10-1969

An Input Output Study for The Omaha SMSA

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The Center for Urban Affairs is a joint undertaking of the College of Medicine of the University of Nebraska, Omaha, the Lincoln Campuses of the University of Nebraska, and the University of Nebraska at Omaha.

ACKNOWLEDGEMENTS

Grateful acknowledgement is made to Masoud Hariri, Jon Empson, and Rollin Williams, for their assistance in obtaining and processing the data and to Linda Harder for her work in typing the tables and manuscript.

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INTRODUCTION

Purpose of Study

This study is an extension and refinement of a previous report on the Omaha Standard Metropolitan Statistical Area (SMSA) by Perry P. Chang.[1] The present study makes three major changes in Chang's report, in that it obtains output and value added of industries in the Omaha area, exports and imports of the industries, certain income multipliers, forecasts of output in the Omaha area for 1975 and 1990, and compares the three results with Chang's.

The major change in the present case deals with local output by industry, which was obtained partially by a direct sampling of firms in the Omaha SMSA and partially by recourse to regional data, as opposed to interpolation from national figures in the provisional report. A detailed breakdown of the final demand sector in this study into personal consumption expenditures, federal government purchases, state and local government purchases, gross private fixed capital, other final demand, and regional exports is another important difference. An extension of the present study is that it gives output multipliers for all industries, whereas the former report looked specifically at only the Food and Kindred Products industry. Finally, both studies forecast the output of the Omaha SMSA for 1975 and 1990.

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[1] Perry P. Chang, An Input-Output Study for the Omaha SMSA, 1963: A Provisional Report, Omaha, Urban Studies Center, University of Nebraska at Omaha, 1968.

General Approach

With the exceptions mentioned above, the two models are basically the same, both being based on the Leontiff input-output system, as explained in various sources.[2] Basically input-output analysis shows to whom industry sells its output, and from whom it obtains its inputs. On the one hand, the total demand or gross output of an industry comprises the output sold to other local industries (intermediate demand), the output sold to households, federal, state and local government, to business for final use (local final demand), and output sold to other regions (exports).[3] On the other hand, the total supply or gross inputs for an industry constitutes the inputs from other industries in the region (intermediate supply), the inputs from primary sources (the factors of production), and inputs from other regions (imports).[4]

In order to better understand these concepts, Table I presents a hypothetical numerical example of an input-output table for an economy with three industries, agriculture, manufacturing and services. The table shows the supply (or inputs) for each industry vertically and the demand (or outputs) of each industry horizontally. For example, agriculture has obtained $10 million of inputs from itself, $25 million from manufacturing and $15 million from services for a total intermediate supply of $50 million.

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[2] H. B. Cherry and P. G. Clark, Interindustry Economics (New York: John Wiley and Sons, Inc., 1962), and Chiou-Shuang Yan, Introduction to Input-Output Economics (New York: Holt, Rinehart and Winston, 1969).

[3] Total local demand = Intermediate demand plus local final demand.

[4] Total local supply = Intermediate supply plus value added.

TABLE I

HYPOTHETICAL INPUT-OUTPUT TABLE
(FIGURES IN MILLIONS OF DOLLARS)

Input from \ Output to	Intermediate Demand			Total intermediate use	Local* final demand	Total local demand	Exports	Total demand
	Agriculture	Manufacturing	Services					
Agriculture	10	20	5	35	65	100	--	100
Manufacturing	25	25	15	65	45	110	5	115
Services	15	10	30	55	65	120	10	130
Intermediate Supply	50	55	50	155				
Value Added**	40	60	80					
Total Local Supply	90	115	130					
Imports	10	--	--					
Total Supply	100	115	130					345

*Local final demand = Consumption plus Investment plus Government Expenditures.

**Value added = Wages plus Rent plus Interest plus Profits (and in this study Depreciation plus Indirect Business Taxes).

It also obtained $40 million worth of primary inputs and $10 million of imports for a total local supply and total supply of $90 million and $100 million worth of inputs respectively. Agriculture sold $10 million worth of goods to itself, $20 million worth to manufacturing, and $5 million to services, for a total intermediate output of $65 million. It also sold $65 million worth for final use and exported none for a total local demand and total demand of $100 million.

It should be noted that the above table also gives figures for gross national product (GNP) based on either the expenditures approach or the income approach. By the former method, GNP = consumption plus investment plus government spending plus net exports which equals (in terms of the table) local final demand plus net exports, i. e., 65 + 45 + 65 + (15 - 10) = 180. The latter method defines GNP = National Income + Indirect Business Taxes + depreciation, which equals (in terms of the table) value added, i. e., 40 + 60 + 80 = 180.

In this study, exports are net exports; i. e., the excess of total local supply over total local demand, and imports are net imports; i. e., the excess of total local demand over total local supply. In addition, the value of the primary inputs is composed of wages, rent, interest, profit, depreciation, and indirect business taxes. Local final demand is made up of consumption, federal, state and local government purchases, gross private fixed capital formation, and other demand and regional exports. Finally, as in all input-output studies, total supply = total demand.

The basic tables of input-output analysis are the transactions table, which summarizes the inputs and outputs of all industries, and the total requirements table, which shows the total effects of a change in industry final demand on the total supply of the industry. In addition,

another table--the direct requirements table--is important in obtaining the total requirements table from the transactions table. The transactions table is used in obtaining output, value added, exports and imports of industries, while the total requirements table is employed in calculating output multipliers for the industries and both are applied in securing industry forecasts.

In order to derive the Omaha SMSA transactions table, certain steps had to be carried out. First, industries in Omaha had to be aggregated into a number large enough to give sufficient detail, yet small enough to ease the mathematical calculations involved. Therefore, the Omaha area was grouped into thirty industries based on the 1958 United States input-output study classification and on the Standard Industrial Classification (SIC).[5] The thirty industries and their sources are given in Appendix A, which has been reproduced from Chang's study.

Next, the eighty-seven industries of the 1958 United States Transactions Table had to be reduced to the thirty Omaha industries which gave a "Reduced United States Transactions Table" (Appendix B).[6] The "Direct Production Requirements Table" for Omaha (Appendix C) was obtained from the "Reduced United States Transactions Table" by dividing the different inputs of each industry by the total supply of the respective industries.[7]

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[5] 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, 1965, pp. 33ff; Fortune Marketing Division, "Fortune's 1966 Input-Output Coefficients," Fortune, 1967.

[6] This table is also reproduced from the Chang study, Appendix B.

[7] Appendix C is reproduced from the Chang study.

Two assumptions are implied by these calculations: that each industry has a linear homogeneous production function--inputs and outputs change in direct proportion to each other--and that the technology of the Omaha Area is assumed to be the same as the national average--the national relationships between inputs and outputs hold on the local level.[8]

The first major methodological difference between the preliminary report and the current study occurred with the next step, which was to obtain "control totals" for local production of the industries and for local final demand for the goods or services. The former report obtained local output of industries by interpolation from national figures, whereas the latter used both sample and regional data in the majority of the industries. As discussed below, sample data (found by means of a questionnaire) was used in nine industries, regional data (obtained from Census data and previous reports) was used in thirteen industries, and national data (acquired from Chang's report) was used in eight industries.

It was decided that before sample output data for an industry could be used, it would have to satisfy certain conditions: at least a 1/3 response from the firms in the industry, a composite sample of firm size in the industry, and finally, a qualitative evaluation as to the reliability of the data. If all these criteria were not satisfied, other sources were used. As a result, sample results were used for only 9 of the 30 industries.[9] With the exception of the Utilities industry, the control totals (industry

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[8]An attempt was made to obtain local values for the technical requirements, but inadequate questionnaire and interview results precluded this.

[9]The industries were: Apparel and Related Products, Food and Kindred Products, Paper and Allied Products, Chemicals and Allied Products, Fabricated Metal Products, Electrical Machinery, Transportation Equipment, Miscellaneous Manufacturing and Utilities.

outputs) were calculated by first finding the value of shipment per employee from the questionnaire and then multiplying the total Omaha SMSA employment for each industry classification by the value of shipment per employee, which gave total outputs for the industries. Since there were 100% returns from the sample for the Utilities industry, the figure from the sample was used as the total output.

Total output of Other Agricultural Products and the Livestock and Livestock Products industry was obtained from a publication of the Omaha Urban Areas Research Project.[10] Census data for the Northwest Central Region yielded the control totals in eleven other industries.[11] It was felt that this data would be an improvement over the national figures, because it was obtained from the region in which Omaha is located. Again, the same basic methodology was used: for each industry the value of shipment/employee was obtained and then multiplied by industry employment to give the output of the industry. Finally, the remaining industry classification used the same output figures as in the Chang report.[12] In these cases sample data was not reliable and regional data was not available.

Local final demand was broken down into Personal Consumption Expenditures, Federal, State and Local Government Purchases, Gross Private Fixed

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[10] Harold J. Retallick and Charles R. Gildersleeve, Geographic Background Report No. 1, Omaha's Agricultural Core Region (Omaha: Urban Studies Center, University of Omaha, 1967).

[11] Lumber and Wood Products, Furniture and Fixtures, Printing and Publishing, Petroleum and Coal Products, Rubber and Plastics, Leather and Leather Goods, Stone, Clay and Glass Products, Primary Metals, Nonelectric Machinery, Instruments and Related Products.

[12] Mining, New Construction, Maintenance and Repair Construction, Retail and Wholesale Trade, Finance and Insurance, Real Estate and Rentals, Services, Undistributed.

Capital Formation, Other Final Demand and Regional Exports; and the Control totals were found for the sectors. Personal Consumption Expenditures for Omaha, for example, were estimated at 79.7% of Personal Income, this estimate being obtained from direct correspondence with the United State Department of Commerce. Personal Consumption Expenditures were allocated to the eighty-seven industry classifications of the 1958 United States input-output study and then aggregated to correspond to the thirty industry classifications of the study.

The Average Federal Purchases per employee was computed from the questionnaire, and then was multiplied by total federal employment in the area to give a "control total" for Federal Purchases. This total was then allocated to the various industries by the method used for personal consumption expenditures. Because State and Local Governments did not respond to the questionnaire, the Census of Governments, 1962, was used to obtain per capita local and state government expenditures. This figure was multiplied by the total population of the Omaha SMSA to give total state and local government expenditures which was then used to obtain expenditures per industry.

An estimate of Gross Private Fixed Capital Formation was computed indirectly from the Input-Output Study of Nebraska done by the University of Nebraska.[13] The values for each Omaha industry were obtained by multiplying the ratio of Omaha employment to total state employment by the value of Gross Private Fixed Capital Formation for Nebraska and allocating

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[13]T. W. Roester, et. al., The Economic Impact of Irrigated Agriculture on the Economy of Nebraska (Lincoln: Bureau of Business Research, University of Nebraska, 1968).

this figure among Omaha industries. Other final demand--exports to foreign countries--was obtained from the 1958 United States Input-Output Study which gave the "other final demand per industry." This figure was multiplied by the percent of United States employment in the Omaha SMSA to obtain exports of the Omaha area. Finally, regional exports, which were a balancing item, were found by comparing total demand and total supply. If total demand was greater than total supply, there were net imports and a balancing figure was added to the respective column while, if total supply was greater than total demand, there were net exports and a balancing figure was added to the respective row.

When the industry control totals were multiplied by the corresponding input coefficients of the Direct Requirements Table (Appendix C) and the final demand figures (as discussed above) were appended to this table, the transactions table for the Omaha SMSA (Appendix D) was obtained. As stated above, this was one of the two major tables from which results of the study were calculated. Appendix C was then modified--to show the different inputs of the industries, including net imports, as a ratio of total supply--by dividing the original ratios by $1 + m_j$ where m_j is the import ratio of the said industry. The primary reason for this calculation (Appendix E) was to obtain Appendix F--Total Requirements Table-Omaha SMSA. It was found by an inversion process (a matrix manipulation) involving Appendix E. The Total Requirements Table, the second of the major tables, shows the total effect of a change in final demand on the total supply of the respective industries.

Thus far, this study has indicated the basic similarities and differences with the Chang study. It has also explained briefly the basic

input-output model used in the study, and indicated the derivation of the two basic tables for the study. To obtain the transactions table for the Omaha SMSA, the industries had to be classified, from which a reduced United States Transactions Table and Direct Requirements Table were found. Then, after calculating control totals for industry output and final demand, the Omaha Transactions Table (Appendix D) was attained. The direct requirements table for the United States yielded a direct requirements table for Omaha (when imports were included) which, when inverted, gave the Total Requirements Table for Omaha (Appendix F), the second major table of the study.

BASIC FINDINGS

In this section the basic findings of the study are presented and compared to the findings of the provisional report. This takes the form of looking first at the output, value added and exports and imports of the industries as embodied in the transactions table, then at the income and employment multipliers as obtained from the total requirements table and finally at forecasts of output for the Omaha area for 1975 and 1990, calculated from both tables.

