Options for Accelerating the Annual Input-Output Accounts

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Topics

- Background on the Annual I-O Accounts
- Steps for preparing the accelerated Annual I-O
- How will the accelerated Annual I-O be used for integration?

Options for the Accelerated Annual Input-Output Accounts

- Should the Annual I-O Accounts be integrated with the GDP-by-Industry Accounts?
- Should the Annual I-O Accounts provide feedback to the NIPA's?

What are the Annual I-O Accounts?

- An update of the latest Benchmark I-O Accounts
- Based on limited set of data
  - Annual survey data for industry output
  - Product data for manufacturing
  - Very limited information on industry inputs
- Rely heavily on Benchmark I-O relationships

Annual I-O and the NIPA's

- Annual I-O Accounts always have had a close relationship with the expenditure side of the NIPA's.
  - Pre-1980 Annual I-O's used NIPA product estimates
  - 1980-87 Annuals I-O's produced independent estimates of best levels for NIPA expenditures
  - 1996 Annual I-O produced best level estimates used in comprehensive revision
  - 1997-99 Annual I-O's used NIPA expenditure estimates
- Value added has always been a residual and has not been consistent with GDP-by-Industry estimates

Input-Output Table

		INDUSTRIES										FINAL USES (GDP)							TOTAL COMMODITY OUTPUT
		Agriculture	Mining	Construction	Manufacturing	Transportation	Trade	Finance	Services	Other	Total Intermediate Use	PCE	PFI	CBI	X	M	GOVT	GDP	
COMMODITIES	Agriculture																		
	Minerals																		
	Construction																		
	Manufacturing																		
	Transportation																		
	Trade																		
	Finance																		
	Services																		
	Other																		
	Noncomparable imports																		
	Total Intermediate inputs																		
VALUE ADDED	COMP																		
	IBT																		
	Other value added																		
	Total																		
TOTAL INDUSTRY OUTPUT																			

What do the Annual I-O Accounts offer to the National Accounts?

- Estimates of GDP built up from detailed annual source data
- Accounting structure to relate industry output with GDP and GDI
- Timely information from accelerated Annual I-O Accounts available to NIPA's within its annual revision cycle

Acceleration Research Results

- Source data are available in the spring with a lag of one year
- Automated balancing of detailed I-O transactions tables produces good results
- Higher levels of detail improves results
- Providing value added estimates for compensation, IBT and other value added also improves results

What Are We Ready to Produce?

- Current dollar annual tables with a lag of one year
- Time series of tables
- Tables revised to be consistent with source data
- Tables will be at the same level of detail as the GDP-by-Industry Accounts

Steps in the Production Process

- Produce the annual I-O table
- Integrate the GDP-by-Industry Accounts
- Balance
- Review commodities
- Review industries

Step 1: How Do We Produce the Annual I-O?

- Estimate industry and commodity output
- Update intermediate inputs to industries
- Estimate domestic supply (output plus imports less exports and change in business inventories)
- Initial commodity composition for PCE, private fixed investment and government purchases

Input-Output Table

		INDUSTRIES										FINAL USES (GDP)							TOTAL COMMODITY OUTPUT
		Agriculture	Mining	Construction	Manufacturing	Transportation	Trade	Finance	Services	Other	Total Intermediate Use	PCE	PFI	CBI	X	M	GOVT	GDP	
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	Finance																		
	Services																		
	Other																		
	Noncomparable imports																		
	Total Intermediate inputs																		
VALUE ADDED	COMP																		
	IBT																		
	Other value added																		
	Total																		
TOTAL INDUSTRY OUTPUT																			

Step 2: What Must be Done to Integrate the Annual I-O Accounts with GDP-by-Industry?

From GDP-by-Industry add:

