The Profitability and Viability of Plantation Slavery in the United States

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Whether or not slavery in the ante-bellum South was profitable for planters has been the subject of dispute for a long time. Contemporary slave owners, economists and politicians have offered evidence to support both sides of the argument. Some suggested that it was profitable to hold slaves because their physical inefficiency was more than compensated by their cheapness. Many others, however, insisted that slavery was an economic burden for planters and continued to exist only for non-economic reasons. Later historians were also divided on this matter. Most influential among the pessimists was Ulrich B. Phillips who, upon examination of numerous testimonies by planters as well as the records of the prices of cotton and slaves, reached the conclusion that "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." On the other hand, such writers as L. C. Gray, Thomas P. Govan and Robert Worthington Smith, computing the rate of return directly from the plantation account books, found that slavery was profitable for planters.

Writers differed as to the meaning and interpretation of "profitability." Some were simply curious to know "whether planters of the Old South were making money from their operations." Others went further and drew inferences concerning the economic viability of the system. A number of them reasoned that slavery was an economic burden for planters and it would eventually have toppled of its own weight without external intervention. They argued that Southerners defended their peculiar institution partly because they feared the social and political consequences which would ensue from emancipation and partly because

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4) Govan, op. cit., p. 514.

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they were blinded by the abolition agitation in the North.\textsuperscript{5)}

On the other hand some of those who found that slavery was profitable viewed their findings as disproving the hypothesis that slavery was not a viable institution. Two of the most recent studies along this line can be found in Stampp’s \textit{The Peculiar Institution}\textsuperscript{6)} and Conrad and Meyer’s “The Economics of Slavery in the Ante Bellum South.”\textsuperscript{7)} In this paper, first, it will be pointed out that these two studies, like others before them, failed to define the concept of profitability correctly in relation to the question of viability of slavery. Then, an appropriate measure of profitability will be suggested and, according to it, it will be concluded that slavery was an economically viable institution on the eve of the Civil War.

\textit{Stampp: Accountant’s Concept of Profitability}

There is a slight, but conceptually important, difference between the profitability measure of Stampp and that of Conrad and Meyer. By profitability Stampp meant a rate of return on the original value of the investment in the plantation. In other words, his initial question was, “allowing for the risks of a laissez-faire economy, did the average ante-bellum slave-holder, over the years, earn a reasonably satisfactory return from his investment?”\textsuperscript{8)} This is an accountant’s concept and as such it cannot be criticized. However, when Stampp went on and reasoned that “during the last ante-bellum decade slavery was still justifying itself economically”\textsuperscript{9)} he had crossed a line which he should not have crossed. For accountant’s profitability is not necessarily identical with economic profitability, and economic viability depends solely on the latter.

To demonstrate the inadequacy of the accountant’s concept in this respect, let us examine hypothetical cases of three planters who used land of the same quality and whose managerial abilities were identical. The first planter bought all his slaves in 1841, the second in 1845, and the third in 1849. The price of a prime field hand was highest in 1841 and lowest in 1845. If the rate of return in 1849 for the third planter was equal to what might be got from alternative investments, the rate of return for the first planter must have been less than adequate and that for the second planter more than adequate. Following Stampp’s reasoning we have to say that, “if the slave-holder’s economic self-interest alone were to be consulted, the institution should have been preserved”\textsuperscript{10)} for the second and third planters, and it should have been abolished for the benefit of the first planter!

\textit{Conrad and Meyer: The Rate of Return Based on Costs Inclusive of Rent}

Conrad and Meyer set out to test the hypothesis “that slavery in the South must have


\textsuperscript{8)} Stampp, \textit{op. cit.}, p. 390.

\textsuperscript{9)} \textit{Ibid.}, p. 408.

