

APPENDIX B

Main results of calculations pertaining to:

- (a) Expected Value and
- (b) Variance of the number of net out-migrants

(i) North Carolina--White Male--1950-60 Decade

Age in 1950 (X)	Forward formula [@]	PROPOSED METHOD	
	Net out- migrants (NM) ₁ ^u	E(ad ₁ ^W)	V(ad ₁ ^W)
(1)	(2)	(3)	(4)
0-4	6,059	5,910	361
5-9	- 4,349	- 4,459	324
10-14	3,584	3,692	441
15-19	17,756	17,900	576
20-24	14,350	14,042	676
25-29	7,964	7,372	841
30-34	4,524	3,980	1,089
35-39	4,325	3,526	1,521
40-44	1,990	1,159	1,936
45-49	1,043	639	2,304
50-54	1,298	1,137	2,704
55-59	- 839	- 794	3,136
60-64	- 1,108	- 555	3,136
65+	- 73	1,124	8,649

$$^@ (NM)_1^u = A_1 R - B_1.$$

(Note: A negative value signifies net in-migrants)

APPENDIX C

North Carolina--1950-60 Decade--Net Migration Rate Estimates Given by the USDA and by the Proposed Method

Age 1960	White Male		White Female	
	USDA	Proposed Method = P.M.	USDA	P.M.
10-14	.032	.033	.037	.038
15-19	-.031	-.030	.023	.024
20-24	.026	.028	.064	.074
25-29	.134	.135	.091	.093
30-34	.106	.106	.070	.071
35-39	.060	.058	.045	.047
40-44	.038	.035	.031	.033
45-49	.040	.034	.021	.024
50-54	.020	.013	.004	.010
55-59	.011	.009	.002	.009
60-64	.019	.019	-.007	.004
65-69	-.026	-.016	-.023	-.005
70-74	-.045	-.015	-.020	.005
75+	-.010	.019	-.009	.025

Source of USDA Estimates: Net Migration of the Population, 1950-60, by Age, Sex and Color, Volume 1, Part 3, page 459.

APPENDIX D

North Carolina--1950-60 Decade--Number of Net Migrants Estimates Given by USDA and the Proposed Method

Age 1960	White Male		White Female	
	USDA	P.M.	USDA	P.M.
10-14	5802	5910	6454	6509
15-19	-4604	-4459	3337	3543
20-24	3327	3692	8189	9606
25-29	17499	17900	11699	11889
30-34	14097	14042	9122	9331
35-39	7712	7372	5863	6095
40-44	4272	3980	3534	3780
45-49	4071	3526	2199	2599
50-54	1734	1159	386	901
55-59	780	639	159	729
60-64	1040	1137	- 407	258
65-69	-1099	- 794	-1192	- 287
70-74	-1370	- 555	- 752	223
75+	- 336	1124	- 417	1841

Source of USDA Estimates: Net Migration of the Population, 1950-60, by Age, Sex and Color, Volume 1 Part 3, page 459.

WELFARE RULES AND THE UNDERENUMERATION OF NONWHITE MALES

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Summary

The purpose of this study was to investigate the possible relationship between "strict" State welfare rules and the undercount of young adult nonwhite males. Although some of the results of the study are not inconsistent with the hypothesis that States with "strict" welfare rules will have a greater undercount of nonwhite males than will States with "nonstrict" welfare rules, the limitations of the study are serious enough to prohibit any definite conclusions.

Background¹

Recently, much attention has been focused on underenumeration in the census and its possible causes. Demographic analysis has provided estimates of the magnitude of the errors in the census counts, showing that a disproportionate share of the undercount consisted of young adult nonwhite males. Deliberate concealment is probably one of the factors in underenumeration, but just how great a factor it is, is not known. A person may be concealed for any of a number of reasons, and one possible reason involves welfare rules. One theory that has been proposed is that welfare rules that deny funds to families because of an employable but unemployed person in the household or because of an illicit living arrangement may cause individuals (especially males) not to be reported in the census.

Under the Social Security Act, Federal funds are available to States for their programs of old-age assistance, aid to families with dependent children (AFDC), aid to the blind, and aid to the permanently and totally disabled. If a State wishes to receive Federal funds, it must have a plan which is approved by the Department of Health, Education, and Welfare as meeting the requirements set forth in the Social Security Act. The general requirements for AFDC state that funds are available for assistance of children "deprived of parental support or care by reason of death, continued absence from home, or physical or mental incapacity of a parent." However, several States have an additional requirement, the "substitute parent" requirement, which is an outgrowth of efforts to define "deprivation of parent support" and "needy child" so as to exclude certain families who would normally be considered eligible, without invoking federal sanctions. In these States a man who has relationship with a mother on welfare, whatever its quality or duration, is considered a "substitute parent" and the children are not considered to be "deprived of parental support" or "needy."

