The Black-White Income Gap in 1880

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While few would argue that blacks were better off as slaves than as free men, quantitative measures of the welfare gain associated with emancipation have been elusive.[1] A number of researchers around the turn of the century did attempt to estimate the income of blacks. However, these efforts were based on relatively small samples of urban blacks at a time when more than 75 percent of the black population was rural.[2] No efforts were made to compare black and white incomes.

Even if income is used as a proxy for welfare, the lack of a reliable and comprehensive time series for black and white income from emancipation to World War II remains a problem. This has left a number of important questions in black economic history largely unanswered. Specifically, what were the immediate material gains from freedom? Over time, what absolute level of income and welfare were blacks able to achieve? Relative to whites, how did blacks fare?

Although evidence suggests that blacks and whites received roughly equal pay for the same type of work in the postbellum South, we know much less about the relation between white and black income.[3] If blacks did not have equal access to land, capital, or higher-paying jobs, the gap between black and white income could have been large in spite of the

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1. See Kenneth Ng and Nancy Virts, "The Value of Freedom," *Journal of Economic History* 49 (December 1989):958–65.

2. See for example, W. E. B. Du Bois, *The Philadelphia Negro: A Social Study* (New York: Schocken Books, 1967 [1899]).

3. See Robert H. Higgs, *Competition and Coercion* (Chicago: University of Chicago Press, 1977), 62–67 and Gavin Wright, *Old South New South: Revolutions in the Southern Economy Since the Civil War* (New York: Basic Books, 1986), 182–83.

presence of competitive labor markets. Data on wage rates alone makes it impossible to do more than guess at the effect of these factors on black income.

In this paper we provide a partial answer to this question by estimating the income of black and white farmers from data contained in the manuscript returns of the 1880 census. We use these estimates in conjunction with existing regional income estimates and the regional population distribution to estimate the level of black and white income in both the South and the nation.

We find that although black labor income per worker was nearly the same as white labor income per worker in the rural South, the income per capita of blacks was almost 40 percent lower than that of whites. Blacks in the United States earned only about 34 percent of the income of whites. The sources of this differential were, in order of importance, the concentration of blacks in the South, differences in income streams from property ownership, greater prevalence of children in the black family, and greater urbanization of whites.

We begin by estimating black and white labor income in the cotton-growing regions of the rural South, and then turn to a more comprehensive estimate of income that includes the rent blacks and whites earned from ownership of land and farm implements. The data collected by Roger Ransom and Richard Sutch in *One Kind of Freedom* (referred to as the Ransom and Sutch sample in the remainder of the paper) are the basis for our calculations.[4]

Although they collected data from counties throughout the South, in *One Kind of Freedom* Ransom and Sutch restrict their analysis to 5318 farms sampled from 27 counties in the 17 regions they identify as the Cotton South.[5] They calculate income for black sharecroppers and renters only. We estimate income for black and white farmers regardless of the type of tenure using data from the entire sample. Because more is

4. Roger L. Ransom and Richard Sutch, *One Kind of Freedom, The Economic Consequences of Emancipation* (Cambridge: Cambridge University Press, 1977). A complete description of the sample can be found in Ransom, Sutch, and Boutin 1969. Since data on the race and family size of farmers is contained in the manuscripts to the population census and data on farm operations and tenure is contained in the manuscripts to the agricultural census, data on farm operations from the agricultural census was cross-referenced by Ransom and Sutch with personal data on farmers from the 1880 population census to yield comprehensive information by farm. See also Nancy Virts, "Estimating the Importance of the Plantation System to Southern Agriculture in 1880," *Journal of Economic History* 47 (Dec. 1987):984–91 for a discussion of the sampling technique used by Ransom and Sutch.

5. Ransom and Sutch define the South as the 11 former confederate states: Virginia, North Carolina, South Carolina, Tennessee, Georgia, Florida, Alabama, Mississippi, Arkansas, Louisiana, and Texas. The border states of Delaware, Maryland, District of Columbia, West Virginia, Kentucky, and Missouri were excluded. See Ransom and Sutch, *One Kind of Freedom,* appendix g.

known about the terms of the standard rental contracts in the cotton-growing regions than in the rest of the South, we present separate results based on the 40 regions where cotton was grown and for the whole South. The cotton-growing regions contain 78 percent of the black population of the South in 1880 and 68 percent of the white population.[6]

