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An Inventory of Regional Input-Output Studies in the United States

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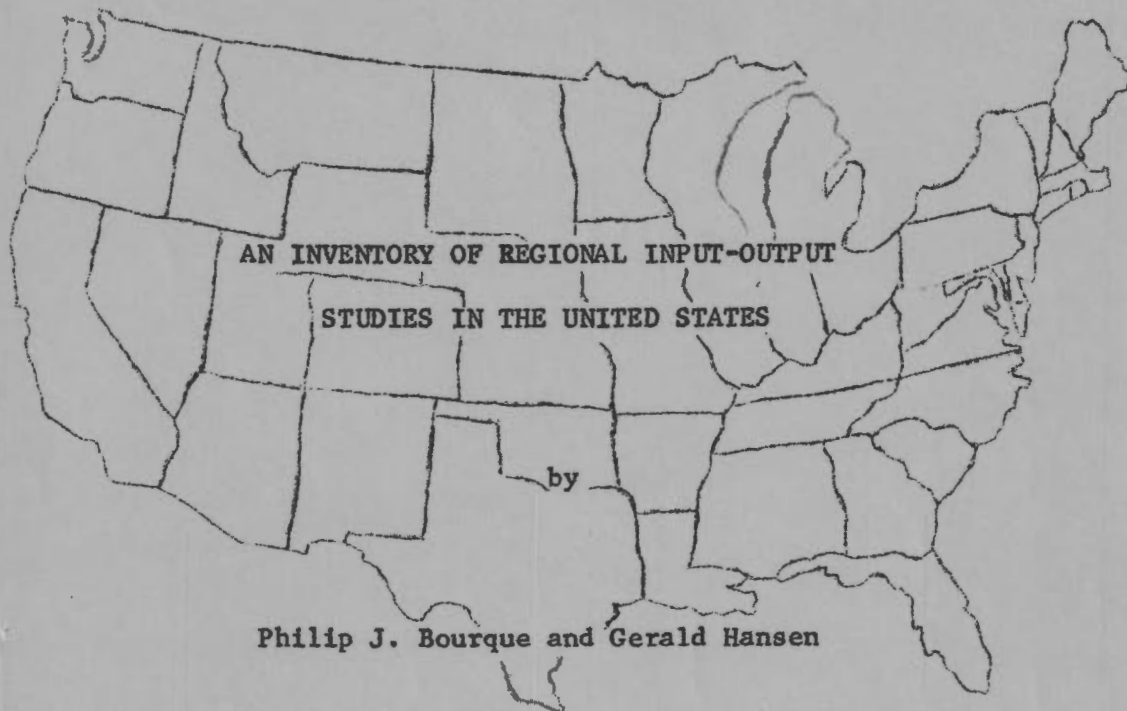
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AN INVENTORY OF REGIONAL INPUT-OUTPUT

STUDIES IN THE UNITED STATES

by

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University of Washington
Seattle, Washington
August, 1967

SUMMARY

This report presents an inventory of regional input-output studies which have been undertaken in the United States (Part I), and a listing of studies which are currently in process (Part II). Only studies of basic empirical content are included in the bibliography. An arrangement alphabetically by state has been chosen for easy area reference; studies of multi-state regions appear at the end of each part.

Fifty-two completed studies and an additional 28 currently in process are reported in this inventory. A later edition, including a brief description of each completed study, is planned for publication. The authors will be grateful for any omissions or corrections which are brought to their attention.

BACKGROUND

The spectacular surge of interest in input-output methods and applications in recent years is witness to the significance of the innovation whose foundations were laid by Wassily Leontief in the 1930's.¹ Inter-industry tables developed by Leontief†

1 Leontief, Wassily, The Structure of the American Economy, 1919-1929, Oxford University Press, New York (1941). The second edition (1951) is entitled The Structure of the American Economy 1919-1939.

for the U.S. economy for the years 1919, 1929, and 1939 were followed by^a massive national input-output table prepared by the Bureau of Labor Statistics for the year 1947.² After a period of quiescence during the 1950's in the U.S. (but accelerating development abroad) the OBE began work on a modest-sized input-output table for the year 1958.³ Since its publication in 1964 the coming to maturity of I-O as a significant planning and forecasting tool for government and industry has approached. A national table for 1963 is soon to be released, and the statistical apparatus of the federal government is set to provide another for the year 1967 and at regular intervals thereafter.

