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The Economics of American Negro Slavery, 1830-1860

ROBERT EVANS, JR.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Introduction

THIS study is an investigation of the economics of Negro slavery by (1) estimating the rates of return earned by slave capital in the period 1830 through 1860, (2) comparing these returns with those earned by alternative forms of capital, and (3) considering whether the industry was viable in its last years. Returns to slave capital are estimated from information on slave prices, hires (rents), and death rates between 1830 and 1860. Alternative rates of return are estimated for commercial paper, railroad stocks, and railroad capital. The viability of the slave industry is assessed by considering its demand conditions relative to those typical of a declining industry.

Negro labor, not Negro slavery, was introduced into the United States in 1619 when a Dutch ship unloaded a cargo of twenty Negroes.¹ These Negroes were sold as indentured servants under contractual conditions similar to those of their white counterparts. Even though the yearly imports of Negroes were not large, the importation combined with other factors to induce a subtle change in the attitude of white settlers toward colored servants. In 1662 Virginia passed its first law referring to Negroes as slaves. It is doubtful that by 1683 any new Negroes entered Virginia except in slavery.² This change in legal status did not result in any large-scale importation, and it was not until 1753 that the foreign trade in slaves became very large.³

In 1790 the first federal census reported 697,897 slaves (Table 1). Though concentrated in the southern states, especially in the tobacco production areas of Maryland and Virginia, slaves were reported in all

NOTE: I am indebted to the Labor Workshop of the Department of Economics of the University of Chicago for financial support for this study, and to my thesis committee, Albert Rees, H. Gregg Lewis, Earl Hamilton, and Martin Bailey, for their comments and suggestions.

¹ The exact status of these Negroes is not settled fact; for a summary of the different interpretations see: Stanley M. Elkins, *Slavery*, University of Chicago Press, 1959, p. 39.

² E. Franklin Frazier, *The Negro in the United States*, New York, Macmillan, 1949, pp. 3-39.

³ James D. B. DeBow, *Statistical View of the United States . . . Being a Compendium of the Seventh Census*, Washington, Beverly Tucker, 1854, p. 84.

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the states except Massachusetts. By 1810, two years after the close of the foreign slave trade, the slave population had increased to almost 1.16 million, but had declined slightly as a percentage of the white population. The next fifty years witnessed a 340 per cent increase in the

TABLE 1
SLAVE POPULATION

Year	Slave, U.S. (1)	Slave, South (2)	Ratio of (2) to (1) (3)
1790	697,897	648,640	0.93
1800	893,041	850,942	0.95
1810	1,191,364	1,159,677	0.97
1820	1,538,038	1,514,468	0.98
1830	2,009,043	2,002,183	0.99
1840	2,487,455	2,483,721	1.00
1850	3,204,761	2,201,761	1.00
1860	3,953,760	3,951,798	1.00

SOURCE: The figures for 1850 and before are from DeBow, *Statistical View of the United States*, p. 85. For 1860, *Population of the United States in 1860 . . . The Eighth Census*, Washington, 1864, p. 595.

NOTE: The figures for the South include the populations, in the years in which they are included in the census, of Alabama, Arkansas, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, Missouri, North Carolina, South Carolina, Tennessee, Texas, and Virginia.

slave population, a further concentration in the southern states, and a decline relative to the white population.

While the size of the southern slave population relative to the white southern population did not vary much between 1810 and 1860 (compare column 2, Table 2, with column 2, Table 1), ratios of the individual states changed a great deal as a result of the shift in the concentration of cotton production. The slave-white ratios in Mississippi, Georgia, and Virginia illustrate this movement. In 1820 the ratios of slaves to whites in these three states were approximately equal to 0.78. By 1860 the ratio had increased to 1.23 in Mississippi, remained unchanged in Georgia, and fallen to 0.47 in Virginia.

The largest southward and westward shift in the slave population took place between 1830 and 1840 and had virtually been completed by 1850 except into the southwestern states of Arkansas and Texas. The shift was accomplished by two processes, the movement of entire plantations from the relatively worn-out land of the Upper South to the richer virgin soil of the Lower South, and the sale of slaves from

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TABLE 2
WHITE POPULATION

Year	White, U.S. (1)	White, South (2)	Ratio of (2) to (1) (3)
1790	3,172,464	1,225,178	0.32
1800	4,304,489	1,653,128	0.38
1810	5,862,004	2,153,424	0.36
1820	7,861,937	2,776,278	0.35
1830	10,537,378	3,603,157	0.34
1840	14,195,695	4,573,969	0.32
1850	19,553,068	6,151,247	0.32
1860	26,957,471	8,001,000	0.30

SOURCE: The figures for 1850 and before are from DeBow, *Statistical View . . .*, p. 42. For 1860, *The Eighth Census*, pp. 592-593.

NOTE: The figures for the South include the populations, in the years in which they are included in the census, of the states listed in the note to Table 1.

the plantations of the Upper South to those of the Lower South. Though estimates have been made of the relative magnitudes of these processes, none has a high degree of accuracy because of the poor quality of the available information.

The potential male slave labor force, those aged fifteen to sixty, made up about one-fourth of the slave population and about one-third of the potential southern male labor force in 1850 and 1860 (Table 3).

TABLE 3
POTENTIAL MALE LABOR FORCE IN THE SOUTH

Year	Number of Slave Males Aged 15 to 60 (1)	Number of White Males Aged 15 to 60 (2)	Ratio of (1) to (2)
1850	814,876	1,699,403	0.48
1860	1,016,425	2,180,719	0.46

SOURCE: For 1850, DeBow, *Statistical View . . .*, pp. 52-53, 56, 88-89. For 1860, *The Eighth Census*, pp. 592-595.

Because of the age distribution of the slaves imported before 1808 and the probable age distribution of white immigrants into the South, the ratios of the potential male slave labor force to the total slave population and to the potential southern male labor force were probably less in 1850 and 1860 than they were in earlier years. Unfortunately, the

census age classifications in the earlier periods make it difficult to determine the number of males aged fifteen to sixty.

The majority of the actual slave labor force was engaged in agricultural work associated with the basic staple crops of cotton, hemp, rice, tobacco, and sugar cane. No precise estimates of the number of slaves employed on each type of plantation are available.⁴ In addition to working as agricultural laborers, slaves found employment in most jobs requiring physical effort and minor mechanical skills. Again, no estimates of the numbers employed in these different jobs are currently available, though the 1848 census of Charleston, South Carolina, suggests a possible occupational distribution of male slaves who worked in cities (see Table 4).

This unique aspect of southern labor—slavery—elicited many contemporary comments, the informal observations of the traveler as well as the results of more formal studies on the effect of slavery on the South. A relative lack of commentary followed the Civil War, only to be followed in turn by that of twentieth century historians who re-examined slavery as a force in southern history. In the area of economics many of these students reached the conclusion that slavery was unprofitable for the owners of the slaves. In the words of Ulrich B. Phillips, the outstanding student of American slavery and a strong advocate of the hypothesis of unprofitability: “. . . By the close of the fifties it is fairly certain that no slave holders but those few whose plantations lay in the most advantageous parts of the cotton and sugar districts and whose managerial ability was exceptionally great were earning anything beyond what would cover their maintenance and carrying charges.”⁵ These conclusions of unprofitability have not gone unchallenged, but they have probably gained wider acceptance than has the hypothesis that slaveholding was as profitable as alternative investments in the period.

The slave industry consisted of two types of firms. One owned or rented the capital goods (slaves) and used them as factors of production to produce a marketable commodity (labor services) or combined them with other factors to produce marketable commodities (cotton,

⁴ DeBow, *Statistical View of the United States*, p. 94. It is suggested that in 1850 about 400,000 slaves lived in cities and towns and that 2,500,000 slaves of all ages worked in agriculture with 1,815,000 in cotton, 350,000 in tobacco, 150,000 in cane sugar, 125,000 in rice, and 60,000 in hemp. DeBow does not indicate the basis for these estimates.

⁵ Ulrich B. Phillips, *American Negro Slavery*, New York, Appleton-Century, 1936, p. 391.

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TABLE 4

MANUAL OCCUPATIONS IN CHARLESTON, SOUTH CAROLINA, 1848

Occupations	Numbers of:		
	Male Slaves	Free Negroes	White Males
Domestics	1,188	9	13
Cooks and confectioners	7	18	0
Fruiterers and peddlers	0	6	46
Gardeners	3	0	5
Coachmen	15	4	2
Draymen	67	11	13
Porters	35	5	8
Stevedores	2	1	21
Pilots and sailors	50	1	176
Fishermen	11	14	10
Carpenters	120	27	119
Masons and bricklayers	68	10	60
Painters and plasterers	16	4	18
Tinners	3	1	10
Ship's carpenters and joiners	51	6	52
Coopers	61	2	20
Coachmakers and wheelwrights	3	1	26
Cabinetmakers	8	0	26
Upholsterers	1	1	10
Gun coopers and locksmiths	2	1	16
Blacksmiths and horseshoers	40	4	51
Millwrights	0	5	4
Bootmakers and shoemakers	6	17	30
Saddle and harness makers	2	1	29
Tailors and capmakers	36	42	68
Butchers	5	1	10
Millers	0	1	14
Bakers	39	1	35
Barbers and hairdressers	4	14	0
Cigarmakers	5	1	10
Bookbinders	3	0	10
Printers	5	0	65
Other mechanics	45	2	182
Apprentices	43	14	55
Unclassed and unskilled	838	19	192
Superannuated	38	1	0
Total	3,520	245	1,406

SOURCE: J. L. Dowson and H. W. DeSaussure, *Census of Charleston for 1848*, Charleston, J. B. Nixon, 1849, pp. 31-36.

railroad services, gold, etc.). The other owned those capital goods (female slaves) which were used to produce new capital goods (slaves). Some firms, usually plantations, engaged in all three, producing labor services, agricultural products, and new slaves.

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In the absence of serious market imperfections, the rate of return on slave capital will equal the market rate even though the industry is declining. Consequently, the determination of the return to slaveholding, while of interest because of the widespread uncertainty concerning its magnitude, is of little value in answering the more relevant question whether the industry was viable. The viability can be estimated by ascertaining whether it exhibited characteristics of a declining industry. Some of these are: (1) a declining demand for the unique capital employed (slaves), (2) a declining rate of production of the unique capital (slave birth rate), and (3) a declining demand for the specialized capital (female slaves) used to produce the unique capital (slaves) used in the industry.

A major error in many analyses of the American slave industry is the double counting of the cost of capital.⁶ An excellent example is the following: Ralph B. Flanders⁷ states that Colonel J. M. Williams of Society Hill, South Carolina, received only about 2.7 per cent from his investment in 1849.⁸ The correct rate of return on Williams' investment is almost 9.7 per cent, for, before calculating the 2.7 per cent figure, a 7 per cent interest charge on \$158,620 of the \$161,000 invested capital was deducted from the difference between revenue and operating expenses.⁹

Other minor errors have been made, including valuing slaves at original cost rather than at market value, neglecting the depreciation of the stock of slaves because of their reproductive nature, etc. These will not be explicitly discussed, with the exception of Ulrich Phillips' error which is considered because of his stature and influence in the field of slave history. Phillips seems to have relied mainly upon the divergence late in the 1850's of the rule of thumb relationship of \$100 to \$0.01 between the price of prime male field hands and the price of cotton, a relationship considered appropriate by many southerners in 1850. To have used this relationship as a tool to estimate the profita-

⁶ The nature of this error was recognized by some contemporaries of slavery. For a more complete discussion of it, see Thomas P. Govan, "Was Plantation Slavery Profitable?" *Journal of Southern History*, November, 1942, pp. 513-535.

⁷ Ralph B. Flanders, "Planter Problems in Ante Bellum Georgia," *Georgia Historical Quarterly*, March, 1930, p. 29.

⁸ Contained in an article by Solon Robinson in the *National Intelligencer* quoted in *Agricultural Section, Report of the Commissioner of Patents for 1849*, Exec. Doc. 20, H. R., 31st Cong., 1st sess., pp. 310-312.

⁹ The actual rate of return was higher. These calculations are based upon a cotton price of 6 cents a pound, whereas the average price received by Williams was between 6 and 7 cents.

bility of slavery, Phillips would have been obliged to consider changes in the marginal physical productivity of the prime male field hands—a factor he neglected. A rough estimate of changes in marginal physical productivity¹⁰ is not consistent with Phillips' implicit belief that it was roughly constant for the period 1850 through 1860.

Almost all analyses of the returns on slave capital involve use of manuscript records of actual plantations or average values of prices, production, etc., for typical plantations to estimate the return. In the absence of precise production functions, market rates of payment are estimated for the other factors, and slaves are allotted the residual income. While this type of analysis, when properly applied, yields results consistent with those I have obtained, there are strong grounds for preferring the method developed and used in this study. This method uses the net rent,¹¹ received by owners of slaves when they rented them out, as the estimate of the income earned by the capital good. Stated more formally, the analysis is limited to a firm with one input, a single form of capital, which produces a single output, labor services. The advantages of this method are: the income figures are estimated directly from market data rather than as residuals; and only a few variables rather than a large number need to be estimated.

The Data

The analysis of the rate of return on slave capital is an application of the simple discount formula to the capital good, slaves. To carry forward this analysis requires four types of data: (1) the net yearly income received by the owner, (2) the price of slaves, (3) the death rate of slaves at specific ages, and (4) the rates of return on alternative investments. The rate of return on an asset is equal to the ratio of net income to the price. For an asset that wears out, this rate rises

¹⁰ Alfred H. Conrad and John R. Meyer, "The Economics of Slavery in the Ante Bellum South," *Journal of Political Economy*, April 1958, pp. 116-119. Conrad and Meyer estimate the rate of return to slaveholding in the period 1830 through 1860. They use the capital value formula with the internal interest rate equal to the discount rate. The yearly income of the capital good is estimated as a residual using an average production function and average incomes and expenses for cotton plantations.

¹¹ The hires are not a random sample of all hires for the class of slaves considered. The hires are all those for that class which were found in a reasonably exhaustive search of the secondary literature and the principal archive collections of the South. It is possible that hired slaves may have been superior to average slaves. This will not bias the results unless the ratio of hire to price for the hired slaves is greater than the ratio of imputed hire to price of average slaves.

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each year that the asset is held. The discount formula is used to obtain an average rate for the period the asset is held and to reduce the rate indicated by the simple ratios to allow for the decline in value of the asset over the period. The death rate is incorporated into the discount formula to allow for the fact that all slaves do not live the same number of years. The alternative rate provides a standard by which to judge the rate on slaves relative to other investments.

NET INCOME

The net yearly income received by the owner of the slave is estimated by the yearly hire of slaves rented out, i.e., slaves whose employer was not their owner. There is evidence to indicate that the hiring of slaves was a reasonably common characteristic of the slave system and that the conditions of hire were generally quite standard. Many of the characteristics of hired slave employment—size of labor force, turnover, mobility, etc.—however, cannot be quantified.¹²

The supply of slaves to the hired labor force, especially in certain industries in the Upper South¹³ in the latter years, appears to have been quite large. In 1857 the Virginia and Tennessee Railroad employed 643 persons of whom 435 were hired slaves, and the Richmond and Danville Railroad employed 298 persons of whom 181 were hired slaves.¹⁴ In April of 1858, 249 hired slaves were employed in the construction of the State House in Columbia, South Carolina.¹⁵ In July of 1848, 81 of the approximately 300 yard laborers employed at the United States Navy Shipyard at Gosport (Norfolk), Virginia, were hired slaves.¹⁶ An analysis of the unpublished census returns for 1860 indicates that there were at least 335 hired slaves in four counties in Tennessee.¹⁷

¹² The size of the hired slave labor force is discussed in Clement Eaton, "Slave-Hiring in the Upper South: A Step Toward Freedom," *Mississippi Valley Historical Review*, March 1960, pp. 673-677.

¹³ The term Upper South refers to North Carolina, South Carolina, and Virginia. The term Lower South refers to Alabama, Florida, Georgia, Louisiana, and Mississippi.

