Procedure for Adjusting 1940 Census Data for College Students To Be Comparable with 1950 Data

By Burton L. French

In 1950 the Bureau of the Census changed its method of enumerating college students. In the census of that year the students were counted as residents of the localities in which they were attending college. This change makes comparisons between 1940 and 1950 census reports on population questionable, particuarly comparisons between those reflecting such factors as migration estimates and extrapolation of population changes for making current population estimates. In connection with the work of the North Central Population Dynamics Technical Committee, NC-18, a procedure for adjusting the 1940 population data to make it comparable with the 1950 data was considered necessary so that the estimates of migration into or out of a geographic area would represent the true change. This paper presents the procedure the author developed for estimating the number of students attending college from the rural and urban areas of each county in a State, based upon the census data, to be used in adjusting the 1940 data. Research work that is being initiated by the Northeast Population Dynamics Technical Committee, NE-17, will include adjustments of the 1940 census data through the use of this procedure. Helen R. White, formerly of the Farm Population and Rural Life Branch, AMS, is to be credited with ideas leading to the procedure. Many suggestions have been received from members of the North Central Population Dynamics Technical Committee, especially from Margaret Jarman Hagood and Paul J. Jehlik, Farm Population and Rural Life Branch, AMS, and Henry S. Shryock, Jr., Division of Population and Housing, U. S. Bureau of the Census. The paper is published with the approval of the Director of the Nebraska Agricultural Experiment Station as Journal Series Paper No. 629.

TO BE CONSISTENT with the usual Census practice of enumerating a person as "an inhabitant of his usual place of residence or usual place of abode," [1] the method of enumerating college students was changed for the 1950 Census. In 1950 college students living away from home were considered residents of the communities in which they were residing while attending college, instead of persons temporarily absent from their parental homes as was the practice in 1940 and earlier periods.

In ascertaining population migration from county to county, rural to urban, or any other sensitive comparison of various population figures, this change in enumeration introduces additional error. In 1940 1,537,249 persons were attending college in this country. Most of these would be persons enumerated at their parental homes, but absent from those homes. Of this number 479,495 were classified as rural-farm and rural-nonfarm. Few of our colleges are in rural areas. Therefore, as part of any net migration from rural to urban areas is in terms of a change in enumeration procedure, any estimate of it would be biased.

An example of the rural to urban shift caused by this change is shown by comparing the percentage of students counted as in rural and urban areas of the United States for the Censuses of 1940 and 1950 (table 1). The proportion of college students in urban areas was very high in 1950 and, without the necessary adjustments, it would erroneously increase an estimate of migration from rural to urban areas. The error in a net-migration estimate for a

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[1] UNITED STATES BUREAU OF THE CENSUS. 1950 CENSUS OF POPULATION, VOL. II, PART 27, NEBRASKA. pp. XII-XIII, v-vi.

county or part of a county containing a college could be substantial.

Adjustment of 1940 Data

Adjustment of the 1940 Census figures to make them comparable with 1950 data consists of two steps: (1) Subtracting from the population figure in each county the number of college students residing in the county but attending school in another county or State, and (2) adding to the figure for each county where colleges are located the number of students enrolled in the colleges from other counties or States. The first step may be accomplished by at least two methods: (1) Obtaining the college enrollment from each college in the State by counties, or (2) estimating the number of college students from rural and urban areas by counties on the basis of 1940 Census data.

Both methods have advantages and disadvantages. The main advantage for the first method is the greater accuracy in the data obtained from the colleges. Disadvantages are: First, obtaining the college registration from the colleges by counties is uncertain as many schools retain no record of their students by residence or they cannot provide the labor to transcribe the data; and, second, short of a national survey of colleges it is impossible to obtain data on students who have migrated outside the State to other colleges. This out-of-State migration in 1938-39 was 236,444 students for the United States, or 19.2 percent of all college students.[2]

Advantages for the second method are: First, it is less time-consuming; second, the estimation procedure is based on census data, as it is the census data that are to be adjusted; third, the adjustments take into account all college students whose home residence was in the State, and not only those attending college in the State; and fourth, the adjustments are not dependent upon compilation of data by various colleges. The primary disadvantage of the second method is that the estimation procedure is linear for all counties of the State when actually the proportion of students attending college differs from county to county.

