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The 1975 West Virginia Input-Output Study Modeling A Regional Economy

By

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FORWARD

by

William H. Miernyk

This volume, in spite of its modest size, is the result of a major research effort. Three years of work went into the tables which account for most of its bulk. Although the project was under my general direction, the tables were constructed by the authors of this report, with very substantial assistance from the collaborators whose names appear on the title page. Many others contributed in a number of ways, but the authors and their collaborators deserve any encomiums which this volume might receive.

I am not attempting to dodge responsibility for any shortcomings in the 1975 West Virginia input-output study. Some of the basic decisions were made by me—including the decision to restrict this report to the essentials; to the tables and their documentation. But those who did the actual work deserve credit for putting together a transactions table under less than optimal conditions.

This is the second set of input-output tables for West Virginia. Both are survey-based. Data for the first tables were obtained from personal interviews with representatives of a sample of West Virginia establishments. The first tables were part of a larger, and relatively well-financed, study. The present study was conducted under tight budget constraints, and the data were obtained by a mail survey. It will come as no surprise that the mail survey was less productive than the 1965 interviews.

As the authors point out, however, enough useable returns were received to permit them to construct a “first round” transactions table. They had to rely far more heavily on secondary sources to fill gaps than was the case when the 1965 tables were constructed. As I have pointed out elsewhere (Miernyk, 1976), constructing a transactions table is a lot like putting, together a large and complex puzzle. In my judgment, the authors of this report did an outstanding job of finding the missing pieces of the puzzle.

One thing which the mail survey demonstrated clearly is that this is a feasible way to collect input-output data. Establishments don't maintain their records on an input-output basis. But if they are willing to do so, the purchasing, sales, and accounting departments of large establishments can make the necessary breakdowns. Some of the respondents to the mail survey were enthusiastic about the study, and they devoted the time and energy required to develop careful estimates of purchases and sales by origin and destination. In some cases there were a number of telephone contacts between respondents and staff members to clear up questions that were not answered completely by the instructions that accompanied the mail questionnaire.

It is more difficult for the manager of a small establishment to provide the detailed data that can be obtained from cooperating large business organizations. The respondent is the manager (often the owner-manager) who is always pressed for time. In many cases small establishments rely on outside accountants to handle much of their record keeping. The respondent has to turn to his accountant for help in completing the questionnaire, and this involves a charge for the extra service. This makes it difficult to elicit useable responses from filling stations, independent drug stores, restaurants, and a wide range of similar small establishments.

Fortunately, there appears to be relatively little variation among small establishments, in a given sector, in terms of the origin of purchases and destination of sales. Many serve essentially local markets, and most deal with a limited number of wholesalers. The basic problem is that of estimating the markup in these sectors, and that can be done on the basis of a limited number of responses. Finally, large establishments are able to provide some data on purchases from small establishments in the state, even if small establishments are not able to accurately trace the destination of their sales. I'm not suggesting that there is no problem in working out transactions between sectors containing a large number of small establishments and those dominated by a relatively small number of large producers. There are indeed problems, particularly in the reconciliation of the purchases and sales matrices, but they can be dealt with by the kind of patient, systematic work described in this report.

Although this study has demonstrated that regional input-output tables can be constructed by a carefully-conducted mail survey, an important question remains: How to increase the response rate? One possibility, I think, would be to conduct a survey at, say, five-year intervals under the aegis of state government. We feel that support from former Governor Arch Moore, who was then in office, and Mr. John Hurd, Executive

Secretary of the West Virginia Chamber of Commerce, did much to stimulate interest in and cooperation with the 1975 study. But I feel that if the study had been conducted by a state agency the returns might have been even better. Perhaps the most important way to encourage participation in studies of this kind, however, is to demonstrate their usefulness to establishments in the private sector since they must provide the bulk of data on inter-industry transactions.

The 1965 tables were used by at least two agencies of state government. They were also used by one of the state's larger trade associations, and several firms indicated that they found the tables useful. Other researchers in West Virginia made use of the 1965 model, and discussed their work with members of the Institute staff. We hope there were many other users that we don't know about. The input-output model is not a general purpose model, and it doesn't give push button answers to complex economic problems. But it is a versatile analytical tool. Used properly it can shed an amazing amount of light on the ways in which changes in one part of the economy affect other parts.

Ideally, in my view, state input-output tables should be constructed by the U. S. Department of Commerce. The Interindustry Economics Division of the Bureau of Economic Analysis has the responsibility for constructing and publishing national input output tables. If input-output data were collected for each state, 50 separate tables could be published for use at the state level. These could be aggregated to obtain internally-consistent national tables. The state tables could also be combined to form regional tables, provided the regions followed state boundaries. Use able and reliable interindustry-interregional models could be constructed from the basic state data.

Who needs more detailed regional input-output data than that now available? One of the major users of such detailed data would be government itself. Since the advent of environmental legislation, there has been a growing interest in impact studies. And as the omnibus Energy Act of 1978 begins to take effect, there will be a need for other kinds of impact studies. The best tool for analyzing the regional impacts of environmental and energy legislation is still the input-output model.

Although the most economical-and clearly the most efficient-way to construct state input-output tables would be to have a single federal agency do the job, one would have to be an incurable optimist to expect that this is going to happen in the near future. If state input-output tables serve a useful purpose, however, as I believe they do, there are unlimited opportunities to experiment with new methods of obtaining more and better data on interindustry transactions on a limited budget. I believe this report makes a contribution to that continuing effort.

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THE 1975 WEST VIRGINIA INPUT-OUTPUT STUDY

I

It has been ten years since the original 1965 West Virginia input-output tables were constructed.¹ The transactions table and the tables derived from it given here describe the structure of the West Virginia economy in 1975.

Input-output economics – a branch of econometrics – provides a simple, but highly-detailed empirical model which can be used for making economic impact studies and for forecasting. It can also be used to simulate the economic impacts of alternative economic policies, and thus can be a powerful tool of policy analysis. The I/O model is a flexible, analytical device. It can be used in the study of a variety of issues including those dealing with energy, the environment, technological change, and regional economic development.

The transactions table gives a complete, detailed description of the structure of the state economy. The table of direct coefficients shows technical relationships among the processing sectors, as well as their dependence on imports whether from other states or outside the U. S. This table also shows the relative importance of “primary” inputs which consist basically of payments to households and government. The final table – direct and indirect requirements (per dollar of delivery to final demand) – can be used for analytical purposes, such as making impact studies. The Type I and Type II income multipliers, discussed later in this report, were calculated from the data in Tables 2 and 3.

This study is less detailed than the 1965 study which included tables of capital and labor coefficients, as well as a detailed discussion of comparative static and dynamic models. Much of the 1965 study also consisted of applications of the two basic models to specific problems. This is a far less ambitious study designed only to update the basic tables. The 1975 sectoral classifications and definitions have been retained in the 1975 tables. The two sets of tables can thus be used for analyzing changes in the West Virginia economy over the past decade.

As in the 1965 study, this one is based on survey-generated data. Unlike the 1965 study, however, we were forced to rely on a mailed questionnaire. The mail questionnaire did not yield the quantity or quality of data collected by field interviewers in 1965, particularly for a number of service sectors. However, data obtained from the state’s dominant industries coal, chemicals, electric utilities, and primary metals – were sufficiently detailed and reliable to allow us to go ahead with the transactions table. A much larger effort was made this time than in 1965 to use secondary data to supplement the mail returns. The 1975 tables could not have been completed without the active support of the individuals and agencies mentioned in the acknowledgements section of this report.

¹The 1965 tables, with projected tables for 1975, are given in William H. Miernyk, et al., *Simulating Regional Economic Development* (Lexington, Mass.: D. C. Heath and Company, 1970).

II

The interindustry framework of the West Virginia economy in 1975 is given in the transactions table (Table 1). This table shows the flow of sales and purchases among sectors. Each row gives the distribution of output from the sector at the left to other sectors and to final users. The columns show the value of each industry's purchases of inputs—raw materials, semi-finished goods, and services—and its final payments. Each column shows at a glance how much the sector at the top depends on other West Virginia sectors for its inputs, and also how much it pays to households and the three levels of government. Finally, it shows the relative importance of imports, from whatever source.

All state economies are “open” compared with the national economy. The import row and the export column of Table 1 show this. Not only does West Virginia import much of what it needs to produce goods and services, but several sectors are major exporters to national and international markets. These internal and external linkages have a great deal to do with the size of the income multipliers to be discussed in a later section.

It is relatively easy to derive West Virginia's gross product from the transactions flow.² In each processing sector, total demand must equal total final payments, although the individual row and column sums of each need not balance.

Input-output accounting is similar to a system of double-entry bookkeeping. From the income side, gross product can be derived by summing the producers' purchases of primary inputs. Alternatively, from the product side, one can sum the sales of goods and services to final users to get the same result. Interindustry flows are not included in these calculations because double counting is avoided when estimating gross product. We double count deliberately, however, to obtain total gross outlays (or output) in the final row and final column of the transactions table.

An interesting characteristic of the transactions table is the wide variation in sales patterns among sectors. Such industries as glass (19), primary metal products (21) and transportation equipment (25), show more than nine-tenths of their sales going to final demand. Conversely, petroleum and natural gas (4), logging and sawmills (14), and all other services (41), exhibit a high degree of interdependence with other processing sectors. Each row can be viewed as a marketing profile of the sector at the left. Each column is a recipe of the combined establishments production requirements. In the language of economics, each column is an aggregate or sector production function.

It is important to remember that the input and output flows are expressed in producers' prices. Also, the demand characteristics and product-mixes they reveal are unique to 1975. The technical relationships among industries change slowly, however. In the national economy they may remain almost constant for as long as a three-year period.³ Regional economics are more volatile. A large new plant can significantly change the technical relationships and trade patterns for an entire sector. Or a major change in the price of one input – coal or oil, for example – can affect these relationships. In the “open” regional model, changes in trade relationships can influence the entire column of input (direct) coefficients. These caveats must be kept in mind by anyone using the 1975 tables to analyze the West Virginia economy in future years.

1. Sectoring the West Virginia Economy

The sectoring scheme for the 1975 West Virginia tables is identical with that of the 1965 tables. It is based on the Standard Industrial Classification.⁴ The identity of sectoral makeup permits sector-by-sector comparisons between the original 1965 coefficients, the projected 1975 coefficients, and those derived from this study.⁵ While the relative importance of the various sectors changed between 1965 and 1975, there were no basic structural changes which would have required re-definition.

²For a general discussion of the relationship between gross product and final demand, see U. S. Department of Commerce, **Survey of Current Business**, 57 (February 1974): 24-26.

³See Anne P. Carter, **Structural Change in the American Economy** (Cambridge, Mass.: Harvard University Press, 1970).

⁴Miernyk, **et al.**, **op. cit.**, pp. 2-3.

⁵Comparison with national sectors can be made by reference to the detailed industrial classification of the 1967 tables. See **Survey of Current Business** (February 1974): 34-37.

Changes in the values added and final demand portions of the table were unavoidable. Value added and final demand are more highly aggregated in the 1975 transactions table than they were in the 1965 table. There are no separate value added sectors for local, state, or federal governments; nor is there a gross savings row. The mail survey did not provide sufficient reliable data for the breakdowns given in the 1965 table. Rather than risk reporting dubious information, a “catch-all” category – all other final payments – was used. For similar reasons, exports and net inventory change were combined in the final demand segment.

2. The Sample Survey

A total of 11,613 business establishments employing four or more workers comprised the population for the 1975 input-output study. Selected firms operating these establishments were asked, by letter, to participate in the study. A total of 391 agreed to participate. They were then sent the input-output questionnaire with detailed instructions.⁶ Unfortunately, only 169 useable returns were received from cooperating respondents. And these constitute the rather thin sample on which interindustry transactions in the 1975 tables are based.⁷ The sectors covered by the respondents account for about 50 percent of West Virginia’s total output. Tests were conducted on the data obtained from the 1975 mail survey to determine whether the responding establishments are representative of the total population. We also compared the characteristics of the respondents and the non-respondents who had originally agreed to participate.

The following data were collected for both the respondents and non-respondents in selected sectors:

- (1) primary output, as defined for the West Virginia input-output sectors,
- (2) location of the establishment, and
- (3) the size of the establishment, in terms of employment.

Because of a lack of secondary data at the establishment level, only the non-respondents in the two coal mining and in 19 manufacturing sectors could be included in the tests. Thus the sample tests are not as comprehensive as those made in the 1965 study.⁸

A stratified random sample of 102 non-respondent establishments was drawn from the coal mining and manufacturing sectors for comparison with the 169 respondent establishments. Differences between the means of the two samples in each sector were analyzed using t and F statistics. A discriminant analysis was later used in an effort to identify some of the factors that might have accounted for an establishment’s decision to respond or not to respond to the mail survey. The results were disappointing because of data deficiencies.

The 169 respondents accounted for 35.9 percent of total employment in the sectors they represented. The largest employment coverage was in primary metals (sector 21) where sample establishments accounted for 96 percent of that sector’s total employment. At the other end, there was no response from bakeries (sector 11). The relative coverage of other sectors is given in Table 1. Respondents accounted for a smaller proportion (10.5 percent) of the total population of establishments. Primary metals again had the highest rate at 36.8 percent. Dairies had the lowest response rate, excluding bakeries which did not participate at all. The response rates for all sectors included in the test are given in [Table 2](#).

⁶As in the 1965 study, the final questionnaire and instructions were the result of a pilot study in which several local firms cooperated. The painstaking work of devising a questionnaire and instructions that would elicit as much detailed data as possible from each respondent was done by Dr. Frank Giarratani, now on the faculty of the University of Pittsburgh. The questionnaire and instructions are given in Appendix A.

⁷The original request for cooperation was accompanied by letters from former Governor Arch Moore, and from Mr. John Hurd, Executive Secretary of the West Virginia Chamber of Commerce. We feel that these letters contributed to the initial response from firms willing to cooperate. A telephone survey of a small sample of non-respondents after the cutoff date for returns indicated that most of them could have completed the questionnaires. They were either unable or unwilling to assign staff to this task, however. Only a few firms replied that their records were kept in such a way that they could not have completed the questionnaire.

⁸Cf. **Simulating Regional Economic Development**. pp. 10-15.

TABLE 1

	Sector	Total	Employment Respondents	% of Total
2.	Coal mining, underground	51,856	4,510	8.2
3.	Coal mining, strip			
9.	Food & kindred products, n.e.c.	1,631	662	40.6
10.	Food & kindred products, dairies	849	4	0.5
11.	Food & kindred products, bakeries	1,898	0	0.0
12.	Food & kindred products, beverages	1,152	120	10.4
13.	Apparel & accessories	4,685	1,007	21.5
14.	Logging & sawmills	3,466	191	5.5
15.	Furniture & other wood fabrication	2,155	807	37.4
16.	Printing & publishing	4,284	1,276	29.8
17.	Chemicals	19,182	9,925	51.7
18.	Petroleum	849	279	32.9
19.	Glass	11,287	8,123	72.0
20.	Stone and clay products	6,217	614	9.9
21.	Primary metal products	23,705	22,794	96.2
22.	Fabricated metal products	8,549	3,175	31.3
23.	Machinery, except electrical	6,238	933	15.0
24.	Electrical machinery & apparatus	5,211	1,124	21.6
25.	Transportation equipment	2,924	1,032	35.3
26.	Instruments & related products	853	425	49.8
27.	All other manufacturing	9,514	2,790	29.3
	TOTAL	166,505	59,791	35.9

TABLE 2

	Sector	Total	Employment Respondents	% of Total
2.	Coal mining, underground	515	15	2.9
3.	Coal mining, strip			
9.	Food & kindred products n.e.c.	34	5	14.7
10.	Food & kindred products, dairies	13	1	8.0
11.	Food & kindred products, bakeries	17	0	0.0
12.	Food & kindred products, beverages	35	3	8.6
13.	Apparel & accessories	46	4	8.7
14.	Logging & sawmills	164	8	4.9
15.	Furniture & other wood fabrication	82	11	13.4
16.	Printing & publishing	105	17	16.2
17.	Chemicals	54	16	29.6
18.	Petroleum	16	5	31.3
19.	Glass	40	15	37.5
20.	Stone and clay products	88	11	12.5
21.	Primary metal products	38	14	36.8
22.	Fabricated metal products	85	13	15.3
23.	Machinery, except electrical	131	7	5.3
24.	Electrical machinery & apparatus	23	8	34.8
25.	Transportation equipment	21	3	14.3
26.	Instruments & related products	13	2	15.4
27.	All other manufacturing	97	11	11.3
	TOTAL	1,617	169	10.5

Employment was the only variable available for non-respondents and respondents. Thus we tested differences between employment means in respondent and non-respondent establishments by employment. The results are given in Table 3. In terms of the t statistic, the differences are non-significant at the .01 level for all 19 sectors. Two of the food and kindred products sectors – dairies and bakeries (sectors 10 and 11) – were not included because of an insufficient number of degrees of freedom due to the small number of respondents. Differences in the F -statistics are not significant at the .01 level for all sectors except 23 (non-electrical machinery). Again, sectors 10 and 11 were excluded due to an insufficient number of degrees of freedom for testing purposes. In spite of the small number of useful responses, the mail survey provided an acceptable base of the sales and purchases data needed to construct a preliminary transactions table. The results of the t - and F -tests indicate that the responding establishments in the mail survey are representative of all establishments in the coal mining and in most of the manufacturing sectors.

TABLE 3

	Sector	t -Statistics	F -Statistics
2.	Coal mining, underground	.3092*	3.46*
3.	Coal mining, strip	.4688 ^o	1.32 ^o
9.	Food & kindred products n.e.c.	.9487*	715.76*
10.	Food & kindred products, dairies	—	—
11.	Food & kindred products, bakeries	—	—
12.	Food & kindred products, beverages	.7427*	254.63*
13.	Apparel & accessories	.8447*	1.11*
14.	Logging & sawmills	.6581*	4.06*
15.	Furniture & other wood fabrication	.0565*	4.93*
16.	Printing & publishing	.0383*	1.07*
17.	Chemicals	1.3365*	3.01*
18.	Petroleum	.5704*	33.89*
19.	Glass	1.8887*	3.52*
20.	Stone and clay products	.5635*	2.27*
21.	Primary metal products	.1532*	1.42*
22.	Fabricated metal products	.7470*	2.24*
23.	Machinery, except electrical	.8934*	217.85*
24.	Electrical machinery & apparatus	.4509*	1.15*
25.	Transportation equipment	.3418*	1.75
26.	Instruments & related products	.0270*	5.18*
27.	All other manufacturing	1.1365*	1.20*

*Significant at the .01 level

III

The discriminant analysis made as part of this study was not successful, but the approach will be described briefly since under other conditions it could be helpful.⁹ It provides discriminant function coefficients for each factor used in the analysis. Each coefficient represents the relative contribution of that factor to the discriminant function. A combination of factors may then be related to the respondents and non-respondents for future surveys thus reducing the non-response rate and the cost of the survey.

