Including Small Tools in Measured Capital

A Case Study of Hand Tools

By Rachel Soloveichik[1]

Abstract

Businesses frequently expense small long-lived items rather than reporting them as capital investment. The official guidelines for national accounting, System of National Accounts 2025 (SNA 2025), explicitly discusses this accounting practice under the heading "small tools" (United Nations 2025, section 7.252). SNA 2025 permits expensing small long-lived items when "*expenditures are made regularly and are very small* " and then gives hand tools as a potential example of small long-lived items that could possibly be expensed. As a first step in exploring the overall impact of capitalizing small long-lived items, this preliminary paper presents a case study of hand tools. The results are preliminary only and subject to revisions that reflect comments and additional analysis.

In 2017, capitalizing hand tools raises measured private investment by $10 billion and measured government investment by $3 billion. Contrary to the discussion in the official guidelines, investment in hand tools is neither regular nor very small. Between 1929 and 2024, investment in hand tools was very volatile and averaged 1.2 percent of total equipment investment. Much more research is needed to identify specific categories of small long-lived items which do meet the stringent conditions outlined in SNA 2025. Capitalizing all long-lived items—regardless of size—may be the most practical way for national accountants to align with the official guidelines while maintaining internal consistency across industries and time.

[1] *The views expressed in this paper are those of the author and do not necessarily represent the U.S. Bureau of Economic Analysis, or the U.S. Department of Commerce.*

Introduction

Businesses routinely purchase small long-lived items. These items range from very high-tech products like semiconductor chips for an AI training data center to very low-tech products like hammers used by construction workers. Under generally accepted accounting principles, businesses are allowed to expense these items immediately, even when they contribute to production for more than a year. The official guidelines for national accounting, System of National Accounts 2025 (SNA 2025) also allow countries to expense these items when "*expenditures are made regularly and are very small.*" Consistent with accounting rules, the national income and product accounts (NIPAs) published by the U.S. Bureau of Economic Analysis (BEA) treat purchases of small long-lived items as intermediate consumption rather than capital investment. This paper explores how economic statistics might change if small long-lived items were capitalized.

This preliminary paper focuses on hand tools because that category is the example given in SNA 2025. Capitalizing hand tools modestly increases measured investment. In 2017, equipment investment rises from $1,209 billion to $1,219 billion once hand tools are included. From 1929 to 2024, hand tools averaged 1.2 percent of reported equipment investment. Over the entire 1929 to 2024 period, capitalizing hand tools has little impact on average growth rates. However, hand tool investment is very volatile with nominal declines of more than 50 percent during some recessions. Therefore, capitalizing hand tools can sometimes increase GDP volatility noticeably.

The paper proceeds in three parts. Section 1 reviews accounting rules for small long-lived items. Section 2 uses BEA's input–output tables to estimate purchases of small hand tools and recalculates nominal GDP, GDP prices, and real GDP growth under capitalization. Section 3 presents three robustness checks that support the magnitude of the estimated investment in small tools. Future research may study broader categories of small long-lived items.

Section 1. Business and National Accounting Rules

Tax and business accounting rules

U.S. tax guidance explicitly allows firms to expense small items even when the items last more than one year. One IRS publication notes that tools may be deducted immediately if they have a life expectancy under one year or cost $200 or less per item.

> *Unless the uniform capitalization rules apply, amounts spent for tools used in your business are deductible expenses if the tools have a life expectancy of less than 1 year or they cost $200 or less per item or invoice* (Internal Revenue Service 2022).

A more detailed set of rules permits firms to adopt much higher thresholds—up to $2,500 for all companies and $5,000 for those with applicable financial statements. Given these thresholds,

almost all hand tools purchases fall below capitalization limits and are therefore routinely deducted in calculations of taxable business income.

Business accounting manuals also explicitly permit companies to treat small purchases as operating expenses. One recent accounting guidance document stated:

> *… many reporting entities establish a capitalization threshold to specify the minimum amount of costs that must be incurred before such costs can be capitalized. The assumption underlying the use of a capitalization threshold is that whether the reporting entity capitalizes and depreciates or expenses such amounts immediately would not be material to the financial statements. Accordingly, the decision to expense costs below an established threshold is simply for administrative convenience* (PWC 2024).

Historical accounting books give similar guidance

> *While it is true in practice that many of the tools charged to expense as perishable small tools have a longer life than one year, the cost of such tools may be small and their use infrequent. The necessity for gradually depreciating those tools which have been capitalized, and the clerical cost involved in keeping necessary records for this purpose oftentimes warrant the practice of charging certain of them to manufacturing expense.* (Maze and Glover 1929)

Because this guidance has been consistent for decades, business operating expenses have long included purchases of small long-lived items. For this reason, the paper recalculates the national accounts back to their start in 1929.

National accounting rules

The official guidelines for national accounting, System of National Accounts 2025 (SNA 2025), explicitly discuss small tools:

> *Expenditures on durable producer goods that are small, inexpensive and used to perform relatively simple operations may be treated as intermediate consumption when such expenditures are made regularly and are very small compared with expenditures on machinery and equipment. Examples of such goods are hand tools such as saws, spades, knives, axes, hammers, screwdrivers, and so on. However, in countries where such tools account for a significant part of the stock of producers' durable goods, they may be treated as fixed assets.* (United Nations 2025, section 7.252).

As written, these guidelines are much more stringent than tax law. Countries are supposed to capitalize small tools unless "*expenditures are made regularly and are very small.*" In practice, BEA follows business tax rules rather than the stricter SNA 2025 criteria. Small long-lived items that businesses expense are treated as intermediate consumption regardless whether that treatment is permitted under the stringent conditions laid out in SNA 2025.

This paper evaluates the implications of instead capitalizing all small long-lived items. At first glance, capitalizing all small long-lived items seems contrary to SNA 2025. However, a careful

reading shows that SNA 2025 does not forbid countries from capitalizing small tools – it just permits them not to capitalize small tools if certain stringent conditions are met. Later sections show that aggregate investment in hand tools does not meet the stringent criteria set by SNA 2025. Accordingly, SNA 2025 arguably requires the capitalization of at least some of the hand tools that are currently omitted from measured capital investment. Moreover, determining the specific categories of hand tools that satisfy SNA's stringent criteria would require extensive product-level research. Capitalizing all hand tool categories, regardless of the volatility of purchases for that particular category, may be the most feasible way to ensure compliance with SNA 2025.

