

A Review of “Accounting for Slavery:
State-Level Gross Domestic Product in the
United States, 1839–1899” by Francis (2025)

Reviewer 2.0.1

December 31, 2025

v1



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Disclaimer

This review has been generated by large language models. Measures have been taken to avoid hallucinations, but the assessment and any claims made should be confirmed by qualified human reviewers rather than taken on faith.

I am wiser than this person; for it is likely that neither of us knows anything fine and good, but he thinks he knows something when he does not know it, whereas I, just as I do not know, do not think I know, either. I seem, then, to be wiser than him in this small way, at least: that what I do not know, I do not think I know, either.

Plato, *The Apology of Socrates*, 21d

To err is human. All human knowledge is fallible and therefore uncertain. It follows that we must distinguish sharply between truth and certainty. That to err is human means not only that we must constantly struggle against error, but also that, even when we have taken the greatest care, we cannot be completely certain that we have not made a mistake.

Karl Popper, 'Knowledge and the Shaping of Reality'

Overview

Citation: Francis, J. (2025). Accounting for Slavery: State-Level Gross Domestic Product in the United States, 1839–1899. Unpublished paper.

URL: https://github.com/joefrancis505/Accounting_for_Slavery

Abstract Summary: New estimates of state-level *GDP* for fifteen sectors (1839–1899) suggest that slavery was highly inefficient from a microeconomic perspective due to labor misallocation, but it was essential for the Deep South's low-productivity agricultural sector, making American capitalism indebted to slavery for macroeconomic benefits derived from the cotton boom.

Key Methodology: Estimation of state-level *GDP* for fifteen sectors (1839–1899) by distributing national *GNP* estimates (primarily Gallman's) using census data, labor force series (Weiss, Ruggles), and wage compilations (Lebergott).

Research Question: What was the role of slavery and its legacies in the economic history of the United States, particularly concerning regional growth and the North-South divergence?

Editor's Note

Reviewer 2 has provided a rigorous critique that targets the mechanical underpinnings of your GDP estimates and identifies a potential rhetorical contradiction regarding the role of cotton. While their tone is critical, their objections regarding the “static” nature of your proxies are standard for cliometric work and can be addressed without abandoning your core project. The reviewer concedes that your broad revisionist picture is credible; the challenge lies in proving that your specific numbers are robust enough to support that picture. The most dangerous critique is the alleged inconsistency between minimizing cotton’s share to refute Wright and maximizing its importance to indict American capitalism. You must resolve this tension to ensure the paper’s logic holds together.

Plan A is the maximalist strategy that preserves your ambitious argument about slavery’s structural centrality to American capitalism while defending the integrity of your new estimates. This approach requires you to tackle the “Cotton Paradox” head-on rather than retreating from it. You should clarify that there is no contradiction between cotton having a modest share of total GDP (accounting logic) and it being the strategic prime mover of the Southern economy (structural logic). You can argue that while cotton’s direct value-added was only roughly 14 percent (p. 13), the entire capital structure of the Deep South—land values, credit networks, and labor allocation—was organized around its production. Therefore, Wright is wrong because demand fluctuations alone cannot explain the postbellum collapse (the accounting argument), but the economy remained “indebted” to slavery because the withdrawal of coerced labor shattered the specific asset valuations that cotton sustained (the structural argument).

To support the quantitative side of Plan A, you must address the “fragility” critique not by gathering massive new datasets, which would take years, but by conducting the sensitivity analyses the reviewer requests. You do not need to perform complex Monte Carlo simulations, but you should add an appendix or a section on robustness. Specifically, recalculate the Southern GDP estimates assuming the shelter weight is 5 percent and 20 percent (instead of the current 10 percent). If the South remains wealthy relative to the North under the lower bound, the reviewer’s objection is neutralized. Similarly, regarding the “static”

agricultural coefficients, you should concede that 1848 ratios are imperfect but argue that they likely *underestimate* Southern productivity growth in the 1850s (the peak cotton boom), meaning your finding of a wealthy antebellum South is actually a conservative lower bound. By framing your methodological limitations as conservative biases that work against your thesis, you strengthen the credibility of your results. Finally, you must correct the arithmetic errors in Table 5 (p. 15), as these unforced errors give the reviewer an easy reason to doubt your wider competence.

Plan B is the pragmatic strategy for rapid publication. This approach assumes that defending the “Debt of American Capitalism” argument is too risky given the “Cotton Paradox” critique. In this plan, you would pivot the paper to be a purely descriptive contribution to historical national accounts. You would accept the reviewer’s logic that one cannot simultaneously argue cotton was small enough to ignore regarding demand shocks but big enough to define the macroeconomic system. Consequently, you would delete the more speculative sections in the introduction and conclusion that claim American capitalism was indebted to slavery. Instead, focus entirely on the empirical contribution: providing the first annual state-level GDP series.