Although the Ransom and Sutch sample is the largest source of data on postbellum southern agriculture, it has drawbacks for estimating income.[7] Because the Ransom and Sutch sample was based on farms, not agricultural laborers, it does not include agricultural workers who were not tenants. If these workers had incomes lower than farm operators, per capita income estimates will be biased upward.[8] In 1910, 14 percent of whites and 27 percent of blacks working in southern agriculture were laborers working for wages off the home farm.[9] Another possible source of bias concerns the wage bill on large farms. Although enumerators were instructed to record the total wage bill, in some cases this information was not recorded.[10] Since virtually all large farms in the Ransom and Sutch sample were operated by whites, this bias would increase the estimate of white per capita income more than black income. We attempt

6. Our income estimates are based on data from all counties in the Ransom and Sutch sample where cotton was grown. Not all are part of the Cotton South as defined by Ransom and Sutch. See Ransom and Sutch, *One Kind of Freedom.*

7. Besides the problems noted in the text, the Ransom and Sutch sample also suffers from being nonrandom. The procedure described below was used to select counties in the South that were then sampled. First, the South was divided into 61 economic regions based upon soil type, economic characteristics, patterns of agricultural production, and composition of the population. For various reasons only 49 of the 61 regions were actually sampled. The selection of economic regions is discussed in Roger Ransom and Richard Sutch, "Economic Regions of the South in 1880," Berkeley, Southern Economic History Project Working Paper #3 (September 1969). Within each of these regions, one or more counties representative of the region were chosen to sample. From each of the counties a sample was drawn by selecting the first 5 of each 50 farms enumerated. For most counties, this sample was about 10 percent of the total farms. In some larger counties a smaller percent of farmers were sampled. The Ransom and Sutch sample contains data on 11,202 farms. Because of the cost of resampling and rematching agricultural and population returns, there is little that can be done about the nonrandomness of the sampling process.

8. Unfortunately, nothing is known about the actual income of wage workers. Although there is data on wage rates, there is no information about the average number of hours worked. If wage workers worked the same number of hours as farmers their incomes may have been higher. See Ng and Virts, "The Value of Freedom," 962.

9. Computed from U.S. Bureau of the Census, *Thirteenth Census of the United States,* "Population" (Washington, D.C., 1914), 436–64, table 7. Prior to 1910 the population censuses either did not distinguish between agricultural laborers working for wages and those working on family farms or did not report data by race.

10. Enumerators were instructed to record the total wage bill, the man-weeks of white labor hired and the man-weeks of "colored" labor hired. Some enumerators simply recorded no information on hired labor. See Virts, "Estimating the Importance of the Plantation System," for a full discussion of the problems with the wage bill reported in the 1880 census.

to correct for this bias by removing farms where the wage bill is obviously too small.[11]

Since the Census collected no information on income directly for farm operators, we estimate income earned using information on the value of output and costs of production assuming standard types of contracts discussed below. Our estimate of income only partially measures rents from accumulated wealth. These rents can be divided into two sources: rents from land, implements, and workstock; and savings held in other forms. The Ransom and Sutch sample contains direct information on the number of acres cultivated by each farmer as well as the amount of implements and workstock he owned. While it is possible to estimate the total amount of land owned by farmers who did not cultivate all their land directly, there is no information on savings held in other forms such as deposits at commercial banks or other financial assets.[12] To the extent that income from savings held in other forms are omitted, estimated income will be biased downward. There is reason to believe that the omitted income would increase the income of whites more than blacks.[13]

Farmers were identified by the Census as sharecroppers, fixed renters, or owners. We estimated labor income by farm using the following formulas:

$$Y^{owners} = R_{output} + V_{housing} - ((i+dl) \cdot V_{land}) - ((i+dc) \cdot V_{capital}) - V_{other\ costs} \quad (1)$$

$$Y^{share} = R_{output} + V_{housing} - [.5 \cdot (R_{output} - V_{garden\ produce} - V_{pork} - V_{other\ costs})] \quad (2)$$

11. The total wage bill was divided by the average weekly wage in that county to get the number of man-weeks of labor hired. (Most large farms appeared to have a correctly reported wage bill even when the man-weeks of labor hired was not correctly reported.) If the land/labor ratio implied by the wage bill was 200 acres or greater, the farm was removed from the sample. Relatively few farms were removed from the sample for this reason. There was not a significant difference in the ratio of white and black income when we calculated income assuming that these farms had wage bills equal to average wage bill for farms of that size in the region.

12. There is no hard evidence on the level of black savings. An attempt to form a black bank is described in Carl Osthaus, *Freedmen, Philanthropy, and Fraud* (Urbana: University of Illinois Press, 1976).

