Keeping Economic Statistics Relevant through Updating the *System of National Accounts*

Brent R. Moulton

ICES-III, Montreal

June 20, 2007

Measuring the Nation's Economy.

BEA
BUREAU OF ECONOMIC ANALYSIS
U.S. DEPARTMENT OF COMMERCE

Outline

- Address three questions:
  - What is the SNA, and why is it relevant to business surveys?
  - Why update the SNA?
  - What changes are coming, and how do they relate to establishment surveys?

What Is the SNA?

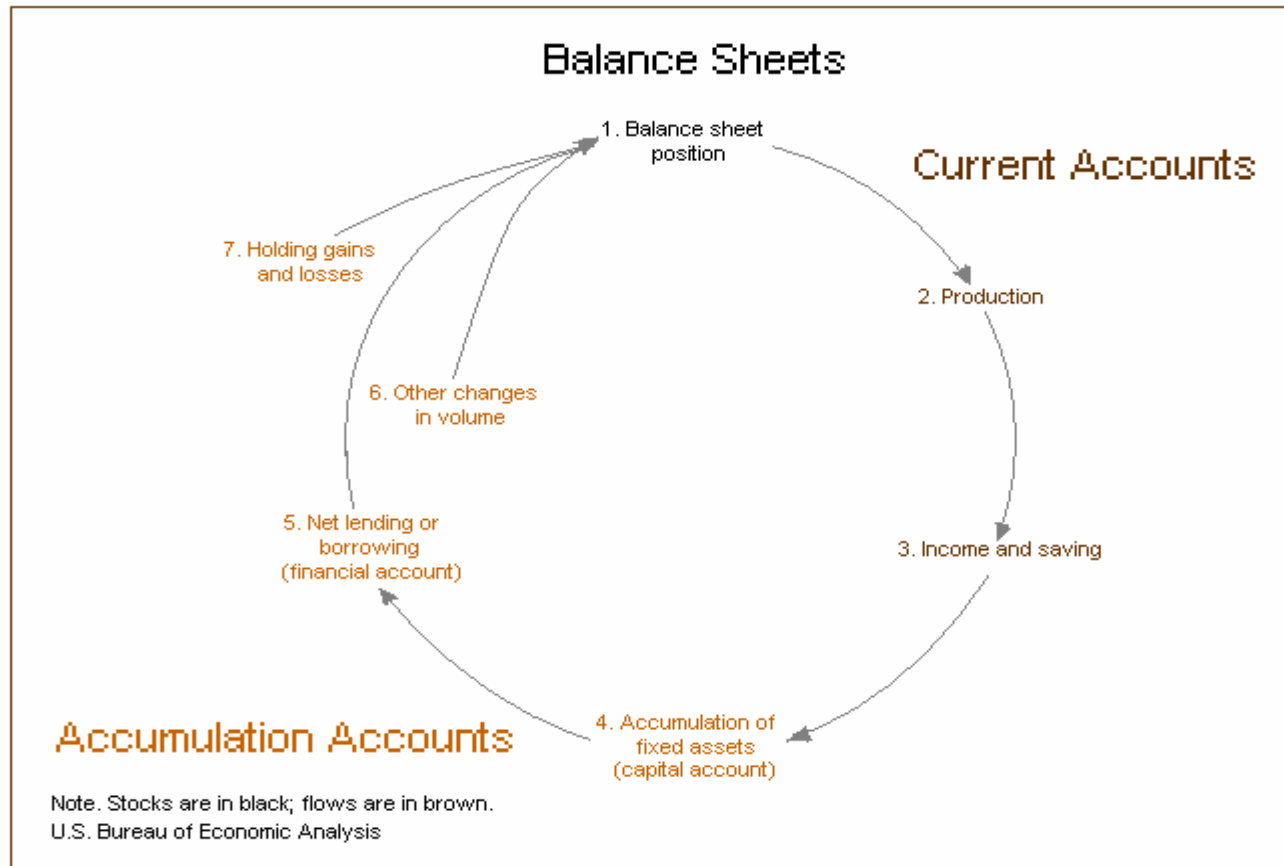An accounting system that:

- Organizes economic data within an analytically useful framework.