Transactions Table

Table II, obtained from the transactions table, shows total output for each industry, as well as for the area as a whole. It indicates that the output of Food and Kindred Products, Retail and Wholesale Trade, Finance and Insurance, and Services comprised almost 60% of the $3.5

TABLE II

RELATIVE IMPORTANCE OF THE INDUSTRIES IN THE OMAHA SMSA, 1963, ACCORDING TO OUTPUT

Rank	Industries	Output ($1,000)	Output as % of Total Production
1	Food and Kindred Products	865,298	24.48
2	Retail and Wholesale Trade	470,247	13.30
3	Finance and Insurance	387,167	10.95
4	Services	356,023	10.07
5	Real Estate and Rentals	231,958	6.56
6	New Construction	172,048	4.87
7	Undistributed	161,276	4.56
8	Transportation and Warehousing	147,550	4.17
9	Electric Machinery	135,861	3.84
10	Utilities	107,517	3.04
11	Livestock and Livestock Products	97,760	2.77
12	Maintenance and Repair Construction	57,348	1.62
13	Fabricated Metal Products	43,516	1.23
14	Chemicals and Allied Products	42,140	1.19
15	Nonelectric Machinery	41,388	1.17
16	Printing and Publishing	37,426	1.06
17	Primary Metals	24,551	.69
18	Paper and Allied Products	23,636	.67
19	Transportation Equipment	23,526	.65
20	Miscellaneous Manufacturing	22,539	.64
21	Stone, Clay and Glass Products	16,349	.46
22	Other Agricultural Products	15,513	.44
23	Furniture and Fixtures	15,407	.44
24	Petroleum and Coal Products	10,536	.30
25	Apparel and Related Products	9,120	.26
26	Rubber and Plastics	8,385	.24
27	Lumber and Wood Products	5,493	.16
28	Mining	3,420	.10
29	Instruments and Related Products	1,102	.03
30	Leather and Leather Goods	1,014	.03
Total		3,535,114	99.99*

*.01 error due to rounding

billion output of the Omaha area in 1963; while the top ten industries (excepting Real Estate and Rentals, and Undistributed) accounted for almost three-fourths of Omaha's total output.[14] The fact that manufacturing industries--other than Food and Kindred Products--provided only 13% of the total output implies that the Omaha area has not developed a strong manufacturing base.[15]

Thus, the conclusion that Omaha is basically a Food Processing, Trade, Insurance and Service Center with an otherwise weak manufacturing base is similar to that of Chang's study. Even though this general conclusion is the same, there are some specific divergencies that occurred in particular industries. First, Food and Kindred Products output amounted to $865 million in this study as opposed to $629 million in Chang's study (Table III). In the latter study, total output of the industry was found by multiplying United States average value of shipment per employee with the corresponding employment level for the Omaha SMSA in 1963, while output of the former was found by multiplying average value of shipment per employee (obtained from a sample of Omaha firms) with the corresponding employment level for the Omaha SMSA in 1963. The higher output in this study is thus due to the higher average value of shipment per employee

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[14] Real Estate and Rentals, and Undistributed were excluded from the above industries because their value is artifically inflated--the former because of the inclusion of imputed rents of owner occupied farm and nonfarm homes--the latter because it is really a catchall for all industries not included in the other twenty-nine.

[15] These industries included: Apparel and Related Products, Lumber and Wood Products, Furniture and Fixtures, Paper and Allied Products, Printing and Publishing, Chemicals and Allied Products, Petroleum and Coal Products, Rubber and Plastics, Leather and Leather Goods, Stone, Clay and Glass Products, Primary Metals, Fabricated Metals, Nonelectric Machinery, Electric Machinery, Transportation Equipment, Instruments and Related Products, Miscellaneous Manufacturing.

TABLE III

RELATIVE IMPORTANCE OF THE INDUSTRIES IN THE OMAHA SMSA, 1963, ACCORDING TO OUTPUT

Rank	Industries	Output ($1,000)	Output as % of Total Production
1	Food & Kindred Products	629,208	19.13
2	Retail & Wholesale Trade	470,247	14.30
3	Finance & Insurance	387,169	11.77
4	Services	356,020	10.83
5	Real Estate & Rentals	231,959	7.05
6	New Construction	172,048	5.23
7	Undistributed	161,278	5.09
8	Utilities	133,991	4.07
9	Transportation & Warehousing	112,924	3.43
10	Livestock & Livestock Products	94,445	2.87
11	Electric Machinery	88,288	2.69
12	Chemical & Allied Products	58,161	1.77
13	Maintenance & Repair Construction	57,350	1.74
14	Printing & Publishing	45,139	1.37
15	Fabricated Metal Products	39,582	1.20
16	Transportation Equipment	38,355	1.17
17	Non-electric Machinery	37,846	1.15
18	Primary Metals	36,143	1.10
19	Paper & Allied Products	28,658	0.87
20	Miscellaneous Manufacturing	24,330	0.74
21	Other Agricultural Products	18,835	0.57
22	Stone, Clay & Glass Products	14,776	0.45
23	Furniture & Fixtures	14,063	0.43
24	Apparel & Related Products	9,728	0.30
25	Petroleum & Coal Products	9,614	0.29
26	Rubber & Plastics	7,030	0.21
27	Lumber & Wood Products	5,718	0.17
28	Mining	3,417	0.10
29	Instruments & Related Products	1,182	0.03
30	Leather & Leather Goods	1,003	0.03
Total		3,288,418	100.00

found in the sample, which may result from a higher level of technology in the industry locally, than in the economy as a whole.

Another difference of output in the studies arose in the Electrical Machinery industry, where the present study found output to be $135 million compared to $88 million in the Chang study. Since the value of output in the present study was obtained from sample returns comprising 98% of the industry, it was felt to be more indicative of local output. Sample returns of over 50% in the cases of Paper and Allied Products, Transportation Equipment, and Chemical and Allied Products gave credence to the output results of the present study, in spite of substantial differences when compared to Chang's study where the U. S. average value of shipment per employee was used.

Differences in output for Printing and Publishing, Stone, Clay and Glass Products, and Primary Metals occurred because the present study made use of census data for the Northwest Central Region as contrasted to census data for the entire economy in the Chang study. It was felt that the geographically more specific data yielded more accurate results than the corresponding data for the nation as a whole.

In Chang's study the value of Other Agricultural Products yielded output of $9.3 million as opposed to $7.6 million in the present study. In this case, the difference is essentially definitional. In Chang's report, Other Agricultural Products included Forestry and Fishery Products, and Agricultural, Forestry and Fishery Services, while in the present work it included only Value of All Crops Sold. Finally, a definitional difference is also the reason for the discrepancies in the Utilities and Transportation and Warehousing industries. In the former industry, Chang's

report indicated output of $133 million, compared to the present study's $107 million; the Transportation and Warehousing industry had an output of $112.9 million in Chang's study compared to $147.5 million in the present one. The difference can be explained by the inclusion of the Communications industry in the Utilities industry in Chang's study and in the Transportation and Warehousing industry in this study.[16]

Table IV yields more results reproduced from the Transactions Table (Appendix D)--total value added of the Omaha area and value added by industries. As mentioned above, total value added gives an estimate of total Gross National Product for the area, and the value added by each industry gives the contribution toward that Gross National Product by the respective industries. From the table, the top four industries--Retail and Wholesale Trade, Food and Kindred Products, Finance and Insurance and Services--yielded better than 55% of the Area's Value Added, while the top ten--excluding Real Estate and Rentals and Undistributed--contributed better than 70%. With the exception of Food and Kindred Products, Manufacturing's share was only 10.9%.[17]

These results generally agree with Chang's (Table V), where the top four industries accounted for almost 55%; the top ten industries, excluding Real Estate Rentals and Undistributed, determined 69% and manufacturing (other than Food and Kindred Products) accounted for 11.7% of total value added. In both studies the ranking of industries according to value added

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[16]These definitional changes were necessary to maintain consistency with the previously established coefficients and industry classifications.

[17]See footnote 15.

TABLE IV

RELATIVE IMPORTANCE OF THE INDUSTRIES IN THE OMAHA SMSA, 1963, ACCORDING TO VALUE-ADDED

Rank	Industries	Value-Added ($1,000)	Value-Added as Per Cent of Total
1	Retail and Wholesale Trade	340,683	19.60
2	Food and Kindred Products	220,813	12.70
3	Finance and Insurance	216,866	12.48
4	Services	187,964	10.81
5	Real Estate and Rentals	167,859	9.66
6	Undistributed	124,455	7.16
7	Transportation and Warehousing	96,495	5.55
8	Electric Machinery	61,221	3.52
9	New Construction	61,067	3.51
10	Utilities	52,532	3.02
11	Maintenance and Repair Construction	35,121	2.02
12	Livestock and Livestock Products	35,513	1.93
13	Nonelectric Machinery	18,374	1.06
14	Printing and Publishing	17,672	1.02
15	Fabricated Metal Products	17,566	1.01
16	Chemicals and Allied Products	16,610	.95
17	Primary Metals	8,749	.50
18	Paper and Allied Products	8,386	.48
19	Transportation Equipment	8,379	.48
20	Stone, Clay and Glass Products	8,156	.47
21	Miscellaneous Manufacturing	7,697	.44
22	Other Agricultural Products	7,684	.44
23	Furniture and Fixtures	6,555	.38
24	Rubber and Plastics	3,621	.21
25	Apparel and Related Products	3,323	.19
26	Petroleum and Coal Products	2,112	.12
27	Mining	1,941	.11
28	Lumber and Wood Products	1,780	.10
29	Instruments and Related Products	573	.03
30	Leather and Leather Goods	416	.02
	Total	1,738,143	99.97*

*.03 error due to rounding

TABLE V

RELATIVE IMPORTANCE OF THE INDUSTRIES IN THE OMAHA SMSA, 1963, ACCORDING TO VALUE-ADDED

Rank	Industries	Value-Added ($1,000)	Value-Added as Per Cent of Total
1	Retail & Wholesale Trade	340,683	20.47
2	Finance & Insurance	216,886	13.03
3	Services	187,964	11.30
4	Real Estate & Rentals	167,859	10.09
5	Food & Kindred Products	160,566	9.65
6	Undistributed	124,455	7.48
7	Transportation & Warehousing	73,850	4.44
8	Utilities	65,467	3.93
9	New Construction	61,067	3.67
10	Electric Machinery	39,782	2.39
11	Maintenance & Repair Construction	35,121	2.11
12	Livestock & Livestock Products	32,377	1.95
13	Chemicals & Allied Products	22,926	1.38
14	Printing & Publishing	21,315	1.28
15	Non-electric Machinery	16,802	1.01
16	Fabricated Metal Products	15,969	0.96
17	Transportation Equipment	13,660	0.82
18	Primary Metals	12,880	0.77
19	Paper & Allied Products	10,166	0.61
20	Other Agricultural Products	9,331	0.56
21	Miscellaneous Manufacturing	8,310	0.50
22	Stone, Clay & Glass Products	7,372	0.44
23	Furniture & Fixtures	5,984	0.34
24	Apparel & Related Products	3,545	0.21
25	Rubber & Plastics	3,036	0.18
26	Mining	1,941	0.12
27	Petroleum & Coal Products	1,927	0.12
28	Lumber & Wood Products	1,852	0.11
29	Instrument & Related Products	561	0.03
20	Leather & Leather Goods	412	0.02
	Total	1,664,070	100.00

was similar to that of output with the exception of the Food and Kindred Products, and Retail and Wholesale Trade. The former accounted for 24.5% of output and only 12.7% of value added, while the latter accounted for 13.3% of output but 19.6% of value added in the present report. In Chang's study, output in the Food and Kindred Products industry was 19.1% of output and only 9.7% of value added, while the Retail and Wholesale Trade accounted for 14.3% of output, but 20.5% of value added.

The Transactions Table also provides figures on net exports and net imports for the area (Table VI). The figures show net exports--totaling $1.04 billion--for seven of the thirty industries and net imports--totaling $865 million--for twenty-three of the thirty industries, leaving a net export surplus of $177 million for 1963. The largest exporter in that year was the Food and Kindred Products industry, followed by Finance and Insurance and Retail and Wholesale Trade. Food and Kindred Products exports amounted to 52.4%, while the three together had 86.2% of all the net exports. In addition, the weakness of the Omaha area's manufacturing base is evidenced by the 43.5% of net imports by this (other manufacturing) segment. These figures again emphasize the importance of Food Processing, Finance and Insurance and Retail and Wholesale Trade to the area.

The fact that since 1963 there has been an exodus of food processing firms from the Omaha area implies that the area is no longer enjoying an export surplus. As a result, an effort should be made to maintain and bolster the export surplus industries and improve import substitution, particularly where local demand is quite heavy (e. g., Miscellaneous Manufacturing, Apparel and Related Products and Nonelectric Machinery). This will be discussed in greater detail in the section entitled, "Prediction of the Omaha Area Output for 1975 and 1990."

TABLE VI

NET EXPORTS AND IMPORTS OF THE OMAHA SMSA, 1963

Exports		Imports	
Description	Value ($1,000)	Description	Value ($1,000)
Food & Kindred Products	545,608	Livestock & Livestock Products	146,956
Finance & Insurance	229,680	Other Agricultural Products	109,008
Retail & Wholesale Trade	122,238	Transportation Equipment	94,659
Electric Machinery	58,785	Undistributed	83,294
Services	52,552	Petroleum & Coal Products	46,274
Utilities	26,440	Miscellaneous Manufacturing	44,815
New Construction	6,562	Apparel & Related Products	44,316
		Primary Metals	34,448
		Fabricated Metal Products	30,183
		Paper & Allied Products	26,095
		Nonelectric Machinery	24,802
		Transportation & Warehousing	24,190
		Mining	23,340
		Stone, Clay & Glass Products	18,017
		Real Estate & Rentals	18,011
		Rubber & Plastics Products	17,853
		Printing & Publishing	16,804
		Lumber & Wood Products	15,387
		Instruments & Related Products	15,603
		Chemicals and Allied Products	14,728
		Leather & Leather Goods	8,785
		Maintenance & Repair Construction	6,029
		Furniture & Fixtures	1,449
		Total Imports	864,606
		Export Surplus	177,259
Total	1,041,865		1,041,865

Direct Requirements Table

The direct requirements table, Appendix E, was obtained next. Reading down the columns of this table, the figures indicate the dollar amounts of inputs necessary to produce $1 worth of output. For example, the elements in the Livestock and Livestock Products column (in the Transactions Table), when divided by the total supply of livestock and livestock products, indicate that in order to produce one dollar's worth of output, the industry must purchase 33¢ worth of intermediate inputs from within the industries; 18¢ worth of primary inputs such as land, labor and capital and import 49¢ worth of inputs from outside the Omaha SMSA.

Total Requirements Table

In order to estimate the total effects resulting from the buying and selling activities of different industries in the area, recourse is made to the following type of reasoning:

Total Output - Output for Intermediate Use = Output for Final Use

$$T - I = F$$

where T, I and F are 30 x 1 column vectors representing the 30 industries. In addition, $I = A \cdot T$ where A is the 30 x 30 matrix of interindustry transactions in the direct requirements table (Appendix E) above. Therefore, $T - A \cdot T = F$ and $(I - A)T = F$ where I is a 30 x 30 identity matrix. Thus, $(I - A)^{-1}F = T$ and $(I - A)^{-1}$ shows the direct and indirect requirements per dollar of final demand. In other words, the total requirements table is obtained from the direct requirements table by subtracting the interindustry transactions matrix from an identity matrix and inverting the resulting matrix.

