Operated by Tenants, 1930	40.0	34.1	33.5	26.3	30.7	31.5	24.8	38.7
Per Cent of Farm Land Rented by Tenants and Part-Owners, 1935	52.1	47.2	48.3	39.4	49.1	49.4	42.9	55.2
Per Cent of Farms Operated by Tenants, 1935	44.1	37.5	40.4	32.1	38.5	36.9	29.8	44.0
Index of Increase in Tenancy	83.1	84.1	95.5	91.0	81.7	95.4	64.3	90.6
Increase in Number of Farms Operated by Tenants, 1920 to 1930	20	57	74	60	2	88	—85	98
Increase in Proportion of Farms Operated by Tenants, 1920 to 1930	2.9	1.0	5.9	4.5	3.1	5.5	—1.1	1.6
Per Cent of Tenants Related to Landlord, 1930 ...	30.0	23.7	27.7	21.8	22.5	25.6	39.2	20.1
Per Cent of Farm Operators on Present Farm Less Than 1 Year, January 1, 1935	15.3	16.6	17.7	17.0	16.4	15.8	11.2	20.9
Average Number of Farm Wage Earners per 100 Farms, 1930	47.3	44.7	23.5	25.3	35.4	32.4	36.3	25.5
Average Number of Days of Farm Work per Year Available for Each Farm Male 15 to 64 Years of Age, 1930	137.0	124.5	147.2	120.3	144.7	123.7	109.0	113.7

FACTOR	AREA							
	C-1	C-2	C-3	C-4	D-1	D-2	E	F
Index of Proportion of Tenancy	93.6	74.2	72.9	74.3	82.2	73.9	187.0	82.6
Per Cent of Farms Operated by Tenants, 1930	31.1	24.6	24.8	24.6	28.4	27.8	74.8	27.6
Per Cent of Farm Land Rented by Tenants and Part-Owners, 1935	41.5	32.8	31.6	32.9	35.2	29.5	70.0	36.3
Per Cent of Farms Operated by Tenants, 1935	35.6	29.2	28.5	27.7	31.5	29.1	73.6	24.2
Index of Increase in Tenancy	103.4	90.6	80.5	93.0	99.0	96.5	236.8	.9
Increase in Number of Farms Operated by Tenants, 1920 to 1930	141	63	10	32	70	48	1112	—553
Increase in Proportion of Farms Operated by Tenants, 1920 to 1930	6.9	3.2	.7	2.5	5.2	4.8	13.8	—9.8
Per Cent of Tenants Related to Landlord, 1930 ...	24.7	29.7	22.3	35.0	29.2	28.5	9.6	39.2
Per Cent of Farm Operators on Present Farm Less Than 1 Year, January 1, 1935	20.1	17.6	13.5	10.8	22.5	17.8	36.2	9.5
Average Number of Farm Wage Earners per 100 Farms, 1930	19.3	25.1	32.8	31.4	18.0	21.7	52.0	83.1
Average Number of Days of Farm Work per Year Available for Each Farm Male 15 to 64 Years of Age, 1930	113.5	98.6	80.4	102.5	87.0	82.3	155.4	63.0

¹These are arithmetic averages of the county values. Since the areas are relatively homogeneous for these factors, there is little difference between the arithmetic averages and the medians.

APPENDIX C

Method

The Method in General.—The approach used in the determination of social areas as presented in this report assumed “no constant relation between such bio-physical factors as soil and type of agriculture and social and economic traits.”¹ It assumed that certain indices measuring different aspects of the same characteristic and some measuring difference characteristics would be correlated. It also assumed that the elimination or combination of correlated factors could be made, and the variables reduced to a comprehensible number without too great a sacrifice in accuracy.

All available indices giving county variation in cultural traits were collected. In total, there were approximately 105 of these. The indices were examined and those for which the data were considered unreliable, those which showed practically no variation, and those which appeared to be of no practical significance were discarded. This process reduced the number to 87, and those remaining were classified into groups and sub-groups. The groups were general and distinguished between: population factors, school and other institution factors, family living factors, etc. The sub-groups were more specific; for example, in school and other institution factors they consisted of: proportion of children in school, pupils per teacher, teachers' salaries, etc. Within the sub-groups were the individual factors measuring different aspects of the specific situation. (See pages 31 to 33.)

