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Southern Economic History Project

Working Paper Series

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II

A SAMPLE OF SOUTHERN FARMS IN 1880:
SAMPLING PROCEDURE

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SOUTHERN ECONOMIC HISTORY PROJECT

Working Paper Number 2

A Sample of Southern Farms in 1880: Sampling Procedure

by

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September 1969

Note: This paper is a preliminary draft. Reference to it in works intended for publication should be cleared with the authors.

The authors wish to acknowledge the financial support of both the National Science Foundation, through their grant No. 2668 to the University of California, Berkeley, and the Institute of Business and Economic Research and the Center for Research in Management Science, University of California, Berkeley. In the early stages of this work, we received helpful advice from Robert Gallman and Robert Fogel, whose experience with manuscript census data enabled us to avoid many pitfalls. The fact that we may have stumbled into a few pitfalls of our own can only be properly blamed on the present authors.

The Southern Economic History Project was conceived with four immediate objectives:

(a) To increase our knowledge about the organization of agriculture and the operation of the Southern economy in the period between the Civil War and World War I.

(b) To attempt an explanation of the widespread adoption of sharecropping in the South after the Civil War and the persistence of this system for over eight decades.

(c) To examine the relationship between the credit markets and the financial system in the post-Civil-War South and the progress of Southern agriculture.

(d) To increase our knowledge about the position of Blacks in the American economy during the period immediately following the abolition of slavery.

Each of these objectives could be served by analyzing available data from the United States censuses which have as yet remained unexamined. There exists a wealth of agricultural and demographic data in the published reports from each post-Civil-War decennial census.

Particularly important are the returns of the 1880 census. The census of that year provides the first really comprehensive and reliable data on a county basis dealing with agricultural production, land ownership and tenure, farm size, and manufacturing as well as the usual

demographic data.¹ In addition, there is a two-volume study of cotton production which accompanied the Tenth Census (Hilgard [4]). These volumes not only provide extensive statistical data on cotton production and the organization of agriculture, but also contain a great deal of descriptive material discussing prevailing farm practices, and attitudes toward husbandry, farm management, and race relations.

Despite this abundance of readily available data, very little quantitative work has been produced to ascertain the nature of the changes in agriculture and the economy which swept through the South in the period following the Civil War. One of the major tasks of the present project is the exploitation of the published census data.² However, even more valuable than the published reports is the data contained in the original manuscript reports of the census enumerators but which, for one reason or another, has never been compiled. Of central interest in the study of this period is the relationship between the race and the tenure status of farm operators. Data bearing on this issue were not published until 1900; however, the manuscript returns for 1880 contain the information necessary to recover this data for that year. In addition, the manuscript returns contain unpublished data on agricultural labor and the wages of farm hands. Since the manuscript of the agricultural census

¹The first census after the war, in 1870, proved to be deficient in several respects.

²An earlier paper in this series provides a discussion of the issues involved in the transformation of the Southern economy which relies on the published census materials (Ransom and Sutch [5]).

reports every farm in the country separately, it is possible to match labor, capital, and land inputs with the outputs of individual farms. This type of data will yield considerably more information about the efficiency of the production process and the alternative tenure systems than the published county aggregates.

The manuscript census forms were originally placed in the National Archives after the compilation of the returns was completed. The reports for the enumeration of the population for the decennial censuses from 1790 through 1880 have been retained by the National Archives and can be examined there.³ Microfilm copies of these schedules can be purchased from the National Archives. The manuscripts of the Agricultural, Manufacturing, Mortality, and Social Statistics Censuses for 1850, 1860, 1870, and 1880 were returned to the respective state governments in 1919 because the National Archives could no longer afford the space required to store them.⁴ These documents suffered various fates in the hands of the state governments. Fortunately, the original documents for fifteen Southern states have been collected and microfilmed by the library of the University of North Carolina.⁵ Amazingly, the collection is virtually complete.

³The manuscripts for the 1890 census were destroyed in a fire and are therefore not available. The manuscripts for the 1900 census, and all subsequent censuses have not yet been released for public examination.

⁴For the period 1790 to 1830 there were no censuses other than the Census of Population. Manufacturing and agricultural data were added to the 1840 census; however, the location of these additional manuscripts is unknown. The 1890 manuscripts for the agriculture and manufacturing censuses suffered the same fate as the population reports. More recent manuscripts have yet to be released.

⁵See Boone [1] for information about the collection.

Among this material, the information most relevant for the present project is that found in the agricultural and population censuses for 1870 and 1880. However, it was decided not to attempt an extensive analysis of the 1870 returns for two reasons. First, that census suffered from a number of deficiencies, particularly affecting the Southern states and the Negro population. There is considerable evidence of substantial under-enumeration--particularly in the South [2]. It would be difficult to compensate for the biases which this undercount introduces. The 1870 census used the same forms as were employed during the 1850 census. The inappropriateness of procedures worked out twenty years before, for the first post-bellum census, was blamed for the poor quality of the 1870 returns.⁶ A second disadvantage of that census, from our point of view, was the failure of the agricultural census to record the tenure of the farm operator. Since a major concern of our work is the question of land tenure, the 1870 returns are much less useful than those of 1880, which did report this information.⁷

These difficulties entailed with the use of the 1870 reports, as we have noted, have led us to concentrate our efforts on the 1880 material.

⁶See the comments by Walker regarding inadequacies resulting from having to work under the 1850 law (Walker and Seaton [9:pp. xlii-xliii]).

⁷A complicating factor in interpreting the results from the 1870 census is that the enumerators often did not consider a sharecropper or a farmer who rented for cash as a farm operator. There is evidence that many enumerators returned the agricultural data for all of the tenants under the name of the landowner. In 1880 the question on tenure made it quite clear to the enumerators that information on each farm operator was to be returned separately, regardless of his tenure status.

While our main reason for choosing this year was the purely pragmatic one of data availability, we also argue that 1880 represents a useful vantage point for reflecting upon the changes of the period. The physical disruption from the war had by this time largely been repaired. Yet the solution to the larger economic and social problems raised by the freeing of the slaves was still in the process of emerging. Federal troops had been withdrawn from the South only four years before. As historians of the period have noted, it was at this time that the white Southern population first faced the race problem on its own terms (Woodward [10]). By 1880 the reorganization of agriculture was well advanced, but the disrupting influence of the boll weevil and the subsequent agricultural depression which produced further structural change had not yet occurred.

We have also concentrated our efforts by restricting our attention to the eleven Confederate states.⁸ The omission of the border slave states⁹ can be defended for two reasons. First, these states had generally relied much less heavily on slave labor than had the states of the Deep South. Therefore, the problems of adjustment after abolition were less severe in these states. Second, these border states did not suffer as much as the secessionist states from the damage and disruption of the war. While the agricultural history of the border states is no less interesting than that of the Deep South, the problems in the former are

⁸Virginia, North Carolina, South Carolina, Tennessee, Georgia, Florida, Alabama, Mississippi, Arkansas, Louisiana, and Texas.

⁹Delaware, Maryland, District of Columbia, West Virginia, Kentucky, and Missouri.

sufficiently distinct that they deserve a separate study. Unfortunately, such a study is outside the necessarily limited scope of the present project.

The western area of Texas and the southern area of Florida have been excluded from our study because of their lack of settlement in 1880. Neither of these regions contributed a substantial amount of production in that year.¹⁰

In the eleven southern states, the 1880 census reported 1,252,249 farms in operation. Because of the limitations imposed by a shortage of both time and funds, it is clearly impossible to collect the data from the manuscript returns for every farm. The obvious solution, which we have employed, was to collect a sample of the total farms. A properly chosen sample of farms should yield almost as much information as a complete canvassing of the returns and would be considerably cheaper. It was our original intention to collect a minimum sample of one-half of one percent from the entire universe of one and a quarter million farms in the South. This would require choosing one farm out of every two hundred. One technique which would accomplish this would be to take the first farm listed in the census reports, skip 199 farms, take a second farm, skip 199 farms, and so on. However, the costs of assuring randomness with such a procedure led us to abandon it for another plan.

¹⁰For a detailed list of counties included, see Sutch and Ransom [8]. The excluded counties in Texas accounted for 11.9 percent of the population, while in Florida the corresponding figure was 23.3 percent. Two exceptions to our rule of including the territory of the secessionist states are the Virginia counties of Jefferson and Berkeley, which were transferred to West Virginia in 1869. These two counties were not included in the study.