Three factors were used for the discriminant analysis:

- (1) sector classification,
- (2) location of the establishment, and
- (3) employment in the establishment.

Once again, the lack of secondary data for non-respondents limited the factors that could be included in the analysis.

The 21 coal mining and/manufacturing sectors were aggregated into eight sectors as shown in Table 4. Counties were used as the location factor, and were classified as urban or rural. An urban county was defined as one with a population greater than 100 persons per square mile. The average number of employees in each establishment in 1975 was used as the employment factor.

TABLE 4

Discriminant Analysis Sector Classification	West Virginia I/O Sector Classification
S ₁	2,3
S ₂	9, 10, 11, 12
S ₃	14, 15
S ₄	17
S ₅	19, 20
S ₆	21, 22
S ₇	23, 24
S ₈	13, 16, 18, 25, 26, 27

Various combinations of factors were tested. The most satisfactory results were obtained when all of the factors were included. This analysis yields several measures of the success with which the discriminating variables can actually separate the respondent and non-respondent groups when combined in the discriminant function. The first of these is Wilk's lambda. This statistic is an inverse measure of the discriminating power remaining in the original variables that has not been removed by the discriminant function. The larger the lambda, the less useful the information remaining. Lambda can be transformed into a chi-squared statistic for an easy test of significance.

In the present analysis, Wilk's lambda was .9805 after the discriminant function was derived. This corresponds to a chi-square of 5.205 with a probability of .93. A lambda of this size or smaller has a .93 probability of occurring due to sampling chance. Clearly, there is an insignificant amount of information remaining in the discriminate variables, far too little to produce a high degree of separation between the respondent and non-respondent groups.

The second measure used to judge the usefulness of the discriminant function was its associated canonical correlation. This is a measure of the association between the discriminant function and the grouping variable. The larger the correlation, the better the function's ability to discriminate between the groups. Our analysis produced a canonical correlation of only .14. This low coefficient indicates the weak association between the discriminant function and the grouping variable. The discriminant function is not able to accurately distinguish between respondents and nonrespondents.

⁹For a concise discussion of the elements of discriminant analysis see J. Johnston, **Econometric Methods**, 2nd Edition (New York: McGraw-Hill, 1972): 334-340. A more detailed presentation is given in Peter A. Lachenbruch, **Discriminant Analysis** (New York: Hafner Press, 1975).

It is important also to look at the predictive value of the discriminant function when it is used for classification purposes. Fifty-one percent of the non-respondents were correctly classified by this function, while 59.2 percent of the respondents were correctly classified. The results are not much different from those one would obtain from flipping a coin. The predictive level is too low to warrant the use of this technique when not more data than we had are available.

The inability of the discriminant function to separate the respondent and canonical correlation suggests the need for further examination of the discriminant function coefficients. The coefficients represent the relative contribution of each factor to the function; the larger the coefficient the greater that factor's importance. The following coefficients were derived (in decreasing order of importance):

S ₈	2.41720
S ₅	2.04543
S ₃	1.99721
S ₆	1.86757
S ₄	1.48709
S ₇	1.28483
S ₁	1.15964
S ₂	0.84718
Employment	0.14777
Location	-0.13046

The next step was to limit the analysis to the most important factors (those whose coefficients were greater than 1). Several combinations of the factors produced chi-square statistics, canonical correlations, and predictive values that were less significant than the original results. Discriminant analysis proved to be a poor tool for selecting respondents in future surveys, assuming use of the same sets of data. The failure of discriminant analysis in this case is no doubt due to data deficiencies. Response or non-response must depend upon additional factors that could not be included in this analysis because of the lack of information for non-respondents.

IV

It is unrealistic to assume that even the best organized firms can provide more than reasonable estimates of interindustry flows. Few firms maintain detailed records of the origins of purchases and the destination of sales. They could, but there is no legal or other compelling reason for them to do so. Data collected in input-output surveys thus reflects to some extent the judgments of staff members of responding establishments. At various stages in the building of a transactions table the input-output analyst must also resort to judgment. Total objectivity is unattainable.¹⁰

One of the more important steps involved in putting together a transactions table is the reconciliation of purchases and sales data. The general procedure is to construct one table based on sales data and another based on purchases. Sampling variation alone will guarantee that the two will not be the same. Thus it is necessary to reconcile all differences so that each cell contains the best possible estimate of purchases and sales. This process inevitably involves judgment, but judgment does not preclude following an orderly procedure. Indeed, as Jensen and McGuarr have pointed out, an orderly procedure is essential.¹¹ In their view the input-output analyst must (1) use only methods that imply confidence in the estimates, (2) use techniques compatible with the theoretical underpinnings of the input-output model, and (3) exercise judgment in an unequivocal and logical manner.

Reconciliation of the 1965 purchase and sales tables was based in large measure on “reliability quotients” calculated for each pair of cells.¹² These quotients could not be replicated in the present study, however, since they were based in part on interviewers’ judgments of the relative reliability of purchase and sales data collected in each interview. Thus a different procedure had to be followed in the present study. The method we used was developed by Jensen and McGuarr in the construction of an Australian input-output table.¹³ It utilizes reliability weights assigned to each pair of estimates in the same cell of the two tables.

Reliability weights embody the level of confidence a researcher establishes for each of the estimates. If the analyst feels that both estimates are equally reliable for example, each entry is assigned a weight of .50. In other cases weights of .75 and .25 might be used; or if one estimate is thought to be highly dependable, .90 and .10 might be employed. The weights must sum to one, of course. After this step, weighted averages of the flows are derived from the following: $w^{ij} = cw^{ij}P^{ij} + rw^{ij}s^{ij}$ where cw^{ij} and rw^{ij} are the column and row weights respectively. The column weights represent purchases; the row weights sales.

The step described in the last paragraph produced a single interindustry flow matrix from the independently-derived purchase and sales matrices. This approach works well if the paired estimates in the original purchase and sales tables are not too far apart, and if the column sums and row sums in the original tables differ by no more than, say 15 percent. Larger differences would require almost completely subjective reconciliation, or the equally dubious approach of simply “splitting the difference.” The 1975 West Virginia tables were within these limits.

The initial transactions generated by using Jensen-McGuarr reliability quotients are not those given in [Table I](#). As in the 1965 study, an additional step remained. This was to check the original estimates of interindustry flows with industry experts. Because of the interdependence of the cells of an input-output table, changes in a few cells will affect many others. Thus if industry experts are skeptical about many entries the entire table might have to be reconstructed. In the 1975 table, however, only a few major adjustments had to be made in the utilities sectors. Other changes suggested by reviewers were minor in nature.

¹⁰On this point see William H. Miemyk, “Comments on Recent Developments in Regional Input-Output Analysis,” **International Regional Science Review**, Vol. 1, No. 2 (Fall 1976): 47-55.

¹¹R. C. Jensen and D. McGuarr, “Reconciliation of Purchases and Sales Estimates in an Input-Output Table,” **Urban Studies**, 13 (February 1976): 61-62.

¹²Simulating Regional Economic Development, p. 18.

¹³Jensen and McGuarr, **op. cit.**

V

Most of the time and effort involved in the construction of a survey-based input-output system is devoted to the estimation of interindustry flows. But this effort would be wasted if accurate control totals were not available. These are needed to “blow up” the sample transactions, as well as to estimate final demand and total gross output by sector. The primary source of control totals for the 1975 West Virginia transactions table was the Research and Statistics Division of the West Virginia State Tax Department. West Virginia collects a Business and Occupations Tax from every establishment in the state based on sales volume. Since these are recorded by Standard Industrial Classification, they could be aggregated to the West Virginia input-output sectors. Special runs were made by the Tax Department to generate a first round set of control totals.

The Business and Occupations Tax approximates a transactions tax, with the rate varying by industry. The published rate is not always the rate used, however, since there are circumstances under which the actual payment—and hence the recorded collections can be negotiated. There were a number of cases, therefore, where the State Tax Department controls were supplemented or replaced by estimates from other sources.¹⁴ The last step, as in the case of the interindustry flow estimates, was to check with industry experts and, where necessary, to make final adjustments.

The 1975 table follows the convention of recording all transactions in producers’ prices. The objective is to achieve as much sectoral homogeneity as possible. This required a number of difficult adjustments and imputations. Transportation costs, for example, had to be shifted from such sectors as coal and primary metals to one of the three transportation sectors. Also, the trade and service sectors were adjusted to record margins rather than gross flows.

Failure to margin sectors whose function is to provide time and place utility would grossly overstate the total output of those sectors. A retail establishment, for example, might have annual sales running into the millions. But this establishment’s contribution to state output is limited to its aggregate markup. An interesting case is provided by sector 47 – gas companies and systems. In addition to producing and selling natural gas, both within and outside West Virginia, this sector provides off-season storage of natural gas destined for transshipment. Gas is piped into the state for storage in worked-out coal mines during the summer months. In the winter this gas is pumped to final consumers. The total value represented by the gas held in storage would be a very large number. But the amount entered in the transactions table represents the smaller storage and transshipment charges only.

¹⁴The complete list of sources used to adjust interindustry flows and control totals is given in the last section of the bibliography.

VI

The input-output system can be used for a variety of purposes. One of the more important is to show the total direct and indirect effects after equilibrium is reached following a change in one or more components of final demand. The results of the 1965 study which were used most often and most widely are the income and employment multipliers.¹⁵

We were not able to update the employment multipliers within the budget constraints of this study. New employment multipliers would have required new tables of labor coefficients, or sectoral employment-production functions. We were able, however, to calculate new income multipliers which we hope will be as useful as those derived from the 1965 study. We also calculated output multipliers, something which was not done in 1965.

The income and output multipliers are given in Table 5. The Type I multipliers measure the direct and indirect changes in income due to an increase of one dollar's worth of sales to final demand by each of the processing sectors. The Type II multipliers estimate the direct, indirect, and *induced* income effects of an additional dollar's worth of sales by each sector to final consumers.¹⁶ Output multipliers provide an estimate of the direct and indirect requirements in output for all sectors due to a one dollar increase in the final demand of one processing sector.

Ordinarily, Type II multipliers are calculated using two sets of matrices—one with households as part of the value – added portion of the table, and the second with households included as a processing sector. There is a short-cut method for computing Type II multipliers which gives the same results, provided the consumption function is linear and homogeneous.¹⁷ This assumption is realized when households are treated as another productive activity. The shortcut method was used to calculate the multipliers in Table 5. The multipliers were also calculated by the conventional method of treating households as a processing sector. They are the same as those in Table 5.

TABLE 5
OUTPUT AND INCOME MULTIPLIERS,
WEST VIRGINIA, 1975

	Output	Type I	Type II
1. Agriculture	1.44	1.65	2.07
2. Coal mines (underground)	1.16	1.14	1.43
3. Coal mines (strip and auger)	1.86	2.16	2.71
4. Petroleum and natural gas	1.40	1.38	1.73
5. All other mining	1.30	1.38	1.73
6. Building contractors	1.72	1.73	2.17
7. Non-building contractors	1.51	1.42	1.78
8. Special contractors	1.34	1.19	1.50
9. Food products (n.e.c.)	1.50	2.21	2.78
10. Food products (dairies)	1.52	1.52	1.19
11. Food products (bakeries)	1.24	1.42	1.79

¹⁵Simulating **Regional Economic Development**, pp. 193-198.

¹⁶Illustrative calculations of both types are given in William H. Miernyk, **The Elements of Input-Output Analysis** (New York: Random House, 1965): 47.

¹⁷The method and its justification are described in I. E. Bradely and J. P. Gander, "Input-Output Multipliers: Some Theoretical Comments," **Journal of Regional Science**, 9 (1969): 309-317.

	Output	Type I	Type II
12. Food products (beverages)	1.19	1.28	1.61
13. Apparel and accessories	1.13	1.09	1.37
14. Logging and sawmills	1.46	1.38	1.73
15. Furniture and wood fabrication	1.30	1.69	2.11
16. Printing and publishing	1.52	1.59	1.99
17. Chemicals	1.31	1.40	1.75
18. Petroleum products	1.50	2.08	2.60
19. Glass	1.25	1.18	1.48
20. Stone and clay products	1.37	1.36	1.70
21. Primary metals	1.10	1.11	1.40
22. Fabricated metals	1.21	1.24	1.55
23. Machinery (except electric)	1.17	1.11	1.39
24. Electric machinery	1.32	1.42	1.78
25. Transportation equipment	1.18	1.19	1.50
26. Instrument and products	1.04	1.11	1.39
27. All other manufacturing	1.19	1.35	1.69
28. Restaurants and bars	1.34	1.37	1.72
29. Wholesale trade	1.18	1.09	1.36
30. Retail food stores	1.31	1.31	1.64
31. Auto service stations	1.18	1.16	1.45
32. All other retail	1.28	1.17	1.46
33. Banking	1.17	1.19	1.49
34. Other finance	1.27	1.42	1.78
35. Insurance agents	1.52	1.31	1.64
36. Real estate	1.45	1.67	2.10
37. All other FIRE	1.57	2.77	3.47
38. Hotels and lodgings	1.52	1.43	1.79
39. Medical and legal services	1.19	1.15	1.44
40. Educational services	1.22	1.17	1.47
41. All other services	1.23	1.20	1.51
42. Railroads	1.11	1.11	1.39
43. Trucking and warehousing	1.17	1.23	1.55
44. All other transportation	1.25	1.29	1.62
45. Communications	1.14	1.10	1.38
46. Electrical systems	1.43	1.60	2.01

	Output	Type I	Type II
47. Gas systems	1.18	1.39	1.75
48. Water and sanitary services	1.43	1.55	1.94

Income and output multipliers are useful analytical tools, but they must be used cautiously – particularly in a development context. Income multipliers are simply ratios. A large multiplier shows that the indirect (or indirect plus induced) effect is large relative to the direct effect. But the direct effect in a given sector might be small because that sector purchases most of its inputs out of state. Such an activity would not be a particularly good development target. The basic usefulness of output multipliers is as indicators of the structural interdependence among sectors. When income or output multipliers are used in any context, they should be related to the size and the structure of the sector or sectors being analyzed. ¹⁸

¹⁸For a graphical interpretation of the components of income and employment multipliers see **Simulating Regional Economic Development**, pp. 196-197. For a discussion on output multipliers see Harry W. Richardson, **Input-Output and Regional Economics** (New York: John Wiley & Sons, 1972): 32-42.

TABLE I
INTERINDUSTRY FLOWS OF GOODS AND SERVICES, WEST VIRGINIA, 1975
(THOUSANDS OF DOLLARS)

	1	2	3	4	5	6	7	8
	AGRICUL- TURE	COAL MIN UNDER	COAL MIN STRIP&AU	PETROL & NAT GAS	ALL OTHR MINING	GEN CONT BLDG	GEN CONT NON-BLDG	SP TRADE CONTR'S
1. AGRICULTURE	17881	0	0	0	416	0	0	0
2. COAL MINING (UNDERGROUND)	516	21601	88275	0	0	303	0	218
3. COAL MINING (STRIP + AUGER)	0	65032	115522	0	10	4	0	7
4. PETROLEUM + NATURAL GAS	0	1430	0	5282	0	2	0	0
5. ALL OTHER MINING	3125	743	61	62	4240	2339	6602	1364
6. GENERAL CONTRACTORS (BUILDING)	635	114	0	0	0	8088	67	0
7. GENERAL CONTRACTORS (NON-BUILDING)	0	3805	0	11	0	5687	14340	727
8. SPECIAL TRADES CONTRACTORS	1146	6580	215	346	4842	54699	12268	7335
9. FOOD + KINDRED PROD-MEATS+N.E.C.	1391	0	0	0	0	0	0	0
10. FOOD + KINDRED PRODUCTS (DAIRIES)	0	0	0	0	0	0	0	0
11. FOOD + KINDRED PRODUCTS (BAKERIES)	0	0	0	0	0	0	0	0
12. FOOD + KINDRED PRODUCTS (BEVERAGES)	0	0	0	0	0	0	0	0
13. APPAREL + ACCESSORIES	0	0	0	0	0	0	0	0
14. LOGGING + SAWMILLS	780	28610	491	0	654	948	643	4508
15. FURNITURE + OTHER WOOD FABRICATION	344	600	17	15	141	1136	359	2
16. PRINTING + PUBLISHING	10	2174	17	356	374	440	279	86
17. CHEMICALS	672	0	0	0	1140	0	331	450
18. PETROLEUM	0	4291	74	10	562	462	47979	1172
19. GLASS	0	0	0	0	0	0	335	495
20. STONE + CLAY PRODUCTS	1954	14562	2523	0	86	25433	19255	2337
21. PRIMARY METAL PRODUCTS	50	2002	0	0	0	4090	4762	3765
22. FABRICATED METAL PRODUCTS	469	21401	30	686	956	5887	1075	15672
23. MACHINERY (EXCEPT ELECTRICAL)	0	1888	237	0	426	193	7494	608
24. ELECTRICAL MACHINERY + APPARATUS	0	0	1189	0	0	259	51	231
25. TRANSPORTATION EQUIPMENT	10	57	122	0	33	17	3	2
26. INSTRUMENTS + RELATED PRODUCTS	0	314	0	914	0	0	0	0
27. ALL OTHER MANUFACTURING	158	457	153	55	447	3931	747	6431
28. EATING + DRINKING ESTABLISHMENTS	0	0	149	0	0	259	71	163
29. WHOLESALE TRADE	8947	10214	9225	3069	3218	2210	2519	3314
30. RETAIL FOOD STORES	0	0	0	0	0	0	0	0
31. RETAIL GASOLINE SERVICE STATIONS	1942	0	351	906	98	0	179	2115
32. ALL OTHER RETAIL	357	10271	811	1229	229	156	647	147
33. BANKING	3851	0	5718	448	526	804	1631	3248
34. OTHER FINANCE	847	0	1698	354	49	154	0	179
35. INSURANCE AGENTS + BROKERS	1539	25492	4476	8885	1466	1264	10473	4642
36. REAL ESTATE	1548	0	0	380	27	951	763	2408
37. ALL OTHER FIN, INSUR, + REAL ESTATE	0	8812	0	70	91	56	0	640
38. HOTELS + OTHER LODGING PLACES	0	0	0	0	2	266	139	216
39. MEDICAL + LEGAL SERVICES	105	2746	1790	1751	173	735	887	260
40. EDUCATIONAL SERVICES	0	0	0	0	0	0	0	0
41. ALL OTHER SERVICES	1865	11930	11358	3115	1168	926	199	2653
42. RAILROADS	4645	1945	2326	527	366	100	1147	0
43. TRUCKING + WAREHOUSING	2623	11129	3660	252	1792	127	9761	2268
44. ALL OTHER TRANSPORTATION	634	10528	4	5	5	68	1023	526
45. COMMUNICATIONS	319	4549	1422	371	114	691	1283	284
46. ELECTRIC COMPANIES + SYSTEMS	781	41743	732	485	318	308	315	424
47. GAS COMPANIES AND SYSTEMS	184	57	39	132	0	506	3031	1372
48. WATER + SANITARY SERVICES	6	85	52	66	3	5929	31	142
49. HOUSEHOLDS	38408	972974	94942	30279	29651	94285	138420	147271
50. ALL OTHER FINAL PAYMENTS	51863	981614	53304	9788	38126	13572	36538	22001
51. IMPORTS	24118	591332	37898	22595	10075	7208	74224	23788
52. TOTAL FINAL PAYMENTS	114389	2545920	186144	62662	77852	115065	249182	193060
53. TOTAL GROSS OUTLAY	173740	2861100	438900	92459	101839	244509	399897	263493

