

ACCELERATION OF BEA ANNUAL ACCOUNTS

COMMENTS BY

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BEA ANNUAL ACCOUNTS--ISSUES

- **TRADE-OFF WITH OTHER PRIORITIES IN TIME, STAFF, AND FUNDING**
- **PURPOSE OF ACCOUNTS**
- **USERS OF ACCOUNTS**
- **METHODS OF CONSTRUCTING ANNUAL ACCOUNTS**

BEA ANNUAL ACCOUNTS--ISSUES

TRADE-OFF IN STAFF

CURRENT BUDGETED

BEA TOTAL	430	502
INDUSTRY ACCOUNTS	39	61
BENCHMARK IO ACCOUNTS	14	18
ANNUAL IO AND GDP ACCOUNTS	14	19

Source: BEA staff.

BEA ANNUAL ACCOUNTS--ISSUES

TRADE-OFF IN FUNDING

CURRENT BUDGETED

BEA TOTAL	???	???
INDUSTRY ACCOUNTS	???	???
BENCHMARK IO ACCOUNTS	???	???
ANNUAL IO AND GDP ACCOUNTS	???	???

Source: BEA staff.

BEA ANNUAL ACCOUNTS--ISSUES

TESTING RAS PROCEDURE

RAS IS A BIPROPORTIONAL ADJUSTMENT OF A MATRIX

R = ROW-ADJUSTMENT FACTORS

S = COLUMN-ADJUSTMENT FACTORS

A =INPUT-OUTPUT (OR ANY OTHER) MATRIX

ELEMENTS IN EACH ROW/COLUMN ARE ADJUSTED PROPORTIONATELY TO THEIR “CURRENT” VALUES TO SUM TO PREASSIGNED ROW/COLUMN TOTALS.

RAS--NATIONAL INPUT-OUTPUT TABLES

AUTHOR (YEAR)	COUNTRY	BASE YEAR	ESTIMATED YEAR	OTHER METHOD
Stone, et al. (1963)	UK	1954	1960	None
Matuszewski (1963)	Canada	1949	1956	Linear Programming
Paelinck Waelbroeck (1963)	Belgium	1953	1959	None
Schneider (1963)	United States	1947	1958	Linear Programming
Tilanus (1966)	Netherlands	1948	1951	Statistical Correction
Lamel et al. (1974)	Norway	1964	1968	Almon procedure
Davis et al. (1977)	United States	1963	1967	Linear Programming
Miernyk (1975)	United States	1963	1967	None
Lynch (1986)	UK	1963	1968	Aggregated Data

SOURCE: Polenske (1986)

RAS NATIONAL INPUT-OUTPUT TABLES

SOME CAVEATS

- Most authors did not conduct error estimations.
- Paelinck and Waelbroeck tested adjusted 1953 tables with exogenous data and tested against actual 1959 table. Only one of 270 nonzero elements was in error by more than one percent error, BUT
 1. 238 of 270 coefficients had had no actual change.
 2. They used actual 1959 total gross output, total intermediate output and total intermediate input as margin controls.
 3. Six values removed from the table before using RAS were the actual 1959 data.
 4. The 1959 table was itself partially estimated by industry experts.
- Schneider (1965) concluded that linear programming method was not as good as RAS procedure for predicting individual coefficients, because LP emphasizes disproportionality in technical change. It ignores growth of small industries.
- Miernyck found a 127% error for the RAS procedure and a 126% error for a modified RAS procedure.
- Lecomber (1969) suggests using Johanson (1968) or Almon (1969) procedure when two or more tables exist.

RAS--REGIONAL INPUT-OUTPUT TABLES

AUTHOR (YEAR)	REGION	BASE YEAR	ESTIMATED YEAR	COMMENTS
Czamanski-Malizia (1969)	Washington	1958	1963	Need field survey for best results.
Morrison-Smith (1974)	Petersborough	1958	1968	RAS much better than five other methods.
Haring-McMenamin (1974)	Washington	1963	1967	Their method no better
Malizia-Bond (1974)	Washington	1963	1967	Mean errors were 118%
Hewings (1977)	Washington	1963		
	Kansas		1965	No errors estimated.
Hinojosa (1978)	Washington	1963, 1967	1972	Mean error 34%+.
Harrigan, McGilvray, McNichol (1980)	United Kingdom	1973		RAS better than location quotient, adjusted cross-industry LQ, logarithmic cross-industry LQ, commodity balance
	Scotland		1973	Absolute deviation 33%
Butterfield-Mules (1980)	Australia	1958-59		
	Western Australia		1958-59	
Sawyer-Miller (1983)	United States	1967		RAS better than LQ and supply-demand methods
	Washington		1972	Mean absolute deviation open model 42-83% closed model 18-43%

Source: (Polenske (1986))

RAS TO UPDATE INPUT-OUTPUT TABLES SOME CAVEATS

- **RAS produces lower errors of estimation than other methods, but lowest errors are:**
 1. **Obtained after adjusting cells in tables with exogenous information.**
 2. **Even then, lowest errors for RAS tend to be higher than 10%.**
- **Other issues with using RAS or any other method not sufficiently covered by regional and national authors include:**
 1. **Do not specify number of iterations needed to obtain solution for RAS.**
 2. **Difficulties over business cycle of using coefficients estimated at top of cycle to predict coefficients at bottom of cycle.**
 3. **Insufficient tests for level of aggregation, flows versus coefficients, and methods of determining margin controls.**

RAS USE FOR REGIONAL AND NATIONAL INPUT-OUTPUT TABLES

SOME QUESTIONS

- **WHAT TESTS SHOULD THE BEA BE CONDUCTING?**
- **IF ESTIMATION ERRORS ARE LARGE, ARE ANALYSTS AND USERS SATISFIED WITH USING SUCH A METHOD?**
- **IF NOT, WHAT METHODS SHOULD BEA BE TESTING?**
- **CAN THE BEA CONDUCT SURVEYS AND CASE STUDIES TO IMPROVE THE ESTIMATION PROCEDURE?**

QUESTIONS RAISED BY BEA ANNUAL ACCOUNTS

Do users want:

- 1. More industry detail?**
- 2. More frequent accounts?**
- 3. Spatial detail?**
- 4. Other possible information?**
- 5. What are the funding and staffing implications of each of these?**

QUESTIONS RAISED BY BEA ANNUAL ACCOUNTS

- 1. Conduct specialized surveys to do the updates?**
- 2. Survey work done in other countries, such as Canada and Europe?**
- 3. Test the RAS procedure?**
- 4. What are the funding and staffing implications of each of these?**

Answers to each of these questions will help determine whether the annual accounts should be accelerated and the options to be used.