Coefficients of correlation were computed between each of the factors within a given sub-group, and those highly correlated were combined into a composite index.² (See pages 34 to 37.) Factors which had been placed in a particular sub-group, but which were not highly correlated with the rest of the factors in that division, were taken out and placed in a different classification. In the event that no classification existed to which displaced factors could be assigned, a separate division was made for each of these and they were given the same significance as composite indices. In this manner, the number of variables used was reduced to 39.

At this time, coefficients of correlation were computed for all possible pairs among the 39 variables, and by selecting the variables which

¹Lively, C. E., and Almack, R. B., A Method of Determining Rural Social Sub-Areas with Application to Ohio. Department of Rural Economics, Ohio State University, Mimeograph Bulletin 106, 1938, p. 1.

²Although upon some points the method differs widely, it is patterned closely after that set forth by Lively and Almack.

³In general, two factors were considered highly correlated if the coefficient was 0.5 or larger.

were highly correlated with the largest number, an attempt was made to pick out the most significant ones. It was found that 18 were highly correlated with the Index of Farm Plane of Living, five additional and different ones were highly correlated with the Index of the Proportion of Farms and Farm Land Operated by Tenants, and of those remaining no other factor was highly correlated with more than two. It was concluded that since the index measuring farm plane of living controlled a large proportion of all variables, it would serve best to delineate major areas and that the index measuring the per cent of tenancy could be used to break the major divisions into minor units.

Certain minor differences are apparent between the social areas for Missouri as outlined here and those selected by A. R. Mangus on a national scale. These discrepancies are accounted for by the fact that methods differed slightly, and by the fact that it was possible to include a larger number of variables in this study which was concerned with Missouri only.

The Method of Constructing Component Indices.—Once the factors to be combined into an index were established, the standard deviations and the arithmetic means for each series were computed. The arithmetic mean for a given factor was subtracted from each of the county values making up that average, and the remainders were divided by the standard deviation. The result was that each factor entering into the component index was expressed in positive and negative standard-deviation units centering around zero as an average. The combination was effected by adding for each county the "standard-deviation unit" for each factor. Finally, negative values were eliminated by the addition of a positive amount to each county value, and the State averages, by a process of division, were placed at 100.

The Method of Determining Homogeneous Areas.—The county values for the farm plane of living index—the major variable—were placed on each of 6 or 8 county outline maps. The maps were colored, using a different set of class intervals for each. Such a procedure eliminated the bias of a particular grouping, and enabled one to outline the general areas. Means of the county values in each general area were computed and the values of all border counties were compared with the average value of the area of which they were a part and the average value of the area they adjoined. Shifts of counties from one area to another to eliminate the variation within each area were now made, and new averages

**Border Counties of Area A Classified as A or B According to
the Area Average Representing the Smaller Deviation from
the County Value.**

FACTOR	COUNTY						
	Andrew	Buchanan	Clinton	Jackson	Lafayette	Nodaway	Ray*
Total All Variables—A.....	12	14	11	12	12	13	4
B.....	7	5	7	6	7	4	15
Index of Farm Plane of Living....	A	A	A	A	A	A	B
Index of Fertility of the Population	B	A	B	A	A	A	A
Index of Foreign-Born Population...	A	A	B	A	A	A	B
Index of Literacy and General Edu- cation of the Population.....	B	A	A	A	B	A	B
Ratio Farm Population, 1935 to 1930, x 100	A	B	B	B	A	A	B
Index of Age of the Population....	B	A	B	A	A	A	A
Index of Non-Farm Plane of Living	A	A	B	B	B	A	B
Index of Relief Status of the Popu- lation	A	B	A	A	A	B	B
Index of Proportion of Children in School	B	A	A	A	B	A	B
Index of Pupils per Teacher	B	A	B	A	B	B	B
School Expenditures in Dollars per Pupil Enumerated, 1935	B	A	**	**	B	A	B
Index of Participation in Extension Programs	A	A	A	B	A	B	B
Per Cent of Total Population Church Members, 1930	A	A	B	A	B	B	A
Index of Farm Incomes	A	B	A	B	A	A	B
Index of Farm Values	A	A	A	A	A	A	B
Index of Farm Mortgages and In- debtedness	A	B	A	B	B	A	B
Index of Farm Machinery	A	A	A	A	A	A	B
Per Cent of Total Land Area in Farms, 1930	A	B	A	B	A	A	A
Average Number of Doctors per 1,000 Population, 1930	B	A	A	A	A	A	B

*Ray County was included as a part of Area A because of its similarity to Area A-2 with respect to persons engaged in the extraction of minerals.