The Total Requirements Table (Appendix F) shows the direct and indirect requirements per dollar of final demand. Thus, the column headed Livestock and Livestock Products indicates the gross output from each of the industries required to produce one dollar of final demand in the output of livestock and livestock products. The other columns have a similar interpretation. In this study the total requirements table is used to obtain income multipliers for each industry, and predictions of Omaha's output in 1975 and 1990, at 3.5% and 4% growth rates of final demand for each year. Turning first to the income multipliers, their calculation will be discussed, their results will be presented, and their application will be studied within the context of the Armour closing.

Income Multipliers. The initial impact of a change in final demand on an industry is on the income of the industry; the idea being that as output falls, less is paid out in the form of wages, rent, interest and profit. A value for this can be computed by multiplying the change in demand by the value added coefficient. Thus, if there is a $1 million change in final demand in the Livestock and Livestock Products industry, there will be a drop of $136,950 in income originating in the industry. This direct income change--change in final demand multiplied by the value added coefficients--is shown for the 30 industries in column one of Table VII.

There is also a secondary impact on an industry which arises because the change in output of the industry will affect the output of the industry's suppliers and their supplier's suppliers. Thus, a change in output of a given industry will affect, and in turn be affected by, changes in output of other industries.

TABLE VII

INCOME INTERACTIONS IN THE OMAHA SMSA, 1963

Industry*	1 Direct Income Change	2 Indirect Income Change	3 Direct** and Indirect Income Change	4 Simple** Multi-plier	5 Direct,** Indirect and Induced Income Change	6 Induced** Income Change	7 Total** Multi-plier
1	.14	.08	.22	1.63	.37	.15	2.73
2	.06	.03	.09	1.49	.15	.06	2.50
3	.07	.03	.10	1.44	.18	.07	2.42
4	.35	.32	.67	1.90	1.13	.46	3.19
5	.55	.18	.73	1.32	1.23	.50	2.22
6	.26	.31	.57	2.23	.95	.38	3.73
7	.06	.03	.09	1.45	.11	.02	1.74
8	.09	.06	.14	1.69	.24	.10	2.84
9	.39	.22	.61	1.56	1.02	.41	2.61
10	.17	.13	.30	1.79	.51	.20	3.00
11	.33	.19	.52	1.59	.87	.35	2.67
12	.29	.23	.52	1.79	.88	.35	3.00
13	.04	.04	.07	1.99	.12	.05	3.34
14	.14	.08	.22	1.60	.37	.15	2.69
15	.04	.02	.06	1.44	.10	.04	2.41
16	.24	.11	.35	1.48	.59	.24	2.47
17	.15	.11	.26	1.75	.43	.18	2.93
18	.24	.14	.38	1.58	.63	.26	2.66
19	.28	.16	.44	1.59	.74	.30	2.67
20	.45	.29	.75	1.66	1.26	.51	2.79
21	.07	.04	.11	1.60	.19	.08	2.68
22	.03	.02	.05	1.58	.08	.03	2.54
23	.11	.07	.18	1.65	.32	.13	2.76
24	.56	.19	.75	1.34	1.26	.51	2.24
25	.49	.30	.79	1.62	1.32	.54	2.73
26	.72	.19	.92	1.27	1.54	.62	2.13
27	.56	.36	.92	1.64	1.54	.62	2.75
28	.67	.17	.84	1.26	1.41	.57	2.11
29	.53	.28	.81	1.53	1.35	.55	2.56
30	.51	.09	.60	1.17	1.00	.40	1.97

*For listing of industries, see Appendix A.

**Any errors are due to rounding.

The coefficients in a particular column of the total requirements table (Appendix F) show this direct plus indirect effect on the output of all other industries of a change in output of the particular industry. For example, the element in row 2, column 1, indicates that there would be a $122,980 change in output of other agricultural products for a $1 million change in output of livestock and livestock products. From this it follows that the direct plus indirect effects on income of a $1 change in final demand for the particular industry is found by multiplying the various value added coefficients by their respective direct plus indirect effects on output and summing.

These direct and indirect effects on income due to a $1 change in final demand are given in column three of Table VII. Column two gives the indirect effect--the direct and indirect effects minus the direct effect--and column four gives the simple income multiplier, the direct and indirect effect divided by the direct effect. This multiplier shows how much total income will change per unit change in income in the various industries; e. g., the Food and Kindred Products industry has a multiplier of 2.23, which indicates that if output in the industry changes by enough so that income changes by $1 million this would result in a change in total Omaha income of $2.23 million.

There is still a third and final impact on industries and the economy which must be considered. Thus far, the assumption has been made that the initial change in final demand leads to changes in output and income, but not to further changes in final demand. This, however, is an oversimplification, since, when a change in income occurs, it leads to a further change in some (or all, depending on the assumptions) components of final

demand. For example, as consumer income changes, one would expect a change in consumption to follow, and as business incomes change, one would expect a change in investment spending. For purposes of this study, the assumption is made that only consumption changes, i. e., investment and government expenditures are autonomous.

Thus, in addition to the direct and indirect changes in income discussed above, there are further induced changes resulting from changes in consumption, which lead to changes in output, which lead to changes in induced income, which lead to further changes in consumption, which lead to further changes in output and so on, round after round. There are two ways in which this information can be obtained: a direct method, used in this study, and an iterative procedure, used in the Chang study. In the former, the consumption and income relationships are directly integrated into the model by adding the consumption column and value added row to the intermediate use matrix. In effect, the consumer sector becomes another industry which supplies labor services and uses consumer goods as inputs.

This matrix corresponds to the intermediate transactions matrix discussed above, with the exception that now another row and column have been added. When it is subtracted from an identity matrix of the same order, and the result inverted, a matrix similar to the total requirements table above is obtained, with the exception that the matrix has an additional row and column. (This matrix has not been reproduced.) It has an interpretation similar to the Total Requirements Table discussed above. For example, the values in the first column indicate the output in each industry required per dollar of final demand for livestock and livestock products. The element in the household row--value added--of the column

indicates the direct, indirect and induced income effect of a dollar change in final demand.

This figure (element in the household row) is given in column five, Table VII, for the thirty industries. The induced effect--direct, indirect, and induced impact minus the direct and indirect impact, is given in column six and the total income multiplier, direct, indirect, and induced impact divided by the direct impact, is given in column seven. This multiplier gives the total change in income of the respective industries after all changes in output, income and consumption have occurred. For example, the Food and Kindred Products multiplier of 3.73 indicates that, for a dollar change in income in the Food and Kindred Products industry, there will be a $3.73 change in income in the Omaha SMSA.

The analysis of multipliers in this study differed from the Chang study in two ways: the present study developed multipliers in all thirty industries, whereas the Chang study obtained them only for the Food and Kindred Products industry; this study calculated the total impact--direct plus indirect plus induced--and the total multiplier directly, whereas the Chang study computed the information from an iterative process. His method involved obtaining the initial change in demand which led to changes in output, which led to changes in income (the direct and indirect income effect), which in turn led to changes in consumption of the various industries' goods (based on a homogeneous consumption function), which led to changes in output, which led to changes in income (first round induced income change), which led to further changes in consumption, output and income, etc. Chang carried this procedure through three rounds, and the total induced effect was added to the direct and indirect effects; the

total multiplier was found by dividing this total impact by the direct impact.

Chang's purpose in carrying out these derivations was to obtain information pertaining to the closing of the Armour plant in Omaha. He found the direct income effect of the closing to be equal to Armour's output times the value added ratio for the Food and Kindred Products industry:

$$167,947,000 \times .25519 = 42,858,395$$

which is identical to the direct impact on income found in this study.

There is a slight discrepancy between the two studies with regard to the indirect and induced effects, and the simple and total multipliers. In the Chang study the direct and indirect impact is $100,385,000; in this study it is $95,437,000; the simple multiplier in the latter study was 2.23 and in the former 2.34. Finally, the total effect and total multipliers differed: in the Chang study the former was $167,823,000, to $159,996,000 in the present. The latter was 3.73 in this study and 3.91 in Chang's. Table VIII presents the relevant results for the two studies.

Table VIII

INCOME INTERACTIONS - FOOD AND KINDRED PRODUCTS

INDUSTRY - OUTPUT CHANGE EQUALS $167,947,000

	Chang's Study	Present Study
Direct Income Effect	$ 42,858,000	$ 42,858,000
Indirect Income Effect	57,527,000	52,579,000
Direct and Indirect Income Effect	100,385,000	95,437,000
Induced Effect	67,438,000	64,559,000
Direct, Indirect and Induced Effect	167,823,000	159,996,000
Simple Multiplier	2.34	2.23
Total Multiplier	3.91	3.73

Predictions of the Omaha Area Output for 1975 and 1990. In order to predict Omaha's output for 1975 and 1990 certain heroic assumptions must be made. First, it is assumed that the final demand since 1963 of all the industries will increase uniformly at either 3.5% or 4%. These figures are based on recent growth of the United States economy and Omaha respectively. Second, it is assumed there will be no change in the technical coefficients over the time periods involved. Third, it is assumed that the import ratios of the industries will remain unchanged. These assumptions are admittedly oversimplifications of reality, but they will allow the arrival at certain conclusions about the area's future.

Predictions about Omaha's future output in this and Chang's study were derived in the same way. First, industry final demands for 1975 and 1990 were found by compounding the 1963 final demands at 3.5% and 4% per year. These compounded final demands were then multiplied by the total requirements ratios of each industry and summed to give the total supply of the industries. These total supply figures were then multiplied by $(1 - m_j)$, where m_j is the import ratio, to give the total local output of each industry. Finally, the change in total output was found by subtracting the total local outputs of the industries in 1963 from their respective total local outputs in 1975 and 1990. Tables IX and XI summarize these results for this study; Tables X and XII present similar data reproduced from Chang's study.[18]

With minor exceptions to be discussed below, both studies arrived at similar conclusions. Chang found that the total volume of business in

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[18]Chang, op. cit., pp. 26-27.

TABLE IX. PROJECTED OUTPUT OF THE OMAHA SMSA, 1975 ($1,000)

Industry Number*	Final Demand		Total Supply		Total Local Output		Increase in Output		Rank of Increase	
	3½%	4%	3½%	4%	3½%	4%	3½%	4%	3½%	4%
1	12336	13071	287064	304156	114679	121507	16919	23747	15	14
2	27890	29550	154450	163645	19243	20389	3730	4876	26	25
3	4192	4441	39384	41728	5015	5313	1595	1893	28	28
4	259976	275454	259976	275454	259976	275454	87928	103406	6	6
5	23089	24464	92685	98203	83868	88862	26520	31514	11	12
6	808286	856408	999316	1058811	999316	1058811	134018	193513	4	4
7	70463	74658	79925	84684	13639	14454	4519	5334	24	24
8	1507	1596	30640	32464	8061	8541	2568	3048	27	27
9	19952	21140	25431	26946	23246	24632	7839	9225	21	21
10	6720	7120	67534	71555	32096	34007	8460	10371	20	20
11	15871	16816	79737	84484	55030	58307	17604	20881	14	16
12	34561	36625	82213	87108	60920	64547	18780	22401	13	15
13	44691	47352	83204	88158	15431	16350	4895	5814	23	23
14	11046	11704	38164	40437	12220	12948	3835	4563	25	26
15	13621	14432	14779	15659	1530	1621	516	607	30	30
16	2934	3109	48525	51414	23061	24459	6712	8110	22	22
17	5120	5424	86524	91674	36000	38149	11455	13589	18	18
18	11199	11865	101918	107985	60180	63762	16664	33844	16	11
19	61186	64829	99102	105003	61999	65691	20611	24303	12	13
20	143681	152236	204415	216481	204315	216481	68454	80620	8	8
21	138084	146306	177547	188118	35343	37447	11817	13921	17	17
22	12247	12976	24160	25598	1651	1749	549	647	29	29
23	64214	68037	96858	102625	32411	34341	9872	12449	19	19
24	93304	98859	242374	256804	208238	220636	60688	73086	9	9
25	91634	97099	159082	168553	159082	168553	51565	61036	10	10
26	552339	585212	692663	733900	692663	733900	222416	263653	1	1
27	414935	439639	581272	615880	581272	615880	194105	228713	2	2
28	237454	251529	373050	395260	346183	366793	114225	134835	5	5
29	326802	346258	524270	555483	524270	555483	168247	198460	3	3
30	170031	180155	350732	371615	231266	245035	69990	83759	7	7
Total			6096696	6459885	4902210	5494102	1367096	1367096		

*For listing of industries, see Appendix A.

TABLE X. PROJECTED OUTPUT OF THE OMAHA SMSA, 1975 ($1,000)

Industry Number*	Final Demand		Total Supply		Total Local Output		Increase in Output		Rank of Increase		Rate of Growth	
	3½%	4%	3½%	4%	3½%	4%	3½%	4%	3½%	4%	3½%	4%
1	10445	11066	193327	204828	99157	105056	4712	10611	23	20	.005	.009
2	23375	24747	118371	125414	21709	23001	2874	4166	26	25	.012	.017
3	5445	5769	40253	42648	4498	4766	1081	1349	28	28	.023	.028
4	263273	278936	263273	278936	259986	275454	87938	103406	5	5	.035	.040
5	18523	19625	86200	91329	83595	88569	26245	31219	10	11	.032	.037
6	509610	539929	641149	679294	644149	679294	11941	50086	17	10	.003	.008
7	68375	72443	77295	81894	14543	15408	4815	5680	22	23	.034	.039
8	1535	1626	30236	32035	8468	8866	2650	3148	27	27	.032	.037
9	21157	22415	26052	27061	21219	22481	7156	8418	20	21	.035	.040
10	8209	8698	65477	69373	38450	40737	9792	12079	19	19	.025	.030
11	15449	16368	79935	84690	66330	70276	21191	25137	12	13	.033	.038
12	35296	37396	84790	89835	83763	88749	25604	30588	11	12	.031	.036
13	44272	46908	80818	85626	14054	14890	4440	5276	24	24	.032	.037
14	12610	13360	38162	40433	10222	10830	3192	3800	25	26	.032	.037
15	14878	15763	16012	16934	1513	1603	510	600	30	30	.035	.040
16	4709	4989	46194	48942	20784	22020	6008	7244	21	22	.029	.035
17	7542	7991	86521	91669	52917	56066	16774	19923	15	16	.032	.037
18	13527	14332	92895	98422	54226	57453	14644	17871	16	17	.027	.032
19	82277	87172	118499	125549	56743	60119	18897	22273	14	15	.034	.039
20	82620	87535	132459	140339	132459	140339	44171	52051	9	9	.034	.039
21	161292	170888	204945	217138	57677	61109	19322	22754	13	14	.035	.040
22	17572	18618	28827	30542	1770	1875	588	693	29	29	.034	.039
23	72397	76704	108341	114787	36165	38316	11835	13986	18	18	.034	.039
24	96653	102403	229015	242640	158561	177995	45637	55071	8	8	.029	.033
25	126656	134191	199008	210847	199008	210847	65017	76856	7	7	.033	.039
26	567188	600932	695127	736483	695127	736483	224880	266236	1	1	.033	.038
27	417297	442142	581212	615791	581212	615791	194043	228622	2	2	.034	.040
28	222400	235631	355372	376408	345783	366356	113824	134397	4	4	.034	.039
29	338995	359163	524169	555354	524169	555354	168149	199334	3	3	.033	.038
30	181545	192346	349723	370530	231094	244844	69816	83566	6	6	.030	.035
Total			5593557	5926341	4516253	4784947	1227746	1496440				

*For description of industries, please see Table V.