Another type of public assistance is general assistance. This program is financed completely

from State and/or local funds and is available primarily to those people in need who cannot qualify for help under one of the four State-Federal programs. There are wide variations in the content and application of the general assistance program from State to State, but in 15 States in 1960 there was a requirement that there could be no employable person in the family for the family to receive funds.

Although all States have welfare rules which could encourage concealment, certain States have particularly stringent rules which might increase the likelihood of individuals being concealed. These "strict rule" States are the States which have either a "substitute parent" type requirement for AFDC, or an employable person rule for general assistance, or both. Because of the subtle differences between the rules in some States, classification of the States as to stringency of rules becomes somewhat arbitrary. For this reason several lists of "strict rule" States were formed based on various sources of information.

Preparation of Lists¹

Because of the small percentage of Negroes in Hawaii and Alaska, these States were omitted from the five lists of "strict rule" and "nonstrict rule" States which were formed for this investigation. The five lists were formed as follows:

List 1: A list based on intensive research into various welfare laws in effect in April, 1960. Alabama, Arkansas, Florida, Georgia, Louisiana, Michigan, Mississippi, Oregon, South Carolina, Texas, and Virginia had a "substitute parent" type requirement in their welfare policies in 1960. Arizona, D. C., Georgia, Iowa, Louisiana, Mississippi, Missouri, Nevada, North Carolina, Oklahoma, South Carolina, Texas, and West Virginia required that there be no employable persons in the family for the family to receive funds. These States were designated as "strict rule" States; the remaining States with the exception of Maryland were designated as "nonstrict rule" States. Maryland was classified as "unknown" because her welfare rules were not consistent throughout the State.

List 2: A list of 8 "strict rule" and 31 "nonstrict rule" States compiled by an expert in the field of child welfare at the Department of Health, Education, and Welfare. The remaining States were classified as "unknown."

List 3: A list composed of the 8 "strict rule" and 31 "nonstrict rule" States in list 2 plus two additional "strict rule" States (Arkansas and Texas). These 2 States probably but not definitely had "strict" welfare rules in 1960. The remaining States were classified as "unknown."

¹Much of the information on welfare policies was obtained from Bell, Winifred, "Aid to Dependent Children." Columbia University Press, N.Y., 1965.

¹See Appendix A for detailed composition of each list.

List 4: A list of the 32 States which were in agreement on lists 1 and 2. The remaining States were classified as "unknown."

List 5: A list of the 34 States which were in agreement on list 1 and 3. The remaining States were classified as "unknown."

After the lists were formed, various statistics which would be affected by an undercount were gathered for the nonwhite population. These statistics were then compared for the "strict rule" and "nonstrict rule" States on each list.

Results

The primary statistic analyzed in this investigation was the sex ratio for nonwhites.¹ Table 1 shows median sex ratios for "strict rule" and "nonstrict rule" States, for total U. S.

A comparison of sex ratios for States with "strict" and "nonstrict" welfare rules shows that the "nonstrict rule" States have significantly higher sex ratios (at the .05 level) for nonwhites in the age group 20-49 than do the "strict rule" States (see Table 2).² However, this same relationship is found for these groups of States when data from the 1910 Census are analyzed (before welfare rules were prevalent).

The result of Table 2 indicates that States with "strict" welfare rules probably have other factors influencing the sex ratios besides deliberate concealment due to welfare rules.

Since the States with "strict welfare rules are concentrated in the South region, it is important to compare the "strict rule" and "nonstrict rule" States for just the South. Table 3 shows median sex ratios for "strict rule" and "nonstrict rule" States for the South.

A comparison of the States shows only one significant difference in sex ratios using data from the 1960 Census (see Table 4). Data from the 1910 Census produces a similar result. The small number of States involved in the within-South comparison reduces the ability to detect differences.

There are probably other factors affecting the State data which have a more serious distorting effect on sex ratios than does concealment. One of the most important of these factors is migration. Mobility studies indicate that a

greater number of nonwhite males than nonwhite females emigrate from the South every year. Migration of nonwhite males of employable age from the South reduces sex ratios the same as would concealment. The comparison of the 1960 data with the 1910 data shows that if concealment is a partial explanation for missed persons in the 1960 Census, the extent cannot be determined from available data.