Capitalizing small tools is a revival of a very old BEA tradition. BEA once published a series titled "Capital Outlays Charged to Current Expense." That series was carefully discussed in a Survey of Current Business article:

> *Business purchases of certain types of capital goods, instead of being amortized through depreciation allowances in the purchasers' books are customarily charged off as a current expense. ... Business accounting practice with respect to charges for tools and similar items of small unit cost varies from item to item and from firm to firm. Data on the actual distribution of charges between current and capital accounts were not available. It may be supposed, however, that most firms charge most such items to current account* (Jaszi and Schwartz 1951).

That same article also presents a table showing that all the commodity group "tools" was charged to current expense in 1939. This result is consistent with BEA's 2017 input-output table, which shows virtually zero investment for the commodity "cutlery and hand tools." Accordingly, this paper assumes that businesses have always expensed hand tools and therefore treats all business and government hand tool purchases as eligible to be capitalized without fear of double-counting.

Section 2. Using BEA's Published Input-Output Tables to Estimate Investment in Hand Tools

Nominal Investment in Hand Tools

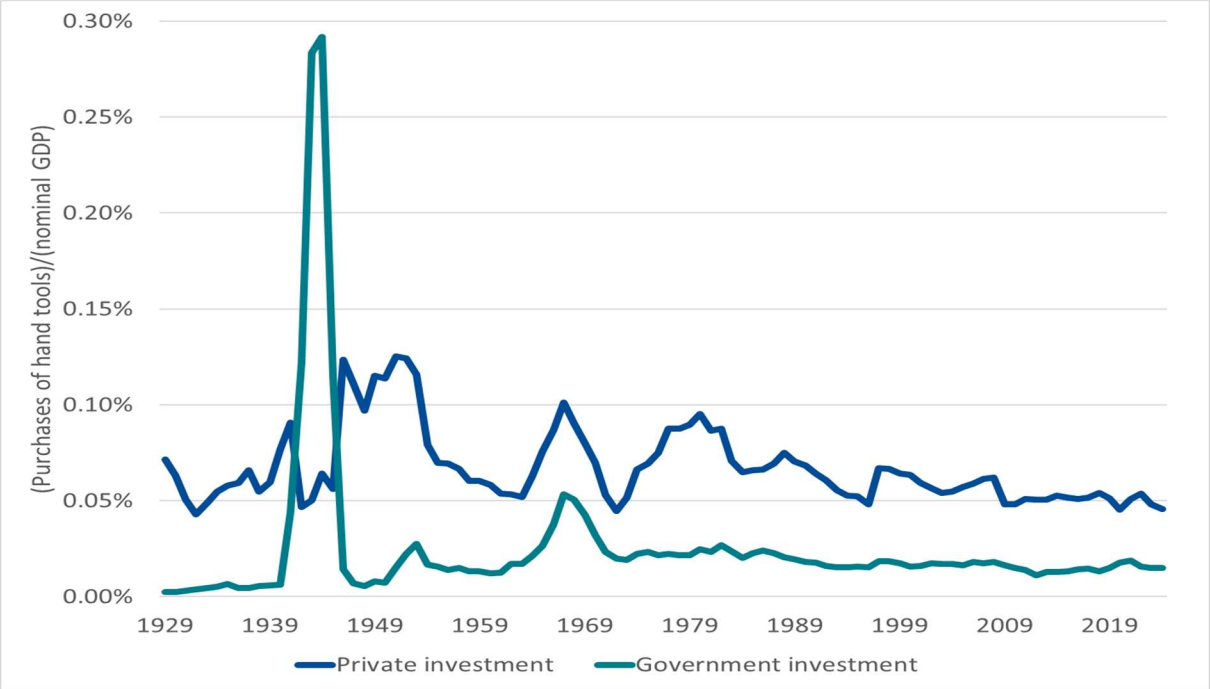
In the 2017 benchmark year, BEA's detailed input–output tables show that businesses purchased $13.2 billion and governments purchased $4 billion of the commodity "cutlery and hand tools" (NAICS 3322). Of this total, $0.2 billion is recorded as nonresidential equipment investment, while $13.0 billion is classified as intermediate consumption. A careful examination of the Economic Census and other sources shows that almost none of the supposed intermediate consumption involves products that are used up in production. For example, hammers are not embedded into structures but are reused in one construction project after another. Based on detailed product descriptions, this paper calculates that 94 percent of products in the commodity group NAICS 3322 are long-lived and 78 percent of products in the commodity group NAICS 3322 are the hand tools

studied in this paper. In total, capitalizing hand tools raises measured private investment by $10 billion and measured government investment by $3 billion.

For 1954–2024, BEA's input–output tables are used to interpolate and extrapolate hand tools. These tables are internally consistent across industries and years, making them a suitable foundation for constructing a long-run series.[2] Before 1954, annual estimates of business purchases of "cutlery and hand tools" from 1958 and 1954 Supplements to the Survey of Current Business (Jaszi and Schwartz 1958 and 1954) are used to extrapolate private investment back to 1929. Information on government purchases of hand tools was not located. For now, this paper uses private investment in hand tools, BEA's published estimates of private equipment investment, and BEA's published estimates of government equipment investment to extrapolate government purchases of hand tools back to 1929.

Findings: Nominal Investment and SNA Implications

Figure 1: Purchases of Hand Tools as a Share of Nominal GDP



[2] Historical input-output tables for the period 1954-1997 are used to extrapolate investment before 1997. These historical tables were calculated using slightly different methodologies and therefore not entirely consistent with the 1997-2024 input-output tables. This paper uses the 1997 overlap year and expert judgment to construct a consistent series from 1954 onwards.