TABLE I (CONTINUED)
 INTERINDUSTRY FLOWS OF GOODS AND SERVICES, WEST VIRGINIA, 1975
 (THOUSANDS OF DOLLARS)

	9	10	11	12	13	14	15	16
	FOOD&KIN MEAT&NEC	FOOD&KIN DAIRIES	FOOD&KIN BAKERIES	FOOD&KIN BEV'AGES	APPAREL& ACCESS'S	LOGGING& SAWMILLS	FURNIT& WOOD FAB	PRINTING & PUBLISH
1. AGRICULTURE	16415	14023	615	0	0	5390	7	0
2. COAL MINING (UNDERGROUND)	0	7	0	181	48	106	519	121
3. COAL MINING (STRIP + AUGER)	0	0	0	0	0	0	0	0
4. PETROLEUM + NATURAL GAS	0	0	0	0	0	0	0	0
5. ALL OTHER MINING	4	0	0	0	0	0	0	0
6. GENERAL CONTRACTORS (BUILDING)	0	0	35	0	3	0	105	0
7. GENERAL CONTRACTORS (NON-BUILDING)	0	19	0	0	0	54	0	0
8. SPECIAL TRADES CONTRACTORS	149	395	12	2	1555	669	0	0
9. FOOD + KINDRED PROD-MEATS+N.E.C.	7211	871	85	0	0	0	0	0
10. FOOD + KINDRED PRODUCTS (DAIRIES)	0	864	577	0	0	0	0	0
11. FOOD + KINDRED PRODUCTS (BAKERIES)	0	0	89	0	0	0	0	0
12. FOOD + KINDRED PRODUCTS (BEVERAGES)	0	0	0	452	0	0	0	0
13. APPAREL + ACCESSORIES	0	0	0	70	0	0	0	0
14. LOGGING + SAWMILLS	0	0	0	0	0	17942	9194	0
15. FURNITURE + OTHER WOOD FABRICATION	0	0	8	1	0	0	434	20
16. PRINTING + PUBLISHING	170	146	174	704	323	2	86	34178
17. CHEMICALS	0	0	0	141	5	0	403	144
18. PETROLEUM	0	0	0	0	0	161	2	0
19. GLASS	38	0	0	573	0	0	96	0
20. STONE + CLAY PRODUCTS	0	0	0	0	0	0	0	0
21. PRIMARY METAL PRODUCTS	0	0	0	457	0	0	0	0
22. FABRICATED METAL PRODUCTS	0	0	0	0	0	471	772	0
23. MACHINERY (EXCEPT ELECTRICAL)	0	11	0	0	2	16	45	0
24. ELECTRICAL MACHINERY + APPARATUS	9	0	0	0	5	0	0	0
25. TRANSPORTATION EQUIPMENT	0	0	0	0	0	16	0	0
26. INSTRUMENTS + RELATED PRODUCTS	263	0	0	0	0	0	0	0
27. ALL OTHER MANUFACTURING	58	122	327	472	435	309	51	0
28. EATING + DRINKING ESTABLISHMENTS	0	161	0	172	0	0	0	300
29. WHOLESALE TRADE	3126	965	2096	751	237	378	214	637
30. RETAIL FOOD STORES	0	0	0	0	0	0	0	5638
31. RETAIL GASOLINE SERVICE STATIONS	308	82	477	425	21	452	68	444
32. ALL OTHER RETAIL	486	111	766	63	0	0	0	3266
33. BANKING	719	33	533	26	62	340	128	290
34. OTHER FINANCE	1261	0	247	0	0	87	0	28
35. INSURANCE AGENTS + BROKERS	255	365	1533	817	743	2214	312	2001
36. REAL ESTATE	0	110	0	0	0	1271	4	2783
37. ALL OTHER FIN, INSUR, + REAL ESTATE	0	14	2	0	0	1092	0	359
38. HOTELS + OTHER LODGING PLACES	0	0	0	103	3	51	9	20
39. MEDICAL + LEGAL SERVICES	767	49	36	151	2	361	129	377
40. EDUCATIONAL SERVICES	0	0	0	0	0	0	0	110
41. ALL OTHER SERVICES	0	2153	3124	439	459	1207	1148	3773
42. RAILROADS	6	0	0	0	2	119	0	0
43. TRUCKING+ WAREHOUSING	799	328	131	673	721	184	898	
44. ALL OTHER TRANSPORTATION	558	63	223	551	120	331	138	574
45. COMMUNICATIONS	177	116	482	743	1843	874	312	1409
46. ELECTRIC COMPANIES + SYSTEMS	1068	359	1968	139	641	1042	363	507
47. GAS COMPANIES AND SYSTEMS	295	92	1919	156	278	273	502	632
48. WATER + SANITARY SERVICES	158	95	87	428	63	50	194	126
49. HOUSEHOLDS	10471	16197	15014	12116	37363	44309	10929	42319
50. ALL OTHER FINAL PAYMENTS	46273	17757	40980	20165	13264	14128	27287	23076
51. IMPORTS	4940	2878	8650	15787	16135	15188	16999	36457
52. TOTAL FINAL PAYMENTS	61684	36832	64644	48068	66762	73625	55215	101852
53. TOTAL GROSS OUTLAY	96000	58400	80200	56700	74300	109640	70650	160500

TABLE I (CONTINUED)
 INTERINDUSTRY FLOWS OF GOODS AND SERVICES, WEST VIRGINIA, 1975
 (THOUSANDS OF DOLLARS)

	17	18	19	20	21	22	23	24
	CHEMICALS	PETRO'UM	GLASS	STONE& CLAY	PRIMARY METALS	FABRIC'D METALS	MACHIN'Y EXC ELEC	ELEC MACH INERY
1. AGRICULTURE	0	0	0	137	0	0	0	0
2. COAL MINING UNDERGROUND	34610	3639	120	2165	37922	200	18	0
3. COAL MINING (STRIP + AUGER)	297	0	0	0	76	0	0	0
4. PETROLEUM + NATURAL GAS	13037	9056	0	0	0	0	0	0
5. ALL OTHER MINING	1971	10672	5119	10384	6774	67	0	0
6. GENERAL CONTRACTORS (BUILDING)	502	0	41	0	669	48	18	2
7. GENERAL CONTRACTORS (NON-BUILDING)	1004	11	0	0	167	2835	0	8
8. SPECIAL TRADES CONTRACTORS	15901	0	0	206	867	96	44	0
9. FOOD + KINDRED PRODUC-MEATS + N.E.C.	353	0	0	0	0	0	0	0
10. FOOD + KINDRED PRODUCTS (DAIRIES)	0	0	0	0	0	0	0	0
11. FOOD + KINDRED PRODUCTS (BAKERIES)	0	0	0	0	0	0	0	0
12. FOOD + KINDRED PRODUCTS (BEVERAGES)	0	0	0	0	0	0	0	0
13. APPAREL + ACCESSORIES	37	0	0	87	0	0	0	0
14. LOGGING + SAWMILLS	0	57	6	0	0	0	0	0
15. FURNITURE + OTHER WOOD FABRICATION	0	1	155	0	0	3	7	221
16. PRINTING + PUBLISHING	1487	80	933	1065	152	413	661	253
17. CHEMICALS	225444	5646	443	895	6576	501	0	4298
18. PETROLEUM	3849	3532	6	10197	137	0	0	0
19. GLASS	1487	0	8589	0	0	0	0	0
20. STONE + CLAY PRODUCTS	1636	3497	1247	5404	0	0	0	0
21. PRIMARY METAL PRODUCTS	167	0	756	0	3836	33219	8925	33124
22. FABRICATED METAL PRODUCTS	4742	871	113	4227	1431	236	3954	23
23. MACHINERY (EXCEPT ELECTRICAL)	167	0	98	23	1933	436	0	916
24. ELECTRICAL MACHINERY + APPARATUS	1432	0	0	162	487	9	2119	471
25. TRANSPORTATION EQUIPMENT	0	0	0	124	137	25	0	0
26. INSTRUMENTS + RELATED PRODUCTS	5932	0	0	25	0	0	0	559
27. ALL OTHER MANUFACTURING	16477	58	12619	1666	6394	1422	0	154
28. EATING + DRINKING ESTABLISHMENTS	464	35	0	0	45	93	29	66
29. WHOLESALE TRADE	11921	2740	4964	4051	6820	3924	1524	996
30. RETAIL FOOD STORES	0	0	0	0	0	0	0	0
31. RETAIL GASOLINE SERVICE STATIONS	0	22	0	1510	0	0	92	45
32. ALL OTHER RETAIL	3886	279	750	2990	4536	927	332	976
33. BANKING	929	402	1427	879	1689	139	743	240
34. OTHER FINANCE	0	405	0	0	30	236	0	0
35. INSURANCE AGENTS + BROKERS	6713	110	6176	1997	2237	501	2013	1794
36. REAL ESTATE	0	0	0	0	0	1322	0	451
37. ALL OTHER FIN, INSUR,& + REAL ESTATE	4779	17	0	0	1461	824	0	8
38. HOTELS + OTHER LODGING PLACES	650	36	60	0	91	38	46	150
39. MEDICAL + LEGAL SERVICES	3273	258	196	1425	2283	126	120	682
40. EDUCATIONAL SERVICES	0	0	0	0	274	0	0	191
41. ALL OTHER SERVICES	6490	476	4036	4338	30	1419	626	1886
42. RAILROADS	14618	102	82	964	6454	77	1018	193
43. TRUCKING + WAREHOUSING	13985	5481	1370	8658	12909	908	0	531
44. ALL OTHER TRANSPORTATION	7309	1940	63	556	943	229	1243	858
45. COMMUNICATIONS	8145	4176	994	1065	5374	827	743	1277
46. ELECTRIC COMPANIES + SYSTEMS	14896	1051	3682	2799	10047	3187	974	5105
47. GAS COMPANIES AND SYSTEMS	24121	2787	10191	6695	5267	3443	754	2771
48. WATER + SANITARY SERVICES	3682	49	123	144	15	400	29	808
49. HOUSEHOLDS	388121	21104	126918	80163	439471	89948	83831	47490
50. ALL OTHER FINAL PAYMENTS	673786	49518	68524	62062	804664	141524	47635	83032
51. IMPORTS	341477	18876	56785	41622	150184	33681	28388	25553
52. TOTAL FINAL PAYMENTS	1403384	89498	252227	183847	1394319	265153	159854	156075
53. TOTAL GROSS OUTLAY	1859800	147000	316600	258700	1522400	323300	185900	215150

TABLE I (CONTINUED)
INTERINDUSTRY FLOWS OF GOODS AND SERVICES, WEST VIRGINIA, 1975
(THOUSANDS OF DOLLARS)

	25	26	27	28	29	30	31	32
	TRANSPOT EQUIPM	INSTRU'S & PRODUCT	ALL OTHR MANUF	EATING& DR'NG ES	WHOLSAL TRADE	RETAIL FOOD STR	RETAIL GAS STAT	ALL OTHR RETAIL
1. AGRICULTURE	0	0	1066	1177	34	24	0	0
2. COAL MINING (UNDERGROUND)	0	0	261	23	565	0	66	3738
3. COAL MINING (STRIP+AUGER)	0	0	2305	51	0	0	15	1101
4. PETROLEUM + NATURAL GAS	0	0	61	0	0	0	0	96
5. ALL OTHER MINING	420	0	7	0	0	0	0	0
6. GENERAL CONTRACTORS (BUILDING)	5	0	0	0	0	0	0	651
7. GENERAL CONTRACTORS (NON-BUILDING)	0	0	524	0	0	0	0	160
8. SPECIAL TRADES CONTRACTORS	0	0	5776	21	678	816	0	5635
9. FOOD + KINDRED PROD-MEATS + N.E.C.	0	0	2517	10135	34	0	0	0
10. FOOD + KINDRED PRODUCTS (DAIRIES)	0	0	0	7075	0	17	0	546
11. FOOD + KINDRED PRODUCTS (BAKERIES)	0	0	0	8020	0	0	0	538
12. FOOD + KINDRED PRODUCTS (BEVERAGES)	0	0	0	5010	0	0	0	506
13. APPAREL+ACCESSORIES	0	0	0	16	0	0	0	0
14. LOGGING+SAWMILLS	13	22	7	0	0	0	0	0
15. FURNITURE+OTHER WOOD FABRICATION	15	1	12	129	83	101	15	1045
16. PRINTING + PUBLISHING	78	53	546	225	393	12659	504	24142
17. CHEMICALS	5	0	1369	0	830	0	0	0
18. PETROLEUM	0	0	179	0	0	63	3599	0
19. GLASS	0	0	184	211	93	0	0	7733
20. STONE + CLAY PRODUCTS	0	0	81	0	0	0	0	56
21. PRIMARY METAL PRODUCTS	15426	0	14	0	0	0	0	0
22. FABRICATED METAL PRODUCTS	93	0	7415	0	34	0	0	32
23. MACHINERY (EXCEPT ELECTRICAL)	0	0	2276	0	0	0	0	0
24. ELECTRICAL MACHINERY + APPARTUS	1991	0	519	9	231	0	0	0
25. TRANSPORTATION EQUIPMENT	15	0	98	0	98	0	9	40
26. INSTRUMENTS + RELATED PRODUCTS	0	80	0	18	0	0	0	80
27. ALL OTHER MANUFACTURING	0	247	1564	0	476	1730	24	900
28. EATING + DRINKING ESTABLISHMENTS	11	0	4	1877	963	14	13	506
29. WHOLESALE TRADE	313	0	421	12657	7619	2438	1813	1985
30. RETAIL FOOD STORES	0	0	0	935	78	31	0	0
31. RETAIL GASOLINE SERVICE STATIONS	38	6	142	21	4311	767	271	3143
32. ALL OTHER RETAIL	145	0	61	242	933	119	249	6511
33. BANKING	217	284	588	676	1848	711	598	8232
34. OTHER FINANCE	0	0	7	157	3273	353	12	2886
35. INSURANCE AGENTS + BROKERS	447	130	475	1652	5721	6139	1558	8521
36. REAL ESTATE	0	0	330	145	14	21956	921	12662
37. ALL OTHER FIN, INSUR,+ REAL ESTATE	0	0	14	0	1086	0	31	1045
38. HOTELS + OTHER LODGING PLACES	1	2	17	0	516	0	0	1318
39. MEDICAL + LEGAL SERVICES	128	0	202	30	899	332	89	4502
40. EDUCATIONAL SERVICES	0	0	0	14	181	0	0	410
41. ALL OTHER SERVICES	870	312	1409	1057	3441	7673	2256	34979
42. RAILROADS	2368	8	970	0	2561	7	249	2444
43. TRUCKING + WAREHOUSING	93	324	1069	265	7471	2326	3785	13353
44. ALL OTHER TRANSPORTATION	5	277	433	4984	220	194	1969	
45. COMMUNICATIONS	1138	100	692	939	3652	5161	2143	3746
46. ELECTRIC COMPANIES + SYSTEMS	1348	128	1465	2441	8410	9499	1480	7806
47. GAS COMPANIES AND SYSTEMS	931	172	879	4829	8253	6643	1308	7589
48. WATER + SANITARY SERVICES	299	111	93	350	206	840	367	1615
49. HOUSEHOLDS	46310	7126	43273	62213	302097	101360	52783	437855
50. ALL OTHER FINAL PAYMENTS	75306	42739	139567	73113	23610	79467	27478	103275
51. IMPORTS	19456	14969	27435	39162	95881	88921	49199	90581
52. TOTAL FINAL PAYMENTS	141072	64834	210275	174488	421588	269748	129460	631711
53. TOTAL GROSS OUTLAY	167500	67100	246350	235000	491575	350400	151040	803950

TABLE I (CONTINUED)
 INTERINDUSTRY FLOWS OF GOODS AND SERVICES, WEST VIRGINIA, 1975
 (THOUSANDS OF DOLLARS)

