GDP, the National Accounts, and Census Economic Data

Brent Moulton

March 15, 2007
What are the NIPAs?

- The National Income and Product Accounts (NIPAs) are a set of economic accounts that track economic flows within the U.S. economy.

Two key NIPA measures are:

- **Gross domestic product (GDP):** Measures the total value of goods and services produced within the U.S. in a period.

- **Gross domestic income (GDI):** Measures the incomes earned and the costs incurred in producing those goods and services.
NIPA seven-account summary

- Domestic Income and Product Account
- Private Enterprise Income Account
- Personal Income and Outlay Account
- Government Receipts and Expenditures Account
- Foreign Transactions Current Account
- Domestic Capital Account
- Foreign Transactions Capital Account
GDP as value added

- Value added is measured as: Output less intermediate consumption

- Example: Wheat to flour to bread.
  - GDP is value of bread.
    - Equals sum of value added of farmer, miller, and baker.
  - GDP: the sum of industry value added
  - Also equals sum of final expenditures
  - Also equals sum of income earned in production
## Account 1. Domestic Income and Product

<table>
<thead>
<tr>
<th>Compensation of employees, paid</th>
<th>Personal consumption expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxes on production and imports</td>
<td>Gross private domestic investment</td>
</tr>
<tr>
<td><em>Less: Subsidies</em></td>
<td>Net exports of goods and services</td>
</tr>
<tr>
<td>Net operating surplus</td>
<td>Government consumption expenditures and gross investment</td>
</tr>
<tr>
<td>Consumption of fixed capital</td>
<td></td>
</tr>
</tbody>
</table>

### Gross Domestic Income

### Gross Domestic Product
Expenditure components of GDP (2005)

\[ GDP = C + I + G + X - M \]

- Consumption: 70.0%
- Investment: 16.9%
- Government: 18.9%
- Exports: 10.4%
- Imports: 16.2%

= GDP
Income components of GDP (2005)

Compensation: 57.1%

TOPI less subsidies: 6.8%

Net operating surplus: 23.2%

Consumption of fixed capital: 12.6%

Statistical discrepancy: 0.3%

= GDP
Account 1. Domestic Income and Product

Compensation of employees, paid
Taxes on production and imports
*Less*: Subsidies
Net operating surplus
Consumption of fixed capital

**Gross domestic income**

Statistical discrepancy

**Gross Domestic Product**

Personal consumption expenditures
Gross private domestic investment
Net exports of goods and services
Government consumption expenditures and gross investment

**Gross Domestic Product**
Account 2. Private Enterprise Income

- Provides information on the sources and uses of the income of private enterprises.
- Includes current-production corporate profits and proprietors’ income.
Account 3. Personal Income and Outlays

- Provides information on the sources and uses of income received by persons.
- Includes personal income and personal saving.
- Can derive disposable personal income and personal saving rate.
Account 4. Government Receipts and Expenditures

- Provides information on the transactions of the Federal Government and state and local governments.
- Includes social benefits and government saving.
Account 5. Foreign Transactions

- Provides information on trade in goods in services with the rest of the world.
- Includes imports, exports, and the balance on the current account.
Account 6. Domestic Capital

- Provides information on saving and investment for the U.S. economy.
- Key measures: Gross saving, which is net saving plus the consumption of fixed capital, and net saving, which is a measure of saving that is available for adding to the Nation’s net stock of fixed assets.
Account 7. Foreign Transactions Capital

- Provides information on the transactions with the rest of the world that are linked to acquisition or disposition of fixed assets.
Features of national accounts

- Inflation-adjusted ("real" GDP)
- Quarterly frequency
- Seasonally adjusted
- Annualized
Estimation cycle

- “Advance” estimates are released about $3\frac{1}{2}$ weeks after a calendar quarter concludes.

- “Preliminary” and “final” estimates are released 30 and 60 days after the advance.
“Annual revisions” are released in July of non-comprehensive revision years.

“Comprehensive revisions” occur about every 4-5 years.
GDP by Sector, 2005

- Business: 77.3%
- Households and institutions: 11.5%
- Government: 11.2%
Featured measures

- Real GDP growth, as indicated by the percent change in the chain-type quantity index.

- *Contributions* to real GDP growth reflect the role that individual components of GDP play in producing the growth in GDP.

- Gross domestic purchases price index (and personal consumption expenditures price index)—inflation measures that reflect prices of goods and services purchased by U.S. residents.
Other important GDP-related measures

- Current-dollar GDP represents the value of production at a point in time.

- GDP percentage shares provide a measure of the size and importance of a component.
Chained-Dollar GDP

- Chained-dollar GDP is the product of current-dollar GDP in the reference year and the GDP quantity index (divided by 100).
- Chained-dollar components do not add to the total.
- See “Chained-Dollar Indexes” from the November 2003 Survey of Current Business.
Primary source data for benchmark input-output accounts.

- Estimates supply of products by industry and use of products by industry and final expenditures.

- Critical because it provides details necessary to separate *intermediate* consumption from *final* expenditures.
Annual Census source data

- Annual Retail Trade Survey
  - Personal consumption expenditures (PCE) for goods; inventories
- Services Annual Survey - PCE services
- Annual Survey of Manufactures
  - Investment in equipment; inventories
- Value of construction put in place - structures
- Annual Trade Survey - inventories
- Foreign trade data
- Government Finances Survey
Example - Equipment investment

“Commodity flow” method:
- ASM data on shipments of detailed durable goods product categories
- Subtract those going to intermediate uses.
- Add imports: “domestic supply”
- Subtract goods going to exports, government, PCE
- Add margins
- Result is estimate of private investment in equipment.
Example - retail trade

- Sales by retail industry
- Merchandise lines (products) data by industry from last economic census
- Estimate products, controlling the total to total retail sales for categories selling primarily to consumers.
- Deflate using detailed CPIs
- Result is estimate of PCE for goods.
Quarterly source data

Census indicator surveys:

- M3 shipments and inventories for equipment investment, mfg inventories
- Monthly retail trade for PCE goods, retail inventories
- Wholesale trade inventories
- Value put in place for structures
- Foreign trade data
Data issues

- Business births may not be promptly captured or included in samples.
- Non-participation in voluntary surveys may be a problem
  - Examples
- Respondents may not follow instructions.
  - Example - may report worldwide shipments or inventories
Diagnosing data problems

- Statistical discrepancy is high level indicator of problems.
- Monitor revisions - persistent large revisions or revisions in the same direction.
- Research on data issues.
  - Examples