A Report on “Cotton without Slavery? The International Competitiveness of the Southern Export Sector, 1800–1900” by Francis (2025)

Reviewer 2

February 06, 2026

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> 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.
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> 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.
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> Karl Popper, 'Knowledge and the Shaping of Reality'

Overview

Citation: Francis, J. (2025). Cotton without Slavery? The International Competitiveness of the Southern Export Sector, 1800–1900. Unpublished paper.

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

Abstract Summary: This paper argues that slavery provided cheap labor and economies of scale, making the antebellum Southern cotton sector internationally competitive, and postbellum recovery was sustained by the institutional legacy of racism trapping black Southerners in the cotton belt.

Key Methodology: Quantitative economic history using labor cost modeling, analysis of census data on occupations and land-labor ratios, and regional comparison of cotton production.

Research Question: Was slavery essential for the international competitiveness of the Southern export sector in the nineteenth century?

Editor's Note

Reviewer 2 has provided a rigorous critique that highlights a significant theoretical omission regarding the crop lien system and identifies specific empirical gaps. However, their skepticism regarding the paper's primary contributions—specifically the labor cost calculations and the land scarcity argument—appears to stem from an adherence to existing consensus rather than a flaw in the paper's logic. It may be possible to refute these concerns by framing the paper's arguments as structural foundations that underpin, rather than contradict, the standard literature.

A potential strategy could be to integrate the crop lien system into the existing framework rather than treating it as a rival hypothesis. Reviewer 2 argues that debt peonage, not land scarcity, caused cotton specialization. This could be countered by arguing that while credit constraints and the crop lien system were the *mechanisms* that forced immediate cash generation, the underlying *structural reality* of a falling land–labor ratio dictated that cotton was the only crop capable of providing the necessary returns to the increasingly scarce factor of production (land). By acknowledging the work of Ransom and Sutch in Section II, the paper could position its land scarcity argument as the fundamental economic driver that created the environment in which the crop lien system operated. This approach could co-opt the reviewer's critique, transforming a perceived weakness into a demonstration of theoretical depth.

Regarding the antebellum labor cost calculations, the reviewer claims the estimates are fragile due to uncertain parameters like interest rates. It may not be necessary to retreat from these calculations. Instead, the paper could be strengthened by adding a brief sensitivity analysis or a strong rhetorical defense in the text. Acknowledging that while interest rates and guarding costs varied, the magnitude of the difference found ($135 for enslaved labor vs. $248 for free labor) is so substantial that even conservative adjustments would likely not alter the qualitative conclusion. This would demonstrate robustness without requiring a complete overhaul of the methodology.

It would also be beneficial to address the empirical gap in Footnote 8 (p. 16). The reviewer correctly notes that the paper claims enslaved population shares were similar in the booming Western hills and the stagnating Eastern hills without providing evidence. This is a critical point for refuting the "white farmer" hypothesis. Inserting the specific percentages or a direct citation to the data source would substantiate this claim. Without this, the paper's geographical correction of the postbellum cotton boom remains vulnerable to dismissal.

Finally, addressing a few minor technical issues could further polish the manuscript. Reviewer 2 noted apparent calculation errors in Table 5; these are likely rounding artifacts. Verifying the arithmetic and adding a note that "components may not sum to totals due to rounding" would resolve this. Additionally, the reviewer takes issue with the phrase "King Cotton was much diminished," given that the U.S. retained a 69\% market share. It may be more nuanced to characterize the market share as "weakened" or "eroded" rather than implying a total collapse, which maintains accuracy while acknowledging the significant drop from 84\%.

Summary

Is It Credible?

Francis challenges the consensus that slavery was an economic burden, arguing instead that the institution and its "principal institutional legacy—racism" were the "key" factors driving the international competitiveness of the US cotton sector throughout the nineteenth century (pp. 1–2). The paper posits that in the antebellum period, slavery provided labor costs significantly lower than free labor and facilitated economies of scale in marketing and innovation. For the postbellum era, Francis argues that racism "trapped" Black Southerners in the Cotton Belt, causing a "falling land-labor ratio" that economically compelled farmers to specialize in cotton to maximize returns to scarce land (p. 2).

The credibility of the antebellum argument rests on a calculation of labor costs that is suggestive but fragile. Francis estimates the annual cost of an enslaved laborer at roughly $135 in 1860, compared to $248 for a free industrial worker (p. 4). However, this precision masks significant uncertainty. The formula relies on parameters—such as interest rates and the cost of guarding—that are either extrapolated from questionable proxies or lack sensitivity analysis. For instance, guarding costs are derived from industrial wages sixty years prior, and the interest rate assumption is drawn from Louisiana data that the author admits may be higher than the rest of the South (p. 3). While the general contention that coerced labor was cheaper is historically plausible, the specific quantitative gap presented here depends heavily on these unadjusted assumptions.