Figure 2: Purchases of Hand Tools as a Share of Equipment Investment

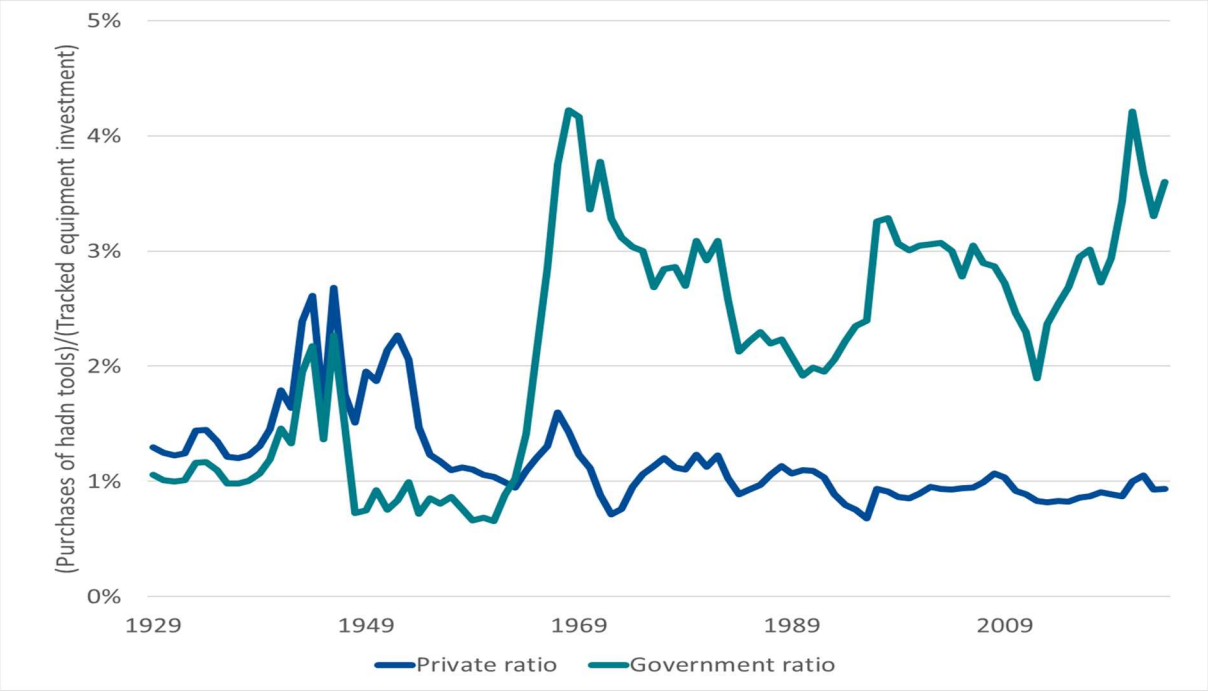


Figure 1 shows that annual purchases of hand tools are extremely volatile. The very large spike in government hand tools is related to World War 2 - for example, the military designed specialized shovels and issued them widely to troops (Thorne 2025). But even excluding the World War 2 spike, there is still a lot of volatility. Furthermore, figure 2 shows that average share is large enough to account for a meaningful share of total equipment investment. Clearly, aggregate purchases of hand tools do not meet SNA 2025's stringent conditions "*expenditures are made regularly and are very small compared with expenditures on machinery and equipment*". In addition, this paper was unable to identify any specific categories of hand tools that meet those stringent conditions. Capitalizing all hand tools may be the only practical way for national accountants to align with the official guidelines.

Findings: Nominal Capital Stock, Nominal Capital Depreciation, and Nominal GDP

Hand tools can have very long service lives when properly maintained (Farm City Supply 2026). For now, this paper assumes a 5-percent annual depreciation rate. Because these tools last so long, the initial capital stock in 1929 depends on purchases made many decades earlier. Annual estimates of "carpenters' and mechanics' tools" from the *Historical Statistics of the United States: Colonial Times to 1945* (Census 1949) are used to extrapolate private and government investment back to 1901. These nominal investment values are then deflated using the price index described in the next subsection. After converting investment into real terms, capital stocks are constructed using the perpetual-inventory method.