**No data available.

to reduce further the variation by repeating the process were computed.

When the variation in the plane of living index in each of the areas was reduced to a minimum, the average values by areas for each of the 18 variables were computed. Bordering county values were compared with the average value for the area of which they were a part and that which they adjoined for each of the 18 factors, and if for a majority of the factors a shift of a county from one area to another would reduce the variation, such was made. The process was repeated until within each area a minimum amount of variation was present for a majority of the 18 variables. (See above table.) Completion of the process established the major divisions.

With a method similar to that described above for the major factor, the minor areas were established. For the most part, the delineation of minor areas was simpler and more easily accomplished than the determination of the major divisions, for here it was possible to work within the major areas and greatly reduce the number of counties being considered at any one time.

In a final step, a qualitative cultural difference was recognized for counties which had a high ratio of persons engaged in the extraction of minerals to those engaged in farming. Mining is important only in certain sections and could not be handled by correlation analysis; however, by shifting a few marginal counties from one division to another, the areas also were made relatively homogeneous from this point of view.

Factors Not Included.—It is important to call attention to the fact that this determination of social areas does not include all measures of rural culture traits. Measures for an innumerable number of traits were not available, and others for which indices were available were excluded because of the unreliability of the data, because of the small amount of variation within the state, or because it was thought they bore little relation to the purpose for which the study was made. No doubt many of the traits not accounted for would be highly correlated with those included and would fit perfectly into the areas as shown on the map; others would undoubtedly show little relation to the areas presented here.

Measures of cultural variation which were considered throughout the study of the problem, but which in the final analysis had to be discarded, are listed below. These factors were not sufficiently related to the factors used in area determination so that they could be included without reducing homogeneity.