- Compensation
- Indirect business taxes
- Other value added

Input-Output Table

		INDUSTRIES										FINAL USES (GDP)							TOTAL COMMODITY OUTPUT
		Agriculture	Mining	Construction	Manufacturing	Transportation	Trade	Finance	Services	Other	Total Intermediate Use	PCE	PFI	CBI	X	M	GOVT	GDP	
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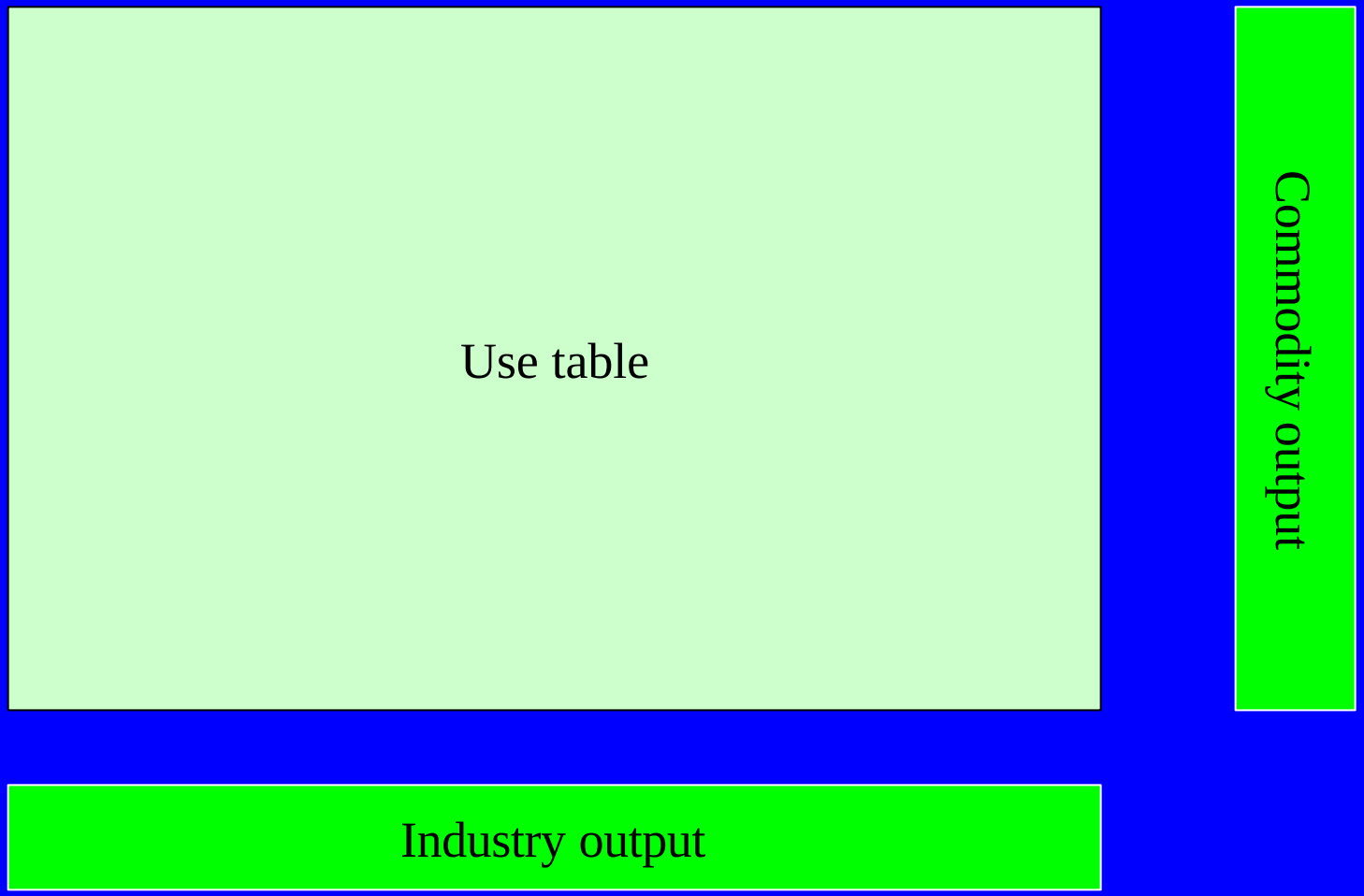
	Other value added																		
	Total																		
TOTAL INDUSTRY OUTPUT																			