Figure 3: Stock of Hand Tools as a Share of Nominal GDP

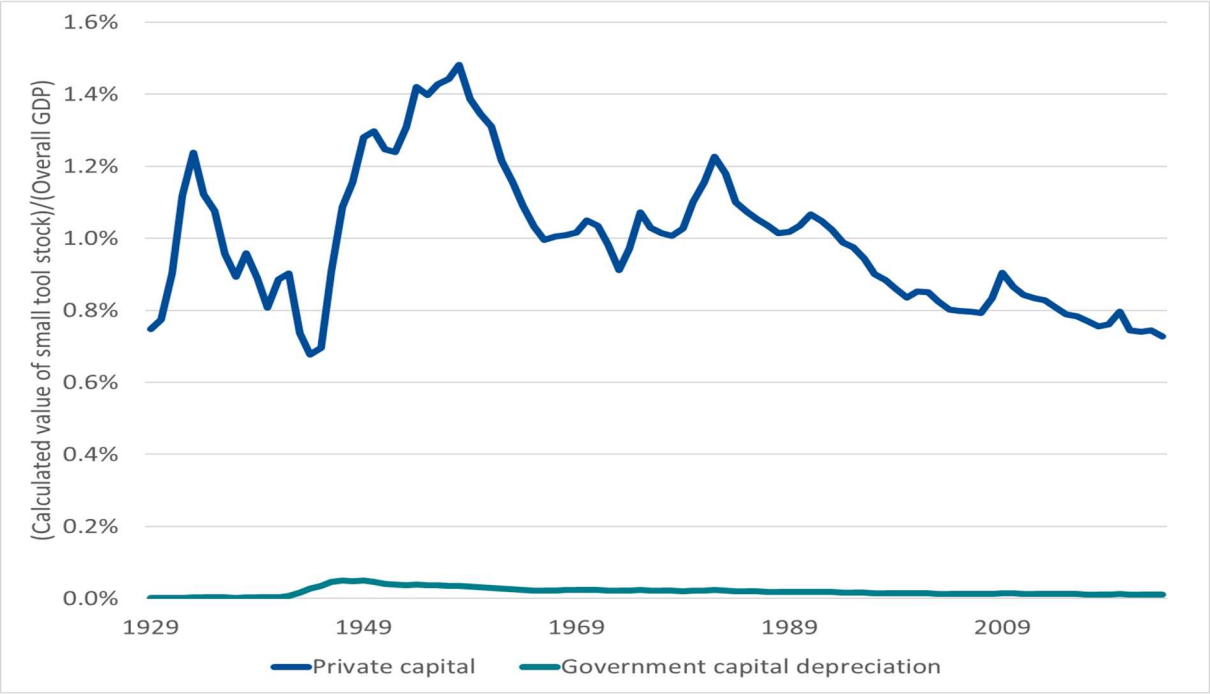


Figure 4: Depreciation of Hand Tools Relative to GDP

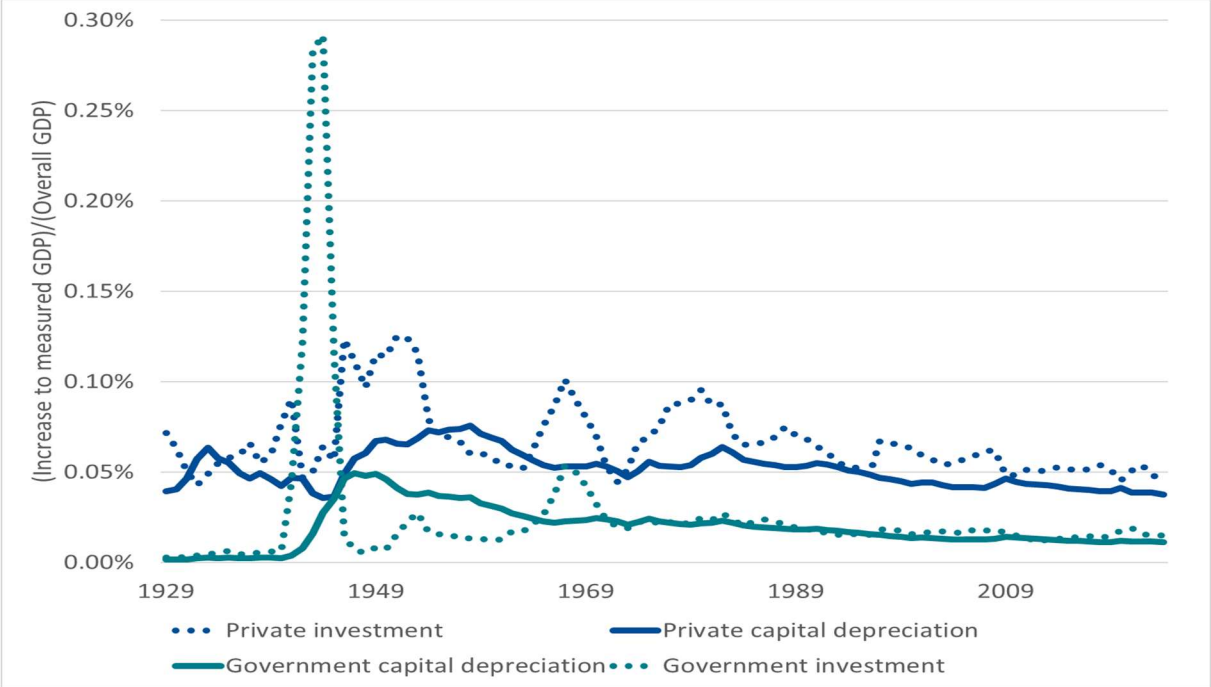


Figure 3 shows that the stock of hand tools is small relative to GDP, but not negligible. Some earlier studies have attributed the gap between firms' market value and book value to unmeasured intangible assets such as R&D (Lev and Sougiannis 2003; Ewens et al. 2024). However, part of this gap may also reflect unmeasured tangible assets, including hand tools. Exploring this possibility is an avenue for future research.

Figure 4 shows that both government and private capital depreciation are much smoother than investment. It also shows that depreciation is smaller than investment in nearly every year. As a result, capitalizing hand tools slightly increases measured savings.

Capitalizing hand tools raises the level of nominal GDP through two components: private investment (shown in Figure 2) and imputed government capital services. SNA 2025 recommends valuing these government capital services using both depreciation and a net return to capital (United Nations 2025, 7.142). Estimating returns on government-owned hand tools is difficult because such returns are not directly observable. For now, this paper assumes that governments earn no net return on their capital assets. Under this assumption, imputed capital services equal capital depreciation.

Revision to GDP Prices and Real GDP

The price impact of capitalization depends on the deflators applied to hand tools. Because no dedicated price series exists, this paper considers several possible indexes. The Bureau of Labor Statistics (BLS) publishes a producer price index for "hand and edge tools" beginning in 1947. BEA provides a broader PCE price index for "tools, hardware, and supplies" beginning in 1959 and an even broader index for "tools and equipment for home and garden" beginning in 1929. In addition, an academic study of nails reports both a matched-model price index and a Sears-only price index extending back to 1901 (Sichel 2022).

Figure 5 shows that nail prices and hand-tool prices have grown at roughly the same average rate since 1947, while the broad PCE price indexes have risen much more slowly. Some theoretical work suggests that PCE prices may be preferable because they better capture quality improvements (Atalay et al. 2026). It is certainly possible that the power tools included in the broad PCE index experienced substantial quality gains after 1929. However, previous research finds that nails are a highly standardized product that has changed little over the past few centuries (Sichel 2022). Hand tools rely on similar production technologies and have also evolved minimally. Thus, it seems unlikely that hand tools underwent the same quality improvements that influence PCE prices. For this reason, this paper does not use the broad PCE price index as an extrapolator. Instead, it uses the Sears nail price index (PSEARSSC5) to extend the hand-tool price series back to 1901.