- Fills gaps in coverage.

- Creates consistent time series.

- Can serve as mechanism for integrating a nation's economic statistics.

National accounts as an analytical tool

- Data organized to identify key concepts that are important in economic theory:
  - Output – Disposable income – Consumption – Saving – Capital formation
- Economic units grouped into relevant sectors:
  - Corporations, households, government, nonprofit institutions, etc.
- Double entry system of accounts
  - All transactions recorded for both parties.

BEA
BUREAU OF ECONOMIC ANALYSIS
U.S. DEPARTMENT OF COMMERCE

SNA's sequence of accounts

Chart 1. Sequence of Accounts

Balance Sheets

Current Accounts

1. Balance sheet position

2. Production

3. Income and saving

4. Accumulation of fixed assets (capital account)

5. Net lending or borrowing (financial account)

6. Other changes in volume

7. Holding gains and losses

Accumulation Accounts

Note. Stocks are in black; flows are in brown.
U.S. Bureau of Economic Analysis

National accounts are comprehensive

- Identify all output, even when not accompanied by a direct payment.
  - e.g., banking services.
- Coverage includes units missing from many surveys.
  - e.g., small businesses (non-employers), religious institutions, misreported or unreported economic activities.

BEA
BUREAU OF ECONOMIC ANALYSIS
U.S. DEPARTMENT OF COMMERCE

Consistent time series

- National accounts create long, consistent time series to fill needs of macroeconomic analysts.

- Conceptual changes are carried back.

U.S. Real GDP growth (1947-2007)
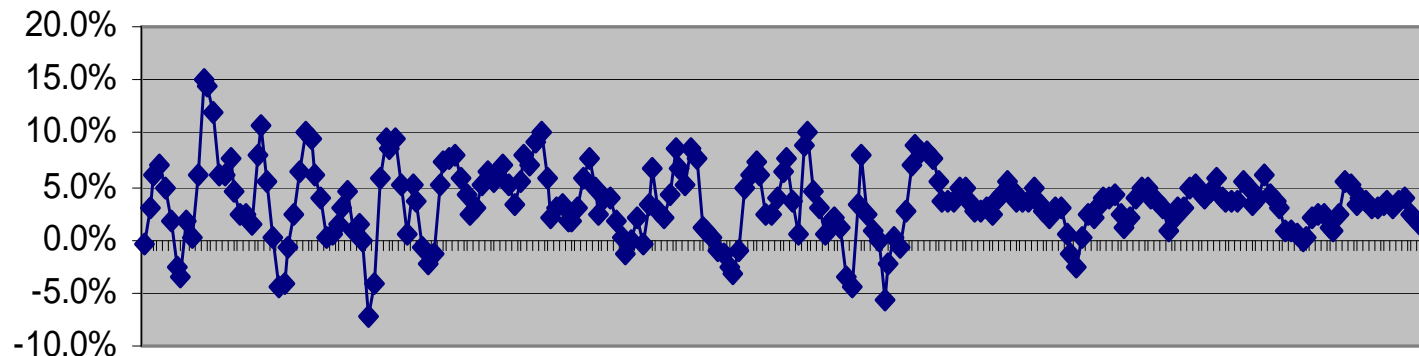
Integration of economic statistics

- National accounts include many *identities* that provide checks on data.
  - Sum of industry value added = Total expenditures = Income from production.
  - Commodity flow: Total supply of each commodity = Sum of total uses.
    - Supply-use and input-output tables.
  - Disposable income less consumption and capital formation = Net lending.

BEA
BUREAU OF ECONOMIC ANALYSIS
U.S. DEPARTMENT OF COMMERCE

System of National Accounts 1993

- International guidelines sponsored by five international organizations.