13. See Robert H. Higgs, "Accumulation of Property by Southern Blacks before World War I," *American Economic Review* 72 (September 1982):725–37; Robert H. Higgs, "Accumulation of Property by Southern Blacks before World War II: Reply," *American Economic Review* 74 (September 1984):777–81 and Robert A. Margo, "Accumulation of Property by Southern Blacks before World War I: Comment and Further Evidence," *American Economic Review* 74 (September 1984):768–76 for estimates of black and white wealth in the postbellum period. See Kenneth Ng, "Wealth Redistribution, Race, and the Southern Public Schools," unpublished manuscript, 1989 for alternative data on relative property levels.

$$Y^{rent} = R_{output} + V_{housing} - (.25 \cdot V_{cotton}) - (.33 \cdot V_{corn}) - ((i+dc) \cdot V_{capital}) - V_{other\ costs} \quad (3)$$

where:

R_{output} = value of output reported in the census
$V_{housing}$ = value of housing provided
i = interest rate = 7%
V_{land} = value of land
dl = weighted average of annual depreciation of land and buildings = 4.1% for whites, 3.8% for blacks
dc = annual depreciation of implements = 15%
$V_{capital}$ = value of implements and workstock
$V_{garden\ produce}$ = value of garden produce produced
V_{cotton} = value of cotton produced
V_{corn} = value of corn
$V_{other\ costs}$ = costs of fertilizer, hired labor and animal feed.

For sharecroppers the standard contract called for the division of output, except garden produce and pork, evenly between owner and sharecropper. We estimate rent as half the value of output minus the estimated value of garden produce and the value added in pork production.[14] Since the cost of purchased inputs was also shared, half of the cost of purchased inputs is also subtracted from income. The landowner usually provided the sharecropper with workstock and implements. We assume that the landowner incurred the cost of feeding livestock and depreciation and opportunity costs on the capital he owned.[15]

Unfortunately, the Census did not distinguish between sharecroppers who supplied only their own labor to the production process and share renters who provided their own implements and workstock. Share renters paid a smaller percentage of the crop but provided their own workstock and implements. We assume that all those whom the census indicated worked for a share of the crop were sharecroppers.[16]

14. The value of garden produce is assumed to be $4 per capita and the value added in pork production $1.67 per pig. See Ransom and Sutch, *One Kind of Freedom,* 215–16.

15. The depreciation rate of capital assumed is 15 percent. See Ransom and Sutch, ibid., 208. The interest rate used is 7 percent. This interest rate is the same as that used by Ransom and Sutch, and is consistent with the rate paid on railroad bonds. Ransom and Sutch, ibid., 209 and Frederick R. Macauley, *The Movements of Interest Rates, Bond Yields, and Stock Prices in the United States Since 1856* (National Bureau of Economic Research: Washington D.C., 1938), A108.

16. Anecdotal evidence suggests that although sharecropping was more common than share renting, share renting was more common among whites than blacks. We found that even under the assumption that all whites identified in the Census as renting for a share of the crop were share renters raised our estimate of white total income and labor income by less than 1 percent.

For renters a fixed fee was charged for use of land. Since the Census provides no direct evidence about the rental price of land, an indirect estimate of rent assuming a standard contract type must be made. In a competitive market the fixed fee must be equal to the implied fee under share renting, where no implements or workstock were provided by the landowner. So we assume the rent paid by fixed renters was equal to that paid under a standard share rent contract: one-fourth the value of cotton and one-third the value of corn.[17] In order to estimate rent in areas where cotton was not grown, we calculate the average rent paid in the cotton-growing regions as a percentage of output and assume that rented farms in other areas paid the same percentage of output as rent.[18] Other costs incurred by renters include purchased inputs such as fertilizer, the wages paid hired workers, and feed for work stock.[19] These are subtracted from the value of output to yield labor income.

Costs to farm owners were similar to renters, with the exception that instead of rent, owners paid the depreciation and opportunity costs of the land and buildings they owned. Since the Census reported these costs together, the depreciation rate used is a weighted average of the depreciation rate of land and that for buildings.[20]

In addition, sharecroppers, share renters, and renters received housing from owners in addition to a share of the crop so the value of housing is added to the value of crops. The census reports the value of the farm including land, fences, and buildings. In order to estimate the value of housing we adjusted the ratio of land to buildings for blacks and whites reported in the 1900 Census for the rise in the value of buildings relative to land reported by Martin Primack.[21]

Per capita average black and white labor income was computed from farm income using the following procedure. First, labor income per capita by race in each county was computed by dividing total black or white

17. The Census reports the number of 400-pound bales of cotton and bushels of corn grown on each farm. We assume a price of $.095 a pound for cotton and $.623 a bushel for corn. See Ransom and Sutch, *One Kind of Freedom,* 167.