	33	34	35	36	37	38	39	40
	BANKING	OTHER FINANCE	INSURANC AGENTS	REAL EST	ALL OTHR FIRE	HOTELS & LODGING	MEDICAL & LEGAL	EDUCAT'L SERVICES
1. AGRICULTURE	0	0	0	0	0	611	139	0
2. COAL MINING (UNDERGROUND)	0	0	0	0	0	398	856	1717
3. COAL MINING (STRIP & AUGER)	0	0	0	0	0	1425	0	1127
4. PETROLEUM + NATURAL GAS	0	0	0	0	0	0	0	0
5. ALL OTHER MINING	0	0	0	0	0	0	5	0
6. GENERAL CONTRACTORS (BUILDING)	126	4	0	7962	0	121	0	16098
7. GENERAL CONTRACTORS (NON-BUILDING)	0	4	0	252	0	380	0	18388
8. SPECIAL TRADES CONTRACTORS	1117	4	40	3952	0	2717	2502	2495
9. FOOD + KINDRED PROD-MEATS + N.E.C.	0	0	0	0	0	7	2166	367
10. FOOD + KINDRED PRODUCTS (DAIRIES)	0	0	0	0	0	4	655	538
11. FOOD + KINDRED PRODUCTS (BAKERIES)	0	0	0	0	0	2	638	512
12. FOOD + KINDRED PRODUCTS (BEVERAGES)	0	0	0	0	0	3	408	675
13. APPAREL + ACCESSORIES	0	0	0	0	0	31	2362	0
14. LOGGING + SAWMILLS	0	0	0	0	0	0	0	0
15. FURNITURE + OTHER WOOD FABRICATION	6	0	0	3	0	2	50	17
16. PRINTING + PUBLISHING	1386	2128	742	4147	418	221	414	1632
17. CHEMICALS	16	0	0	0	0	0	2054	0
18. PETROLEUM	0	0	0	0	0	0	0	17
19. GLASS	0	0	0	0	0	0	1192	0
20. STONE + CLAY PRODUCTS	0	0	0	105	0	0	0	555
21. PRIMARY METAL PRODUCTS	0	0	0	0	0	0	0	0
22. FABRICATED METAL PRODUCTS	0	0	0	0	0	7	0	34
23. MACHINERY (EXCEPT ELECTRICAL)	0	1	0	0	0	0	0	0
24. ELECTRICAL MACHINERY + APPARATUS	0	0	0	0	0	5	0	0
25. TRANSPORTATION EQUIPMENT	0	0	0	0	0	0	0	0
26. INSTRUMENTS + RELATED PRODUCTS	0	0	71	0	0	0	699	0
27. ALL OTHER MANUFACTURING	96	0	71	0	0	25	845	34
28. EATING + DRINKING ESTABLISHMENTS	34	118	841	282	23	1	16	1401
29. WHOLESALE TRADE	126	110	102	4736	0	2643	6326	8382
30. RETAIL FOOD STORES	0	0	0	0	0	0	1371	0
31. RETAIL GASOLINE SERVICE STATIONS	29	0	277	122	0	550	884	170
32. ALL OTHER RETAIL	528	318	420	1113	780	639	4288	9459
33. BANKING	22	11129	1315	1503	159	2430	1685	957
34. OTHER FINANCE	236	485	170	363	0	47	2144	0
35. INSURANCE AGENTS + BROKERS	2412	798	1543	443	447	2018	6712	5366
36. REAL ESTATE	1189	1493	698	11655	218	567	0	401
37. ALL OTHER FIN, INSUR, + REAL ESTATE	1989	0	29706	644	66	0	139	0
38. HOTELS + OTHER LODGING PLACES	41	11	232	280	30	4	201	427
39. MEDICAL + LEGAL SERVICES	1384	4423	492	556	44078	354	18173	2708
40. EDUCATIONAL SERVICES	75	349	0	0	0	14	173	19362
41. ALL OTHER SERVICES	8316	10786	5566	15485	1994	5118	16605	23976
42. RAILROADS	0	0	0	0	0	0	403	0
43. TRUCKING + WAREHOUSING	105	0	0	0	0	114	526	2366
44. ALL OTHER TRANSPORTATION	8231	833	165	471	82	27	520	726
45. COMMUNICATIONS	2166	2496	2170	4177	892	2518	4131	6887
46. ELECTRIC COMPANIES + SYSTEMS	377	161	420	651	303	3578	1892	5955
47. GAS COMPANIES AND SYSTEMS	717	202	1874	2151	793	1421	4484	8049
48. WATER + SANITARY SERVICES	223	41	76	226	6	543	800	1452
49. HOUSEHOLDS	69372	37265	61619	45756	14948	30026	263225	409304
50. ALL OTHER FINAL PAYMENTS	22201	40042	301459	16012	20776	5300	111101	93172
51. IMPORTS	107462	51786	37380	62593	18977	6810	99069	209740
52. TOTAL FINAL PAYMENTS	199035	129093	400458	124361	54701	42136	473395	712216
53. TOTAL GROSS OUTLAY	230000	165000	447462	185655	105000	70700	559875	854480

TABLE I (CONTINUED)
INTERINDUSTRY FLOWS OF GOODS AND SERVICES, WEST VIRGINIA, 1975
(THOUSANDS OF DOLLARS)

	41	42	43	44	45	46	47	48
	ALL OTHR SERVICES	RAILR'DS	TRUCK & WAREHOUS	ALL OTHR TRANSPOT	COMMU- NICATT'S	ELEC CO. &SYSTMS	GAS CO. &SYSTMS	WATER & SANITARY
1. AGRICULTURE	0	0	0	0	0	0	0	0
2. COAL MINING (UNDERGROUND)	0	34	0	0	0	128749	797	44
3. COAL MINING (STRIP + AUGER)	0	0	0	0	0	35072	0	0
4. PETROLEUM + NATURAL GAS	61	0	2219	4393	0	0	19340	0
5. ALL OTHER MINING	0	2443	0	0	0	0	0	1540
6. GENERAL CONTRACTORS (BUILDING)	0	1404	113	0	0	14	11	17
7. GENERAL CONTRACTORS (NON-BUILDING)	69	0	2756	0	1258	0	6	4122
8. SPECIAL TRADES CONTRACTORS	2338	3051	584	485	0	0	11	0
9. FOOD + KINDRED PROD-MEATS + N.E.C.	0	0	0	0	0	0	0	0
10. FOOD + KINDRED PRODUCTS (DAIRIES)	0	0	0	0	0	0	0	0
11. FOOD + KINDRED PRODUCTS (BAKERIES)	38	0	0	0	0	0	0	0
12. FOOD + KINDRED PRODUCTS (BEVERAGES)	0	0	0	0	0	0	0	0
13. APPAREL + ACCESSORIES	0	0	0	0	0	0	0	3
14. LOGGING + SAWMILLS	0	247	0	0	0	0	0	0
15. FURNITURE + OTHER WOOD FABRICATION	130	0	15	133	7	58	17	2
16. PRINTING + PUBLISHING	14626	43	2980	39	697	1830	258	57
17. CHEMICALS	3346	0	23	15	0	0	0	1086
18. PETROLEUM	1284	3821	352	933	455	1626	0	36
19. GLASS	0	0	0	0	0	0	0	0
20. STONE + CLAY PRODUCTS	0	321	27	0	5634	1641	276	282
21. PRIMARY METAL PRODUCTS	161	2430	0	8741	285	0	0	26
22. FABRICATED METAL PRODUCTS	3600	365	0	3094	9	101	101	506
23. MACHINERY (EXCEPT ELECTRICAL)	723	704	0	550	0	0	0	3
24. ELECTRICAL MACHINERY + APPARATUS	4824	26	0	0	901	167	0	346
25. TRANSPORTATION EQUIPMENT	169	3499	250	19	0	72	4	0
26. INSTRUMENTS + RELATED PRODUCTS	76	4	0	0	17	0	0	2
27. ALL OTHER MANUFACTURING	0	39	164	2753	51	21	76	2
28. EATING + DRINKING ESTABLISHMENTS	161	0	141	27	147	581	498	16
29. WHOLESALE TRADE	14326	386	22561	726	394	2839	314	982
30. RETAIL FOOD STORES	0	0	0	0	0	0	0	0
31. RETAIL GASOLINE SERVICE STATIONS	2362	0	1572	235	147	7	190	120
32. ALL OTHER RETAIL	13864	1021	2505	0	78	123	143	1931
33. BANKING	4031	0	1702	1044	746	210	285	44
34. OTHER FINANCE	38	0	164	0	0	0	0	0
35. INSURANCE AGENTS + BROKERS	5270	9276	8011	0	317	820	71	308
36. REAL ESTATE	3993	0	392	0	243	551	1109	0
37. ALL OTHER FIN, INSUR, + REAL ESTATE	684	0	3	0	372	203	265	71
38. HOTELS + OTHER LODGING PLACES	684	56	223	52	91	406	251	0
39. MEDICAL + LEGAL SERVICES	1684	843	35	0	0	1234	67	13
40. EDUCATIONAL SERVICES	14056	0	0	0	0	0	0	0
41. ALL OTHER SERVICES	21935	1708	0	1522	5730	2244	359	64
42. RAILROADS	292	739	415	0	2113	9347	226	314
43. TRUCKING + WAREHOUSING	3862	2573	31	276	1951	17067	332	200
44. ALL OTHER TRANSPORTATION	3000	234	1058	549	1473	7037	1835	27
45. COMMUNICATIONS	6270	1717	1752	693	268	3144	896	640
46. ELECTRIC COMPANIES + SYSTEMS	2508	1486	1505	325	1803	25267	220	2495
47. GAS COMPANIES AND SYSTEMS	7863	439	1439	315	1436	791	1323	162
48. WATER + SANITARY SERVICES	2054	108	262	11	4	72	179	805
49. HOUSEHOLDS	319208	130460	112536	34019	109320	158520	32009	13247
50. ALL OTHER FINAL PAYMENTS	229812	160443	113109	49552	41760	115109	136421	12296
51. IMPORTS	79979	104789	93249	21851	68638	211350	26721	9740
52. TOTAL FINAL PAYMENTS	628999	395692	338894	105422	219718	484979	195151	352283
53. TOTAL GROSS OUTLAY	769400	434723	392168	132367	246362	726292	224625	51568

TABLE I (CONTINUED)
INTERINDUSTRY FLOWS OF GOODS AND SERVICES, WEST VIRGINIA, 1975
(THOUSANDS OF DOLLARS)

	49	50	51	52	53	54	55
	HOUSE- HOLDS	LOCAL GOVT.	STATE GOVT.	FEDERAL GOVT.	EXPORTS & INVENT'Y	TOTAL FI- NAL DEMD	TOTAL GR. OUTPUT
1. AGRICULTURE	61955	64	1457	6423	45900	115799	173740
2. COAL MINING (UNDERGROUND)	3812	136	457	509	2528355	2533269	2861100
3. COAL MINING (STRIP + AUGER)	1064	146	0	0	215638	216848	438900
4. PETROLEUM + NATURAL GAS	0	0	0	0	37477	37477	92459
5. ALL OTHER MINING	25037	252	4903	0	13694	43886	101839
6. GENERAL CONTRACTORS (BUILDING)	80769	14481	38332	60699	13363	207644	244509
7. GENERAL CONTRACTORS (NON-BUILDING)	61994	17721	138218	113276	12089	343298	399897
8. SPECIAL TRADES CONTRACTORS	81354	11303	19672	3684	7913	123926	263493
9. FOOD + KINDRED PROD-MEATS + N.E.C.	46792	161	0	460	23445	70858	96000
10. FOOD + KINDRED PRODUCTS (DAIRIES)	36313	94	1736	0	9977	48120	58400
11. FOOD + KINDRED PRODUCTS (BAKERIES)	54260	69	0	0	16030	70359	80200
12. FOOD + KINDRED PRODUCTS (BEVERAGES)	34666	5	0	0	14973	49644	56700
13. APPAREL + ACCESSORIES	28042	15	0	0	43633	71690	74300
14. LOGGING + SAWMILLS	17377	254	73	485	27321	45510	109640
15. FURNITURE + OTHER WOOD FABRICATION	12058	968	423	0	51878	65327	70650
16. PRINTING + PUBLISHING	22342	2741	7471	1454	11684	45692	160500
17. CHEMICALS	132192	128	948	27871	1442815	1603954	1859800
18. PETROLEUM	34369	1193	16213	388	10027	62190	147000
19. GLASS	54615	94	248	0	240611	295568	316600
20. STONE + CLAY PRODUCTS	11526	11553	15108	7133	126459	171779	258700
21. PRIMARY METAL PRODUCTS	1217	156	0	0	1398782	1400155	1522400
22. FABRICATED METAL PRODUCTS	28283	133	0	3587	212876	244879	323300
23. MACHINERY (EXCEPT ELECTRICAL)	4256	20	0	0	162864	167140	185900
24. ELECTRICAL MACHINERY + APPARATUS	28371	3	0	3635	167688	199697	215150
25. TRANSPORTATION EQUIPMENT	0	22	3371	68563	90715	162671	167500
26. INSTRUMENTS + RELATED PRODUCTS	6029	0	0	24	51984	58037	67100
27. ALL OTHER MANUFACTURING	31386	0	0	0	152883	184269	246350
28. EATING + DRINKING ESTABLISHMENTS	195556	82	292	50	29320	225300	235000
29. WHOLESALE TRADE	158021	2318	4568	848	145540	311295	491575
30. RETAIL FOOD STORES	328807	188	0	0	13349	342344	350400
31. RETAIL GASOLINE SERVICE STATIONS	114132	1081	496	73	10336	126118	151040
32. ALL OTHER RETAIL	554746	1837	4203	242	164211	725239	803950
33. BANKING	93639	1262	4816	32161	32875	164753	230000
34. OTHER FINANCE	123750	499	2700	6156	15972	149077	165000
35. INSURANCE AGENTS + BROKERS	232910	1481	890	0	55684	290965	447462
36. REAL ESTATE	93870	40	4086	751	16340	115087	185655
37. ALL OTHER FIN, INSUR, + REAL ESTATE	9437	12864	16381	0	11761	50443	105000
38. HOTELS + OTHER LODGING PLACES	24913	383	438	121	38104	63959	70700
39. MEDICAL + LEGAL SERVICES	166495	25760	82821	114021	69844	458941	559875
40. EDUCATIONAL SERVICES	57839	325784	374224	48472	12946	819265	854480
41. ALL OTHER SERVICES	481321	5760	6990	2726	34356	531153	769400
42. RAILROADS	14256	3003	4897	17848	337555	377559	434723
43. TRUCKING + WAREHOUSING	61619	20	4159	4823	183646	254267	392168
44. ALL OTHER TRANSPORTATION	14590	7264	2635	3848	41075	69412	132367
45. COMMUNICATIONS	72097	4551	6525	1797	65390	150360	246362
46. ELECTRIC COMPANIES & SYSTEMS	50595	1898	2024	741	496553	551811	726292
47. GAS COMPANIES AND SYSTEMS	52575	2005	992	145	39328	95045	224625
48. WATER + SANITARY SERVICES	24758	1407	613	48	1207	28033	51568
49. HOUSEHOLDS	82188	104421	486449	1203696	1083438	2960192	8866065
50. ALL OTHER FINAL PAYMENTS	2177135	20364	26881	506336	21384	2752100	8565717
51. IMPORTS	2780737	13019	172651	180494	25187	3172088	5992710
52. TOTAL FINAL PAYMENTS	5040060	137804	685981	1890526	1130009	8884380	23424492
53. TOTAL GROSS OUTLAY	8866065	599003	1459361	2423588	10076475	23424492	41644261

TABLE II
DIRECT REQUIREMENTS PER DOLLAR OF OUTPUT, WEST VIRGINIA, 1975

	1	2	3	4	5	6	7	8
	AGRICUL- TURE	COAL MIN UNDER	COAL MIN STRIP&AU	PETROL & NAT GAS	ALL OTHR MINING	GEN CONT BLDG	GEN CONT NON-BLDG	SP TRADE CONTR'S
1. AGRICULTURE	0.10292	0.0	0.0	0.0	0.00409	0.0	0.0	0.0
2. COAL MINING (UNDERGROUND)	0.00297	0.00755	0.20133	0.0	0.0	0.00124	0.0	0.00083
3. COAL MINING (STRIP + AUGER)	0.0	0.02273	0.26321	0.0	0.00010	0.00002	0.0	0.00003
4. PETROLEUM + NATURAL GAS	0.0	0.00050	0.0	0.05713	0.0	0.00001	0.0	0.0
5. ALL OTHER MINING	0.01799	0.00026	0.00014	0.00068	0.04164	0.00957	0.01651	0.00518
6. GENERAL CONTRACTORS (BUILDING)	0.00366	0.00004	0.0	0.0	0.0	0.03308	0.00017	0.0
7. GENERAL CONTRACTORS (NON-BUILDING)	0.0	0.00133	0.0	0.00012	0.0	0.02326	0.03586	0.00276
8. SPECIAL TRADES CONTRACTORS	0.00660	0.00230	0.00049	0.00375	0.04755	0.22371	0.03068	0.02784
9. FOOD + KINDRED PROD-MEATS+N.E.C.	0.00801	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10. FOOD & KINDRED PRODUCTS (DAIRIES)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11. FOOD + KINDRED PRODUCTS (BAKERIES)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12. FOOD + KINDRED PRODUCTS (BEVERAGES)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13. APPAREL + ACCESSORIES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14. LOGGING + SAWMILLS	0.00449	0.01000	0.00112	0.0	0.00643	0.00388	0.00161	0.01711
15. FURNITURE + OTHER WOOD FABRICATION	0.00198	0.00021	0.00004	0.00017	0.00139	0.00465	0.00090	0.00001
16. PRINTING + PUBLISHING	0.00006	0.00076	0.00004	0.00386	0.00368	0.00180	0.00070	0.00033
17. CHEMICALS	0.00387	0.0	0.0	0.0	0.01120	0.0	0.00083	0.00171
18. PETROLEUM	0.0	0.00150	0.00017	0.00011	0.00552	0.00189	0.11998	0.00445
19. GLASS	0.0	0.0	0.0	0.0	0.0	0.0	0.00084	0.00188
20. STONE + CLAY PRODUCTS	0.01125	0.00509	0.00575	0.0	0.00085	0.10402	0.04815	0.00887
21. PRIMARY METAL PRODUCTS	0.00029	0.00070	0.0	0.0	0.0	0.01673	0.01191	0.01429
22. FABRICATED METAL PRODUCTS	0.00270	0.00748	0.00007	0.00743	0.00939	0.02408	0.00269	0.05948
23. MACHINERY (EXCEPT ELECTRICAL)	0.0	0.00066	0.00054	0.0	0.00419	0.00079	0.01874	0.00231
24. ELECTRICAL MACHINERY + APPARATUS	0.0	0.0	0.00271	0.0	0.0	0.00106	0.00013	0.00088
25. TRANSPORTATION EQUIPMENT	0.00006	0.00002	0.00028	0.0	0.00033	0.00007	0.00001	0.00001
26. INSTRUMENTS + RELATED PRODUCTS	0.0	0.00011	0.0	0.00989	0.0	0.0	0.0	0.0
27. ALL OTHER MANUFACTURING	0.00091	0.00016	0.00035	0.00060	0.00439	0.01608	0.00187	0.02441
28. EATING + DRINKING ESTABLISHMENTS	0.0	0.0	0.00034	0.0	0.0	0.00106	0.00018	0.00062
29. WHOLESALE TRADE	0.05150	0.00357	0.02102	0.03320	0.03160	0.00904	0.00630	0.01258
30. RETAIL FOOD STORES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
31. RETAIL GASOLINE SERVICE STATIONS	0.01118	0.0	0.00080	0.00980	0.00097	0.0	0.00045	0.00803
32. ALL OTHER RETAIL	0.00206	0.00359	0.00185	0.01330	0.00225	0.00064	0.00162	0.00056
33. BANKING	0.02217	0.0	0.01303	0.00485	0.00517	0.00329	0.00408	0.01233
34. OTHER FINANCE	0.00488	0.0	0.00387	0.00383	0.00049	0.00063	0.0	0.00068
35. INSURANCE AGENTS + BROKERS	0.00886	0.00891	0.01020	0.09610	0.01440	0.00517	0.02619	0.01762
36. REAL ESTATE	0.00891	0.0	0.0	0.00412	0.00027	0.00389	0.00191	0.00914
37. ALL OTHER FIN, INSUR, + REAL ESTATE	0.0	0.00308	0.0	0.00076	0.00090	0.00023	0.0	0.00243
38. HOTELS + OTHER LODGING PLACES	0.0	0.0	0.0	0.0	0.00002	0.00109	0.00035	0.00082
39. MEDICAL + LEGAL SERVICES	0.00061	0.00096	0.00408	0.01894	0.00170	0.00301	0.00222	0.00099
40. EDUCATIONAL SERVICES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41. ALL OTHER SERVICES	0.01074	0.00417	0.02588	0.03370	0.01147	0.00379	0.00050	0.01007
42. RAILROADS	0.02674	0.00068	0.00530	0.00571	0.00360	0.00041	0.00287	0.0
43. TRUCKING + WAREHOUSING	0.01510	0.00389	0.00834	0.00273	0.01760	0.00052	0.02441	0.00861
44. ALL OTHER TRANSPORTATION	0.00365	0.00368	0.00001	0.00006	0.00005	0.00028	0.00256	0.00200
45. COMMUNICATIONS	0.00184	0.00159	0.00324	0.00402	0.00112	0.00283	0.00321	0.00108
46. ELECTRIC COMPANIES + SYSTEMS	0.00450	0.01459	0.00167	0.00525	0.00313	0.00126	0.00079	0.00161
47. GAS COMPANIES AND SYSTEMS	0.00106	0.00002	0.00009	0.00143	0.0	0.00207	0.00758	0.00521
48. WATER + SANITARY SERVICES	0.00004	0.00003	0.00012	0.00072	0.00003	0.02425	0.00008	0.00054
49. HOUSEHOLDS	0.22107	0.34007	0.21632	0.32749	0.29116	0.38561	0.34614	0.55892
50. ALL OTHER FINAL PAYMENTS	0.29851	0.34309	0.12145	0.10587	0.37438	0.05551	0.09137	0.08350
51. IMPORTS	0.13882	0.20668	0.08635	0.24438	0.09894	0.02948	0.18561	0.09028
52. TOTAL	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