A problem arose because the required information was divided between the separately returned Census of Population and Census of Agriculture. Personal information such as race, age, birthplace, etc. of the farm operator was recorded only on the population-census returns, while the agricultural data and the tenure of the farm operator were recorded on the agricultural schedules. Thus, it was necessary to locate each farm operator by name in the population records in order to incorporate such data with the agricultural statistics. Because of the nature of the enumeration process, once a given farmer was located in the population schedules, it became relatively easy to locate the farmer in these lists who next appeared on the agricultural rolls. There was a considerable advantage, then, in selecting a block of farms which appeared in sequence on the agricultural censuses. However, with a 0.5 percent sample, the collection of farms in five-farm blocks required skipping 995 farms before taking the next five-farm block. This was such a large jump that it was difficult to avoid a bias in the collection.¹¹

Rather than increase the size of the sample, or suffer the inefficiencies entailed by not taking the farms in blocks, it was decided to reduce the universe of farms to be studied. This was accomplished by dividing the South into economic regions which were relatively homogeneous with respect to soil type, economic characteristics, pattern of agricultural production, and composition of the population. The selection

¹¹A similar difficulty was encountered by Robert Gallman [3] when working with the 1860 census. It was found that choosing farms in forty-farm blocks introduced sufficient nonrandomness as to invalidate the procedure.

of these regions is discussed in detail in another paper in this series [6]. One or more representative counties were then chosen from each region.¹² This process reduced the number of farms in the universe to be sampled to less than one hundred thousand. This universe was then sampled at the minimum rate of ten percent. To obtain this ten-percent sample, blocks of five farms each were selected with a skip interval of forty-five farms. This interval was sufficiently small to avoid serious sampling bias.¹³

If one wished to present the results from this sampling procedure for a region larger than a single county, a difficulty arises in the process of aggregating the results. Because the farms in the representative county would represent a varying percentage of the total number of farms in the region, and because the regions vary widely in the number of farms they contained, any aggregation across regions requires a weighting scheme. The procedure which we have adopted in our reporting of results is to weight each farm by the ratio of the total number of farms in that region to the number of farms collected from the region.¹⁴

The process of collecting the sample was further simplified by restricting the information collected to a subset of the data available in the

¹²The process of selecting the representative county is discussed in Sutch and Ransom [8].

¹³The appropriateness of this procedure depends crucially upon the ability of a single county (or group of counties) to represent a region containing anywhere from 2 to 78 counties. In a separate Working Paper [7], results are presented to support our contention--made in [8]--that the counties and regions were chosen in such a way as to make the procedure outlined above appropriate.

¹⁴See Sutch and Ransom [8] for details of this procedure.

census manuscripts. Table 1 lists the data collected for each sample farm insofar as it was reported in the schedules.

Once a county had been selected for inclusion in the sample universe, the collection and preparation of the sample involved six steps:

- (1) selection of the sample farms;
- (2) preliminary transcription of the farm identification onto the farm coding sheet;
- (3) location of the farm operator in the population census, and transcription of the population data;
- (4) transcription of the agricultural data
- (5) coding the data for keypunching;
- (6) keypunching and error elimination.

Each of these steps is discussed in detail below.

The Selection Process

The first step in processing a county was to select a sample of the county's farms recorded on the census manuscripts. In 1880 the agricultural census forms were a single page, with space to record answers to 104 questions for 10 farms. An example of this manuscript form is attached as Exhibit A. As we have already noted, there are substantial advantages in selecting farms in blocks from the agricultural schedule. This procedure not only facilitates the process of locating the farm operators in the population schedule, but results in a substantial reduction in Xeroxing costs and paper handling through the selection of a number of farms from a single census form. Accordingly, it was decided to select farms in blocks of five. Preliminary tests indicated that this number was

TABLE 1

DATA COLLECTED FOR EACH SAMPLE FARM

1. The state in which the farm was located
2. The county (parish or district) in which the farm was located
3. The enumeration district in which the farm was located
4. The page and line number of the agricultural census manuscript identifying the sample farm
- *5. The page and line number of the population census manuscript identifying the farm operator
- *6. The race of the farm operator (White, Black or Mulatto, Chinese, Indian)
- *7. The literacy of the farm operator was recorded by defining an illiterate as a person whom the census recorded as unable to both read and write
- *8. The age of the farm operator on June 1, 1880
- *9. The number of people (including the farm operator) who lived in the same dwelling as the farm operator on June 1, 1880
- *10. The number of people living in the farm operator's dwelling who worked on a farm on June 1, 1880
- *11. The place of birth of the farm operator (state or territory of the United States, or the country if of foreign birth)
12. The tenure of the farm operator, June, 1880 (owner, rents for fixed money rental, rents for share of products)
13. The number of tilled acres of land on the farm, June, 1880 (including fallow and grass in rotation, whether pasture or meadow)
14. The number of acres in permanent meadows, permanent pastures, orchards, and vineyards, June, 1880
15. The number of acres in unimproved woodland and forest, June, 1880
16. The number of acres in other unimproved land, including "old fields" not growing wood, June, 1880
17. The value of the farm, including land, fences, and buildings (in dollars), June, 1880
18. The value of farming implements and machinery (in dollars), June, 1880
19. The value of livestock (in dollars), June, 1880

TABLE 1--Continued

20. The cost of building and repairing fences (in dollars) during 1879
21. The cost of fertilizers purchased (in dollars) during 1879
22. The amount paid for wages for farm labor during 1879, including value of board (in dollars)
23. The man-weeks of hired white labor in 1879 on the farm and dairy, but excluding housework
24. The man-weeks of hired colored labor in 1879 on the farm and dairy, but excluding housework
25. The estimated value of all farm production (sold, consumed, or on hand) for 1879 (in dollars)
26. The number of horses of all ages on hand, June 1, 1880
27. The number of mules and asses of all ages on hand, June 1, 1880
28. The number of working oxen on hand, June 1, 1880
29. The number of milch cows on hand, June 1, 1880
30. The number of all other cattle on hand, June 1, 1880
31. The number of sheep on hand, June 1, 1880
32. The number of swine on hand, June 1, 1880
33. The number of acres of Indian corn planted in 1879
34. The number of bushels of Indian corn harvested in 1879
35. The number of acres of cotton planted in 1879
36. The number of 400-pound bales of cotton harvested from the crop of 1879
37. The number of bushels of Irish potatoes harvested in 1879
38. The number of bushels of sweet potatoes harvested in 1879
- ‡39. The four most significant other crops in 1879 (in terms of acreage planted)
- ‡40. The number of acres devoted to each of these four crops in 1879
- ‡41. The production of each of these four crops in 1879

*Taken from the population schedules. All other data were taken from the agricultural schedules.

‡For a list of additional crops included, and the units in which their production is recorded, see Table 2.

sufficiently large to achieve efficiency in the collating process, but not so large as to introduce problems of nonrandomness. Such problems can arise from the fact that farms were recorded sequentially in the order in which they were visited by the Assistant Census Marshalls. Thus, two farms located in the same five-farm block were likely to be neighboring farms. If a larger number of farms were taken to define a block, then fewer such blocks could be included in the sample for a given county. Large farm blocks would result in the selection of a few contiguous groups of neighboring farms within each county. The result would likely prove unrepresentative of the agricultural patterns within the region. It is hoped that we have reached a satisfactory compromise between cost considerations and the desire to achieve the most representative sample of farms.¹⁵

In most cases, it was desired to collect a ten percent sample of the farms within the chosen county.¹⁶ However, because the operators of a number of farms might not be located in the population schedules, or because the data for some farms might be incomplete in another way, the initial selection procedure was designed to pick out slightly better than eleven percent of the total farms in the county. No farm was dropped

¹⁵See Sutch [7] for a detailed analysis of the sample results and the tests of the representativeness of the sample.

¹⁶In some cases, a five percent sample was taken. This was done when the county, or groups of counties, chosen to represent a region had a very large number of farms and preliminary examination revealed that representativeness would not be unduly sacrificed by a lighter sampling procedure. See Sutch and Ransom [8] for details.

from the complete sample; farms with incomplete data were identified by a code number and were not used in analyses which entailed the use of omitted data.

The selection procedure adopted was to identify a "basic sample" comprised of the first five farms out of each group of forty-five farms, moving sequentially through the agricultural manuscripts. This method was altered only when one or more of the first five farms immediately appeared to be unsatisfactory because of the illegibility of the agricultural data or a damaged page. In this case, the rule followed was to choose the first five farms which proved to be legible from each group of forty-five. In one or two cases, the microfilm records for an entire county were sufficiently illegible that another county was substituted. These cases are noted in Sutch and Ransom [8]. The initial examination of the microfilms and the selection of the five-farm blocks were performed on a microfilm reader. A list of the page numbers upon which the farm blocks were located was made on a special form called the County Data Sheet (a sample is provided as Exhibit C).

The last step in the selection process was to make a Xerox copy of the required pages using a Xerox 1824. These copies reproduced the agricultural census page in a large enough form to make the transcription of data straightforward (see Exhibit A). Experiments with transcription directly from the microfilm reader proved unsuccessful because of the difficulty encountered in viewing the microfilm reader for extended periods of time. Moreover, the availability of a copy of the agricultural form proved to be quite useful when checking the data for errors (see below).

Preliminary Transcription

The selected farms were assigned an identification number. These numbers run in serial order from the first farm in the first county processed. These numbers were recorded directly upon the Xeroxed Agricultural forms beside each farm and were also recorded on the County Data Sheets by enumeration district.

After the assignation of a serial number, coders transferred a portion of the data to a coding form. A sample of this form is attached as Exhibit D. Each coder was provided with detailed instructions which are included as Appendix I of the present paper. At this stage, the farm operator's name, the data upon which the farm was enumerated, and the state and county names were recorded at the top of the coding form. The coding form has four rows, each divided into eighty columns. These rows correspond to four IBM punch cards, and the columns correspond to the eighty columns of a standard IBM card. The data required can thus be recorded in exactly the format required for keypunching. The first six-column field on each card records the farm serial number. The next two-column field records the card number. The balance of each card contains positions for a number of variables, generally in six-column fields (see Appendix III for a detailed description of the card formats and layout). At this time in the transcription process, the farm number was entered onto all of the cards, and the entry for enumeration district and location of the farm in the agricultural census was entered into the appropriate columns of card one.