¹⁴ *Annual Reports of the Railroads to the Board of Public Works of the General Assembly of Virginia for the Year Ending September 30, 1857*, G.A. No. 17, pp. 79 and 280.

¹⁵ State House Construction Payrolls, Voucher Three, South Carolina State Archives, Columbia, April 1858.

¹⁶ United States Navy Bureau of Yards and Docks, Payrolls of Mechanics and Laborers . . . Gosport, Virginia, National Archives, Washington, July 1848.

¹⁷ Chase C. Mooney, *Slavery in Tennessee*, Indiana University Press, 1957, p. 33. The counties were Davidson, Fayette, Haywood, and Lincoln. All the census

Slaves who were temporarily in excess of their owner's needs were one major source of the supply of hired slaves. Slaves who were part of estates left to widows and minor children were a second source. How common it was for other groups to hold slaves solely for hire is not clear. Some examples can be cited: the Clark Plantation during the period 1847 through 1860 regularly hired out from seven to seventeen hands.¹⁸ A newspaper of the period (quoted indirectly) indicates that holding slaves for hire was quite common. "Negroes are a kind of capital which is loaned out at a high rate, and [in Savannah] one often meets people who have no plantation, but who keep negroes to let and receive very handsome sums for them every month."¹⁹

The practice of yearly re-hire suggests that there may have been a high turnover rate of individual slaves among employers. Again, only examples, not statistics, can be cited. Between 1843 and 1852 the twenty-four slaves in the estate of Henry E. Canon of Mississippi worked for a minimum of seven employers, and those hired out every year seldom worked for the same employer from year to year.²⁰ In 1860 the president of the Raleigh and Gaston Railroad reported: "Great labor and inconvenience is experienced in hiring new laborers. Those that are obtained are often of an inferior quality, or hard to manage . . . raw recruits unacquainted with the duties assigned to them."²¹ On the other side, one group of slaves employed in the shipyard at Pensacola, Florida, worked there at least for the period 1847 through 1851 and the Tredegar Iron Works in Richmond apparently had a low turnover among its hired slave force.²²

While there was some interstate mobility, and examples of slaves owned in Virginia working in Alabama and Florida could be cited, the impression one gathers is that most slaves were hired to work in the states in which their owners lived. There is also an indication that

marshals did not indicate hired slaves, so an exact determination of the number is not possible. There were 48,136 slaves reported in these counties of which 12,135 were males fifteen to sixty years old.

¹⁸ Clark Plantation Book, 1825-1861, North Carolina Dept. of Archives and History, Raleigh.

¹⁹ Frederic Bancroft, *Slave Trading in the Old South*, Baltimore, Furst, 1931, p. 146. The quotation is from *Das Ausland*, which quoted the *New York Tribune* of April 28, 1860.

²⁰ Charles S. Sydnor, *Slavery in Mississippi*, New York, Appleton-Century, 1933, pp. 175-178.

²¹ *Tenth Annual Report of the Raleigh and Gaston Railroad*, 1860, North Carolina Dept. of Archives and History, Raleigh, pp. 9-10.

²² Kathleen Bruce, *Virginia Iron Manufacture in the Slave Era*, New York, Century, 1931.

premium rates were paid by employers who planned to move the hired slaves across state boundaries.

Slaves were hired in three ways, (1) by personal contact between the owner and the lessee or his agent, (2) by personal contact between an agent in a major city to whom the owner had consigned his slaves and the lessee or his agent, and (3) by public auction. The first method was usually carried out by the hirer or his agent traveling through the back country picking up a few slaves at a time as he visited the various plantations. If the project involved obtaining a large number of slaves, the agent might advertise his coming and meet the owners in the local county seat. Agents in the principal cities accepted slaves on consignment and hired them out by personal contact or at public auction. Newspaper advertisements by the agents, and the payroll vouchers of the South Carolina State House construction suggest that agents were widely used. The usual charge for such services was from 6 to 8 per cent. Newspaper accounts of the practice of calling slaves at public auction, usually held on the courthouse steps around the first of January, indicate that this may have been the most popular method of hiring slaves. Its popularity may have been associated with the practice of renting out slaves belonging to estates. Of the three methods, personal contact was probably the one used in most of the cases cited in this study, with the exception of the railroads whose methods are unknown.

Slaves were employed by the day, week, month, and year. The yearly contract appears to have been the most common. The year is also the period for which one can be surest of the conditions of hire with respect to slave subsistence. Almost without exception the lessee paid for the cost of lost time (except for a runaway), paid for living quarters, food, clothing, medical care, and in many cases the taxes on the slave. Hence, the yearly hire represented a net return on the investment.²³ The following quotations illustrate these typical contract conditions:

First, the hirer shall have twelve months credit by giving Bond with two approved Securities! They will be required to furnish each negro with three suits of clothes, two homespun cotton suits for summer and one linsey suit for winter, one new pair of shoes and stockings, each man or boy with a new wool hat and each woman and

²³ The cost of hiring out the slave is considered in the section on rate of return, below. This analysis assumes that the hired slave labor market was classical rather than Keynesian in character and involuntary unemployment is not considered.

girl with a new cloth bonnet, each single negro with one new blanket and each family of negroes with two blankets and to be returned with all their bedding and clothing to this place on the second day of January.²⁴

On the 25 day of December we . . . as surity, jointly and severally promise to pay to . . . or order . . . for value received. Having hired of . . . a negro . . . slave . . . from this date until the 25th of December next, we . . . as principal and as . . . surity, jointly and severally bind ourselves that said slave shall be treated humanely, furnished with competent medical aid and medicines, when necessary, furnished with good suitable and sufficient clothing during the year, and returned with good durable and sufficient clothing at the end of the time aforesaid. The hirer to pay the city taxes on said slave. This obligation is not intended to render the hirer liable for the return of the slave in the case of death or escape, further than he is by law made responsible.²⁵

If a hired slave ran away or died during the contractual period, the hire usually ceased at this time. In cases where it could be shown that the lessee had been negligent or had violated the terms of the contract in a way that led to the loss of the slave, he was usually held liable for damages equal to the fair value of the slave. In the closing years of slavery some firms advertised that they would insure the lives of all the slaves that they employed—apparently not a widespread practice. Whether the probability of death was greater for hired slaves than for slaves in general would be difficult to establish. The president of the Raleigh and Gaston Railroad stated, "The risk of brakemen, trainhands, and firemen is scarcely greater than that of other employments, none having been killed on the road."²⁶ In 1856, however, three firemen, four brakemen, and an assistant engineer were killed and three other employees were injured on the Mobile and Ohio Railroad.²⁷ Of the ten, only one of the injured was a Negro, the others being white. In 1860 there were three deaths among the 400 hired

²⁴ Papers of Alexander H. Torrence, 1835-1915, Duke University Library, Durham, North Carolina.

²⁵ Contract between I. R. Jacob and I. B. O'Bannor in Louisville, Kentucky, 1857, New York Public Library, New York, Miscellaneous Slave Papers.

²⁶ *Tenth Annual Report*, pp. 9-10.

²⁷ *Ninth Annual Report of the Mobile and Ohio Railroad, 1856*, Library of the Bureau of Railway Economics, Association of American Railroads, Washington. Table 10.

slaves of Charles Fisher, a railroad contractor in North Carolina.²⁸ Three deaths out of 400 are fewer than would be predicted by a mortality table for slaves aged twenty to forty.

When slaves were hired for periods other than a year, it is usually not clear what the contractual conditions were regarding subsistence. It appears that when slaves were hired by the day or week their owners paid for the subsistence. Monthly hires present a mixed situation. In some cases the monthly rates are alternative methods of expressing daily or yearly ones, and the conditions of subsistence probably followed the general patterns for those rates. Where they were true monthly rates, both patterns of subsistence payments were used. The uncertainty concerning who paid for subsistence makes daily and monthly hires more useful for illustrating movements in magnitudes over time than for estimating the net income received by the owner. A more important limitation on the use of daily and monthly figures is a lack of information on number of days or months worked per year.

Data on slave hires are scattered and usually fragmentary in character. Some can be found in most twentieth century books dealing with the general subject of southern slavery or with slavery in a specific geographical area. In addition, many books and articles which treat particular aspects of the general southern economy contain some references to them, as do court cases and periodicals of the era. It is doubtful, however, that the number of useful observations from these sources exceed 500. The major sources are manuscript records and the annual reports of southern railroads.

In order to estimate correctly the net yearly income received by owners of slaves, the following information is desirable: (1) rate of hire, (2) value of slaves, (3) age, skill, and physical condition, (4) content of jobs performed. Seldom is such detailed information available. In its absence, hires were included if the context of the source indicated that it probably represented a healthy adult male performing relatively unskilled labor.

Railroad hires present a special problem, for they are often summarized into an average rate which includes the skilled train hands and the boys who swept up around the stations. The vast majority of the slaves employed by the railroads worked as track hands, and thus the use of the average rate probably does not introduce much

²⁸ Papers of Charles F. Fisher, 1860, Southern Historical Collection, University of North Carolina, Chapel Hill.

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error. Slave rental data were included in many contemporary newspapers, usually in the form of averages or ranges with no indication of the number employed at these rates. These have been included with a weight equal to a single hire. In cases where manuscript sources used by a secondary account could be consulted, the manuscript source was used. Tables 5, 6, and 7 summarize the available data on slave hires; details and sources are included in Appendix A.

TABLE 5
AVERAGE YEARLY RATES OF HIRE FOR SLAVES

Period	Upper South			Lower South		
	Number of Observations	Mean	Standard Deviation	Number of Observations	Mean	Standard Deviation
1830-35	27	\$ 62.0		20	\$127.0	
1836-40	62	106.0	\$13.0	7		
1841-45	12	83.0		15	143.0	
1846-50	33	99.0	16.3	53	168.0	\$43.8
1851-55	1,195	141.5	20.9	96	167.0	69.8
1856-60 ^a	4,091	142.0	15.3	157	196.5	39.6

^a After the analysis was completed, I discovered an additional 490 railroad hires of the Southside Railroad for 1859 and 1860. The average hire was \$141.65. *Annual Reports of the Railroad Companies of the State of Virginia . . . Board of Public Works . . .* September 30, 1859, p. 397; 1860, p. 333.

TABLE 6
AVERAGE MONTHLY RATES OF HIRE FOR SLAVES

Period	Upper South		Lower South	
	Number of Observations	Mean	Number of Observations	Mean
1830-35	4		5	
1836-40	256	\$15.0	7	\$22.4
1841-45			18	14.7
1846-50	137	12.5	76	14.7
1851-55	36	13.0	84	29.5
1856-60	110	14.0	153	20.0

SLAVE PRICES

The slave market performed for the ante-bellum South some of the functions now performed by the New York Stock Exchange, i.e., it served in the eyes of the public as a sensitive reflector of current and future business prospects. As a consequence, the price of slaves, espe-

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TABLE 7
AVERAGE DAILY RATES OF HIRE FOR SLAVES

Period	Range	
	Upper South	Lower South
1830-35	\$0.40—0.50	
1836-40	0.50—0.75	
1841-45		
1846-50	0.75	\$1.00
1851-55	0.69—0.88	1.00—1.25
1856-60	0.69—0.88	1.00—1.25

cially in other parts of the South, was often mentioned by local newspapers and by local citizens in letters and diaries, which are sources of conceptions of the general movement of slave prices. An alternative approach to a slave price series is use of actual sales recorded in bills of sale or in the accounts of planters and slave traders. The latter approach was taken by Ulrich Phillips in his studies of the prices of prime male field hands (healthy male slaves eighteen to thirty years old), which he summarized in charts of yearly slave prices for four major markets, Richmond, Charleston, mid-Georgia, and New Orleans for the years 1796 through 1860.

Phillips' estimates of slave prices are based upon more than 3,000 bills of sale which he looked at over a period of years. Bills of sale seldom list all the information desirable for constructing a price series—price, age, sex, physical condition, and skill. His method, therefore, was “. . . to select in a group of bills for any time and place such maximum quotations for males as occur with any notable degree of frequency.”²⁹ This method is possible because the majority of slaves sold individually rather than in groups were of prime field quality. His estimates are shown in Table 8.

Since it was not possible to duplicate Phillips' coverage of price sources, it would be desirable to have more information concerning his method of estimation, sources of prices, extent of coverage of the different markets in the different years, etc. Perhaps because he believed in the illustrative use of statistics rather than in more formal statistical analysis, such information is not available. Some indication of the reliability of his estimates can be obtained from the following:

²⁹ Phillips, *American Negro Slavery*, p. 370.

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TABLE 8
PRICES OF PRIME MALE FIELD HANDS, 1830-60

<i>Year and Period</i>	Richmond	Charleston	Mid-Georgia	New Orleans
1830	\$ 425	\$ 500	\$ 700	\$ 800
1831	450	500	750	850
1832	500	550	800	900
1833	550	600	850	950
1834	600	650	900	1,000
1835	650	750	1,000	1,150
1836	800	1,100	1,200	1,250
1837	1,100	1,200	1,300	1,300
1838	900	1,100	1,175	1,225
1839	1,000	1,150	1,200	1,250
1840	750	775	900	1,000
1841	600	650	775	875
1842	500	600	700	750
1843	500	550	650	750
1844	500	550	650	700
1845	550	600	650	700
1846	600	650	700	750
1847	625	700	800	850
1848	650	725	900	950
1849	675	775	950	1,025
1850	700	800	1,000	1,100
1851	725	825	1,050	1,150
1852	775	850	1,100	1,200
1853	825	950	1,200	1,250
1854	900	1,000	1,250	1,300
1855	950	1,025	1,300	1,350
1856	1,000	1,075	1,350	1,425
1857	1,025	1,100	1,450	1,500
1858	1,075	1,150	1,550	1,600
1859	1,100	1,200	1,675	1,700
1860	1,200	1,225	1,800	1,800
1830-35	\$ 529	\$ 592	\$ 883	\$ 942
1836-40	910	1,053	1,115	1,205
1841-45	530	590	685	745
1846-50	650	730	870	935
1851-55	835	930	1,180	1,250
1856-60	1,100	1,150	1,565	1,605

SOURCE: Estimated visually, to the nearest \$25, from chart, "Approximate Prices of Prime Male Field Hands in Hundreds of Dollars per Head . . .," in Ulrich B. Phillips, *Life and Labor in the Old South*, Boston, Little, Brown, 1941, p. 177.

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(1) They have with one exception been accepted by other scholars.³⁰ (2) They are consistent with quotations in other secondary works on American slavery.³¹ (3) They are, except for the Upper South 1856 through 1860, reasonably similar to observations obtained in preparing this study (Table 9). Even the Upper South 1856 through 1860, when

TABLE 9
COMPARISON OF PHILLIPS' PRICES FOR SLAVES WITH EVANS' OBSERVATIONS OF PRICES

Year	Evans' Prices				Evans' Prices				
	Phillips' Prices	Number of Observations	Standard Deviation	Phillips' Prices	Number of Observations	Standard Deviation	Phillips' Prices	Number of Observations	Standard Deviation
	RICHMOND				CHARLESTON				
1836	\$ 800	\$ 982	21	\$105					
1846	600	580	10	111					
1860	1,200	1,478	14	120					
1833					\$ 600	\$ 438	31		\$151
1852					850	892	31		54
1856					1,175	1,164	12		162
	MID-GEORGIA				NEW ORLEANS				
1837	\$1,300	\$1,210	22	\$145					
1859	1,675	1,500	27	0					
1848					\$ 950	\$ 888	8		\$84
1860					1,800	1,750	6		32

SOURCE: Phillips' prices, Table 8.

Evans' prices: Richmond: 1836, Account Book of Whitehead and Lofftus 1835-1837, Duke University Library, Durham, North Carolina; 1846, Slave Account Book of Templeman 1846-1859, New York Public Library; 1860, Omohandro Account Book 1860, Alderman Library, University of Virginia, Charlottesville.