Under Plan B, you would frame the paper narrowly as a test of the Easterlin-Wright debate. Your argument would be restricted to the finding that the South was indeed rich before the war and that the postbellum decline was driven by labor withdrawal, as shown in Figures 1 and 2 (p. 10, p. 11). You would acknowledge the limitations of the fixed proxies more openly, perhaps moving the discussion of the “static” coefficients to the main text as a caveat. You would frame the estimates as “benchmark indices” rather than precise accounting measures. This lowers the burden of proof. You would still need to fix the Table 5 math and perhaps offer a brief footnote on the shelter weights, but you would not need to construct the elaborate defense of the “structural vs. accounting” role of cotton required in Plan A. This path sacrifices the broader political economy argument to secure the acceptance of the quantitative dataset.

Priorities for revision:

- Resolve the “Cotton Paradox” by distinguishing between cotton’s accounting share (14

percent) and its role in asset valuation, or remove the macro-debt argument entirely.

- Conduct a sensitivity analysis on the “Shelter” sector weights (varying from 5 to 20 percent) to prove the “Rich South” finding is robust to parameter changes.
- Correct the arithmetic discrepancies in Table 5 (p. 15) regarding GDP per worker to restore confidence in the data processing.
- Address the “static” agricultural feed ratios by arguing that applying 1848 coefficients to the 1850s likely underestimates antebellum Southern efficiency, making the results conservative.
- Explicitly acknowledge the bias in the “Farm Improvements” proxy, noting how it might affect the North-South comparison, to satisfy the reviewer’s technical scrutiny.

Summary

Is It Credible?

Francis's paper is a technically ambitious cliometric exercise that successfully challenges the "backward South" narrative, yet it ultimately rests on a foundation of static proxies that limits its precision. The paper's central contribution—a new dataset of state-level GDP from 1839 to 1899 (p. 1)—is a significant improvement over the older Easterlin estimates in terms of granularity. By constructing estimates from the output side, Francis plausibly demonstrates that the antebellum South was wealthy, that its postbellum decline was precipitous, and that the withdrawal of enslaved labor played a mechanical role in that contraction. In broad strokes, the revisionist picture of a prosperous, efficient (in market terms) slave economy is credible and aligns with the earlier findings of Fogel and Engerman.

However, the credibility of the specific estimates erodes when one examines the "scaffolding" used to construct them. The methodology relies heavily on distributing fixed national totals (derived from Gallman) across states using proxies that are often static or arbitrary. For instance, the use of feed ratios from a single 1848 source to calculate net agricultural output across a sixty-year period (1839–1899) ignores the biological and technological evolution of American agriculture. Similarly, the valuation of shelter for the enslaved—a non-trivial component of Southern GDP—relies on an uncited, arbitrary weighting factor. While the author admits these are "rough approximations," the rigidity of these coefficients in a paper purporting to track dynamic structural change introduces a layer of uncertainty that the paper does not fully grapple with. The result is a dataset that is likely correct in its direction but spurious in its precision.

Furthermore, the paper presents an analytical tension regarding the role of cotton. When refuting Gavin Wright, Francis uses the "small" share of cotton in Southern GDP (approx. 14 percent) to argue that the region's prosperity was not solely dependent on the fiber or world demand. Yet, when arguing that American capitalism was "substantially indebted" to slavery, the author pivots to a claim of essentiality—arguing that the Deep South's economy would have collapsed without coerced labor. The paper presents an analytical tension,

relying on accounting logic (where cotton is small) in one section and structural logic (where cotton is king) in another, which creates an internal inconsistency.

Ultimately, the paper is a valuable corrective to the view that slavery was inherently impoverishing for the slaveholder, but it overstates the novelty of its “new” numbers, which are essentially a reshuffling of existing national series using fixed allocators. The findings regarding the postbellum divergence and the role of racism are compelling, but they are derived from standard growth accounting identities rather than new causal identification strategies. The paper is credible as a descriptive macroeconomic history, but its specific quantitative claims should be treated as illustrative estimates rather than definitive accounting.

The Bottom Line

Francis provides a useful, if methodologically fragile, update to US regional economic history, confirming that the antebellum South was wealthy and that its postbellum collapse was driven by the withdrawal of labor and the persistence of the agricultural trap. However, the “new” GDP estimates rely on static and arbitrary coefficients that obscure the true dynamism of the period, and the author’s argument regarding cotton contradicts itself by simultaneously minimizing the sector’s size to refute critics and maximizing its importance to indict the broader economic system.

