

Recording Data Assets in the U.S. National Accounts

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- Capitalization of data a high-priority proposal for the upcoming SNA update
- Since 2018 BEA has worked on various efforts including the development of a proposed methodology and estimates including investment, prices, and net-stock
- Focus has been on own account data assets with some work on purchased data as well as cross country flows to a lesser extent
- BEA has participated in the Advisory Expert Group (AEG) endorsed recommendation put forth by the Digitalization Task Team as well as participating in a current IMF-EuroStat task force for a compilation manual

Definition of Data as an Asset

Data is defined as “information content that is produced by accessing and observing phenomena; and recording, organizing and storing information elements from these phenomena in a digital format, which provide an economic benefit when used in productive activities.”

BEA Work on Capitalizing Data

- BEA publishes first working paper on “Treatment of Data in National Accounts” (2019). It lays out preliminary thoughts and considerations for the inclusion of data stocks and flows in a national accounts standard.
- Opting for a sum of cost approach, BEA develops a novel methodology to discover and estimate of time-use factors by occupations (2021).
- Experimental methodology and estimates for business sector published in (2022) as a working paper.
 - Uses novel time-use factors to implement a sum of cost approach
 - Adjustments needed to avoid double-counting with other IPPs.

Sum of Cost Approach

$$C_{iy} = \alpha_{iy} \tau_{\omega} W_{\omega iy} H_{\omega iy}$$

The production cost in industry (i) at time (y) is a function of:

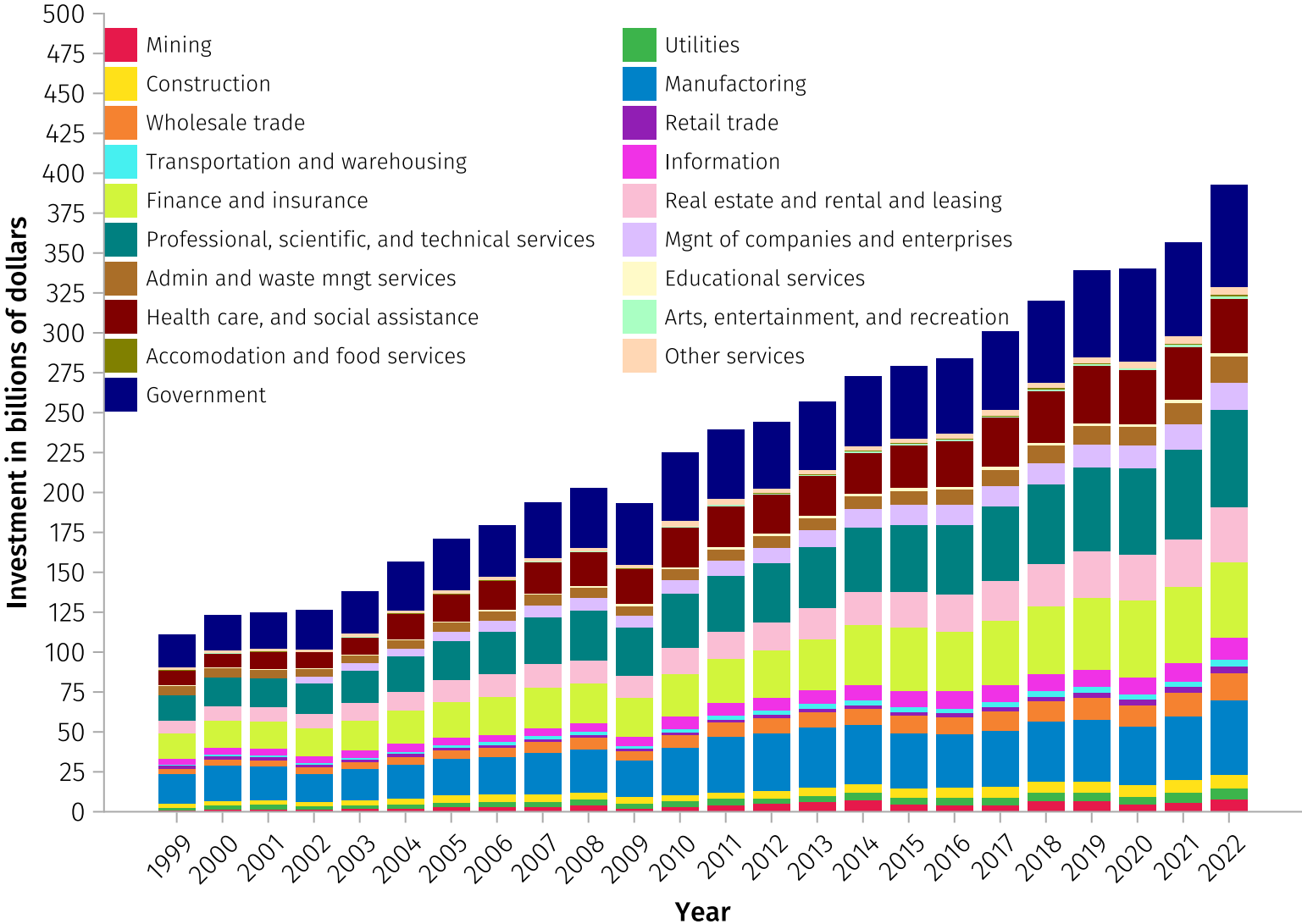
- Wages (W) and employment number (H) for occupation (ω), where τ_{ω} is the portion of the employee time-effort allocated to activities within scope.
- Markup α_{iy} reflects the ratio of total production costs to the payroll in that industry and year (e.g., total employee compensation, capital services, etc.)

