**Appendix 3**

**Property Income Estimation for 1774 and 1798-1800**

The incomes from property can be estimated for any historical period for which the archives yield information on stocks of wealth and the rates of annual return from that wealth. To measure the kinds of property incomes that would enter in the definition used in national income and product accounts (NIPA). Rates of return should be applied only to NIPA-type assets, and these typically exclude consumer durables and cash.

Estimates discussed in this appendix, and in the corresponding parts of the main text, come from calculations reported in Excel and Word files in the same locations described for Appendices 1 and 2. Its three regional files for 1774 are large, and its worksheets on occupational mix contain material supporting the occupational estimates already described in Appendix 1.

**The 1774 property estimates**

Fortunately, we have the landmark published study by Alice Hanson Jones (1977, 1980) and the ICPSR file of the individuals in her sample. Far from just presenting a set of 919 probated individuals, Jones used them to describe a carefully weighted slice of society. She fashioned the set of weights from her reading of the literature on occupations and from census-based shares for different groups defined by age range, sex, race, and place.

The only dimensions on which we have reason to revise her weights relate to occupations, poverty status, and asset ownership. Since 1980, the internet and spreadsheet technology have given us data she could not incorporate into her own work. We can now draw on additional local tax lists, censuses, and city directories, to get a clearer picture of the occupational mix and of the shares of household heads that lacked occupational labels and/or were too poor to be taxable. Table 1 in the article describes some of the sources we have added to the Jones mix.[[1]](#footnote-2)

The new Lindert-Williamson (LW) counts of occupations and household headship depart from Jones’s estimates in all three regions. Our mapping of New England occupations began with data on Boston’s occupational directories, helped by Jacob Price (1974). These omitted many Boston household heads. We then turned to the giant 1771 tax return for Massachusetts, including Maine (ICPSR 07734). Warned by Gerard Warden’s (1976) article, we distrusted the assessed valuations given in this return. Rather we extracted only two occupational clues: Whether this person was assessed for any wealth at all, and whether this person was a farm operator. Farm operator status was revealed by the union of several asset clues: at least 25 bushels of grain produced, or at least 11 cows or swine, or at least 11 acres of hay land or meadow. Then, for non-Boston New England, we applied the non-farm, non-big city occupation mix from Lancaster PA 1800 to lesser New England towns in 1774, and the Chester County PA rural occupation mix of non-farmers in 1800 to the rest of New England 1774. Next, we noted the share of households that the 1771 returns implied had zero wealth. Finally, we added the estimated number of households missed by the 1771 tax lists altogether. (The numbers with zero wealth might be a bit too large, understating the property income of the poorer New England groups.) See the Excel file “Property 1774, New Eng”.

For the Middle Colonies, we used the mix of sources described in Appendix 1, i.e. census materials, Billy Gordon Smith’s detailed coverage of Philadelphia, Lancaster for small towns, and rural Chester County for the countryside. Our resulting mix differs from that of Alice Hanson Jones in ways that have raised inequality and lowered aggregate income. Given information that became conveniently available only after 1980, we derive a non-city mix of occupations that shifts households away from middling farmers to less wealthy craftsmen, laborers, and males with no given occupation. See the Excel file “Property 1774, MidCols”, worksheets (5) and (6).

Aggregating occupations and property is particularly complicated for the Middle Colonies because of sampling constraints imposed on Alice Jones’s probate research. She could collect only 23 probates for New York. This forced her to synthesize New York by giving only 1/10 weight to these 23 cases, and borrowing the rest of the wealth distribution from patterns revealed in her other three Middle Colonies (NJ, PA, DE) and the wealth distribution from New England. We inherit her difficulties here, and our combining New York with the other three Middle Colonies was a laborious task. See “Property 1774, MidCols”, worksheets (5) – (10).

A further complication for comparisons of 1774 with nineteenth-century benchmarks was Jones’s decision to put Delaware into the Middle Colonies instead of putting it in the South Atlantic, where it belongs in all later census aggregations by region. Our files present alternative regional results for 1800, with Delaware first in one region and then in another.

In the South in 1774, we again find that today’s information set allows us to make several adjustments to Jones’s weighting scheme. First, the available census clues suggest that she gave Charleston too much weight as a share of the South: her 4.9% Charleston share should have been only 2.6%. Second, her probate sample gave greater weight to the wealthier classes, even after she tried to adjust for this with her w\*B weights. From tax rolls in three North Carolina counties, we find lower shares of those owning land and/or slaves than in her probates. We have adjusted her weights accordingly, causing a reduction in average property income for the South. See the Excel file “Property 1774 South”, worksheet (3).