Specific Issues

Arbitrary weighting in shelter valuation: The estimation of the “Shelter” sector, which accounts for roughly 7 to 10.5 percent of Southern GDP (p. 13), relies on a formula where the enslaved population is “weighted at 10 percent of the free” (p. 6). The text provides no empirical justification, historical citation, or sensitivity analysis for this specific parameter. Given that the enslaved comprised roughly one-third of the Southern population, the choice of this weight significantly impacts the aggregate GDP figure. A shift in this arbitrary parameter—for example, assuming the housing of the enslaved was worth 20 percent or 5 percent of free housing—would mechanically alter the region’s estimated relative wealth, casting doubt on the precision of the prosperity claimed in the results.

Static agricultural coefficients (1839–1899): The calculation of net agricultural output relies on fixed feed ratios (e.g., 5 bushels of corn per horse) derived from a single 1848 source (*Commercial Review*) and applies them across the entire sixty-year period (p. 4, fn 4). This methodology implicitly assumes zero change in animal husbandry, feed efficiency, or biological standards during a period of profound agricultural transformation. By freezing these technical coefficients in 1848, the estimates likely distort the trends in agricultural value-added, particularly in the later decades of the 19th century, potentially masking productivity gains or losses in the sector that dominated the Southern economy.

Contradiction on the economic role of cotton: There is a logical tension between the paper’s quantitative evidence and its qualitative conclusions regarding cotton. To refute Gavin Wright’s argument that Southern prosperity was a “mirage” of demand, the author highlights that cotton accounted for only ~14 percent of Southern GDP (p. 12), implying the sector was not overwhelmingly dominant. However, to support the claim that American capitalism was “substantially indebted to slavery,” the author argues that the cotton boom was macroeconomically essential and required coerced labor (pp. 1, 3). The author cannot consistently rely on the sector’s quantitative smallness to dismiss Wright while simultaneously asserting its structural dominance to establish the debt of American capitalism.

Arithmetic discrepancies in productivity data: Table 5 contains unexplained arithmetic er-

rors that undermine confidence in the data processing. For “Free states,” the table reports a GDP of \$3.2 billion and a labor force of 5.9 million, which should yield approximately \$542 per worker, yet the table reports \$510 (p. 15). Similarly, for “Slave states,” the implied math ($\$1.5 \text{ billion} / 5.1 \text{ million}$) yields ~\$294 per worker, while the table reports \$306. While these may be rounding errors or result from definitional inconsistencies, the presence of arithmetic discrepancies in a descriptive statistics table undermines confidence in the rigor of the underlying calculations.

Flawed proxy for farm improvements: The paper estimates “Farm improvements” by distributing a national total based on the absolute growth of the agricultural labor force (p. 5). This method assumes that “improvements” (capital formation in land) are zero in states where the agricultural labor force is shrinking, such as in the Northeast. This ignores the reality of capital deepening, maintenance, and intensification in established agricultural regions. While farm improvements are a small share of GDP, this proxy systematically undervalues the agricultural capital formation of the North while overvaluing the extensive growth of the frontier South, potentially biasing the regional comparison.

Future Research

Dynamic agricultural coefficients: Future research must abandon the use of static 1848 feed ratios for late 19th-century agriculture. Researchers should utilize state-level data from Agricultural Experiment Stations (available from the 1880s onwards) and farm management surveys to construct dynamic, time-varying coefficients for feed, seed, and milk yields. This would allow for a true measurement of agricultural productivity changes over the period, rather than imposing a static production function on a transforming sector.

Sensitivity analysis of imputed values: Given the reliance on “magic numbers” like the 10 percent shelter weight, future work should employ Monte Carlo simulations to generate confidence intervals around state-level GDP estimates. By varying these assumed parameters within historically plausible ranges (e.g., testing shelter weights from 5 percent to 25 percent), researchers can establish the robustness of the “Rich South” finding and quantify the margin of error inherent in these historical reconstructions.

Regional price indices for real comparisons: The current paper compares nominal GDP per capita, acknowledging that it cannot account for regional price differences (p. 8). Future research should construct region-specific price deflators for the 1839–1899 period, incorporating the lower cost of non-tradables (housing, services) in the rural South. This would allow for a comparison of real standards of living (PPP-adjusted), which would likely reinforce the finding of Southern prosperity but provide a more accurate measure of the welfare gap between the North and South.

Welfare-adjusted national accounts: To resolve the paradox of slavery being “micro-inefficient” but “macro-productive,” future research should move beyond standard GDP accounting to calculate “Welfare-Adjusted GDP.” This would involve explicitly subtracting the value of “stolen wages” or the disutility of forced labor from the Southern accounts. By formalizing the “tax” slavery imposed on the enslaved as a deduction from regional income, researchers can quantitatively reconcile the high market output of the plantation system with its catastrophic failure in human welfare terms.