To meet the lag problem associated with the construction of I-O matrices these periodic benchmark tables prepared by the Office of Business Economics are being updated by others. The tables prepared by Leontief for a \$600 billion and \$750 billion GNP,⁴ and the 1966 CEIR-Fortune table,⁵ are readily available. The practical

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- 2 Evans, W. Duane and Hoffenberg, Marvin, "The Interindustry Relations Study for 1947," The Review of Economics and Statistics, Vol. 54, No. 2 (May 1952).
 3. Goldman, Morris R., Marimont, Martin L., and Vaccara, Beatrice H. "The Interindustry Structure of the United States," Survey of Current Business, Vol. 44, No. 11 (November 1964); National Economics Division Staff, "The Transactions Table of the 1958 Input-Output Study and Revised Direct and Total Requirements Data," Survey of Current Business, Vol. 45, No. 9 (September 1965).
 - 4 Leontief, Wassily W. "The Structure of the U.S. Economy," Scientific American, Vol. 212, No. 4 (April 1965) contains \$600 bil. gross flows table. The \$750 bil. table supplement is available from the publishers.
 - 5 Fortune Marketing Department Fortune's Input-Output Portfolio: A Fortune Marketing Service. Time, Inc. (1967).

application of I-O in the 1960's is particularly evident in ^{its} ~~the~~ adoption by research organizations, public and private, and business firms. I-O has caught the flood of interest in rational economic planning, and it contributes to the tide in that impressive results justify expanded use.

But I-O is not conceptually bound to national economies. Many of the problems to which I-O can be applied are regional. The earliest application in the U.S. of I-O on a regional basis was "The Eighth District Balance and Trade" published by the FRB of St. Louis,⁶ followed soon by a New England study by Walter Isard,⁷ the Utah study by Frederick Moore and J. W. Peterson,⁸ and a Maryland study by the Bureau of Business Research, University of Maryland.⁹ Each of these studies contributed toward the development of techniques for estimating regional interindustry flows. In 1959 C. D. Kirksey published a small area study which pioneered local data collection for estimating regional coefficients.¹⁰ These early studies have been followed by others in multiplying numbers during the 1960's.

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- 6 Freutel, Guy "The Eighth District Balance of Trade", Eighth Federal Reserve District Monthly Review, Federal Reserve Bank of St. Louis, Vol. 34, No. 6, June, 1962.
- 7 Isard, Walter "Interregional Analysis and Regional Development" American Economic Review, Vol. XLIII, No. 2, May, 1953.
- 8 Moore, Frederick T. and Petersen, James W. "Regional Analysis: An Interindustry Model of Utah", The Review of Economics and Statistics, Vol. XXXVII, No. 4, November, 1955
- 9 A Regional Interindustry Study of Maryland, Studies in Business and Economics, Vol. 3, No. 2, September, 1954. Bureau of Business and Economic Research, University of Maryland, College Park, Maryland.
- 10 Kirksey, D. D., An Interindustry Study of the Sabine-Neches Area of Texas, Bureau of Business Research, University of Texas, Austin, 1959.

PURPOSE

At the time the Washington Interindustry Study was initiated (1964) an effort was made to compile a bibliography of input-output studies to facilitate a review of methods and results of preceding studies. The excellent bibliography by Riley and Allen of U.S. studies and the international bibliography by Taskier had a few regional study references. Isard's Methods of Regional Analysis contained well-organized bibliographic material of methods of regional analysis. But the surge of articles and papers is growing and the need to wade through an expanding literature to find those with basic empirical content or practical guidance in execution is arduous. It seems likely that many researchers involved in the design and execution of regional I-O studies would welcome a selected up-to-date bibliography to make their canvas of the literature easier.