18. Average rent in the cotton-growing areas was 21 percent of the value of output for blacks and 24 percent for whites.

19. Feed requirements are 30 bushels of corn per mule and 35 bushels per ox and horse. Ransom and Sutch, *One Kind of Freedom,* 248.

20. The depreciation of land assumed is 2.7 percent. The depreciation rate of white dwellings is assumed to be 4.5 percent. Since the ratio of the value of buildings to land for whites was 1 to 4, the weighted average is 4.1 percent. The depreciation rate for black dwellings is 6.7 percent, the weighted average is 3.8 percent.

21. See Martin Primack, "Farm Construction as a Use of Farm Labor in the United States, 1850–1960," *Journal of Economic History* 25 (March 1965):114–25. We take the ratio of land to buildings for blacks and whites in the South in 1900 and assume that the increase in the value of buildings in relation to land from 1880 to 1900 applied to both blacks and whites. This implies a building to land ratio of 1 to 4 for whites and 1 to 6 for blacks.

labor income under all forms of tenure by total black or white family members for all farms sampled in each county.[22] Since farms were sampled within each county, this is equivalent to taking a weighted average of income under each form of tenure where the weights are the share of all blacks or all whites working under a given form of tenure in that county. Second, estimates of regional per capita income were taken as a weighted average of county level estimates of per capita income where the weights were the share of each county's black or white population in the total black or white population of all counties sampled in that region. Ransom and Sutch's regions were used. Finally, southern labor income per capita was computed from regional black and white per capita income by taking a weighted average of black or white regional per capita income where the weights were the share in black or white population of the region in total black or white population of the South.[23]

We estimate income both for the cotton-growing regions and the entire South. The estimates of black rural per capita labor income are $38.11 in the cotton-growing regions and $36.93 in the whole South. The estimates for southern white rural per capita labor income are $48.00 in the cotton-growing regions and $46.93 in the whole South. The ratio of black/white rural labor income is .79 in both the cotton-growing regions and the whole South.[24]

Farm operators earned income not only from land and implements used in the cultivation of their own crop, but also from land and implements rented to others. Since the Census contains direct information only on the amount of land and implements used on each farm, it is necessary to estimate the amount of income earned from renting land and implements to others. We assume that owners owned all land, implements, and workstock attributed to them in the Census; renters owned all implements and workstock; and sharecroppers owned nothing. We use the

22. Counties with fewer than six observations were deleted from the sample.

23. Since the Ransom and Sutch sample was based on farms not population, the ideal weights would be the share of each region's black farms (or white farms) in the total number of black farms (or white farms). Unfortunately, the Agricultural Census of 1880 does not report the number of farms operated by race, and we are forced to use population as weights.

24. Our estimates of black income differ from Ransom and Sutch's for the following reasons: (1) Ransom and Sutch's calculation is based on a subset of the sample they refer to as the Cotton South that is not the same as our cotton-growing regions. (2) Ransom and Sutch restrict their calculations to tenants. Our calculations include owners. (3) Ransom and Sutch further restrict their calculations to "small family farms." These are defined as farms with 50 acres or less in crops and employing twenty-six weeks or less of hired labor. Our calculations include all farms in the Ransom and Sutch sample. (4) Ransom and Sutch assume that renters paid rent equal to that paid by sharecroppers. We assumed rent to be equal to that paid by share renters. See Ng and Virts, 1989 for a discussion of this issue. See Ransom and Sutch, *One Kind of Freedom,* Appendix A for a full description of their estimation techniques. Ransom and Sutch do not calculate income for whites.

rental formulas in equations 4 and 5 to calculate the average rent per owned farm in each county.[25]

$$R^{share} = \{.5 \cdot (R_{output} - V_{garden\ produce} - V_{pork} - V_{other\ costs}) - V_{housing} - ((dc) \cdot V_{capital}) - ((dl) \cdot V_{land})\} \quad (4)$$

$$R^{rent} = (.25 \cdot V_{cotton}) - (.33 \cdot V_{corn}) - V_{housing} - ((dl) \cdot V_{land}) \quad (5)$$

where:

R^{share} = income from renting land, implements, and workstock for sharecroppers

R^{rent} = income from renting land, implements, and workstock for renters.