Charleston: 1833, Account Book of I. A. Jarratt 1833-1835, Duke University Library, Durham, North Carolina; 1852, Samuel M. Derrick, *Centennial History of South Carolina Railroad*, Columbia, State Co., 1930, p. 312; 1856, Devereaux Personal Papers, Account of Slave Sales, December 2, 1856, North Carolina Department of Archives and History, Raleigh.

Mid-Georgia: 1837, Papers of Francis P. Corbin, New York Public Library; 1859, Slave Accounts of Jeremiah Morton in Morton-Halsey Papers, Slaves Sold in Mobile in 1859, Alderman Library, University of Virginia, Charlottesville.

New Orleans: 1848, "Inventory of the Estate of Nicholas N. Destrehan," *Louisiana Historical Quarterly*, April 1924, pp. 302-303; 1860, Bill of Sale for Louisiana in Miscellaneous Slave Papers, New York Public Library.

³⁰ Wendell H. Stephenson, *Isaac Franklin, Slave Trader and Planter of the Old South*, Louisiana State University Press, 1938, p. 84, suggests that Phillips' New Orleans prices for 1828 through 1831 may be too high.

³¹ Conrad and Meyer, "The Economics of Slavery . . .," p. 100.

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it appears that Phillips' estimates are too low, is not a clear case. Phillips gives several examples of slave sales where the means of the male sale prices are above his estimates of the prime male field price.⁸²

TABLE 10
PRICES OF PRIME MALE FIELD HANDS IN VIRGINIA, 1860

Mean Price	75th Percentile Price
\$1,478	\$1,525
1,515	1,595

SOURCE: Omohandro Account Book, 1860, Alderman Library, University of Virginia, Charlottesville; Account Book of Hector Davis of Richmond, 1860, New York Public Library, New York.

In judging the similarity of Phillips' estimates with independent observations, two things should be remembered: (1) A price differential of up to \$100 is often found between prices paid and received by traders operating in a local market. (2) The independent observations, while from the general market area, are not always in the cities for which Phillips estimated his prices. It therefore seems safe to conclude that Phillips' prices can be used with confidence, except possibly for the 1856 through 1860 period in the Upper South.

The analysis will be carried out for two areas, Upper South and Lower South. Phillips' Richmond and Charleston estimates have been averaged to obtain a price series for the Upper South and his Mid-Georgia and New Orleans prices have been averaged to obtain a series for the Lower South (Table 11). I have prepared an alternative estimate of prices for the Upper South for the period 1856 through 1860 because of the uncertainty concerning the accuracy of Phillips' prices for these years. Prices for 1856 and 1860 were estimated and linear interpolation was used to obtain estimates for 1857, 1858, and 1859 prices. Phillips' 1856 price was used for 1856. An 1860 price of \$1,600⁸³ was based upon Table 10 and the following quotations from the letters of a firm of slave traders.

Mr. Williamson says he was offered negroes at \$100 per head lower in Montgomery than they are worth here. (Richmond, 1859)

⁸² Phillips, *American Negro Slavery*, pp. 313-315.

⁸³ This is an upper limit estimate and is used to insure against overestimating the rate of return.

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TABLE 11
PRICES OF PRIME MALE FIELD HANDS, 1830-60

<i>Year and Period</i>	<i>Upper South</i>		<i>Lower South</i>
	Phillips' Estimates	Evans' Estimates	Phillips' Estimates
1830	\$ 463		\$ 750
1831	475		800
1832	525		850
1833	575		900
1834	625		950
1835	700		1,075
1836	950		1,225
1837	1,150		1,300
1838	950		1,200
1839	1,075		1,225
1840	763		950
1841	625		825
1842	550		725
1843	525		675
1844	525		675
1845	575		675
1846	625		725
1847	663		825
1848	688		925
1849	725		988
1850	750		1,050
1851	775		1,100
1852	813		1,150
1853	888		1,225
1854	950		1,275
1855	988		1,325
1856	1,038	\$1,038	1,388
1857	1,063	1,178	1,475
1858	1,113	1,318	1,575
1859	1,150	1,458	1,688
1860	1,213	1,600	1,800
1830-35	561		888
1836-40	978		1,180
1841-45	560		715
1846-50	690		903
1851-55	883		1,215
1856-60	1,115	1,318	1,585

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Good second rate men thirty years old can be bought at \$1,000 to \$1,100. (Richmond, 1859)

Sold John in South Carolina for \$1,325, too low. (1859)

How can they stay at prices like these when they can't sell for \$100 more further South? (Richmond, December 1859)

No. 1 men 20-26 at \$1,500-1,600. (Richmond, July 1860)³⁴

Because most bills of sale indicate only sex and price, it was not possible for Phillips to estimate prices for other classes of slaves. On the basis of estate valuations which list sex, age, and value, Phillips did suggest some average relationships for the prices of other classes of slaves relative to the prices of prime males. A similar procedure has been used to estimate the prices of once-prime slaves at ages forty and fifty as a percentage of prime price (Table 12). I have estimated that once-prime males at age forty were worth 78 per cent of prime price and at age fifty 52 per cent of prime price. The latter figure is similar to Phillips' estimate of 50 per cent of prime price at age fifty.³⁵

THE ALTERNATIVE RATE OF RETURN

While it is easy to describe the alternative rate of return for the investor in slaves, it is difficult to give more than an approximate estimate of the rate because of a lack of knowledge concerning risk and nonpecuniary factors involved in different types of investment.³⁶ The alternative rate is the real rate of interest on capital, plus or minus appropriate factors to allow for nonpecuniary returns and for the difference between the particular structure of risk attendant to investing in slaves, and some average risk involved in investment. In other words, it is that rate an investor will receive if he chooses to invest in something other than slaves, with suitable account taken of the differences in risk and nonpecuniary factors between other investment goods and slaves. It

³⁴ Letters of William A. J. Finney, 1848-1860, Duke University Library, Durham, North Carolina. Finney with Philip Thomas headed a firm of slave traders who bought slaves in the rural areas of Virginia and sold them in the southern markets of New Orleans and Mobile. Besides indicating that the Upper South prices were higher than Phillips' estimates, they indicate that the Upper South-Lower South differential was narrowing in this period rather than widening as shown in Phillips' charts.

³⁵ Phillips, *American Negro Slavery*, p. 370.

³⁶ In Conrad and Meyer, "The Economics of Slavery . . .," p. 101, one finds an opposite conclusion. They argue, incorrectly in my opinion, that the alternative rate is the return on capital if the slave industry had not existed, and that this rate can be estimated from the rate of interest on short-term money in the North and South before the Civil War and in the North during the war.

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TABLE 12
PRICES OF ONCE-PRIME SLAVES AS A PERCENTAGE
OF PRIME PRICES

Age Group	Observations									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
20-29	100	100	100	100	100	100	100	100	100	100
30-39	94			92	97	84	86	100		74
40								67		
40-49	79	50	80		76	77	57			65
50								47	50	
50-59	50				35					31

SOURCE, BY COLUMN

- (1) Stephenson, *Isaac Franklin, Slave Trader . . .*, pp. 168-188.
- (2) *Ibid.*, pp. 157-160.
- (3) William B. Hamilton and William D. McCain, "Wealth in the Natchez Region," *Journal of Mississippi History*, X, pp. 305-306.
- (4) Schedule of Property of James L. Alcorn, Value of Slaves, July 4, 1860, North Carolina Department of Archives and History, Raleigh.
- (5) William Clark Estate in Lewis Thompson Papers, Southern Historical Collection, University of North Carolina, Chapel Hill.
- (6) Partition between Heirs of General Zachary Taylor, 1860, Library of Congress, Washington.
- (7) "Estimates of the Value of Slaves," *American Historical Review*, XIX, pp. 813-836.
- (8) J. Winston Coleman, Jr., *Slavery Times in Kentucky*, University of North Carolina Press, 1940, p. 121.
- (9) Phillips, *American Negro Slavery*, p. 370.
- (10) Devereaux Personal Papers, Division of Negroes, 1844, North Carolina Department of Archives and History, Raleigh.

is virtually impossible to estimate the alternative rate of return. Therefore, I will present several rate-of-return series for other investment goods and hope that these suggest the order of magnitude of the alternative rate.

Information on the income generated by capital or received by its owners is very limited for the period before the Civil War, except for illustrative profits of a few companies for a few years. I know of only two published series of returns for the period 1830 through 1860. These series are for returns on two-name sixty- to ninety-day bills in New York, 1831 through 1860, and for yields on railroad bonds held to maturity, 1857 through 1860.

Other estimates of returns can, with reasonable confidence, be prepared from several sources, one of the best being Martin.⁸⁷ Data on the three- to six-month bankable paper market in Boston, while not

⁸⁷ Joseph G. Martin, *One Hundred Years' History of the Boston Stock and Money Markets*, Boston, 1898.

complete, are sufficient for an estimate of the return to this class of paper for the years 1831 through 1860. From the interest rate given for many months and the beginning and ending rates for periods of change, the average monthly rate can be estimated. The yearly rates are simple averages of the monthly figures (Table 13).

Series concerning the high, low, and par stock prices and the nominal dividend rates for manufacturing and railroad companies, quoted on the Boston market, are also given by Martin. An estimate of the rate of return received by investors in railroad companies was made using these figures. It was assumed the average price of a given stock in any year was equal to the average of the high and low stock prices. The nominal dividend rate, times the par value of the stock, divided by the average yearly price gives the real dividend rate for the year. The capital gain rate of return for any given year was calculated by dividing the difference between the given year's stock price and the preceding year's stock price by the preceding year's stock price. The sum of the real dividend rate and the capital gains rate was used to estimate the yearly rate of return. This can be summarized mathematically.

$$r_1 = \frac{(D)(V)}{P_1} + \frac{P_1 - P_0}{P_0}$$

- Where: (1) D = the nominal dividend rate
 (2) V = the par value of the stock
 (3) P_1 = the average price of the stock in year one
 (4) P_0 = the average price of the stock in year zero
 (5) r_1 = the rate of return in year one

The rates of return for Boston railroad stocks were estimated using this procedure. A sample of nineteen to twenty-three railroads was used for each year in the period 1845 through 1860. Stock prices were not deflated by a price level index because I do not consider any of them reliable enough.

A similar procedure could be used to calculate a rate of return on manufacturing stocks. This has not been done because manufacturing stocks were closely held and it is doubtful that the average stock prices are very meaningful.⁸⁸

⁸⁸ Martin, *One Hundred Years' History . . .*, p. 126. A similar statement concerning the extent of participation in railroad and manufacturing stock markets is found in Frederick R. Macaulay, *Some Theoretical Problems Suggested by Movements of Interest Rates, Bond Yields, and Stock Prices in the United States since 1856*, New York, NBER, 1938, pp. 138-139.

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TABLE 13
SHORT-TERM MONEY RATES OF INTEREST, 1831-60
(per cent)

Year and Period	New York 60- 90-Day Bills	Boston 3- 6-Month Bankable Paper
1831	6.1	6.5
1832	6.3	6.3
1833	7.9	8.1
1834	14.6	18.5
1835	7.0	6.7
1836	18.4	20.5
1837	14.1	14.4
1838	9.0	9.0
1839	13.2	14.0
1840	7.8	7.4
1841	6.9	7.0
1842	8.1	8.2
1843	4.5	4.4
1844	4.9	4.9
1845	6.0	6.0
1846	8.3	8.3
1847	9.6	10.0
1848	15.1	15.4
1849	10.0	10.2
1850	8.0	8.0
1851	9.7	10.0
1852	6.6	6.3
1853	10.2	10.9
1854	10.4	11.6
1855	8.9	9.2
1856	8.9	9.6
1857	12.9	13.1
1858	5.0	4.8
1859	6.8	7.0
1860	7.0	8.0
1831-60	9.1	9.5
1845-60	9.0	9.3
1850-60	8.6	9.0
1857-60	7.9	8.2

SOURCE: New York rates are from the Federal Reserve Bank of New York, *Monthly Review*, March 1, 1921, p. 3. Boston rates were calculated from Martin, *One Hundred Years' History*, pp. 52-53. Boston monthly rates are given in Appendix B. These series differ somewhat from similar ones in Conrad and Meyer, "The Economics of Slavery . . .," p. 102. For New York, the difference is for the years 1831 through 1833 and results from their error in transcription from the original source. For Boston, the difference is in most of the years and results from their use of a concept of the rate sustained for a major portion of the year rather than the arithmetic average.

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In addition to Martin, two other sources provide limited information on returns. Davis estimated that nine of the more prosperous Massachusetts textile firms earned returns of 16.76 per cent on total capital stock for the period 1844 through 1848 and 5.75 per cent in the period 1848 through 1853.³⁹ Macaulay estimated that the average yield if held to maturity of a sample of railroad bonds was 7.6 per cent for the period 1857 through 1860.⁴⁰

Because of poor communications in the ante-bellum period, there may have been sizable imperfections in the capital markets. If this is true, rates of return estimated for the North may be of limited use as alternative rates for the slave industry. It would, therefore, be desirable to have similar series for southern money and stock markets. Returns on money are unavailable for the South, but one can estimate returns on railroad capital, though in a slightly different form than those obtained for railroad stocks traded on the Boston exchange.

A variety of sources contain information on the total capital costs incurred in building and equipping southern railroads and the yearly net incomes after paying for capital maintenance, but before payment of interest on funded debt.⁴¹ These series have been combined to obtain two estimates of the average returns earned by capital invested in southern railroads. One estimate is the weighted average of the returns earned on capital invested in completed southern railroads. The twenty-three to twenty-seven railroads included in each year's sample (not the same in each sample) operated an average of 61.2 per cent of all southern trackage. The other estimate is the weighted average return for twelve selected southern railroads. These roads were chosen because data were available for them for almost every year of the eleven-year period 1850 through 1860.⁴² The series for Boston and southern railroads are shown in Table 14. As previously indicated,

³⁹ Lance E. Davis, "Sources of Industrial Finance: The American Textile Industry," *Explorations in Entrepreneurial History*, April, 1957, p. 201. The figures are based upon company records in the Baker Library, Harvard Graduate School of Business Administration.

⁴⁰ Macaulay, *Some Theoretical Problems* . . . , pp. A34-A38.

⁴¹ The data were obtained chiefly from secondary sources, but in every case the original sources are the annual reports of the railroads. Every effort has been made to assure that the capital and net income concepts defined in the text are characteristic of the data used. Detailed examination of each company's records would be required to assure that this is true.

⁴² This sample includes 121 out of 132 possible railroad years. The average returns range from 5.3 per cent for the Richmond and Petersburg Railroad to 16.8 per cent for the Central Railroad and Banking Company of Georgia.

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TABLE 14
 AVERAGE RATES OF RETURN ON RAILROAD BONDS,
 STOCK, AND CAPITAL, 1845-60
 (per cent)

Year and Period	Boston Rails	Boston Rails, Dividend Only	Completed Southern Rails	Selected Southern Rails	Railroad Bonds
1845	12.0	6.8			
1846	5.0	7.0			
1847	9.6	6.9			
1848	3.6	7.5			
1849	2.2	6.2			
1850	2.3	6.2		7.6	
1851	9.0	6.5		8.4	
1852	9.9	7.0		8.2	
1853	4.2	6.9		8.7	
1854	-4.9	7.9		8.5	
1855	4.7	5.7	8.6	9.2	
1856	-3.0	6.2		8.5	
1857	-5.4	7.5	7.6	7.9	8.3
1858	14.4	5.0	8.3	8.4	7.7
1859	23.8	5.2	7.8	9.8	7.4
1860	19.0	4.9	8.4	9.4	7.1
1845-60	8.6	6.5			
1850-60	6.7	6.3		8.5	
1857-60	13.0	5.7	8.0	8.9	7.6

SOURCE: Series for Boston were calculated as indicated in the text from information contained in Martin, *One Hundred Years' History . . .*, pp. 145-149. Data and sources for southern railroads are given in Appendix C. The information on railroad bonds is from Macaulay, *Some Theoretical Problems . . .*, pp. A34-A38.

these series do not allow one to specify the alternative rate, but they do suggest that the order of magnitude of the alternative rate may have been 6 to 10 per cent for the years 1830 through 1860.