This inventory makes available a compilation of that portion of the regional I-O literature which contains input-output studies for regions, states, or smaller areas of the U.S.. Only those studies of substantive empirical content are included. We have attempted to confine the collection to those completed studies (Part I) or studies in progress (Part II), which have (or will have) invertible matrices for a region. The inventory is arranged alphabetically by state, with multi-state areas appearing at the end of each list.

Part I, Completed Studies, includes citations to published work. By "published" we expansively include privately circulated drafts, abstracts, and mimeo-

graphed or multilith reports not yet printed or freely circulated. Perhaps the phrase "Completed Studies" is ill-chosen since many of these reports are progressive (progress or interim). On the other hand, the term "Published Studies" would suggest a form of presentation which often appears only some time after the results have had considerable informal circulation. Part II, Studies in Progress, includes reference to the area, the principal investigator, and anticipated completion dates of studies currently underway.

REGIONAL INPUT-OUTPUT ACCUMULATION

In an effort to accumulate a comprehensive inventory of completed and on going regional studies, a number of reference sources were utilized.

The following bibliographies relevant to regional input-output analysis were most helpful:

Walter Isard, Methods of Regional Analysis: An Introduction to Regional Science, Cambridge, Massachusetts, The M.I.T. Press, 1960, Chapter 8

Working bibliography for the input-output study of Washington (mimeograph)

Vera Riley and Robert Loring Allen, Interindustry Economic Studies, Bibliographic Reference Series No. 4, Operations Research Office, John Hopkins University, John Hopkins Press, Baltimore, Maryland, May 15, 1955

C. E. Taskier, Input-Output Bibliography 1955-1960, New York, N.Y., United Nations 1961, St/Stat/7

United Nations Department of Economic and Social Affairs, Input-Output Bibliography 1960-1963, New York, N.Y., United Nations, Statistical Papers Series M, No. 39, 1964

American Economic Association, Index of Economic Journals, Homewood, Illinois, Richard D. Irwin, Inc., Vol. 1-5

These bibliographies included references of a theoretical or conceptual nature as well as empirical studies. Those which appeared to be regional applications were investigated and included if appropriate.

It was, nevertheless, questionable whether these sources would reveal all studies, especially those in process, those recently completed, or those not formally published. To close this gap a reference questionnaire was sent, in the fall of 1966, to (1) each state agency in the United States whose jurisdiction involved economic planning and development, (2) each of the fifty-seven Bureaus of Business and Economic Research and (3) each Federal Reserve Bank. At least one response was received from all but five states. By surveying both Bureaus of Business Research and state planning agencies it was hoped one or the other, if not both, would acquaint us with I-O studies for their region.

With the scents provided by these responses we attempted to obtain copies of reports or to contact personally those individuals conducting on-going studies. Undoubtedly there are yet some significant omissions or corrections and we hope readers will bring them to our attention. An expanded and updated version is planned for 1968.

It was originally intended that this report would include a brief description of each study. The annotated bibliography, partially completed, seemed too time-consuming to warrant delay in publishing the initial inventory. Moreover, the incompleteness of our files may be partially remedied by this more simple approach.

The difficulties in a classified bibliography of studies may be briefly mentioned. It is fairly easy to identify the base year of the tables (although the coefficients may be from one year and the output or control totals another); and the number of column and row sectors is readily identified (but not always apparent are those which are endogeneous). But the multiplying designs of the tables and methods of construction require careful attention to the details of each study. Some studies apply national coefficients to regional output totals of each industry (Isard's "balanced trade model"), others use national coefficients modified to derive approximations of intra-regional trading coefficients ("Utah" type model). Still other studies rely upon coefficient observations based on the experience of industries within the region; either technical or trading coefficients -- occasionally both -- are reported. There are still other taxonomic categories but perhaps these illustrations suffice to indicate that the designs and methods of regional input-output studies, as well as size, scope, and periods, vary considerably. Some studies are distressingly vague as to design and definition.