Procedure for Adjustment

The first step in the adjustment procedure is to estimate the number of college students who were counted as residents of the rural and urban areas of each county in 1940. The 1940 Census reports in table 17, volume IV, Population, the number of persons attending school by years of school completed, single years of age for the State, urban and rural areas, and for cities of 50,000 or more. The number of persons attending school by age groups of 14 and 15, 16 and 17, 18 to 20, and 21 to 24 years old by counties is presented in table 21, volume II, Population. All of the estimates of this step are based upon the information in these two tables. The age groups of 18 to 20 and 21 to 24 years are used for the adjustment, as these groups comprise 85 percent of all college students in the country.[3]

For purposes of this paper counties are classified according to the following definitions:

TABLE 1.—*Distribution of college students, rural and urban areas, 1940 and 1950, United States*

	Number Attending College	Percentage of total
	Number	*Percent*
Total		
1950	2,164,425	100.00
1940	1,537,249	100.00
Urban		
1950	1,868,105	86.31
1940	1,057,754	68.81
Rural-Nonfarm		
1950	239,765	11.08
1940	253,997	16.52
Rural-Farm		
1950	56,555	2.61
1940	225,498	14.67

[2] KELLY, FRED J., and ECKERT, RUTH E. RESIDENCE AND MIGRATION OF COLLEGE STUDENTS. U. S. Off. Educ. Federal Security Agency, Pamphlet 98. 1945. Table 2, p. 11.

[3] In the United States only 0.97 percent of the college students were in the 14 to 15 year age group and 14.07 percent were in the 16 to 17 year age group. If it is desired to take these age groups into account, the same estimation procedure outlined below may be used as a linear adjustment of the estimates based upon the 18 to 24 age group to allow for college students of other ages.

(1) *Type I* counties as those with the urban portion of the county population included entirely within cities of 50,000 or more; (2) *Type II* counties as those whose population is entirely rural; (3) *Type III* counties as those that contain both urban and rural population but do not include a city of 50,000 inhabitants or more.[4]

Procedures for estimating the number of college students for counties of each type follow. The numerical illustration of these procedures, which begin on page 57, may help the reader follow through the successive steps.

TYPE I COUNTIES.—The number of college students (ages 18-24) from each urban area of 50,000 or more is taken directly from the 1940 Census, table 17, volume IV. The total number in the county is taken from table 21, volume II. From this is subtracted the total number of persons (ages 18-24) from urban areas of 50,000 or more in the county that were attending school (table 17, volume IV). The remainder is the number of persons attending school from the rural areas of the county.

The ratio of these rural (farm and nonfarm) persons attending college to all students is assumed to be the same as the State ratio of students attending college to students attending all schools. Applying this ratio to the number of persons attending school from the rural areas of the county will give the number of persons attending college.

TYPE II COUNTIES.—The ratio applied to the rural areas of *type I* counties is applied to the

total number of persons attending school in *type II* counties to estimate the number of persons attending college from these counties.

TYPE III COUNTIES.—The State totals for urban areas of all students and of students attending college (all ages 18-24) are taken from table 17, volume IV. From these totals is subtracted the number of all students and students attending college from urban areas of 50,000 or more. These give the State totals of all students and college students from urban areas in *type III* counties.

State totals for rural areas of all students and of students attending college are also taken from table 17, volume IV. From these totals are subtracted the numbers of all students and students attending college from rural areas of *type I* counties and from *type II* counties. The remainders are the total numbers of all students and students attending college and rural areas of *type III* counties.

Adding the totals of all students from urban and rural areas and the totals of college students from rural and urban areas obtained above gives the total numbers of all students and the total numbers of all students attending college from all *type III* counties in the State. The ratio of the total of college students to the total of all students is applied to the total number of students (ages 18-24) attending school from each *type III* county to ascertain the number of college students from each county. This again assumes that the ratio for each county is the same as the State ratio.

One way to estimate the rural-urban breakdown of college students from *type III* counties is to apply to the total number of college students from each county the statewide ratio of urban college students to total college students from all *type III* counties. The total number of college students from all *type III* counties is obtained by adding the total number of urban college students to the total number of rural college students for *type III* counties. Ordinarily, this does not give very good estimates, as it assumes a uniform rural-urban composition of such counties throughout the State, whereas actually this composition varies considerably.