The Collation Process

At this point, the Xeroxed agricultural census sheets were filed, and the appropriate reel of the Population Census was placed on the microfilm reader. (Exhibit B presents a sample page from the Population Census.) When searching for the farm operators in the Population Census, the coders were guided by the enumeration district number and the date of enumeration which were recoded on the pages of both censuses. Ordinarily, the date of enumeration was the same for the farm operator in both censuses. If, after a careful search, the operator could not be located in the Population Census, then the square marked "unmatched farm" (in the upper right-hand corner of the coding sheet) was checked. If the operator was located, the coders completed columns 31 through 54 of Card 1.¹⁷

Several problems were encountered in the transcription of the population schedule data. Literacy was to be recorded on the population schedule by placing checks in the columns headed "cannot read" and "cannot write." Only if a check appeared in both columns was a person considered illiterate for our study. In some cases, the census enumerators were confused and recorded checks if the person could read or write. Occasionally, entire columns were first checked and then crossed out. In other cases, the intention of the enumerator was clear, and the coder filled in the forms appropriately.

¹⁷See the starred items in Table 1 for the list of data recorded from the population schedules.

The census enumerator was instructed to number both the households and the families as he came to them. Thus, if two families were living together, it should have been possible to note this. Unfortunately, in some cases the enumerators did not always number the household or families. It was our intention to collect data on the number of people in households and the number of people at work on the farm in a household.¹⁸ In cases where households were not identified in the schedules, the number of people in the farm operator's house was calculated by counting all the people with the same surname appearing in consecutive spaces below the name of the head of the household. In such cases, unrelated farm laborers living in the same house may have been excluded, or persons not living in the house may have been included. A list of farm operators with such ambiguities is available.

Persons were counted among those at work in the farm only if a farm-related occupation was listed for them in the Population Census. Usually the occupation was listed as "farmer," "planter," or "farm laborer." Some enumerators listed occupations for all persons in the census, including children as "in school" or "at home." Other enumerators gave no occupation for children, and still others listed older children as "at work on farm." Obviously, some ambiguities exist in defining the number of persons in the household at work on the farm.¹⁹

¹⁸For the instructions on identifying members of a household and people at work on the farm, see Appendix I.

¹⁹See Appendix I for the instructions to coders on this matter.

When Columns 31 through 54 had been completed, the coder returned to the agricultural census to finish the coding sheet.

Transcription of the Agricultural Data

For all farms for which the farm operator was located in the population schedules, the balance of the agricultural data was recorded on the coding sheet in the appropriate columns. For those farms for which the farm operator was not located, only the following data were recorded: tenure, acreage, cotton acreage and production, corn acreage and production, and wage data.

One of the aspects of farming which was investigated in the 1880 census was the amount paid for farm labor and the number of man weeks of farm labor hired. Because of ambiguities in the question and the instructions to the marshalls, this data were often inaccurate, incomplete, or simply nonexistent. This problem was so persistent that this data were never aggregated and published in the original census volumes. Because of this problem, it was originally intended that this data should be recorded by the coders below Card 2 on the coding form rather than directly upon the spaces allocated to the IBM card. After an examination of these data for reliability, they were to be recorded in Columns 57-80 on Card 2 only if they were deemed accurate. However, it was soon discovered that the data were either consistently good or consistently bad throughout each enumeration district (each district was recorded by a single marshall). Therefore, the use of the boxes below Card 2 was discontinued and the data were recorded in Columns 57-74 regardless of its quality. Instead of a preliminary editing, a code number was placed in Column 80 of Card 2, indicating

the quality of the data. The codes used and the assessment process are described in the next section.

When the farm produced items not recorded on the first three cards, these were recorded on Card 4. Each crop recorded in the census, but not listed on the first three cards, was assigned an identification number. For convenience, this number is identical to that above the acreage column in the original agricultural schedules.²⁰ The units in which production was measured depended upon the crop (see Table 2).

A "1" in Column 38 of Card 1 indicates the presence of a footnote written in by the coder at the bottom of the coding sheet. The coders were instructed to note any interesting items or any special coding problems. In many cases, two occupations, such as "farmer and merchant" were listed in the census for a farm operator. In other cases, more than one farm was being run by a single operator. This sort of information appears in these footnotes which are listed separately by farm operator identification number and which are available on request.

The original census manuscripts are often illegible. The coders were instructed to write their best guess (if possible) concerning illegible data above the appropriate spaces on the coding sheet and to check the square marked "illegible data" in the upper right-hand corner of the coding form.

²⁰Appendix I has a code sheet for all crops collected. The identification code for crops with varying measures of output (i. e. sorghum) was the output rather than acreage column.

TABLE 2

LIST OF ADDITIONAL CROPS
WHICH WERE REPORTED ON CARD 4

<u>Crop</u>	<u>Measure of Output</u>
Rice	Pounds
Barley	Bushels
Buckwheat	Bushels
Oats	Bushels
Rye	Bushels
Wheat	Bushels
Flax	Pounds of fiber
Hemp	Tons
Cane sugar	Hogsheads
Cane molasses	Gallons
Sorghum sugar	Pounds
Sorghum molasses	Gallons
Maple sugar	Pounds
Maple molasses	Gallons
Cow peas	Bushels
Dried beans	Bushels
Tobacco	Pounds
Apples	Bushels
Peaches	Bushels

Coding the Data

The next step in the sampling procedure involved the coding of various data and the preparation of the coding forms for keypunching. Attached as Appendix II is the detailed instructions given to the individuals checking the coding forms. The checker would inspect the forms for legibility and attempt to resolve any of the problems encountered by the transcribers. It was the checker's responsibility to ascertain the value of any questionable variables. If he found that the illegibility problem could not be resolved, he entered the code 99999 into the space provided for the data. In this way we could identify the difference between a zero entry and a positive entry which could not be read because of the illegibility of the original census document.

Code numbers were supplied for the remaining variables. See the attached code sheets in Appendix II for a complete list. Each farm was assigned to one of four samples. Sample 1 includes those farms for which data were recorded and no illegibility problems were encountered. Sample 2 includes "unmatched" farms for which there is no data from the population census and for which the given data are reliable. Note that Sample 2 farms have only a subset of the complete agricultural data recorded (see Appendix I). Farms included in Sample 3 have complete data but contain at least one illegible number denoted by a 99999 code. Sample 4 is unmatched farms with an unresolved illegibility problem. The coding of the state, county, and region in which the farm was located was straightforward. The place of birth of the farm operator was recorded by the transcriber below the line for Card 1. The checker entered the code

number assigned the state or foreign country into the appropriate columns on Card 1.

As we have already noted, the wage data recorded in the census of agriculture were often in error. The checker was asked to make a determination for each enumeration district of the quality of the wage data. If the enumerator ignored this question, and no entries were made for any farm in the district, then the coder left Column 80 of Card 2 blank for every farm in the district. Farms in this group may or may not have hired wage labor. In other cases, the enumerator attempted to record the information on wage payments, but misinterpreted the question by assuming the wage column required the average wage, somehow measured, rather than the total wage bill. Alternatively, he may have entered the wage bill correctly, but did not interpret the man-weeks question correctly. Marshalls quite often recorded the number of weeks labor was hired, rather than the total number of man-weeks worked. In either of these cases, the average wage implied by the figures given would prove unreasonable. If this appeared to be the case, a "2" was entered in Column 80. For farms in this group, it may prove impossible to discover the amount of labor hired, but we can at least determine whether or not the farm hired any labor during 1879. If it appears that the census enumerator interpreted the question of wage payment correctly, a "1" was placed in Column 80.

Another problem with the wage data occurred because a different census form--the "B" schedule--was used in some cases. Its principal difference from the standard "S" schedule is the fact that there is no indication of whether labor hired was white or colored. If a "B" schedule

was used, and the data appeared reliable, a "3" was placed in Column 80, and the man-weeks were recorded in the space normally provided for white man-weeks (c. c. 63-68). If the data were unreliable, by the tests described above, it was coded "4." If no data were recorded, the column would be blank. A list of all farm operators recorded on a "B" schedule is available.

The checker also noted any footnotes recorded by the transcribers. Those which noted problems in interpretation were either resolved by the checker and removed, or were left to stand if they could not be resolved. All remaining footnotes were edited and recorded by farm identification number. A list of these footnotes is available on request.

Finally, if there were no data recorded on Card 4, it was deleted, and the code "1" was placed in Column 80 of Card 3.²¹

²¹Exhibits A and B have been selected to illustrate the method of collecting and collating data by showing an actual farm from the sample of Tunica County, Mississippi.

1. Farm number 401 in the sample was operated by William Proctor. Proctor's name, along with the day he was enumerated (6/10/80), would be entered at the top of the coding form (Exhibit D). The rest of the identification of the farm would then be entered in Card 1: Enumeration District = 104; Page number = 9; Line number = 5.

