

Conceptualizing and Measuring Cost-of-Living and Price Indexes

Panel on Conceptual, Measurement, and Other Statistical Issues
in Developing Cost-of-Living Indexes

Charles L. Schultze and Christopher Mackie, *Editors*

Committee on National Statistics
Division of Behavioral and Social Sciences and Education
National Research Council



NATIONAL ACADEMY PRESS
Washington, DC

Contents

EXECUTIVE SUMMARY	1
A COGI Versus a COLI, 2	
The Scope or Domain of the Index, 3	
Aggregation, 4	
Accounting for Substitution Behavior, 5	
Quality Change, 6	
New Goods, 7	
Outlets, 8	
Pricing Medical Care, 9	
Index Design and Index Purpose, 10	
Data Collection, 11	
1 INTRODUCTION-	13
Background, 13	
Panel Charge and Report Organization, 17	
Alternative Approaches: A COGI Versus a COLI, 18	
Domain of the CPI, 19	
Substitution, 21	
Aggregation, 26	
Changes in the Quality of Goods, 27	
New Goods, 30	
Outlet Substitution, 32	
Stocks and Flows, 33	
Index Purpose and Design, 35	
Data Collection, 36	

2	CONCEPTUAL FOUNDATIONS FOR PRICE AND COST-OF-LIVING INDEXES	38
	Setting the Stage: What Are Price Indexes?, 41	
	The Theory of Price Indexes and Its Critics, 43	
	Two Perspectives, 57	
	Conclusions, 73	
	Technical Note: A Mathematical Approach to Price Indexes, 74	
3	INDEX DOMAIN	94
	An Unconditional COLI: Conceptual Issues, 96	
	Measurement Problems, 98	
	Supplemental Indexes and Satellite Accounts, 101	
	Other Domain Issues, 102	
	Conclusion and Recommendation, 105	
4	EVOLVING MARKET BASKETS: ADJUSTING INDEXES TO ACCOUNT FOR QUALITY CHANGE	106
	COLI and COGI Views of the Quality Change Problem, 109	
	Evidence from the Boskin Commission Report, 112	
	BLS Approaches to Quality Changes, 114	
	Hedonic Regression Methods, 122	
	Cautions and Recommendations, 140	
	Technical Note 1: Boskin Commission Estimates of Quality Change and New Goods Bias, 146	
	Technical Note 2: Mathematical Description of Hedonic Methods, 149	
5	NEW GOODS AND NEW OUTLETS	155
	New Goods, 155	
	New Outlets, 167	
6	THE SPECIAL CASE OF MEDICAL SERVICES	178
	Background, 178	
	Conceptual and Measurement Issues, 181	
	The Domain of Consumer Health Expenditures: Employers' Health Insurance Payments, 185	
	Direct Pricing of Health Insurance, 186	
	Recommendations, 188	
7	INDEX DESIGN AND INDEX PURPOSE	191
	Indexing Public Transfer Payments, 192	
	Wage Bargains and Indexed Wages, 207	
	Indexing Private Contracts, 208	
	Inflation-Indexed Treasury Securities, 210	

Indexing the Federal Income Tax System, 212	
Measuring Output Changes, 214	
Inflation Indicators for Macroeconomic Policy, 216	
Technical Note: The CPI Versus the NIPA Price Index as an Inflation Measure, 219	
8 WHOSE INDEX? AGGREGATING ACROSS HOUSEHOLDS	222
Two Kinds of Heterogeneity, 223	
Heterogeneity in Prices Paid and in Rates of Inflation, 225	
The Consequences of Heterogeneity for Index Construction, 226	
Group Indexes: Why the Current Data Collection System Cannot Produce Them, 226	
A Price Index for the Elderly?, 228	
The Conceptual Basis for Group Indexes, 229	
How Might Data for Subgroup Indexes Be Assembled and What Would It Cost?, 232	
Suggested Research and Testing, 235	
Plutocratic Versus Democratic Weights, 237	
Summary and Recommendation, 240	
Technical Note 1: Aggregation and the "Representative Consumer," 241	
Technical Note 2: Do Inflation Rates Differ by Age or Income Group?, 246	
9 DATA COLLECTION FOR CPI CONSTRUCTION	252
The Current Data Collection Process, 253	
Alternative Data Collection Approaches, 264	
Summary and Recommendations, 274	
Technical Note: Additional Description of CPI Data Inputs, 276	
APPENDIX: STATISTICAL DEFINITION AND	
ESTIMATION OF PRICE INDEXES	283
REFERENCES	293
GLOSSARY	307
BIOGRAPHICAL SKETCHES OF PANEL MEMBERS AND STAFF	315
INDEX	319