Since not all those who rented out land and equipment were also farm owners, we adjust the total rent per county downward by the percent of rented farms owned by residents outside the county as reported in 1900.[26] If rental income from the ownership of land and implements is included in the estimate of income, the per capita income of rural blacks in the cotton-growing regions increases to $42.58, the rural total per capita income of whites in the cotton-growing regions increases to $66.81, and the ratio of black to white rural total per capita income is .64. In the South as a whole, the per capita income of blacks increases to $40.01, the per capita income of whites increases to $65.43, and the ratio of black to white total income is .61.[27]

In order to compare the income of black and white workers, per capita income needs to be adjusted for the different age distributions of blacks and whites. The average black family in 1880 had fewer adults and more children than the average white family; .5578 of black family members were over 15, .6290 of white family members were over 15.[28] Dividing the

25. In counties where cotton was not grown we assume that rent was equal to the same percent of value of output as was paid on cotton-growing farms. See note 15.

26. U.S. Bureau of the Census, *Twelfth Census of the United States,* "Agriculture" (Washington, D.C., 1902), 310–11.

27. We also calculated black and white income in the Cotton South as defined by Ransom and Sutch. In the Cotton South, labor income per capita was $41.63 for blacks, $71.23 for whites, and the black/white income ratio was .58. Total income per capita was $48.43 for blacks, $96.90 for whites, and the black/white income ratio was .50. It is possible that part of the difference between the Cotton South and the cotton-growing regions is due to the undercount of capital on plantations located in the Cotton South. See Virts, "Estimating the Importance. . . ."

28. U.S. Government, *Historical Statistics of the United States* (Washington D.C.: U.S. Census Office, 1972), Series A 71–85. This procedure implicitly assumes that all family members over 15 were workers. Total workers per farm sampled in the 1880 census was not used because of indications that enumerators were more likely to report family members as farm workers for blacks than whites. Since the actual distribution of population and the age/

estimates of per capita income by the share of the average family over 15 yields income per worker for blacks and whites in southern agriculture. The estimate of labor income per worker for rural blacks in the cotton-growing regions is $68.30, for whites in the cotton-growing regions it is $75.47, and the ratio of black/white total income per worker is .90. The estimate of total income per worker for blacks in the cotton-growing regions is $76.31; for whites in the same region labor income per worker is $105.05. The black/white worker labor income ratio is .73. In the South as a whole, black labor income per worker is $66.21, white labor income per worker is $74.62, and the black/white income ratio is .89. Total rural income per worker in the whole South is $71.73 for blacks, $104.03 for whites and the black/white ratio is .69.

The estimates of black and white rural labor income per worker suggest that labor earnings in the rural South were nearly equal. Although this conclusion contradicts the conventional wisdom concerning black/white income ratios in the South, it should not be surprising.[29] Given the large number of farms in the rural South, it is difficult to believe that landowners were able to cartelize the market for agricultural labor. Also, while working in agriculture required certain skills, it did not require a high degree of literacy or education. It is quite conceivable that former slaves had as much experience in cotton production as whites who were more likely to have farmed mainly for subsistence before the Civil War.[30] Our results also are consistent with white and black tenants being equally productive at cotton farming and receiving their marginal product as wages.[31]

When income from ownership of land and capital is added to labor income, the average per capita income of blacks was 61 to 64 percent of white per capita income in the South. Given that blacks were emancipated for the most part without any assets beyond their own labor, it is not surprising that in 1880, whites derived more income from the own-

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earnings profile of those over age 15 is not known, our procedure is only a partial adjustment. To the extent that blacks over 15 were younger than whites over 15, black worker income will be underestimated relative to whites.

29. Gavin Wright found that the wage of white and black agricultural laborers were also nearly equal. See Wright, *Old South, New South,* 182.

30. Ransom and Sutch calculate that in 1860, 84 percent of the cotton output was produced on farms with more than ten slaves. Ransom and Sutch, *One Kind of Freedom,* 77.

31. See Higgs 1972 and Robert H. Higgs and Charles A. Roberts, "Did Southern Farmers Discriminate? An Exchange," *Agricultural History* 49 (April 1975):441–47 for a discussion of the black/white wage differential in the postbellum South. Although our income estimates are consistent with no discrimination and workers being paid their marginal products, they cannot definitively answer the question for two reasons. First, no hard numbers on work effort are available for the period. Second, blacks and whites may have been equally exploited by landowners, thus, receiving nearly equal wages but not receiving their marginal product as wages.

ership of land and capital. Our results indicate that if the black/white total income ratio in 1880 had been .79, i.e., equal to the ratio of black/white labor income, average per capita black income would have increased from $42.58 to $52.78 in the cotton-growing regions and from $40.01 to $51.69 in the whole South. While this is not an insignificant change, it is not as large as might be expected.[32]

These estimates of average income per capita for black and white farm operators can be used to estimate southern and national black and white per capita income and worker income. Because inferring national income from income in southern agriculture depends upon several key assumptions, these estimates should be viewed as conjectural. Further, since there is not much difference between our estimates for the cotton-growing regions and the whole South, this section shows the computations for the whole South only.