- International consensus on SNA93 as framework for national accounts.

- Led to major improvements:
  - Chain-weighting,
  - Capitalization of software,
  - Output of financial services.

Need to update SNA93

- Changes in economic environment:
  - Globalization.
  - Technology and the "new economy."
  - Growing importance of intangible capital.
  - New types of transactions:
    - Stock options; derivatives; public-private partnerships.
  - International harmonization of standards for business accounting.

Need to update SNA93

- Changes in users' needs:
  - Analysis of productivity and sources of economic growth.
  - Aging population and saving for retirement.
    - Pension-plan liabilities.
  - Administrative uses of national accounts data.

Need to update SNA93

- Improved statistical methods available:
  - Models for measuring services provided by capital.
  - Improved methods for measuring financial services such as banking, insurance.
  - Quality adjustment of price indexes.
  - Measures of non-market output.

BEA
BUREAU OF ECONOMIC ANALYSIS
U.S. DEPARTMENT OF COMMERCE

SNA update process

- Proposal to update SNA was approved by UN Statistical Commission in 2003.
- Intersecretariat Working Group on National Accounts administered the update
  - Eurostat
  - IMF
  - OECD
  - UN
  - World Bank
- Advisory Expert Group (25 members) to review, approve proposed changes.

SNA update process

- 44 issues were reviewed as part of the update.
- Working groups to review issues, develop proposals:
  - Canberra II Group on Measurement of Non-Financial Assets,
  - Task Force on Harmonisation of Public Sector Accounts,
  - Balance of Payments Committee,
  - Task Force on Employers' Retirement Schemes,
  - Several other working groups and task forces.

Status of SNA update

- Proposed changes were presented to and approved by the UN Statistical Commission in February-March 2007.

- Text of revised volume is currently being drafted and reviewed.

- Text will be presented in two parts:
  - "Core" chapters in March 2008.
  - Additional chapters in March 2009.

- National statistical offices have begun planning for implementation of the update.

Major changes in SNA update

- Capitalization of research & development
- New treatment of employee stock options.
- Accrual-based estimates of liabilities for defined-benefit pension plans.
- Measures of *capital services* and integration of multifactor productivity statistics in a more comprehensive production account.
- Output of insurance services.
- Military assets.
- Return to government assets on research agenda.
- Goods for processing.

BEA
BUREAU OF ECONOMIC ANALYSIS
U.S. DEPARTMENT OF COMMERCE

Capitalization of R&D

- R&D treated as current expense, even though purpose is to improve products, increase production in future periods.

- In updated SNA, R&D will be treated as capital formation.

- BEA, with support from NSF, is developing R&D satellite account as prelude to capitalization in core accounts.

R&D as share of U.S. investment

U.S. Investment
(2002-billions)

$344 $277

$1,582

Legend:
- R&D investment
- Other private investment
- Other government investment
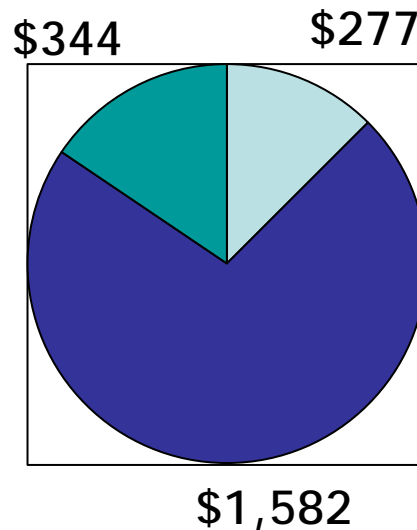
Preliminary results of satellite account

- Recognizing R&D as investment would increase GDP level about 2½ percent.

- Increases real GDP growth about 0.1 percentage point.

- R&D investment accounted for 4.6 percent of GDP growth in 1959-2002 and 6.7 percent in 1995-2005.