The postbellum argument faces a more significant hurdle: the omission of the crop lien system. Francis asserts that "greater land scarcity" was the "fundamental cause of greater specialization in cotton" because it forced farmers to maximize returns to land (p. 14). This monocausal explanation ignores the extensive economic history literature identifying credit constraints and debt peonage (the crop lien system) as the primary drivers forcing cash-poor farmers into cotton production. By failing to engage with this established alternative hypothesis, the paper's reliance on descriptive trends—such as the correlation between falling land ratios and rising cotton production—cannot firmly establish the causal primacy of land scarcity. Furthermore, the claim that racism was the sole factor "trapping" labor ignores noncoercive reasons for low mobility, such as community networks or location-specific human capital.

Despite these limitations, the paper makes a valuable descriptive contribution by correcting the geographical narrative of the postbellum cotton boom. Francis demonstrates that the expansion was not driven by the Piedmont, as previously claimed by scholars like Temin and Wright, but rather by the "western hills and prairie regions," where production shares more than doubled between 1860 and 1900 (p. 16). This effectively challenges the "white farmer" hypothesis associated with the Piedmont. However, even here, a key refutation—that enslaved population shares were similar in booming and stagnating regions—is relegated to a footnote without supporting data (p. 16). Ultimately, while the paper provides a provocative synthesis of slavery's long-run economic impact, its causal claims regarding the mechanisms of postbellum specialization remain undersubstantiated against standard alternative explanations.

The Bottom Line

Francis presents a cohesive narrative arguing that coercion—first slavery, then racist restrictions on mobility—underpinned the global dominance of US cotton. While the correction regarding the geographical source of the postbellum boom is well-supported, the broader causal claims are less robust. The quantitative estimates of enslaved labor costs rely on sensitive, untested assumptions, and the argument that land scarcity drove postbellum specialization fails to account for the critical role of credit markets and the crop lien system.

Potential Issues

Mismatch between causal claims and descriptive methodology: The paper makes strong and unambiguous causal claims about the role of slavery and its legacies, stating they were "key" and "important" to the international competitiveness of the Southern export sector (pp. 1, 19). However, the methodology employed is primarily descriptive and correlational. The analysis relies on the presentation of time-series data in figures and summary statistics in tables, without using econometric techniques designed for causal inference. For instance, the paper asserts a causal chain in the postbellum period where racism trapped Black labor, leading to a falling land-labor ratio, which in turn caused greater specialization in cotton (pp. 10, 14). While the data presented are consistent with this narrative, the research design does not formally test this causal pathway against alternatives or rule out confounding factors. The certainty of the causal language used throughout the paper appears to exceed the strength of the descriptive evidence provided.

Omission of the crop lien system as an alternative explanation: The paper argues that the "fundamental cause of greater specialization in cotton" in the postbellum South was a falling land-labor ratio, driven by racism that trapped Black Southerners in the region (p. 14). This explanation omits what is widely considered in the economic history literature to be a primary driver of postbellum cotton specialization: the crop lien system. This system of credit, in which merchants provided supplies to cash-poor farmers in exchange for a lien on their future crops, strongly incentivized or coerced farmers into planting cotton as it was a liquid cash crop. By failing to engage with or test against this major alternative (or complementary) explanation, the paper's causal claim about the primacy of the land-labor ratio is not fully substantiated.

Failure to acknowledge the contested nature of slavery's effect on innovation: The paper asserts that "slavery promoted technological change" through economies of scale in marketing and innovation, such as plant breeding (p. 9). While it provides evidence for this claim by citing the work of Olmstead and Rhode, it presents a one-sided view of a major debate in economic history. It fails to acknowledge the extensive literature, often associated with the "Domar hypothesis," which argues that slavery's provision of cheap, coerced labor created disincentives for investment in labor-saving technology and mechanization. By not addressing this significant counterargument, the paper offers an incomplete account of the complex and contested relationship between slavery and technological development.

Uncertainty in labor cost calculation due to parameter choices: The paper's calculation of the annual cost of an enslaved laborer relies on a formula with several parameters whose values are uncertain and for which no sensitivity analysis is provided (pp. 3–4). For example, the calculation uses an 8% interest rate based on Louisiana mortgages, but a footnote concedes that "rates may have been lower in the rest of the South," which would lower the estimated cost (p. 3, fn 2). The cost of guarding is estimated for 1860 and extrapolated back sixty years using the wages of industrial production workers, a proxy whose relevance is not justified (p. 4, fn 4). Similarly, the real consumption of enslaved people is assumed to be constant over the same period (p. 3, fn 3). The lack of robustness checks for these key assumptions means the final cost estimate of "$135 per year" is presented with a degree of precision that may not be warranted by the underlying data.