Average black per capita income in the South is a weighted average of urban and rural per capita income where the weights are the proportion of southern black population living in urban and rural areas. There is no reliable estimate of black urban income, but since only 9 percent of southern blacks lived in urban areas, our overall estimate of black income is relatively insensitive to an assumption concerning the rural/urban income ratio.[33] We assume that black urban income was 150 percent of black rural income.[34] Equation 6 shows the estimation of average income for southern blacks.

$$\begin{aligned} \overline{Y}^{\text{black}}_{\text{south}} &= \rho\overline{Y}^{\text{black}}_{\text{rural}} + (1 - \rho)\overline{Y}^{\text{black}}_{\text{urban}} \\ &= .91(40.01) + .09(1.5)(40.01) \\ &= \$41.81 \end{aligned} \tag{6}$$

where:

ρ = proportion of southern black population living in rural areas
$\overline{Y}^{\text{black}}_{\text{rural}}$ = total labor income plus rental income from land and implements.

Estimated southern black personal income is $41.81. Dividing by the share of the black population over 15, yields a black worker income of $74.96.

32. See DeCanio for a similar result. Stephen J. DeCanio, "Accumulation and Discrimination in the Postbellum South," *Explorations in Economic History* 16 (April 1979):182–206.

33. See Higgs, *Competition and Coercion,* Table 2.6, 33.

34. See Higgs, *Competition and Coercion,* 144–46 and 101 for a discussion of urban/rural income differentials.

White national income can now be measured. Equation 7 is the basic national income identity for Net National Income.[35]

$$\begin{aligned} NNI = &\text{Employee Compensation} + \text{Entreprenurial Income} \\ &+ \text{Dividends} + \text{Interest} + \text{Rent} \\ = &\ \$7{,}827{,}211{,}982 \end{aligned} \tag{7}$$

Dividing by the population in 1880 yields a Net National Income per capita of $156.06. Per capita income estimated from the information provided by the Census does not include dividends or interest that comprise 16.15 percent of Net National Income in 1880.[36] Subtracting interest and dividend income from Net National Income yields a national average income, analogous to that measured for blacks in equation 6, of $130.85. Black income in the South in 1880 was $41.81. The regional income estimates of Richard Easterlin show that southern income was 51 percent of national income.[37] Since income per capita in the South is a weighted average of white and black incomes the following equation must hold:

$$\begin{aligned} PI_{south} &= \eta BI_{south} + (1 - \eta) WI_{south} \\ 66.74 &= (.3605)(41.81) + (.6395)(WI) \\ &\Rightarrow WI = 80.79 \end{aligned} \tag{8}$$

where:

η = share of blacks in southern population
PI_{south} = southern personal income = 51% of national personal income
BI_{south} = southern black personal income
WI_{south} = southern white personal income.

This estimate of white income implies that in the South the overall black/

35. Net National Income is derived from the gross national product series in Christina D. Romer, "The Prewar Business Cycle Reconsidered: New Estimates of Gross National Product, 1869–1908," *Journal of Political Economy* 97 (February 1989):22–23. Net National Income was derived from GNP by multiplying NNI over GNP times GNP from *Historical Series F 1–9* for the closest years for which NNI and GNP are available. Using Balke and Gordon's GNP estimates yields a NNI in 1879 of $7,835,529,954 and changes the final estimate of white national total income for the U.S. to $145.73. (See Nathan S. Balke and Robert J. Gordon, "The Estimation of Prewar Gross National Product: Methodology and New Evidence," 97 (Feb. 1989):84–85.) Using the estimates for GNP in John W. Kendrick, *Economic Accounts and Their Uses* (New York: McGraw Hill, 1972), 290, interpolating from decedal averages, and converting to 1880 prices using the implicit GNP deflator, *Historical Statistics of the United States,* series F-5, NNI is $7,567,280,000 and white national total income is $140.44.

36. *Historical Statistics,* series E 61–66.