- Private investment increased 11 percent.

BEA
BUREAU OF ECONOMIC ANALYSIS
U.S. DEPARTMENT OF COMMERCE

Agenda for R&D satellite account

- Apply more refined economic estimation concepts and methods.

- Obtain more complete information on R&D process from R&D performers and investors.

- Develop industry input-output accounts.

- Measure international transactions in R&D.

Employee stock options

- Important and growing form of compensation.
- Contributes to volatility of estimates of wages and profits.
- Problems with current methods:
  - Initial source data exclude stock options.
  - Later administrative/tax data include value when exercised.
- Updated SNA recommends "fair value" accrued between grant and vesting.
- Consistent with new accounting standards.
- Converting from administrative/tax data to accounting data will be challenging.

BEA
BUREAU OF ECONOMIC ANALYSIS
U.S. DEPARTMENT OF COMMERCE

Employer pension plans

- Currently, contributions to defined benefit pension plans measured by cash contributions.
- Plans are treated as if owned by employees.
- Consequently, national accounts don't record underfunding or overfunding of plans.
- SNA proposes accrual-type measures based on actuarial calculations of plan liabilities.
- Will provide information on underfunding.
- Unfunded government plans have been controversial.

Capital services and production account

- Currently, SNA measures labor inputs to production, but doesn't measure real capital inputs.
- Principles for valuation of capital services worked out by Dale Jorgenson and others:
  - "User cost" formula – depreciation, net return, and revaluation.
  - Used to decompose productivity growth into capital, labor, and residual (multifactor productivity) contributions.
- Integration of national accounts with multifactor productivity statistics.

BEA
BUREAU OF ECONOMIC ANALYSIS
U.S. DEPARTMENT OF COMMERCE

Insurance services

- Insurance services must be measured indirectly
  - Insurers pay for services using resources made available by difference between premiums and losses.
  - Previously, insurance services calculated as premiums less actual losses – volatile when major disasters occurred.
  - Premiums determined before it is known whether a loss will occur.
  - New method subtracts an estimate of normal or "expected" losses rather than actual losses.
- BEA developed and adopted the new approach to measuring insurance services in 2003.
- Led to reduced volatility in estimates of GDP and prices after major disasters.

BEA
BUREAU OF ECONOMIC ANALYSIS
U.S. DEPARTMENT OF COMMERCE

Military assets

- SNA previously had not capitalized weapon systems.

- Many military assets have long service lives; Defense Department must plan for eventual replacement.

- Since 1996, BEA has capitalized all military assets.

- Change will improve international comparability, consistency with public sector accounts.

Goods for processing

- In SNA 1993, goods sent abroad for processing are shown as exports and imports, even if no change in ownership takes place.

- Under new treatment, a change in ownership is not imputed.
  - Production treated as import of manufacturing services.

- Important implications for classification of manufacturing activities.

BEA
BUREAU OF ECONOMIC ANALYSIS
U.S. DEPARTMENT OF COMMERCE

Return to government assets

- Investing has two costs:
  - Depreciation (the wearing out or obsolescence of an asset as it approaches the end of its useful life)
  - Time cost of money (the returns that the investment could have earned, had it been invested in another asset, such as a bond – or used to repay money borrowed).
- Currently, the SNA recognizes only the first cost for government and nonprofits.
- For business, the SNA measures the return residually (profits or "net operating surplus").
- Recognizing the full cost of government assets would raise GDP – hence, controversial.
- This topic remains on the research agenda.

BEA
BUREAU OF ECONOMIC ANALYSIS
U.S. DEPARTMENT OF COMMERCE

BEA plans for SNA update

- Some components of update already implemented in U.S.:
  - Military assets.
  - Insurance.
- R&D is a major change:
  - Satellite account with implementation in core accounts by 2013.
- Other major update issues will require research and source data improvements:
  - Pensions
  - Employee stock options.