2. The next step is to take the Tunica County population schedules (Exhibit B) and look at the names enumerated on 6/10/80. Proctor appears on p. 22 of E. D. 104, line 38. This information would be entered in Card 1. The remaining information would then be transcribed on Card 1:

Race = 2 (black)

Age = 27

Literacy = 0 (since Proctor can neither read nor write)

Birthplace = Arkansas

Number in household = 4

Number at work on the farm = 1 (since Proctor's wife is listed as "housekeeping" and the two children show no occupation.)

3. Returning to the agricultural schedule (Exhibit A), the remaining information on Proctor's farm is recorded. He is a renter with ten

Keypunching and Error Elimination

The coding forms were keypunched and verified by different operators. When the punch-cards and coding forms were returned by the keypunchers, the cards were listed and a check was made to be sure that neither cards nor coding forms were missing. The deck for each county was then run through a computer program which insured that every farm was accounted for, the first three cards were present for each farm, the fourth card was present for farms which did not have a "1" punched in Column 80 of Card 3, and the state, county and region codes were correct. Checks were also made by the program for spurious punches, impossible code numbers, negative numbers, and a variety of other consistency checks. Any errors uncovered in this process were corrected.

In addition to the error tests just mentioned, the data from each county were compiled in various distributions and cross-distributions. Whenever an outlier appeared, or when a highly unlikely result appeared, the data punched were rechecked with the original manuscripts for a possible transcription error.

Finally, as a test of our entire procedure, several enumeration districts were completely redone by different individuals and the results were compared with the first deck. This test uncovered so few errors that we are convinced the data are almost completely error free. Further elimination of errors would prove to be extremely costly and would be unlikely to affect the results.

acres of tilled land. Note that no entry is given for the wage data columns (Columns 14-16 of Exhibit A), and that Proctor produced no crops that need to be entered on Card 4, hence the code "1" would be placed in Column 80 of Card 3.

APPENDIX I

CODING FORM INSTRUCTIONS

- I. OBJECTIVE: To construct a sample of farms representing at least 10% of the total number of farms in a selected group of Southern counties. The sample will require collating data from the Census of Agriculture and the Census of Population.

The collection and collating of data can be separated into three reasonably distinct operations.

I. Selection of a Basic Sample comprising approximately five out of every 45 farms in the Agriculture Census. Data for these farms will be Xeroxed from the microfilms of the manuscript Census of Agriculture data and kept on file.

II. Identification of farm operators in this Basic Sample in the Population Census using microfilms of the manuscript data. Data on race, literacy, age, and household characteristics will be recorded onto the Coding Form from the microfilm.

III. Recording of agricultural data from the Xeroxed sheets of the Census of Agriculture onto the Coding Form for each farm. Not every farm operator will be identified in the Population Census. The final sample will consist of two sets of farms: where data in the population census was collated with the agriculture data (MATCHED SAMPLE);

and those where no data could be identified in the Population Census (UNMATCHED SAMPLE).

II. SOME GENERAL NOTES ON DATA COLLECTION:

1. TRANSCRIBE THE DATA CAREFULLY! It will be virtually impossible to catch errors made in transcribing data from microfilm or Xerox sheets to the Coding Form. "Spot checking" for errors on a few farms is the best we can hope for in picking up errors. BE CAREFUL!

2. Your Coding Form will be used to keypunch the data. Several things will assist the keypunchers:

- (a) Write legibly.
- (b) Keep your numbers within the spaces of the coding form. Be sure they do not overlap.
- (c) Always RIGHT-JUSTIFY! (i. e. enter the figure so that the last digit is to the extreme right-hand card column. Do not bother to enter zeroes in blank boxes.
- (d) If no data are given for a particular variable, leave that card column (c. c.) blank.

3. ILLEGIBLE NUMBERS. When you are unable to be sure of a number, enter your best guess above the c. c. for that digit. If you can make no guess, enter a hyphen (-) above the boxes. BE SURE TO PLACE AN "X" IN THE ILLEGIBILITY BOX IN THE UPPER RIGHT OF THE CODING FORM!

Examples:

		2	3
		-	-

means 23 is your "best guess"

means you were unable to make a reasonable guess

4. Any unusual or confusing circumstances may be noted in a footnote at the bottom of the Coding Form. Enter "1" in the fn space, Card 1: c. c. 37-38. Your comments will be important to the person checking the coding form for irregularities. Don't hesitate to use this option to explain problems.

5. Note that the number over most headings on the Coding Form refer to the column number where that data are located on the Xeroxed Data Sheets of the Agricultural Census.

6. Note that the following card columns should have been filled in during the preliminary transcription process and are not to be filled in by the coder:

Farm No. (c. c. 1-6 on each card); Sample No. (c. c. 9-10);
and county, state, and region codes on Card 1 (c. c. 11-20).

III. SELECTING THE BASIC SAMPLE

1. We need data for 10% of the farms in each county to be collated from both the Agricultural and Population Censuses. This number of farms is given on the County Data Sheet.

2. Xeroxing the Agricultural Census Manuscript data:

(a) Xerox the pages given by the county data sheet. NOTE:

BE SURE THAT YOU ARE FAMILIAR WITH THE INSTRUCTIONS REGARDING THE OPERATION OF THE XEROX MACHINE!!!

(b) Give the forms and the county data sheet to George Boutin for selection of the basic sample.

3. Identifying the BASIC SAMPLE:

Each farm in the Basic Sample will have been identified by a Farm Number on the left margin of the Xerox Data Sheet.

- (a) Fill out a coding sheet for every farm in the basic sample. Enter the data at the top of the coding sheet regarding FARMER'S NAME, and DAY ENUMERATED, and the state and county names.
- (b) Enter the farm number in c. c. 1-6 on each of the four cards.
- (c) Enter the data on Card 1 (c. c. 21-30) for Enumeration District, Page Number, and Line Number from the Agricultural Census.
- (d) Complete these operations for all farms in the sample.

IV. IDENTIFYING FARM OPERATORS AND COLLATING DATA FROM THE POPULATION CENSUS

1. Locate the NAME of the farm operator in the Population Census.

This is probably the most difficult task of the data-collection process. You will undoubtedly find your own ways of best performing it. The following steps have been found useful in locating the names of farmers in each group of five farms in the Basic Sample (i. e. five farms from a single Xerox data sheet).

- (a) Locate the enumeration district in the Population Census. It is usually best to finish the entire enumeration district before moving on to the next district.
- (b) When given, the DAY ENUMERATED is a useful guide to locate farmers; this is not always reliable, however.
- (c) Use the occupation column as a guide to farm operators. "Farmer," "planter," or "farm agent" are the most

common occupational listings for farm operators.

- (d) When you locate the name of a farmer, the remaining farmers on that Xerox page will probably be in the same general area of the Population Census. Canvass these names carefully.

MAKE A DILIGENT EFFORT TO IDENTIFY ALL FARM OPERATORS IN THE BASIC SAMPLE. HOWEVER, DO NOT SPEND EXCESSIVE TIME TRYING TO LOCATE A SINGLE NAME.

2. After all groups have been located, make one final run through the enumeration district to locate missing names.

3. Some Common Problems:

(a) No Day of Enumeration. This makes the task much harder. Sometimes it will then pay to try to work with two or even three groups of farmers at one time. Generally, farmers on a page of the Agricultural Census will still be closely grouped in the Population Census.

(b) Large farms. Where farms tend to over, say, 250 acres, the names of operators may be scattered more widely among the population. In some instances, these operators will reside in a city. In others, their occupation may be merchant, doctor, or a political officeholder.

4. When a farm operator is identified in the Population Census, fill in the data for Card 1: c. c. 31-54.

- (a) Population Page Number and Line Number (c. c. 31-36).
as in I.4 and I.5, above.

- (b) Race of farm operator (c. c. 39-40). Note that both Blacks and Mulattoes are coded as "2."
- (c) Literacy of farm operator (c. c. 41-42). Literacy is noted with a "0" if he can either read or write; with a "1" if he is illiterate.
- (d) Age of farm operator (c. c. 43-45).
- (e) Number in Household, Number at Work. Count the people listed in the same house with the farm operator--including the farmer. Enter this figure in c. c. 46-48.
Count those in the house--including the farmer--who work on the farm. Enter this figure in c. c. 49-51.

Example:

Household Visited	Name	Race	Sex	Age	Occupation
493	Jones, Sam	B	M	40	Farmer
	Ann	B	F	39	Housekeeping
	Chas.	B	M	15	Works on farm
	Henry	B	M	13	Works on farm
	Cara	B	F	19	Works on farm
494	Smith, Tom	W	M	31	Farmer

In this example, there are 5 people living in the house with the farm operator, four of whom appear to work on the farm. You will have to use your own judgment on the occupations which indicate farm labor. In addition to those already noted, farm laborer and laborer are frequently

listed. Note that in the example we did not count the wife, whose occupation was listed as housekeeping. Children shown as "in school" or with no entry are similarly not included in the work force.

(f) Birth code (c. c. 52-54). This information is NOT coded.

Enter the place of birth in the square provided.

5. When a farm operator cannot be identified in the Population Census, enter "X" in the box labeled UNMATCHED FARM in the upper right of the coding form. STEP II SHOULD BE COMPLETED FOR ALL FARMS IN THE BASIC SAMPLE. NO FARMS ARE DISCARDED FROM THIS SAMPLE!

