An Integrated BEA/BLS Production Account: A First Step and Theoretical Considerations

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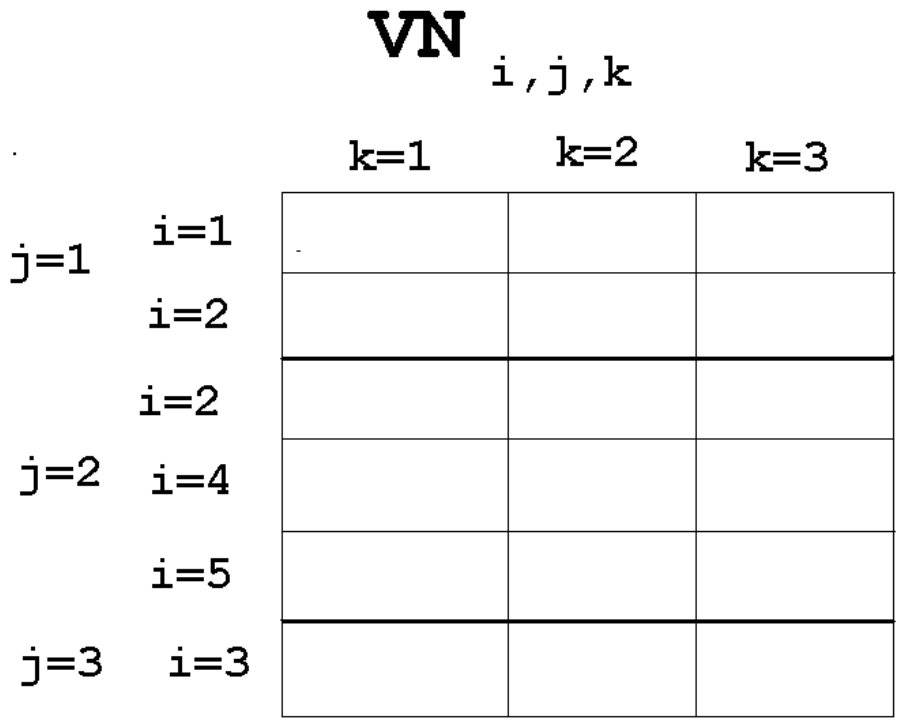
Figure 1: Matrix of Flows of Intermediate Inputs Between Industries



This is a schematic of the matrix (VN) of intrasectoral sales (from j to k) of commodities (i).