37. See Richard Easterlin, "Regional Income Trends, 1840–1950," in Robert Fogel and Stanley Engerman, eds., *Reinterpretations of American Economic History* (New York: Harper & Row, 1971).

white income ratio was .53. Dividing white per capita income by the share of white population over 15 yields an average white income per worker of $128.45. The ratio of black/white income per worker in the South is .58.

By combining the estimate of black southern income with existing national income estimates, national black personal income can be estimated. The regional income estimates of Richard Easterlin imply equation 9, which shows national black per capita income as a weighted average of regional per capita income. Assuming that relative black regional per capita income followed the same pattern as overall per capita income, equation 9 can be solved for $\overline{Y}_{\text{black}}^{\text{national}}$. Again because 89 percent of blacks lived in the South, the estimate of black income is not sensitive to the assumption that blacks earned income outside the South in proportion to their incomes in the South.[38]

$$\begin{aligned}\overline{Y}_{\text{black}}^{\text{national}} &= \delta^{\text{south}}\overline{Y}^{\text{south}} + \delta^{\text{n. central}}\epsilon^{\text{n. central}}\overline{Y}^{\text{south}} + \delta^{\text{ne}}\epsilon^{\text{ne}}\overline{Y}^{\text{south}} \\ &\quad + \delta^{\text{west}}\epsilon^{\text{west}}\overline{Y}^{\text{south}} \qquad (9)\\ &= (.8903)(41.81) + (.0552)(1.92)(41.81) + \\ &\quad (.0494)(2.76)(41.81) + (.0052)(3.73)(41.81) \\ &= \$48.17\end{aligned}$$

where:

δ = proportion of all blacks living in region
ϵ = regional income as a multiple of southern income.

The final estimate of national black per capita income is $48.17. Dividing

38. Because blacks were more urbanized outside the South, it is possible that black income outside the South was higher than indicated by the regional relatives. Some simple calculations can illuminate the possible bias on black national income. Black income within any region is a weighted average of urban and rural income.

$Y = \beta(1.5)(X) + (1 - \beta)(X)$ *where:* Y = regional income X = rural income β = proportion of regional population in urban areas

Simplifying yields:

$Y = X(.5\beta + 1)$

In the South, 9 percent of the population lived in urban areas. The proportion of the black population living in urban areas was 50.5 percent, 42.6 percent, and 51.5 percent in the Northeast, North Central and West, respectively. Higgs, *Competition and Coercion,* 33. Manipulating the equation shows the greater degree of urbanization would increase black income by 20 percent, 16 percent, and 20 percent in the Northeast, North Central, and West, respectively. Adjusting the regional relatives would increase black income from $48.17 to $50.18, a 4.2 percent increase. Using the adjusted black national income figure in equation 10 increases white income from $142.70 to $145.20, a 1.8 percent increase. The ratio of black and white income increases from .34 to .35.

by the share of the black population over 15 yields a black income per worker of $86.35.

All that remains in order to compute the national black/white income ratio, is an estimate of white income per capita analogous to that computed for blacks in equation 9. As discussed above, average national income is $130.85. Since income per capita is a weighted average of white and black incomes where the weights are the proportion of blacks and whites in the population, equation 10 must hold.

$$\begin{aligned} PI_{national} &= \eta BI_{national} + (1 - \eta)WI_{national} \\ 130.85 &= (.151)(48.17) + (.849)(WI) \\ &\Rightarrow WI = \$145.56 \end{aligned} \tag{10}$$

where:

$PI_{national}$ = per capita income
$BI_{national}$ = black per capita income
$WI_{national}$ = white per capita income
η = black proportion of total population = 0.151.

Solving equation 10 for white per capita income yields an estimated white income of $145.56 and a black/white per capita income ratio in 1880 of .34. Dividing by the share of the white population over 15 yields a white worker income of $231.43 and a black/white worker income ratio of .37. Existing estimates of black income in the postbellum period are shown in Table 1. Our estimates are summarized in Table 2.

These income estimates, in conjunction with recent estimates of black income, can be used to provide a partial picture of black progress from slavery to the present. First, emancipation increased black income dramatically. Valuing increases in leisure at market wages and neglecting nonpecuniary utility increases, emancipation increased black income by 158 to 178 percent.[39]

Second, by 1880 southern black labor income per capita was almost 80 percent of white. About half of the difference between black and white per capita labor income in the South was due to the younger age of black families. After adjusting for the greater number of children in black families, black labor income per worker was 89 percent of white labor income.[40] Clearly, blacks had made some progress toward income parity with whites by 1880. However, black income per capita was only a little over 60 percent white income in the rural South. Black per capita income

39. Ng and Virts, "The Value of Freedom."

40. This result supports Gavin Wright's contention that wage differentials between black and white agricultural laborers was small. Wright, *Old South, New South,* 182.