TABLE II (CONTINUED)
 DIRECT REQUIREMENTS PER DOLLAR OF OUTPUT, WEST VIRGINIA, 1975

	9	10	11	12	13	14	15	16
	FOOD&KIN MEAT&NEC	FOOD&KIN DAIRIES	FOOD&KIN BAKERIES	FOOD&KIN BEV'AGES	APPAREL& ACCESS'S	LOGGING& SAWMILLS	FURNIT& WOOD FAB	PRINTING &PUBLISH
1. AGRICULTURE	0.17099	0.24013	0.00767	0.0	0.0	0.04917	0.00010	0.0
2. COAL MINING (UNDERGROUND)	0.0	0.00012	0.0	0.00320	0.00065	0.00097	0.00735	0.00076
3. COAL MINING (STRIP + AUGER)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4. PETROLEUM + NATURAL GAS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5. ALL OTHER MINING	0.00005	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6. GENERAL CONTRACTORS (BUILDING)	0.0	0.0	0.00044	0.0	0.00005	0.0	0.00149	0.0
7. GENERAL CONTRACTORS (NON-BUILDING)	0.0	0.00033	0.0	0.0	0.0	0.00050	0.0	0.0
8. SPECIAL TRADES CONTRACTORS	0.00156	0.00677	0.00015	0.00004	0.02093	0.00611	0.0	0.0
9. FOOD + KINDRED PROD-MEATS+N.E.C.	0.07512	0.01493	0.00106	0.0	0.0	0.0	0.0	0.0
10. FOOD + KINDRED PRODUCTS (DAIRIES)	0.0	0.01481	0.00720	0.0	0.0	0.0	0.0	0.0
11. FOOD + KINDRED PRODUCTS (BAKERIES)	0.0	0.0	0.00112	0.0	0.0	0.0	0.0	0.0
12. FOOD + KINDRED PRODUCTS (BEVERAGES)	0.0	0.0	0.0	0.00798	0.0	0.0	0.0	0.0
13. APPAREL + ACCESSORIES	0.0	0.0	0.0	0.00124	0.0	0.0	0.0	0.0
14. LOGGING + SAWMILLS	0.0	0.0	0.0	0.0	0.0	0.16365	0.13014	0.0
15. FURNITURE + OTHER WOOD FABRICATION	0.0	0.0	0.00010	0.00003	0.0	0.0	0.00615	0.0
16. PRINTING + PUBLISHING	0.00178	0.00251	0.00217	0.01243	0.00435	0.00002	0.00122	0.21295
17. CHEMICALS	0.0	0.0	0.0	0.00250	0.00008	0.0	0.00571	0.00090
18. PETROLEUM	0.0	0.0	0.0	0.0	0.0	0.00147	0.00003	0.0
19. GLASS	0.00040	0.0	0.0	0.01011	0.0	0.0	0.00136	0.0
20. STONE + CLAY PRODUCTS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21. PRIMARY METAL PRODUCTS	0.0	0.0	0.0	0.00807	0.0	0.0	0.0	0.0
22. FABRICATED METAL PRODUCTS	0.0	0.0	0.0	0.0	0.0	0.00430	0.01094	0.0
23. MACHINERY (EXCEPT ELECTRICAL)	0.0	0.00020	0.0	0.0	0.00004	0.00015	0.00065	0.0
24. ELECTRICAL MACHINERY + APPARATUS	0.00010	0.0	0.0	0.0	0.00008	0.0	0.0	0.0
25. TRANSPORTATION EQUIPMENT	0.0	0.0	0.0	0.0	0.0	0.00015	0.0	0.0
26. INSTRUMENTS + RELATED PRODUCTS	0.00275	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27. ALL OTHER MANUFACTURING	0.00061	0.00210	0.00408	0.00833	0.00586	0.00282	0.00073	0.0
28. EATING + DRINKING ESTABLISHMENTS	0.0	0.00276	0.0	0.00305	0.0	0.0	0.0	0.00187
29. WHOLESALE TRADE	0.03257	0.01653	0.02614	0.01326	0.00320	0.00345	0.00304	0.00397
30. RETAIL FOOD STORES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.03513
31. RETAIL GASOLINE SERVICE STATIONS	0.00321	0.00142	0.00595	0.00750	0.00029	0.00413	0.00097	0.00277
32. ALL OTHER RETAIL	0.00507	0.00191	0.00956	0.00112	0.0	0.0	0.0	0.02035
33. BANKING	0.00750	0.00057	0.00665	0.00047	0.00084	0.00311	0.00182	0.00181
34. OTHER FINANCE	0.01314	0.0	0.00309	0.0	0.0	0.00080	0.0	0.00018
35. INSURANCE AGENTS + BROKERS	0.00266	0.00626	0.01912	0.01442	0.01001	0.02020	0.00442	0.01247
36. REAL ESTATE	0.0	0.00190	0.0	0.0	0.0	0.01160	0.00007	0.01734
37. ALL OTHER FIN, INSUR, + REAL ESTATE	0.0	0.00025	0.00003	0.0	0.0	0.00996	0.0	0.00224
38. HOTELS + OTHER LODGING PLACES	0.0	0.0	0.0	0.00182	0.00005	0.00047	0.00014	0.00013
39. MEDICAL + LEGAL SERVICES	0.00800	0.00085	0.00045	0.00268	0.00004	0.00330	0.00184	0.00235
40. EDUCATIONAL SERVICES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00069
41. ALL OTHER SERVICES	0.0	0.03688	0.03896	0.00775	0.00618	0.01101	0.01626	0.02351
42. RAILROADS	0.00007	0.0	0.0	0.0	0.00004	0.00109	0.0	0.0
43. TRUCKING + WAREHOUSING	0.00833	0.00562	0.00164	0.01062	0.00906	0.00658	0.00261	0.00560
44. ALL OTHER TRANSPORTATION	0.00582	0.00108	0.00279	0.00972	0.00162	0.00302	0.00196	0.00358
45. COMMUNICATIONS	0.00185	0.00199	0.00601	0.01311	0.02481	0.00798	0.00443	0.00878
46. ELECTRIC COMPANIES + SYSTEMS	0.01113	0.00615	0.02454	0.00246	0.00864	0.00951	0.00515	0.00316
47. GAS COMPANIES AND SYSTEMS	0.00308	0.00159	0.02394	0.00276	0.00375	0.00249	0.00711	0.00394
48. WATER + SANITARY SERVICES	0.00165	0.00164	0.00109	0.00755	0.00086	0.00046	0.00275	0.00079
49. HOUSEHOLDS	0.10908	0.27735	0.18721	0.21369	0.50288	0.40414	0.15470	0.26367
50. ALL OTHER FINAL PAYMENTS	0.48202	0.30406	0.51098	0.35565	0.17852	0.12886	0.38624	0.14378
51. IMPORTS	0.05146	0.04929	0.10786	0.27844	0.21717	0.13853	0.24062	0.22715
52. TOTAL	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

TABLE II (CONTINUED)
 DIRECT REQUIREMENTS PER DOLLAR OF OUTPUT, WEST VIRGINIA, 1975

	17	18	19	20	21	22	23	24
	CHEMICALS	PETRO'UM	GLASS	STONE& CLAY	PRIMARY METALS	FABRIC'D METALS	MACHIN'Y EXC ELEC	ELEC MACH INERY
1. AGRICULTURE	0.0	0.0	0.0	0.00053	0.0	0.0	0.0	0.0
2. COAL MINING (UNDERGROUND)	0.01861	0.02476	0.00038	0.00837	0.02491	0.00062	0.00010	0.0
3. COAL MINING (STRIP + AUGER)	0.00016	0.0	0.0	0.0	0.00005	0.0	0.0	0.0
4. PETROLEUM + NATURAL GAS	0.00701	0.06161	0.0	0.0	0.0	0.0	0.0	0.0
5. ALL OTHER MINING	0.00106	0.07260	0.01617	0.04014	0.00445	0.00021	0.0	0.0
6. GENERAL CONTRACTORS (BUILDING)	0.00027	0.0	0.00013	0.0	0.00044	0.00015	0.00010	0.00001
7. GENERAL CONTRACTORS (NON-BUILDING)	0.00054	0.00008	0.0	0.0	0.00011	0.00877	0.0	0.00004
8. SPECIAL TRADES CONTRACTORS	0.00855	0.0	0.0	0.00080	0.00057	0.00030	0.00024	0.0
9. FOOD + KINDRED PROD-MEATS+N.E.C.	0.00019	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10. FOOD + KINDRED PRODUCTS (DAIRIES)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11. FOOD + KINDRED PRODUCTS (BAKERIES)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12. FOOD + KINDRED PRODUCTS (BEVERAGES)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13. APPAREL + ACCESSORIES	0.00002	0.0	0.0	0.00034	0.0	0.0	0.0	0.0
14. LOGGING + SAWMILLS	0.0	0.00039	0.00002	0.0	0.0	0.0	0.0	0.0
15. FURNITURE + OTHER WOOD FABRICATION	0.0	0.00001	0.00049	0.0	0.0	0.00001	0.00004	0.00103
16. PRINTING + PUBLISHING	0.00080	0.00055	0.00295	0.00412	0.00010	0.00128	0.00356	0.00118
17. CHEMICALS	0.12122	0.03841	0.00140	0.00346	0.00432	0.00155	0.0	0.01998
18. PETROLEUM	0.00207	0.02403	0.00002	0.03942	0.00009	0.0	0.0	0.0
19. GLASS	0.00080	0.0	0.02713	0.0	0.0	0.0	0.0	0.0
20. STONE + CLAY PRODUCTS	0.00088	0.02379	0.00394	0.02089	0.0	0.0	0.0	0.0
21. PRIMARY METAL PRODUCTS	0.00009	0.0	0.00239	0.0	0.00252	0.10275	0.04801	0.15396
22. FABRICATED METAL PRODUCTS	0.00255	0.00593	0.00036	0.01634	0.00094	0.00073	0.02127	0.00011
23. MACHINERY (EXCEPT ELECTRICAL)	0.00009	0.0	0.00031	0.00009	0.00127	0.00135	0.0	0.00426
24. ELECTRICAL MACHINERY + APPARATUS	0.00077	0.0	0.0	0.00063	0.00032	0.00003	0.01140	0.00219
25. TRANSPORTATION EQUIPMENT	0.0	0.0	0.0	0.00048	0.00009	0.00008	0.0	0.0
26. INSTRUMENTS + RELATED PRODUCTS	0.00319	0.0	0.0	0.00010	0.0	0.0	0.0	0.00260
27. ALL OTHER MANUFACTURING	0.00886	0.00040	0.03986	0.00644	0.00420	0.00440	0.0	0.00072
28. EATING + DRINKING ESTABLISHMENTS	0.00025	0.00024	0.0	0.0	0.00003	0.00029	0.00016	0.00031
29. WHOLESALE TRADE	0.00641	0.01864	0.01568	0.01566	0.00448	0.01214	0.00820	0.00463
30. RETAIL FOOD STORES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
31. RETAIL GASOLINE SERVICE STATIONS	0.0	0.00015	0.0	0.00584	0.0	0.0	0.00050	0.00021
32. ALL OTHER RETAIL	0.00209	0.00190	0.00237	0.01156	0.00298	0.00287	0.00179	0.00454
33. BANKING	0.00050	0.00274	0.00451	0.00340	0.00111	0.00043	0.00400	0.00112
34. OTHER FINANCE	0.0	0.00276	0.0	0.0	0.00002	0.00073	0.0	0.0
35. INSURANCE AGENTS + BROKERS	0.00361	0.00075	0.01951	0.00772	0.00147	0.00155	0.01083	0.00834
36. REAL ESTATE	0.0	0.0	0.0	0.0	0.0	0.00409	0.0	0.00210
37. ALL OTHER FIN, INSUR, + REAL ESTATE	0.00257	0.00012	0.0	0.0	0.00096	0.00255	0.0	0.00004
38. HOTELS + OTHER LODGING PLACES	0.00035	0.00025	0.00019	0.0	0.00006	0.00012	0.00025	0.00070
39. MEDICAL + LEGAL SERVICES	0.00176	0.00176	0.00062	0.00551	0.00150	0.00039	0.00065	0.00317
40. EDUCATIONAL SERVICES	0.0	0.0	0.0	0.0	0.00018	0.0	0.0	0.00089
41. ALL OTHER SERVICES	0.00349	0.00324	0.01275	0.01677	0.00002	0.00439	0.00337	0.00877
42. RAILROADS	0.00786	0.00070	0.00026	0.00373	0.00424	0.00024	0.00548	0.00090
43. TRUCKING + WAREHOUSING	0.00752	0.03729	0.00433	0.03347	0.00848	0.00281	0.0	0.00247
44. ALL OTHER TRANSPORTATION	0.00393	0.01320	0.00020	0.00215	0.00062	0.00071	0.00669	0.00399
45. COMMUNICATIONS	0.00438	0.02841	0.00314	0.00412	0.00353	0.00256	0.00400	0.00594
46. ELECTRIC COMPANIES + SYSTEMS	0.00801	0.00715	0.01163	0.01082	0.00660	0.00986	0.00524	0.02373
47. GAS COMPANIES AND SYSTEMS	0.01297	0.01896	0.03219	0.02588	0.00346	0.01065	0.00406	0.01288
48. WATER + SANITARY SERVICES	0.00198	0.00034	0.00039	0.00056	0.00001	0.00124	0.00016	0.00376
49. HOUSEHOLDS	0.20869	0.14357	0.40088	0.30987	0.28867	0.27822	0.45095	0.22073
50. ALL OTHER FINAL PAYMENTS	0.36229	0.33686	0.21644	0.23990	0.52855	0.43775	0.25624	0.38593
51. IMPORTS	0.18361	0.12841	0.17936	0.16089	0.09865	0.10418	0.15271	0.11877
52. TOTAL	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