\textsuperscript{10)} \textit{Ibid.}, p. 414.
fallen before very long because it was unprofitable."\(^{11}\) Naturally, they tried to "measure the profitability of slavery according to the economic (as opposed to accounting) concept of profitability."\(^{12}\)

From scattered data for the period 1830-60 they chose those values which seemed to show central tendencies for the life-expectancy and price of slaves, the costs of other capital investments, the market rate of interest, out-of-pocket costs, productivity, the price of cotton, and other relevant variables. Since there were definite upward trends in most variables, the method resulted, roughly speaking, in choosing average values for the period around 1845-50. For this model, Conrad and Meyer computed the marginal efficiency of slave capital, valuing slaves at the market price.\(^{13}\) The marginal efficiency turned out to be as high as in alternative investments, whereupon Conrad and Meyer rejected the above hypothesis.

The capital costs of slaves which are to be equated with the present value of the future stream of income in the equation of marginal efficiency of capital are determined by the nature of the problem at hand. If one is interested in the profitability of slave capital in a particular industry, say rice cultivation, in which only a fraction of the total slave population is used, the market price of a slave is the costs to be used in the calculation of profitability. A lower (than ordinary) rate of return based on the current price of slaves would then suggest the downfall of slave-using rice cultivation. Again, if one is interested in the profitability of slave capital in a section of the South, the Conrad and Meyer method would be meaningful for the same reason.

As a matter of fact, much of the confusion in the past seems to have stemmed from identifying the profitability of the slave system as a whole with the profitability of slave capital in certain regions or in certain uses. It was probably true that, in the 1850's, in such trades as canal and railway building, ditching and tobacco processing, free workers were cheaper than slaves.\(^{14}\) It was also true that in the eastern and northern section of the South, the rate of return based on the current price of slaves was below the market rate of interest, or the rate of return from the alternative uses of capital.\(^{15}\) These facts were the omens of the decline of the use of slaves in these trades and sections, but they had nothing to do with the future of slavery as a whole.

If one is interested in the viability of slavery as a whole, the costs which are to be equated

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13) It may be noted that Stampp's measure of profitability, when it is applied to newly acquired slaves, gives approximately the same result as that of Conrad and Meyer, although Stampp did not use the fancier formula for the marginal efficiency of capital. Therefore, the criticism in this section applies also to Stampp.
15) Phillips, \textit{American Negro Slavery}, p. 391. Stampp, \textit{op. cit.}, p. 411. Of course, if we compute the rate of return on the original costs of investment as Stampp did, it may turn out to have been "adequate" in the Upper South where most slave-owners bought their slaves when the prices were much lower. But this should not have prevented the slave-owners from liquidating their investment, if profitability on the market value of slaves was lower than the interest rate.
with the present value of the future stream of income are not the price of slaves but the costs of reproduction of the capital, that is, the costs of rearing slaves. In the case of ordinary reproducible capital goods, a discrepancy between costs and price does not last long. For whenever the reproduction costs of a particular kind of capital good become smaller than its price, its supply will increase until the equality is restored. A movement in the opposite direction will take place, when the costs are above the price. Ever since the prohibition of the slave trade, however, the supply of slaves was largely independent of their price and, hence, the discrepancy continued to exist. Indeed, as we shall see presently, towards the end of the period a large part of the price of slaves was capitalized rent. Conrad and Meyer computed their rate of return on the basis of costs inclusive of this rent. Thus, what they actually proved was not the profitability of the slave system but rather the fact that the price of slaves did not show any significant over- or under-capitalization of annual net returns.

A downward shift of the demand schedule for cotton may have taken place a few years earlier. Or, an innovation in production method may have reduced the incidental costs some time before. Whatever changes had happened in the past in the marginal net revenue product must have been largely absorbed by the adjustment in the price of slaves. The internal rate of return based on the market value of slaves has always to remain more or less equal to the market rate of interest and thus cannot reveal anything even about the past performance of slavery, not to speak of the future.