A more defensible procedure is to allocate the county totals on the basis of the rural-urban proportions in the total population of the county

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[4] Not included in these groups are special cases, such as Arlington County, Va., which were classified as urban under special rules in 1940, even though no incorporated city of 2,500 or more existed in the county, or Denver and Denver County, Colo., which are coextensive. If the population of these areas is entirely urban and exceeds 50,000, the estimation procedure is the same as that for type I counties. If the population is entirely urban, but is less than 50,000, they will be treated like the type II counties, using the ratio of college students to all students for the urban areas of the State. If the urban population of a county is included in cities of 50,000 or more *and* in cities of 2,500 to 50,000, the first step of the procedure is the same as for type I counties. The successive steps for estimating the remaining urban students and the rural students are the same as for estimating the number of college students from the type III counties.

in 1940.[5] The Bruyère method of iteration is used to adjust the number of persons in each classification in each county to the marginal totals of total rural and total urban students in all *type III* counties.[6]

As outlined in the example of this procedure, column totals are county totals and row totals show the number of urban and rural student residents from the *type III* counties. Cell numbers are the number of student residents from urban or rural areas of a county as estimated by the percentage of urban residents reported by the census. The advantage of this method, even though it is a little longer and more difficult, is that the estimate probably follows the distribution of students more accurately county for county than does the assumption that all counties are the same. It would overcome the disadvantage of allocating too few students to rural areas of primarily rural counties and too many to rural areas of primarily urban counties.

Adjusting 1940 Census Data

The estimated number of college students obtained above is then subtracted from the population figures from the 1940 Census reports to provide a population figure excluding college students for rural, urban, and total areas of each county. The second step in the adjustment procedure is to add to the urban and rural areas of the respective counties the number of students registered in colleges in these respective areas during the spring semester or quarter of the school year 1939-1940. This enrollment figure may be obtained from each college; it includes all students, residents of the State, residents from other States, residents from outlying possessions of the United States, and residents of foreign countries. Another source of college enrollment is the 1939-40 Educational Directory of the United States Office of Education. The resulting estimate is the adjusted

[5] UNITED STATES BUREAU OF THE CENSUS. 1950 CENSUS OF POPULATION, VOLUME II, Table 5.

[6] DEMING, W. EDWARDS. STATISTICAL ADJUSTMENT OF DATA. New York, John Wiley and Sons, Inc., 1943. pp. 124-127.

1940 population figure for the particular geographic subdivision and area desired.

Application of Procedure

To illustrate this procedure adjustments for Nebraska are outlined and applied to the counties in Economic Area 7 of the State. The number of all persons age 18 to 24 attending school and the number of persons age 18 to 24 attending school who have completed the fourth year of high school or higher (persons attending college) are given in table 2. The numbers are taken directly from table 17, volume IV, 16th Census of Population, 1940.

The total number of persons attending school from Lincoln and Omaha is subtracted from the number of persons attending school from Lancaster and Douglas Counties, respectively (Table 21, volume II, 16th Census of Population, 1940). The rest are assigned to the rural areas of the two counties. In Douglas County there are 5,144 persons from 18 to 24 attending school; deducting those attending school in Omaha gives 345 persons attending school from the rural-nonfarm and rural-farm parts of the county. Similar figures for Lancaster County are 3,248 persons attending school in the county and 279 persons attending school from the rural non-farm and rural-farm areas of the county.

The ratio of persons attending college to all persons attending school, age groups of 18 to 24, in the rural areas of Nebraska is the ratio of 6,710 to 11,188, or 59.97 percent. This allocative ratio is multiplied by the total number of persons attending school in all counties that

TABLE 2—*Persons 18 to 24 attending school and persons 18 to 24 attending college, Nebraska, 1940*

	Persons attending school	Persons attending college
	Number	*Number*
State total	23,158	15,276
Urban	11,970	8,566
Rural nonfarm and rural farm	11,188	6,710
Lincoln	2,969	2,442
Omaha	4,799	2,558

have no urban population and the rural residents of Lancaster and Douglas Counties. In Nebraska these *type II* counties and the rural areas of *type I* counties contain 6,566 persons attending school, and use of the allocative ratio estimated that 3,939 of these were attending college.

The rest of the students in the State resided in *type III* counties. The number of persons attending school in these counties is 8,824 and the number of persons attending college is 6,337. The number of persons attending school and the number of persons attending college already estimated in their respective counties are given in table 3.

The number of persons attending school, urban and rural residents, remaining in the *type III* counties and the number of persons attending college are shown in table 3. These are obtained by subtracting the numbers of urban residents from *type I* counties from the numbers in urban areas in table 2 and the numbers allocated to *type II* counties from the numbers in rural areas in table 2. The ratio of the number of persons attending college in the *type III* counties (6,337) to the number of persons attending school (8,824) is 71.82. This ratio is multiplied by the number of persons attending college from the county. The proportion of these persons to be allocated to the rural and urban areas of the county is determined by the ratios of the number of urban residents (3,566) attending college and the number of rural residents (2,771) attending college, to the total persons (6,337) attending college from *type III* counties. These ratios are 56.27 percent urban and 43.73 percent rural; they allocate the students equally in all counties. This allocation, applied to *type III* counties in area 7, is shown in table 9.