Additional comparisons were made (using 1960 Census data) of sex ratios of nonwhites between the ages of 20 and 39 in central cities. Table 5 shows median sex ratios for "strict rule" and "nonstrict rule" States, for central cities.

The results of the comparisons were similar to those obtained for nonwhites between the ages of 20 and 49 on the State level (see Table 6).

Another statistic tested was the proportion of nonwhite households with female heads in 1960 in the central cities of each State. The test results showed no significant differences between "strict rule" States and "nonstrict rule" States for this statistic.¹

Additional tables, not presented in this report, showing selected characteristics of the nonwhite population in central cities of SMSA's by State and by South Atlantic and South Central regions, 1960 Census are also available.

Limitations

Several limitations to this study must be kept in mind: (1) When comparing State level statistics from a census for two groups of States, the statistics are net figures which show the effect of several factors including migration, differential birth rates, differential missed rates, etc. Using these data to detect a coverage difference between States for a particular reason would require that reason to have a very large effect on the net figure to compensate for other effects. (2) It is very difficult to obtain information on the precise requirements of the welfare programs of the various States, and even more difficult to obtain information for 1960. The rules are constantly changing and there is no indication of how long it takes for new rules to go into effect. (3) There is also no way to measure the level of enforcement in the States in 1960. (4) In all the lists the majority of "strict rule" States are in the South, and therefore, geographic differences may confuse the issue.

¹ See Appendix B for the data.

² The statistical test used to compare the data was the Mann-Whitney U Test in which the alternate hypothesis is that States without "strict" welfare rules have higher sex ratios. (See Siegel, Nonparametric Statistics.)

¹ Results of the Mann-Whitney U Test showed that the Null hypothesis could not be rejected at .05 level. (See Appendix C for the data.)

Table 1.--MEDIAN SEX RATIOS FOR "STRICT RULE" AND "NONSTRICT RULE" STATES
BY THE ALTERNATIVE LISTS OF STATES, TOTAL UNITED STATES

Selected age-color groups	List 1	List 2	List 3	List 4	List 5
Total U. S., Nonwhite, 20-49, State Level Data, 1960 Census					
"Strict rule" States	87.6	86.8	86.8	85.9	85.9
"Nonstrict rule" States	101.1	101.1	101.1	101.6	101.6
Total U. S., Negro, 20-49, State Level Data, 1910 Census					
"Strict rule" States	101.7	91.7	93.4	92.6	94.2
"Nonstrict rule" States	112.8	113.6	113.6	113.6	113.6

Table 2.--PROBABILITIES THAT "STRICT RULE" AND "NONSTRICT RULE" STATES
DO NOT DIFFER IN SEX RATIOS, BY ALTERNATIVE LISTS OF STATES,
TOTAL UNITED STATES

Sex ratios for selected ages	List 1	List 2	List 3	List 4	List 5
Total U. S., Nonwhite, 20-49, State Level Data, 1960 Census	.0003	.0022	.0005	.0009	.00016
Total U. S., Negro 20-49, State Level Data, 1910 Census	.0116	.0010	.0005	.0038	.0016

Table 3.--MEDIAN SEX RATIOS FOR "STRICT RULE" AND "NONSTRICT RULE" STATES
BY ALTERNATIVE LISTS OF STATES, SOUTH REGION

Selected age-color groups	List 1	List 2	List 3	List 4	List 5
South Region States, Nonwhite, 20-49, State Level Data, 1960 Census					
"Strict rule" States	85.2	84.9	84.9	84.9	84.9
"Nonstrict rule" States	90.8	90.8	90.8	93.6	93.6
South Region States, Negro, 20-49, State Level Data, 1910 Census					
"Strict rule" States	94.2	91.3	93.4	91.3	93.4
"Nonstrict rule" States	100.6	100.6	100.6	103.8	103.8

Table 4.--PROBABILITIES THAT "STRICT" AND "NONSTRICT" STATES DO NOT DIFFER
IN SEX RATIOS, BY ALTERNATIVE LISTS OF STATES, SOUTH REGION

Sex ratios for selected ages	List 1	List 2	List 3	List 4	List 5
South Region States, Nonwhite, 20-49, State Level Data, 1960 Census	a/	.268	.217	.071	.044 ^{b/}
South Region States, Negro, 20-49, State Level Data, 1910 Census	a/	.026 ^{b/}	.064	.143	.133

a/ Exact probabilities not available in tabulated data. Results of test indicate no significant difference at the .05 level.

b/ Significant at the .05 level.