6. Add the number of UNMATCHED FARMS and farms with ILLEGIBILITY problems, and subtract from total sample size:

(a) If the result is at least equal to the Required Sample Size listed on the County Data Sheet, the data are ready for Step III.

(b) If the number is less than the Required Sample Size, give the coding forms for that county to Richard Sutch or Roger Ransom for adjustment.

V. AGRICULTURAL DATA COLLECTION FOR MATCHED FARMS

Fill in all pertinent data on the coding form from the Xeroxed data sheets.

1. Card 1:

(a) Tenure (c. c. 55-56); note codes:

2 = Own, since this is the column number for "own" in the census

3 = Rents for cash

4 = rents for shares

Where more than one type of tenure is indicated, enter the code for the particular combination:

5 = own and rent

6 = own and share

7 = rent and share

8 = rent, share, and own

IF NO TENANCY IS SHOWN, ENTER "1" DO NOT LEAVE
c. c. 56 BLANK.

(b) Acreage (c. c. 9-38). Enter data as indicated for each of
the four types of land.

2. Card 2:

(a) Farm Data (c. c. 9-38). Enter data as indicated from
Columns 9 through 13 of the Xeroxed data sheets.

(b) Wages Data. In Columns 14, 15, 16 of the Xeroxed data
sheets are data on wages paid and weeks of hired labor.
These data should be entered in c. c. 57-74. Footnote the
fact if wages are not identified by color. Disregard the
boxes below the line for Card 2.

3. Card 3:

All entries on this card are indicated by the column numbers
on the Xeroxed sheets. Where no data are given, leave the
card columns blank.

4. Card 4:

This card is for noting additional crops which may have been
produced on the farm.

- (a) Note the four most important crops--aside from cotton, corn, and potatoes--which are produced on the farm. The principal basis of selection should be LAND USE.
- (b) For each crop, enter the I. D. Number, Acreage, and Output on Card 4.

SEE THE CODE SHEET FOR COMPLETE LIST OF CROPS WHICH SHOULD BE INCLUDED!

Example of Entry:

The farm produces 50 bushels of oats, using 6 acres of land:

I.D.				Acres				Output			
			58				6				50

and so on for the other crops.

- (c) Note that nurseries, vineyards, market gardens, bees, and forest products are NOT covered (columns 95-104 of the Xeroxed data sheets).

VI. AGRICULTURAL DATA COLLECTION FOR FARMS NOT MATCHED IN THE POPULATION CENSUS

- 1. Enter data ONLY for:
 - (1) Tenure (1: c. c. 55-56)
 - (2) Acreage (1: c. c. 57-58)
 - (3) Cotton (3: c. c. 51-62)
 - (4) Corn (3: c. c. 39-50)
 - (5) Wage data from Columns 14-16 of the Xeroxed sheets (2: c. c. 57-74)

2. Problems of Data Collection:

(a) Fractional acres or outputs: round to nearest whole.

Less than $\frac{1}{2}$ is zero; greater than $\frac{1}{2}$ is one.

(b) Partial entries for crops: enter data which are given.

CODE SHEET

1. Fn. (1: 37-38)
 - 1 = Yes, there is a footnote.
2. RACE (1: 39-40)
 - 1 = White (W)
 - 2 = Black (B)
 - 2 = Mulatto (M)
 - 3 = All others
3. LITERACY (1: 41-42)
 - 0 = can either read or write
 - 1 = can neither read nor write
4. TENURE (1: 55-56)

<u>Code</u>	<u>Meaning</u>	<u>Column on Agri. Census Schedule</u>
1	No tenure given	
2	Owns	2
3	Rents for cash	3
4	Rents for share	4
5	Owns and rents for cash	2 and 3
6	Owns and rents for shares	2 and 4
7	Rents for cash and shares	3 and 4
8	Owns, rents for cash and shares	2, 3, and 4

5. CROP CODES

<u>I. D.</u>	<u>Name</u>	<u>Acres Column</u>	<u>Output Column</u>	
50	Rice	50	51	
52	Barley	52	53	
54	Buckwheat	54	55	
58	Oats	58	59	
60	Rye	60	61	
62	Wheat	62	63	
66	Flax	66	69	(omit 67-68)
70	Hemp	70	71	
73	Cane sugar	72	73	
74	Cane molasses	72	74	
76	Sorghum syrup	75	76	
77	Sorghum molasses	75	77	
78	Maple sugar	-	78	
79	Molasses	-	79	
80	Cow peas	-	80	
81	Dried beans	-	81	
86	Tobacco	86	87	
88	Apples	88	90	
91	Peaches	94	93	

APPENDIX II

INSTRUCTIONS FOR CHECKING CODING FORMS

- I. Check the coding forms for neatness and legibility on the part of the coder. Be sure that there are no ambiguities. The following card columns must be filled in:
 - (a) Farm number (c. c. 1-6) is entered for every card.
 - (b) Farm is identified by page and line in both Censuses (1: 21-36).
 - (c) Tenure is entered (1 = no tenure shown; c. c. 56 is never blank).

II. Verify Illegible Data

When a coder has checked the illegible data box on the coding form, the number in question must be verified by the checker. If a "best guess" is indicated, this can be quickly compared with the Xerox Data Sheets. Where no best guess is possible, the code 99999 is entered for a six-digit field. (99 or 9 are entered in 3 or 2 digit fields.)

Certain variables are especially important:

Race	1:40
Tenure	1:56
Tilled acres	1:57-62
Corn (acres, bushels)	3:39-50
Cotton (acres, bushels)	3:51-62

In the case of illegible numbers for these variables, and where a reasonable guess cannot be made, the farm will be designated as an unmatched farm in the box at the upper right of the coding form.

III. Fill in all data which have not been entered in the card columns:

(a) Sample Number:

Unless there are special instructions on the county data sheet, the following sample code will apply for each county:

1. Matched farm: no illegible data problems.
2. Unmatched farm: no illegible data problems.
3. Matched farm with illegibility problem unresolved.
4. Unmatched farm with illegibility problem unresolved.

(Note that illegibility in a crucial variable automatically places a farm in Sample 4.)

(b) State code (1: 11-13). See state code sheet attached.

(c) County code (1: 14-17). See county code sheet attached.

(d) Region code (1: 18-20). See region code sheet attached.

(e) Birth code (1: 52-54). The place of birth is entered on the coding form below Card 1. Use the Birth Code Sheet to identify states and foreign countries.

IV. Wage Data

The data for Columns 14-16 of the Agricultural Census is shown on the coding form. The instructions to enumerators on this entry was not clear and the data are therefore not reliable. We intend to determine the reliability of the wage data for the entire enumeration district on the assumption that a given enumerator was consistent in his treatment. The data for Columns 14-16 will be entered in the card columns 2: 57-62 (Wages); 2: 63-68 (White); 2: 69-74 (Colored). To indicate the reliability, an additional code is placed in 2: 80. Three possibilities will arise:

1. No wage data were enumerated for this district. We assume this means that the enumerator ignored this question. The fields for wage data (2: 57-74) will be left blank, and c. c. 80 will also be left blank.
2. Wage data were reported, but the question appears to have been misunderstood by the enumerator. A correct entry should provide: wage bill (14); man-weeks of labor, colored (16) and white (15). Columns 15 and 16 were often answered erroneously by giving the number of weeks labor was hired. To check for this error, we use the implicit wage. Where this weekly wage (Column 14 divided by Columns 15 + 16) is consistently over \$4.00 for the enumeration district in question, we reject the data as being faulty. Where this appears to be the case, the code 2 should be entered in 2: 80 for every farm in the enumeration district.
3. The question appears to have been interpreted correctly. In this case, the code 1 will be entered for all farms in the enumeration district.
4. If the B schedule was used by the enumerator, the weeks of labor will not be identified by race. Enter the weeks worked in 2: 63-68. If the data for the enumeration district are reliable, enter the code 3 in c. c. 2: 80; if not, enter code 4.

V. Card 4:

Where there are no data entered on Card 4, it will be useful to dispense with it. The following steps will do this:

- (a) Enter the code "1" in c. c. 80 of Card 3.
- (b) With a heavy marking pen, mark out all of Card 4, including the farm number.

- VI. Make sure all numbers not to be punched are either marked out or identified.
- VII. Put footnotes in order. Check coder's footnotes and make any necessary adjustments. Rewrite footnotes for files. Make sure code for footnotes is entered correctly.
- VIII. The coding sheet is now ready for keypunching. Sign your initials in the upper right and take the sheet to keypunching.
- IX. Reassemble for forms after keypunching and check for missing coding forms and/or cards.
- X. Send forms for typing of footnotes. Footnotes should be single spaced; numbered by the farm number.
- XI. Reassemble data. The following items should be on file for every county sampled:
 1. County data sheet, fully filled in.
 2. Xerox data sheets for all farms sampled in the county.
 3. Coding forms for all farms.
 4. Footnotes to coding forms in that county.