Figure 2: The Nominal Production Account

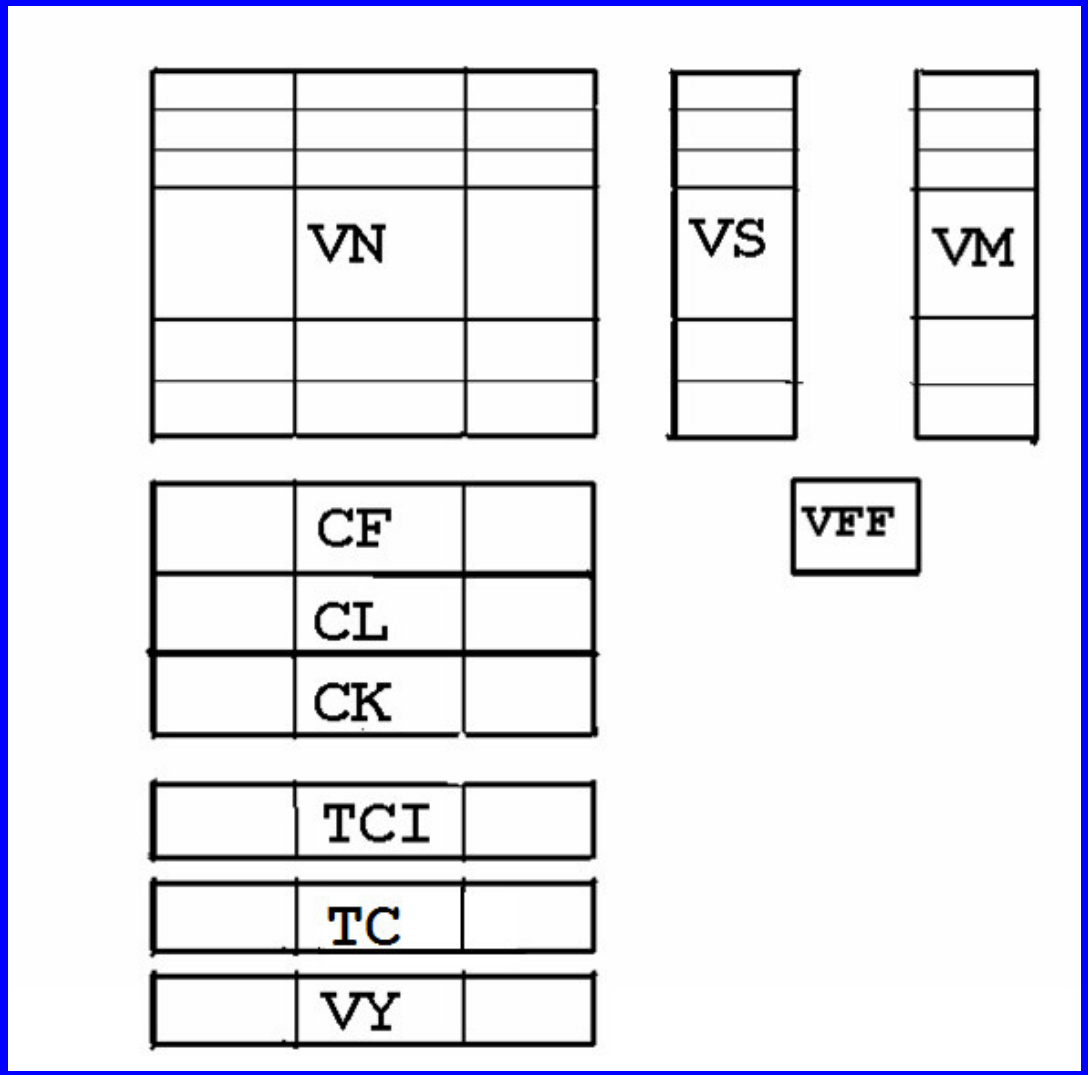


Table 1: 1996 Aggregate Production Account

- To show the relationship between BEA & BLS measures with reference to web site data
- Includes capital and labor inputs
- BEA/BLS labels
  - 1996 dollars
  - Top down vs. bottom up
- IBT 9b-iii and 13b-iii

Tables 2 & 3

- Nominal shares
  - Table 2 - in GDP
  - Table 3 - in major sector
- Real growth rates

Table 2: Major Components

- Major sectors
  - Shares decreased between 1948-1973 and 1973-1990 periods
  - Private business share of GDP decreased through 1990-1995
  - Growth rates are very similar, differ by at most .2, & are higher than the GDP growth rate for most periods
- Other components
  - Shares for all but farms increased through at least 1973-1990
  - Rates of growth for the two government components are almost always below the GDP rates of growth

Table 3: Details for BLS Major Sectors MFP Accounts

- Shares
  - Capital share is always lower for the private nonfarm business sector than for the private business sector
  - Trends are similar for the major sectors
- Growth rates
  - Input growth rates for private nonfarm business are always above that for private business
  - Capital services growth rates are always above that for labor input
  - 1948-73 stands out as a sub period as having a large large labor input difference between the two sectors