To illustrate the procedure of allocating student residents to rural and urban areas, utilizing known information about the proportion of urban persons in the county, the Bruyère method is applied to all *type III* counties in Economic Area 7 in Nebraska. The number of college students from each county is shown in table 4 with the percentage of urban population in each county.

The number of student residents from all urban areas is 536, and from all rural areas it is 628. Totals must be allocated to the respective areas of the counties; restrictions are the known border totals. Allocation of residents by percentage of the urban population reported in the 1940 Census of Population is shown in table 5.

In table 5 $m_{i\cdot}$ is the known total of urban or rural student residents from all counties. The $n_{i\cdot}$ are the totals obtained by allocating the number of students residing in the county to the two areas by the proportion of urban persons in the county. The $n_{\cdot j}$ and $m_{\cdot j}$ are the column totals; they are equal as n_{ij} (number allocated to each cell) is determined by the $m_{\cdot j}$.

The first step in the method is to multiply each n_{ij} by the ratio of $\dfrac{m_{i\cdot}}{n_{i\cdot}}$ and form a new

TABLE 3.—*Persons attending school and persons attending college, by types of counties, Nebraska, 1940*

	Persons attending school	Persons attending college
	Number	*Number*
Urban students		
Type I counties	7,768	5,000
Rural students		
Type I & II counties	6,566	3,939
Type III counties		
Urban areas	4,202	3,566
Rural areas	4,622	2,771
Total areas	8,824	6,337
Ratio of total college students to all students.	---------	71.82%

TABLE 4.—*Number of college students and percentage urban population is of the total population by type III counties, Economic Area 7, Nebraska, 1940*

Counties	Students	Percentage urban population
	Number	*Percent*
Cass	172	25.1
Gage	277	36.8
Nemaha	149	28.5
Otoe	169	38.6
Richardson	214	32.0
Saunders	183	14.8
Total	1164	---------

table (table 6). The second step is to form the column total $m'_{.j}$; subtract it from the known column total $m_{.j}$ and enter it as a "vertical discrepancy" along the top of a new table (table 7).

In the same way form the resulting horizontal discrepancies, $m_{i.}-m'_{i.}$. Next complete the table of corrections based upon the vertical discrepancies. Distribute anyone of these discrepancies among the cells in that column in the

TABLE 5.—*Allocation of student residents, by percentage of urban and rural population, by* type III *counties, Economic Area 7, Nebraska, 1940*

	Counties						Total	
	Cass 1	Gage 2	Nemaha 3	Otoe 4	Richardson 5	Saunders 6	$n_{i.}$	$m_{i.}$
	No.	No.	No.	No.	No.	No.	No.	No.
1. Urban	43	102	42	65	68	27	337	536
2. Rural	129	175	107	104	146	156	827	628
Total								
$n_{.j}$	172	277	149	169	214	183	$n = 1164$	
$m_{.j}$	172	277	149	169	214	183		

TABLE 6.—*Iterative adjustment of allocation of student residents, by urban and rural areas, by* type III *counties, Economic Area 7, Nebraska, 1940*

	Counties						Total	
	Cass i = 1	Gage 2	Nemaha 3	Otoe 4	Richardson 5	Saunders 6	$m'_{i.}$	$m_{i.}$
	No.	No.	No.	No.	No.	No.	No.	No.
i = 1 Urban	68	162	67	103	108	43	551	536
2 Rural	98	133	81	79	111	118	620	628
Total								
$m'_{.j}$	166	295	148	182	219	161	1171	-------
$m_{.j}$	172	277	149	169	214	183	-------	1164

TABLE 7.—*Table of corrections based on iterative adjustment of allocation of student residents, by urban and rural areas, by* type III *counties, Economic Area 7, Nebraska, 1940*

		Counties						Row Sums	Horizontal discrepancies
	i =	Cass 1	Gage 2	Nemaha 3	Otoe 4	Richardson 5	Saunders 6		
	$m'_{.j}-m_{.j} =$	6	−18	1	−13	−5	22		
	$\dfrac{m_{i.}}{n}$	No.	No.	No.	No.	No.	No.	No.	$m'_{i.}-m_{i.}$
i = 1	.46048	2(3)	−12(−8)	−1	−8(−6)	−4(−2)	8(10)	−15(−3)	−15
2	.53952	4(3)	−6(−10)	2(0)	−5(−7)	−1(−3)	14(12)	8(−4)	8
Column Sums	-------	6	−18	1	−13	−5	22	−7	−7