TABLE XI. PROJECTED OUTPUT OF THE OMAHA SMSA, 1990 ($1,000)

Industry Number*	Final Demand		Total Supply		Total Local Output		Increase in Output		Rank of Increase	
	3½%	4%	3½%	4%	3½%	4%	3½%	4%	3½%	4%
1	20668	22634	480934	526698	192128	210411	94368	112651	11	12
2	46725	51171	258757	283380	32239	35306	16726	19793	23	23
3	7023	7691	65982	72261	8402	9202	4982	5782	28	28
4	435551	476988	435551	476998	435551	476998	263503	304950	6	6
5	38682	42363	155279	170056	140509	153880	83161	96532	12	13
6	1354161	1483021	1674203	1833518	1674203	1833518	808905	968220	1	1
7	118050	129283	133903	146645	22855	25209	13735	15909	25	25
8	2524	2784	51333	56217	13508	14791	8015	9298	27	27
9	33427	36608	42607	46662	38947	42654	23540	27247	21	21
10	11258	12329	113413	123909	53772	58889	30136	35253	20	20
11	26589	29119	133587	146298	92195	100968	54789	63542	16	16
12	57912	63423	137736	150843	102062	111775	59922	69635	14	14
13	74874	81999	139397	152662	25853	28313	15317	17777	24	24
14	18506	20267	63939	70023	20473	22421	12088	14036	26	26
15	22820	24991	24760	27116	2563	2807	1549	1793	30	30
16	4916	5384	81297	89033	38675	42356	22326	26007	22	22
17	8577	9393	144957	158751	60322	66063	35771	41512	17	17
18	18761	20547	170747	186996	100821	110416	57305	66900	15	15
19	102508	112263	166031	181831	103871	113755	62483	139267	13	11
20	240717	263623	342301	374874	342301	374874	206440	239013	8	8
21	231340	253354	297455	325760	59211	64846	35685	41320	18	18
22	20518	22471	40477	44329	2766	3029	1664	1927	29	29
23	107581	117819	162272	177714	54301	59468	31762	36929	19	19
24	156317	171192	406061	444072	348871	382070	201321	234520	9	9
25	153534	168145	266518	291880	266518	291880	159001	184363	10	10
26	925343	1013398	1160451	1270879	1160451	1270879	690204	800632	2	2
27	695161	761312	973835	1066504	973835	1066504	586668	679337	3	3
28	397818	435674	624989	684462	579977	635167	348019	403209	5	5
29	547507	599607	878335	961917	878335	961917	522312	605894	4	4
30	284862	311699	587600	643515	387451	424321	226175	263045	7	7
Total			10214437	11186433	8212966	8994507	4677872	5526329		

*For listing of industries, see Appendix A.

TABLE XII. PROJECTED OUTPUT OF THE OMAHA SMSA, 1990 ($1,000)

Industry Number*	Final Demand		Total Supply		Total Local Output		Increase in Output		Rank of Increase		Rate of Growth	
	3½%	4%	3½%	4%	3½%	4%	3½%	4%	3½%	4%	3½%	4%
1	17499	19931	323887	368897	166122	189206	71677	94761	13	13	.021	.027
2	39131	44569	198312	225870	36371	41425	17536	22590	23	23	.024	.028
3	9123	10390	67438	76809	7536	8584	4119	5167	28	28	.029	.034
4	441072	502365	441072	502365	435573	496103	263525	324055	6	6	.035	.040
5	31033	35346	144415	164484	140054	159517	82704	102167	11	11	.034	.039
6	853769	972412	1074141	1223408	1074141	1223408	444933	594200	4	4	.020	.025
7	114552	130471	129497	147492	24364	27750	14636	18022	24	24	.035	.040
8	2572	2929	50657	57696	14020	15968	8302	10250	27	27	.034	.039
9	35445	40371	43646	49712	35550	40491	21487	26428	21	21	.035	.040
10	13754	15665	109698	124942	64418	73369	35760	44711	20	19	.030	.035
11	25883	29480	133918	152528	111125	126568	65986	81429	14	14	.034	.039
12	59133	67350	142052	161792	140336	159838	82175	101677	12	12	.033	.038
13	74173	84481	135397	154213	23544	26816	13930	17202	25	25	.034	.039
14	21126	24062	63935	72820	17126	19506	10096	12476	26	26	.033	.038
15	24926	28390	26825	30553	2535	2888	1532	1885	30	30	.035	.040
16	7889	8986	77390	88145	34820	39659	20044	24883	22	22	.032	.037
17	12636	14392	144953	165096	88656	100975	52513	64832	17	17	.034	.039
18	22663	25812	155631	177258	90848	103472	51266	63890	18	18	.031	.037
19	137841	156996	198524	226112	95064	108274	57218	70428	16	16	.035	.040
20	138416	157651	221913	252751	221913	252751	133625	164463	10	10	.035	.040
21	270219	307770	343352	391066	96629	110057	58274	71702	15	15	.035	.040
22	29440	33531	48295	55006	2965	3377	1783	2195	29	29	.035	.040
23	121290	138145	181509	206732	60589	69008	36259	44678	19	20	.035	.039
24	161927	184429	383679	436996	265647	302562	152723	189638	9	9	.032	.037
25	212191	241678	333404	379736	333404	379736	199413	245745	8	8	.034	.039
26	950231	1082279	1164573	1326407	1164573	1326407	694326	856160	1	1	.034	.039
27	699114	796265	973728	1109040	973728	1109040	586559	721871	2	2	.035	.040
28	372594	424372	595200	677912	579313	659818	347354	427859	5	5	.035	.039
29	567931	646852	878160	1000192	878160	1000192	522140	644172	3	3	.034	.039
30	304149	346415	585905	667324	387165	440967	225887	279689	7	7	.033	.038
Total			9371107	10673354	7566289	8617732	4277782	5329225				

*For description of industries, please see Table V.

the Omaha area in 1975 would be between $5.5 billion and $5.9 billion, while total local output would be between $4.5 billion and $4.8 billion, depending on whether the growth rate would be 3.5% of 4%. Comparable figures for the present study are $6 billion to $6.4 billion for the total volume of business, and $4.9 billion to $5.5 billion for the total local output. Chang found that in 1990 the total volume of business would be between $9.4 billion and $10.7 billion, and total local output to be between $7.6 billion and $8.6 billion, again depending on whether the growth rate of final demand would be 3.5% or 4%. Similar figures for this study are $10.2 billion to $11.1 billion for the total volume of business, and $8.2 billion to $9 billion for the total local output.

Both studies found the area will remain a trade, insurance, service and food processing center. The drawback to these studies is that they do not take into consideration the closing of the Swift and Cudahy plants in the Food and Kindred Products industry. The output for this industry is overstated; therefore, when Chang indicates that the industry will rank fourth in 1975, and this study indicates it will rank first in terms of increased output, both are optimistic estimates which assume that the rest of the food processors will fill the void left by the departure of the aforementioned meat packers.

Assumptions two and three, mentioned earlier in this section, i. e., constant technological coefficients and constant import coefficients, deserve special discussion. The former assumption does not imply that there will be no growth, but rather that what growth that does occur will be a natural growth to meet the continuous expansion of final demand in the area. When the increases in output through 1975 and 1990 are examined,

Food and Kindred Products, Retail and Wholesale Trade, Finance and Insurance, and Services will continue to rank among the leaders. But there are other industries which indicate great potential for growth such as New Construction, Electrical Machinery, Maintenance and Repair Construction, Nonelectric Machinery, and Chemicals and Allied Products. They are expected to expand their production by $88 million to $103 million, $68 million to $81 million, and $26 million to $32 million by 1975, with correspondingly larger increases by 1990. That these industries will grow this much simply as a result of natural growth implies that efforts to promote them will have even a more favorable impact on the area's overall output in the future.

The assumption of constant import coefficients over the period in question also has implications with regard to the reliability of the predictions. To the extent that import substitution can take place, the total output of the area will be higher. Such industries as Nonelectric Machinery and Maintenance and Repair Construction which have a high final demand should be studied with the idea of increasing their total local output (i. e., reducing imports). It may also be possible to have more import substitution in such industries as Transportation Equipment, Miscellaneous Manufacturing, and Apparel and Related Products, since they are among the leaders in imports now. Finally, industries such as Electrical Machinery and New Construction, which already enjoy an export surplus, may be able to increase that surplus. Alternatively, to the extent that import substitution does not take place, the economy will stagnate and the predictions for the future will be overstatements.

The basic purpose of this study has been to compare this study with Chang's to determine whether different data sources make any basic differences in the results obtained. Theoretically, the use of only local and locally obtained data would be the better methodology, but this has the disadvantage of being very time consuming. The fact that the two studies, the one making use of national information, the other using predominately primary local and regional data, arrived at the same general conclusions, indicates that future studies can make use of the time saving national information with little loss of validity. (This, of course, assumes that the Omaha area's economic development remains typical for that of the United States as a whole.) The studies were compared as to their conclusions on basic industries, total business volume, gross income, trade relations, the impact of Armour's closing, and the predictions of future Omaha output. In general, there was little difference. Both studies concluded that Omaha is basically a Food Processing, Trade, Insurance and Service center with an otherwise weak manufacturing base. These industries accounted for almost 60% of the Omaha output in 1963 in this study and about 55% in the Chang project. The gross income of the area was also found to be similar in the two studies: in Chang's work total income was $1.6 billion with about 55% attributed to the basic four industries while the present study found total income to be $1.7 billion with the same percent going to the same largest industries.

When trade relations were studied, both came to similar conclusions. Food and Kindred Products, Finance and Insurance, and Retail and Wholesale

Trade were the largest exporters, followed by Electrical Machinery, Utilities and Services. The major difference between the studies was the larger value of Electrical Machinery exports in this study ($59 million), as opposed to Chang's study ($11 million). Since the present study used sample data comprising 98% of the industry, it was felt to be the better estimate. Also, Utilities exports were larger in Chang's study ($52 million to $26 million). Finally, New Construction had a slight import surplus in Chang's study--$2 million--and a slight export surplus in the present study--$6 million.

The present study examined income multipliers in greater detail than the Chang study, developing multipliers for all 30 industries whereas the latter examined only the Food and Kindred Products multipliers. Table VIII (above) presents the data concerning this industry from both studies. Again there does not seem to be any significant difference.

Both studies indicate that the area will be a Trade, Finance, Service, and Food Processing area well into the future. They found that Electrical Machinery, Chemical and Allied Products, and Nonelectrical Machinery have good growth potentials due to high final demands in the area. In addition, Chang's study indicated that Printing and Publishing, and Transportation Equipment may share this future; in the present study, Maintenance and Repair Construction have high growth potentials for the same reasons. Finally, both studies agree that import substitution, particularly in such industries as Miscellaneous Manufacturing, Apparel and Related Products, and Nonelectric Machinery, will have favorable effects on future outputs.

Additional studies in the area can make use of some of the refinements in this study and add new ones. For example, they could continue with the detailed breakdown of final demand and rework the study using current data. This would enable comparisons to be made over time between the industries. This would be most helpful in determining structural and technological changes in the area over recent years. Finally, employment multipliers could be calculated and employment projections into the future could be obtained; both of which were contemplated in the present study, but ruled out because of data limitations.

APPENDIXES

APPENDIX A

INDUSTRY CLASSIFICATION FOR THE 1963 OMAHA INPUT-OUTPUT STUDY

Industry No. & Industry Title	Related 1958 U.S. Study No.	Related SIC Codes ('57 ed.)
Agriculture, Forestry & Fisheries		
1 Livestock & Livestock Products	1.	013, pt. 014, 0193, pt. 02, pt. 0729
2 Other Agricultural Products	2, 3, 4.	011, 012, pt. 014, 0192, 0199, pt. 02, 074, 081, 082, 084, 086, 091, 071, 0723, 085, 098.
Mining		
3 Mining	5, 6, 7, 8, 9, 10.	1011, 106, 102, 103, 104, 105, 108, 109, 11, 12, 1311, 1321, 141, 142, 144, 145, 147, 148, 149.
Construction		
4 New Construction	11.	138, pt. 15, pt. 16, pt. 17, pt. 6561.
5 Maintenance & Repair Construction	12.	pt. 15, pt. 16, pt. 17.
Manufacturing		
6 Food & Kindred Products	14.	20.
7 Apparel & Related Products	18, 19.	225, 23, 3992.
8 Lumber & Wood Products	20, 21.	24.
9 Furniture & Fixtures	22, 23.	25.
10 Paper & Allied Products	24, 25.	26.
11 Printing & Publishing	26.	27.
12 Chemicals & Allied Products	27, 29, 30.	281 (excluding alumina pt. of 2819), 283, 284, 285, 286, 287.
13 Petroleum & Coal Products	31.	29.
14 Rubber & Plastics	28, 32.	282, 30.