A rate of return (on the market value of investment) lower than the market rate of interest is not impossible, if the rate of return is computed, as is done by Conrad and Meyer, from current statistics. For example, there may actually be a lag in the adjustment of the slave price behind the change in marginal net revenue product. In that case a lower rate of return would indicate a decline of slavery. On the other hand, the price of slaves, instead of lagging behind a past change, may anticipate a future change in marginal net revenue product and, if so, a lower rate of return would indicate a strengthening of the position of slavery. When there has been a persistent long-run trend, the latter interpretation would seem to be a more convincing one. Still another possibility is that non-economic factors, for instance, prestige value attached to slave holding, cause a lower rate of return to persist. If that is the case, there is no reason to expect the downfall of slavery because of the lower rate of return.

The Capitalized Rent in the Price of Slaves in the Ante-Bellum South

Some writers, including Stampp and Conrad and Meyer, have suggested movements of the price of slaves as another measure of the position of slavery. Stampp, for example, noted that "in the final analysis, the high valuation of Negro labor during the 1850's was the best and most direct evidence of the continued profitability of slavery." This argument is much more sensible than the one behind the use of the internal rate of return

based on costs inclusive of rent; but it, too, has a serious defect in that it fails to take account of changes in the costs of rearing slaves. If the costs of rearing had increased by more than the price of slaves, it would hardly be justifiable to say that the profitability of slavery increased.

The correct statement to make is: If the portion of the price of slaves which represents capitalized rent was increasing, it is a sign of the increased profitability of slavery. To say that capitalized rent was positive is the same thing as to say that the rate of return based on the reproduction costs of slaves was above the market rate of interest, provided that non-economic factors did not affect the determination of the price and there was no lag nor anticipation in capitalization. Conrad and Meyer showed that these conditions were satisfied in the ante-bellum South. Therefore, to see if slavery in the ante-bellum South was viable, either the rate of return based on the reproduction costs of slaves or the amount of the capitalized rent in the market price of slaves may be examined. Here we chose to estimate the latter because it is simpler to compute.

As a starting point we shall compute capitalized rent for the model of plantation economy presented by Conrad and Meyer with two modifications. First, infant mortality should be introduced into the model. Although the available data may be poor, it seems better to use them than to neglect them. From four records of infant mortality, cited by Stampp, which include altogether some 300 live births, the ratios of the number of those who died within one year and of those who died between ages one and four to the number of survivors can be estimated. And then, assuming that the first group died at the end of the first year and the second at the end of the third, expected gross costs for “breeding” an adult slave compounded at the interest rate of six per cent and cumulated up to the nineteenth year, when the slave became a prime field hand, can be calculated. They are $728.

Secondly, the incidental capital costs in employing slave children, which were neglected by Conrad and Meyer, should be taken into account. In order to avoid the difficulty arising from the difference between the total life of an asset and the length of the time during which it was used, we may assume that the slave owners rented land and capital goods for employing child labor. Rental is computed on an assumption that land and capital goods maintained the same efficiency throughout their lives, or alternatively, that a capital-mix which consists evenly of capital goods of all ages was rented. Annual rent for Alabama pine land which cost $195 and lasted ten years would be $26. Rent for Mississippi alluvium with a thirty-year life and costing $660 would be $48. Taking the arithmetic mean, we get $37. Rental of other capital goods would be $3, making the total incidental capital costs per

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18) Stampp, op. cit., p. 320.
19) 6% seems to be the appropriate discount rate for this period. Cf. Conrad and Meyer, op. cit., p. 103.
20) The ratio, $p_1$, of the number of those who died within one year to the number of those who survived into adulthood was 0.396; and the ratio, $p_2$, of the number of those who died between ages one and four to the number of survivors was 0.156. The costs per death within one year, compounded up to the nineteenth year, $c_1$, were $188; the cumulated costs per slave who died between ages one and four, $c_2$, were $240; and, finally, the cumulated costs per survivor, $c_3$, were $616. The gross costs for breeding an adult slave successfully were $p_1c_1+p_2c_2+c_3=$728.
adult slave per year $40.21.21)

