

REESTIMATING BRAZIL'S GDP GROWTH FROM 1820 TO 1980: A NOTE ON ONGOING RESEARCH

Edmar Bacha, Guilherme Tombolo, and Flavio Versiani

Introduction

Our research on reestimating Brazil's GDP and GDP per capita growth from 1820 to 1980 currently consists of three papers: "Reestimating Brazil's GDP Growth from 1900 to 1980," published in *Revista Brasileira de Economia* in 2023; "A Note on Brazil's Historical GDP per Capita Growth Rates," published in the same journal in 2024; and "Secular Stagnation? A New View on Brazil's Growth in the 19th Century," published in *Revista de Historia Económica/Journal of Iberian and Latin American Economic History* in September 2025.

These papers have generated considerable interest in the research community, as exemplified by Villela (2025), for 1900-1980, and by Bogart et al. (2024), for 1820-1900. This note elaborates on their content and outlines new related research that our papers have stimulated or that is being conducted independently.

Completed research

The first paper presents new estimates for Brazil's real GDP and GDP per capita growth rates between 1900 and 1980, focusing on four subperiods with significantly distinct growth rates—1900–1919, 1919–1947, 1947–1966, and 1966–1980. Our figures are obtained by adding slow-growing service sectors to Haddad's (1980) estimates for 1900–1947, and to IBGE's (1990) estimates for 1947–1980. For 1947–1980, we applied downward revisions to IBGE's estimates that reduced yearly GDP growth from 7.4% to 6.2%. For the 1900–1947 period, our revisions reduced yearly GDP growth from Haddad's 4.4% per year to 4%.

The paper was presented in an online seminar at the Brazilian Institute of Economics (IBRE/FGV-Rio). Partly as a consequence, IBRE has recently established a research team led by Claudio Considera and Roberto Olinto to undertake a revision of Brazil's national accounts from 1947 to 1995. Results—expected for early 2027—should help assess the validity of our suggested revisions for 1947–1980.

Our second paper is a research note comparing the GDP per capita growth rates from 1820 to 1980, derived in our two other papers, with those in the Maddison Project Database (2020) for 1820–1980 and in Ipeadata for 1900–1980—the latter simply merging the Haddad (1980) and IBGE (1990) series.

The third paper proposes new estimates for Brazil's GDP per capita growth rates from 1820 to 1900. It extends (for 1820–1850) and refines (for 1850–1900) Goldsmith's (1986) estimates for 1850–1900. Briefly, the methodology consists of aggregating the growth rates of government revenue and expenditure, exports and imports, and money supply (all in current prices), then dividing the resulting aggregate series by an overall price index (and population estimates) to obtain a proxy for real GDP per capita growth. Goldsmith's estimates include an urban wage series that we left out because we could not get data for the first half of the century. A regression analysis for our GDP proxy indicates a trend growth rate of 0.9% per year from 1820 to 1900, with essentially the same rate for both the 1820–1850 and 1850–1900 subperiods.

Our estimates draw on new data by Carrara (2022) for government accounts and by Absell-Junguito (2018) for trade accounts. Money supply growth is based on the Peláez–Suzigan series in IBGE (1990), and the price indexes come from Lobo et al. (1971), Buescu (1973), and Catão (1992). Data for the Brazilian population in 1820–1915 are from Mortara (1941), and in 1916–1947, from Ipeadata (2022).

Ongoing improvements in measurement of money, prices, and population

The limitations of the Peláez–Suzigan money supply series are well recognized but it has long been used in the absence of a better alternative. The main shortcomings reflect the omission of coins (a major component of the money stock in the early 19th century) and of notes and deposits of banking houses and private banks (important at least from the mid-century through 1864). We are now collaborating with a research team led by Angelo Carrara (UFOP) and Fernando Cerqueira Lima (UFRJ) to produce a new money supply series incorporating these missing components. Results are expected by mid-2026.

The weaknesses of the Lobo and Buescu price series are also well known: Lobo's figures overestimate the inflation rate, while Buescu's come from distinct non-comparable goods samples. Thales Pereira has recently proposed a new price index extending Catão's well-established 1870–1900 series back to 1824. Once published, this new index—combined with the forthcoming money supply series—should enable a revised reassessment of real GDP growth in the 19th century.

Furthermore, Botelho (2025) has recently proposed revised population estimates for the first half of the 19th century that differ substantially from Mortara's (1941) widely-used figures. Botelho's estimates imply a much higher population growth rate in the 19th century than that proposed by Mortara. Given the recency of this work, further academic evaluation will be needed to determine whether these revised estimates should be incorporated into the official historical series maintained by IBGE and Ipeadata.

Ongoing improvements in GDP measurement

To contextualize our methodological strategy, it is useful to note that national accounts methodology recognizes three distinct approaches to measuring GDP: the expenditure approach, the production approach, and the income approach. In principle, all three should yield identical results. However, in practice—particularly for historical periods with limited data—each approach relies on different source materials and thus serves as an independent check on the others.

Following Goldsmith's (1986) pioneering work on Brazilian financial development, our 19th-century estimates adopt the expenditure approach. This method infers GDP growth from the evolution of monetary aggregates, government fiscal accounts, and foreign trade, deflated by price indices. The logic is that increases in monetary circulation, government revenues and expenditures, and trade volumes should collectively reflect underlying economic expansion. Our approach could be improved with the addition of a wage series once new data is made available on this critical private consumption related variable.

The production approach was used by Haddad to extend the national accounts to 1900–1947. Applying a similar supply-side method, Guilherme Tombolo is currently preparing new GDP growth estimates for 1820–1947. His preliminary results for 1820–1900 point out to a 0.8% trend growth rate, very close to that reported in our 19th-century paper. An IEPE/Casa das Garças discussion paper presenting Tombolo's estimates should be available by mid-2026.

Apparently, an income-based approach is being developed by Guilherme Lambais and Nuno Palma in their forthcoming study "How a Nation Was Born: Four Centuries of Brazilian Economic Growth in Comparative Perspective." This inference is based on a recent working paper by the same authors, "African Slavery and the Reckoning of Brazil," which has a figure (Figure 2, p. 9), displaying the behavior of the real wages of unskilled male workers in Brazil from 1574 to 1920. In the period of our interest, from 1820 to 1900, this variable exhibits substantial

volatility but with a clear upward trend. A 27-year moving average, for example, suggests a compound annual growth rate of 1.3%. This variable is not directly comparable to the GDP per capita proxies, but is directionally consistent. Confirmation must await the publication of the Lambais–Palma GDP work, but this preliminary wage evidence suggests a convergence across methodologies regarding Brazil's 19th-century growth performance.

Conclusion and outlook

At present, the expenditure, production, and income approaches apparently all converge in supporting the conclusion advanced in our 2025 paper. In opposition to what current economic historiography has until now asserted, Brazilian GDP per capita did not stagnate during the 19th century but instead would have grown at a rate comparable to those of Europe and other Latin American countries. If confirmed by ongoing research, this finding will have important implications for understanding Brazil's long-run development trajectory and its comparative position within Latin America during the nineteenth century. Together with our revised estimates for the 1900-1980 period, it suggests more continuity between the imperial and republican periods than previously recognized.

This note makes it clear that substantial research efforts are ongoing to refine Brazil's long-run GDP and GDP per capita series since 1800. We are in contact with Jan Luiten van Zanden of the Maddison Project, who has expressed interest in our work and acknowledged that the Project's current depiction of Brazil's historical development is unconvincing—suggesting that revisions such as ours are not only welcome but necessary.

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