Index of Geographical Distribution of Population

Index of Native White Population

Index of the Proportion of Married Persons in the Population

Index of Urban-Rural Migration

Per Cent of Farm Operators, 1929, Moving to Cities, 1929-1930

Rural Population Ratio, 1930 to 1920

Index of Teachers' Salaries

Per Cent of Farm Dwellings Unoccupied, 1935

Per Cent of Farmers Selling Through Cooperatives, 1929

Index of Off-the-farm Employment

Index of Size of Farms

Per Cent of Farms Reporting Motor Trucks, 1930

Income Tax Returns per 1,000 Rural Population, 1933

Savings Bank Deposits in Dollars per Capita, 1930

APPENDIX D.—CLASSIFICATION OF THE 87 FACTORS USED IN THE DETERMINATION OF RURAL SOCIAL AREAS

I. POPULATION FACTORS.

- A. *Index of Geographic Distribution of the Population*
 1. Rural Population per Square Mile, 1930
 2. Total Population per Square Mile, 1930
 3. Per Cent Total Population Rural-Farm, 1930
- B. *Index of Age of the Population*
 1. Per Cent of Rural-Farm Population 65 Years of Age and Over, 1930
 2. Per Cent of Rural-Farm Population 45 Years of Age and Over, 1930
 3. Per Cent of Rural-Farm Population 15 Years of Age and Over, 1930
 4. Per Cent of Rural-Nonfarm Population 65 Years of Age and Over, 1930
 5. Per Cent of Rural-Nonfarm Population 45 Years of Age and Over, 1930
 6. Per Cent of Rural-Nonfarm Population 15 Years of Age and Over, 1930
- C. *Index of Fertility of the Population*
 1. Median Size Rural-Farm Family, 1930
 2. Median Size Rural-Nonfarm Family, 1930
 3. Birth Rate per 1,000 Population (Excluding Cities 10,000 and Over), 1930
 4. Average Number of Children Under 5 Years of Age per 1,000 Women, 20 to 44 Years of Age, Rural-Farm Population, 1930
 5. Average Number of Children Under 5 Years of Age per 1,000 Women, 20 to 44 Years of Age, Rural Population, 1930
- D. *Index of Proportion of Married Persons in the Population*
 1. Per Cent of Rural-Farm Population 15 Years of Age and Over Married, 1930
 2. Per Cent of Rural-Nonfarm Population 15 Years of Age and Over Married, 1930
- E. *Index of Foreign-Born Population*
 1. Per Cent of Rural-Farm Population Foreign-Born, 1930
 2. Per Cent of Rural-Nonfarm Population Foreign-Born, 1930
- F. *Index of Native White Population*
 1. Per Cent of Rural-Farm Population Native White, 1930
 2. Per Cent of Rural-Nonfarm Population Native White, 1930
- G. *Index of Literacy and General Education of the Population*
 1. Per Cent of Rural-Farm Population 10 Years of Age and Over Illiterate, 1930
 2. Per Cent of Rural-Nonfarm Population 10 Years of Age and Over Illiterate, 1930
 3. Average Number of Journals per Rural Family (6 Leading Farm Journals), 1930
 4. Per Cent of Rural Families Subscribing to a Particular National Farm Journal, 1930
- H. *Index of Urban to Rural Movement*
 1. Per Cent of Farm Operators in 1930 Who Lived in Cities in 1929
 2. Per Cent of Farm Operators in 1935 Who Lived in Cities in 1930
- I. *Per Cent of Farm Operators, 1929, Moving to Cities, 1929 to 1930*
- J. *Ratio Farm Population, 1935 to 1930, x 100*
- K. *Ratio Rural Population, 1930 to 1920, x 100*

II. FAMILY LIVING FACTORS

- A. *Index of Farm Plane of Living*
 - 1. Per Cent of Farms Reporting Water Piped in Dwelling, 1930
 - 2. Per Cent of Farms Reporting Telephones, 1930
 - 3. Per Cent of Farms Reporting Automobiles, 1930
 - 4. Average Value in Dollars of Farm Dwellings, 1930
 - 5. Per Cent of Farms Reporting Radios, 1930
 - 6. Per Cent of Farms Reporting Electricity in Dwelling, 1930
- B. *Index of Rural-Nonfarm Plane of Living*
 - 1. Per Cent of Rural-Nonfarm Families Reporting Radios, 1930
 - 2. Median Value in Dollars of Owned Rural-Nonfarm Homes, 1930
 - 3. Median Monthly Rental Value in Dollars of Rural-Nonfarm Homes, 1930
- C. *Index of Relief Status of the Population*
 - 1. Per Cent of Total Population on Relief, 1934
 - 2. Index of the Per Cent of Farm Families on Relief, 1935

III. SCHOOL AND OTHER INSTITUTION FACTORS

- A. *Index of Proportion of Children in School*
 - 1. Per Cent of Children Aged 7-17 Years Attending School, 1930
 - 2. Per Cent of Children Aged 18-20 Years Attending School, 1930
- B. *Index of Pupils per Teacher*
 - 1. Average Number of Pupils Enrolled per Teacher, (Rural School Districts Only), 1935-1936
 - 2. Per Cent of Total Enrollment in Average Daily Attendance, (Rural School Districts Only), 1935-1936
- C. *Index of Teacher Salaries*
 - 1. Average Annual Salary in Dollars per White Male Teacher, (Rural School Districts Only), 1935-1936
 - 2. Average Annual Salary in Dollars per White Female Teacher, (Rural School Districts Only), 1935-1936
- D. *School Expenditures in Dollars per Pupil Enumerated, 1935-1936*
- E. *Index of Participation in Extension Programs*
 - 1. Average Number of Home Economics Club Members per 100 Farms, 1937
 - 2. Per Cent of Rural Population, Aged 10-19 Years, 4-H Club Members, 1937
- F. *Per Cent of Total Population Church Members, 1930*