TABLE II (CONTINUED)
DIRECT REQUIREMENTS PER DOLLAR OF OUTPUT, WEST VIRGINIA, 1975

	25	26	27	28	29	30	31	32
	TRANSPOT EQUIPM	INSTRU'S &PRODUCT	ALL OTHR MANUF	EATING& DR'NG ES	WHOLSAL TRADE	RETAIL FOOD STR	RETAIL GAS STAT	ALL OTHR RETAIL
1. AGRICULTURE	0.0	0.0	0.00433	0.00501	0.00007	0.00007	0.0	0.0
2. COAL MINING (UNDERGROUND)	0.0	0.0	0.00106	0.00010	0.00115	0.0	0.00044	0.00465
3. COAL MINING (STRIP + AUGER)	0.0	0.0	0.00936	0.00022	0.0	0.0	0.00010	0.00137
4. PETROLEUM + NATURAL GAS	0.0	0.0	0.00025	0.0	0.0	0.0	0.0	0.00012
5. ALL OTHER MINING	0.00251	0.0	0.00003	0.0	0.0	0.0	0.0	0.0
6. GENERAL CONTRACTORS (BUILDING)	0.00003	0.0	0.0	0.0	0.0	0.0	0.0	0.00081
7. GENERAL CONTRACTORS (NON-BUILDING)	0.0	0.0	0.00213	0.0	0.0	0.0	0.0	0.00020
8. SPECIAL TRADES CONTRACTORS	0.0	0.0	0.02345	0.00009	0.00138	0.00233	0.0	0.00701
9. FOOD + KINDRED PROD-MEATS+N.E.C.	0.0	0.0	0.01022	0.04313	0.00007	0.0	0.0	0.0
10. FOOD + KINDRED PRODUCTS (DAIRIES)	0.0	0.0	0.0	0.03011	0.0	0.00005	0.0	0.00068
11. FOOD + KINDRED PRODUCTS (BAKERIES)	0.0	0.0	0.0	0.03413	0.0	0.0	0.0	0.00067
12. FOOD + KINDRED PRODUCTS (BEVERAGES)	0.0	0.0	0.0	0.02132	0.0	0.0	0.0	0.00063
13. APPAREL + ACCESSORIES	0.0	0.0	0.0	0.00007	0.0	0.0	0.0	0.0
14. LOGGING + SAWMILLS	0.00008	0.00033	0.00003	0.0	0.0	0.0	0.0	0.0
15. FURNITURE + OTHER WOOD FABRICATION	0.00009	0.00002	0.00005	0.00055	0.00017	0.00029	0.00010	0.00130
16. PRINTING + PUBLISHING	0.00047	0.00080	0.00222	0.00096	0.00080	0.03613	0.00334	0.03003
17. CHEMICALS	0.00003	0.0	0.00556	0.0	0.00169	0.0	0.0	0.0
18. PETROLEUM	0.0	0.0	0.00073	0.0	0.0	0.00018	0.02383	0.0
19. GLASS	0.0	0.0	0.00075	0.00090	0.00019	0.0	0.0	0.00962
20. STONE + CLAY PRODUCTS	0.0	0.0	0.00033	0.0	0.0	0.0	0.0	0.00007
21. PRIMARY METAL PRODUCTS	0.09210	0.0	0.00006	0.0	0.0	0.0	0.0	0.0
22. FABRICATED METAL PRODUCTS	0.00056	0.0	0.03010	0.0	0.00007	0.0	0.0	0.00004
23. MACHINERY (EXCEPT ELECTRICAL)	0.0	0.0	0.00924	0.0	0.0	0.0	0.0	0.0
24. ELECTRICAL MACHINERY + APPARATUS	0.01189	0.0	0.00211	0.00004	0.00047	0.0	0.0	0.0
25. TRANSPORTATION EQUIPMENT	0.00009	0.0	0.00040	0.0	0.00020	0.0	0.00006	0.00005
26. INSTRUMENTS + RELATED PRODUCTS	0.0	0.00120	0.0	0.00008	0.0	0.0	0.0	0.00010
27. ALL OTHER MANUFACTURING	0.0	0.00369	0.00635	0.0	0.00097	0.00494	0.00016	0.00112
28. EATING + DRINKING ESTABLISHMENTS	0.00007	0.0	0.00002	0.00799	0.00196	0.00004	0.00009	0.00063
29. WHOLESALE TRADE	0.00187	0.0	0.00171	0.05386	0.01550	0.00696	0.01201	0.00247
30. RETAIL FOOD STORES	0.0	0.0	0.0	0.00398	0.00016	0.00009	0.0	0.0
31. RETAIL GASOLINE SERVICE STATIONS	0.00023	0.00010	0.00058	0.00009	0.00877	0.00219	0.00180	0.00391
32. ALL OTHER RETAIL	0.00087	0.0	0.00025	0.00103	0.00190	0.00034	0.00165	0.00810
33. BANKING	0.00130	0.00424	0.00239	0.00288	0.00376	0.00203	0.00396	0.01024
34. OTHER FINANCE	0.0	0.0	0.00003	0.00067	0.00666	0.00101	0.00008	0.00359
35. INSURANCE AGENTS + BROKERS	0.00267	0.00195	0.00193	0.00703	0.01164	0.01752	0.01032	0.01060
36. REAL ESTATE	0.0	0.0	0.00134	0.00062	0.00003	0.06266	0.00610	0.01575
37. ALL OTHER FIN, INSUR, + REAL ESTATE	0.0	0.0	0.00006	0.0	0.00221	0.0	0.00021	0.00130
38. HOTELS + OTHER LODGING PLACES	0.00001	0.00003	0.00007	0.0	0.00105	0.0	0.0	0.00164
39. MEDICAL + LEGAL SERVICES	0.00077	0.0	0.00082	0.00013	0.00183	0.00095	0.00059	0.00560
40. EDUCATIONAL SERVICES	0.0	0.0	0.0	0.00006	0.00037	0.0	0.0	0.00051
41. ALL OTHER SERVICES	0.00520	0.00466	0.00572	0.00450	0.00700	0.02190	0.01494	0.04351
42. RAILROADS	0.01414	0.00012	0.00394	0.0	0.00521	0.00002	0.00165	0.00304
43. TRUCKING + WAREHOUSING	0.00056	0.00484	0.00434	0.00113	0.01520	0.00664	0.02506	0.01661
44. ALL OTHER TRANSPORTATION	0.00003	0.00413	0.00176	0.00038	0.01014	0.00063	0.00129	0.00245
45. COMMUNICATIONS	0.00680	0.00150	0.00281	0.00400	0.00743	0.01473	0.01419	0.00466
46. ELECTRIC COMPANIES + SYSTEMS	0.00805	0.00192	0.00595	0.01039	0.01711	0.02711	0.00980	0.00971
47. GAS COMPANIES AND SYSTEMS	0.00556	0.00257	0.00357	0.02055	0.01679	0.01896	0.00866	0.00944
48. WATER + SANITARY SERVICES	0.00179	0.00166	0.00038	0.00149	0.00042	0.00240	0.00243	0.00201
49. HOUSEHOLDS	0.27648	0.10620	0.17566	0.26474	0.61455	0.28927	0.34947	0.54463
50. ALL OTHER FINAL PAYMENTS	0.44959	0.63695	0.56654	0.31112	0.04803	0.22679	0.18193	0.12846
51. IMPORTS	0.11616	0.22309	0.11137	0.16665	0.19505	0.25377	0.32574	0.11267
52. TOTAL	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

TABLE II (CONTINUED)
DIRECT REQUIREMENTS PER DOLLAR OF OUTPUT, WEST VIRGINIA, 1975

	33	34	35	36	37	38	39	40
	BANKING	OTHER FINANCE	INSURANC AGENTS	REAL EST	ALL OTHR FIRE	HOTELS& LODGING	MEDICAL& LEGAL	EDUCAT'L SERVICES
1. AGRICULTURE	0.0	0.0	0.0	0.0	0.0	0.00865	0.00025	0.0
2. COAL MINING (UNDERGROUND)	0.0	0.0	0.0	0.0	0.0	0.00564	0.00153	0.00201
3. COAL MINING (STRIP + AUGER)	0.0	0.0	0.0	0.0	0.0	0.02016	0.0	0.00132
4. PETROLEUM + NATURAL GAS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5. ALL OTHER MINING	0.0	0.0	0.0	0.0	0.0	0.0	0.00001	0.0
6. GENERAL CONTRACTORS (BUILDING)	0.00055	0.00003	0.0	0.04289	0.0	0.00172	0.0	0.01884
7. GENERAL CONTRACTORS (NON-BUILDING)	0.0	0.00003	0.0	0.00136	0.0	0.00538	0.0	0.02152
8. SPECIAL TRADES CONTRACTORS	0.00486	0.00003	0.00009	0.02129	0.0	0.03844	0.00447	0.00292
9. FOOD + KINDRED PROD-MEATS+N.E.C.	0.0	0.0	0.0	0.0	0.0	0.00010	0.00387	0.00043
10. FOOD + KINDRED PRODUCTS (DAIRIES)	0.0	0.0	0.0	0.0	0.0	0.00006	0.00117	0.00063
11. FOOD + KINDRED PRODUCTS (BAKERIES)	0.0	0.0	0.0	0.0	0.0	0.00004	0.00114	0.00060
12. FOOD + KINDRED PRODUCTS (BEVERAGES)	0.0	0.0	0.0	0.0	0.0	0.00005	0.00073	0.00079
13. APPAREL + ACCESSORIES	0.0	0.0	0.0	0.0	0.0	0.00045	0.00422	0.0
14. LOGGING + SAWMILLS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15. FURNITURE + OTHER WOOD FABRICATION	0.00003	0.0	0.0	0.00002	0.0	0.00004	0.00009	0.00002
16. PRINTING + PUBLISHING	0.00603	0.01290	0.00166	0.02234	0.00399	0.00313	0.00074	0.00191
17. CHEMICALS	0.00007	0.0	0.0	0.0	0.0	0.0	0.00367	0.0
18. PETROLEUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00002
19. GLASS	0.0	0.0	0.0	0.0	0.0	0.0	0.00213	0.0
20. STONE + CLAY PRODUCTS	0.0	0.0	0.0	0.00057	0.0	0.0	0.0	0.00065
21. PRIMARY METAL PRODUCTS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22. FABRICATED METAL PRODUCTS	0.0	0.0	0.0	0.0	0.0	0.00010	0.0	0.00004
23. MACHINERY (EXCEPT ELECTRICAL)	0.0	0.00001	0.0	0.0	0.0	0.0	0.0	0.0
24. ELECTRICAL MACHINERY + APPARATUS	0.0	0.0	0.0	0.0	0.0	0.00008	0.0	0.0
25. TRANSPORTATION EQUIPMENT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26. INSTRUMENTS + RELATED PRODUCTS	0.0	0.0	0.00016	0.0	0.0	0.0	0.00125	0.0
27. ALL OTHER MANUFACTURING	0.00042	0.0	0.00016	0.0	0.0	0.00036	0.00151	0.00004
28. EATING + DRINKING ESTABLISHMENTS	0.00015	0.00072	0.00188	0.00152	0.00022	0.00002	0.00003	0.00164
29. WHOLESALE TRADE	0.00055	0.00067	0.00023	0.02551	0.0	0.03739	0.01130	0.00981
30. RETAIL FOOD STORES	0.0	0.0	0.0	0.0	0.0	0.0	0.00245	0.0
31. RETAIL GASOLINE SERVICE STATIONS	0.00013	0.0	0.00062	0.00066	0.0	0.00779	0.00158	0.00020
32. ALL OTHER RETAIL	0.00230	0.00193	0.00094	0.00600	0.00743	0.00905	0.00766	0.01107
33. BANKING	0.00010	0.06745	0.00294	0.00810	0.00152	0.03438	0.00301	0.00112
34. OTHER FINANCE	0.00103	0.00294	0.00038	0.00196	0.0	0.00067	0.00383	0.0
35. INSURANCE AGENTS + BROKERS	0.01049	0.00484	0.00345	0.00239	0.00426	0.02855	0.01199	0.00628
36. REAL ESTATE	0.00517	0.00905	0.00156	0.06278	0.00208	0.00802	0.0	0.00047
37. ALL OTHER FIN, INSUR, + REAL ESTATE	0.00865	0.0	0.06639	0.00347	0.00063	0.0	0.00025	0.0
38. HOTELS + OTHER LODGING PLACES	0.00018	0.00007	0.00052	0.00151	0.00029	0.00006	0.00036	0.00050
39. MEDICAL + LEGAL SERVICES	0.00602	0.02681	0.00110	0.00300	0.41980	0.00501	0.03246	0.00317
40. EDUCATIONAL SERVICES	0.00033	0.00212	0.0	0.0	0.0	0.00020	0.00031	0.02266
41. ALL OTHER SERVICES	0.03616	0.06537	0.01244	0.08341	0.01900	0.07240	0.02966	0.02806
42. RAILROADS	0.0	0.0	0.0	0.0	0.0	0.0	0.00072	0.0
43. TRUCKING + WAREHOUSING	0.00046	0.0	0.0	0.0	0.0	0.00162	0.00094	0.00277
44. ALL OTHER TRANSPORTATION	0.03579	0.00505	0.00037	0.00254	0.00079	0.00039	0.00093	0.00085
45. COMMUNICATIONS	0.00942	0.01513	0.00485	0.02250	0.00850	0.03562	0.00738	0.00806
46. ELECTRIC COMPANIES + SYSTEMS	0.00164	0.00098	0.00094	0.00351	0.00289	0.05062	0.00338	0.00697
47. GAS COMPANIES AND SYSTEMS	0.00312	0.00123	0.00419	0.01159	0.00756	0.02011	0.00801	0.00942
48. WATER + SANITARY SERVICES	0.00097	0.00025	0.00017	0.00122	0.00006	0.00769	0.00143	0.00170
49. HOUSEHOLDS	0.30162	0.22585	0.13771	0.24646	0.14237	0.42471	0.47015	0.47901
50. ALL OTHER FINAL PAYMENTS	0.09653	0.24268	0.67371	0.08625	0.19787	0.07497	0.19844	0.10904
51. IMPORTS	0.46723	0.31386	0.08354	0.33715	0.18074	0.09633	0.17695	0.24546
52. TOTAL	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

TABLE II (CONTINUED)
DIRECT REQUIREMENTS PER DOLLAR OF OUTPUT, WEST VIRGINIA, 1975

	41	42	43	44	45	46	47	48
	ALL OTHR SERVICES	RAILR'DS	TRUCK & WAREHOU	ALL OTHR TRANSPOT	COMMU- NICATI'S	ELEC CO. &SYSTEMS	GAS CO. &SYSTEMS	WATER & SANITARY
1. AGRICULTURE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2. COAL MINING (UNDERGROUND)	0.0	0.00008	0.0	0.0	0.0	0.17727	0.00355	0.00087
3. COAL MINING (STRIP + AUGER)	0.0	0.0	0.0	0.0	0.0	0.04829	0.0	0.0
4. PETROLEUM + NATURAL GAS	0.00008	0.0	0.00566	0.03319	0.0	0.0	0.08610	0.0
5. ALL OTHER MINING	0.0	0.00562	0.0	0.0	0.0	0.0	0.0	0.02987
6. GENERAL CONTRACTORS (BUILDING)	0.0	0.00323	0.00029	0.0	0.0	0.00002	0.00005	0.00034
7. GENERAL CONTRACTORS (NON-BUILDING)	0.00009	0.0	0.00703	0.0	0.00511	0.0	0.00003	0.07995
8. SPECIAL TRADES CONTRACTORS	0.00304	0.00702	0.00149	0.00367	0.0	0.0	0.00005	0.0
9. FOOD + KINDRED PROD-MEATS+N.E.C.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10. FOOD + KINDRED PRODUCTS (DAIRIES)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11. FOOD + KINDRED PRODUCTS (BAKERIES)	0.00005	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12. FOOD + KINDRED PRODUCTS (BEVERAGES)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13. APPAREL + ACCESSORIES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00007
14. LOGGING + SAWMILLS	0.0	0.00057	0.0	0.0	0.0	0.0	0.0	0.0
15. FURNITURE + OTHER WOOD FABRICATION	0.00017	0.0	0.00004	0.00101	0.00003	0.00008	0.00008	0.00004
16. PRINTING + PUBLISHING	0.01901	0.00010	0.00760	0.00030	0.00283	0.00252	0.00115	0.00112
17. CHEMICALS	0.00435	0.0	0.00006	0.00012	0.0	0.0	0.0	0.02107
18. PETROLEUM	0.00167	0.00879	0.00090	0.00705	0.00185	0.00224	0.0	0.00070
19. GLASS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20. STONE + CLAY PRODUCTS	0.0	0.00074	0.00007	0.0	0.02287	0.00226	0.00123	0.00547
21. PRIMARY METAL PRODUCTS	0.00021	0.00559	0.0	0.06604	0.00116	0.0	0.0	0.00051
22. FABRICATED METAL PRODUCTS	0.00468	0.00084	0.0	0.02338	0.00004	0.00014	0.00045	0.00983
23. MACHINERY (EXCEPT ELECTRICAL)	0.00094	0.00162	0.0	0.00416	0.0	0.0	0.0	0.00007
24. ELECTRICAL MACHINERY + APPARATUS	0.00627	0.00006	0.0	0.0	0.00366	0.00023	0.0	0.00672
25. TRANSPORTATION EQUIPMENT	0.00022	0.00805	0.00064	0.00015	0.0	0.00010	0.00002	0.0
26. INSTRUMENTS + RELATED PRODUCTS	0.00010	0.00001	0.0	0.0	0.00007	0.0	0.0	0.00004
27. ALL OTHER MANUFACTURING	0.0	0.00009	0.00042	0.02080	0.00021	0.00003	0.00034	0.00004
28. EATING + DRINKING ESTABLISHMENTS	0.00021	0.0	0.00036	0.00021	0.00060	0.00080	0.00222	0.00032
29. WHOLESALE TRADE	0.01862	0.00089	0.05753	0.00549	0.00160	0.00391	0.00140	0.01906
30. RETAIL FOOD STORES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
31. RETAIL GASOLINE SERVICE STATIONS	0.00307	0.0	0.00401	0.00178	0.00060	0.00001	0.00085	0.00234
32. ALL OTHER RETAIL	0.01802	0.00235	0.00639	0.0	0.00032	0.00017	0.00064	0.03746
33. BANKING	0.00524	0.0	0.00434	0.00789	0.00303	0.00029	0.00127	0.00086
34. OTHER FINANCE	0.00005	0.0	0.00042	0.0	0.0	0.0	0.0	0.0
35. INSURANCE AGENTS + BROKERS	0.00685	0.02134	0.02043	0.0	0.00129	0.00113	0.00032	0.00598
36. REAL ESTATE	0.00519	0.0	0.00100	0.0	0.00099	0.00076	0.00494	0.0
37. ALL OTHER FIN, INSUR, + REAL ESTATE	0.00089	0.0	0.00001	0.0	0.00151	0.00028	0.00118	0.00139
38. HOTELS + OTHER LODGING PLACES	0.00089	0.00013	0.00057	0.00040	0.00037	0.00056	0.00112	0.0
39. MEDICAL + LEGAL SERVICES	0.00219	0.00194	0.00009	0.0	0.0	0.00170	0.00030	0.00027
40. EDUCATIONAL SERVICES	0.01827	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41. ALL OTHER SERVICES	0.02851	0.00393	0.0	0.01150	0.02326	0.00309	0.00160	0.00125
42. RAILROADS	0.00038	0.00170	0.00106	0.0	0.00858	0.01287	0.00101	0.00610
43. TRUCKING + WAREHOUSING	0.00502	0.00592	0.00008	0.00209	0.00792	0.02350	0.00148	0.00388
44. ALL OTHER TRANSPORTATION	0.00390	0.00054	0.00270	0.00415	0.00598	0.00969	0.00817	0.00054
45. COMMUNICATIONS	0.00815	0.00395	0.00447	0.00524	0.00109	0.00433	0.00399	0.01243
46. ELECTRIC COMPANIES + SYSTEMS	0.00326	0.00342	0.00384	0.00246	0.00732	0.03479	0.00098	0.04839
47. GAS COMPANIES AND SYSTEMS	0.01022	0.00101	0.00367	0.00238	0.00583	0.00109	0.00589	0.00316
48. WATER + SANITARY SERVICES	0.00267	0.00025	0.00067	0.00009	0.00002	0.00010	0.00080	0.01562
49. HOUSEHOLDS	0.41488	0.30010	0.28696	0.25701	0.44374	0.21826	0.14250	0.25690
50. ALL OTHER FINAL PAYMENTS	0.29869	0.36907	0.33942	0.37436	0.16951	0.15849	0.60733	0.23846
51. IMPORTS	0.10395	0.24105	0.23778	0.16508	0.27861	0.29100	0.11896	0.18888
52. TOTAL	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