Industry No. & Industry Title	Related 1958 U.S. Study No.	Related SIC Codes ('57 ed.)
15 Leather & Leather Goods	33, 34.	31, 311, 312.
16 Stone, Clay & Glass Products	35, 36.	321, 322, 323, 324, 325, 326, 327, 328, 329.
17 Primary Metals	37, 38.	331, 332, 3393, 3399, 2819 (alumina only), 333, 334, 335, 336, 3392.
18 Fabricated Metal Products	39, 40, 41, 42.	3411, 3491, 343, 344, 345, 346, 342, 347, 348, 349 (excluding 3491).
19 Nonelectric Machinery	43, 44, 45, 46, 47, 48, 49, 50, 51, 52.	351, 352, 353, 354, 355, 356, 357, 358, 359.
20 Electric Machinery	53, 54, 55, 56, 57, 58.	361, 362, 363, 364, 365, 366, 367, 369.
21 Transportation Equipment	59, 60, 61.	371, 372, 373, 374, 375, 379.
22 Instrument & Related Products	62, 63.	381, 382, 383, 384, 385, 386, 387.
23 Miscellaneous Manufacturing	13, 15, 16, 17, 64.	19, 21, 221, 222, 223, 224, 226, 227, 228, 229, 39 (excluding 3992).
Transportation, Communication, Electric, Gas, and Sanitary Services		
24 Transportation & Warehousing	65, 66, 67.	40, 41, 42, 44, 45, 46, 47, 481, 482, 483, 489.
25 Utilities	68.	49.
Retail & Wholesale Trade		
26 Retail & Wholesale Trade	69.	50 (excluding manufacturers' sales offices), 52, 53, 54, 55, 56, 57, 58, 59, pt. 7399.
Finance, Insurance & Real Estate		
27 Finance & Insurance	70.	60, 61, 62, 63, 64, 66, 67.

Industry No. & Industry Title	Related 1958 U.S. Study No.	Related SIC Codes ('57 ed.)
28 Real Estate & Rentals	71.	65 (excluding 6541 and pt. 6561).
Services		
29 Services	72, 73, 74, 75, 76, 77.	6541, 70, 72, 73 (excluding 7361, 7391 and pt. 7399), 75, 76, 78, 79, 80, 82, 84, 86, 89.
Others		
30 Undistributed	78, 79, 80a, 80b, 81, 82, 83, 84, 85, 86, 87.	---

TABLE XIII. A REDUCED U. S. TRANSACTION TABLE, 1958 ($1,000)

	1 Livestock and Livestock Products	2 Other Agricultural Products	3 Mining	4 New Construction	5 Maintenance & Repair Construction	6 Food & Kindred Products	7 Apparel, Related Products	8 Lumber & Wood Products	9 Furniture & Fixtures	10 Paper & Allied Products	11 Printing & Publishing	12 Chemicals & Allied Products	13 Petroleum & Coal Products	14 Rubber & Plastics	15 Leather, Leather Goods	16 Stone, Clay, & Glass Products	17 Primary Metals	18 Fabricated Metal Products	19 Non-electric Machinery	20 Electric Machinery	21 Transportation Equipment	22 Instrument & Related Products	23 Misc. Manufacturing	24 Transportation & Warehousing	25 Utilities	26 Retail, Wholesale Trade	27 Finance & Insurance	28 Real Estate & Rentals	29 Services	30 Undistributed	Total	Final Demand	Total Demand
1 Livestock & Livestock Products	4,153	1,998	-	-	-	16,303	-	-	-	-	-	5	-	-	52	-	-	-	-	-	-	-	158	2	-	-	-	850	16	29	23,566	2,758	26,324
2 Other Agricultural Products	7,093	2,334	-	237	-	5,075	149	998	-	-	-	30	-	-	1	4	-	-	3	-	-	4	2,293	35	-	153	-	1,323	8	704	20,444	5,971	26,415
3 Mining	7	97	1,129	624	131	52	1	2	2	125	-	577	9,365	47	3	623	2,463	9	18	15	20	3	21	29	1,715	8	6	150	41	148	17,431	904	18,335
4 New Construction	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	52,415	52,415
5 Maintenance & Repair Construction	234	379	10	7	1	233	8	15	2	55	44	9	25	33	-	4	132	14	30	19	95	2	23	1,550	551	775	120	5,899	971	1,206	12,446	4,427	16,873
6 Food & Kindred Products	2,964	36	-	17	-	10,574	-	-	28	76	-	390	11	18	209	6	8	-	1	-	-	12	165	100	-	530	-	63	187	2,224	17,619	47,547	65,166
7 Apparel & Related Products	8	35	-	-	1	139	2,797	12	8	34	-	40	4	23	19	6	24	21	23	19	180	12	89	27	-	91	31	29	353	22	4,047	12,535	16,582
8 Lumber & Wood Products	2	102	31	3,280	418	102	-	2,597	499	670	1	43	2	13	30	69	33	107	60	47	126	4	117	26	3	150	-	26	8	2	8,568	322	8,890
9 Furniture & Fixtures	-	-	-	501	16	-	13	26	146	2	5	-	-	2	1	5	2	31	12	157	69	15	13	-	-	26	-	4	14	-	1,060	3,739	4,799
10 Paper & Allied Products	14	28	35	323	68	1,254	153	96	106	3,948	2,240	483	91	295	69	410	98	194	96	264	128	107	628	52	17	811	126	19	361	395	12,909	1,240	14,149
11 Printing, Publishing	5	8	3	8	1	123	17	33	3	126	1,597	61	1	25	19	18	38	31	18	19	24	2	59	195	5	235	394	57	5,817	893	9,835	2,816	12,651
12 Chemicals & Allied Products	63	1,148	181	564	950	439	45	107	92	374	187	4,255	579	1,857	88	302	351	190	86	175	220	115	329	88	11	244	11	112	1,087	69	14,319	6,294	20,613
13 Petroleum & Coal Products	48	920	150	986	375	284	8	79	10	146	11	738	1,243	73	5	92	189	101	109	38	94	9	60	1,536	245	727	94	363	372	56	9,161	8,837	17,998
14 Rubber & Plastics	21	167	91	311	66	158	236	110	150	278	15	638	22	1,378	194	169	197	138	286	495	828	62	1,937	264	10	240	53	55	510	22	9,101	2,052	11,153
15 Leather & Leather Goods	1	5	-	-	-	-	55	1	7	2	1	-	-	13	1,036	1	-	5	10	8	9	7	69	3	-	20	1	5	20	28	1,307	2,723	4,030
16 Stone, Clay & Glass Products	4	25	118	4,170	630	609	-	43	115	56	-	217	37	71	15	1,087	347	165	177	324	399	69	85	9	24	226	-	26	198	18	9,264	557	9,821
17 Primary Metals	1	1	166	3,095	555	37	2	28	266	18	15	402	3	29	1	51	7,474	6,126	3,143	1,921	3,541	258	697	110	68	23	-	31	40	244	28,346	1,145	29,491
18 Fabricated Metal Products	56	64	98	6,149	954	1,785	23	94	313	151	24	419	315	118	28	126	714	1,289	1,080	942	2,207	157	285	60	158	212	-	24	200	150	18,195	2,207	20,402
19 Nonelectric Machinery	7	199	452	899	70	17	1	33	41	66	43	158	4	49	1	30	549	788	3,657	573	1,523	161	604	143	12	243	5	107	1,193	151	11,779	13,250	25,029
20 Electric Machinery	8	22	70	1,479	289	34	-	12	14	19	12	17	7	32	6	49	251	285	1,230	3,240	1,356	318	410	314	17	188	2	49	1,492	166	11,388	9,921	21,309
21 Transportation Equipment	24	57	38	4	-	-	1	8	7	-	19	1	-	19	-	3	73	255	625	164	9,641	113	1,022	559	2	289	10	38	2,934	187	16,093	23,909	40,002
22 Instrument & Related Products	-	-	1	191	16	-	9	-	9	6	52	34	1	22	9	7	12	103	83	258	329	328	115	26	-	78	-	13	881	72	2,655	2,572	5,227
23 Misc. Manufacturing	7	61	10	93	49	40	5,463	15	299	87	58	28	7	643	134	37	50	67	78	222	867	162	6,189	95	8	156	43	42	1,905	504	17,419	12,136	29,555
24 Transportation & Warehousing	575	408	534	1,915	316	2,784	189	468	122	547	349	663	931	312	71	545	1,334	412	445	344	758	84	629	2,545	419	1,408	647	625	2,913	3,497	26,789	18,167	44,956
25 Utilities	91	173	253	150	25	356	53	58	27	207	55	323	262	112	17	293	683	145	135	114	201	19	184	210	3,380	1,916	125	249	1,092	449	11,357	8,934	20,291
26 Retail & Wholesale Trade	936	1,057	368	4,962	1,379	2,405	617	388	263	534	302	607	185	323	114	322	1,040	717	978	873	1,157	232	1,076	1,071	240	1,582	256	1,068	2,115	462	27,629	67,621	95,250
27 Finance & Insurance	189	321	180	435	49	344	105	56	26	85	122	180	114	69	28	98	217	150	174	85	153	28	174	768	111	1,580	5,389	2,064	1,099	53	14,446	12,029	26,475
28 Real Estate & Rentals	303	1,864	1,622	210	35	291	186	59	56	78	462	199	138	97	31	76	114	126	235	181	152	55	174	1,253	56	5,048	2,059	1,267	3,624	112	20,163	41,774	61,937
29 Services	248	966	424	2,876	92	1,993	215	143	94	194	608	1,263	394	256	109	195	340	314	447	650	747	157	644	1,931	267	5,997	1,253	1,788	5,175	1,265	31,045	47,144	78,189
30 Undistributed	238	854	1,956	325	54	3,105	194	529	52	1,245	455	708	649	407	85	293	2,248	388	678	560	932	248	1,212	2,555	3,058	3,288	1,019	770	2,282	1,263	31,650	31,384	63,034
Intermediate Input Total	17,300	13,329	7,920	33,811	6,540	48,536	10,540	6,010	2,757	9,129	6,677	12,488	14,390	6,336	2,375	4,921	18,981	12,171	13,917	11,707	25,756	2,743	19,461	15,556	10,377	26,244	11,644	17,116	36,908	14,391	440,031		
Value Added	9,024	13,086	10,415	18,604	10,333	16,630	6,042	2,880	2,042	5,020	5,974	8,125	3,608	4,817	1,655	4,900	10,510	8,231	11,112	9,602	14,246	2,484	10,094	29,400	9,914	69,006	14,831	44,821	41,281	48,643		447,330	
Total	26,324	26,415	18,335	52,415	16,873	65,166	16,582	8,890	4,799	14,149	12,651	20,613	17,998	11,153	4,030	9,821	29,491	20,402	25,029	21,309	40,002	5,227	29,555	44,956	20,291	95,250	26,475	61,937	78,189	63,034			887,361