Copyediting

The manuscript presents a significant revisionist contribution to American economic history, offering a new, granular dataset that challenges established narratives regarding the antebellum South's wealth and postbellum decline. However, the text currently faces a central tension identified by the reviewers: the "Cotton Paradox." You simultaneously argue that cotton was a small component of GDP (to refute Gavin Wright) but structurally essential to American capitalism (to support your broader thesis). To strengthen the paper, revisions should focus on resolving this tension by distinguishing between cotton's direct accounting share and its role in asset valuation and credit markets. Additionally, addressing the mechanical critiques regarding static proxies and correcting the arithmetic errors in Table 5 are essential to maintaining the credibility of the quantitative work.

- p. 1 The abstract currently states: "Yet this inefficiency implies that free labor could not have substituted for enslaved labor... any macroeconomic benefits... were substantially indebted to slavery." This transition leaps from microeconomic inefficiency to macroeconomic dependence without explaining the mechanism, given that you later argue cotton was a small part of GDP. To resolve the "Cotton Paradox" immediately, consider revising this section to distinguish between flow and stock. You might argue that while cotton's direct contribution to annual GDP was modest (accounting logic), the region's capital structure and asset valuations were predicated on the coerced labor system (structural logic). This clarifies how the economy could be "indebted" to slavery even if the cotton sector itself was not the majority of output.
- p. 4 The text states: "deductions are made from corn output based on 5 bushels per horse... in each state." As noted by the reviewer, applying a fixed 1848 coefficient across sixty years ignores agricultural evolution. To preempt the critique that this methodology is too static, consider adding a sentence or footnote acknowledging this limitation but framing it as a conservative bias. You could argue that if agricultural productivity and feed efficiency improved over the period, applying 1848 ratios likely underestimates the net output in the later antebellum years, meaning your finding of a wealthy

South is a lower-bound estimate.

- p. 6 The methodology notes: “Shelter is estimated using the total population from census data, with the enslaved weighted at 10 percent of the free.” This weighting is identified by the reviewer as an arbitrary “magic number” that significantly affects the results. To demonstrate robustness, consider adding a brief discussion or a footnote reporting the results of a sensitivity analysis. For example, you might state that recalculating the estimates with weights ranging from 5 percent to 20 percent does not alter the fundamental finding that the South was wealthy relative to the North, thereby neutralizing the critique that the results hinge on this specific parameter.
- p. 8 The text admits: “What the new estimates cannot do, unfortunately, is provide estimates of regional growth rates.” This concession comes somewhat late and undermines the critique of Wright’s “unsustainable growth” argument. Consider framing this more positively or moving the caveat earlier. You might clarify that while precise growth rates are difficult to pin down due to the lack of regional price indices, the *levels* of wealth and income provided by the new estimates are sufficient to establish the South’s relative prosperity and the subsequent shock of abolition, regardless of the precise pre-war growth trajectory.
- p. 12 The text argues: “Table 4 indicates that cotton accounted for about 14 percent of Southern GDP in 1859, which implies that world demand for cotton could not have had the overwhelming importance that Wright ascribes to it.” This is the crux of the “Cotton Paradox.” If you intend to maintain the argument that American capitalism was indebted to slavery, you should refine this sentence to specify that world demand could not explain the region’s *prosperity* via the income channel alone. This leaves room to argue later that the *collapse* was driven by the destruction of the asset values and labor compulsion that cotton sustained, reconciling the “small sector” data with the “large impact” conclusion.
- p. 15 Table 5 reports GDP per worker for “Free states” as \$510 and “Slave states” as \$306. However, dividing the reported GDP (\$3.2 billion) by the labor force (5.9 million) for Free states yields approximately \$542. Similarly, for Slave states (\$1.5 billion / 5.1

million), the result is approximately \$294. These arithmetic discrepancies undermine confidence in the data processing. Please verify these calculations and correct the table to ensure the derived figures match the underlying aggregates.

- **p. 18** The conclusion states: “Those benefits may, moreover, have been felt beyond the South—in the North.” This claim appears abruptly at the very end of the paper without prior quantitative support in the text. To align this with the “Plan A” strategy of the Editor’s Note, consider expanding this final paragraph to briefly connect the “structural” argument back to the North—perhaps by noting how Northern financial and commercial sectors were integrated with the Southern asset markets that slavery underpinned. This would provide a logical closing loop to the argument that American capitalism, not just Southern agriculture, was indebted to the institution.

Proofreading

The following errors were identified:

Page	Original Text	Issue	Suggested Correction
8	The correlation with Easterlin's estimates are looser, presumably because he used a narrow definition of personal income, as discussed above.	Grammatical mistake	The correlation with Easterlin's estimates is looser, presumably because he used a narrow definition of personal income, as discussed above.

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