TABLE III
DIRECT AND INDIRECT REQUIREMENTS PER DOLLAR OF DELIVERY
TO FINAL DEMAND, WEST VIRGINIA, 1975

	1	2	3	4	5	6	7	8
	AGRICUL- TURE	COAL MIN UNDER	COAL MIN STRIP&AU	PETROL& NAT GAS	ALL OTHR MINING	GEN CONT BLDG	GEN CONT NON-BLDG	SP TRADE CONTR'S
1. AGRICULTURE	1.11709	0.00069	0.00033	0.00007	0.00534	0.00097	0.00040	0.00142
2. COAL MINING (UNDERGROUND)	0.00531	1.01725	0.27860	0.00172	0.00170	0.00500	0.00517	0.00273
3. COAL MINING (STRIP + AUGER)	0.00071	0.03245	1.36638	0.00060	0.00062	0.00096	0.00049	0.00075
4. PETROLEUM + NATURAL GAS	0.00083	0.00093	0.00060	1.06108	0.00088	0.00172	0.01018	0.00132
5. ALL OTHER MINING	0.02199	0.00076	0.00089	0.00094	1.04447	0.01876	0.03039	0.00672
6. GENERAL CONTRACTORS (BUILDING)	0.00488	0.00008	0.00011	0.00032	0.00013	1.03461	0.00036	0.00054
7. GENERAL CONTRACTORS (NON-BUILDING)	0.00044	0.00156	0.00062	0.00043	0.00050	0.02838	1.03773	0.00381
8. SPECIAL TRADES CONTRACTORS	0.01083	0.00276	0.00196	0.00492	0.05180	0.24113	0.03492	1.03054
9. FOOD + KINDRED PROD-MEATS+N.E.C.	0.00972	0.00003	0.00008	0.00014	0.00014	0.00037	0.00009	0.00036
10. FOOD + KINDRED PRODUCTS (DAIRIES)	0.00001	0.00001	0.00003	0.00005	0.00001	0.00005	0.00002	0.00003
11. FOOD + KINDRED PRODUCTS (BAKERIES)	0.00001	0.00001	0.00004	0.00005	0.00001	0.00006	0.00002	0.00003
12. FOOD + KINDRED PRODUCTS (BEVERAGES)	0.00001	0.00001	0.00002	0.00004	0.00001	0.00004	0.00001	0.00002
13. APPAREL + ACCESSORIES	0.00001	0.00002	0.00004	0.00011	0.00002	0.00007	0.00004	0.00002
14. LOGGING + SAWMILLS	0.00686	0.01231	0.00524	0.00018	0.00938	0.01077	0.00323	0.02120
15. FURNITURE + OTHER WOOD FABRICATION	0.00231	0.00023	0.00015	0.00023	0.00149	0.00492	0.00101	0.00005
16. PRINTING + PUBLISHING	0.00192	0.00155	0.00214	0.00765	0.00594	0.00437	0.00255	0.00186
17. CHEMICALS	0.00562	0.00023	0.00054	0.00051	0.01399	0.00287	0.00757	0.00295
18. PETROLEUM	0.00155	0.00214	0.00140	0.00067	0.00649	0.01154	0.13033	0.00596
19. GLASS	0.00009	0.00006	0.00008	0.00023	0.00017	0.00058	0.00102	0.00205
20. STONE + CLAY PRODUCTS	0.01372	0.00575	0.00975	0.00032	0.00174	0.11416	0.05486	0.00989
21. PRIMARY METAL PRODUCTS	0.00172	0.00197	0.00147	0.00116	0.00256	0.02614	0.01514	0.02185
22. FABRICATED METAL PRODUCTS	0.00466	0.00813	0.00282	0.00851	0.01349	0.04280	0.00771	0.06279
23. MACHINERY (EXCEPT ELECTRICAL)	0.00026	0.00077	0.00104	0.00010	0.00462	0.00235	0.01977	0.00287
24. ELECTRICAL MACHINERY + APPARATUS	0.00020	0.00016	0.00404	0.00033	0.00025	0.00176	0.00052	0.00113
25. TRANSPORTATION EQUIPMENT	0.00036	0.00005	0.00048	0.00008	0.00041	0.00018	0.00011	0.00006
26. INSTRUMENTS + RELATED PRODUCTS	0.00006	0.00013	0.00007	0.01056	0.00006	0.00006	0.00014	0.00004
27. ALL OTHER MANUFACTURING	0.00190	0.00048	0.00081	0.00102	0.00623	0.02403	0.00376	0.02608
28. EATING + DRINKING ESTABLISHMENTS	0.00023	0.00007	0.00062	0.00035	0.00019	0.00141	0.00041	0.00080
29. WHOLESALE TRADE	0.06226	0.00542	0.03244	0.03792	0.03672	0.01816	0.01460	0.01644
30. RETAIL FOOD STORES	0.00008	0.00006	0.00010	0.00034	0.00022	0.00018	0.00010	0.00008
31. RETAIL GASOLINE SERVICE STATIONS	0.01351	0.00028	0.00173	0.01115	0.00207	0.00311	0.00161	0.00879
32. ALL OTHER RETAIL	0.00356	0.00414	0.00486	0.01581	0.00327	0.00407	0.00351	0.00169
33. BANKING	0.02635	0.00080	0.01889	0.00668	0.00681	0.00777	0.00612	0.01362
34. OTHER FINANCE	0.00614	0.00023	0.00562	0.00456	0.00092	0.00111	0.00062	0.00099
35. INSURANCE AGENTS + BROKERS	0.01345	0.01035	0.01842	0.10435	0.01787	0.01329	0.03152	0.02033
36. REAL ESTATE	0.01143	0.00043	0.00071	0.00581	0.00145	0.00749	0.00297	0.01106
37. ALL OTHER FIN, INSUR, + REAL ESTATE	0.00150	0.00402	0.00245	0.00805	0.00261	0.00221	0.00247	0.00450
38. HOTELS + OTHER LODGING PLACES	0.00017	0.00005	0.00012	0.00020	0.00017	0.00144	0.00053	0.00096
39. MEDICAL + LEGAL SERVICES	0.00231	0.00311	0.00774	0.02491	0.00340	0.00563	0.00457	0.00357
40. EDUCATIONAL SERVICES	0.00037	0.00013	0.00080	0.00083	0.00030	0.00024	0.00011	0.00029
41. ALL OTHER SERVICES	0.01709	0.00643	0.04043	0.04194	0.01489	0.01171	0.00509	0.01437
42. RAILROADS	0.03067	0.00123	0.00792	0.00657	0.00445	0.00175	0.00399	0.00062
43. TRUCKING + WAREHOUSING	0.01999	0.00533	0.01413	0.00480	0.02045	0.00934	0.03376	0.01107
44. ALL OTHER TRANSPORTATION	0.00626	0.00419	0.00255	0.00129	0.00128	0.00222	0.00553	0.00334
45. COMMUNICATIONS	0.00419	0.00234	0.00631	0.00644	0.00256	0.00576	0.00847	0.00300
46. ELECTRIC COMPANIES + SYSTEMS	0.00761	0.01603	0.00798	0.00751	0.00503	0.00631	0.00387	0.00397
47. GAS COMPANIES AND SYSTEMS	0.00372	0.00076	0.00195	0.00397	0.00200	0.00859	0.01323	0.00780
48. WATER + SANITARY SERVICES	0.00042	0.00011	0.00040	0.00110	0.00024	0.02591	0.00033	0.00083
49. TOTAL	1.44435	1.15606	1.85588	1.39658	1.29935	1.71632	1.51096	1.33514

TABLE III (CONTINUED)
 DIRECT AND INDIRECT REQUIREMENTS PER DOLLAR OF DELIVERY
 TO FINAL DEMAND, WEST VIRGINIA, 1975

	9	10	11	12	13	14	15	16
	FOOD&KIN MEAT&NEC	FOOD&KIN DAIRIES	FOOD&KIN BAKERIES	FOOD&KIN BEV'AGES	APPAREL& ACCESS'S	LOGGING& SAWMILLS	FURNIT& WOOD FAB	PRINTING &PUBLISH
1. AGRICULTURE	0.20656	0.27551	0.01083	0.00017	0.00008	0.06574	0.00874	0.00009
2. COAL MINING (UNDERGROUND)	0.00376	0.00299	0.00547	0.00453	0.00263	0.00410	0.00946	0.00251
3. COAL MINING (STRIP + AUGER)	0.00113	0.00076	0.00201	0.00059	0.00080	0.00105	0.00084	0.00058
4. PETROLEUM + NATURAL GAS	0.00090	0.00059	0.00255	0.00089	0.00057	0.00079	0.00100	0.00097
5. ALL OTHER MINING	0.00424	0.00557	0.00033	0.00056	0.00023	0.00160	0.00041	0.00014
6. GENERAL CONTRACTORS (BUILDING)	0.00094	0.00134	0.00058	0.00005	0.00009	0.00099	0.00171	0.00128
7. GENERAL CONTRACTORS (NON-BUILDING)	0.00035	0.00074	0.00025	0.00087	0.00039	0.00097	0.00060	0.00038
8. SPECIAL TRADES CONTRACTORS	0.00406	0.01017	0.00094	0.00066	0.02184	0.00901	0.00181	0.00149
9. FOOD + KINDRED PROD-MEATS+N.E.C.	1.08308	0.01896	0.00143	0.00027	0.00008	0.00066	0.00011	0.00015
10. FOOD + KINDRED PRODUCTS (DAIRIES)	0.00002	1.01513	0.00733	0.00011	0.00000	0.00002	0.00001	0.00011
11. FOOD + KINDRED PRODUCTS (BAKERIES)	0.00002	0.00011	1.00114	0.00012	0.00000	0.00002	0.00001	0.00012
12. FOOD + KINDRED PRODUCTS (BEVERAGES)	0.00002	0.00007	0.00001	1.00811	0.00000	0.00001	0.00001	0.00008
13. APPAREL + ACCESSORIES	0.00004	0.00001	0.00001	0.00127	1.00000	0.00005	0.00002	0.00002
14. LOGGING + SAWMILLS	0.00135	0.00187	0.00018	0.00009	0.00048	1.19631	0.15678	0.00011
15. FURNITURE + OTHER WOOD FABRICATION	0.00046	0.00059	0.00017	0.00006	0.00001	0.00016	1.00622	0.00024
16. PRINTING + PUBLISHING	0.00369	0.00511	0.00474	0.01672	0.00608	0.00146	0.00241	1.27567
17. CHEMICALS	0.00125	0.00173	0.00043	0.00333	0.00029	0.00066	0.00686	0.00160
18. PETROLEUM	0.00055	0.00067	0.00043	0.00050	0.00032	0.00235	0.00056	0.00035
19. GLASS	0.00055	0.00009	0.00012	0.01052	0.00005	0.00006	0.00143	0.00029
20. STONE + CLAY PRODUCTS	0.00272	0.00362	0.00054	0.00054	0.00088	0.00139	0.00061	0.00056
21. PRIMARY METAL PRODUCTS	0.00093	0.00083	0.00047	0.00905	0.00072	0.00124	0.00163	0.00054
22. FABRICATED METAL PRODUCTS	0.00127	0.00196	0.00065	0.00078	0.00165	0.00631	0.01224	0.00050
23. MACHINERY (EXCEPT ELECTRICAL)	0.00011	0.00037	0.00012	0.00018	0.00018	0.00032	0.00077	0.00008
24. ELECTRICAL MACHINERY + APPARATUS	0.00022	0.00035	0.00035	0.00021	0.00027	0.00019	0.00020	0.00030
25. TRANSPORTATION EQUIPMENT	0.00009	0.00011	0.00003	0.00002	0.00002	0.00023	0.00004	0.00002
26. INSTRUMENTS + RELATED PRODUCTS	0.00301	0.00008	0.00004	0.00003	0.00001	0.00003	0.00004	0.00003
27. ALL OTHER MANUFACTURING	0.00134	0.00290	0.00435	0.00924	0.00653	0.00390	0.00154	0.00049
28. EATING + DRINKING ESTABLISHMENTS	0.00018	0.00298	0.00024	0.00323	0.00010	0.00015	0.00008	0.00257
29. WHOLESALE TRADE	0.04843	0.03467	0.02900	0.01561	0.00457	0.00978	0.00546	0.00800
30. RETAIL FOOD STORES	0.00016	0.00020	0.00018	0.00061	0.00022	0.00008	0.00009	0.04484
31. RETAIL GASOLINE SERVICE STATIONS	0.00646	0.00527	0.00666	0.00796	0.00064	0.00604	0.00193	0.00406
32. ALL OTHER RETAIL	0.00670	0.00398	0.01090	0.00228	0.00048	0.00105	0.00081	0.02733
33. BANKING	0.01444	0.00780	0.00790	0.00114	0.00143	0.00603	0.00290	0.00346
34. OTHER FINANCE	0.01572	0.00191	0.00346	0.00016	0.00007	0.00148	0.00026	0.00053
35. INSURANCE AGENTS + BROKERS	0.00671	0.01083	0.02091	0.01609	0.01107	0.02618	0.00858	0.01808
36. REAL ESTATE	0.00261	0.00541	0.00100	0.00064	0.00052	0.01594	0.00248	0.02746
37. ALL OTHER FIN, INSUR, + REAL ESTATE	0.00078	0.00128	0.00170	0.00124	0.00090	0.01390	0.00232	0.00433
38. HOTELS + OTHER LODGING PLACES	0.00012	0.00013	0.00016	0.00191	0.00012	0.00067	0.00028	0.00034
39. MEDICAL + LEGAL SERVICES	0.01024	0.00223	0.00177	0.00357	0.00058	0.01049	0.00366	0.00549
40. EDUCATIONAL SERVICES	0.00018	0.00085	0.00084	0.00021	0.00016	0.00035	0.00038	0.00161
41. ALL OTHER SERVICES	0.00594	0.04396	0.04307	0.01023	0.00790	0.01788	0.02001	0.03687
42. RAILROADS	0.00623	0.00787	0.00101	0.00048	0.00048	0.00349	0.00074	0.00041
43. TRUCKING + WAREHOUSING	0.01399	0.01176	0.00378	0.01192	0.00998	0.01008	0.00457	0.00871
44. ALL OTHER TRANSPORTATION	0.00858	0.00335	0.00426	0.01044	0.00218	0.00470	0.00305	0.00539
45. COMMUNICATIONS	0.00384	0.00395	0.00746	0.01436	0.02531	0.01110	0.00645	0.01347
46. ELECTRIC COMPANIES + SYSTEMS	0.01501	0.00940	0.02684	0.00421	0.00959	0.01305	0.00786	0.00657
47. GAS COMPANIES AND SYSTEMS	0.00512	0.00370	0.02560	0.00425	0.00445	0.00439	0.00848	0.00750
48. WATER + SANITARY SERVICES	0.00195	0.00199	0.00136	0.00787	0.00095	0.00074	0.00305	0.00142
49. TOTAL	1.49607	1.151571	1.24357	1.18789	1.12590	1.45718	1.29948	1.51714