Sector and Industry Comparisons

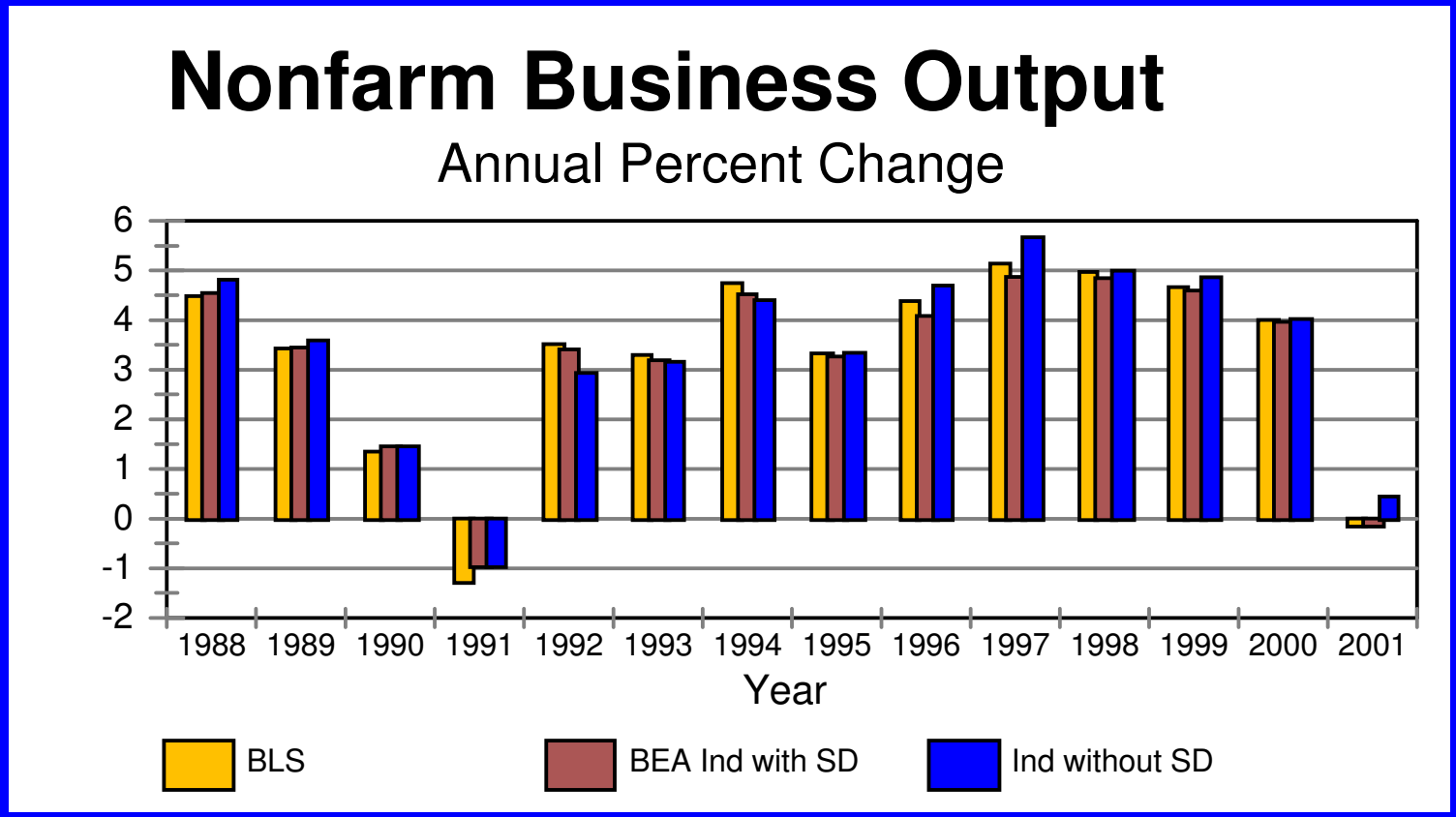
- BEA and BLS have different objectives that affect methodologies and data sources
- BEA strives for maximum reliability of economy-wide output measures in the NIPA's and industry accounts
- BLS strives to achieve maximum reliability for labor and multifactor productivity measures and for consistency of outputs and inputs
- Output measures are quite similar, but some differences exist
- There have been some harmonization efforts