THE LIFE SPAN OF SLAVES

Slaves are a form of capital that both depreciates and appreciates with age. The depreciation is in two forms, death and a declining ability as a function of age to produce income. Slave appreciation results from the birth of slaves. Slave depreciation due to lessened ability to earn income and appreciation due to birth can be left out of an analysis restricted to males in the prime working ages. Slave depreciation due to death must be explicitly considered. This consideration involves

knowledge about the death rates of male slaves in certain age groups.⁴³ Since information dealing with the death rate characteristics of populations is more often discussed in terms of life expectancy, this discussion will deal with a slave life table, though death rates will be used in the estimation of the rate of return on slave capital.

Really accurate estimates of life expectancy are a product of this century and exist for only a few countries. For the United States the earliest reasonable estimate is usually considered to be one for the state of Massachusetts in 1850.⁴⁴ Little attention has been given to slave life expectancy,⁴⁵ probably because of a lack of information rather than a lack of interest; estimates have been made for three southern states, Mississippi,⁴⁶ Maryland, and Louisiana⁴⁷ for 1850.

New estimates of the slave life expectancy have been made for this study based upon population and mortality statistics of the 1850 census. These estimates are used rather than those already calculated for the three southern states from the 1850 census, because the new estimates based upon the experience of all the southern states are preferable to those limited to only three, and because the most widely known of them,⁴⁸ for Mississippi, is in error by a factor of 1.7.⁴⁹

⁴³ Conrad and Meyer, "The Economics of Slavery . . .," in their study of the returns to slaveholding, account for deaths by summing net income produced for a period of years equal to the median life expectancy of the slaves when purchased. This will serve but only as a rough approximation. Its use introduces errors because in a physical sense the income lost due to early deaths must be made up by income gained from those who live beyond the life expectancy age. Declining ability to earn income with increasing age makes this an impossible condition. (With a life expectancy, at age twenty, of thirty-eight years it means that the income lost from the first slave death at age twenty years thirty-one days must be made up by a slave who lives to age ninety-five years and 344 days.) Even if it were physically possible, the capitalized value of extra income would be less than the capitalized value of the lost income.

⁴⁴ Louis I. Dublin, Alfred J. Lotka, and Mortimer Spiegelman, *Length of Life*, rev. ed., New York, Ronald, 1949, p. 54.

⁴⁵ For an interesting discussion of slave life expectancies in the West Indies, see George W. Roberts, *The Population of Jamaica*, Cambridge University Press, 1957.

⁴⁶ Charles S. Sydnor, "Life Span of Mississippi Slaves," *American Historical Review*, April, 1930, pp. 566-574.

⁴⁷ J. C. G. Kennedy, *Report of the Superintendent of the Census 1852*, Washington, Robert Armstrong, 1853, p. 13. This is sometimes referred to as *The Abstract of the Seventh Census*. The information is also contained in *DeBow's Review*, Vol. XXXV.

⁴⁸ This is the one used by Kenneth Stampp in *The Peculiar Institution*, New York, Knopf, 1957; and by William D. Postell in *The Health of Slaves on Southern Plantations*, Louisiana State University Press, 1951.

⁴⁹ The factor 1.7 is the ratio of my estimate to Sydnor's estimate of the life expectancy of twenty-year-old males, the only group for which Sydnor calculated

The 1850 census provides population data by age group, sex, race, condition of servitude, and state of residence. This census also supplies mortality data by age group, race, and state of residence as well as the total number of slave deaths by state. In order to obtain male slave death rates by age groups, one must estimate the percentage of Negro deaths in the southern states that accounts for male slaves. In addition, it would be desirable to have a method for estimating the degree of underreporting of deaths in the 1850 census. (Underreporting is typical of mortality data in underdeveloped areas.)

A recently published life table by Paul Jacobson⁵⁰ for whites in the United States in 1850 is used to estimate both the percentage of deaths that are male slave deaths and the reporting error.

Life expectancies in Massachusetts in 1900 through 1931 are less than those reported for the United States as a whole. This suggested to Jacobson that it would be more accurate to use an estimate for United States 1850 life expectancies which had a similar relationship to Massachusetts 1850 estimates, rather than using the Massachusetts estimates for the United States.⁵¹ I have accepted Jacobson's new estimates for whites in 1850 as the most accurate currently obtainable for the United States and have used them to estimate the percentage of male slave deaths and the reporting error.

It seems reasonable that the relative death rates of males and females

an estimate. This understates his error because Mississippi death rates are lower than average death rates for the southern states.

The usual life expectation at age X is the average number of years lived beyond age X by all those alive at age X. It is calculated from the number of deaths per year at every age level in a cohort of size Y at birth. The number of deaths at any age level of the cohort is determined by the death rate for that age level in the real population under study. The cohort used to calculate the life table has the characteristic that the number of persons at any age $Z + 1$ is equal to the number of persons alive at age Z less the number of persons of age Z who die in a single year.

Sydnor estimated life expectancy by multiplying the number of deaths in the 1850 census year for each age group over age twenty by the average number of years lived beyond age twenty. (If 500 died between age thirty and age forty, he would have multiplied 500 by 15.) He then summed these products for all age groups and divided by the number aged twenty and older who had died in that year. This quotient he called the life expectancy at age twenty. The quotient is not the life expectancy, but the average number of years lived beyond age twenty by all those twenty and older who died in that year. The error results from his failure to relate the number of deaths in each age group to the number of persons alive in those age groups.

⁵⁰ Paul Jacobson, "An Estimate of the Length of Life in the United States in 1850," *Milbank Memorial Fund Quarterly*, April, 1957, pp. 197-201.

⁵¹ *Ibid.*, p. 197.

at various ages were essentially the same for whites, free Negroes, and slaves. Therefore, I have used the male-female ratios in Jacobson's life table for both slaves and free Negroes. Use of these ratios in connection with the assumption that the death rates for slaves and southern free Negroes were equal allows one, by solving the following equations, to obtain estimates of the death rates for male and female slaves.

$$\begin{aligned}
 D &= (M_x) (M) + (F_x) (F) \\
 K &= F_x/M_x \\
 D &= (K) (F) (M_x) + (M_x) (M) \\
 M_x &= \frac{D}{M + (K) (F)}
 \end{aligned}$$

Where

M_x is the male death rate from the census,

M is the number of males,

F_x is the female death rate from the census,

F is the number of females,

D is the total number of deaths,

K is the ratio of female to male deaths from Jacobson's study.

The death rates calculated in this manner are not quite large enough to produce the recorded number of slave deaths in 1850. Each death rate was then increased proportionally so that they would produce a correct number of deaths.

By solving a similar set of equations it is possible to obtain census death rates for whites. In all cases they are smaller than those proposed by Jacobson. I have assumed that the ratios of Jacobson's death rates to the census death rates are the census reporting errors and that these errors are equal for white and slave statistics. Multiplying slave death rates by the correction factors (ratios of Jacobson's rates to census rates) yields the corrected slave death rates (Table 15) used to calculate a slave life table.

Kenneth Stampf⁵² has suggested that the disparity between slave and white death rates was greater than that indicated by the 1850 census. While one could suggest various reasons why Stampf's belief was not correct, one justification for using the assumption of equality of error lies in the statement by the superintendent of the census that, if anything, the data for slaves were better than those for whites.⁵³

⁵² Stampf, *The Peculiar Institution*, p. 318.

⁵³ DeBow, *Statistical View of the United States*, p. 92.

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TABLE 15
DEATH RATES FOR SLAVES AND WHITES, 1850
(deaths per 1,000 population)

Age Group	Slave Male, Corrected	Slave Female, Corrected	Male, Jacobson	Female, Jacobson
0	197.51	167.90	112.05	95.20
1- 4	36.75	33.72	31.83	29.18
5- 9	11.45	10.62	10.50	9.40
10-14	7.06	9.10	4.85	6.25
15-19	9.64	11.57	6.75	8.10
20-29	10.85	11.93	9.70	10.67
30-39	13.05	13.21	12.17	12.33
40-49	19.84	14.91	17.43	13.10
50-59	28.21	21.80	22.97	17.73
60-69	43.26	36.75	38.67	32.87
70-79	81.72	67.43	83.97	69.37

SOURCE: Jacobson rates are averages of figures in Jacobson, *An Estimate of the Length of Life . . .*, p. 198. The slave rates are calculated from census figures as indicated in the text.

The slave life table (Table 16) was calculated from the corrected death rates using Greville's abridged life table method.⁵⁴

There are few sources of alternative mortality data with which to

TABLE 16
LIFE EXPECTATION IN THE UNITED STATES, 1850
(years)

Age	Slave Male	Slave Female	White Male	White Female
0	35.54	38.08	40.4	43.0
1	44.25	45.73	47.1	48.4
5	46.96	48.06	50.1	51.2
10	44.58	45.54	47.8	48.6
15	41.09	42.54	43.9	44.9
20	37.99	39.92	40.1	41.7
30	31.72	34.30	33.6	35.8
40	25.40	28.40	27.1	29.1
50	19.82	22.10	21.2	23.3
60	14.60	16.20	15.3	16.7
70	9.79	11.15	9.6	10.9
80	6.38	7.32	5.7	6.6

SOURCE: White figures are from Jacobson, *An Estimate of the Length of Life . . .*, p. 198. Slave figures are calculated from the corrected death rates using Greville's abridged life table method (Dublin, Lotka, and Spiegelman, *Length of Life*).

⁵⁴ Dublin, Lotka, and Spiegelman, *Length of Life*, pp. 312-316.

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check the accuracy of the slave and white tables. A survey of the infant death rate on fourteen plantations for the years 1817 through 1861 reported an infant mortality rate for slaves of 152.6 per 1,000 from a sample of 1,114 live births.⁵⁵ There are, however, certain tests of reasonableness and consistency which can be applied. The high infant death rate and the higher female to male death rate ratios in the child-bearing years are both consistent with what one would expect from one's knowledge of the period. Also the estimates for the United States are consistent with the reported experience of other countries of similar development in the same period (Table 17).

TABLE 17
MALE LIFE EXPECTANCIES IN THE NINETEENTH CENTURY
(years)

Age	United States		Norway	Holland	England and Wales	France
	White	Slave				
0	40.4	35.5	44.9	36.4	39.9	39.1
20	40.1	38.0	42.0	38.0	39.5	41.2
40	27.1	25.4	28.0	24.7	26.1	27.3

SOURCE: White and slave figures are for 1850 from Table 16. Norway is for 1846-65, Holland 1850-59, England and Wales 1838-54, and France 1861-65. The latter four are from Dublin, Lotka, and Spiegelman, *Length of Life*, pp. 346-348.

Estimates of slave life expectancy in 1850 of the size indicated in Table 17 have been questioned as inaccurate. "The results are of uncertain value for the figures . . . are considerably higher than those for colored persons in the Original Death Registration States half a century later, 1900-1902."⁵⁶ Several factors should be considered before accepting this view. The original death registration states consisted of New England, Indiana, New York, Michigan, New Jersey, District of Columbia plus a few major cities, while the slave figures refer to southern states, and therefore the life tables are not strictly comparable. It is probable that the majority of Negroes in the death registration area were unskilled urban workers, whereas the slaves were mostly rural agricultural workers. In 1930, the standardized death rate of gainfully occupied males aged fifteen through sixty-four engaged in agricultural employment was substantially below that of unskilled

⁵⁵ Postell, *The Health of Slaves . . .*, p. 158.

⁵⁶ Dublin, Lotka, and Spiegelman, *Length of Life*, p. 58.

workers. The standardized average death rate for the ten-state sample was 8.7 per 1,000, for agricultural workers it was 6.2 per 1,000, and for unskilled workers 13.1 per 1,000.⁵⁷ There is also evidence that the death rate for the colored population rose for at least twenty-five years after the Civil War, reaching its climax in the 1880's.⁵⁸ Even in the original death registration states, between the periods 1900 through 1902 and 1909 through 1911, when white life expectancies remained about constant, the life expectancies for colored males aged twenty and forty declined by one and one-half years.⁵⁹

While the individual reader is free to place his own confidence limits on the slave life table for 1850, and more particularly for this study, on the corrected male slave death rates for those aged twenty to fifty, they are presented as the most reasonable and accurate estimates I can make.

Calculation of the Rate of Return

The rates of return earned by slave capital are calculated by considering the rates of return received by owners who buy 1,000 male slaves at age twenty and hold them for periods of twenty or thirty years and sell them. By limiting the analysis to this class of slaves, twenty- to fifty-year-old males, one can neglect slave appreciation and decreased earnings due to old age. Any income from slave appreciation apparently was imputed to females.⁶⁰ Declining hire as a function of age is generally considered to begin at about age fifty or fifty-five.⁶¹

The rates of return received by owners of twenty- to fifty-year-old male slaves can be estimated by using the capital value equation. The form of the equation is adjusted to allow for continuous deaths among the slaves and for their re-sale value at ages forty or fifty. The adjusted form of the equation is:⁶²

$$1,000 P_{20} = \left[\sum_{t=0}^{t=k} \frac{(H)(N_t)}{(1+r)^t} \right] + \frac{(P_{k+21})(N_{k+1/2})}{(1+r)^k}$$

⁵⁷ *Ibid.*, p. 214.

⁵⁸ S. J. Holmes, *The Negro's Struggle for Survival*, University of California Press, 1937, p. 40.

⁵⁹ Dublin, Lotka, and Spiegelman, *Length of Life*, p. 340.

⁶⁰ The ratios of female to male price were greater than the ratios of female to male hire.

⁶¹ Conrad and Meyer, "The Economics of Slavery . . .," p. 106.

⁶² For convenience only, the calculations are based on a unit of 1,000 slaves. The analysis would not be changed in any way if the unit chosen had been one slave.

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Where P is the price of the slaves, the subscript indicates the age of the slaves,

k is the number of years the investor holds the slaves,

H is the yearly rate of hire (yearly rent) for male slaves twenty to fifty years of age,

N is the number of male slaves alive at mid-year out of a group of 1,000 alive at age twenty years, zero days,

r is the internal rate of interest.

Because of the limited number of observations of slave hires for any given year and because they probably reflect certain future expectations and past experience, the figures used in the calculations are averages for five-year periods, and the price figures are weighted average prices for the same five-year periods. The weight assigned to each year's price is equal to the number of observations of hire for that year relative to the total number for the five-year period. The calculation of the weighted price is illustrated in Table 18 for the

TABLE 18

SAMPLE CALCULATION OF WEIGHTED AVERAGE PRICE OF MALE SLAVES, TWENTY TO FIFTY YEARS OLD, UPPER SOUTH, 1856-60

Year	Number, Hire Observations (1)	Per Cent of Total (2)	Average Price (3)	Weighted Price (4)
1856	949	23.2	\$1,038	\$ 241
1857	834	20.4	1,063	217
1858	820	20.2	1,113	223
1859	927	22.7	1,150	260
1860	561	13.7	1,213	166
Total Hires	4,091	100.0		
Simple average price			\$1,115	
Weighted average price				\$1,107

SOURCE: Col. 4 is the product of cols. 2 and 3 for the individual years. The average prices are Phillips' estimates (*Life and Labor in the Old South*).

1856 through 1860 period in the Upper South. The average yearly hires and weighted average prices used in the calculations are taken from the series presented in the section on data and are summarized in Table 19.

The value of N for any year is obtained by multiplying the death rate for males for the particular age by the number of slaves still alive in the preceding year out of the original cohort of 1,000, and subtracting

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TABLE 19
FIVE-YEAR AVERAGES OF HIRES AND WEIGHTED
PRICES OF SLAVES, 1830-60

Period	Upper South		Lower South	
	Hire	Price	Hire	Price
1830-35	\$ 62	\$ 521	\$127	\$ 948
1836-40	106	957		
1841-45	83	529	143	722
1846-50	99	709	168	926
1851-55	141.5	935	167	1,240
1856-60	142	1,107 ^a	196.5	1,658
1856-60	142	1,294 ^b		

^a Based upon Phillips' estimates of slave prices (*Life and Labor in the Old South*).