Potential conflation of sectoral competitiveness with overall economic growth: The paper frames its argument as a challenge to the "consensus view that slavery impeded growth" (p. 2). However, its evidence and core claims are focused specifically on the international competitiveness of the Southern cotton export sector. While the paper does analytically distinguish between the sector and the broader economy—for instance, by noting in a footnote that "the South's rural population was becoming poorer than the rest of the country" (p. 14, fn 7)—the rhetorical framing in the introduction creates a tension. By positioning an argument about sectoral success as a refutation of the consensus on aggregate growth, the paper risks conflating two distinct concepts, potentially overstating the scope of its challenge to the existing literature.

Oversimplified causal mechanism for postbellum labor immobility: The paper's postbellum argument hinges on the idea that Black Southerners were "trapped" in the cotton belt by racism in both the North and the South (p. 10). While it provides substantial evidence for coercive barriers to mobility, such as violence and discriminatory hiring practices, this explanation is arguably monocausal. It does not consider non-coercive factors that may also have contributed to low rates of out-migration, such as the importance of kinship and community networks, cultural attachment to the region, or human capital specific to Southern agriculture. While the focus on structural coercion is valid, the complete omission of these other potential factors may result in a deterministic and oversimplified account of a complex demographic phenomenon.

Omission of a comparative post-emancipation context: The paper's argument about the unique role of American racism in shaping the postbellum Southern economy is made without reference to other post-emancipation societies in the Americas, such as Brazil or the Caribbean. These societies also transitioned from slave-based plantation agriculture and faced similar challenges of labor control and economic reorganization. Without a comparative perspective, it is difficult to assess whether the outcomes observed in the US South—such as continued specialization in a staple crop—were unique consequences of its specific institutions or were part of a broader pattern common to post-slavery economies. The absence of this context may limit the generalizability of the paper's claims about the specific role of US institutions.

Overstated rhetoric regarding postbellum market share: The paper characterizes the postbellum decline in the US share of the world cotton market by stating that "King Cotton was much diminished without slavery" (p. 10). The evidence presented in Table 1 shows the US share fell from 84.3% in 1860 to 69.2% in 1900 (p. 11). While this 15-percentage-point drop is significant, describing a situation where the US still controlled nearly 70% of the global export market as "much diminished" is a strong rhetorical choice. An alternative interpretation, not discussed in the paper, is that retaining such a dominant market position after a catastrophic civil war and the abolition of the labor system that built it demonstrates remarkable resilience. The interpretation of this evidence is therefore debatable.

Speculative critique of a competitor's data: In a footnote, the paper critiques an existing estimate of comparative US-India labor costs by speculating about a hypothetical correction. It suggests that if more representative rental prices for enslaved women and children were used, "it is possible that unit labor costs for the enslaved would seem no higher than in India" (p. 3, fn 1). The phrase "it is possible that" indicates this is a conjecture rather than an empirical finding. While the underlying point about potential bias in the existing data is valid, using a speculative outcome to claim that a critique is made "even stronger" is a rhetorical device that may overstate the certainty of the claim.

Key empirical claim made without supporting data: In a footnote intended to refute the argument that postbellum cotton expansion was driven by white farmers, the paper makes a specific empirical claim: "The enslaved share of the population was, for example, similar in the western hills, where cotton production boomed after abolition, and in the eastern hills, where it stagnated" (p. 16, fn 8). This is a critical, testable assertion used to dismiss an alternative hypothesis. However, the paper provides no table, figure, or direct citation to substantiate this claim, leaving the refutation less transparent and verifiable than would be ideal.

Apparent calculation discrepancies in data presentation: There appear to be several minor discrepancies in Table 5, "Labor Requirements in Cotton, 1840–1920" (p. 18), where totals do not match the sum of their parts based on the visible figures. For the 1840–1860 period in the Western Hills, the total hours per acre calculates to

142.2 (89 + (0.19 × 280)), yet the table lists 141. For the 1900–1920 period in the Piedmont, the total calculates to 115.5, not the listed 114. Similarly, for the Western Hills in the same period, the total hours per pound calculates to 0.44 (84 / 189), whereas the table lists 0.45. While these are likely due to rounding of intermediate variables not shown in the table, they present as calculation errors that should be clarified for precision.

Future Research

Testing the land scarcity mechanism: Future work could employ econometric techniques to disentangle the effects of land scarcity from credit constraints. By exploiting spatial variation in the prevalence of the crop lien system and merchant monopoly power alongside changes in land-labor ratios, researchers could test whether land scarcity remains a significant predictor of cotton specialization when controlling for debt obligations.