IV. CONDITIONS OF AGRICULTURE FACTORS

- A. *Index of Farm Incomes*
 - 1. Per Cent of Farm Products Used by Operator's Family, 1929
 - 2. Average Value in Dollars per Farm of Products Used, Sold, or Traded, 1929
 - 3. Average Value in Dollars per Acre of Land in Farms of Products Used, Sold, or Traded, 1929
 - 4. Per Cent of Farms Self-Sufficing, 1929
 - 5. AAA Payments in Dollars per Farm Operator, 1935
 - 6. Average Value in Dollars per Rural-Farm Inhabitant of Products Used, Sold, or Traded, 1929
- B. *Index of Size of Farms*
 - 1. Average Number of Acres per Farm, 1930
 - 2. Average Number of Acres per Rural-Farm Inhabitant, 1930
 - 3. Per Cent Farms with 50 Acres or More, 1935
 - 4. Per Cent Farms with 500 Acres or More, 1935
- C. *Index of Farm Values*
 - 1. Average Value in Dollars of Farm Land per Acre, 1930
 - 2. Average Value in Dollars of Farm Land and Buildings per Capita, 1935
 - 3. Average Value in Dollars of Farm Land and Buildings per Farm, 1935

- D. *Index of Farm Mortgages and Indebtedness*
1. Per Cent of All Owner-Operated Farms Mortgaged, 1930
 2. Ratio of Farm Mortgage Debt to Value (Full Owners Owning No Other Farm Land), 1930
 3. Average Amount of Mortgage Debt in Dollars per Farm Full Owner-Operated Farms, 1930
- E. *Index of Farm Machinery*
1. Average Value in Dollars of Farm Implements per Acre, 1930
 2. Per Cent of Farms Reporting Tractors, 1930
 3. Average Value in Dollars of Farm Implements per Farm, 1930
- F. *Per Cent of Farms Reporting Motor Trucks, 1930*
- G. *Index of Off-the-Farm Employment*
1. Per Cent of Operators Working 50 or More Days Off the Farm, 1930
 2. Per Cent of Operators Working 150 or More Days Off the Farm, 1930
 3. Average Number of Days Worked Off the Farm per Operator Working Off the Farm, 1934
 4. Per Cent of Persons 10 Years of Age and Over Gainfully Employed Who Are Not Gainfully Employed in Agriculture, 1930
- H. *Average Number of Days of Farm Work per Year Available for Each Farm Male, 15 to 64 Years of Age, 1930*
- I. *Average Number of Farm Wage Earners per 100 Farms, 1930*
- J. *Index of Proportion of Tenancy*
1. Per Cent of Farms Operated by Tenants, 1930
 2. Per Cent of Farm Land Rented by Tenants and Part Owners, 1935
 3. Per Cent of Farms Operated by Tenants, 1935
- K. *Index of Increase in Tenancy*
1. Increase in Number of Farms Operated by Tenants, 1920 to 1930
 2. Increase in Proportion of Farms Operated by Tenants, 1920 to 1930
- L. *Per Cent of Tenants Related to Landlord, 1930*
- M. *Per Cent of Farmers Selling Through Cooperatives, 1929*
- N. *Per Cent of Farm Dwellings Unoccupied, 1935*
- O. *Per Cent of Farm Operators on Present Farm Less Than 1 Year, January 1, 1935*
- P. *Per Cent of Total Land Area in Farms, 1930*
- V. OTHER ECONOMIC FACTORS
- A. *Average Number of Income Tax Returns per 1,000 Population, 1933*
 - B. *Average Amount of Savings Bank Deposits in Dollars per Capita, 1930*
- VI. PROFESSIONAL SERVICE FACTORS
- A. *Average Number of Doctors per 1,000 Population, 1930*

APPENDIX E.—COEFFICIENTS OF CORRELATION

Coefficients of Correlation between Factors Used in Component Indices.—To conserve space in listing the coefficients of correlation, the factors have been coded according to the classification letter and number to which they were assigned in Appendix B. For example, the first group, I-A, lists the coefficients of correlation between factors used in the *Index of Geographic Distribution of Population*, and within this group the number 1 refers to *Rural Population per Square Mile, 1930*. The coefficient of correlation between *Rural Population per Square Mile, 1930*, and *Total Population per Square Mile 1930*, is .57.