^b Based upon my estimates of slave prices.

this product from the number alive in the preceding year. An abridged table of the series prepared in this way is given in Table 20.

The data in Tables 19 and 20 combined with the relationships of 78 per cent of prime price for the price of forty-year-old slaves and 52 per cent of prime price for the price of fifty-year-old slaves yield estimates of the rate of return for slave capital. The nature of the capital value equation is such that it is not actually solved for the internal rate of return. Rather, an internal rate is assumed, and the equation is solved for the discounted sum of the income stream. The estimates of the rate of return on slaves are those internal rates that round to the same one-half per cent as would a rate exactly equating the discounted income stream to the original price. More accurate internal rates were not obtained because of the cost of calculation, coupled with a belief

TABLE 20
NUMBER ALIVE AT FIVE-YEAR INTERVALS OUT OF 1,000
SLAVES ALIVE AT AGE TWENTY

Age	Number Alive at Mid-Year	Death Rate Per 1,000	Number Dying in a Year
20	994.59	10.85	10.79
24	952.11	10.85	10.33
29	901.56	11.95	10.77
34	845.20	13.05	11.03
39	791.48	16.45	12.96
44	718.54	19.84	14.25
49	650.04	24.03	15.53

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that the accuracy of the estimating variables is not sufficient to warrant carrying the rate of return estimates to more than the nearest one-half per cent.

The rates of return in Tables 21 and 22 are the same, whether it is assumed that the slaves are held for twenty years or thirty years. The

TABLE 21
RATES OF RETURN ON SLAVES, 1830-60
(per cent)

Period	Upper South	Lower South
1830-35	10.5	12.0
1836-40	9.5	
1841-45	14.3	18.5
1846-50	12.6	17.0
1851-55	13.8	12.0
1856-60 (Phillips' Prices)	11.3	10.3
1856-60 (Evans' Prices)	9.5	

range of differences between the discounted income streams under the two assumptions is from 2 parts in 1,000 to 8 parts in 1,000. This close correspondence indicates that the results are not specific to the time period for which the slaves are held and serves to increase confidence in the generality of the conclusions concerning the rates of return.

Before accepting the estimates of the rates of return on slaves, the method of analysis should be investigated to determine if it is highly sensitive to small changes in the magnitudes of the variables used to

TABLE 22
WEIGHTED PRICES AND DISCOUNTED SUMS, FOR SLAVES, 1830-60

PERIOD	UPPER SOUTH			LOWER SOUTH		
	Price	Discounted Sums		Price	Discounted Sums	
		Twenty Years	Thirty Years		Twenty Years	Thirty Years
1830-35	\$ 521	\$ 516	\$ 518	\$ 948	\$ 940	\$ 948
1836-40	957	959	963			
1841-45	529	529	531	722	721	724
1846-50	709	705	708	926	915	918
1851-55	935	929	933	1,240	1,241	1,247
1856-60	1,107 ^a	1,110	1,116	1,658	1,663	1,670
1856-60	1,294 ^b	1,284	1,289			

^a Phillips' prices.

^b Evans' prices.

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estimate the returns. Rough estimates of the sensitivity, can, however, be obtained from results already calculated, except for the death rates where independent estimates must be made. An estimate of the effect of a change in the price of slaves can be obtained by comparing the different rates of return in periods when the rates of hire were essentially equal and prices were not equal. The periods used are those where the rates are \$142.00 and \$167.00. From Table 23 it can be seen that on the average a \$34.00 change in the price of slaves would yield a change of 0.5 per cent in the rate of return when hires are held constant. This, with the average standard deviation in the price of

TABLE 23
EFFECT OF A CHANGE IN THE PRICE OF SLAVES ON THE RATE OF RETURN

Hire	Price ^a	Rate of Return (per cent)	Change in Price	Change in the Rate of Return (per cent)	Change in Price Per ½ Per Cent Change in the Rate of Return
\$141.5	\$ 929	13.8			
142	1,100	11.3	\$181	2.4	\$36
141.5	929	13.8			
142	1,284	9.5	355	4.3	41
142	1,110	11.3			
142	1,284	9.5	174	1.8	48
143	721	18.5			
141.5	929	13.8	208	4.7	22
143	721	18.5			
142	1,110	11.3	389	7.2	27
143	721	18.5			
142	1,284	9.5	563	9.0	31
168	915	17.0			
167	1,241	12.0	326	5.0	33

^a Price is the discounted sum of the income stream when the slaves are held for twenty years.

slaves of \$96.00,⁶³ indicates that probable errors in the estimation of slave prices would not result in more than a 1.5 per cent change in the rate of return.

A similar method can be used to estimate the effect of errors in the rates of hire. The result, as is obvious from the form of the equation (Table 24), is that a given proportional error in the rate yields an

⁶³ Table 9.

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equal percentage error in the rate of return. The average ratio of the standard deviation of the rate of hire to the rate of hire is 0.20.⁶⁴ This suggests that probable errors in the rates of hire would not result in more than a 20 per cent error in the rates of return.⁶⁵ An additional

TABLE 24
EFFECT OF A CHANGE IN THE RATE OF HIRE FOR SLAVES
ON THE RATE OF RETURN

Price	Hire	Rate of Return (per cent)	Proportional Change in Hire	Proportional Change in Rate of Return (per cent)
\$516	\$ 83	14.3		
529	62	10.5	13.4	13.6
705	99	12.2		
721	143	18.5	14.4	14.7
940	127	12.0		
929	141.5	13.8	11.4	11.5
940	127	12.0		
959	141.5	9.5	12.0	12.6
915	168	17.0		
929	141.5	13.8	11.9	12.3

NOTE: Comparison is made only where the price (discounted sum of the income stream when the slaves are held twenty years) differential is less than \$20.00.

error related to the rates of hire might result from a failure to net out the cost of hiring. Its maximum effect would be to lower the rate of return by a factor of 8 per cent.

There are no reliable estimates of the probable errors in the death rates. An error of 100 per cent would change the calculated rates of return by only 1.75 percentage points, which suggests that reasonable death rate errors would result in an error in the rate of return of less than 1.0 percentage point.⁶⁶

The alternative rates summarized in Table 25 are probably reasonably accurate. They may be very poor estimates of an alternative rate to

⁶⁴ Table 5.

⁶⁵ A 20 per cent error would lower a 10 per cent return to a return of 8 per cent.

⁶⁶ The loss associated with runaways has not been considered because I have no information on their number. Successful runaways are equivalent to deaths in their effect on the rate of return. The above calculation suggests that the omission of runaways does not seriously affect the estimated returns, for it is doubtful if their number was of the same order of magnitude as the number of deaths.

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slave capital because of an imperfect capital market. In the absence of more complete information, they will be used as suggestive of the range within which the alternative rate would be found. In Table 25, it appears that the probable errors of any single variable would not, except for the period 1836 through 1840, lower the rate of return on slaves below the range of the suggested alternative rates. A cumula-

TABLE 25
RATES OF RETURN ON CAPITAL, 1830-60
(per cent)

Period	Short-Term Money		Railroads					Slaves	
1830-35	8.4	9.2						10.5	12.0
1836-40	12.5	13.0						9.5	
1841-45	6.1	6.1						14.3	18.5
1846-50	12.2	12.4	4.9	6.7				12.6	17.0
1851-55	9.1	9.6	4.6	6.8	8.6			13.8	12.0
1856-60	8.1	8.5	9.8	5.8	8.8	8.0	7.6	11.3	10.3 9.5

SOURCE: Money rates are from Table 13; railroad rates from Table 14; and slave rates from Table 21.

tion of all the probable errors would lower the 9.5 per cent return to a little above 5.0 per cent, which is just out of the range of 6 through 10 per cent suggested as the range of the alternative rate for the years 1830 through 1860. The probability of cumulated errors is low, and it thus appears that the sensitivity of the engine of analysis is not enough to destroy confidence in the conclusion that the rate of return was at least equal to alternative rates of return.

Even granted the accuracy of the analysis, the conclusion drawn would be invalid if the hires and prices do not refer to the same class of slaves, e.g., if the hires refer to a superior class of slaves and the prices to an average class. No direct test of this can be made, but the hire-price ratio of a group of slaves for whom both types of information are available for the same year suggests that differential quality is not a problem (Table 26). The average hire-price ratio for 170 male slaves in the prime working ages is 0.142, with a standard deviation of 0.036, and with 81 per cent of the observations within the ratios 0.120 through 0.179. The average of the twelve hire-price ratios used to estimate the rates of return on slave capital is 0.139, with seven of them in the range 0.120 through 0.179. (These twelve

ratios can be calculated from the information given in Table 19.) Thus it appears that, if there is a differential quality problem, it has resulted in a slight underestimation of the rates of return.

In summary, the method of analysis and the related estimates of the magnitudes of the variables, allowing for reasonable errors in estimation, suggest that the rates of return on slave capital for the period 1830 through 1860 were at least equal to the rates of return being received by alternative forms of capital. This approximate equality

TABLE 26
DISTRIBUTION OF SLAVE HIRE-PRICE RATIOS

Ratios	Number of Observations, Independent Sample	Number of Ratios Used in Estimating Rates of Return
More than 0.200	5	0
0.199-0.180	6	2
0.179-0.150	60	2
0.149-0.120	78	4
0.119-0.090	11	4
Less than 0.090	10	0

suggests that previous studies, which have estimated that the pecuniary returns to slaveholding were much lower than for alternative investments, have contained errors of analysis. It also suggests that, in the absence of strong nonpecuniary returns associated with particular types of investment, the southern capital market worked surprisingly well. One cannot, however, infer from the magnitude of the rate of return, by itself or relative to any other rate, anything concerning the viability of the system. It is to this problem that we turn in the next section.

Viability

Favorable rates of return for investors in slaves provide an answer to a major historical question, that of slave profitability. They do not answer what, to the economist, is the more relevant question, that of the viability of slavery. Viability is more relevant because theory predicts that investors will be induced to shift out of a declining industry because of capital losses on capital goods completely specialized to that industry rather than because of rates of return which are lower than market rates. Consequently, in attempting to assess the position and

role of the slave industry in the United States just before the Civil War, one is primarily interested in the viability of the system and in data that suggest the probability that holders of slave capital would sustain substantial and continuing capital losses within the decision period of the average investor. Such data must be limited by the ex-ante knowledge of 1856 through 1860 and not by the ex-post knowledge of the present-day investigator.

A variety of political events of the period bear on the question of viability. Their usefulness is impaired because it is not clear exactly what their economic implications were. The controversy over new slave states may have meant that the industry was viable only if it could expand geographically; it may have been almost entirely related to the balance of political power in the Senate. The agitation for the re-opening of the foreign slave trade may have been because the industry was viable only if new slaves could be procured more cheaply, or that the industry was very viable and an increased supply of slaves was desired to limit the windfall capital gains to current owners. The movement by some slave states to prohibit manumission⁶⁷ and to allow free Negroes to become slaves may have indicated that too many slaves were being freed for economic reasons, or it may have meant that there was little concern over the power to manumit and that the laws were passed to reassure abolitionists that the South was not going to give up slavery. No attempt will be made to evaluate the implications of these events. Conclusions on viability will be drawn from information that appears to be less subject to a variety of interpretations.

Before discussing data, let us consider briefly some of the characteristics of an industry that is either nonviable or on the verge of becoming nonviable. Such an industry should exhibit some or all of the following: (1) a relative decline in the demand for its product; (2) a decline in the demand for the specialized capital used in the production of the industry's product; (3) a declining rate of production of the specialized capital used in the industry; (4) a declining demand for the specialized capital used in the industry which supplies specialized capital to the declining industry. In the case of a nonviable slave

⁶⁷ Mississippi changed its laws in 1857 to prohibit manumission under any circumstances. (Sydnor, *Slavery in Mississippi*, p. 236.) A similar law went into effect in Maryland in 1860 (Jeffrey R. Brackett, *The Negro in Maryland*, Johns Hopkins University Press, 1889, p. 171). Many states passed laws just before the Civil War to allow free Negroes to become slaves (Gray, *History of Agriculture*, Vol. I, p. 527).

industry, one should observe a decline in the demand for the labor services of slaves relative to the demand for the labor services of free men, a decline in the demand for slave capital, a falling slave birth rate, and a decline in the demand for female slaves relative to male slaves.

Because of the capital nature of the industry, one can assume that changes in the price of slaves result from shifts of the short-run demand curve along a completely inelastic short-run supply curve. (The ratio per year of new male slaves fifteen to sixty years of age to the average number of male slaves fifteen to sixty years of age is 0.022 for the period 1850 to 1860.) Therefore, in the following discussion, shifts in prices of labor services and of the capital good are presumed to illustrate the demand conditions facing the industry.

The demand for the labor services of slaves relative to the demand for the labor services of free men did not appear to be declining in the late 1850's. In the Lower South the average hire for male slaves in 1856 through 1860 was 17 per cent greater than it was in 1851 through 1855. In the Upper South the average hires in 1856 through 1860 and 1851 through 1855 were essentially equal. In the Lower South the median hire rose 25 per cent and in the Upper South it rose 8 per cent between these two periods.⁶⁸ The Virginia and Tennessee Railroad paid an average of \$135.00⁶⁹ for its hired slaves in 1854 and \$149.00 in 1857.⁷⁰ The Richmond and Danville Railroad paid \$135.00⁷¹ in 1855 and \$139.00⁷² in 1860. The Central Railroad and Banking Company of Georgia reported that the price of hire in 1859 was 20 per cent higher than it had been in 1858.⁷³ The ratio of slave wages to white wages in the Navy Shipyard at Gosport, Virginia, was the same in July 1860 as it had been in November 1854.⁷⁴ In Columbia, South Carolina, wage increases received in 1856-57 were, for white stone cutters 20 per

⁶⁸ White wages also rose in these periods.

⁶⁹ Annual Reports, Commonwealth of Virginia, 1853-54, p. 806.

⁷⁰ *Tenth Annual Report of the Virginia and Tennessee Railroad*, Library of the Bureau of Railway Economics, Association of American Railroads, pp. 210-212.

⁷¹ *Proceedings and Annual Reports of the Richmond and Danville Railroad*, Library of the Bureau of Railway Economics, 1856, p. 30.

⁷² *Ibid.*, 1860.

⁷³ *Reports of the Central Railroad and Banking Company of Georgia*, No. 20-32, Library of the Bureau of Railway Economics, p. 148.

⁷⁴ National Archives, Washington, United States Navy Bureau of Yards and Docks, Payrolls of Mechanics and Labors. . . . Gosport, Virginia, November 1854 and July 1860.

cent, for white carpenters 12 per cent, and for hired slave laborers 8 per cent.⁷⁵

There appears to have been a strong rightward shift in the demand curve for slaves as capital goods in the period 1850 through 1860. The nominal increase in the price of prime male field hands in the Lower South was 72 per cent between 1850 and 1860. The deflated (by New Orleans wholesale price index)⁷⁶ price increase was 68 per cent. In the Upper South the nominal increase was 62 or 112 per cent, depending upon which estimate of the 1860 Upper South price is used. The deflated (by Charleston wholesale price index)⁷⁷ price increases were 50 and 98 per cent.

The average increase in price of twelve railroad stocks on the Boston Stock Market between 1850 and 1860 was 13 per cent. The stock of the Hartford and New Haven Railroad increased in price 17 per cent between 1850 and 1860, and paid a higher dividend rate than any other railroad on the Boston market for that period.⁷⁸

Some students of slavery, in later times as well as in the contemporary period, felt that the increase in slave prices was purely speculative in character. The editor of the *New Orleans Daily Crescent* disagreed with the speculative argument: "It is our impression that the great demand for slaves in the Southwest will keep up the prices as it has caused their advance in the first place, and that the rates are not a cent above the real value of the laborer."⁷⁹ One study of the marginal value productivity supports the editor's position.⁸⁰

Whether the slave birth rate (Table 27) was a function of the price of slaves is not known, but it is not important because census data are inconclusive about the rate's increase or decrease between 1850 and 1860. It is not clear whether the demand for females rose relative to that of males. One would expect that a proved "breeder" would command a premium in the market relative to her unproved sister and that one could estimate the relative male-female demand by movements in the "breeder" premium. Despite the number of words written about a premium price for "breeders," no clear-cut evidence of a

⁷⁵ State House Construction Payrolls, South Carolina State Archives, Columbia, Negroes, April 1856, Whites, July 1856 and January 1857.