TYPES OF STUDIES INCLUDED AND EXCLUDED

Our objective was to compile an inventory of regional I-O studies within the U.S. which contain substantive empirical content. The "theoretical" literature relating to model building or statistical analysis is excluded. Also excluded from the inventory are interpretive or policy oriented reports unless these include previously uncited tables. A number of excellent empirical studies using I-O techniques along the lines of Isard's locational analysis for iron and steel, or Miller's study of the impact of the aluminum industry upon the Pacific Northwest, are not included.

Even thus restricted, the lengthy list of I-O regional studies attests to the widespread and expanding use of input-output techniques in regional research. Fifty-two references to completed studies and 28 in process are reported in this collection. In the years ahead we may have regularly compiled regional I-O tables, integrated with the national accounts, covering the network of flows within the country. Hopefully, this inventory will make easier and more efficient future efforts in the direction of regional I-O research.

UNIVERSITY OF WASHINGTON

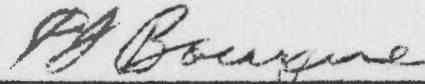
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The enclosed "Inventory of Regional Input-Output Studies" reports the publication of area input-output tables and those regions for which studies are underway.

The intent, as indicated in the text, is to provide a guide to "where to find a regional matrix" and "who's putting together regional tables." The inventory is probably incomplete; the authors would appreciate your bringing omissions to their attention.

A note to the undersigned describing the gaps would be welcome. A copy of such reports, if available, or a summary of work in progress (area, base year, number of sectors, types of coefficients, and principal investigator) would be helpful!



Philip J. Bourque
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PJB/rme

*Dear Bill
Thanks for your help.*

Phil B.

Received Aug. 14 - 1967 & acknowledged

Philip J. Bouque and Gerald Hansen
University of Washington
August, 1967

INVENTORY OF REGIONAL INPUT-OUTPUT STUDIES IN THE UNITED STATES

Part I: Completed Studies

Base Year

- 1951 Alabama: Mobile County
- Hochwald, Werner, Striner, Herbert E. and Sonenblum, Sidney
Statistical Results of Kalamazoo and Mobile County Analyses, (Technical Supplement to Local Impact of Foreign Trade), National Planning Association, Washington, D.C., July, 1960.
- 1954 State of California
- Martin, William E. and Carter, Harold O.
A California Interindustry Analysis Emphasizing Agriculture, Part 1 and 2, California Agricultural Experiment Station, Giannini Foundation of Agricultural Economics, Giannini Foundation Research Report No. 250, February, 1962.
- 1960 State of California
- Tiebout, Charles M. and Hansen, W. Lee
An Intersectoral Flows Analysis of the California Economy, University of Washington, Seattle, Washington, Reprint No. 2, 1964, reprinted from The Review of Economics and Statistics, Vol. XIV, No. 4, November, 1963
- 1961 California: San Benito County
- Rao, Ananda S. and Allee, David J.
An Application of Interindustry Analysis to San Benito County, California, California Agricultural Experiment Station, Giannini Foundation of Agricultural Economics, Giannini Foundation Research Report No. 278, September, 1964.
- 1965 California: San Diego County
- Tjersland, Tore and Chu, Kong
Input-Output or Base Economic Model of San Diego County, (Abstract, 1966).