Table 5.--MEDIAN SEX RATIOS FOR "STRICT RULE" AND "NONSTRICT RULE" STATES
BY THE ALTERNATIVE LISTS OF STATES, CENTRAL CITIES OF SMSA'S FOR
TOTAL U. S. AND SOUTH REGION

Selected age-color groups	List 1	List 2	List 3	List 4	List 5
Total U. S., Nonwhite, 20-39, Central Cities of SMSA's by State, 1960 Census					
"Strict rule" States	81.5	81.5	81.5	79.4	79.4
"Nonstrict rule" States	87.6	86.7	86.7	88.6	88.6
South Region States, Nonwhite, 20-39, Central Cities of SMSA's by State, 1960 Census					
"Strict rule" States	79.0	79.2	79.2	79.2	79.2
"Nonstrict rule" States	80.1	80.1	80.1	81.6	81.6

Table 6.--PROBABILITIES THAT "STRICT" AND "NONSTRICT" STATES DO NOT DIFFER
IN SEX RATIOS, BY ALTERNATIVE LISTS OF STATES, CENTRAL CITIES OF
SMSA'S

Sex ratios for selected ages	List 1	List 2	List 3	List 4	List 5
Total U. S., Nonwhite, 20-39, Central Cities of SMSA's by State, 1960 Census	.0018	.0735	.0071	.1271	.0026
South Regions States, Nonwhite 20-39, Central Cities of SMSA's by State, 1960 Census	a/	.396	.362	.321	.356

a/ Exact probabilities not available in tabulated data. Results of test indicate no significant difference at the .05 level.

APPENDIX A

Composition of Lists of "Strict Rule" and "Nonstrict Rule" States

	LIST 1			LIST 2			LIST 3			LIST 4			LIST 5		
	yes ¹	no ²	unknown ³	yes ¹	no ²	unknown ³	yes ¹	no ²	unknown ³	yes ¹	no ²	unknown ³	yes ¹	no ²	unknown ³
<u>SOUTH</u>															
Alabama	x			x			x			x			x		
Arkansas	x					x	x					x	x		
Delaware		x			x			x			x			x	
D. C.	x			x			x			x			x		
Florida	x			x			x			x			x		
Georgia	x			x			x			x			x		
Kentucky		x			x			x			x			x	
Louisiana	x				x			x				x			x
Maryland			x		x			x				x			x
Mississippi	x			x			x			x			x		
North Carolina	x					x			x			x			x
Oklahoma	x					x			x			x			x
South Carolina	x			x			x			x			x		
Tennessee		x				x			x			x			x
Texas	x					x	x					x	x		
Virginia	x					x			x			x			x
West Virginia	x				x			x				x			x
<u>OTHERS</u>															
Alaska ⁴	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arizona	x					x			x			x			x
California		x			x			x			x			x	
Colorado		x			x			x			x			x	
Connecticut		x		x			x					x			x
Hawaii ⁴	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Idaho		x			x			x			x			x	
Illinois		x			x			x			x			x	
Indiana		x			x			x			x			x	
Iowa	x				x			x				x			x
Kansas		x			x			x			x			x	
Maine		x			x			x			x			x	
Massachusetts		x			x			x			x			x	
Michigan	x			x			x			x			x		
Minnesota		x			x			x			x			x	
Missouri	x					x			x			x			x
Montana		x			x			x			x			x	
Nebraska		x			x			x			x			x	
Nevada	x				x			x				x			x
New Hampshire		x				x			x			x			x
New Jersey		x			x			x			x			x	
New Mexico		x				x			x			x			x
New York		x			x			x			x			x	
North Dakota		x			x			x			x			x	
Ohio		x			x			x			x			x	
Oregon	x				x			x				x			x
Pennsylvania		x			x			x			x			x	
Rhode Island		x			x			x			x			x	
South Dakota		x			x			x			x			x	
Utah		x			x			x			x			x	
Vermont		x			x			x			x			x	
Washington		x			x			x			x			x	
Wisconsin		x			x			x			x			x	
Wyoming		x			x			x			x			x	

¹ "Strict rule" state

² "Nonstrict rule" state

³ Not identified

⁴ Omitted from consideration

APPENDIX B--SEX RATIOS FOR THE NONWHITE POPULATION, 1960 CENSUS AND FOR THE
NEGRO POPULATION, 1910 CENSUS, AGES 20-49 BY STATE