GROUP I-A

	1	2	3
1	1.00	.57	-.49
2		1.00	-.64
3			1.00

GROUP I-B

	1	2	3	4	5	6
1	1.00	.93	.79	.63	.60	.60
2		1.00	.91	.66	.66	.68
3			1.00	.77	.74	.77
4				1.00	.97	.88
5					1.00	.91
6						1.00

GROUP I-C

	1	2	3	4	5
1	1.00	.81	.77	.89	.88
2		1.00	.61	.76	.76
3			1.00	.77	.75
4				1.00	.96
5					1.00

GROUP I-D

	1	2
1	1.00	.58
2		1.00

GROUP I-E

	1	2
1	1.00	.71
2		1.00

GROUP I-F

	1	2
1	1.00	.51
2		1.00

GROUP I-G

	1	2	3	4
1	1.00	.69	-.67	-.64
2		1.00	-.48	-.53
3			1.00	.76
4				1.00

GROUP I-H

	1	2
1	1.00	.53
2		1.00

GROUP II-A

	1	2	3	4	5	6
1	1.00	.57	.69	.90	.76	.30
2		1.00	.87	.70	.81	.31
3			1.00	.80	.82	.47
4				1.00	.86	.81
5					1.00	.63
6						1.00

GROUP II-B

	1	2	3
1	1.00	.67	.73
2		1.00	.83
3			1.00

GROUP II-C

	1	2
1	1.00	.86
2		1.00

GROUP III-A

	1	2
1	1.00	.66
2		1.00

GROUP III-B

	1	2
1	1.00	-.65
2		1.00

GROUP III-C

	1	2
1	1.00	.80
2		1.00

GROUP III-E

	1	2
1	1.00	.53
2		1.00

GROUP IV-A

	1	2	3	4	5	6
1	1.00	-.74	-.71	-.88	-.72	-.77
2		1.00	.68	.63	.81	.66
3			1.00	.55	.49	.61
4				1.00	.60	.66
5					1.00	.77
6						1.00