Figure 5: Price Indexes that Are Relevant to Hand Tools

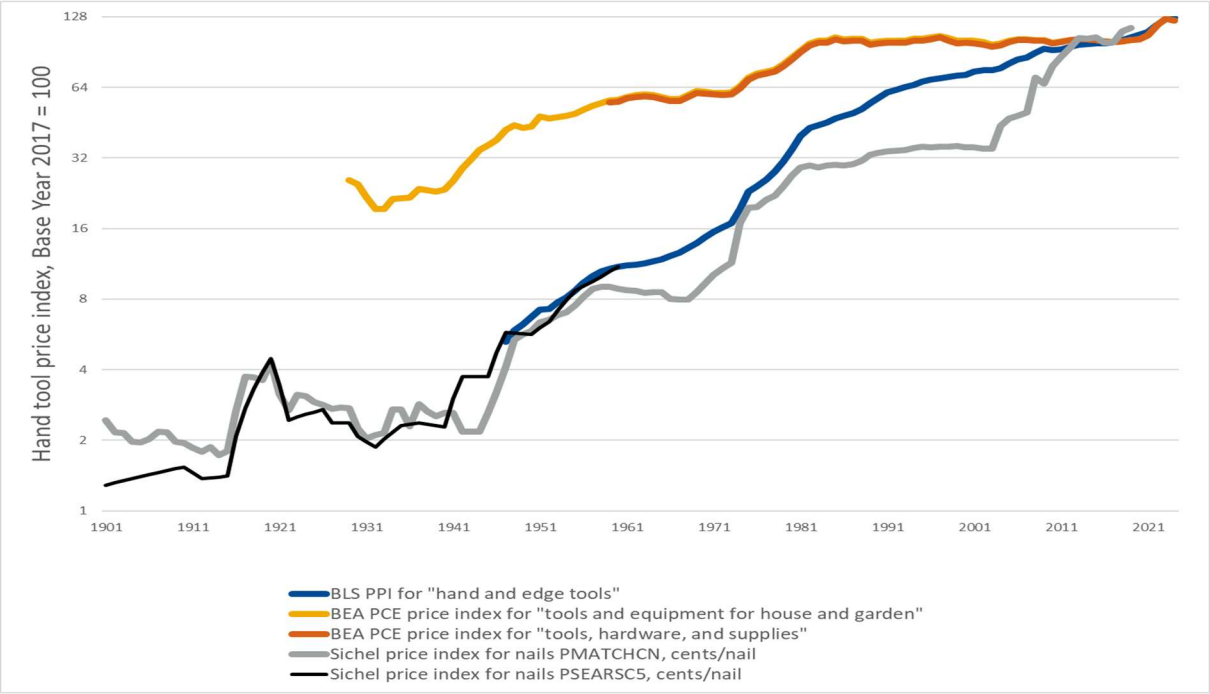


Figure 6: Revision to Overall GDP Prices from Capitalizing Hand Tools

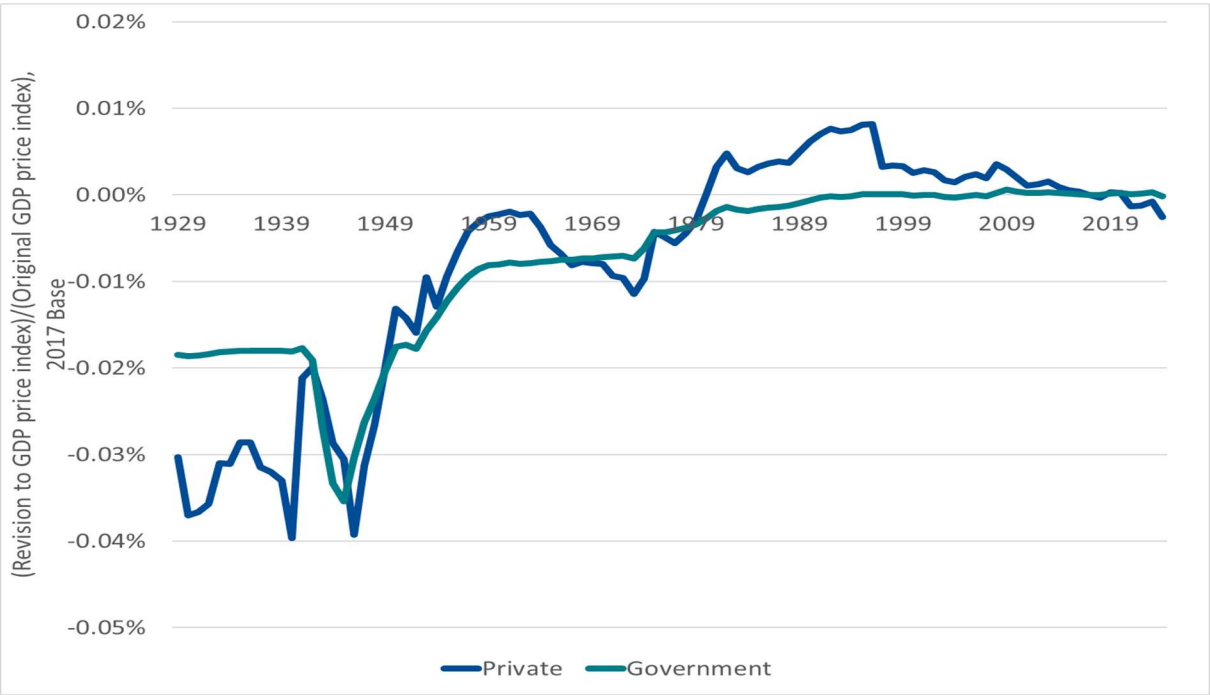
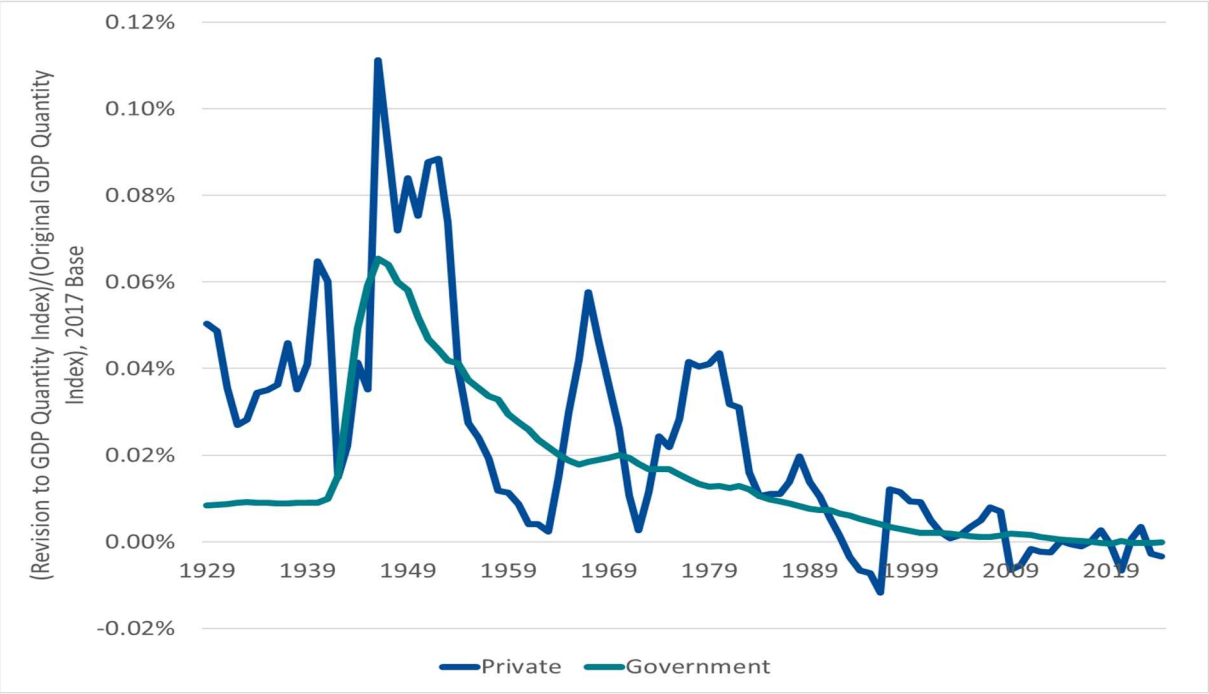


Figure 7: Revision to Overall GDP Quantity from Hand Tools



Figures 6 and 7 show that capitalizing hand tools affects both short-term growth rates and long-run trends. Capitalization raises measured real GDP growth slightly around World War II and lowers it slightly in the postwar period. In addition, short-term revisions appear throughout the series, likely reflecting business-cycle dynamics or measurement noise. Because these series are volatile, the revisions must be evaluated carefully before any incorporation into official statistics.