Base Year

- 1962 California: Stockton
- Arthur D. Little, Inc. (Hendricks, Francis)
The Metropolitan Stockton Economy, The Department of City Planning, Stockton, California (undated, probably 1964).
- 1963 Colorado: Boulder
- Miernyk, William H. and others
The Impact of Space and Space-Related Activities on a Local Economy, Clearing House for Federal Scientific and Technical Information, Catalog Nos. N653125 and N6533190.
- 1960 Colorado: Colorado River Basin
- Miernyk, William, and Udis, Bernard
Input-output tables for the Colorado River Basin Study (six sub basins) dated December 20, 1963.
- 1963 State of Connecticut
- Thompson, John M. Jr.
The Socio-Economic Growth Model, P-42, Staff Paper #223D (undated), State of Connecticut, Connecticut Interregional Planning Program, State Office Building, Hartford, Connecticut. Also a memo from C. L. Leven to Carl Veazie (dated August 5, 1965) which includes the tables.
- 1960 Hawaii: Oahu
- McClure, George E.
A Study of the Economy of Oahu (Manual 4), Oahu Transportation Study, Building 5, Ft. Ruger, Honolulu, Hawaii, September, 1964.
- 1947 Illinois: Chicago
- Hoch, Irving
Forecasting Economic Activity in the Chicago Region: A Progress Report, No. 119, May 10, 1957. Chicago Area Transportation Study, Chicago, Illinois. See also Forecasting Economic Activity for the Chicago Region: Final Report, No. 48, May 15, 1959. Chicago Area Transportation Study, Chicago, Illinois.
- 1963 Illinois: Davenport - Rock Island - Moline
- The Economic Potential of the Davenport - Rock Island - Moline Metropolitan Area, A First Report, prepared for Moline Plan Commission by City of Moline, Illinois Planning and Zoning Department Comprehensive Plan Office, January, 1965.

Base Year

- 1954 State of Iowa
- Maki, Wilbur R.
Projections of Iowa's Economy and People in 1974, Special Report No. 41, Agricultural and Home Economics Experiment Station, Iowa State University of Science and Technology, Ames, Iowa, January, 1965.
- 1954 Maki, Wilbur, R., Suttor, Richard E. and Barnard, Jerald
Simulation of Regional Product and Income with Emphasis on Iowa, 1954-1974, Agricultural and Home Economics Experiment Station, Iowa State University of Science and Technology, Research Bulletin 548, September, 1966.
- 1958 Kentucky: East Kentucky
- Baird, Robert N.
Interindustry Analysis in Appalachia: A Demonstration for East Kentucky. Multilith. Western Reserve University, Cleveland, Ohio
- 1963 Maine: Bangor
- Clark, David H., and John D. Coupe
The Bangor Area Economy, Its present and Future, College of Business Administration, University of Maine, Orono, March, 1967.
- 1963 Maine: Presque Isle
- Miss Shirley Elias
A Microregional Input-Output Model of the Presque Isle Area. M.A. Thesis, University of Maine, 1967.
- 1947 State of Maryland
- A Regional Interindustry Study of Maryland, Studies in Business and Economics, Vol. 8, No. 2, September, 1954. Bureau of Business and Economic Research, University of Maryland, College Park, Maryland.
- 1958 Massachusetts: Boston SMSA
- Isard, Walter, Romanoff, Eliahu, and Alspach, Lucy
Technical Supplements Issued:
- No. 1 - Reconciliation of Industrial Classification Used by the Massachusetts Department of Labor and Industries and the Standard Industrial Classification Developed by the Office of Statistical Standards, U.S. Bureau of the Budget
- No. 2 - Estimates of Key Coefficients for the Manufacturing Industries
- No. 3 - Derived Input-Output Coefficients: 1958: First Steps Toward Regional Input-Output Standardization
- Boston Regional Science Project, Regional Science Research Institute, Cambridge, Massachusetts.