TABLE 8.—Corrected allocation of student residents by urban and rural areas, by type III counties, Economic Area 7, Nebraska, 1940

	Counties						Totals	
	Cass	Gage	Nemaha	Otoe	Richardson	Saunders	$m''_{i.}$	$m_{i.}$
	No.	No.	No.	No.	No.	No.	No.	No.
Urban	70	150	66	95	104	51	536	536
Rural	102	127	83	74	110	132	628	628
Totals								
$m''_{.j}$	172	277	149	169	214	183	$n = 1164$	
$m_{.j}$	172	277	149	169	214	183		

proportion that the row totals are to the total number of individuals, $\dfrac{m_{i.}}{n}$. These corrections must now be forced to equal the columnar discrepancies exactly. This is shown in table 7 where the correction that has been changed is placed in parentheses and the altered value is placed alongside. The sum of the forced corrections must also equal the horizontal or row discrepancies.

These forced corrections are added to the corresponding frequency in table 5. The result is table 8, which contains the numbers of student residents from each area of the county

TABLE 9.—Comparison of two methods of allocating college student residents to rural and urban areas in type III counties, Economic Area 7, Nebraska, 1940

	Method 1		Method 2	
	Rural	Urban	Rural	Urban
	No.	No.	No.	No.
Cass	75	97	102	70
Gage	121	156	127	150
Nemaha	65	84	83	66
Otoe	74	95	74	95
Richardson	94	120	110	104
Saunders	80	103	132	51

TABLE 10.—Estimation procedure of college student residents and number of persons enrolled in college, counties, Economic Area 7, Nebraska, 1940

Counties	Total school students	Lincoln and Omaha school students	Rural school students	Estimated rural college students	Estimated urban college students	Estimated total college students	College enrollment spring 1939-40
	Number	Number	Number	Number	Number	Number	Number
Cass [1]	239			102	70	172	
Douglas [2]	5,144	4,799	345	209	2,558	2,765	
Gage [1]	386			127	150	277	2,146
Johnson	109			65		65	
Lancaster [2]	3,248	2,969	279	167	2,442	2,609	7,402
Nemaha [1]	207			83	66	149	485 [3]
Otoe [1]	235			74	95	169	
Pawnee	127			76		76	
Richardson [1]	298			110	104	214	
Sarpy	127			76		76	
Saunders [1]	256			132	51	183	99
Total				1,221	5,536	6,755	

[1] Type III counties. [2] Type II counties. [3] College located in rural area of county.

that are to be used in adjusting the 1940 census data. Comparison of the two methods applied to the type III counties of Economic Area 7 are shown in table 9.

Table 10 presents the detailed statistics for the counties in Economic Area 7 in Nebraska to illustrate the results of the estimation procedure outlined above, using the second procedure for allocating to rural and urban areas the *type III* students.

The estimated number of persons attending college from each county is subtracted from the reported 1940 population for that county, and the number of persons enrolled in the colleges located in each county are added to the

population for that county to obtain an adjusted 1940 population. This procedure is illustrated in table 11, for Economic Area 7 in Nebraska, using the estimated number of college students as shown in table 4 and the number of persons enrolled in college for the second semester, 1939-40, as reported by officials from each school.

Examples of the error introduced into the migration estimates are shown in the estimates for Lincoln, rural Nemaha County, and Box Butte County (Table 12).

Net immigration is usually overestimated in all areas in which colleges are located and it is usually underestimated in areas that have no

TABLE 11.—*Adjustment of 1940 population by counties, urban, rural and total, Economic Area 7, Nebraska, 1940*