The revisions shown in Figures 6 and 7 are not large enough to change broad interpretations of U.S. economic history. However, hand tools represent only one category of small tools. BEA's published PCE bridge tables and input–output tables show many commodities that are treated as durable when purchased by consumers but as intermediate inputs when purchased by businesses. If all such commodities were reclassified as small capital, total small tools investment could be large enough to meaningfully raise measured equipment investment and potentially alter historical assessments. This possibility warrants future research.

Section 3. Robustness Checks for Estimated Purchases of Hand Tools

Concerns may arise that the estimates in the earlier section rely heavily on BEA's published input–output tables. Although these tables incorporate extensive adjustments for underreporting and misreporting (BEA 2019), they ultimately depend on underlying survey and administrative data that may contain measurement errors. In particular, purchases of goods by service-sector businesses could be overstated if import values are inflated or if manufacturers underreport the share of goods

used as materials. To address these concerns, this section presents three robustness checks that estimate small long-lived item purchases using alternative data sources.

All three alternative sources track private-sector purchases of small long-lived items. None of them focus specifically on hand tools and thus cannot directly validate the estimates presented earlier. Instead, they serve to assess whether BEA's input–output–based measures are broadly consistent with other data. Comparable information on government purchases was not identified in time for this draft, and suggestions for suitable sources are welcome.

Robustness Check 1: Recalculating Expensed Goods from Original Source Data

The Service Annual Survey (SAS) provides direct information on expensed goods purchases through two operating-expense categories:

- **Expensed equipment**, which explicitly captures small equipment purchases that firms do not capitalize.
- **Other materials, parts, and supplies**, which implicitly include small non-equipment tools.

In addition, the Economic Census also provides some information on expensed equipment for nonservice industries in the benchmark years. Because SAS coverage is strongest from 2005 to 2024, the analysis focuses on this period. Even within these years, coverage is incomplete, so annual values for the two expense categories are imputed for industries that lack full reporting. It also interpolates and extrapolates annual values for industry/year cells with missing information. These data offer an independent way to approximate expensed goods purchases and serve as a check on the input–output–based estimates. To be clear, operating-expense category "other materials, parts, and supplies" is quite broad and almost certainly includes parts that are used for own-account equipment investment, medium-lived items, and short-lived items. As a result, the SAS cannot be used to estimate investment in small long-lived items that are capital assets in their own right.

Figure 8: Explicitly Tracked Expensed Goods Purchases

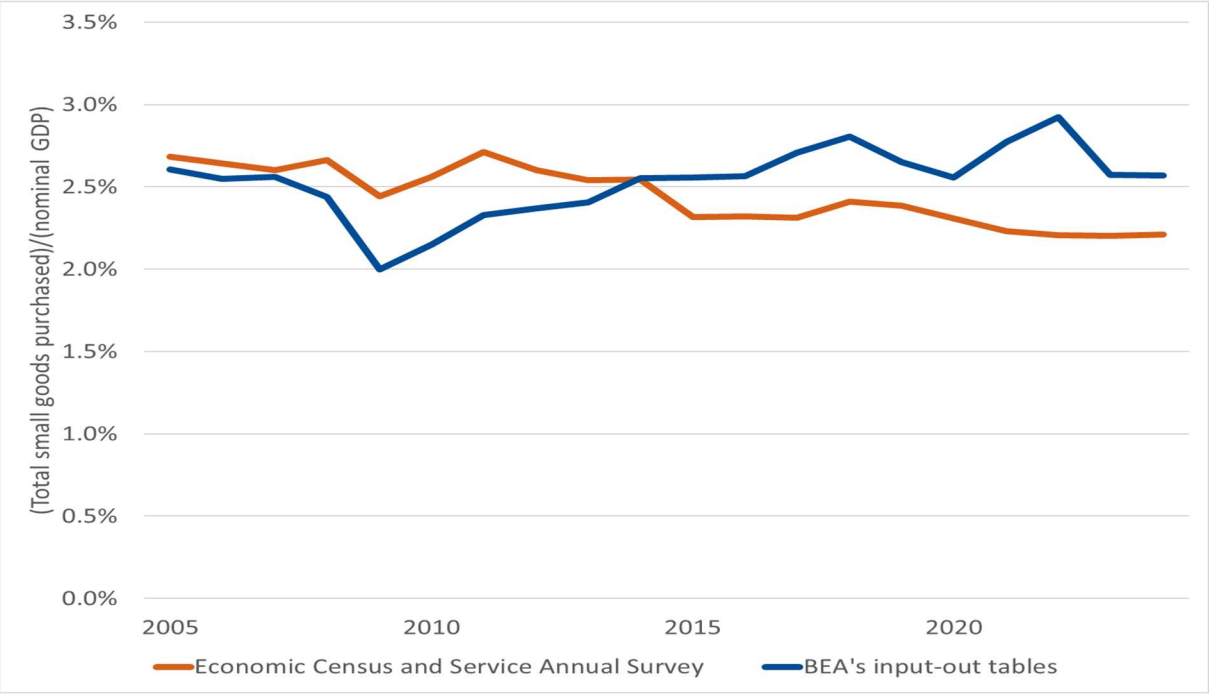


Figure 8 shows that the two series have similar averages over the 2005–2024 period. Although operating-expense data from the Economic Census and the Service Annual Survey feed directly into BEA's input–output tables, the similarity in average values remains informative. As shown in Figure 7, expensed-goods purchases can be approximated simply by summing two published operating-expense categories. This straightforward calculation provides reassurance that the earlier estimates are not artifacts of complex BEA processing.

However, neither the Economic Census nor the Service Annual Survey provides item-level detail within these two operating-expense categories. Without item-level detail, it is impossible to isolate hand tools or to distinguish between items used for own-account investment, installation capital, and small capital assets in their own right. Item-level detail is also needed to link purchases with deflators and calculate real investment growth. The ability to link expensed-goods purchases to specific product categories—and therefore to specific uses and deflators—is a major strength of BEA's input–output framework. It also enables analysis of policy-relevant categories such as the hand tools discussed in SNA 2025.

Expensed-goods investment can also be estimated as a residual. This approach begins by constructing quarterly measures of total goods supply using data from trade statistics, the Survey of Manufacturers' Shipments, wholesale and retail trade surveys, and related sources. Annual wholesale and retail trade surveys are then used to estimate goods purchased by wholesalers and retailers; the Annual Capital Expenditures Survey provides estimates of tracked business equipment; the Annual Survey of Manufacturers and other sources provide estimates of materials and supplies used up in production; and the Monthly Retail Trade Survey, combined with expert judgment, is used to estimate personal consumption expenditures on goods. Government purchases are taken from BEA's input–output tables and published make-use tables are used to

adjust for industry redefinitions. After subtracting all these uses from total supply, the remaining residual is treated as expensed-goods purchases.