Base Year

- 1954 Michigan: Kalamazoo
- Smith, Harold T.
The Kalamazoo County Economy, The W. E. Upjohn Institute for Employment Research, 709 South Westnedge Avenue, Kalamazoo, Michigan, April, 1960. (Also Technical Supplement C, "Kalamazoo and Mobile County Survey Questionnaires", National Planning Association, Washington D.C.).
- 1958 Michigan: Lansing Tri County Area
- Economic and Population Base Study of the Lansing Tri-County Area, An Interindustry Relations Analysis, sponsored by the Tri-County Regional Planning Commission, Bureau of Business and Economic Research, College of Business and Public Service, Michigan State University, East Lansing, Michigan, 1960.
- 1961 State of Mississippi
- Carden, John G. D. and Whittington, F. B. Jr.
Studies in the Economic Structure of the State of Mississippi, Vol. 1 and 2, Mississippi Industrial and Technological Research Commission, Jackson State Department of Commerce, 1964.
- 1958 State of Missouri
- Harmston, Floyd K. and Monroe, Claude E.
A Preliminary Input-Output Analysis of the Missouri Economy, (Multilith).
- 1955 Missouri: St. Louis
- Hirsch, Werner Z.
"Interindustry Relations of a Metropolitan Area", The Review of Economics and Statistics, Vol. 12, No. 4, November 1959.
- 1960 State of New Mexico
- Blumenfeld, Arthur A. and others
A Preview of the Input-Output Study, A New Mexico Business Reprint, October, 1965.
- Lindberg, Carolyn D.
New Mexico's Imports and Exports, A New Mexico Business Reprint, September, 1966.
- Lindberg, Carolyn D.
A Technical Supplement to the Input-Output Study for New Mexico, Bureau of Business Research, The University of New Mexico, September, 1966.
- 1954 New York: Fulton County
- Goldwasser, Betti
Report on Fulton County, Local Impact of Foreign Trade, National Planning Association, Washington, D.C., July, 1960.

Base Year

- 1954 New York: New York Metropolitan Area
- Berman, Barbara R., Chinitz, Benjamin, and Hoover, Edgar M.
Projection of a Metropolis, Technical Supplement to the New York Metropolitan Region Study, Harvard University Press, Cambridge, Massachusetts, 1960.
- 1954 North Carolina: Northern Tidewater Area
- Ram, Peretz
"An Input-Output Analysis of a Small Homogeneous Agricultural Area," Journal of Farm Economics, Vol. 40, No. 5, December, 1958.
- North Dakota
- Bortch, Bruce L.
North Dakota Economic Development Commission, An Analysis of Interindustry and Intercommunity Relationships in South Western North Dakota, MA Thesis, North Dakota State University, 1966.
- North Dakota
- Sand, Larry D.
Analysis of Effects of Income Changes of Intersectoral and Intercommunity Economic Structure. MA Thesis, North Dakota State University, 1966.
- 1963 State of Oregon
- Allen, Robert Loring and Watson, Donald A.
The Structure of the Oregon Economy: An Input-Output Study, Bureau of Business and Economic Research, University of Oregon, Eugene, Oregon, 1965.
- 1963 Pennsylvania: Clinton County
- Gamble, Hays B. and Raphael, David, L.
A Microregional Analysis of Clinton County Pennsylvania, Vol. 1 and Vol. 2, The Pennsylvania Regional Analysis Group, The Pennsylvania State University, University Park, Pennsylvania, February, 1965.
- 1956-57 Pennsylvania: Pittsburgh
- Longini, Arthur
Region of Opportunity: Industrial Potential Along the Pittsburgh-Youngstown Axis, The Pittsburgh and Lake Erie Railroad Company, 1961.

Base Year

- 1959 Pennsylvania: Philadelphia
 Isard, Walter, Langford, Thomas W., and Romanoff, Eliahu
 Philadelphia Region Input-Output Study, Regional Science Re-
 search Institute, 1966, Vol. 1 and Vol. 2.
- Pennsylvania: Philadelphia
 Weskott, James
 Employment Multipliers for the Philadelphia Metropolitan Area,
 Federal Reserve Bank of Philadelphia, July, 1966.
- 1947 State of Texas
 May, F. B.
 An Inter-Industry Relations Analysis of the Texas Economy for
 1947, Ph.D. Dissertation, University of Texas, 1957.
- 1963 Texas: Rio Grande Valley
 Williamson, Robert B.
 The Lower Rio Grande Valley of Texas, Economic Resources and
 Growth Prospects to 1983-1984, Area Economic Survey No. 27,
 Bureau of Business Research, University of Texas, Austin, 1966.
- 1955 Texas: Sabine-Neches Area
 Kirksey, C. D.
 An Interindustry Study of the Sabine-Neches Area of Texas,
 Bureau of Business Research, University of Texas, Austin, 1959.
- 1947 State of Utah
 Moore, Frederick T. and Petersen, James W.
 "Regional Analysis: An Interindustry Model of Utah", The Review
 of Economics and Statistics, Vol. XXXVII, No. 4, November, 1955.
- 1963 State of Washington
 Bourque, Philip J., and others
 The Washington Interindustry Study for 1963, University of Wash-
 ington Business Review, Vol. XXV, No. 3, February, 1966. See
 also The Washington Economy: An Input-Output Study, Business
 Studies #3, University of Washington Graduate School of Business
 Administration, 1967.
- 1958 Washington: Puget Sound Region
 Little, Arthur D. Inc.
 Economic Growth of the Puget Sound Region, Arthur D. Little, Inc.,
 Cambridge, Massachusetts, 1964.