**Rates of return for 1774**:

Deriving estimates of property incomes from data on property asset values requires knowing the rate of return defined as = current income/asset value. While the net rate of return might be inferred from the historical rates on alternate assets, such as bonds, a more difficult task is to choose depreciation rates (alias capital consumption allowance) on different assets, for the purpose of deriving gross incomes and gross domestic product. Here "income" is restricted to that which would appear in the National Income and Product Accounts. We have very little historical information on depreciation rates. Table A3.1, which immediately follows, presents out best guesses for 1774.

**Table A3.1.** Assumed rates of annual income, as % of wealth value, by asset type

 Interest + Depreciation = Gross rate

Financial Assets 6 0 6

Servants and Slaves 6 5 11

Producers' Durables 6 10 16

Producers' Perishables 6 0 6

Business Inventory 6 0 6

Liabilities 0 0 0

Real Estate (assume capital gains =

 depreciation cost) 6 0 6

Livestock 6 10 16

Equipment, Business 6 10 16

Crops 6 0 6

**The 1800 property estimates**:

Some features of the 1800 estimation process correspond to the 1774 procedures. The net rate of return is the same – a baseline 6%, with an alternative 8% rate considered in the article’s text. The procedures for estimating occupational shares remain the same, as already described in Appendix 1.

The 1800 property structure must, however, be estimated from a wholly different database. Gone is the support of Alice Jones’s careful probate study. In its place are aggregate figures on real estate and slaveholding wealth from that unique Direct Tax of 1798. The main archival source is a microfilm of "Statements of the 1st Direct Tax of the United States from Valuations by the Commissions of States (1798) prepared by Daniel Sheldon, Esq. for Oliver Wolcott,"[[2]](#footnote-3) supplemented by summary returns in Pitkin (1817) and analyzed in detail in Soltow (1989) and Einhorn (2006, pp. 189-195).

We have re-scaled the 1798 assessments in several ways (as shown in Excel file “Property totals 1798-1800”, worksheets (3) – (5)). We converted to 1800 values of real estate by using Blodgett’s seven-percent realty markup between those dates. Then we adjusted for the 8.45% underassessment of realty revealed by a 1799 study.

The most important adjustment in the 1798-1800 property estimates is one for dealing with the extent to which Southern slaveholders and owners of highly valuable real estate were able to understate their wealth, evading a higher rate of taxation.

We have three clues about the degree of Southern underassessment. Two of these relate to slaves and do not affect our income estimates. The third relates to real estate, and it does affect our income estimates.

The first clue arises from slave counts. The tax return of 1798 reported only 86,840 slaves of taxable age 12-50 and 323,905 slaves overall. These numbers are much too low and also imply an implausibly low working-age share for the slave population (0.268). Indeed, only two years later the 1800 census reported 513,905 slaves aged 10-up and 835,490 slaves overall. Even the 1790 census reported far more slaves than were revealed in the 1798 tax returns. Fortunately, we were able to reject the 1798 tax-return slave counts in favor of the 1800 census, combined with the Fogel-Engerman (1976, updated 2006) sample values for the rental incomes derived by slaveholders.[[3]](#footnote-4)

A second clue supporting underassessment in the South lies with the overall tax valuation of slaves, rather than just their numbers. According to Timothy Pitkin’s (1817) summary of the 1798 returns, slave taxes were only 21 percent of all reported realty plus slave taxes in the South Atlantic, while in 1774 slave values were 58.1 percent of all slave plus realty value in that region. Either the market value of slaves relative to the value of real estate dropped spectacularly, or slaveholders gained a considerable tax break relative to other owners of real estate. It seems clear to us that the fifty-cent tax per slave reported to be 12-50 years old was based on an undercount of those slaves.[[4]](#footnote-5) To repeat, our estimates of slaveholder incomes are not influenced by the undercount since ours are based on the market value of slaves rather than on the tax assessor’s value for slaves. We have raised the slave undercount issue only to add credibility to the wealth adjustment discussed next.