	Sex Ratio (1960)	Sex Ratio (1910)
	Nonwhite, ages 20-49	Negro, ages 20-49
<u>SOUTH</u>		
Alabama	81.12	92.56
Arkansas	79.96	101.68
Delaware	96.50	106.88
District of Columbia	87.62	79.61
Florida	94.51	118.66
Georgia	83.91	90.06
Kentucky	90.79	100.64
Louisiana	84.04	97.95
Maryland	94.05	97.46
Mississippi	80.08	94.17
North Carolina	89.41	83.89
Oklahoma	85.23	112.56
South Carolina	85.90	86.24
Tennessee	82.45	89.47
Texas	88.09	98.49
Virginia	96.86	93.60
West Virginia	76.76	156.40
Weighted Average for South	87.09	94.42
<u>OTHERS</u>		
Alaska ¹	-----	-----
Arizona	98.32	104.92
California	101.08	114.68
Colorado	102.73	106.69
Connecticut	93.53	90.89
Hawaii ¹	-----	-----
Idaho	116.92	179.49
Illinois	88.11	113.60
Indiana	89.66	107.07
Iowa	92.25	126.31
Kansas	101.72	110.79
Maine	153.89	115.36
Massachusetts	99.70	100.33
Michigan	91.43	113.89
Minnesota	104.19	161.88
Missouri	83.64	108.65
Montana	104.47	137.47
Nebraska	99.84	130.88
Nevada	105.13	105.202
New Hampshire	150.84	104.48
New Jersey	89.20	94.21
New Mexico	97.87	130.13
New York	82.16	92.98
North Dakota	101.69	193.33
Ohio	90.05	112.78
Oregon	104.85	172.54
Pennsylvania	85.86	100.20
Rhode Island	108.93	100.44
South Dakota	102.04	149.49
Utah	112.05	166.09
Vermont	133.80	383.76
Washington	112.98	184.37
Wisconsin	97.32	105.204
Wyoming	101.60	283.44
Weighted Average for U. S.	88.68	96.01

¹ Omitted from consideration.

APPENDIX C--PROPORTION OF NONWHITE HOUSEHOLDS (IN RENTER-OCCUPIED UNITS) HEADED BY
FEMALES FOR CENTRAL CITIES BY STRICTNESS OF WELFARE RULES: 1960¹

Central cities of SMSA's by strictness of welfare rules ²	2-or-more- person households	Total female head	Total female head income less than \$3,000	(2) (1)	(3) (1)
	(1)	(2)	(3)		
<u>"Strict rule" states</u>					
Birmingham, Alabama	18,681	5,005	4,394	.268	.235
Washington, D. C.	60,225	15,132	8,905	.251	.148
Atlanta, Georgia	28,929	8,388	6,320	.290	.218
New Orleans, Louisiana	37,785	10,670	8,977	.282	.238
Detroit, Michigan	65,552	17,554	13,567	.268	.207
Kansas City, Missouri	9,412	2,911	2,274	.309	.242
St. Louis, Missouri	34,574	10,750	8,319	.311	.241
Dallas, Texas	18,747	4,808	3,886	.256	.207
Houston, Texas	28,293	7,095	5,796	.251	.205
<u>"Nonstrict rule" states</u>					
Los Angeles, California	60,921	16,119	10,342	.265	.170
Oakland, California	12,227	3,612	2,752	.295	.225
San Francisco, California	21,012	4,663	2,871	.222	.137
Chicago, Illinois	155,744	41,304	27,546	.265	.177
Indianapolis, Indiana	11,944	2,859	2,032	.239	.170
Newark, New Jersey	28,335	7,363	4,378	.260	.155
New York, New York	234,871	69,591	40,002	.296	.170
Cincinnati, Ohio	19,676	5,521	4,248	.281	.216
Cleveland, Ohio	40,346	9,727	7,033	.241	.174
Philadelphia, Pennsylvania	64,388	21,539	15,391	.335	.239
Pittsburgh, Pennsylvania	16,199	4,461	3,603	.275	.222
Memphis, Tennessee	25,800	6,698	5,840	.260	.226
<u>Not identified</u>					
Baltimore, Maryland	44,590	12,480	9,108	.280	.204
Honolulu, Hawaii	23,538	3,138	1,613	.133	.069

¹Cities with less than 25,000 units with nonwhite household heads not reported.

²"Strict" or "nonstrict" states according to list 1.