⁷⁶ Arthur H. Cole, *Wholesale Commodity Prices in the United States: 1700-1861*, Cambridge, Harvard University Press, 1938, p. 178, Table 93.

⁷⁷ *Ibid.*, p. 168, Table 80.

⁷⁸ Martin, *One Hundred Years' History . . .*, pp. 145-149.

⁷⁹ Phillips, *Life and Labor in the Old South*, p. 180.

⁸⁰ Conrad and Meyer, "The Economics of Slavery . . .," p. 117.

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TABLE 27
SLAVE BIRTH RATES
(per cent)

Area	Number of:			
	Children Aged 0 Divided by Females Aged 15-44		Children Aged 0 to 4 or 5 Divided by Females Aged 15-44	
	1850	1860	1850	1860
Upper South	0.120	0.134	0.163	0.158
Lower South	0.102	0.119	0.150	0.139
All South	0.115	0.131	0.154	0.151

SOURCE: Figures for 1850 are from DeBow, *Statistical View . . .*, pp. 88-89; for 1860 from *The Eighth Census*, pp. 594-595. The ratio of females 40-44 years old to those 40-49 years was estimated from figures in DeBow, p. 104.

premium has been presented.⁸¹ One can still obtain some indication of the demand for women in their role as childbearers by observing the ratio of female to male price over a period of years (Table 28).

TABLE 28
RATIO OF FEMALE TO MALE SLAVE PRICES

Market	Date	Ratio	Market	Date	Ratio
Richmond	Mar. 1842	0.78	Richmond	July 1859	.91
Richmond	Oct. 1842	.84	Mobile	Oct. 1859	.86
Richmond	Nov. 1844	.78	Richmond	Nov. 1859	.91
Richmond	Feb. 1847	.75	Richmond	Dec. 1859	.93
Richmond	Nov. 1848	.83	Mobile	Dec. 1859	.91
Richmond	Dec. 1848	.82	New Orleans	Dec. 1859	.91
Richmond	Nov. 1849	.87	Mobile	Jan. 1860	.88
Richmond	Jan. 1858	.85	New Orleans	Jan. 1860	.89
Richmond	Dec. 1858	.86	Richmond	June, 1860	.87
Richmond	Jan. 1859	.88	Richmond	July, 1860	.89
Richmond	Feb. 1859	.86			

SOURCE: Each ratio is computed from information from a single source. The observations for 1842, 1844, 1848, December 1858, and December 1859 appear to originate from the Dickinson Company of Richmond. All the collections cited are in the Duke University Library, Durham, North Carolina. Data for 1842 and 1844 are from the William Weaver papers for those years; for 1848 and December 1858, from the letters of Joseph Dickinson; for 1847 from the letters of John E. Dennis. The remainder of the data are from the letters of William A. J. Finney.

⁸¹ Conrad and Meyer (p. 110) speak of a higher average price for proved childbearers as evident in the figures in their Appendix A. Examination of these data for 1859 and 1860 reveals that the premium is dependent upon a specific assumption concerning the ages of the children sold with their mothers.

Table 28 suggests that the demand for women as childbearers, if anything, was rising in the latter years of slavery.⁸²

In addition to examining slavery in terms of the usual economic criteria of a declining industry, one other aspect of the slave industry must be examined. Because its capital goods are human rather than inanimate, they might be more valuable to the individual slave than to any other owner. It would, therefore, have been possible for the industry to be viable by all the usual economic criteria, and yet have been nonviable because the slaves, if given the opportunity, would have purchased the industry out of existence.

The rates of manumission in the period 1850 through 1860 suggest that this special form of nonviability was not present. The census estimated that there were 3,000 manumissions in the 1860 census year and that about 20,000 had been manumitted between 1850 and 1860.⁸³ Compared to the annual increase in the slave population, these rates of manumission are quite small—about one-tenth of the increase in the male slave population fifteen to sixty years of age in the same period. It has been suggested that self-purchase reached its peak in the industrialized cities.⁸⁴ At its peak it was not very large.⁸⁵ Between 1831 and 1860, 592 Negroes were manumitted in Richmond and Petersburg, Virginia.⁸⁶ About 296 of these manumissions may have been promoted or instigated by Negroes.⁸⁷ Perhaps a majority of the 296 were cases of self-purchase. At a maximum then, the number of manumissions by self-purchase in a period of thirty years is equal to about 5.8 per cent of the number of male slaves fifteen to sixty years

⁸² If demand was increasing, then there is little danger that the system was nonviable because one could not afford to raise slaves at the current prices. While a more direct test of this fact would be desirable, it has not been attempted because it would involve estimates of variables about which little is known. I have made a few rough calculations based upon average number of children per woman (census figures), death rates for women and children, etc., and it appears that, as one would expect, rates of return on female slaveholding are equal to those obtained for male slaveholding.

⁸³ *The Eighth Census*, p. xv.

⁸⁴ Sumner Eliot Matison, "Manumission by Purchase," *Journal of Negro History*, April, 1948, pp. 146-167.

⁸⁵ That it was not larger is probably in great part because the majority of slaves who earned extra money for themselves spent it for pleasure. Eaton, *Slave-Hiring in the Upper South*, p. 669. The reader interested in this aspect of the system should consult Stanley M. Elkins, *Slavery*, University of Chicago Press, 1959.

⁸⁶ Luther Porter Jackson, "Free Negro Labor and Property Holding in Virginia, 1830-1860" (Unpublished Ph.D. dissertation, University of Chicago), p. 240. Much of the material in this dissertation has been published in book form.

⁸⁷ *Ibid.*, p. 227.

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of age in these two cities in 1850,⁸⁸ to 5.2 per cent of the number of slaves employed in factories in Richmond in 1846,⁸⁹ and 4.7 per cent of the number employed in 1856.⁹⁰

Thus it would appear that the slave industry did not exhibit characteristics of a nonviable industry about to wither and die under the impact of adverse economic forces, but rather gave every indication in its latter years of being a strong and growing industry.

Appendix A

SLAVE HIRES

The tables of this Appendix present the distribution of slave hire observations which were summarized in the text. To facilitate reference, the sources are given in groups after Table 42. Each reference includes a notation indicating the area and the years for which observations are found in it.

TABLE 29
UPPER SOUTH SLAVE HIRES, 1830-35

Yearly Rate	Number of Observations						
	1830	1831	1832	1833	1834	1835	1830-35
\$125						3	3
78				1			1
70		1				2	3
60				2			2
55		1					1
50		1					1
49	16						16
Total	16	3	0	3	0	5	27
Monthly							
\$10							4

⁸⁸ DeBow, *Statistical View . . .*, p. 398.

⁸⁹ Jackson, *Free Negro Labor . . .*, p. 71.

⁹⁰ *Ibid.*

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TABLE 30
UPPER SOUTH SLAVE HIRES, 1836-40

Yearly Rate	Number of Observations					
	1836	1837	1838	1839	1840	1836-40
\$133			4			4
125	1					1
120			3			3
110					1	1
107			45			45
100			2			2
85	1					1
80		1				1
75		1	1			2
72		1				1
60			1			1
Total	2	3	56	0	1	62
Monthly						
\$15						238
13.5						1
12.5						10
12						7
Total						256

TABLE 31
UPPER SOUTH SLAVE HIRES, 1841-45

Yearly Rate	Number of Observations					
	1841	1842	1843	1844	1845	1841-45
\$140			1			1
80			10			10
60					1	1
Total	0	0	11	0	1	12

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TABLE 32
UPPER SOUTH SLAVE HIRES, 1846-50

Yearly Rate	Number of Observations					
	1846	1847	1848	1849	1850	1846-50
\$160					1	1
130		1				1
125		1			1	2
115					1	1
110			1			1
100			2	1		3
96				7		7
95		1				1
94		7				7
90					4	4
85					4	4
72	1					1
Total	1	10	3	8	11	33
Monthly						
\$20						1
15						8
12.5						124
8						4
Total						137

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TABLE 33
UPPER SOUTH SLAVE HIRES, 1851-55

Yearly Rate	Number of Observations					
	1851	1852	1853	1854	1855	1851-55
\$225				11		11
215				1		1
205					10	10
190				1		1
180			17	9	5	31
175			1		26	27
168			6			6
167				1		1
162			1			1
160		69	11	4	2	86
156				1		1
155		46	11		1	58
150		14	19	209	1	243
140			54	4		58
135		1	3		299	303
130		2	1			3
129			10			10
127			82		206	288
125	1		2			3
121		2		2		4
120			1		1	2
115		1				1
114		7				7
112				1		1
108			1			1
104	7					7
101			1			1
100		20		1		21
95		2				2
90		2				2
85		3				3
80		1				1
Total	8	170	221	245	551	1,195
Monthly						
\$14						1
13						25
11						7
10						3
Total						36

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TABLE 34
UPPER SOUTH SLAVE HIRES, 1856-60

Yearly Rate	Number of Observations					
	1856	1857	1858	1859	1860	1856-60
\$250					9	9
240					11	11
235		8		7	3	18
213			1			1
200		9		2	1	12
190					1	1
180		11	12			23
178	1					1
175		1				1
172			1	1		2
165			1		2	3
162				3		3
160			15	1		16
155	18			1	1	20
150	276	5	261	154	122	818
149		435			97	532
148				7		7
146				392		392
142		109		2		111
140	1	2	341	1	1	346
139					165	165
138					22	22
137				163		163
136	360					360
135	280	1		2		283
133		59		176	1	236
130	13	182	1	3	2	201
127			175	2		177
126			10			10
125				3	4	7
122					4	4
120		10		3		13
117			1			1
113				3	2	5
110			1	1	103	105
105					1	1
103					1	1
100		2			8	10
Total	949	834	820	927	561	4,091
Monthly						
\$25						17
20						18
15						16
14						50
13						9
Total						110

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TABLE 35

UPPER SOUTH DAILY SLAVE HIRES, 1830-60

Period	Range of Rates
1830-35	\$0.40-\$0.50
1836-40	.50 .75
1841-45	
1846-50	.75
1851-55	.69 .88
1856-60	0.69 0.88

TABLE 36

LOWER SOUTH SLAVE HIRES, 1830-35

Yearly Rate	Number of Observations						
	1830	1831	1832	1833	1834	1835	1830-35
\$175					1		1
140				1			1
125					15		15
116					3		3
Total	0	0	0	1	19	0	20
Monthly							
\$18							1
15							2
12							1
10							1
Total							5

TABLE 37

LOWER SOUTH SLAVE HIRES, 1836-40

Yearly Rate	Number of Observations					
	1836	1837	1838	1839	1840	1836-40
\$130				3		3
125					1	1
100				3		3
Total	0	0	0	6	1	7
Monthly						
\$32						1
30						1
25						1
20						1
18						1
17						1
15						1
Total						7

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TABLE 38
LOWER SOUTH SLAVE HIRES, 1841-45

Yearly Rate	Number of Observations					1841-45
	1841	1842	1843	1844	1845	
\$184		3				3
150		4			1	5
144				1		1
140	1				1	2
116					1	1
100	1	1		1		3
Total	2	8	0	2	3	15
Monthly						
\$18						1
15						15
12						1
10						1
Total						18

TABLE 39
LOWER SOUTH SLAVE HIRES, 1846-50

Yearly Rate	Number of Observations					1846-50
	1846	1847	1848	1849	1850	
\$250			1			1
225				1	1	2
220			1			1
200		1	19			20
186		1				1
175			4			4
166		1				1
160			1			1
156			1	1		2
150	1		2		1	4
140					1	1
131	1					1
129				1		1
125			3			3
120			6			6
105					1	1
80			2			2
72				1		1
Total	2	3	40	4	4	53
Monthly						
\$30						2
15						67
10						7
Total						76

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TABLE 40
LOWER SOUTH SLAVE HIRES, 1851-55

Yearly Rate	Number of Observations					
	1851	1852	1853	1854	1855	1851-55
\$225	1			32		33
200		1				1
195					2	2
191	1					1
180		1	2	1	1	5
175		1	1			2
170		1				1
158					15	15
155				16		16
152	1					1
135	1					1
125	15					15
120	1	1				2
100					1	1
Total	20	5	3	49	19	96
Monthly						
\$30						81
20						1
15						1
13						1
Total						84

TABLE 41
LOWER SOUTH SLAVE HIRES, 1856-60

Yearly Rate	Number of Observations					
	1856	1857	1858	1859	1860	1856-60
\$329					6	6
250				1		1
225				30		30
215				18	23	41
200			11	4	5	20
180					1	1
171					1	1
166					1	1
160			16	1		17
150	15		1	2	2	20
147		16				16
139					1	1
138					1	1
124					1	1
Total	15	16	28	56	42	157
Monthly						
\$27						1
20						151
8						1
Total						153

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TABLE 42

LOWER SOUTH DAILY SLAVE HIRES, 1830-60

Period	Range of Rates
1846-50	\$1.00
1851-55	\$1.00- 1.25
1856-60	1.00- 1.25

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Appendix B

TABLE 43

AVERAGE MONTHLY RATES OF INTEREST ON THREE- TO SIX-MONTHS BANKABLE PAPER IN BOSTON, 1831-60

Year	Month												Average
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
1831	5.5	5.7	5.9	6.1	6.3	6.5	6.7	6.9	7.0	7.0	7.0	7.0	6.5
1832	7.0	6.5	6.0	6.5	7.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.3
1833	6.0	5.5	5.8	6.0	6.2	6.5	8.0	8.0	8.0	10.0	12.0	15.0	8.1
1834	19.5	24.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	16.0	14.0	9.0	18.5
1835	9.0	8.0	7.0	6.0	5.0	5.0	5.0	5.0	6.0	7.0	8.0	9.0	6.7
1836	10.0	11.0	12.0	15.0	18.0	20.0	22.0	24.0	24.0	36.0	27.0	27.0	20.5
1837	15.0	18.0	27.0	30.0	32.0	6.0	6.8	7.5	7.5	6.7	6.0	10.0	14.4
1838	11.0	12.0	15.0	15.0	8.5	6.5	6.5	6.5	6.5	6.5	6.5	8.0	9.0
1839	7.5	7.5	7.5	7.5	7.5	7.5	11.5	15.0	21.0	30.0	36.0	9.0	14.0
1840	9.0	10.5	10.5	7.0	7.0	7.0	5.0	6.5	6.5	6.5	6.5	6.5	7.4
1841	6.5	6.5	6.5	6.5	6.0	6.0	6.0	6.0	6.9	8.0	9.0	10.5	7.0
1842	10.5	10.5	10.5	8.0	8.0	8.0	8.0	8.0	7.0	6.0	6.0	7.5	8.2
1843	6.0	5.5	5.5	5.5	4.5	3.0	3.7	3.8	3.7	3.8	3.7	3.8	4.4
1844	4.0	4.5	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.9
1845	5.0	5.5	5.5	5.5	5.5	5.5	5.5	5.5	6.0	7.0	8.0	8.0	6.0
1846	8.0	9.0	7.0	10.0	10.0	10.0	10.0	8.5	6.0	6.0	7.0	8.0	8.3
1847	10.0	12.0	9.0	8.0	7.0	6.0	7.0	8.0	9.0	10.5	15.0	18.0	10.0
1848	18.0	16.0	13.5	13.5	16.5	16.5	13.5	13.5	15.0	18.0	16.5	13.5	15.4
1849	12.0	10.5	13.5	13.5	10.5	7.0	8.0	8.0	9.0	9.5	10.0	10.5	10.2
1850	9.7	8.5	8.5	7.7	7.8	7.7	6.5	7.7	9.0	7.5	7.5	7.5	8.0

(continued)

TABLE 43 (concluded)
 AVERAGE MONTHLY RATES OF INTEREST ON THREE- TO SIX-MONTHS BANKABLE PAPER IN BOSTON, 1831-60

Year	Month												Average
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
1851	7.2	7.8	7.8	8.0	6.5	8.8	11.0	11.0	15.0	16.0	10.5	10.5	10.0
1852	9.0	7.2	6.0	6.0	6.0	5.5	5.5	5.5	6.5	6.0	6.0	6.0	6.3
1853	7.0	9.5	12.0	10.0	8.0	9.5	9.5	10.8	12.0	15.0	18.0	9.0	10.9
1854	9.0	7.0	10.0	12.0	12.0	9.0	9.5	12.0	11.0	14.0	16.0	18.0	11.6
1855	15.0	10.0	7.0	10.0	6.5	8.0	7.0	7.0	7.0	9.0	12.0	12.0	9.2
1856	11.0	9.5	8.0	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	10.5	9.6
1857	9.5	8.8	9.5	7.5	7.5	9.5	9.5	9.5	24.0	30.0	19.5	12.0	13.1
1858	8.2	5.5	5.0	4.5	4.2	4.3	4.3	4.2	4.3	4.0	4.0	5.0	4.8
1859	5.5	6.2	6.3	6.2	7.3	7.5	7.5	7.5	7.5	7.5	7.5	7.8	7.0
1860	8.0	8.0	7.0	6.5	6.5	6.0	5.7	7.5	7.3	7.0	11.0	15.0	8.0

SOURCE: Estimated from data in Joseph G. Martin, *One Hundred Years' History of the Boston Stock and Money Markets*, Boston 1898, pp. 52-53.