GROUP IV-B

	1	2	3	4
1	1.00	.89	.85	.76
2		1.00	.82	.63
3			1.00	.48
4				1.00

GROUP IV-C

	1	2	3
1	1.00	.77	.80
2		1.00	.96
3			1.00

GROUP IV-D

	1	2	3
1	1.00	.55	.54
2		1.00	.55
3			1.00

GROUP IV-E

	1	2	3
1	100.0	.68	.74
2		1.00	.87
3			1.00

GROUP IV-G

	1	2	3	4
1	1.00	.76	.48	.48
2		1.00	.47	.46
3			1.00	.64
4				1.00

GROUP IV-J

	1	2	3
1	1.00	.72	.95
2		1.00	.82
3			1.00

GROUP IV-K

	1	2
1	1.00	.65
2		1.00

	IV-A	IV-B	IV-C	IV-D	IV-E	IV-F	IV-G	IV-H	IV-I	IV-J	IV-K	IV-L	IV-M	IV-N	IV-O	IV-P	V-A	V-B	VI-A
I-A	.38	-.46	.32	.21	.42	.35	.46	.24	.55	.36	.07	-.27	.09	-.14	.17	.23	.12	.17	.38
I-B	.46	.47	.38	-.26	.36	.01	-.17	.42	-.20	-.10	-.38	.16	.39	.09	-.44	.70	.27	.19	.55
I-C	-.60	-.33	-.52	-.62	-.48	-.07	.17	-.51	.06	-.06	.32	-.07	-.31	-.04	.31	-.76	-.33	-.17	-.56
I-D	.02	.14	.26	-.09	.34	.33	.10	-.17	.31	-.12	-.26	.39	.17	-.03	-.45	-.02	.18	.51	.01
I-E	.15	.17	.48	-.02	.54	.56	.32	.16	.21	-.12	-.50	.36	.16	-.05	-.42	.12	.34	.71	.20
I-F	-.29	.18	-.14	-.27	-.18	-.02	-.04	-.20	-.44	-.33	-.10	.32	-.02	-.17	-.16	-.12	-.15	-.08	-.13
I-G	.54	.31	.45	.53	.53	.05	-.05	.38	.00	-.05	-.28	.17	.11	-.08	-.38	.70	.25	.10	.65
I-H	-.26	-.29	-.09	-.36	.06	.23	.54	-.43	.22	-.10	-.06	-.25	-.27	.04	.16	-.50	.02	.01	-.10
I-I	-.16	-.17	-.03	-.21	.02	.19	.41	-.32	.03	-.20	-.03	.06	-.08	.01	-.06	-.41	.01	.03	-.09
I-J	-.46	-.35	-.40	-.47	.42	.06	.18	-.44	.01	-.04	.18	-.14	-.20	.05	.36	-.62	-.27	-.09	-.31
I-K	.22	-.65	.38	-.06	.31	.31	.34	-.02	.51	.31	.12	-.22	-.26	-.14	.29	-.19	.14	.25	-.03
II-A	.71	.20	.86	.56	.82	.41	.14	.35	.29	.02	-.40	.25	.20	.03	-.50	.66	.47	.39	.60
II-B	.59	.09	.82	.40	.75	.43	.13	.24	.32	.02	-.38	.29	.10	.02	-.38	.45	.55	.49	.37
II-C	-.63	-.11	-.51	-.60	-.55	-.10	.25	-.58	-.31	-.30	.07	-.09	-.39	.16	.14	-.74	-.30	-.28	-.50
III-A	.45	.01	.42	.46	.26	-.06	.00	.29	-.01	.06	-.04	-.09	.11	-.07	-.07	.40	.05	-.12	.45
III-B	.42	.38	.40	.43	.41	.08	.15	.33	-.09	-.17	-.38	.31	.28	.12	-.55	.58	.31	.27	.45
III-C	.18	-.35	.13	-.11	.29	.43	.38	-.12	.58	.26	.08	-.11	-.35	.05	.17	-.21	.20	.08	-.10
III-D	.45	.02	.50	.38	.37	.12	.11	.22	.23	.23	-.17	-.08	-.09	.03	-.08	.29	.19	.14	.34
III-E	.49	.11	.44	.40	.49	.23	.06	.25	.20	.13	.10	-.01	-.06	.06	-.23	.38	.29	-.01	.42
III-F	.35	.38	.30	.37	.44	.11	-.03	.27	.09	-.12	-.28	.30	.34	.10	-.52	.56	.25	.18	.44
IV-A	1.00	-.18	.77	.78	.73	.16	-.14	.73	.50	.52	.02	-.10	-.03	-.01	.01	.68	.48	.06	.53
IV-B	----	1.00	-.04	.18	.05	-.14	-.32	.12	-.29	-.35	-.43	.37	.33	.34	-.53	.30	.10	.05	.11
IV-C	----	----	1.00	.49	.90	.50	.21	.34	.54	.26	-.22	.13	-.04	-.07	-.27	.48	.46	.29	.57
IV-D	----	----	----	1.00	.50	-.02	-.37	.75	.29	.48	.08	-.12	.28	.04	.03	.70	.26	-.05	.43
IV-E	----	----	----	----	1.00	.69	.10	.34	.59	.25	-.27	.15	.09	-.10	-.28	.53	.52	.36	.49
IV-F	----	----	----	----	----	1.00	.46	-.22	.47	-.03	-.33	.16	-.07	-.06	-.22	.04	.34	.31	.25
IV-G	----	----	----	----	----	----	1.00	-.48	.24	-.32	-.26	-.01	-.11	-.02	-.19	-.29	.01	.25	.19
IV-H	----	----	----	----	----	----	----	1.00	.20	.65	.28	-.27	.14	-.09	.26	.64	.20	-.11	.37
IV-I	----	----	----	----	----	----	----	----	1.00	.50	.11	-.25	-.14	-.02	.17	.07	.28	.18	.35
IV-J	----	----	----	----	----	----	----	----	----	1.00	.52	-.59	-.19	-.25	.66	.21	.10	-.22	.08
IV-K	----	----	----	----	----	----	----	----	----	----	1.00	-.43	-.18	-.19	.70	-.12	-.22	-.40	-.20
IV-L	----	----	----	----	----	----	----	----	----	----	----	1.00	.27	.10	-.73	.14	.15	.45	-.04
IV-M	----	----	----	----	----	----	----	----	----	----	----	----	1.00	-.07	-.31	.39	-.05	.32	.20
IV-N	----	----	----	----	----	----	----	----	----	----	----	----	----	1.00	-.20	-.11	.15	-.06	-.01
IV-O	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1.00	-.25	-.21	-.42	.29
IV-P	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1.00	.18	.11	.53
V-A	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1.00	.32	.17
V-B	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1.00	.23
VI-A	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1.00

¹The titles have been coded according to the number and letter to which they were assigned in Appendix B.