STATE CODES--SHARECROPPING SAMPLE, 1880

Alabama	1
Arkansas	3
Delaware	8
District of Columbia	9
Florida	10
Georgia	11
Kentucky	17
Louisiana	18
Maryland	20
Mississippi	24
Missouri	25
North Carolina	33
South Carolina	38
Tennessee	39
Texas	40
Virginia	43
West Virginia	45

COUNTY CODES--SHARECROPPING SAMPLE, 1880

State of Alabama

Autauga	1	Jefferson	36
Baldwin	2	Lamar	37
Barbour	3	Lauderdale	38
Bibb	4	Lawrence	39
Blount	5	Lee	40
Bullock	6	Limestone	41
Butler	7	Lowndes	42
Calhoun	8	Macon	43
Chambers	9	Madison	44
Cherokee	10	Marengo	45
Chilton	11	Marion	46
Choctaw	12	Marshall	47
Clarke	13	Mobile	48
Clay	14	Monroe	49
Cleburne	15	Montgomery	50
Coffee	16	Morgan	51
Colbert	17	Perry	52
Conecuh	18	Pickens	53
Coosa	19	Pike	54
Covington	20	Randolph	55
Crenshaw	21	Russell	56
Cullman	22	Saint Clair	57
Dale	23	Shelby	58
Dallas	24	Sumter	59
De Kalb	25	Talladega	60
Elmore	26	Tallapoosa	61
Escambia	27	Tuscaloosa	62
Etowah	28	Walker	63
Fayette	29	Washington	64
Franklin	30	Wilcox	65
Geneva	31	Winston	66
Greene	32		
Hale	33		
Henry	34		
Jackson	35		

COUNTY CODES--SHARECROPPING SAMPLE, 1880--ContinuedState of Arkansas

Arkansas	1	Logan	41
Ashley	2	Lonoke	42
Baxter	3	Madison	43
Benton	4	Marion	44
Boone	5	Miller	45
Bradley	6	Mississippi	46
Calhoun	7	Monroe	47
Carroll	8	Montgomery	48
Chicot	9	Nevada	49
Clark	10	Newton	50
Clay	11	Ouachita	51
Columbia	12	Perry	52
Conway	13	Phillips	53
Craighead	14	Pike	54
Crawford	15	Poinsett	55
Crittenden	16	Polk	56
Cross	17	Pope	57
Dallas	18	Prairie	58
Desha	19	Pulaski	59
Dorsey	20	Randolph	60
Drew	21	Saint Francis	61
Faulkner	22	Saline	62
Franklin	23	Scott	63
Fulton	24	Searcy	64
Garland	25	Sebastian	65
Grant	26	Sevier	66
Greene	27	Sharp	67
Hempstead	28	Stone	68
Hot Spring	29	Union	69
Howard	30	Van Buren	70
Independence	31	Washington	71
Izard	32	White	72
Jackson	33	Woodruff	73
Jefferson	34	Yell	74
Johnson	35		
Lafayette	36		
Lawrence	37		
Lee	38		
Lincoln	39		
Little River	40		

COUNTY CODES--SHARECROPPING SAMPLE, 1880--ContinuedState of Florida

Alachua	1	Levy	21
Baker	2	Liberty	22
Bradford	3	Madison	23
Brevard	4	Manatee	24
Calhoun	5	Marion	25
Clay	6	Monroe	26
Columbia	7	Nassau	27
Dade	8	Orange	28
Duval	9	Polk	29
Escambia	10	Putnam	30
Franklin	11	Saint John's	31
Gadsden	12	Santa Rosa	32
Hamilton	13	Sumter	33
Hernando	14	Suwannee	34
Hillsborough	15	Taylor	35
Holmes	16	Volusia	36
Jackson	17	Wakulla	37
Jefferson	18	Walton	38
Lafayette	19	Washington	39
Leon	20		

COUNTY CODES--SHARECROPPING SAMPLE, 1880--ContinuedState of Georgia

Appling	1	DeKalb	36
Baker	2	Dodge	37
Baldwin	3	Dooly	38
Banks	4	Dougherty	39
Bartow	5	Douglas	40
Berrien	6	Early	41
Bibb	7	Echols	42
Brooks	8	Effingham	43
Bryan	9	Elbert	44
Bulloch	10	Emanuel	45
Burke	11	Fannin	46
Butts	12	Fayette	47
Calhoun	13	Floyd	48
Camden	14	Forsyth	49
Campbell	15	Franklin	50
Carroll	16	Fulton	51
Catoosa	17	Gilmer	52
Charlton	18	Glascok	53
Chatham	19	Glynn	54
Chattahoochee	20	Gordon	55
Chattooga	21	Greene	56
Cherokee	22	Gwinnett	57
Clarke	23	Habersham	58
Clay	24	Hall	59
Clayton	25	Hancock	60
Clinch	26	Haralson	61
Cobb	27	Harris	62
Coffee	28	Hart	63
Colquitt	29	Heard	64
Columbia	30	Henry	65
Coweta	31	Houston	66
Crawford	32	Irwin	67
Dade	33	Jackson	68
Dawson	34	Jasper	69
Decatur	35	Jefferson	70

COUNTY CODES--SHARECROPPING SAMPLE, 1880--ContinuedState of Georgia--Continued

Johnson	71	Richmond	106
Jones	72	Rockdale	107
Laurens	73	Schley	108
Lee	74	Screven	109
Liberty	75	Spalding	110
Lincoln	76	Stewart	111
Lowndes	77	Sumter	112
Lumpkin	78	Talbot	113
McDuffie	79	Taliaferro	114
McIntosh	80	Tattnall	115
Macon	81	Taylor	116
Madison	82	Telfair	117
Marion	83	Terrell	118
Meriwether	84	Thomas	119
Miller	85	Towns	120
Milton	86	Troup	121
Mitchell	87	Twiggs	122
Monroe	88	Union	123
Montgomery	89	Upson	124
Morgan	90	Walker	125
Murray	91	Walton	126
Muscogee	92	Ware	127
Newton	93	Warren	128
Oconee	94	Washington	129
Oglethorpe	95	Wayne	130
Paulding	96	Webster	131
Pickens	97	White	132
Pierce	98	Whitfield	133
Pike	99	Wilcox	134
Polk	100	Wilkes	135
Pulaski	101	Wilkinson	136
Putnam	102	Worth	137
Quitman	103		
Rabun	104		
Randolph	105		

COUNTY CODES--SHARECROPPING SAMPLE, 1880--ContinuedState of Louisiana

Ascension	1	Ouachita	31
Assumption	2	Plaquemine	32
Avoyelles	3	Point Coupee	33
Bienville	4	Rapides	34
Bossier	5	Red River	35
Caddo	6	Richland	36
Calcasieu	7	Sabine	37
Caldwell	8	Saint Bernard	38
Cameron	9	Saint Charles	39
Catahoula	10	Saint Helena	40
Claiborne	11	Saint James	41
Concordia	12	Saint John the Baptist	42
DeSoto	13	Saint Landry	43
East Baton Rouge	14	Saint Martin	44
East Carroll	15	Saint Mary	45
East Feliciana	16	Saint Tammany	46
Franklin	17	Tangipahoa	47
Grant	18	Tensas	48
Iberia	19	Terrebonne	49
Iberville	20	Union	50
Jackson	21	Vermillion	51
Jefferson	22	Vernon	52
LaFayette	23	Washington	53
Lafourche	24	Webster	54
Lincoln	25	West Baton Rouge	55
Livingston	26	West Carroll	56
Madison	27	West Feliciana	57
Morehouse	28	Winn	58
Natchitoches	29		
Orleans	30		

COUNTY CODES--SHARECROPPING SAMPLE, 1880--ContinuedState of Mississippi

Adams	1	Marion	41
Alcorn	2	Marshall	42
Amite	3	Monroe	43
Attala	4	Montgomery	44
Benton	5	Neshoba	45
Bolivar	6	Newton	46
Calhoun	7	Noxubee	47
Carroll	8	Oktibbeha	48
Chickasaw	9	Panola	49
Choctaw	10	Perry	50
Claiborne	11	Pike	51
Clarke	12	Pontotoc	52
Clay	13	Prentiss	53
Coahoma	14	Quitman	54
Copiah	15	Rankin	55
Covington	16	Scott	56
DeSoto	17	Sharkey	57
Franklin	18	Simpson	58
Greene	19	Smith	59
Grenada	20	Sumner	60
Hancock	21	Sunflower	61
Harrison	22	Tallahatchie	62
Hinds	23	Tate	63
Holmes	24	Tippah	64
Issaquena	25	Tishomingo	65
Itawamba	26	Tunica	66
Jackson	27	Union	67
Jasper	28	Warren	68
Jefferson	29	Washington	69
Jones	30	Wayne	70
Kemper	31	Wilkinson	71
LaFayette	32	Winston	72
Lauderdale	33	Yalobusha	73
Lawrence	34	Yazoo	74
Leake	35		
Lee	36		
LeFlore	37		
Lincoln	38		
Lowndes	39		
Madison	40		