APPENDIX C

TABLE XIV. DIRECT PRODUCTION REQUIREMENT, OMAHA SMSA, 1963

	1 Livestock and Livestock Products	2 Other Agricultural Products	3 Mining	4 New Construction	5 Maintenance & Repair Construction	6 Food & Kindred Products	7 Apparel, Related Products	8 Lumber & Wood Products	9 Furniture & Fixtures	10 Paper & Allied Products	11 Printing & Publishing	12 Chemicals & Allied Products	13 Petroleum & Coal Products	14 Rubber & Plastics	15 Leather, Leather Goods	16 Stone, Clay, & Glass Products	17 Primary Metals	18 Fabricated Metal Products	19 Nonelectric Machinery	20 Electric Machinery	21 Transportation Equipment	22 Instrument & Related Products	23 Misc. Manufacturing	24 Transportation & Warehousing	25 Utilities	26 Retail, Wholesale Trade	27 Finance & Insurance	28 Real Estate & Rentals	29 Services	30 Undistributed
1 Livestock & Livestock Products	0.15776	0.07564	-	-	-	0.25018	-	-	-	-	-	0.00024	-	-	0.01290	-	-	-	-	-	-	-	0.00535	0.00004	-	-	-	0.01372	0.00020	0.00046
2 Other Agricultural Products	.26945	.08836	-	0.00452	-	.07788	0.00899	0.11226	-	-	-	.00146	-	-	.00025	0.00041	-	-	0.00012	-	-	0.00077	.07758	.00078	-	0.00161	-	.02136	.00010	.01117
3 Mining	.00027	.00367	0.06158	.01190	0.00776	.00080	.00006	.00022	0.00042	0.00883	-	.02799	0.52034	0.00421	.00074	.06344	0.08352	0.00044	.00072	0.00070	0.00050	.00057	.00071	.00065	0.08452	.00008	0.00023	.00242	.00052	.00235
4 New Construction	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5 Maintenance & Repair Construction	.00889	.01435	.00055	.00013	.00006	.00358	.00048	.00169	.00042	.00389	0.00348	.00044	.00139	.00296	-	.00041	.00448	.00069	.00120	.00089	.00237	.00038	.00078	.03448	.02715	.00814	.00453	.09524	.01242	.01913
6 Food & Kindred Products	.11260	.00136	-	.00032	-	.16226	-	-	.00583	.00537	-	.01892	.00061	.00161	.05186	.00061	.00027	-	.00004	-	-	.00230	.00558	.00222	-	.00556	-	.00102	.00239	.03528
7 Apparel & Related Products	.00030	.00133	-	-	.00006	.00213	.16868	.00135	.00167	.00240	-	.00194	.00022	.00206	.00471	.00061	.00081	.00103	.00092	.00089	.00450	.00230	.00301	.00060	-	.00096	.00117	.00047	.00451	.00035
8 Lumber & Wood Products	.00008	.00386	.00169	.06258	.02477	.00157	-	.29213	.10398	.04735	.00008	.00209	.00011	.00117	.00744	.00703	.00112	.00524	.00240	.00221	.00315	.00077	.00396	-	.00015	.00157	-	.00042	.00010	.00003
9 Furniture & Fixtures	-	-	-	.00956	.00095	-	.00078	.00292	.03042	.00014	.00040	-	-	.00018	.00025	.00051	.00007	.00152	.00048	.00737	.00172	.00287	.00044	.00058	-	.00027	-	.00006	.00018	-
10 Paper & Allied Products	.00053	.00106	.00191	.00616	.00403	.01924	.00923	.01080	.02209	.27903	.17706	.02343	.00506	.02645	.01712	.04175	.00332	.00951	.00384	.01239	.00320	.02047	.02125	.00116	.00084	.00851	.00476	.00031	.00462	.00627
11 Printing & Publishing	.00019	.00030	.00016	.00015	.00006	.00189	.00103	.00371	.00063	.00891	.12624	.00296	.00006	.00224	.00471	.00183	.00129	.00152	.00072	.00089	.00060	.00038	.00200	.00434	.00025	.00247	.01488	.00092	.07440	.01417
12 Chemicals & Allied Products	.00239	.04346	.00987	.01076	.05630	.00674	.00271	.01204	.01917	.02643	.01478	.20642	.03217	.16650	.02184	.03075	.01190	.00931	.00344	.00821	.00550	.02200	.01113	.00196	.00054	.00256	.00042	.00181	.01390	.00109
13 Petroleum & Coal Products	.00182	.03483	.00818	.01881	.02222	.00436	.00048	.00889	.00208	.01032	.00087	.03580	.06906	.00656	.00124	.00937	.00641	.00495	.00435	.00178	.00235	.00172	.00203	.03417	.01207	.00763	.00355	.00586	.00476	.00089
14 Rubber & Plastics	.00080	.00632	.00496	.00593	.00391	.00242	.01423	.01237	.03126	.01965	.00119	.03095	.00122	.12355	.04814	.01721	.00668	.00676	.01143	.02323	.02070	.01186	.06554	.00587	.00049	.00252	.00200	.00089	.00652	.00035
15 Leather & Leather Goods	.00004	.00019	-	-	-	-	.00332	.00011	.00146	.00014	.00008	-	-	.00117	.25707	.00010	-	.00025	.00040	.00038	.00022	.00134	.00233	.00007	-	.00021	.00004	.00008	.00026	.00044
16 Stone, Clay & Glass Products	.00015	.00095	.00644	.07956	.03734	.00935	-	.00484	.02396	.00396	-	.01053	.00206	.00637	.00372	.11068	.01177	.00809	.00707	.01520	.00997	.01320	.00288	.00020	.00118	.00237	-	.00042	.00253	.00029
17 Primary Metals	.00004	.00004	.00905	.05905	.03289	.00057	.00012	.00315	.05543	.00127	.00119	.01950	.00017	.00260	.00025	.00519	.25343	.30026	.12557	.09015	.08852	.04936	.02358	.00245	.00335	.00024	-	.00050	.00051	.00387
18 Fabricated Metal Products	.00213	.00242	.00534	.11731	.05654	.02739	.00139	.01057	.06522	.01067	.00190	.02033	.01750	.01058	.00695	.01283	.02421	.06318	.04315	.04421	.05517	.03004	.00964	.00133	.00779	.00223	-	.00039	.00256	.00238
19 Nonelectric Machinery	.00027	.00753	.02465	.01715	.00415	.00026	.00006	.00371	.00854	.00466	.00340	.00766	.00022	.00439	.00025	.00305	.01862	.03862	.14611	.02689	.03807	.03080	.02044	.00318	.00059	.00255	.00019	.00173	.01526	.00240
20 Electric Machinery	.00030	.00083	.00382	.02822	.01715	.00052	-	.00135	.00292	.00134	.00095	.00082	.00039	.00287	.00149	.00499	.00851	.01397	.04914	.15205	.03390	.06084	.01387	.00698	.00084	.00197	.00008	.00079	.01908	.00263
21 Transportation Equipment	.00091	.00216	.00207	.00008	-	-	.00006	.00090	.00146	-	.00150	.00005	-	.00170	-	.00031	.00248	.01250	.02497	.00770	.24101	.02162	.03458	.01243	.00010	.00303	.00038	.00061	.03752	.00297
22 Instruments & Related Products	-	-	.00005	.00364	.00095	-	.00054	-	.00188	.00042	.00411	.00165	.00006	.00197	.00223	.00071	.00041	.00505	.00332	.01211	.00822	.06275	.00389	.00058	-	.00082	-	.00021	.01127	.00114
23 Miscellaneous Manufacturing	.00027	.00231	.00055	.00177	.00290	.00061	.32945	.00169	.06230	.00615	.00458	.00136	.00039	.05765	.03325	.00377	.00170	.00328	.00312	.01042	.02167	.03099	.20941	.00211	.00039	.00164	.00162	.00068	.02436	.00800
24 Transportation & Warehousing	.02184	.01545	.02912	.03654	.01873	.04272	.01140	.05264	.02542	.03866	.02759	.03216	.05173	.02797	.01762	.05549	.04523	.02019	.01778	.01614	.01895	.01607	.02128	.05661	.02065	.01478	.02444	.01009	.03726	.05548
25 Utilities	.00346	.00655	.01380	.00286	.00148	.00546	.00320	.00652	.00563	.01463	.00435	.01567	.01456	.01004	.00422	.02983	.02316	.00711	.00539	.00535	.00502	.00363	.00623	.00467	.16658	.02012	.00472	.00402	.01397	.00712
26 Retail & Wholesale Trade	.03556	.04002	.02007	.09467	.08173	.03691	.03721	.04364	.05480	.03774	.02387	.02945	.01028	.02896	.02829	.03279	.03526	.03514	.03907	.04097	.02892	.04438	.03641	.02382	.01183	.01661	.00967	.01724	.02705	.00733
27 Finance & Insurance	.00718	.01215	.00982	.00830	.00290	.00528	.00633	.00630	.00542	.00601	.00964	.00873	.00633	.00619	.00695	.00998	.00736	.00735	.00695	.00399	.00382	.00536	.00589	.01708	.00547	.01659	.20355	.03332	.01406	.00084
28 Real Estate & Rentals	.01151	.07057	.08846	.00401	.00207	.00447	.01122	.00664	.01167	.00551	.03652	.00965	.00767	.00870	.00769	.00772	.00387	.00618	.00939	.00849	.00380	.01052	.00589	.02787	.00276	.05300	.07777	.02046	.04635	.00178
29 Services	.00942	.03657	.02313	.05487	.00545	.03058	.01297	.01609	.01959	.01371	.04806	.06127	.02189	.02295	.02705	.01986	.01153	.01539	.01786	.03050	.01867	.03004	.02179	.04295	.01316	.06296	.04733	.02887	.06619	.02007
30 Undistributed	.00904	.03233	.10668	.00620	.00320	.04765	.01170	.05951	.01084	.08799	.03597	.03435	.03606	.03649	.02109	.02983	.07623	.01902	.02709	.02628	.02330	.04745	.04101	.05683	.15071	.03452	.03849	.01243	.02919	.02004
Adjustment*	-.00001	-.00001	.00001	.00001	.00002	.00001	-.00001	.00000	-.00002	.00002	-.00003	.00001	-.00002	.00001	.00001	.00001	-.00002	.00001	-.00001	.00000	.00005	.00000	-.00001	.00002	.00000	.00001	-.00001	.00001	.00000	-.00001
Value Added	.34281	.49540	.56804	.35494	.61240	.25519	.36437	.32396	.42551	.35480	.47222	.39417	.20047	.43190	.41067	.49893	.35638	.40344	.44397	.45061	.35613	.47522	.34153	.65397	.48859	.72447	.56019	.72365	.52796	.77169
Total	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

*Rounding errors.

APPENDIX D

TABLE XV. INTERINDUSTRY TRANSACTIONS TABLE, OMAHA SMSA, 1963 ($1,000)

	1 Livestock and Livestock Products	2 Other Agricultural Products	3 Mining	4 New Construction	5 Maintenance & Repair Construction	6 Food & Kindred Products	7 Apparel, Related Products	8 Lumber & Wood Products	9 Furniture & Fixtures	10 Paper & Allied Products	11 Printing & Publishing	12 Chemicals & Allied Products	13 Petroleum & Coal Products	14 Rubber & Plastics	15 Leather, Leather Goods	16 Stone, Clay, & Glass Products	17 Primary Metals	18 Fabricated Metal Products	19 Non-electric Machinery
1 Livestock & Livestock Products	15,423	1,173	-	-	-	216,478	-	-	-	-	-	10	-	-	13	-	-	-	-
2 Other Agricultural Products	26,341	1,370	-	778	-	67,389	82	617	-	-	-	62	-	-	-	7	-	-	5
3 Mining	26	57	210	2,047	445	692	1	1	6	209	-	1,179	5,482	35	1	1,037	2,050	19	30
4 New Construction	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5 Maintenance & Repair Construction	869	223	2	22	3	3,098	4	9	6	92	130	19	15	25	-	7	110	30	50
6 Food & Kindred Products	11,008	21	-	55	-	140,402	-	-	90	127	-	797	6	13	53	10	7	-	2
7 Apparel & Related Products	29	21	-	-	3	1,843	1,538	7	26	57	-	82	2	17	5	10	20	45	38
8 Lumber & Wood Products	8	60	6	10,767	1,421	1,359	-	1,606	1,602	1,119	3	88	1	10	8	115	27	228	99
9 Furniture & Fixtures	-	-	-	1,645	54	-	7	16	469	3	15	-	-	2	-	8	2	66	20
10 Paper & Allied Products	52	16	7	1,060	231	16,648	84	59	340	6,595	6,626	987	53	222	17	682	82	414	159
11 Printing, Publishing	19	5	1	26	3	1,635	9	20	10	211	4,724	125	1	19	5	30	32	66	30
12 Chemicals & Allied Products	234	674	34	1,851	3,229	5,832	25	66	295	625	553	8,698	339	1,396	22	503	292	405	142
13 Petroleum & Coal Products	178	540	28	3,236	1,274	3,773	4	49	32	244	33	1,509	728	55	1	153	157	215	180
14 Rubber & Plastics	78	98	17	1,020	224	2,094	130	68	482	464	45	1,304	13	1,036	49	281	164	294	473
15 Leather & Leather Goods	4	3	-	-	-	-	30	1	22	3	3	-	-	10	261	2	-	11	17
16 Stone, Clay & Glass Products	15	15	22	13,688	2,141	8,090	-	27	369	94	-	444	22	53	4	1,809	289	352	293
17 Primary Metals	4	1	31	10,160	1,886	493	1	17	854	30	45	822	2	22	-	85	6,222	13,066	5,197
18 Fabricated Metal Products	208	38	18	20,183	3,243	23,700	13	58	1,005	252	71	857	184	89	7	210	594	2,749	1,786
19 Nonelectric Machinery	26	117	84	2,951	238	225	1	20	132	110	127	323	2	37	-	50	457	1,681	6,047
20 Electric Machinery	29	13	13	4,855	984	450	-	7	45	32	36	35	4	24	2	82	209	608	2,034
21 Transportation Equipment	89	34	7	14	-	-	1	5	22	-	56	2	-	14	-	5	61	544	1,033
22 Instrument & Related Products	-	-	1	626	54	-	5	-	29	10	154	70	1	17	2	12	10	220	137
23 Misc. Manufacturing	26	36	2	305	166	528	3,005	9	960	145	171	57	4	483	34	62	42	143	129
24 Transportation & Warehousing	2,135	240	100	6,287	1,074	36,965	104	289	392	914	1,033	1,355	545	235	18	907	1,110	879	736
25 Utilities	338	102	47	492	85	4,724	29	36	87	346	163	660	153	84	4	488	569	309	223
26 Retail & Wholesale Trade	3,476	621	69	16,288	4,687	31,938	339	240	844	892	893	1,241	108	243	29	536	866	1,529	1,617
27 Finance & Insurance	702	188	34	1,428	166	4,569	58	35	84	142	361	368	67	52	7	163	181	320	288
28 Real Estate & Rentals	1,125	1,095	302	690	119	3,868	102	36	180	130	1,367	407	81	73	8	126	95	269	389
29 Services	921	567	79	9,440	313	26,461	118	88	302	324	1,799	2,582	231	192	27	325	283	670	739
30 Undistributed	884	501	365	1,067	184	41,231	107	327	167	2,080	1,346	1,447	380	306	21	488	1,871	828	1,121
Inputs from Industries	64,247	7,829	1,479	110,981	22,227	644,485	5,797	3,713	8,852	15,250	19,754	25,530	8,424	4,764	598	8,193	15,802	25,960	23,014
Value Added	33,513	7,684	1,941	61,067	35,121	220,813	3,323	1,780	6,555	8,386	17,672	16,610	2,112	3,621	416	8,156	8,749	17,556	18,374
Total Local Production	97,760	15,513	3,420	172,048	57,348	865,298	9,120	5,493	15,407	23,636	37,426	42,140	10,536	8,385	1,014	16,349	24,551	43,516	41,388
Imports	146,956	109,008	23,440	-	6,029	-	44,316	15,387	1,449	26,095	16,804	14,728	46,274	17,853	8,785	18,017	34,448	30,183	24,802
Total Supply	244,716	124,521	26,860	172,048	63,377	865,298	53,436	20,880	16,856	49,731	54,230	56,868	56,810	26,238	9,799	34,366	58,999	73,699	66,190
Import Ratio	1.5032	7.0269	6.8538	-	0.1051	-	4.8592	2.8012	0.0940	1.1040	0.4490	0.3495	4.3920	2.1292	8.6637	1.1020	1.4031	0.6936	0.5993

TABLE XV. INTERINDUSTRY TRANSACTIONS TABLE, OMAHA SMSA, 1963 ($1,000) (cont.)