Appendix C

TABLE 44

COST OF CAPITAL AND NET INCOME OF SELECTED SOUTHERN RAILROADS, 1850-60
(current dollars)

Railroad	1850		1851		1852	
	Cost	Income	Cost	Income	Cost	Income
A	941,195	37,677	945,137	37,242	945,822	42,750
B	2,400,000	147,561	2,420,000	219,964	2,440,000	184,129
C	798,317	100,438	1,238,996	110,112	1,276,422	150,331
D	6,649,205	528,680	7,002,396	609,711	6,853,327	671,230
E	3,848,303	398,525	4,064,900	426,486	4,241,779	440,303
F	2,996,117	325,355	3,133,740	406,797	3,378,132	507,625
G	3,737,853	66,015	3,831,927	102,319	4,087,919	48,671
H					1,126,000	16,178
I						
J			996,087	64,986	1,315,307	74,902
K	1,509,959	164,041	1,531,238	123,584	1,531,238	93,991
L					743,525	71,535
	1853		1854		1855	
A	983,335	42,273	1,095,812	68,805	1,167,000	73,234
B	2,460,000	220,592	2,480,000	191,620	2,500,000	173,176
C	1,339,931	149,062	1,407,460	149,062	1,472,214	193,375
D	7,141,215	659,742	7,133,848	798,862	7,298,977	883,399
E	4,276,185	456,468	4,416,991	342,214	4,174,491	306,395
F	3,465,879	509,348	3,465,879	534,526	3,694,210	739,654
G	4,309,700	239,601	4,578,537	341,160	4,903,079	438,066
H	1,126,261	37,917	1,135,451	103,393	1,162,000	101,145
I	1,242,209	42,648	3,545,256	63,155	4,211,000	126,330
J	1,707,539	103,538	2,392,215	99,077	3,503,980	122,534
K	1,531,238	115,795	1,690,618	116,685	1,767,669	119,226
L	983,692	76,807	1,223,860	121,605	1,288,441	141,168

(continued)

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TABLE 44 (concluded)

Railroad	1856		Y e a r 1857		1858	
	Cost	Income	Cost	Income	Cost	Income
A	1,205,030	73,234	1,202,960	74,746	1,205,411	85,180
B	2,592,135	205,454	2,684,270	199,177	2,776,404	198,065
C	1,500,000	142,116	1,500,000	130,706	1,500,000	164,407
D	7,588,037	766,269	7,588,037	740,535	7,588,037	820,512
E	4,174,491	357,689	4,174,491	389,464	4,174,495	326,175
F	3,750,000	694,696	3,750,000	542,310	3,750,000	755,614
G	5,142,337	421,074	5,517,828	467,485	5,901,488	406,264
H	1,170,845	76,668	1,170,845	108,541	1,170,846	102,149
I	5,469,780	165,076	6,582,370	190,907	6,765,154	213,237
J	4,681,621	270,364	5,022,940	220,239	5,364,260	295,776
K	1,864,408	106,017	1,921,105	129,203	1,985,179	143,713
L	1,615,402	202,265	1,942,363	199,897	2,269,323	208,711
	1859		1860		1850-60	
A	1,250,186	82,485	1,106,903	84,881	12,048,791	702,201
B	2,586,238	235,201	2,632,737	174,826	27,971,784	2,149,765
C	1,500,000	209,785	1,500,000	279,498	15,033,340	1,728,892
D	7,588,037	804,286	7,588,037	701,943	80,019,153	7,975,169
E	4,174,492	544,363	4,156,000	528,044	45,876,618	4,516,306
F	3,750,000	851,211	4,366,800	764,574	39,500,757	6,631,710
G	6,088,245	448,184	6,115,571	390,375	54,214,534	3,369,214
H	1,240,241	101,001			9,302,489	646,984
I	6,342,802	278,863	6,833,734	347,957	40,992,305	1,428,173
J	5,362,910	382,696	5,493,950	359,130	35,840,809	1,993,242
K	1,985,557	145,385	1,985,579	152,217	19,303,788	1,409,857
L			3,165,000	423,521	12,247,914	1,445,569

SOURCE TO TABLE 44

NOTE: Keys to selected southern railroads are: A, Richmond and Petersburg; B, Wilmington and Weldon; C, Macon and Western; D, South Carolina; E, Georgia Railroad and Bank Company; F, Central Railroad and Banking Company of Georgia; G, Western and Atlantic; H, Raleigh and Gaston; I, Virginia and Tennessee; J, Virginia Central; K, Richmond, Fredericksburg, and Potomac; L, Southwestern.

Data on Selected Southern Railroads

American Railroad Journal, Vols. 24, 1850, to 34, 1861 (used for 1859-60). James D. B. DeBow, ed., *The Commercial Review of the South and West*, Vol. 28, 1859 (*DeBow's Review*).

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COMMENTS

THOMAS P. GOVAN, New York University

My role in this discussion of Robert Evans' paper is an ambiguous one. I am an economic historian, not an economist, and I have little understanding of the language and techniques you employ. This ignorance extends even to the problems with which you are concerned, and if my comments are obscurantist in nature, I apologize in advance, for as a student of American history who is particularly concerned with the nation's economic growth and development I find the present study confusing rather than helpful. I agree entirely with the conclusion "that the slave industry did not exhibit the characteristics of a non-viable industry about to wither and die under the impact of adverse economic forces, but rather gave every indication in its latter years of being a strong and growing industry." But the evidence presented by Evans in his paper has little relevance to this conclusion.

The subject of the study, as well as its title, is the economics of Negro slavery between 1830 and 1860, but nowhere does the author discuss the institution of slavery as it actually was. Instead he uses twentieth century concepts and terms, drawn essentially from manufacturing, as a description of something quite different. "The slave industry," he writes, "consisted of two types of firms. One owned or rented the capital goods (slaves) and used them as factors of production to pro-

duce a marketable commodity (labor services) or combined them with other factors to produce a marketable commodity (cotton, railroad services, gold, etc.). The other owned those capital goods (female slaves) which were used to produce new capital goods (slaves). Some firms, usually plantations, engaged in all three, producing labor services, agricultural products, and new slaves." Such a description may be useful, but I fail to see its use. It is obvious that Evans knows that human beings do not reproduce by parthenogenesis, and that the owner of female slaves would have to have the aid of at least one male in order to produce new slaves unless—if I may be ribald—he performed this function himself. But the more serious and important objection is that no such firm existed, at least, if it did, no record has been found. The natural increase of slaves was a source of profit within the system but no one, so far as has been ascertained, had as his principal object and effort the raising of slaves for sale.

Slavery itself was not an industry; it was an institution, a social practice sustained by law and custom through which labor was procured, organized, controlled, and directed. Owners of slaves employed them as household servants, in agriculture, in manufacturing, in mining, in construction, and rented their services to others. The object was profit, slaves were sold and bought, but to call slavery itself an industry confuses the problem rather than helping to clarify it.

My objections so far have had solely to do with statements in the introduction to the study, and, though I have others, we must get on to the central arguments advanced by Evans. His purpose is to investigate "the economics of Negro slavery by (1) estimating the rates of return earned by slave capital in the period 1830 through 1860, (2) comparing these returns with those earned by alternative forms of capital, and (3) considering whether the industry was viable in its last years." The rate of return "is of little value in answering the more relevant question whether the industry was viable," but it is raised and discussed "because of the widespread uncertainty concerning its magnitude." The author, nevertheless, devoted his major time and attention to this less relevant problem, but in estimating the rate of return of capital invested in slaves, he eliminates from consideration plantations and farms, the principal users of slaves, because of the inconclusive and fragmentary nature of the evidence. Instead he confines his study to the single and, on the whole, minor aspect of the economics of slavery, the renting of slaves, for the reason, he says, that these "income

figures are estimated directly from market data rather than as residuals" and involve "only a few variables." But when he comes to gather data on slave hiring he finds that they, too, "are scattered and usually fragmentary in character," and though "to estimate correctly the net yearly income received by the owners of slaves, one would like the following information: (1) rate of hire, (2) value of slaves, (3) age, skill, and physical condition, (4) content of jobs performed. Seldom is such detailed information available."

This leaves the author in the position of guessing on the basis of incomplete evidence what the net yearly income received actually was, and this guess is related to another as to the price of slaves. For this information he relies essentially on estimates made by Ulrich B. Phillips, concerning which he says, "it would be desirable to have more information concerning his method of estimation, sources of prices, extent of coverage of the different markets in the different years, etc.," but, unfortunately, this too is not available since, Evans correctly says, Phillips "believed in the illustrative use of statistics rather than in more formal statistical analysis." A similar uncertainty is found in the third kind of datum, the death rate of slaves, for here we are told, "really accurate estimates of life expectancy are a product of this century and exist for only a few countries."

We now have three guesses (intelligent, critical guesses, but still guesses) as to net yearly income, the price of slaves, and the death rate of slaves, which the author uses to establish the rate of return earned by, he says, slave capital. But he does this by creating a purely imaginary situation, an abstract problem that has no connection with history, nor does it, in my opinion, say anything about the economics of slavery from 1830 to 1860. No person in the slaveholding states ever purchased 1,000 male slaves at age 20 to hire them out for periods of 20 to 30 years before selling them, and, if he had, all of the figures used by the author, except perhaps his estimate of the death rate, would have been substantially different. The purchase of 1,000 slaves in any one year for such a purpose would have raised prices, and the existence of so large a number in the hire market would have altered the rate paid.

We now enter a realm in which I am not qualified to comment. These various estimates (I still would prefer to call them guesses used in an imagined situation) are combined in a "capital value equation," the usefulness of which as a tool for economists I am unable to evaluate.

But the results from this equation seem to me truly astonishing. From 1830 to 1835, a most prosperous period except for the winter of 1833-34, the rate of return on capital invested in slaves is said to be 12%, but in the period from 1841 to 1845, when operators of plantations, businesses, and factories in the United States were barely getting by, the rate of return is said to be 18.5%. With the return of general prosperity from 1846 to 1860, the rate of return in the lower South drops first to 17%, then to 12%, and finally to 10.3% in the three five-year periods. At the risk once again of being ignorant and obscurantist I cannot see the value of a method of economic analysis which indicates that the rate of return is higher in bad times than in good.

I am bothered and confused also by the use Evans makes of the short-term money rate in Boston and New York to arrive at the alternative rate of return on capital from 1830 to 1860. Short-term money—bank credit—is not capital, it is more nearly a commodity, the price of which (interest rate) is determined in large part by its availability and the need for it. The interest received for the loan of this money is not net income to the banks or the merchants who lend it; rather it is gross profit from which must be deducted all the expenses of operation. To take a very narrow example, I doubt seriously whether the Boston banks and merchants were making as large a rate of return in October, 1836, when the short-money rate was 36 per cent as they had been the previous January when it was 10 per cent. The reason for the high rate in October was the issuance of the specie circular which meant that the banks could not afford to lend at a moment when merchants were in dire need of money.

My more fundamental objection to this total procedure is the one I have referred to earlier, that, as a historian convinced somehow of not only the importance but also in some ways of the sacredness of what actually happened, it seems to me to be wrong to use such a title as the *Economics of Negro Slavery, 1830 to 1860* for a study that has little or no concern either for the actual profitableness of the enterprises using slaves or for the other economic aspects of this historical institution. I somehow resent also the use of mathematical equations to give an aspect of exactness and accuracy to what, at best, are intelligent and critical guesses, though as I stated when I began this commentary, I am as certain as I can be of any judgment concerning the past that Evans is correct when he says that slavery was a viable and profitable institution.

JOHN E. MOES, University of Virginia

At the end of his paper Robert Evans concludes: "Thus it would appear that the slave industry did not exhibit characteristics of a nonviable industry about to wither and die under the impact of adverse economic forces, but rather gave every indication in its latter years of being a strong and growing industry." As against this, I intend to show that *economic forces*—to the extent that they can be separated from other forces—are always adverse to the perpetuation of a system of slavery, except if new slaves can be obtained by force from outside the economic system, as in the Western Hemisphere before the abolition of the overseas trade. By this I do not mean to imply that in the ante-bellum South slavery was withering and dying—obviously it was not, since the slave population was growing at a rate equal to the rate of increase of the free population—but that the impact of economic forces proper was diverted in the social and political environment of the South. While the self-interest of the two parties directly concerned, the slaves and their owners, would have led to a termination of the system had these parties been free and unimpeded to transact their business accordingly, there were other influences at work in the South that interfered with this process.

One criterion that has been applied to determine the viability of slavery in the ante-bellum South is whether the rate of return on investment in slaves was generally less than that in other types of investment. Conrad and Meyer adopt this criterion explicitly and then proceed to show that returns were about as high on slave capital as on nonslave capital.¹ The outstanding proponent of the opposite view, U. B. Phillips, is quoted by Evans to the effect that by the close of the fifties keeping slaves had become unprofitable in terms of returns on investment in slave capital. Evans himself devotes the bulk of his paper to refuting the notion that returns on slave capital were relatively small, although he recognizes that nothing at all can be inferred from the magnitude of the rate of return, by itself or relative to any other rate, concerning the relevant question—the viability of slavery. This is so because, as Evans points out, capital values adjust to expected returns. Confirmation of this proposition by means of calculations like those carried out by Evans involves an impressive amount of work,

¹ Alfred H. Conrad and John R. Meyer, "The Economics of Slavery in the Ante Bellum South," *Journal of Political Economy*, April 1958, pp. 95-130.

but is, in my estimation, hardly required. Besides, for various reasons these calculations can scarcely be called convincing.

In the first place, the available data upon which the computations must be based are thoroughly incomplete. Given the nature of these data, some of the assumptions that have to be made in the calculation process are far more heroic than the assumption that people will attempt to maximize the returns on their investments. Yet, from the latter assumption, the conclusion follows that "pure" returns will tend to be equal on all types of investment.

Secondly, there is the personal preference of individuals for more or less risky types of investment and their evaluation of riskiness. Suppose that people always act in their best pecuniary interest as they see it when making investment decisions. Certainly we could not on that basis predict what differentials in rates of return would prevail in the market.

A third objection to this procedure is that we have no way of determining to what extent actual and expected returns deviated from each other for the various types of investment used in the comparison. Differentials in returns on investment are caused by a number of factors, and the quantitative influence of any one of them cannot in practice be separated from that of the others. This, in my opinion, disqualifies any attempt to assess the rationality in an economic sense of the people who paid the prices they did for slaves by comparing the returns on that type of investment with the returns on other types. A study of the motives of slaveowners, general knowledge of human nature, and even introspection provide for this purpose empirical material of much better quality than data obtained in the market.