According to Conrad and Meyer, slaves started to be productive at age six. The male slave's gross earning, starting from $5, went up $5 every year between ages six and nine, and $10 yearly after that until it reached the full adult productivity of $110 per year at age eighteen. The female slave's gross earning was half as much as that of male slaves.22) The average gross earning for male and female slaves was $3.75 at age six, $15 at age nine and then went up $7.50 yearly until it reached $82.50 at age eighteen. Therefore, cumulated gross earnings of a slave child averaged for male and female amounted to $637 in terms of the present value in the nineteenth year. If we assume that the ratio of the incidental capital costs to the gross earning was the same for all ages, the present value of the total incidental capital costs would be $309, so that the net value of pre-adult work was $328. Subtracting this amount from the gross rearing costs of $728, we get the average (male-female) net costs of rearing an adult slave of $400. The average price of male and female slaves at age eighteen was $875.23) Therefore, the part which capitalized rent represented in this price was $475.

The capitalized rent for a prime field hand and that for a prime field wench can be computed in the same manner from the Conrad and Meyer model. Deducting from the price of $925 the net rearing costs of $188, we obtain a capitalized rent for a prime field hand in the amount of $737. Similarly, the capitalized rent for a prime field wench can be shown to have been $213.24)

If we compute the rate of return on the net costs of rearing rather than on the price of slaves, it will be much higher than the market rate of interest. Therefore, on the basis of the capitalized rent or the rate of return based on the rearing costs of slaves, there is no evidence that slavery would have collapsed for any economic reason.

The Trend of Capitalized Rent, 1821-1860

Since Conrad and Meyer used averages over a period in which most variables showed upward trends, their model represented, roughly speaking, the period around 1845-50. It may, therefore, be suspected that the capitalized rent computed above is significantly different from the figure for the end of the 1850's—some ten years later. Moreover, the capitalized rent, though it explains the increase in the slave labor force, does not tell whether or not the position of slavery was strengthened. Hoping to shed some light on these problems, we shall proceed to ascertain the trend of capitalized rent in the price of a prime field hand over a period of forty years prior to the Civil War.

21) Ibid., pp. 100-101. Annual rent is computed in the following way:

If $x$ represents annual rent; $c$, the price of an asset; $i$, the market rate of interest; and $n$, the life of the asset, then

$$c = \sum_{i=1}^{n} \frac{x}{(1+i)^i}$$

$$\therefore x = \frac{i(1+i)^n}{(1+i)^n-1} \cdot c$$

22) Ibid., p. 107.
23) Ibid., pp. 100, 108.
Because of the lack of sufficient information, we have to make several auxiliary assumptions. First, we divide the period 1821-60 into eight 5-year subperiods and assume that the Conrad and Meyer model represents subperiod 1846-50. Secondly, we assume incidental capital costs to be proportionate to the gross earnings from cotton, which is determined by multiplying the 1846-50 figures by the quinquennial average index of crop value per slave (with 1846-50 as the base year). This index is computed from Table 17 in the Conrad and Meyer article. The value of time lost by pregnancy is also multiplied by the index of crop value per slave.

Gross rearing costs other than the value of time lost by pregnancy are estimated on an assumption that it is proportionate to the cost of living index. For the latter G. R. Taylor's wholesale price index of commodities other than South Carolina export staples at Charleston is used. The index for 1818-42 is linked with that for 1843-61 by using the unweighted average of price relative of corn and wheat in Virginia for 1842 and 1843. Corn and flour are the most important items in Taylor's non-export staples, each occupying 20% of the total weight in the 1843-61 series.

The prices of slaves are taken from Table 17 in the Conrad and Meyer article. The arithmetic mean of the prices of a prime field hand for 1846-50 is $936 as against the model price of $925. In order to adjust for the discrepancy, every value of the model is multiplied by 936/925. Thus, for the period 1846-50 the gross rearing costs were $737, the net income from child labor was $546, and the net rearing costs, therefore, were $191. Deducting this from the price of $936, we obtain a capitalized rent in the amount of $745.