Base Year

- 1963 Washington: Pudget Sound
- Tiebout, Charles
Projections: 1980, 2000, 2020: An Economic Study of the Puget Sound and Adjacent Waters Area. Consulting Services Corporation, Seattle, (1967).
- 1959 Wyoming: Carbon County
- Harmston, Floyd K.
A Study of the Resources, People and Economy of Carbon County, Wyoming, Wyoming Natural Resources Board, Cheyenne, Wyoming, 1962.
- 1959 Wyoming: East Central
- Harmston, Floyd K. and Lund, Richard E.
A Study of the Resources, People, and Economy of East-Central Wyoming: Platte and Goshen Counties, The Wyoming Natural Resource Board, Cheyenne, Wyoming, 1963.
- 1959 Wyoming: Southwestern
- Lund, Richard E.
A Study of the Resources, People, and Economy of Southwestern Wyoming, The Wyoming Natural Resource Board, Cheyenne, Wyoming, June, 1962. See also An Analysis of Local Economy in a Period of Rapid Transition prepared by The University of Wyoming for Small Business Administration, Washington, D.C. (June, 1962).
- 1958 Appalachia
- Baird, Robert E.
Interindustry Analysis in Appalachia: A Demonstration for East Kentucky, Western Reserve University, Cleveland, Ohio. (Multi-lith).
- 1947 Eighth Federal Reserve District
- Freutel, Guy
 "The Eighth District Balance of Trade", Eighth Federal Reserve District Monthly Review, Federal Reserve Bank of St. Louis, Vol. 34, No. 6, June, 1962.
- 1947 New England
- Isard, Walter
 "Interregional Analysis and Regional Development", American Economic Review, Vol. XLIII, No. 2, May, 1953.

Base Year

1955

North Central States

Maki, Wilbur R. and Schreiner, Dean F.
Regional Intersectoral Relations and Demand Projections With
Emphasis on the Feed-Livestock Economy of the North Central
States, Agricultural and Home Economics Experiment Station, Iowa
State University of Science and Technology, Research Bulletin
530, December, 1964. Ames, Iowa.

1947

United States

Moses, Leon N.
"The Stability of Interregional Trading Patterns and Input-
Output Analysis", The American Economic Review, Vol. XLV, No. 5
(December, 1955).

1963

United States

CONSAD Research Corporation, Pittsburgh, Pennsylvania
Regional Federal Procurement Study, (May 15, 1967 draft). Re-
fers to development of 35 industry table for 50 states plus
District of Columbia for year 1963 based on national coeffi-
cients applied to regional gross output estimates. Appendix C
of the draft report presents trade coefficient matrix for New
York State as illustrative of the computer printout of direct
coefficients found by adjusting the national table according
to location quotients.

II. Studies in Progress

State of Alaska

A 24 x 24 industry matrix with 5 final demand sectors for the state of Alaska has been reported with publication probably in 1968.

Alaska: Fairbanks

An I-O like study (rows only) of the Fairbanks and North Star Borough, with publication probable in 1967.

State of Arizona

A completed I-O study for the state of Arizona has been reported to be in press:

Tijoriwala, Anilkumar G., Martin, William E., and Bower, Leonard
The Structure of the Arizona Economy, Arizona Agricultural Experiment
Station Technical Bulletin, The University of Arizona (forthcoming).