In contrast with the first two clues, the third underassessment clue does have implications for our southern property income estimates. The South Atlantic (here excluding Delaware) paid 38.1 percent of the eastern US realty tax in 1798. This share was tied by law to the South Atlantic share of the free population of the eastern states in 1800 (35 percent). But note the comparison of this 38.1 percent with the region’s 57.7 percent share of the thirteen colonies’ real estate wealth in the probate valuations for 1774.

There are two possible explanations for the discrepancy. The first possibility is that the South could have under-assessed its 57.7 percent share of the market-based value of all realty in the 13 colonies, reporting only 38.1 percent. This heavy-evasion assumption would imply that we should mark up greatly South Atlantic real estate values in 1798-1800, from a South/North assessment ratio of 38.1/61.9 = 0.62 to a market ratio of 57.7/42.3 = 1.36.[[5]](#footnote-6) The opposite possibility is that Southern realty was truly worth only 38.1 percent of total market value, implying that its relative real estate values must have crashed in the Revolutionary war and postwar years.

Neither extreme seems persuasive. The second, or no-underassessment, assumption would have to disregard the three clues implying that the South differentially under-assessed realty and slaves. The heavy-evasion assumption strains belief by implying that the South Atlantic suffered such enormous relative war and postwar losses. The true underassessment differential probably lies between these two extremes. We therefore settle on a middle-evasion assumption. That is, we assume that the North had the 15.5 percent underassessment of real estate demonstrated in the 1799 Connecticut market study, and that the South had the same 15.5 percent underassessment plus half of the possible extra underassessment.

Finally, as noted in the main text, the absence of data on property other than real estate and slaves forced us to use the same ratios of total property/(realty plus slave values) obtained from the 1774 evidence to inflate them to total property. We have applied region-specific ratios to each of the three colonial regions (Property totals 1798-1800”, worksheet (5)).

**The 1774 total-income estimates, and the summary social table**

 The property incomes for 1774 were then merged with the own-labor incomes, both those of the free and the retained incomes of slaves. The greatest single complication in this income-merging process was the assignment of the labor income of free non-household heads to the households headed by other persons, as explained in the text and in Appendices 1 and 2. For the details of the final merger, see the file “American incomes detail 1774” in the supplementary materials. Its results are condensed and summarized in the file “American social table 1774”.

 Again, the same merging of labor and property incomes could not be done for 1798-1800, since the 1798 property returns did not offer any breakdown by occupational classes.

1. The work on occupational and household mixes was developed simultaneously for the task of estimating property incomes and the task of estimating labor earnings. Scholars particularly interested in the occupational mix should therefore study the detail in occupational mix worksheets of the three regional files on “Property 1774”, and should also consult Appendix 1. [↑](#footnote-ref-2)
2. We obtained our copy from Diana McCain of the library of the Connecticut Historical Society Museum (CHSM). The original microfilm on file with the CHSM was apparently assembled by E. James Ferguson of Queens College, Flushing, New York on October 3, 1969. [↑](#footnote-ref-3)
3. See the Excel file “Property totals 1798-1800”. [↑](#footnote-ref-4)
4. The *ad valorem* tax rate as a share of the Fogel-Engerman slave values (1976, updated 2006) resembles the share of slaves that were reported. This again suggests that the undercount of slaves was the main mechanism for understatement of Southern taxable wealth. The slave undercount was common to all states in 1798, though over 60% of the 1800-census slaves were reported in Connecticut, New York, and Pennsylvania, whereas less than 40% were reported in New Jersey, Kentucky, and Tennessee. [↑](#footnote-ref-5)
5. The algebra of adjustment to reported South Atlantic realty is as follows. We observe the ratio of total assessed values, South to North (*As*/*An*) = 0.381/0.619. Under the high-evasion assumption, the regional ratio of true market values (*Rs*/*Rn*) = 0.577/0.423. Within the regions, the relationships of assessed to market value are *As* = (1-*Us*) *Rs,* or *An* = (1-*Un*) *Rn*, where the *U*’s are the shares of underassessment. The 1799 market value study suggested that *Un* = 0.155 in the North. These values imply that the market value of Southern real estate *Rs* = 2.6226 times *As*, so that the underassessment rate *Us* = 0.619. (Just by coincidence, this matches the Northern share of assessments, given above.)

 When Tables 3 and 4 introduce estimates of nominal income based on our middle-evasion assumption, one can add $9.547 million to get the result obtainable from the high-evasion assumption for 1800, or subtract the same amount for the no-extra-evasion result. [↑](#footnote-ref-6)