Figure 9: Expensed Goods as a Residual

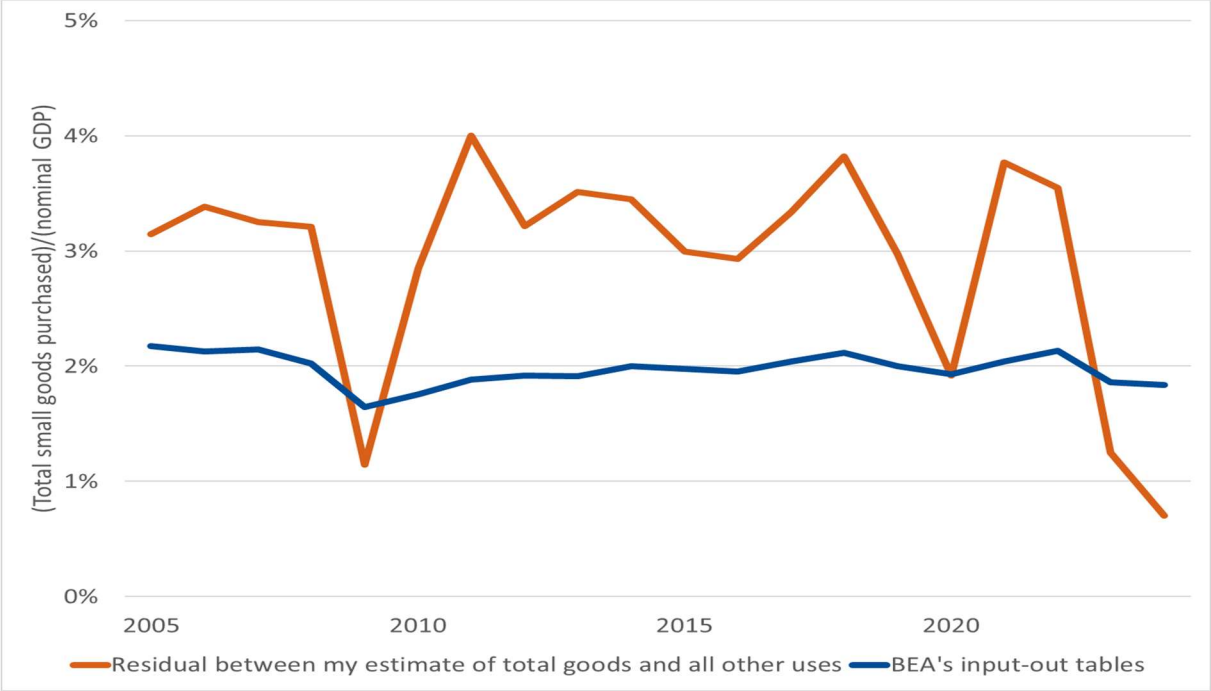


Figure 9 shows that this residual-based series has a similar average level to the input–output–based estimates over 2005–2024, providing an additional check on the plausibility of the earlier results. The same caveats noted for Figure 8 apply here as well.

In principle, the residual method can generate detailed estimates for any product category covered by the underlying data sources. However, the resulting series is far more volatile than the input–output–based estimates. Some of this volatility likely reflects simplifying assumptions used in this paper; some may reflect uncorrected issues in the underlying data. Without substantially more research, the year-to-year movements in Figure 9 should not be interpreted as accurate or incorporated into official statistics.[3]

Robustness Check 2: Census Information and Communication Technology (ICT) Survey

In the early 2000s, the Census Bureau conducted a survey focused on business purchases of ICT equipment and software. That survey explicitly asked respondents to report both capitalized and noncapitalized purchases for three ICT categories: computers and peripheral equipment, information and communication technology equipment, and electromedical and

[3] A regression analysis also uncovered an interesting correlation. The residual tends to be higher when reported imports of durable intermediates like semiconductors are higher. More research is needed to understand the reason for this correlation.

electrotherapeutic apparatus.[4] These categories correspond to NAICS 3341, 3342, and 334510. For reasons that are unclear, companies reported both lower capitalized expenditures and lower noncapitalized expenditures than BEA's input–output tables show for these industries. Accordingly, this paper does not compare the level of noncapitalized ICT in that survey with the small-ICT purchases tracked in BEA's input–output tables. Instead, it compares the ratio of noncapitalized to capitalized expenditures reported in the survey with the ratios implied by BEA's published input–output tables.