Methodology for Sum of Costs Approach

Item	Strategy / Progress
Time-use factors	Identify data-relevant skills to proxy tasks and to estimate time-use factors using O*NET occupational information and online job ads text.
Adjustment	Time use factors for certain occupations are adjusted to avoid multiple counting with other IPPs
Payroll	Using BLS data, construct a time series of wages and number of employees for each relevant occupation.
Markup	Apply ratio of gross output per industry-year to the wages to transform wages to total production costs.
Prices	Input-cost index consisting of wages, overhead costs and capital services.
Net-stock	Perpetual inventory method. Researching appropriate service life for the depreciation rates.

Nominal Investment by Industry

Investment in own-account data assets



Share of data investment by occupation (1999-2022)

Occupation	Share (%)
Accountants and Auditors	13.6
Computer Systems Analysts	9.0
Financial Managers	8.0
Management Analysts	7.9
Data Entry Keyers	5.8
Registered Nurses	5.3
Database Administrators	5.1
Construction and Building Inspectors	4.9
Computer and Information Systems Managers	4.6
Network and Computer Systems Administrators	3.7
Market Research Analysts and Marketing Specialists	3.0

Key Issues

- Current guidance favored to include only active surveillance and primary roles in production of the asset. For example, using and analyzing data is not included in the production costs.
- The international measurement community, including BEA, focus is on own account data assets although purchased data is currently likely captured as embedded (e.g., software, databases, R&D, marketing).
- Continued research on appropriate depreciation profiles, including applying techniques we currently use for depreciating R+D (industry-specific depreciation profiles).
- Open questions include capitalization ratios (i.e., intermediate consumption vs assets). Current approach uses a 50% ratio.
- Cross country considerations have not yet been a major focus.

Impact on Accounts

- Capitalizing data as an asset for the year 2022 would increase GDP level by $\approx 1.5\%$ and IPP investment level by $\approx 28\%$.
- Capitalizing data assets from 2003-2022 represented a real growth increase in IPP. Only software grew faster than data within IPPs.
- Average annual growth for GDP increases by about 0.04 percentage point.

Conclusion

- SNA 2025 will recommend treating data as a produced intangible asset
- National accounting impact of tracking data
 - GDP ↑ with newly recognized business investment in data assets
 - GDP ↑ with newly recognized government depreciation on data assets
- Data's impact on GDP depends on the definition
 - Lower bound definition: data are only complex digital files that are created and used by data specialists (About \$400 billion in 2022)