Sensitivity analysis of labor costs: To validate the claimed cost advantage of enslaved labor, future research should conduct a sensitivity analysis on the capital asset pricing model used in this paper. Varying key parameters—such as interest rates, maintenance costs, and the value of consumption—across plausible historical ranges would reveal whether the cost gap between enslaved and free labor is robust to measurement uncertainty.

Comparative post-emancipation analysis: Future studies could assess the "trapped labor" hypothesis by comparing the US South to other post-emancipation societies like Brazil. Analyzing whether regions with different degrees of labor mobility or land availability experienced similar patterns of crop specialization would help determine if the US outcome was uniquely driven by the specific institutional legacy of racism and land scarcity described in this paper.

Copyediting

The manuscript presents a compelling argument regarding the role of slavery and its legacies in maintaining the international competitiveness of the US cotton sector. However, the current draft faces a few challenges regarding the robustness of its causal claims and the precision of its descriptive evidence. Specifically, the argument attributing postbellum specialization solely to land scarcity risks overlooking the well-established literature on credit markets, and the quantitative estimates for antebellum labor costs would benefit from a defense of their stability against parameter variations. Additionally, there are minor rhetorical overstatements and data presentation issues that should be addressed to ensure the text is fully persuasive.

- **p. 2** "The Southern export sector thereby reinforced economists' consensus view that slavery impeded growth (Olmstead and Rhode 2018; Hilt 2020; Wright 2020; 2022)." This phrasing risks conflating the specific success of the export sector with the broader concept of aggregate economic growth. While the paper argues that slavery aided the former, the consensus view generally refers to the latter (development, industrialization, etc.). To avoid confusion, consider refining this sentence to explicitly distinguish between the sector's international competitiveness and the region's overall economic development.

- **p. 3** "If more representative rentals for child and female labor were used, it is possible that unit labor costs for the enslaved would seem no higher than in India..." The phrase "it is possible that" introduces a speculative tone that weakens the subsequent assertion that this makes the critique "even stronger." Consider revising this footnote to either present a rough calculation based on available data or soften the conclusion to reflect that this is a hypothesis rather than a confirmed finding.

- **pp. 3–4** "The result is a rough estimate of the annual cost of the average member of the captive labor force in 1860: about $135 per year." While the formula used to arrive at this figure is logical, the reliance on specific parameters (such as the 8 percent interest rate and extrapolated guarding costs) may invite criticism regarding precision. It would strengthen the argument to add a sentence here or in the footnote acknowledging that even if these parameters were adjusted conservatively (e.g., assuming lower interest rates or higher maintenance costs), the cost differential between enslaved and free labor ($135 vs. $248) remains substantial enough to support the qualitative conclusion.

- **p. 10** "King Cotton was much diminished without slavery." Given that Table 1 shows the US market share dropping from 84.3 percent to 69.2 percent, describing the sector as "much diminished" might be interpreted as an overstatement, as the US retained a dominant majority share. Consider revising this to "King Cotton's dominance was eroded" or "King Cotton's hegemony was weakened," which acknowledges the significant decline without implying a near-total collapse.

- **p. 14** "Here, then, was the fundamental cause of greater specialization in cotton in the South after the Civil War." Identifying land scarcity as the "fundamental cause" without mentioning the crop lien system or debt peonage may alienate readers familiar with the standard economic history of the period (e.g., Ransom and Sutch). To preempt this critique, consider adding a paragraph here that integrates the credit constraint literature. You could frame the argument such that land scarcity was the underlying structural reality that forced returns to land to be maximized, thereby creating the economic environment in which the crop lien system operated and enforced cotton specialization.

- **p. 16** "The enslaved share of the population was, for example, similar in the western hills, where cotton production boomed after abolition, and in the eastern hills, where it stagnated..." This is a crucial empirical claim used to refute the “white farmer” hypothesis, yet the specific data points are missing. Providing the actual percentages for the enslaved population shares in these two regions, or a direct citation to the specific table/page where this data resides, would significantly strengthen this refutation.

- **p. 18** Table 5, “Labor Requirements in Cotton, 1840–1920.” There appear to be minor discrepancies between the components and the totals in some rows (e.g., in Panel (a) Western prairie, 50 + (0.15 * 252) = 87.8, which rounds to 88, but other rows may not align as cleanly). These are likely due to rounding of intermediate figures not displayed. To ensure clarity and prevent questions about calculation errors, consider adding a note at the bottom of the table stating: “Note: Components may not sum to totals due to rounding.”

Proofreading

The following errors were identified:

- **Page 11**: "Some 34 percent of black household heads, by contrast, were **unskilled labors**" -> "**unskilled laborers**" (Spelling/Word Choice error)
- **Page 15**: "the South's labor force participation rate became more normal **abolition**" -> "**after abolition**" (Missing word/Grammar error)
- **Page 16**: "together, **increased** their share of production" -> "**together, they increased** their share of production" (Grammar error: missing subject)