Figure 10: Select ICT Expenditures, Noncapitalized Relative to Capitalized

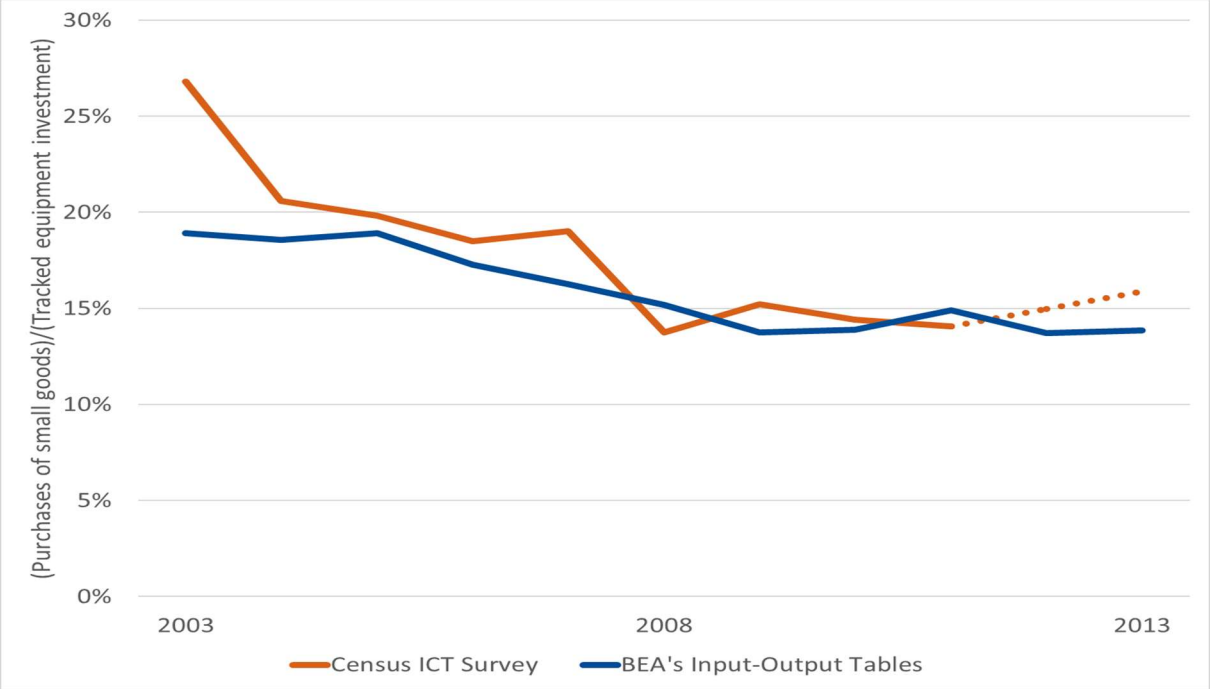


Figure 10 shows that this survey-based series has a similar average level to the input–output–based estimates over 2003–2013, providing another check on the plausibility of the earlier results. The dotted lines at the end of the survey-based series reflect the fact that the survey was not conducted in 2012; values for that year are therefore imputed. Unfortunately, the survey was discontinued after 2013, so it cannot be used to estimate more recent investment. In addition, the Census ICT survey does not distinguish between parts used for own-account investment or installation capital and small capital assets in their own right.

Robustness Check 3: BEA's Historical Estimates of Small Long-Lived Item Purchases

Until the 1950s, BEA published a series titled *Capital Outlays Charged to Current Expense*, which was conceptually similar to the small long-lived items discussed in SNA 2025 under the term "small tools.". However, exhibit 36 of Jaszi and Schwartz (1951) indicates that BEA's historical estimates focused on seven categories of manufactured products: special industrial machinery,

[4] The survey also asked about expenditures on rented or leased ICT equipment. These expenditures are never capitalized by the companies which is using the equipment, but they may be capitalized by the company owns the equipment. To avoid possible double counting, this paper focuses on purchases.

metalworking machinery, pumps and pumping equipment, professional and scientific equipment, tools, durable containers, and miscellaneous subsidiary durable equipment. These categories correspond closely to modern NAICS industries 332, 333, 334, and 335. To compare the historical series with modern estimates, this paper constructs a small-goods series for those NAICS industries and compares it with BEA's historical data.

Figure 11: Historic Robustness Check for Private Small Long-Lived Item Purchases

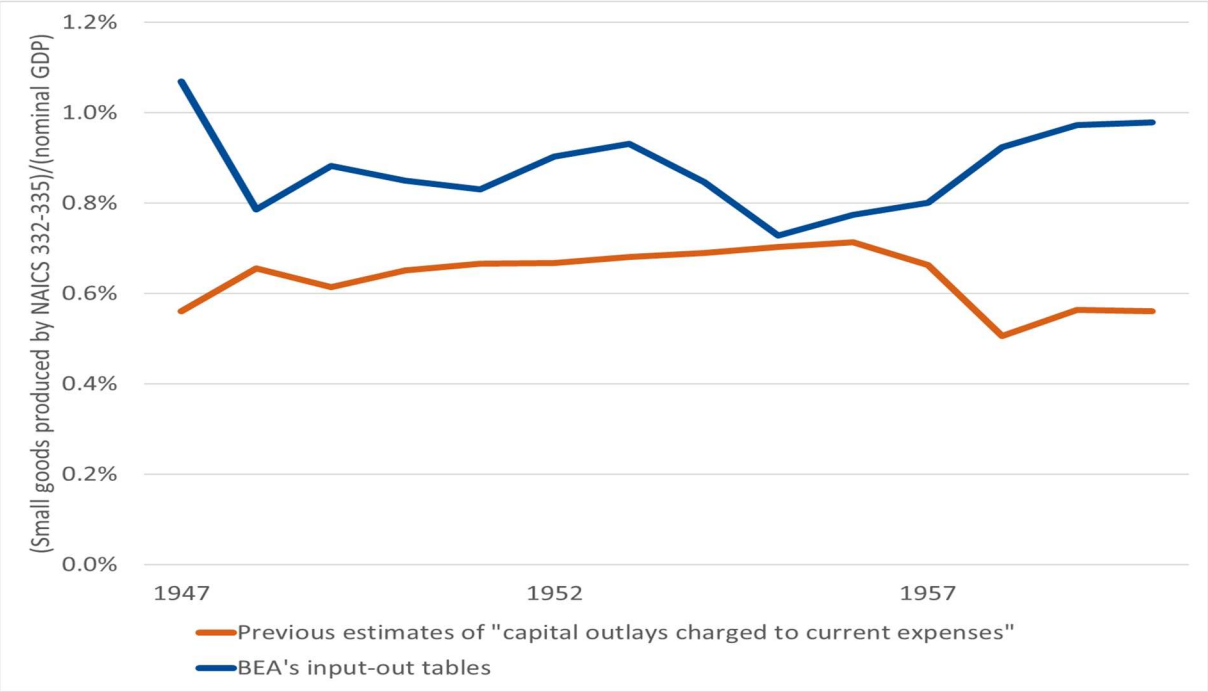


Figure 11 shows that the two series have broadly similar averages over 1947–1957. This similarity suggests that the relatively simple measurement techniques used in this paper produce results consistent with BEA's earlier, more detailed analysis. It also implies that the small long-lived item estimates derived from modern input–output tables for these NAICS codes are likely close to what BEA would have reported had it continued publishing the *Capital Outlays Charged to Current Expense* series.

Conclusion

Businesses routinely purchase small long-lived items. Because accounting rules allow firms to expense these items, BEA's national accounts currently classify them as intermediate inputs rather than capital assets. As an initial step toward assessing the broader impact of capitalizing such items, this preliminary paper presented a case study of hand tools in the United States. The results show that capitalizing hand tools increases the level of equipment investment by an average of 1.2 percent per year and noticeably raises the volatility of equipment investment. The results are preliminary only and subject to revisions that reflect comments and additional analysis.

These findings also have implications for national accounting standards. SNA 2025 permits expensing small long-lived items only when "expenditures are made regularly and are very small." The guidelines then cite hand tools as an example of items that might not need to be capitalized. However, the evidence here shows that hand tool purchases are both volatile and not especially small. More broadly, it is difficult to identify categories of small long-lived items that satisfy SNA 2025's stringent conditions. Capitalizing all long-lived items—regardless of size—may therefore be the most practical approach for national accountants seeking to adhere to SNA guidance while maintaining internal consistency across industries and over time.

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