Major Business Sectors

- BLS and BEA NIPA nonfarm business output measures are nearly identical
- Nonfarm business output constructed by researchers from the GDP by Industry Accounts often excludes all housing as well as the statistical discrepancy
- This measure grew faster in 1995-2000 than the BLS and NIPA nonfarm measures, partly due to excluding the statistical discrepancy and partly due to differences in deflation procedures

Real Growth Rates, 1988-2001

BLS and BEA Industry Accounts



Real Output for Major Sectors

Average annual growth rates (percent)

Program/Measure	1990-1995 (1)	1995-2000 (2)	2000-2001 (3)	1995-00 less 90-95 (2) - (1)
BEA NIPA's				
GDP	2.38	4.03	0.25	1.65
GDI (excludes S.D.)	2.41	4.38	0.11	1.96
Nonfarm business [1]	**2.68**	**4.47**	**-0.06**	**1.79**
Nonfarm business less housing	2.74	4.72	-0.09	1.98
BLS				
Nonfarm business [2]	**2.71**	**4.63**	**-0.07**	**1.92**
Private nonfarm business [2]	2.79	4.64	-0.08	1.86
BEA Industry Accounts				
All Industries	2.22	4.20	0.55	1.97
All Industries less S.D.	2.26	4.55	0.41	2.29
Nonfarm business [3]	**2.56**	**4.85**	**0.45**	**2.28**
Nonfarm business less S.D. [3]	**2.61**	**5.27**	**0.27**	**2.67**
Private nonfarm business [3]	2.62	4.86	0.47	2.24
Private nonfarm business less S.D. [3]	2.67	5.31	0.29	2.64

[1] Includes all housing.
[2] Includes tenant-occupied housing only.
[3] Excludes all housing.

Manufacturing Sectors

- Significant differences exist in the definition of output: Gross output (BEA), sectoral output (BLS), and value-added output (BEA)
- Acceleration of growth rates in the late 1990s is very similar for gross and sectoral output for manufacturing and durables, but slightly different for nondurables
- Acceleration differences are larger with BEA value added
- FRB IPI--used by BLS for recent quarterly extrapolations --shows stronger growth since 1997

Manufacturing Industries (2-Digit)

- More than half (60%) of the two-digit SIC industries show very similar growth trends and acceleration
- For BEA gross and BLS sectoral output, 8 of 20 have fairly noticeable differences in trend growth rates or annual movements.
- Of these 8, 5 have acceleration differences > 0.9 points and 3 have growth rate correlation coefficients <0.85; SIC 20 missed on both

Manufacturing Industries (4-Digit)

- BEA and BLS output measures for 4-digit industries underlying SIC 27 and 29 were compared
- Large differences in either trend growth rates or annual movements were found for specific underlying 4-digit industries
- Outliers are good subjects for further study at more detailed (4-digit SIC) levels

4-Digit Industries: Initial Results

- Differences in acceleration rates were computed using BEA and BLS output measures, for 458 SIC 4-digit industries
- 28%, or 128 of the 458 industries, had differences in acceleration rates of 1.0 or greater
- Further work is merited to understand and document differences in data and methodology underlying detailed industry output measures

Nonmanufacturing

- Coverage differences between BEA and BLS are most apparent in this sector
- Industries covered by BLS now account for nearly 50% of BEA-estimated gross output for nonmanufacturing
- Output growth trends similar for many industries, but more dissimilarities and more large differences than in manufacturing
- More study may be needed by both agencies

Future Work

- Additional examination of BEA and BLS output measures is supported for detailed 2, 3, and 4-digit industries

- Proposals for eliminating some differences and explicitly documenting other differences will be generated from this work

BLS, BEA, and FRB

Index Values, 1987-2001