Step 3: Balance

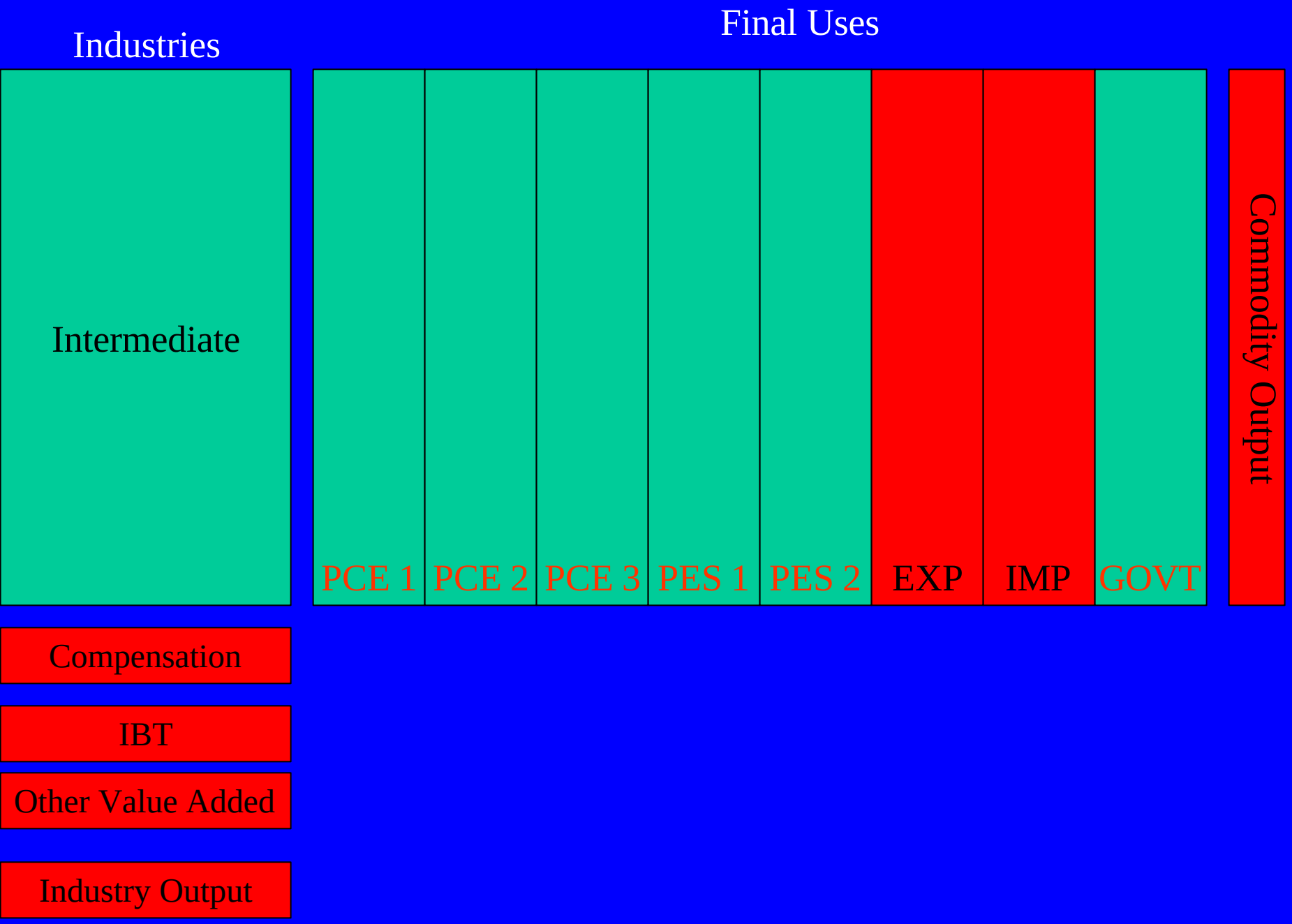
Adjust the rows and columns of the table to equal commodity and industry output

Balance Model



Step 3: Balance (continued)

- Set value added
- Imports, exports and inventory are given
- PCE, private fixed investment and government totals are given
- Intermediate and the commodity composition of PCE, private fixed investment and government are adjusted to fit totals


Industries
Final Uses
Intermediate
PCE 1
PCE 2
PCE 3
PES 1
PES 2
EXP
IMP
GOVT
Commodity Output
Compensation
IBT
Other Value Added
Industry Output

Step 4: Review Commodities

Assume I-O relationships remain relatively stable over time

- Commodity share to intermediate/final uses
  - Expectation of small year to year change
  - PCE goods differences imply possible changes to expenditure categories
  - PCE services should be similar to published estimates
  - Equipment and software should be similar to published estimates
- Retail margin rates remain relatively stable
- Then adjust as needed

Step 5: Review Industries

- Input-output ratios are expected to remain relatively stable over time
- Patterns of change in input-output ratios
  - Consistent changes across a commodity indicate a change in use
  - Inconsistent changes across a commodity point to other commodities causing changes
- Input-output ratio changes may imply changes to other value added estimates (profits)
- Then adjust as needed

Integration with the NIPA's

- Information from commodity review could be used in NIPA annual revisions
- Information from the review of industries could be used for adjustments to GDP by industry estimates

Examples of Feedback to the NIPA's

- 1983-86 Annual Survey of Manufacturers drift
- The last comprehensive revision use of PCE goods estimates

Examples of Feedback to the NIPA's (continued)

1997 NIPA, Annual I-O and Benchmark PCE Estimates

(Millions of dollars)

	NIPA Aug 2000	Annual I-O Estimated Level May 2001	1997 Benchmark I-O Dec 2002
Ophthalmic products and orthopedic appliances	19,147	18,337	18,596
Semidurable house furnishings	33,056	31,868	31,225
Shoes and other footwear	40,083	41,078	40,259
Tobacco products	49,807	51,562	53,772
Toys and sports supplies	48,840	47,122	48,000

Annual I-O Products

- 1998-2002 annual I-O tables released next spring
  - Integrated with GDP-by -Industry accounts
  - Consistent with 2003 NIPA comprehensive revision
  - Prepared on a NAICS basis
- 2003 annual released in the late fall of 2004

Conclusion

- Ready to accelerate annual I-O tables
- Able to provide alternative estimates for final use categories
- Provide adjustments to income by industry estimates

Discussion of Options

- Should the Annual I-O Accounts be integrated with the GDP-by-Industry Accounts?
- Should the Annual I-O Accounts provide feedback to the NIPA's?