COUNTY CODES--SHARECROPPING SAMPLE, 1880--ContinuedState of North Carolina

Alamance	1	Graham	36
Alexander	2	Granville	37
Alleghany	3	Greene	38
Anson	4	Guilford	39
Ashe	5	Halifax	40
Beaufort	6	Harnett	41
Bertie	7	Haywood	42
Bladen	8	Henderson	43
Brunswick	9	Hertford	44
Buncombe	10	Hyde	45
Burke	11	Iredell	46
Cabarrus	12	Jackson	47
Caldwell	13	Johnston	48
Camden	14	Jones	49
Carteret	15	Lenoir	50
Caswell	16	Lincoln	51
Catawba	17	McDowell	52
Chatham	18	Macon	53
Cherokee	19	Madison	54
Chowan	20	Martin	55
Clay	21	Mecklenburg	56
Cleaveland	22	Mitchell	57
Columbus	23	Montgomery	58
Craven	24	Moore	59
Cumberland	25	Nash	60
Currituck	26	New Hanover	61
Dare	27	Northampton	62
Davidson	28	Onslow	63
Davie	29	Orange	64
Duplin	30	Pamlico	65
Edgecombe	31	Pasquotank	66
Forsyth	32	Pender	67
Franklin	33	Perquimans	68
Gaston	34	Person	69
Gates	35	Pitt	70

COUNTY CODES--SHARECROPPING SAMPLE, 1880--Continued

State of North Carolina--Continued

Polk	71	Wake	86
Randolph	72	Warren	87
Richmond	73	Washington	88
Robeson	74	Watauga	89
Rockingham	75	Wayne	90
Rowan	76	Wilkes	91
Rutherford	77	Wilson	92
Sampson	78	Yadkin	93
Stanley	79	Yancey	94
Stokes	80		
Surry	81		
Swain	82		
Transylvania	83		
Tyrrell	84		
Union	85		

COUNTY CODES--SHARECROPPING SAMPLE, 1880--ContinuedState of South Carolina

Abbeville	1	Lexington	21
Aiken	2	Marion	22
Anderson	3	Marlborough	23
Barnwell	4	Newberry	24
Beaufort	5	Oconee	25
Charleston	6	Orangeburgh	26
Chester	7	Pickens	27
Chesterfield	8	Richland	28
Clarendon	9	Spartanburgh	29
Colleton	10	Sumter	30
Darlington	11	Union	31
Edgefield	12	Williamsburgh	32
Fairfield	13	York	33
Georgetown	14		
Greenville	15		
Hampton	16		
Horry	17		
Kershaw	18		
Lancaster	19		
Laurens	20		

COUNTY CODES--SHARECROPPING SAMPLE, 1880--ContinuedState of Tennessee

Anderson	1	Hawkins	36
Bedford	2	Haywood	37
Benton	3	Henderson	38
Bledsoe	4	Henry	39
Blount	5	Hickman	40
Bradley	6	Houston	41
Campbell	7	Humphreys	42
Cannon	8	Jackson	43
Carroll	9	James	44
Carter	10	Jefferson	45
Cheatham	11	Johnson	46
Claiborne	12	Knox	47
Clay	13	Lake	48
Cocke	14	Lauderdale	49
Coffee	15	Lawrence	50
Crockett	16	Lewis	51
Cumberland	17	Lincoln	52
Davidson	18	London	53
Decatur	19	McMinn	54
DeKalb	20	McNairy	55
Dickson	21	Macon	56
Dyer	22	Madison	57
Fayette	23	Marion	58
Fentress	24	Marshall	59
Franklin	25	Maury	60
Gibson	26	Meigs	61
Giles	27	Monroe	62
Grainger	28	Montgomery	63
Greene	29	Moore	64
Grundy	30	Morgan	65
Hamblen	31	Obion	66
Hamilton	32	Overton	67
Hancock	33	Perry	68
Hardeman	34	Polk	69
Hardin	35	Putnam	70

COUNTY CODES--SHARECROPPING SAMPLE, 1880--Continued

State of Tennessee--Continued

Rhea	71	Union	86
Roane	72	VanBuren	87
Robertson	73	Warren	88
Rutherford	74	Washington	89
Scott	75	Wayne	90
Sequatchie	76	Weakley	91
Sevier	77	White	92
Shelby	78	Williamson	93
Smith	79	Wilson	94
Stewart	80		
Sullivan	81		
Sumner	82		
Tipton	83		
Trousdale	84		
Unicoi	85		

COUNTY CODES--SHARECROPPING SAMPLE, 1880--ContinuedState of Texas

Anderson	1	Collingsworth	41
Andrews	2	Colorado	42
Angelina	3	Comal	43
Aransas	4	Comanche	44
Archer	5	Concho	45
Armstrong	6	Cooke	46
Atascosa	7	Coryell	47
Austin	8	Cottle	48
Bailey	9	Crockett	49
Bandera	10	Crosby	50
Bastrop	11	Dallam	51
Baylor	12	Dallas	52
Bee	13	Dawson	53
Bell	14	Deaf Smith	54
Bexar	15	Delta	55
Blanco	16	Denton	56
Borden	17	DeWitt	57
Bosque	18	Dickens	58
Bowie	19	Dimmit	59
Brazoria	20	Donley	60
Brazos	21	Duval	61
Briscoe	22	Eastland	62
Brown	23	Edwards	63
Burleson	24	Ellis	64
Burnet	25	El Paso	65
Caldwell	26	Encinal	66
Calhoun	27	Erath	67
Callahan	28	Falls	68
Cameron	29	Fannin	69
Camp	30	Fayette	70
Carson	31	Fisher	71
Cass	32	Floyd	72
Castro	33	Fort Bend	73
Chambers	34	Franklin	74
Cherokee	35	Freestone	75
Childress	36	Frio	76
Clay	37	Gaines	77
Cockran	38	Galveston	78
Coleman	39	Garza	79
Collin	40	Gillespie	80

COUNTY CODES--SHARECROPPING SAMPLE, 1880--ContinuedState of Texas--Continued

Goliad	81	Kimble	121
Gonzales	82	King	122
Gray	83	Kinney	123
Grayson	84	Knox	124
Gregg	85	Lamar	125
Grimes	86	Lamb	126
Guadalupe	87	Lampasas	127
Hale	88	LaSalle	128
Hall	89	Lavaca	129
Hamilton	90	Lee	130
Hansford	91	Leon	131
Hardeman	92	Liberty	132
Hardin	93	Limestone	133
Harris	94	Lipscomb	134
Harrison	95	Live Oak	135
Hartley	96	Llano	136
Haskell	97	Lubbock	137
Hayes	98	Lynn	138
Hemphill	99	McCulloch	139
Henderson	100	McLennan	140
Hidalgo	101	McMullen	141
Hill	102	Madison	142
Hockley	103	Marion	143
Hood	104	Martin	144
Hopkins	105	Mason	145
Houston	106	Matagorda	146
Howard	107	Maverick	147
Hunt	108	Medina	148
Hutchinson	109	Menard	149
Jack	110	Milam	150
Jackson	111	Mitchell	151
Jasper	112	Montague	152
Jefferson	113	Montgomery	153
Johnson	114	Moore	154
Jones	115	Morris	155
Karnes	116	Motley	156
Kaufman	117	Nacogdoches	157
Kendall	118	Navarro	158
Kent	119	Newton	159
Kerr	120	Nolan	160

COUNTY CODES--SHARECROPPING SAMPLE, 1880--ContinuedState of Texas--Continued

Nueces	161	Swisher	196
Ochiltree	162	Tarrant	197
Oldham	163	Taylor	198
Orange	164	Terry	199
Palo Pinto	165	Throckmorton	200
Panola	166	Titus	201
Parker	167	Tom Green	202
Parmer	168	Travis	203
Pecos	169	Trinity	204
Polk	170	Tyler	205
Potter	171	Upshur	206
Presidio	172	Uvalde	207
Rains	173	VanZandt	208
Randall	174	Victoria	209
Red River	175	Walker	210
Refugio	176	Waller	211
Roberts	177	Washington	212
Robertson	178	Webb	213
Rockwall	179	Wharton	214
Runnels	180	Wheeler	215
Rusk	181	Wichita	216
Sabine	182	Wilbarger	217
San Augustine	183	Williamson	218
San Jacinto	184	Wilson	219
San Patricio	185	Wise	220
San Saba	186	Wood	221
Scurry	187	Yoakum	222
Shackelford	188	Young	223
Shelby	189	Zapata	224
Sherman	190	Zavalla	225
Smith	191		
Somervell	192		
Starr	193		
Stevens	194		
Stonewall	195		

COUNTY CODES--SHARECROPPING SAMPLE, 1880--ContinuedState of Virginia

Accomac	1	Gloucester	36
Albemarle	2	Goochland	37
Alexandria	3	Grayson	38
Alleghany	4	Greene	39
Amelia	5	Greensville	40
Amherst	6	Halifax	41
Appomattox	7	Hanover	42
Augusta	8	Henrico	43
Bath	9	Henry	44
Bedford	10	Highland	45
Bland	11	Isle of Wight	46
Botetourt	12	James City	47
Brunswick	13	King and Queen	48
Buchanan	14	King George	49
Buckingham	15	King William	50
Campbell	16	Lancaster	51
Caroline	17	Lee	52
Carroll	18	Loudoun	53
Charles City	19	Louisa	54
Charlotte	20	Lunenburg	55
Chesterfield	21	Madison	56
Clarke	22	Mathews	57
Craig	23	Mecklenburg	58
Culpeper	24	Middlesex	59
Cumberland	25	Montgomery	60
Dinwiddie	26	Nansemond	61
Elizabeth City	27	Nelson	62
Essex	28	New Kent	63
Fairfax	29	Norfolk	64
Fauquier	30	Northampton	65
Floyd	31	Northumberland	66
Fluvanna	32	Nottoway	67
Franklin	33	Orange	68
Frederick	34	Page	69
Giles	35	Patrick	70