An I-O study for the state of Arizona for 1963 (based on Colorado River Basin study coefficients for 1960). Arlyn J. Larson, Arizona State University.

State of Connecticut

An I-O study for the State of Connecticut, 1963. Carl E. Veazie and Robert W. Batchelor, Connecticut Interregional Planning Program.

State of Iowa

New I-O tables for 1958 covering the state of Iowa and the mid-continent region are in process. Wilbur R. Maki, Iowa State University and Jerald R. Barnard, University of Iowa.

State of Kansas

An I-O study for the state of Kansas, Jarvin Emerson, Kansas State University.

Massachusetts: Worcester

An I-O study for the Worcester SMSA. Albert J. Sargent, Clark University.

Massachusetts: Boston

An I-O study for the Boston SMSA, 1963. Walter Isard and Eliahu Romanoff. (See reports cited in part I of this bibliography).

Michigan: Jackson County

An I-O study of Jackson County, Michigan, is reported to be in process under the direction of D. Milstein, Michigan State University.

State of Minnesota

An I-O study for the State of Minnesota is in the planning stage. John S. Hoyt, Jr., and Dale Dahl, Agricultural Extension Service, University of Minnesota.

State of Missouri

An I-O table for 1963 is currently in preparation. Floyd K. Harmston and Claude E. Monroe, University of Missouri.

Missouri: St. Louis

An I-O study for the St. Louis SMSA is reported in progress for year 1964. St. Louis Regional Industrial Development Corporation: Dr. Miller B. Spangler, Director of Research.

State of Nebraska

An I-O study for the state of Nebraska, 1963. Theo. W. Roesler, The University of Nebraska.

Pennsylvania: County Studies

The Pennsylvania Regional Analysis Group has published an I-O study for Clinton County (see part I of this bibliography) and reports another study for Sullivan County has been completed. Other studies of Bradford, Tioga, Cameron and Potter counties are underway.

Pennsylvania: City of Bethlehem

An I-O study for the City of Bethlehem is reported underway. Warren Pillsbury, Lehigh University.

Pennsylvania: Philadelphia

An I-O study of Philadelphia SMSA by Walter Isard et al. (See report cited in part I of this bibliography).

Rhode Island: Providence

An I-O study for the Providence-Pawtucket-Warwick SMSA, 1963. Professor Caleb A. Smith, Department of Economics, Brown University.

State of South Carolina

An I-O study for the State of South Carolina is in preliminary stages. Sang O. Park, Clemson University.

State of Tennessee

An I-O study for the state of Tennessee. John R. Moore, The University of Tennessee.

State of Texas

An I-O study for the state at the Texas Water Development Board is reported underway and should be completed in 1968.

State of Utah

An I-O study of the state of Utah for the year 1963 is near completion. Ivar E. Bradley, University of Utah.

State of Vermont

An I-O study for the state of Vermont. Abbas Alnasrawi and Horace H. Squire, University of Vermont.

State of Washington

Disaggregated intra-regional state flows tables with export and import matrices for state of Washington, 1963. Philip J. Bourque, University of Washington.

State of West Virginia

An I-O study for the state of West Virginia for the year 1965 is currently in progress. William H. Miernyk and John H. Chapman, Regional Research Institute, West Virginia University.

Wyoming: Teton County

An I-O study of Teton County, Wyoming. G. R. Rajender, Floyd K. Harmston, and D. M. Blood, College of Commerce and Industry, The University of Wyoming.

New England

An I-O type study of the marine oriented activities in Southern New England. Niels Rorham, University of Rhode Island.

United States

Harvard Economic Research Multi-regional I-O study of all regions in the U.S.,
Wassily Leontief and Karen R. Polenske, Harvard University.

Commonwealth of Puerto Rico

Has initiated data collection for an I-O study of Puerto Rico; completion
expected in 1968. Alberto Morales Laureano, Puerto Rico Planning Board.