Table 1. Existing Estimates of Black Income (1880 Prices)

Year	*1859*	*1867–68*	*1879*	*1900*
Ransom & Sutch[a]	$27.66		$ 35.59	
Fogel & Engerman[b]	$35.93			
Higgs[c]		$36.59		$89.02
U.S. Net National Income per capita[d]			$156.56	
U.S. Income per capita[e]			$130.85	
Southern Income Relative to National Average[f]	.72		.51	.51

Sources and *Notes:* [a]Ransom and Sutch, 1977 p. 5. Estimated from the Ransom and Sutch Sample.
[b]Fogel and Engerman, 1974 p. 117.
[c]Higgs 1977, pp. 95–101. Higgs emphasizes his estimates are conjectural only. His estimates are based upon agricultural wage data.
[d]See text.
[e]Excludes income from dividends and interest. See text.
[f]Easterlin 1971, p. 40.

Table 2. Black and White Income in 1880 (1880 prices)

		Southern Rural Labor Income[a]	*Southern Rural Total Income*[b]	*Southern Total Income*[c]	*National Total Income*[d]
Per capita	Black	$36.93	$ 40.01	$ 41.81	$ 48.17
Income	White	$46.93	$ 65.43	$ 80.79	$145.56
	B/W Ratio	.79	.61	.53	.34
Average	Black	$66.21	$ 71.73	$ 74.96	$ 86.35
Worker	White	$74.62	$104.03	$128.45	$231.43
Income[e]	B/W Ratio	.89	.69	.58	.37

Sources: See text.
Notes: [a]Southern Rural Labor Income is defined as the income earned by selling labor by farmers in the whole south.
[b]Southern Rural Total Income is defined as income of farmers in the rural South earned from selling labor plus rental income from ownership of land, implements, and workstock.
[c]Southern Total Income is defined average per capita income of all Southerners excluding income from savings.
[d]National Total Income is defined as national average per capita income excluding income from savings.
[e]Worker income computed by dividing per capita income by the share of black or white population over 15; .5578 of blacks were over 15 in 1880, .6290 of whites were over 15. Because age distribution data from the 1880 census is given in discrete 5-year intervals, little can be done about adjusting the wroker income estimates for different worker participation rates of whites and blacks. If workers are defined as those under 10 rather than under 15, the worker income ratios change to .86, .67, .56, and .36 for southern rural labor income, southern rural total income, southern total income, and national total income, respectively.

would have increased from around $40 per capita to almost $52, if blacks had owned the same amount of land and capital.

In the United States as a whole black income per capita was 34 percent that of whites. Even if blacks had earned the same income as southern whites, black income would have still been considerably below that of whites. The low levels of black income relative to whites in the United States was due, in order of importance, to the concentration of blacks in the South, the low levels of accumulated black wealth, the greater proportion of children in the black family, and the lack of black urbanization in the South.

Third, these results suggest that black income increased absolutely and relative to whites from 1880 to 1947. Reliable estimates indicate the black/white income ratio was .47 in 1947.[41] A black/white per capita income ratio in 1880 of .34 implies blacks improved their per capita income relative to whites at a rate of .48 percent per year.[42] However, black progress in relative incomes was much faster after 1947. From 1947 to 1971 blacks improved their relative incomes at 1.092 percent per year, roughly two times the rate of improvement from 1880 to 1947.

The income estimates also provide a basis for comparison when assessing normative statements about the condition of blacks. Depicting blacks in postbellum America as living in abject poverty depends mostly on the basis of comparison.[43] While blacks may have been poor when compared to some abstract standard, they were only slightly poorer than rural southern whites. Black welfare may have been reduced by racial hostility, disenfranchisement and other nonpecuniary factors, but in terms of material welfare, the material standard of living of blacks was not much different from those of rural southern whites.

41. David H. Swinton and Julian Ellison, *Aggregate Personal Income of the Black Population in the U.S.A., 1947–1980* (New York: Black Economic Research Center, 1973), 32, table 11.

42. $(.34)(1.0048)^{67} = .47$

43. Ransom and Sutch write, "The economic institutions established in the postbellum era effectively operated to keep the black population a landless agricultural labor force, operating tenant farms with a backward and unprogressive technology. What little income was generated in excess of the bare essentials of life was exploited by monopolistic credit merchants." Ransom and Sutch, *One Kind of Freedom,* 198.