County	1940 population	College students with parental home in the county subtracted	College students attending school in county added	Adjusted 1940 population
	Number	Number	Number	Number
Total				
Cass	16,992	172	---	16,820
Douglas	247,562	2,765	2,146	246,943
Gage	29,588	277	---	29,311
Johnson	8,662	65	---	8,597
Lancaster	100,585	2,609	7,402	105,378
Nemaha	12,781	149	485	13,117
Otoe	18,994	169	---	18,825
Pawnee	8,514	76	---	8,438
Richardson	19,178	214	---	18,964
Sarpy	10,835	76	---	10,759
Saunders	17,892	183	99	17,808
Urban				
Cass	4,268	70	---	4,198
Douglas	223,844	2,558	2,146	223,432
Gage	10,883	150	---	10,733
Lancaster	81,984	2,442	7,402	86,944
Nemaha	3,639	66	---	3,573
Otoe	7,339	95	---	7,244
Richardson	6,146	103	---	6,043
Saunders	2,648	52	99	2,095
Rural				
Cass	12,724	102	---	12,622
Douglas	23,718	207	---	23,511
Gage	18,705	127	---	18,578
Johnson	8,662	65	---	8,597
Lancaster	18,601	167	---	18,434
Nemaha	9,142	83	485	9,544
Otoe	11,655	74	---	11,581
Pawnee	8,514	76	---	8,438
Richardson	13,032	111	---	12,921
Sarpy	10,835	76	---	10,759
Saunders	15,244	131	---	15,113

TABLE 12.—*Comparative net migration estimates for Lincoln, Rural Nemaha County and Box Butte County, Nebraska, 1940-50*

	City of Lincoln	Rural Nemaha County	Box Butte County
	Number	Number	Number
Without Adjustment			
1940 population	81,984	12,781	10,736
1950 population	98,884	10,973	12,279
Net gain or loss in population	16,900	−1,818	1,543
Natural increase	9,944	982	1,630
Net migration	6,956	−2,790	−87
With Adjustment			
1940 population	81,984	12,781	10,736
Less estimated number of college student residents	2,558	65	162
Plus students registered in local colleges	7,402	485	0
Adjusted 1940 population	86,828	13,201	10,574
1950 population	98,884	10,973	12,279
Net gain or loss in population	12,056	−2,228	1,705
Natural increase	9,944	982	1,630
Net migration	2,112	−3,210	75

colleges. The error is much greater in college areas than in others; a greater proportion of the total population is transferred to an area, such as a county, from a large number of areas by the change in enumeration.

The 1940 census data that comprise the major basis for this adjustment are subject to criticism. In 1940 a single question was asked on the highest grade of school completed. To this question respondents frequently reported the year or grade in which they were enrolled, or had last been enrolled, instead of the one completed. Thus it is possible that in 1940 the number of persons that would be estimated as attending college in the age groups might be overestimated, as persons attending the 12th year of school would report that they had completed that grade since they were so near completion.[7]

[7] UNITED STATES BUREAU OF THE CENSUS. 1950 U. S. CENSUS OF POPULATION. VOL. II, PART 27, NEBRASKA, pp. xx-xxi.

Selected Recent Research Publications in Agricultural Economics Issued by the Agricultural Marketing Service and Cooperatively by the State Colleges [1]

BITTING, H. W. PURCHASES OF FROZEN AND CANNED FOODS BY URBAN FAMILIES AS RELATED TO HOME REFRIGERATION FACILITIES. U. S. Dept. Agr. Mktg. Res. Rpt. 60, 14 pp., illus. February 1954. (RMA contract rpt.)

Lists numbers of families buying frozen foods and discusses the extent of purchases. Discusses purchases of canned and frozen foods; effect of income on purchases of such foods; and regional differences in purchases of these foods.

BOTTS, RALPH R. FARM MUTUAL REINSURANCE. U. S. Dept. Agr. Agr. Inform. Bull. 119, 56 pp. December 1953.

Farm mutual reinsurance programs are operating at the State level in only 13 States.

CARR, D. W., and HOWELL, L. D. ECONOMICS OF PREPARING WOOL FOR MARKET AND MANUFACTURE. U. S. Dept. Agr. Tech. Bull. 1078, 88 pp., illus. November 1953. (RMA)

Discusses the possibilities of strengthening the competitive position of domestic wool through improvements in preparation and marketing.

CRECINK, JOHN C., and BICE, S. AVERY. MAKING A LEASE FOR AN IRRIGATED FARM. Colo. Agr. Expt. Sta. Bull. 431-A, 43 pp., illus. October 1953. (BAE cooperating.)

How to make a good rental arrangement for an irrigated farm is shown in detail in this bulletin.

ELLIS, HAROLD, BARLOWE, RALEIGH, and HILL, E. B. INHERITANCE OF FARM PROPERTY IN MICHIGAN. Mich. Agr. Expt. Sta. Spec. Bull. 388, 30 pp., December 1953. (BAE cooperating.)

[1] Processed reports are indicated as such. All others are printed. State publications may be obtained from the issuing agencies of the respective States.