COUNTY CODES--SHARECROPPING SAMPLE, 1880--ContinuedState of Virginia--Continued

Pittsylvania	71	Smyth	86
Powhatan	72	Southampton	87
Prince Edward	73	Spotsylvania	88
Prince George	74	Stafford	89
Princess Anne	75	Surry	90
Prince William	76	Sussex	91
Pulaski	77	Tazewell	92
Rappahannock	78	Warren	93
Richmond	79	Warwick	94
Roanoke	80	Washington	95
Rockbridge	81	Westmoreland	96
Rockingham	82	Wise	97
Russell	83	Wythe	98
Scott	84	York	99
Schenandoah	85		

BIRTH CODE SHEET--UNITED STATES

Alabama	1	Montana Territory	26
Arizona	2	Nebraska	27
Arkansas Territory	3	Nevada	28
California	4	New Hampshire	29
Colorado	5	New Jersey	30
Connecticut	6	New Mexico	31
Dakota Territory	7	New York	32
Delaware	8	North Carolina	33
District of Columbia	9	Ohio	34
Florida	10	Oregon	35
Georgia	11	Pennsylvania	36
Idaho	12	Rhode Island	37
Illinois	13	South Carolina	38
Indiana	14	Tennessee	39
Iowa	15	Texas	40
Kansas	16	Utah Territory	41
Kentucky	17	Vermont	42
Louisiana	18	Virginia	43
Maine	19	Washington Territory	44
Maryland	20	West Virginia	45
Massachusetts	21	Wisconsin	46
Michigan	22	Wyoming Territory	47
Minnesota	23	Indian Territory	48
Mississippi	24		
Missouri	25		

BIRTH CODE SHEET--FOREIGN COUNTRIES

Europe (not specified)	50	Denmark	58
Great Britain	51	Other Scandanavian	59
England		Finland, Iceland, etc.	
Scotland		Italy	60
Wales		Southern Europe	61
Ireland	52	Spain	
France	53	Portugal	
Germany	54	Southeast Europe	62
Austria		Greece	
Bavaria		Turkey	
Baden		Balkan States	
Hesse		Russia	63
Nassau		Canada	64
Prussia		Asia	70
Wurtemberg		Africa	75
Other Northern Europe	55	South America	80
Belgium		Atlantic Island (inc. W. I.)	85
Switzerland, etc.		Other regions	90
Sweden	56	No birthplace	95
Norway	57		

MISCELLANEOUS CODES

Sample Number:

- 1: Matched farm with no illegible data problems
- 2: Unmatched farm with no illegible data problems
- 3: Matched farm with an unresolved illegibility problem
- 4: Unmatched farm with an unresolved illegibility problem

(Note that illegibility in a crucial variable automatically places a farm in Sample 4.)

Wage Quality Code:

Blank: No wage data reported in the enumeration district

- 1: Wage data appear to be correct
- 2: Wage data are not reliable. The question was incorrectly
- 3: interpreted
- 3: "B" schedule was used. Wage data appear to be reliable,
but are not identified by race
- 4: "B" schedule was used. Wage data are not reliable and
are not identified by race

Fourth Card Code:

Blank: There is a fourth card

- 1: There is no fourth card for this farm

APPENDIX III

FORMAT OF DATA DECK

The entire data deck is broken into counties by a County Card with Fortran format (I3, I4, I3, 2I6, 2I8, 4A10, 2x). The card contains the following data:

<u>Columns</u>	<u>Data</u>
1-3	state code
4-7	county code
8-10	region code
11-16	identification number of the first farm in the county sample
17-22	identification number of the last farm in the county sample
23-30	number of farms in the county
31-38	number of farms in the region
39-78	the county and state name in alpha-numeric code
79-80	blank

Thereafter the cards for each farm follow in sequential order. Card 1 has Fortran format (I6, 2I2, I3, I4, 4I3, 3I2, 4I3, I2, 4I6). The card contains the following data (See Table 1 for a more complete description of each variable):

<u>Columns</u>	<u>Data</u>
1-6	farm identification number
7-8	card number (should be equal to "1")
9-10	sample number
11-13	state code (should be the same as c. c. 1-3 on <u>County Card</u>)

<u>Columns</u>	<u>Data</u>
14-17	county code (should be the same as c. c. 4-7 on <u>County Card</u>)
18-20	region code (should be the same as c. c. 8-10 on <u>County Card</u>)
21-24	enumeration district number
25-27	agricultural census page number
28-30	agricultural census line number
31-33	population census page number
34-36	population census line number
37-38	footnote code
39-40	race of farm operator code
41-42	literacy code
43-45	age of farm operator
46-48	number of people in house including farm operator
49-51	number of people at work including farm operator
52-54	birthplace of farm operator code
55-56	tenure code
57-62	number of tilled acres
63-68	acres of meadows
69-74	acres of woodland
75-80	other acres

Card 2 has the Fortran format (I6, I2, 12I6). The card contains the following data:

<u>Columns</u>	<u>Data</u>
1-6	farm identification number (should be the same as c. c. 1-6 on Card 1)
7-8	card number (should be equal to "2")

<u>Columns</u>	<u>Data</u>
9-14	value of the farm
15-20	value of the farm implements
21-26	value of the livestock
27-32	cost of fences
33-38	cost of fertilizer
39-44	value of farm products
45-50	number of horses
51-56	number of mules
57-62	total wage bill
63-68	man-weeks of white labor (unless wage quality code is 3 or 4)
69-74	man-weeks of colored labor
75-80	wage quality code

Card number 3 has Fortran format (I6, I2, 12I6). The card contains the following data:

<u>Columns</u>	<u>Data</u>
1-6	farm identification number (should be the same as c. c. 1-6 on Card 1)
7-8	card number (should be equal to "3")
9-14	number of oxen
15-20	number of milch cows
21-26	number of other cattle
27-32	number of sheep
33-38	number of swine
39-44	acres of corn
45-50	bushels of corn

<u>Columns</u>	<u>Data</u>
51-56	acres of cotton
57-62	bales of cotton
63-68	bushels of Irish potatoes
68-74	bushels of sweet potatoes
75-80	fourth card code

Card 4 will be present only if the fourth card code in c. c.'s 75-80 is blank. If the fourth card is present, it will have Fortran format (I6, I2, 12I6). The data contained on the card will be as follows:

<u>Columns</u>	<u>Data</u>
1-6	farm identification number (should be the same as c. c. 1-6 on Card 1)
7-8	card number (should be equal to "4")
9-14	crop identification number
15-20	acres in crop with identification number in c. c. 9-14
21-26	production of crop with identification number in c. c. 9-14
27-32	crop identification number
33-38	acres
39-44	production
45-50	crop identification number
51-56	acres
57-62	production
63-68	crop identification number
69-74	acres
75-80	production

REFERENCES

- [1] Boone, Samuel M. "Agricultural and Manufacturing Census Records of Fifteen Southern States for the Years 1850, 1860, 1870, and 1880." Chapel Hill: University of North Carolina Library, 1966.
- [2] Coale, Ansley J., and Melvin Zelnik. New Estimates of Fertility and Population in the United States. Princeton, N. J.: Princeton University Press, 1963.
- [3] [Gallman, Robert]. "Efficiency and Farm Interdependence in an Agricultural Export Region--Sampling Procedures and Tests of the Sample." Chapel Hill: University of North Carolina, October 20, 1965 (mimeographed).
- [4] Hilgard, Eugene W. (ed.). Report on Cotton Production in the United States, Also Embracing Agricultural and Physico-Geographical Descriptions of the Several Cotton States and of California. 2 vols. Washington: U. S. Government Printing Office, 1884.
- [5] Ransom, Roger, and Richard Sutch. "The Rise of Sharecropping in the American South--1880 to 1900: A Preliminary Report." Southern Economic History Project, Working Paper No. 1. Berkeley: Institute of Business and Economic Research, University of California, July, 1969.
- [6] _____. "Economic Regions of the South in 1880." Southern Economic History Project, Working Paper No. 3. Berkeley: Institute of Business and Economic Research, University of California (forthcoming).
- [7] Sutch, Richard. "A Sample of Southern Farms in 1880: Tests for Sample Consistency." Southern Economic History Project, Working Paper No. 5. Berkeley: Institute of Business and Economic Research, University of California (forthcoming).
- [8] Sutch, Richard, and Roger Ransom. "A Sample of Southern Farms in 1880: Representative Counties and Aggregation Techniques." Southern Economic History Project, Working Paper No. 4. Berkeley: Institute of Business and Economic Research, University of California (forthcoming).
- [9] Walker, Frances A., and Charles Seaton (eds.). Compendium of the Tenth Census, Vol. 1. Washington: U. S. Government Printing Office, 1883.
- [10] Woodward, C. Vann. The Strange Career of Jim Crow. 2d ed. revised. London: Oxford University Press, 1966.