20	21	22	23	24	25	26	27	28	29	30		Final Demand							
Electric Machinery	Transportation Equipment	Instrument & Related Products	Misc. Manufacturing	Transportation & Warehousing	Utilities	Retail, Wholesale Trade	Finance and Insurance	Real Estate and Rentals	Services	Undistributed	Total	Household	Federal Gov't. Purchases	State & Local Gov't. Purchases	Gross Private Fixed Capital Formation	Other Demand	Regional Exports	Total Demand	
-	-	-	121	6	-	-	-	3,183	71	74	236,552	6,342	-17	43	-	1,796	-	244,716	1 Livestock & Livestock Products
-	-	1	1,748	115	-	757	-	4,955	36	1,801	106,064	8,878	3,220	-144	-	6,503	-	124,521	2 Other Agricultural Products
95	12	1	16	96	9,087	38	89	561	185	379	24,086	846	675	216	-	1,037	-	26,860	3 Mining
-	-	-	-	-	-	-	-	-	-	-	-	-	10,654	42,908	111,918	6	6,562	172,048	4 New Construction
121	56	-	18	5,088	2,919	3,828	1,754	22,092	4,422	3,085	48,097	-	3,338	11,942	-	-	-	63,377	5 Maintenance & Repair Construction
-	-	3	126	328	-	2,615	-	237	851	5,690	162,441	151,246	691	966	-	4,346	545,608	865,298	6 Food & Kindred Products
121	106	3	68	89	-	451	453	109	1,606	56	6,805	45,765	438	332	-	96	-	53,436	7 Apparel & Related Products
300	74	1	89	-	16	738	-	97	36	5	19,883	528	-17	-	19	467	-	20,880	8 Lumber & Wood Products
1,001	40	3	10	86	-	127	-	14	64	-	3,652	9,512	168	649	2,797	78	-	16,856	9 Furniture & Fixtures
1,683	75	23	479	171	90	4,002	1,843	72	1,645	1,011	45,428	3,277	236	14	-	776	-	49,731	10 Paper & Allied Products
121	14	-	45	640	27	1,162	5,761	213	26,488	2,285	43,727	9,301	287	620	-	295	-	54,230	11 Printing, Publishing
1,115	129	24	251	289	58	1,204	162	420	4,949	176	33,992	15,643	2,764	1,500	-	2,969	-	56,868	12 Chemicals & Allied Products
242	55	2	46	5,042	1,298	3,588	1,374	1,359	1,695	144	27,234	24,626	2,276	1,356	-	1,318	-	56,810	13 Petroleum & Coal Products
3,156	487	13	1,477	866	53	1,185	774	206	2,321	56	18,928	5,179	388	260	151	1,332	-	26,238	14 Rubber & Plastics
52	5	1	53	10	-	99	15	19	93	71	785	8,667	67	-	19	261	-	9,799	15 Leather & Leather Goods
2,065	235	15	65	30	127	1,115	-	97	901	47	32,424	1,374	17	14	-	537	-	34,366	16 Stone, Clay & Glass Products
12,248	2,083	54	531	362	360	113	-	116	182	624	55,611	106	1,399	-	-	1,883	-	58,999	17 Primary Metals
6,007	1,298	33	217	196	838	1,049	-	90	911	384	66,288	2,853	692	173	2,683	1,010	-	73,699	18 Fabricated Metal Products
3,653	896	34	461	469	63	1,199	74	401	5,433	387	25,698	2,008	3,287	965	28,928	5,304	-	66,190	19 Nonelectric Machinery
20,658	798	67	313	1,030	90	926	31	183	6,793	424	40,775	19,764	6,120	374	8,636	1,407	58,785	135,861	20 Electric Machinery
1,046	5,671	24	779	1,834	11	1,425	147	142	13,358	479	26,803	48,197	23,466	1,688	15,475	2,556	-	118,185	21 Transportation Equipment
1,645	193	69	88	86	-	386	-	49	4,012	184	8,060	2,748	2,140	361	2,097	759	-	16,165	22 Instrument & Related Products
1,416	510	34	4,719	311	42	771	627	158	8,673	1,290	24,858	31,180	7,435	678	982	2,221	-	67,354	23 Misc. Manufacturing
2,193	446	18	480	8,353	2,220	6,950	9,462	2,340	13,265	8,948	109,993	44,814	5,091	2,106	2,627	7,109	-	171,740	24 Transportation & Warehousing
727	118	4	140	689	17,910	9,461	1,827	932	4,974	1,148	46,869	31,285	1,096	1,731	-	96	26,440	107,517	25 Utilities
5,566	680	49	821	3,515	1,272	7,811	3,744	3,999	9,630	1,182	104,725	225,020	2,073	649	11,356	4,186	122,238	470,247	26 Retail & Wholesale Trade
542	90	6	133	2,520	588	7,801	78,807	7,729	5,006	135	112,570	44,180	-	678	-	59	229,680	387,167	27 Finance & Insurance
1,153	89	12	133	4,112	297	24,923	30,110	4,746	16,502	287	92,826	151,564	354	837	3,666	722	-	249,969	28 Real Estate & Rentals
4,144	439	33	491	6,337	1,415	29,607	18,325	6,697	23,565	3,237	139,751	138,987	19,690	3,533	-	1,510	52,552	356,023	29 Services
3,570	548	52	924	8,385	16,204	16,233	14,902	2,883	10,392	3,232	132,046	23,358	70,516	69,734	-2,456	-48,628	-	244,570	30 Undistributed
74,640	15,147	579	14,842	51,055	54,985	129,564	170,281	64,099	168,059	36,821	1,796,971	1,057,248	168,544	144,183	188,898	2,011	1,041,865	4,399,720	
61,221	8,379	523	7,697	96,495	52,532	340,683	216,886	167,859	187,964	124,455	1,738,143								
135,861	23,526	1,102	22,539	147,550	107,517	470,247	387,167	231,958	356,023	161,276	3,535,114								
-	94,659	15,063	44,815	24,190	-	-	-	18,011	-	83,294	864,606								
135,861	118,185	16,165	67,354	171,740	107,517	470,247	387,167	249,969	356,023	244,570	4,399,720								
-	4.0236	13.6688	1.9883	0.1639	-	-	-	0.0776	-	0.5165									

APPENDIX E

TABLE XVI. DIRECT REQUIREMENTS TABLE ON THE BASIS OF TOTAL SUPPLY, OMAHA SMSA, 1963

	1 Livestock and Livestock Products	2 Other Agricultural Products	3 Mining	4 New Construction	5 Maintenance & Repair Construction	6 Food & Kindred Products	7 Apparel, Related Products	8 Lumber & Wood Products	9 Furniture & Fixtures	10 Paper & Allied Products	11 Printing & Publishing	12 Chemicals & Allied Products	13 Petroleum & Coal Products	14 Rubber & Plastics	15 Leather, Leather Goods
1 Livestock & Livestock Products	.06302	.00942	-	-	-	.25018	-	-	-	-	-	.00018	-	-	.00133
2 Other Agricultural Products	.10764	.01101	-	.00452	-	.07788	.00153	.02953	-	-	-	.00108	-	-	.00003
3 Mining	.00011	.00046	.00784	.01190	.00702	.00080	.00001	.00006	.00038	.00420	-	.02074	.09650	.00135	.00008
4 New Construction	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5 Maintenance & Repair Construction	.00355	.00179	.00007	.00013	.00004	.00358	-	.00044	.00038	.00185	.00240	.00033	.00026	.00095	-
6 Food & Kindred Products	.04498	.00017	-	.00032	-	.16226	-	-	.00533	.00255	-	.01402	.00011	.00051	.00537
7 Apparel & Related Products	.00012	.00017	-	-	.00005	.00213	.02879	.00036	.00153	.00114	-	.00144	.00004	.00066	.00049
8 Lumber & Wood Products	.00003	.00048	.00022	.06258	.02241	.00157	-	.07685	.09505	.02250	.00006	.00155	.00002	.00037	.00077
9 Furniture & Fixtures	-	-	-	.00956	.00086	-	.00013	.00077	.02781	.00007	.00028	-	-	.00006	.00003
10 Paper & Allied Products	.00021	.00013	.00024	.00616	.00365	.01924	.00158	.00284	.02019	.13262	.12219	.01736	.00094	.00845	.00177
11 Printing & Publishing	.00008	.00004	.00002	.00015	.00005	.00189	.00018	.00098	.00058	.00423	.08712	.00219	.00001	.00072	.00049
12 Chemicals & Allied Products	.00095	.00541	.00126	.01076	.05095	.00674	.00046	.00317	.01752	.01256	.01020	.15296	.00597	.05321	.00226
13 Petroleum & Coal Products	.00073	.00434	.00104	.01881	.02011	.00436	.00008	.00234	.00190	.00490	.00060	.02653	.01281	.00210	.00013
14 Rubber & Plastics	.00032	.00079	.00063	.00593	.00354	.00242	.00243	.00325	.02857	.00934	.00082	.02293	.00023	.03948	.00498
15 Leather & Leather Goods	.00002	.00002	-	-	-	-	.00057	.00003	.00133	.00007	.00006	-	-	.00037	.02660
16 Stone, Clay & Glass Products	.00006	.00012	.00082	.07956	.03379	.00935	-	.00127	.02190	.00188	-	.00780	.00038	.00204	.00038
17 Primary Metals	.00002	-	.00115	.05905	.02976	.00057	.00002	.00083	.05067	.00060	.00082	.01445	.00003	.00083	.00003
18 Fabricated Metal Products	.00085	.00030	.00068	.11731	.05116	.02739	.00024	.00278	.05962	.00507	.00131	.01506	.00325	.00338	.00072
19 Nonelectric Machinery	.00011	.00094	.00314	.01715	.00376	.00026	.00001	.00098	.00781	.00221	.00235	.00568	.00004	.00140	.00003
20 Electric Machinery	.00012	.00010	.00049	.02822	.01552	.00052	-	.00036	.00267	.00064	.00066	.00061	.00007	.00092	.00015
21 Transportation Equipment	.00036	.00027	.00026	.00008	-	-	.00001	.00024	.00133	-	.00104	.00004	-	.00054	-
22 Instruments & Related Products	-	-	.00001	.00364	.00086	-	.00009	-	.00172	.00020	.00284	.00122	.00001	.00063	.00023
23 Miscellaneous Manufacturing	.00011	.00029	.00007	.00177	.00262	.00061	.05623	.00044	.05695	.00292	.00316	.00101	.00007	.01842	.00344
24 Transportation & Warehousing	.00872	.00192	.00371	.03654	.01695	.04272	.00195	.01385	.02324	.01837	.01904	.02383	.00959	.00958	.00182
25 Utilities	.00138	.00082	.00176	.00286	.00134	.00546	.00055	.00172	.00515	.00695	.00300	.01161	.00270	.00321	.00044
26 Retail & Wholesale Trade	.01421	.00499	.00256	.09467	.07396	.03691	.00635	.01148	.05009	.01794	.01647	.02182	.00191	.00925	.00293
27 Finance & Insurance	.00287	.00151	.00125	.00830	.00262	.00528	.00108	.00166	.00495	.00286	.00665	.00647	.00117	.00198	.00072
28 Real Estate & Rentals	.00460	.00879	.01126	.00401	.00187	.00447	.00191	.00175	.01067	.00262	.02520	.00715	.00142	.00278	.00080
29 Services	.00376	.00456	.00295	.05487	.00493	.03058	.00221	.00423	.01791	.00652	.03317	.04540	.00406	.00733	.00280
30 Undistributed	.00361	.00403	.01358	.00620	.00290	.04765	.00200	.01566	.00991	.04182	.02482	.02545	.00669	.01166	.00218
Inputs from Industries	.26254	.06287	.05501	.64505	.35072	.74482	.10849	.17787	.52516	.30663	.36426	.44891	.14828	.18218	.06100
Value Added	.13695	.06172	.07233	.35494	.55416	.25519	.06219	.08523	.38895	.16863	.32589	.29209	.03718	.13802	.04250
Total Local Production	.39949	.12459	.12734	1.00000	.90488	1.00000	.17068	.26310	.91411	.47526	.69015	.74100	.18546	.32020	.10350
Imports	.60051	.87541	.87266	-	.09512	-	.82932	.73690	.08589	.52474	.30985	.25900	.81454	.67980	.89650
Total Supply	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

TABLE XVI. DIRECT REQUIREMENTS TABLE ON THE BASIS OF TOTAL SUPPLY, OMAHA SMSA, 1963 (cont.)

16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
Stone, Clay, & Glass Products	Primary Metals	Fabricated Metal Products	Nonelectric Machinery	Electric Machinery	Transportation Equipment	Instrument & Related Products	Misc. Manufacturing	Transportation & Warehousing	Utilities	Retail, Wholesale Trade	Finance & Insurance	Real Estate & Rentals	Services	Undistributed	
-	-	-	-	-	-	-	.00179	.00003	-	-	-	.01273	.00020	.00030	1 Livestock & Livestock Products
.00020	-	-	.00008	-	-	.00005	.02596	.00067	-	.00161	-	.01982	.00010	.00737	2 Other Agricultural Products
.03018	.03476	.00026	.00045	.00070	.00010	.00004	.00024	.00056	.08452	.00008	.00023	.00225	.00052	.00155	3 Mining
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4 New Construction
.00020	.00186	.00041	.00075	.00089	.00047	.00003	.00026	.02962	.02715	.00814	.00453	.08838	.01242	.01261	5 Maintenance & Repair Construction
.00029	.00011	-	.00003	-	-	.00016	.00187	.00191	-	.00556	-	.00095	.00239	.02326	6 Food & Kindred Products
.00029	.00034	.00061	.00058	.00089	.00090	.00016	.00101	.00052	-	.00096	.00117	.00044	.00451	.00023	7 Apparel & Related Products
.00334	.00047	.00309	.00150	.00221	.00063	.00005	.00133	-	.00015	.00157	-	.00039	.00010	.00002	8 Lumber & Wood Products
.00024	.00003	.00090	.00030	.00737	.00034	.00020	.00015	.00050	-	.00027	-	.00006	.00018	-	9 Furniture & Fixtures
.01986	.00138	.00562	.00240	.01239	.00064	.00140	.00711	.00100	.00084	.00851	.00476	.00029	.00462	.00413	10 Paper & Allied Products
.00087	.00054	.00090	.00045	.00089	.00012	.00003	.00067	.00373	.00025	.00247	.01488	.00085	.07440	.00934	11 Printing & Publishing
.01463	.00495	.00550	.00215	.00821	.00109	.00150	.00372	.00168	.00054	.00256	.00042	.00168	.01390	.00072	12 Chemicals & Allied Products
.00446	.00267	.00292	.00272	.00178	.00047	.00012	.00068	.02936	.01207	.00763	.00355	.00544	.00476	.00059	13 Petroleum & Coal Products
.00819	.00278	.00399	.00715	.02323	.00412	.00081	.02193	.00504	.00049	.00252	.00200	.00083	.00652	.00023	14 Rubber & Plastics
.00005	-	.00015	.00025	.00038	.00004	.00009	.00078	.00006	-	.00021	.00004	.00007	.00026	.00029	15 Leather & Leather Goods
.05265	.00490	.00478	.00442	.01520	.00198	.00090	.00096	.00017	.00118	.00237	-	.00039	.00253	.00019	16 Stone, Clay & Glass Products
.00247	.10546	.17729	.07852	.09015	.01762	.00336	.00789	.00210	.00335	.00024	-	.00046	.00051	.00255	17 Primary Metals
.00610	.01007	.03731	.02698	.04421	.01098	.00205	.00323	.00114	.00779	.00223	-	.00036	.00256	.00157	18 Fabricated Metal Products
.00145	.00775	.02280	.09136	.02689	.00758	.00210	.00684	.00273	.00059	.00255	.00019	.00161	.01526	.00158	19 Nonelectric Machinery
.00237	.00354	.00825	.03073	.15205	.00675	.00415	.00464	.00600	.00084	.00197	.00008	.00073	.01908	.00173	20 Electric Machinery
.00015	.00103	.00738	.01561	.00770	.04798	.00147	.01157	.01068	.00010	.00303	.00038	.00057	.03752	.00196	21 Transportation Equipment
.00034	.00017	.00298	.00208	.01211	.00164	.00428	.00130	.00050	-	.00082	-	.00019	.01127	.00075	22 Instruments & Related Products
.00179	.00071	.00194	.00195	.01042	.00431	.00211	.07008	.00181	.00039	.00164	.00162	.00063	.02436	.00528	23 Miscellaneous Manufacturing
.02640	.01882	.01192	.01112	.01614	.00377	.00110	.00712	.04864	.02065	.01478	.02444	.00936	.03726	.03658	24 Transportation & Warehousing
.01419	.00964	.00420	.00337	.00535	.00100	.00025	.00208	.00401	.16658	.02012	.00472	.00373	.01397	.00470	25 Utilities
.01560	.01467	.02075	.02443	.04097	.00576	.00303	.01218	.02047	.01183	.01661	.00967	.01600	.02705	.00483	26 Retail & Wholesale Trade
.00475	.00306	.00434	.00435	.00399	.00076	.00037	.00197	.01467	.00547	.01659	.20355	.03092	.01406	.00055	27 Finance & Insurance
.00367	.00161	.00365	.00587	.00849	.00076	.00072	.00197	.02395	.00276	.05300	.07777	.01899	.04635	.00117	28 Real Estate & Rentals
.00945	.00480	.00909	.01117	.03050	.00372	.00205	.00729	.03690	.01316	.06296	.04733	.02679	.06619	.01323	29 Services
.01419	.03172	.01123	.01694	.02628	.00464	.00323	.01372	.04883	.15071	.03452	.03849	.01153	.02919	.01321	30 Undistributed
.23837	.26784	.35226	.34771	.54939	.12808	.03593	.22034	.29728	.51141	.27552	.43982	.25644	.47204	.15052	Inputs from Industries
.23736	.14830	.23821	.27760	.45061	.07089	.03240	.11429	.56188	.48859	.72447	.56019	.67154	.52796	.50886	Value Added
.47573	.41614	.59047	.62531	1.00000	.19906	.06833	.33463	.85916	1.00000	1.00000	1.00000	.92798	1.00000	.65938	Total Local Production
.52427	.58386	.40953	.37439	-	.80094	.93167	.66537	.14084	-	-	-	.07202	-	.34062	Imports
1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	Total Supply