It may be objected that the purpose of comparing returns on slave capital with returns on other capital is not to test the rationality hypothesis but, for instance, to determine in an *ex post* sense the profitability of investment in slaves. While in one place Evans seems to be saying that this is the question he has answered, it is hardly consistent with his dictum (upon which my considerations developed above are based) that one would expect the rate of return on slave capital to equal the market rate, even though the "slave industry" was declining. It is also inconsistent with his subsequent discussion of capital losses as a separate issue—one that would have a bearing upon the problem of viability, while the comparison between rates of return would be irrelevant. Clearly, the issue of the profitability of investment in slaves

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in an *ex post* sense cannot be determined without taking into consideration capital gains and losses resulting from changes in price; and, in fact, in Evans' calculations attempts are made to take into consideration the effect of changes in the price of slaves. I must admit that I am a little puzzled by all this. It is just not clear whether Evans is discussing expected returns, or returns that were actually realized, or perhaps the latter as an approximation to the former.

Next consider the bearing of the movement in slave prices upon the problem of viability. The data indicate that in the ante-bellum period slave prices were rising, but suppose this was the result of unwarranted speculation—as Phillips and others have argued, a crash of the slave market being inevitable. Why should this have led to a termination of slavery? The price of slaves would simply have fallen to a more realistic level, for which there was plenty of room; downward adjustment of slave prices in fact occurred frequently. Not until the price of any type of slaves settled near zero could one expect slaveowners to abandon their property voluntarily without compensation. And even this is conceivable only when we assume that, restrained by ethical considerations, the owner would not contemplate the alternative always open to him of working his slave to death in a relatively short period without providing adequate maintenance. In the latter case slavery would decline through excessive mortality rather than emancipation, at least in the absence of new importations. With new importations available, a system of slavery can be maintained indefinitely in this inhumane manner. In fact, this was done in the British and French West Indies where, before the abolition of the slave trade, the natural rate of decrease in some islands was said to be in excess of 5 per cent per annum,² and where the life expectancy of a slave employed in the sugar industry was no more than seven years. In Barbados, because of the density of the slave population relative to the extent of arable land, the marginal revenue product of labor fell so low that white settlers who did not own extensive property were reduced to a condition said to be the most degraded seen anywhere, and between 1676 and 1712 their number fell from 21,000 to 12,000.³

But in North America, where arable land was unlimited, labor pro-

² Herbert Heaton, *Economic History of Europe*, rev. ed., New York, 1948, pp. 333-34.

³ W. L. Mathieson, *British Slavery and its Abolition, 1823-1838*, London, 1926, pp. 39 and 44.

ductivity was high and, as a result, slaves were maintained under much better material conditions. The slave system under such circumstances develops along different lines. If a decline in labor value sets in, an ethical code sustained by a considerable degree of mutual affection between master and slave may prevent lowering the standard of living of the slave to a level in accordance with the pecuniary interest of his owner. To a decent family, slaves may then become a burden instead of an asset. Of course, the unscrupulous might still be able to make a profit out of a slave and offer a price, but by the same token a "good" master might hesitate to sell (although this might possibly be easier on his conscience than administering harsh treatment himself). Thus, while market prices are still positive, in reality to most slaveowners the value has become zero or negative. At such a time, when the cost of customary maintenance of adult slaves can no longer be covered out of the revenue the slaves produce—at least at the margin—and raising slave children does not seem profitable, manumission may become a frequent occurrence, and even abolition without compensation by legal decree may meet with relatively little opposition. The situation is similar to one that, in a free labor market, causes unemployment when the demand for labor declines and wages are relatively inflexible in the downward direction. However, the analogous contingency in the slave market is much less likely to occur. For one thing, there is no money illusion that may aggravate the situation but, more basically, it requires a shift in the demand for labor sufficient to wipe out normally existing property rents. I think that those who write as if any decline in the demand for labor would have spelled the end of the slave system in the ante-bellum South, where property rents were very high, forget this.

Nevertheless, at one time in the history of slavery in this country the contingency did occur. During a period of disrupted trade connections and agricultural transition in the old South, George Washington and everyone else were grumbling about their slaves devouring them.⁴ As a result, Americans have generally thought in these terms when contemplating the possible termination of slavery under the impact of adverse economic forces. But for slavery to come to an end in this fashion has been the great exception in the world history of slavery. In fact, I am not aware of a single instance except in the U.S., and here it only happened "almost." Yet, when we view the history

⁴ Lewis Cecil Gray, *History of Agriculture in the Southern United States to 1860*, Washington, 1933, Vol. II, p. 911.

of slavery in the world as a whole, we are immediately struck by the fact that a slave system of any economic importance (i.e., comprising more than a relatively small number of domestic servants maintained by the wealthy as a sign of conspicuous consumption) is a very great rarity. To this I shall return. First, let us briefly look at the other items on Evans' list of things he would expect to observe if slavery had been a "declining industry." In addition to a fall in the prices of slaves in general, these include a falling birth rate, a fall in the price of female slaves relative to male slaves, and a fall in the rates of hire of slaves relative to those of free workers.

I would not expect a decline in the demand for slave labor to lead to a fall in the birth rate, so long as demand did not decline to the point where the value of a slave, at an age at which he would begin to cover his maintenance, would be less than the expense of raising him (including time off for the mother during and after pregnancy). Even then, one would not expect a fall in the birth rate because to achieve this one would have to separate male and female slaves (and also keep the latter away from their masters), which is practically impossible unless one is willing to treat the slaves very harshly in all other respects also. It is a fact of life that, in general, not having children is much more difficult than having them, which is also the reason why slave-owners did not need to resort to the device of "breeding" in any other sense than just allowing the slaves to get together.

Even if the price of female slaves in general had been falling, one would hardly expect a fall in the price of female slaves relative to male slaves. Both embody labor services that will become available in the future, the only difference being that the female slave embodies labor services of her offspring in addition to her own, so that on the average the labor services a female slave represents become available later than those of a male slave of the same age. The relative value of the two will depend, therefore, upon the expected value of labor services at different points in the future. Only if people came to believe that in the remote future (say, twenty years later) the hitherto accepted value of labor services would fall relative to the current value would there be a relative decline in the price of female slaves. But this would obviously be a rather minor matter. The value of as yet unborn babies can hardly have been great, given the long period over which the value of their future services would have to be discounted and the uncertainty at that time of an infant's ever reaching maturity.

Moreover, babies are more or less a joint product of a man and woman. The institution of slave marriage was, in practice, widely respected although not officially sanctioned, and man and wife were rarely separated. If, therefore, in a display of scientific detachment, we start using the slightly repulsive term "breeding," we should be cautious lest we be carried away by our analogy. The family, to a large extent, was a unit, and if that is so, there is hardly any reason to expect a relative fall in the price of female slaves when future labor services were expected to decline in value relative to current labor services. The value of a man as a mate to a woman would decline by about the same amount.

Finally, I would expect a fall in the rate of hire of slaves relative to that of free workers only when slaves were becoming less productive relative to free labor doing the same work. Evans, however, says: when an industry is declining, one would expect to observe a relative decline in the demand for its product. In the case of a nonviable slave industry, the product being slave labor, one would therefore expect the price of slave labor to decline relative to that of free labor. But this reasoning is not admissible, for the product of slaves and free workers is the same—labor. The price paid for a given quantity of slave labor will therefore always be equal to the price paid for the same quantity of free labor—the market will see to that. Inasmuch as rates of hire are quoted per time unit rather than per quantity of labor performed, these rates may of course differ between slaves and free workers, but by the same token these hourly or daily rates are not properly the price of labor.

In the following remarks I shall discuss from a different point of view the prospects of the institution of slavery at the eve of the Civil War. The argument is based upon a comparison between the productivity of a slave who is given the opportunity to earn his own freedom and of one who has no hope of altering his status. Experience indicates that in the former case the slave would work well and hard to an extent that no manner of compulsion can bring forth, and thus his master would benefit until the slave has accomplished his purpose. To accumulate savings in order to buy his own freedom at market price, the slave was given some time to himself in which he could work for someone else or for his own master and keep the wages, or he was allowed to produce commodities that he could sell in the market. In the remainder of the time, in which he still worked for his master, he

performed better than he otherwise would. The master might also set a manumission price higher than the slave's market value so as to make a capital gain when replacing the freed slave with another.⁵ Under an alternative arrangement, the slave paid his master a rental price for his time, was allowed to seek employment or follow a trade independently, saved, and accumulated his ransom. In Rome, slaves were frequently freed in anticipation of the payment of their ransom, often continuing to work for their former masters for wages. In many other instances, the master supplied the capital for a freed man to set himself up in business. There are, of course, innumerable variations on this theme.⁶

I use the word ransom deliberately, for in this view slavery is essentially a transitional stage in a person's life from the time he enters captivity (which may be at his birth) until he pays a price for his freedom, which is the expected thing. It was the experience of antiquity that holding slaves under such conditions was more profitable than when the outlook was for a man to remain in bondage for life. As a consequence, manumissions by self-purchase were always numerous, and when, because of the establishment of the Pax Romana by Emperor Augustus, slaves ceased to stream into Italy in the form of captives of war, while piracy and banditry, the other major sources of slave supply, were vigorously suppressed, slavery was doomed to virtual extinction. This transition was accomplished in rural areas as well as in the cities. It was by no means a phenomenon restricted to an urban society or to slaves that were particularly talented. On the land, the chained slave gangs (which in the time of the Roman Republic, when slave prices were low and the treatment of slaves accordingly harsh, had worked the *latifundia*) disappeared. The estates came to be occupied by free tenants, descendants of slaves who against a consideration had been voluntarily emancipated by their masters. And since the times were prosperous, all this occurred in a period in which slave prices were high and rising. The institution of slavery itself was transformed beyond recognition. Family life among slaves was now encouraged and women were given premiums and sometimes freedom for bearing numerous children. Under the influence of the higher prices the slaves

⁵ Manumission prices in ancient Greece were in excess of the usual market prices of slaves, according to William L. Westermann, *The Slave Systems of Greek and Roman Antiquity*, Philadelphia, 1955, p. 36.

⁶ See A. M. Duff, *Freedmen in the Early Roman Empire*, Oxford, 1928, especially Chaps. I and II.

were treated more humanely, and this in turn created a setting in which arrangements could be worked out for the slave to earn his freedom.⁷

It is in this manner that one would expect slavery eventually to have ended in this country, if economic forces could have had free sway. To entertain for a moment the notion that in the South, if the Civil War had not intervened, slavery might have become unprofitable in any other way except that it might have been more profitable to sell the slave his freedom than to keep him is simply ludicrous. The South was a prosperous and rapidly growing region where in the decade preceding the war the output of the primary staple crops doubled. The war and its aftermath interrupted this progress, but the long-run picture has of course been one of rising labor productivity. Already before the war it had been demonstrated that slave labor could be used in virtually any occupation. If nowadays slavery still were to exist, slave prices would be higher and the institution more profitable than ever, because the discrepancy between what a worker can earn and what would be necessary for the reasonable maintenance of a slave has never been so great. Nor is there any reason to believe that this would have been different if slavery had not been abolished. (It is true that the expansion of a privately owned labor force absorbs savings that otherwise would be available for investment in nonhuman capital, but any detrimental effect on economic growth that this may have in a closed system was virtually eliminated in the case of the South through the free flow of capital into the region.)⁸ Every sensible discussion of the possible termination of slavery under the impact of economic forces, therefore, should be an inquiry into the prospects for the slaves to acquire their freedom by self-purchase. Yet this whole matter is summarily dismissed by Evans in one brief paragraph, where he observes that in the South manumission by self-purchase was infrequent. Sometimes, however, a phenomenon is important for what it spells rather than for what it is. When we look into the history of slavery in other parts of the world, and especially in the Roman Empire,

⁷ See: Duff, *Freedmen . . .*; Westermann, *The Slave Systems . . .*, pp. 72, 76-77; R. H. Barrow, *Slavery in the Roman Empire*, London, 1928, pp. 54, 83, 89-90; Tenney Frank, *An Economic History of Rome*, 2d ed., Baltimore, 1927, pp. 327, 436-439.

⁸ On this question see John E. Moes, "The Absorption of Capital in Slave Labor in the Ante Bellum South and Economic Growth," *American Journal of Economics and Sociology*, Oct. 1961, pp. 535-541.

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we cannot fail to recognize the potential importance of manumission by self-purchase in the American setting. The similarity in motivation and methods used is striking, and so is the fact that enormous gains could be obtained by southern slaveowners who were alert enough to seize this opportunity.⁹ Indeed, to me, there is no doubt that the tendency for slavery to be concluded by self-purchase of the slaves, if in no other way, is of universal dimensions, for the forces that lead to it are deeply rooted in human nature. These forces are the profit motive (of the masters) and the desire for freedom (of the slaves).¹⁰ Bring these two elements together in a setting where a man, when given a motive to apply himself, can earn more than his keep, and a contract between slave and master leading to self-purchase is the result. And these are in truth economic forces, since they spring from the self-interest of individuals as it can be served by material means. However, other forces may interfere. To make sure of being understood, allow me to present a crude analogy. The law of markets says that in the market a price will be established at which the quantities supplied and demanded are equal. I am not bothering here with qualifications. The forces that lead to this I would call economic forces. But suppose that the government interferes and sets a price by statute lower than the market equilibrium (or one higher than the equilibrium price, as governments often do in the labor market). Respect for the law, fear of punishment, etc. may then be effective countervailing forces that prevent the law of markets becoming manifest in the price. Or, as in the labor market, a social convention regarding what constitutes a decent minimum price may impose an effective floor and interfere with the law of markets when a decline in demand occurs. These interfering forces we would then have to designate as noneconomic.

This terminology is of course open to legitimate objections. An entrepreneur who refuses to hire workers at less than the customary minimum rate, even though he could get them at a lower rate, acts in his self-interest. It is by no means clear where the line between economic and noneconomic forces should be drawn. With regard to the slavery problem, racial prejudice, for instance, would certainly have to be

⁹ See Sumner Eliot Matison, "Manumission by Purchase," *Journal of Negro History*, April, 1948; also U. B. Phillips, *American Negro Slavery*, New York, 1918, pp. 412-414; William Allan, *Life and Work of John McDonogh*, Baltimore, 1886, p. 49.

¹⁰ The great desire for freedom among the slave population is brought out convincingly in Kenneth M. Stamp, *The Peculiar Institution*, New York, 1956.

classified as a noneconomic force, and yet racial feelings may well be influenced unconsciously or even consciously by considerations of economic self-interest. But the slavery question has traditionally been discussed in this manner and, in a rough way, so long as it does not create misunderstanding, this may even be useful. At any rate, Evans has followed the tradition, and I must answer him in his own terminology. I would say, then, that economic forces in the ante-bellum South clearly tended toward voluntary emancipation. That for the time being this did not become manifest in a number of manumissions large relative to the slave population must be explained in terms of countervailing social and political forces. Among these, one thinks in the first place of the feeling that the Negro race was inferior, which caused the whites to contemplate with concern the prospect of a sizeable population of free Negroes. As a result, manifold social and legal obstacles to manumission existed. All this was greatly reinforced by the reaction in the South against northern abolitionism. Precisely how these factors interfered with the law of manumission should be spelled out further, but time is lacking.¹¹ However, I wish to submit that in the long run the prospects may be dim for an institution that has to be maintained against the self-interest of the parties immediately concerned (*in casu* masters and slaves). We must remember that in the ante-bellum South there was hardly a long run, the abolition of the external slave trade being less than fifty years old when the Civil War started. Rome, too, enacted laws against manumission and knew social prejudice against freed slaves; and there, also, it took considerably more than fifty years for slavery to wither away after the large-scale influx of slaves had ceased.

¹¹ I have attempted this elsewhere. See John E. Moes, "The Economics of Slavery in the Ante Bellum South. Another Comment," *Journal of Political Economy*, LXVIII (April, 1960) 183-87.