Finally, it is assumed that there was no change in the long-term interest rate and in infant mortality over the whole period.

Capitalized rent is computed both in current and constant (1846-50) dollars. Taylor's wholesale price index of all commodities at Charleston is used as a deflator. As above, the 1818-42 index is linked to the 1843-61 index by utilizing several commodity series. In addition to corn and wheat in Virginia, rice and cotton at Charleston and sugar at New Orleans are taken into account. In the 1843-61 series rice and cotton account for all of the export staples group, and sugar for 36% of the imports group. The weight of each of three major groups, which Taylor failed to indicate in his article, is estimated from his index by solving a set of simultaneous equations. Thus, in linking, the following weights are used:

- Corn .......................... 14.6
- Wheat .......................... 14.5
- Cotton .......................... 37.4

28) Ibid., p. 870.
The result is shown in Table 1 and Chart 1. An upward trend is clear both in current values and in real values. As expected, fluctuations are somewhat damped in the real series, making the upward trend still easier to be seen.

**Table 1**

Capitalized Rent in the Price of a Male Slave, Age Eighteen

<table>
<thead>
<tr>
<th>Year</th>
<th>(1) Average Price of a Slave</th>
<th>(2) Gross Rearing Costs</th>
<th>(3) Net Income from Child Labor</th>
<th>(4) Capitalized Rent in Current Dollars (1)−(2)+(3)</th>
<th>(5) All Commodity Price Index (1846−50=100)</th>
<th>(6) Capitalized Rent in (1846−50) Constant Dollars (4)+(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1821−25</td>
<td>$736</td>
<td>$657</td>
<td>$349</td>
<td>$428</td>
<td>$128</td>
<td>$334</td>
</tr>
<tr>
<td>1826−30</td>
<td>792</td>
<td>614</td>
<td>286</td>
<td>464</td>
<td>105</td>
<td>442</td>
</tr>
<tr>
<td>1831−35</td>
<td>974</td>
<td>671</td>
<td>431</td>
<td>734</td>
<td>113</td>
<td>650</td>
</tr>
<tr>
<td>1836−40</td>
<td>1,206</td>
<td>848</td>
<td>497</td>
<td>855</td>
<td>128</td>
<td>668</td>
</tr>
<tr>
<td>1841−45</td>
<td>744</td>
<td>591</td>
<td>379</td>
<td>532</td>
<td>91</td>
<td>585</td>
</tr>
<tr>
<td>1846−50</td>
<td>936</td>
<td>737</td>
<td>546</td>
<td>745</td>
<td>100</td>
<td>745</td>
</tr>
<tr>
<td>1851−55</td>
<td>1,252</td>
<td>807</td>
<td>600</td>
<td>1,045</td>
<td>108</td>
<td>968</td>
</tr>
<tr>
<td>1856−60</td>
<td>1,596</td>
<td>938</td>
<td>922</td>
<td>1,580</td>
<td>121</td>
<td>1,306</td>
</tr>
</tbody>
</table>

*Conclusion*

Of course, the numerical values of the capitalized rent cannot be taken too seriously. It is hoped that further inquiries into primary data may shed more light on its level and trend. It seems unlikely, however, that the upward trend will be reversed. Thus, in the Ante Bellum South, slavery steadily strengthened its economic position. Extrapolation of the trend line is quite another problem and we admit that it would be hardly legitimate. In order to make a satisfactory forecast, we should need information about the probable changes in the factors which determine the level of the capitalized rent. At the present stage, therefore, only two things can be said in conclusion. First, the trend of the capitalized rent from 1821 to 1860 does not reveal any indication of an imminent downfall of slavery. Second, even if a reversal of the trend had been "around the corner", it would have been difficult to wipe out quickly the large capitalized rent that existed in the late 1850's.