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TABLE XVII. TOTAL REQUIREMENTS TABLE, OMAHA SMSA, 1963

	1 Livestock and Livestock Products	2 Other Agricultural Products	3 Mining	4 New Construction	5 Maintenance & Repair Construction	6 Food & Kindred Products	7 Apparel, Related Products	8 Lumber & Wood Products	9 Furniture & Fixtures	10 Paper & Allied Products	11 Printing & Publishing	12 Chemicals & Allied Products	13 Petroleum & Coal Products	14 Rubber & Plastics	15 Leather, Leather Goods
1 Livestock & Livestock Products	1.08432	.01062	.00032	.00115	.00079	.32583	.00030	.00063	.00283	.00169	.00117	.00644	.00023	.00084	.00336
2 Other Agricultural Products	.12298	1.01268	.00047	.00806	.00169	.13231	.00341	.03279	.00669	.00224	.00168	.00470	.00026	.00124	.00115
3 Mining	.00101	.00133	1.00849	.02240	.01444	.00469	.00028	.00106	.00640	.00747	.00249	.03154	.09923	.00420	.00036
4 New Construction	.00000	.00000	.00000	1.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
5 Maintenance & Repair Construction	.00605	.00313	.00170	.00657	1.00329	.01183	.00071	.00206	.00527	.00512	.00853	.00564	.00132	.00275	.00045
6 Food & Kindred Products	.05880	.00113	.00054	.00287	.00229	1.21428	.00038	.00088	.00882	.00578	.00242	.02208	.00063	.00257	.00699
7 Apparel & Related Products	.00038	.00024	.00005	.00084	.00047	.00320	1.02975	.00050	.00220	.00156	.00054	.00230	.00010	.00096	.00058
8 Lumber & Wood Products	.00047	.00065	.00033	.07059	.02538	.00353	.00021	1.08358	.10746	.02846	.00428	.00310	.00016	.00102	.00098
9 Furniture & Fixtures	.00003	.00001	.00001	.01042	.00117	.00014	.00015	.00088	1.02888	.00016	.00037	.00011	.00001	.00011	.00004
10 Paper & Allied Products	.00230	.00063	.00066	.01487	.00885	.03064	.00273	.00448	.02895	1.15558	.15659	.02753	.00161	.01263	.00268
11 Printing & Publishing	.00138	.00075	.00065	.00814	.00259	.00851	.00072	.00224	.00465	.00750	1.10093	.00946	.00077	.00261	.00102
12 Chemicals & Allied Products	.00331	.00699	.00189	.02011	.06351	.01444	.00135	.00513	.02745	.01916	.01759	1.18577	.00767	.06660	.00339
13 Petroleum & Coal Products	.00261	.00500	.00151	.02450	.02454	.01023	.00045	.00373	.00604	.00789	.00389	.03475	1.01384	.00497	.00048
14 Rubber & Plastics	.00103	.00117	.00089	.01147	.00732	.00541	.00421	.00420	.03510	.01244	.00386	.03005	.00069	1.04371	.00564
15 Leather & Leather Goods	.00003	.00002	.00001	.00013	.00006	.00008	.00066	.00005	.00153	.00012	.00012	.00006	.00000	.00043	1.02733
16 Stone, Clay & Glass Products	.00105	.00038	.00104	.08729	.03764	.01330	.00018	.00175	.02583	.00301	.00116	.01102	.00069	.00316	.00059
17 Primary Metals	.00125	.00060	.00213	.09981	.04895	.01007	.00094	.00237	.07533	.00373	.00362	.02545	.00131	.00408	.00048
18 Fabricated Metal Products	.00330	.00080	.00112	.12860	.05701	.03706	.00070	.00374	.06764	.00761	.00393	.02130	.00387	.00552	.00118
19 Nonelectric Machinery	.00077	.00133	.00374	.02671	.00792	.00339	.00068	.00171	.01336	.00389	.00479	.01009	.00076	.00288	.00026
20 Electric Machinery	.00081	.00046	.00097	.03899	.02050	.00365	.00055	.00103	.00663	.00200	.00292	.00380	.00051	.00207	.00039
21 Transportation Equipment	.00115	.00067	.00065	.00619	.00221	.00376	.00103	.00097	.00513	.00130	.00381	.00380	.00050	.00179	.00029
22 Instruments & Related Products	.00018	.00011	.00011	.00573	.00173	.00097	.00025	.00017	.00274	.00059	.00388	.00249	.00013	.00103	.00031
23 Miscellaneous Manufacturing	.00059	.00056	.00020	.00623	.00430	.00277	.06250	.00092	.06534	.00429	.00564	.00402	.00029	.02127	.00409
24 Transportation & Warehousing	.01467	.00337	.00531	.05523	.02687	.06706	.00338	.01800	.03690	.02792	.03094	.03952	.01190	.01500	.00308
25 Utilities	.00330	.00155	.00259	.01256	.00708	.01287	.00126	.00324	.01193	.01166	.00775	.02044	.00401	.00612	.00094
26 Retail & Wholesale Trade	.01998	.00636	.00364	.11141	.08281	.05453	.00802	.01442	.06281	.02483	.02598	.03378	.00334	.01360	.00397
27 Finance & Insurance	.00588	.00279	.00243	.01860	.00791	.01434	.00205	.00347	.01170	.00634	.01344	.01399	.00235	.00449	.00136
28 Real Estate & Rentals	.00898	.01022	.01243	.01920	.01012	.01737	.00311	.00433	.01964	.00707	.03454	.01705	.00371	.00593	.00160
29 Services	.00994	.00660	.00465	.07719	.01863	.05264	.00410	.00799	.03224	.01432	.04690	.06619	.00637	.01440	.00424
30 Undistributed	.01029	.00567	.01539	.02901	.01582	.07321	.00417	.02039	.02751	.05595	.04150	.04473	.01034	.01838	.00369
Total	1.36697	1.08598	1.07407	1.92502	1.50602	2.13225	1.13836	1.22687	1.73712	1.42982	1.53538	1.68134	1.17672	1.26449	1.08104

APPENDIX F

TABLE XVII. TOTAL REQUIREMENTS TABLE, OMAHA SMSA, 1963 (cont.)

16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
Stone, Clay, & Glass Products	Primary Metals	Fabricated Metal Products	Non-electric Machinery	Electric Machinery	Transportation Equipment	Instrument & Related Products	Misc. Manufacturing	Transportation & Warehousing	Utilities	Retail, Wholesale Trade	Finance & Insurance	Real Estate & Rentals	Services	Undistributed	
.00062	.00056	.00048	.00056	.00101	.00015	.00013	.00336	.00178	.00176	.00328	.00217	.01500	.00264	.00825	1 Livestock & Livestock Products
.00107	.00075	.00080	.00097	.00178	.00034	.00024	.02925	.00256	.00238	.00454	.00322	.02281	.00337	.01082	2 Other Agricultural Products
.03542	.04158	.00963	.00605	.00874	.00149	.00043	.00163	.00546	.10538	.00430	.00271	.00510	.00484	.00297	3 Mining
.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	4 New Construction
.00333	.00467	.00337	.00394	.00627	.00127	.00038	.00189	.03625	.03764	.01712	.01858	.09273	.02238	.01529	5 Maintenance & Repair Construction
.00179	.00174	.00127	.00139	.00253	.00038	.00041	.00348	.00467	.00579	.00880	.00243	.00300	.00554	.02906	6 Food & Kindred Products
.00054	.00054	.00094	.00097	.00167	.00106	.00021	.00129	.00094	.00027	.00152	.00201	.00078	.00538	.00045	7 Apparel & Related Products
.00471	.00095	.00421	.00250	.00505	.00097	.00018	.00202	.00122	.00138	.00265	.00089	.00292	.00161	.00070	8 Lumber & Wood Products
.00033	.00012	.00111	.00073	.00912	.00046	.00025	.00025	.00068	.00010	.00038	.00009	.00021	.00053	.00007	9 Furniture & Fixtures
.02590	.00329	.00895	.00568	.02139	.00160	.00199	.01024	.00433	.00389	.01306	.01217	.00278	.02107	.00774	10 Paper & Allied Products
.00317	.00232	.00323	.00308	.00659	.00088	.00040	.00227	.00947	.00479	.01016	.02753	.00501	.09007	.01237	11 Printing & Publishing
.02028	.00794	.00971	.00589	.01747	.00240	.00214	.00742	.00648	.00459	.00661	.00433	.00909	.02553	.00299	12 Chemicals & Allied Products
.00724	.00479	.00538	.00505	.00573	.00111	.00037	.00197	.03343	.01748	.01056	.00766	.00916	.00932	.00284	13 Petroleum & Coal Products
.01044	.00420	.00639	.01057	.03188	.00529	.00122	.02549	.00693	.00174	.00423	.00407	.00229	.01064	.00099	14 Rubber & Plastics
.00008	.00003	.00020	.00034	.00056	.00006	.00010	.00089	.00012	.00007	.00027	.00011	.00010	.00038	.00031	15 Leather & Leather Goods
1.05629	.00644	.00715	.00704	.02130	.00273	.00116	.00170	.00215	.00341	.00381	.00117	.00419	.00495	.00129	16 Stone, Clay & Glass Products
.00605	1.12274	.21146	.10907	.13648	.02536	.00522	.01266	.00686	.00989	.00350	.00218	.00598	.00962	.00503	17 Primary Metals
.00820	.01320	1.04337	.03508	.05931	.01325	.00267	.00515	.00487	.01302	.00489	.00208	.00631	.00797	.00393	18 Fabricated Metal Products
.00297	.01077	.02916	1.10452	.03960	.00985	.00273	.00916	.00514	.00285	.00505	.00242	.00348	.02100	.00266	19 Nonelectric Machinery
.00407	.00596	.01299	.04191	1.18407	.00926	.00521	.00697	.00992	.00354	.00513	.00288	.00392	.02708	.00333	20 Electric Machinery
.00154	.00245	.01002	.02013	.01374	1.05120	.00186	.01408	.01432	.00223	.00691	.00425	.00257	.04480	.00344	21 Transportation Equipment
.00074	.00054	.00368	.00330	.01549	.00201	1.00443	.00175	.00140	.00061	.00192	.00109	.00084	.01323	.00112	22 Instruments & Related Products
.00293	.00131	.00335	.00392	.01638	.00541	.00249	1.07649	.00372	.00052	.00413	.00443	.00220	.03010	.00491	23 Miscellaneous Manufacturing
.03393	.02645	.02154	.02023	.03222	.00627	.00203	.01146	1.05919	.03756	.02462	.04088	.01691	.05198	.04286	24 Transportation & Warehousing
.01998	.01463	.00968	.00810	.01361	.00227	.00070	.00416	.00788	1.20295	.02742	.01033	.00695	.02171	.00709	25 Utilities
.02064	.01993	.02899	.03420	.05948	.00829	.00393	.01625	.02895	.02152	1.02433	.02017	.02709	.03993	.00974	26 Retail & Wholesale Trade
.00865	.00616	.00871	.00908	.01125	.00187	.00083	.00413	.02288	.01097	.02627	1.26278	.04216	.02516	.00280	27 Finance & Insurance
.00834	.00550	.00856	.01171	.01912	.00222	.00136	.00497	.03237	.00941	.06243	.10672	1.02720	.06015	.00470	28 Real Estate & Rentals
.01665	.01075	.01701	.02077	.05000	.00630	.00316	.01219	.04871	.02505	.07591	.07280	.03630	1.08630	.01917	29 Services
.02461	.04275	.02534	.02963	.04821	.00796	.00442	.01959	.05947	.19071	.04749	.05894	.01935	.04772	1.02030	30 Undistributed
1.33063	1.36319	1.49680	1.50654	1.84019	1.17187	1.05078	1.29230	1.42231	1.72164	1.41143	1.68124	1.37657	1.69214	1.22738	Total

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