TABLE III (CONTINUED)
 DIRECT AND INDIRECT REQUIREMENTS PER DOLLAR OF DELIVERY
 TO FINAL DEMAND, WEST VIRGINIA, 1975

	17	18	19	20	21	22	23	24
	CHEMICALS	PETRO'UM	GLASS	STONE& CLAY	PRIMARY METALS	FABRIC'D METALS	MACHIN'Y EXC ELEC	ELEC MACH INERY
1. AGRICULTURE	0.00018	0.00050	0.00040	0.00092	0.00008	0.00006	0.00002	0.00006
2. COAL MINING (UNDERGROUND)	0.02386	0.02917	0.00351	0.01282	0.02700	0.00568	0.00282	0.00969
3. COAL MINING (STRIP + AUGER)	0.00184	0.00167	0.00154	0.00142	0.00147	0.00102	0.00055	0.00213
4. PETROLEUM + NATURAL GAS	0.01034	0.07028	0.00329	0.00583	0.00052	0.00126	0.00075	0.00174
5. ALL OTHER MINING	0.00180	0.07908	0.01764	0.04616	0.00476	0.00106	0.00033	0.00095
6. GENERAL CONTRACTORS (BUILDING)	0.00038	0.00010	0.00019	0.00011	0.00049	0.00043	0.00018	0.00025
7. GENERAL CONTRACTORS (NON-BUILDING)	0.00109	0.00080	0.00026	0.00062	0.00029	0.00933	0.00028	0.00055
8. SPECIAL TRADES CONTRACTORS	0.01080	0.00508	0.00216	0.00385	0.00128	0.00119	0.00055	0.00075
9. FOOD + KINDRED PROD-MEATS+N.E.C.	0.00039	0.00008	0.00048	0.00013	0.00006	0.00008	0.00002	0.00006
10. FOOD + KINDRED PRODUCTS (DAIRIES)	0.00002	0.00002	0.00001	0.00002	0.00001	0.00002	0.00001	0.00002
11. FOOD + KINDRED PRODUCTS (BAKERIES)	0.00002	0.00002	0.00001	0.00003	0.00001	0.00002	0.00001	0.00002
12. FOOD + KINDRED PRODUCTS (BEVERAGES)	0.00001	0.00002	0.00001	0.00002	0.00001	0.00001	0.00001	0.00002
13. APPAREL + ACCESSORIES	0.00004	0.00003	0.00001	0.00038	0.00001	0.00001	0.00001	0.00002
14. LOGGING + SAWMILLS	0.00054	0.00158	0.00034	0.00064	0.00040	0.00013	0.00006	0.00031
15. FURNITURE + OTHER WOOD FABRICATION	0.00003	0.00018	0.00055	0.00011	0.00002	0.00004	0.00007	0.00107
16. PRINTING + PUBLISHING	0.00182	0.00288	0.00493	0.00738	0.00053	0.00229	0.00496	0.00242
17. CHEMICALS	1.13835	0.04619	0.00234	1.02678	0.00508	0.00249	0.00064	0.02379
18. PETROLEUM	0.00291	1.02671	0.00049	0.04206	0.00032	0.00129	0.00021	0.00035
19. GLASS	0.00101	0.00011	1.02796	0.00017	0.00005	0.00006	0.00003	0.00009
20. STONE + CLAY PRODUCTS	0.00163	0.02611	0.00444	1.02280	0.00037	0.00072	0.00020	0.00044
21. PRIMARY METAL PRODUCTS	0.00133	0.00216	0.00291	0.00247	1.00296	0.10350	0.05269	0.15542
22. FABRICATED METAL PRODUCTS	0.00440	0.00894	0.00221	0.01826	0.00151	1.00128	0.02164	0.00086
23. MACHINERY (EXCEPT ELECTRICAL)	0.00033	0.00050	0.00082	0.00046	0.00138	0.00173	1.00020	0.00455
24. ELECTRICAL MACHINERY + APPARATUS	0.00100	0.00027	0.00024	0.00086	0.00038	0.00017	0.01151	1.00245
25. TRANSPORTATION EQUIPMENT	0.00009	0.00010	0.00005	0.00059	0.00014	0.00011	0.00006	0.00005
26. INSTRUMENTS + RELATED PRODUCTS	0.00375	0.00086	0.00005	0.00020	0.00003	0.00003	0.00004	0.00271
27. ALL OTHER MANUFACTURING	0.01068	0.00198	0.04152	0.00728	0.00441	0.00502	0.00053	0.00179
28. EATING + DRINKING ESTABLISHMENTS	0.00039	0.00046	0.00019	0.00021	0.00008	0.00039	0.00025	0.00044
29. WHOLESALE TRADE	0.00926	0.02852	0.01827	0.02230	0.00564	0.01379	0.00932	0.00681
30. RETAIL FOOD STORES	0.00008	0.00012	0.00018	0.00028	0.00003	0.00009	0.00018	0.00010
31. RETAIL GASOLINE SERVICE STATIONS	0.00042	0.00169	0.00044	0.00669	0.00015	0.00024	0.00068	0.00045
32. ALL OTHER RETAIL	0.00312	0.00436	0.00322	0.01332	0.00331	0.00364	0.00240	0.00575
33. BANKING	0.00116	0.00475	0.00533	0.00472	0.00136	0.00096	0.00435	0.00177
34. OTHER FINANCE	0.00017	0.00343	0.00020	0.00044	0.00010	0.00088	0.00011	0.00012
35. INSURANCE AGENTS + BROKERS	0.00645	0.01116	0.02165	0.01130	0.00242	0.00272	0.01170	0.00969
36. REAL ESTATE	0.00047	0.00094	0.00064	0.00099	0.00017	0.00467	0.00040	0.00263
37. ALL OTHER FIN, INSUR, + REAL ESTATE	0.00356	0.00146	0.00166	0.00112	0.00128	0.00296	0.00099	0.00104
38. HOTELS + OTHER LODGING PLACES	0.00047	0.00041	0.00031	0.00016	0.00010	0.00019	0.00031	0.00080
39. MEDICAL + LEGAL SERVICES	0.00403	0.00460	0.00177	0.00694	0.00226	0.00207	0.00138	0.00426
40. EDUCATIONAL SERVICES	0.00012	0.00021	0.00031	0.00042	0.00021	0.00014	0.00012	0.00115
41. ALL OTHER SERVICES	0.00588	0.01007	0.01555	0.02093	0.00091	0.00588	0.00476	0.01080
42. RAILROADS	0.00942	0.00259	0.00096	0.00469	0.00457	0.00108	0.00595	0.00234
43. TRUCKING + WAREHOUSING	0.00976	0.04257	0.00610	0.03827	0.00922	0.00476	0.00111	0.00517
44. ALL OTHER TRANSPORTATION	0.00518	0.01515	0.00128	0.00398	0.00106	0.00136	0.00728	0.00496
45. COMMUNICATIONS	0.00579	0.03103	0.00425	0.00681	0.00391	0.00359	0.00477	0.00738
46. ELECTRIC COMPANIES + SYSTEMS	0.01067	0.01072	0.01354	0.01358	0.00766	0.01163	0.00674	0.02678
47. GAS COMPANIES AND SYSTEMS	0.01567	0.02232	0.03441	0.02899	0.00389	0.01180	0.00510	0.01449
48. WATER + SANITARY SERVICES	0.00240	0.00066	0.00056	0.00084	0.00007	0.00134	0.00029	0.00399
49. TOTAL	1.31312	1.50260	1.24916	1.36933	1.10195	1.21324	1.16655	1.32343

TABLE III (CONTINUED)
 DIRECT AND INDIRECT REQUIREMENTS PER DOLLAR OF DELIVERY
 TO FINAL DEMAND, WEST VIRGINIA, 1975

	25	26	27	28	29	30	31	32
	TRANSPOT EQUIPM	INSTRU'S &PRODUCT	ALL OTHR MANUF	EATING& DR'NG ES	WHOLSAL TRADE	RETAIL FOOD STR	RETAIL GAS STAT	ALL OTHR RETAIL
1. AGRICULTURE	0.00004	0.00005	0.00704	0.02338	0.00018	0.00016	0.00003	0.00029
2. COAL MINING (UNDERGROUND)	0.00434	0.00047	0.00551	0.00328	0.00500	0.00592	0.00340	0.00758
3. COAL MINING (STRIP + AUGER)	0.00079	0.00021	0.01346	0.00136	0.00144	0.00220	0.00100	0.00295
4. PETROLEUM + NATURAL GAS	0.00064	0.00045	0.00097	0.00227	0.00218	0.00210	0.00281	0.00147
5. ALL OTHER MINING	0.00325	0.00007	0.00060	0.00059	0.00014	0.00026	0.00204	0.00042
6. GENERAL CONTRACTORS (BUILDING)	0.00014	0.00001	0.00016	0.00020	0.00007	0.00306	0.00034	0.00173
7. GENERAL CONTRACTORS (NON-BUILDING)	0.00025	0.00020	0.00272	0.00026	0.00026	0.00062	0.00054	0.00075
8. SPECIAL TRADES CONTRACTORS	0.00046	0.00019	0.02478	0.00092	0.00181	0.00500	0.00059	0.00863
9. FOOD + KINDRED PROD-MEATS+N.E.C.	0.00002	0.00004	0.01121	0.04779	0.00021	0.00009	0.00002	0.00011
10. FOOD + KINDRED PRODUCTS (DAIRIES)	0.00001	0.00000	0.00001	0.03108	0.00007	0.00007	0.00001	0.00074
11. FOOD + KINDRED PRODUCTS (BAKERIES)	0.00001	0.00000	0.00001	0.03446	0.00008	0.00002	0.00001	0.00072
12. FOOD + KINDRED PRODUCTS (BEVERAGES)	0.00000	0.00000	0.00000	0.02168	0.00005	0.00001	0.00001	0.00067
13. APPAREL + ACCESSORIES	0.00001	0.00000	0.00001	0.00010	0.00002	0.00001	0.00001	0.00003
14. LOGGING + SAWMILLS	0.00021	0.00041	0.00069	0.00029	0.00014	0.00025	0.00010	0.00050
15. FURNITURE + OTHER WOOD FABRICATION	0.00012	0.00003	0.00008	0.00064	0.00020	0.00034	0.00012	0.00136
16. PRINTING + PUBLISHING	0.00099	0.00129	0.00345	0.00277	0.00194	0.04925	0.00550	0.04095
17. CHEMICALS	0.00092	0.00011	0.00674	0.00042	0.00210	0.00040	0.00132	0.00050
18. PETROLEUM	0.00028	0.00010	0.00140	0.00020	0.00052	0.00060	0.02476	0.00049
19. GLASS	0.00002	0.00001	0.00085	0.00122	0.00024	0.00005	0.00004	0.01004
20. STONE + CLAY PRODUCTS	0.00030	0.00008	0.00106	0.00056	0.00036	0.00103	0.00113	0.00071
21. PRIMARY METAL PRODUCTS	0.09445	0.00035	0.00485	0.00045	0.00100	0.00045	0.00031	0.00068
22. FABRICATED METAL PRODUCTS	0.00086	0.00029	0.03227	0.00035	0.00062	0.00086	0.00047	0.00113
23. MACHINERY (EXCEPT ELECTRICAL)	0.00023	0.00007	0.00952	0.00005	0.00010	0.00012	0.00006	0.00014
24. ELECTRICAL MACHINERY + APPARATUS	0.01204	0.00006	0.00238	0.00018	0.00059	0.00032	0.00020	0.00039
25. TRANSPORTATION EQUIPMENT	1.00022	0.00001	0.00046	0.00003	0.00027	0.00003	0.00011	0.00011
26. INSTRUMENTS + RELATED PRODUCTS	0.00004	1.00120	0.00007	0.00024	0.00004	0.00003	0.00004	0.00014
27. ALL OTHER MANUFACTURING	0.00048	0.00383	1.00736	0.00068	0.00135	0.00526	0.00032	0.00195
28. EATING + DRINKING ESTABLISHMENTS	0.00012	0.00002	0.00011	1.00842	0.00212	0.00040	0.00023	0.00086
29. WHOLESALE TRADE	0.00298	0.00054	0.00447	0.06061	1.01766	0.01081	0.01526	0.00619
30. RETAIL FOOD STORES	0.00004	0.00005	0.00013	0.00412	0.00025	1.00183	0.00020	0.00146
31. RETAIL GASOLINE SERVICE STATIONS	0.00033	0.00018	0.00106	0.00160	0.00916	0.00275	1.00221	0.00454
32. ALL OTHER RETAIL	0.00155	0.00025	0.00091	0.00235	0.00252	0.00270	0.00264	1.01054
33. BANKING	0.00160	0.00438	0.00343	0.00470	0.00480	0.00337	0.00461	0.01166
34. OTHER FINANCE	0.00005	0.00002	0.00037	0.00198	0.00686	0.00129	0.00032	0.00382
35. INSURANCE AGENTS + BROKERS	0.00365	0.00228	0.00356	0.01012	0.01315	0.01959	0.01193	0.01328
36. REAL ESTATE	0.00020	0.00013	0.00212	0.00162	0.00055	0.06845	0.00697	0.01851
37. ALL OTHER FIN, INSUR, + REAL	0.00041	0.00022	0.00056	0.00094	0.00326	0.00184	0.00120	0.00260
38. HOTELS + OTHER LODGING PLACES	0.00006	0.00005	0.00014	0.00017	0.00114	0.00023	0.00010	0.00180
39. MEDICAL + LEGAL SERVICES	0.00129	0.00017	0.00148	0.00142	0.00375	0.00246	0.00146	0.00760
40. EDUCATIONAL SERVICES	0.00015	0.00010	0.00016	0.00027	0.00058	0.00063	0.00034	0.00151
41. ALL OTHER SERVICES	0.00619	0.00524	0.00776	0.00951	0.00944	0.03139	0.01757	0.05012
42. RAILROADS	0.01485	0.00021	0.00458	0.00127	0.00576	0.00075	0.00216	0.00346
43. TRUCKING + WAREHOUSING	0.00203	0.00503	0.00570	0.00399	0.01654	0.00846	0.02702	0.01818
44. ALL OTHER TRANSPORTATION	0.00050	0.00443	0.00248	0.00236	0.01112	0.00202	0.00246	0.00378
45. COMMUNICATIONS	0.00756	0.00174	0.00359	0.00582	0.00853	0.01772	0.01586	0.00680
46. ELECTRIC COMPANIES + SYSTEMS	0.00973	0.00223	0.00738	0.01427	0.01874	0.02950	0.01130	0.01156
47. GAS COMPANIES AND SYSTEMS	0.00639	0.00277	0.00475	0.02348	0.01788	0.02111	0.01016	0.01152
48. WATER + SANITARY SERVICES	0.00191	0.00172	0.00055	0.00199	0.00056	0.00280	0.00261	0.00241
49. TOTAL	1.18270	1.04127	1.19288	1.33646	1.17535	1.30859	1.18190	1.27736

TABLE III (CONTINUED)
 DIRECT AND INDIRECT REQUIREMENTS PER DOLLAR OF DELIVERY
 TO FINAL DEMAND, WEST VIRGINIA, 1975

	33	34	35	36	37	38	39	40
	BANKING	OTHER FINANCE	INSURANC AGENTS	REAL EST	ALL OTHR FIRE	HOTELS& LODGING	MEDICAL& LEGAL	EDUCAT'L SERVICES
1. AGRICULTURE	0.00004	0.00007	0.00010	0.00016	0.00064	0.00981	0.00150	0.00037
2. COAL MINING (UNDERGROUND)	0.00064	0.00055	0.00041	0.00163	0.00190	0.02244	0.00275	0.00444
3. COAL MINING (STRIP + AUGER)	0.00021	0.00017	0.00014	0.00054	0.00046	0.03175	0.00045	0.00258
4. PETROLEUM + NATURAL GAS	0.00171	0.00060	0.00053	0.00167	0.00122	0.00245	0.00100	0.00133
5. ALL OTHER MINING	0.00015	0.00009	0.00003	0.00122	0.00012	0.00109	0.00022	0.00119
6. GENERAL CONTRACTORS (BUILDING)	0.00087	0.00064	0.00011	0.04749	0.00017	0.00237	0.00008	0.02003
7. GENERAL CONTRACTORS (NON-BUILDING)	0.00026	0.00032	0.00008	0.00326	0.00020	0.00685	0.00027	0.02368
8. SPECIAL TRADES CONTRACTORS	0.00577	0.00125	0.00044	0.03519	0.00248	0.04149	0.00529	0.00886
9. FOOD + KINDRED PROD-MEATS+N.E.C.	0.00007	0.00017	0.00022	0.00014	0.00186	0.00027	0.00439	0.00060
10. FOOD + KINDRED PRODUCTS (DAIRIES)	0.00002	0.00007	0.00010	0.00008	0.00054	0.00009	0.00125	0.00073
11. FOOD + KINDRED PRODUCTS (BAKERIES)	0.00003	0.00007	0.00010	0.00009	0.00052	0.00008	0.00119	0.00069
12. FOOD + KINDRED PRODUCTS (BEVERAGES)	0.00002	0.00005	0.00007	0.00005	0.00034	0.00007	0.00077	0.00087
13. APPAREL + ACCESSORIES	0.00005	0.00012	0.00013	0.00003	0.00184	0.00048	0.00437	0.00002
14. LOGGING + SAWMILLS	0.00015	0.00004	0.00002	0.00102	0.00009	0.00127	0.00017	0.00042
15. FURNITURE + OTHER WOOD FABRICATION	0.00009	0.00004	0.00001	0.00030	0.00007	0.00014	0.00012	0.00017
16. PRINTING + PUBLISHING	0.00918	0.01942	0.00311	0.03367	0.00716	0.00773	0.00260	0.00411
17. CHEMICALS	0.00044	0.00057	0.00023	0.00089	0.00207	0.00101	0.00462	0.00051
18. PETROLEUM	0.00046	0.00031	0.00009	0.00126	0.00020	0.00181	0.00025	0.00334
19. GLASS	0.00007	0.00011	0.00009	0.00019	0.00108	0.00023	0.00238	0.00018
20. STONE + CLAY PRODUCTS	0.00044	0.00053	0.00018	0.00686	0.00041	0.00254	0.00036	0.00445
21. PRIMARY METAL PRODUCTS	0.00275	0.00077	0.00011	0.00226	0.00029	0.00161	0.00035	0.00112
22. FABRICATED METAL PRODUCTS	0.00150	0.00067	0.00015	0.00408	0.00045	0.00357	0.00066	0.00152
23. MACHINERY (EXCEPT ELECTRICAL)	0.00023	0.00013	0.00002	0.00033	0.00006	0.00039	0.00008	0.00054
24. ELECTRICAL MACHINERY + APPARATUS	0.00031	0.00054	0.00013	0.00083	0.00028	0.00096	0.00028	0.00031
25. TRANSPORTATION EQUIPMENT	0.00002	0.00002	0.00001	0.00005	0.00002	0.00007	0.00002	0.00002
26. INSTRUMENTS + RELATED PRODUCTS	0.00004	0.00006	0.00021	0.00004	0.00058	0.00006	0.00134	0.00003
27. ALL OTHER MANUFACTURING	0.00140	0.00033	0.00026	0.00191	0.00089	0.00172	0.00198	0.00078
28. EATING + DRINKING ESTABLISHMENTS	0.00025	0.00086	0.00196	0.00194	0.00035	0.00040	0.00015	0.00184
29. WHOLESALE TRADE	0.00223	0.00318	0.00121	0.03156	0.00631	0.04315	0.01339	0.01233
30. RETAIL FOOD STORES	0.00035	0.00076	0.00019	0.00121	0.00132	0.00030	0.00263	0.00016
31. RETAIL GASOLINE SERVICE STATIONS	0.00049	0.00045	0.00078	0.00185	0.00102	0.00917	0.00205	0.00068
32. ALL OTHER RETAIL	0.00357	0.00427	0.00211	0.00947	0.01183	0.01184	0.00893	0.01249
33. BANKING	1.00101	0.06853	0.00340	0.01056	0.00355	0.03692	0.00405	0.00204
34. OTHER FINANCE	0.00114	1.00320	0.00053	0.00247	0.00181	0.00134	0.00419	0.00021
35. INSURANCE AGENTS + BROKERS	0.01158	0.00704	1.00448	0.00585	0.01051	0.03280	0.01364	0.00846
36. REAL ESTATE	0.00617	0.01104	0.00210	1.06922	0.00303	0.01050	0.00081	0.00135
37. ALL OTHER FIN, INSUR, + REAL ESTATE	0.00957	0.00127	0.06682	0.00463	1.00160	0.00305	0.00135	0.00075
38. HOTELS + OTHER LODGING PLACES	0.00028	0.00021	0.00059	0.00188	0.00054	1.00035	0.00047	0.00065
39. MEDICAL + LEGAL SERVICES	0.01065	0.02911	0.03026	0.00620	0.43493	0.00763	1.03456	0.00413
40. EDUCATIONAL SERVICES	0.00110	0.00360	0.00031	0.00185	0.00081	0.00178	0.00098	1.02379
41. ALL OTHER SERVICES	0.03986	0.07344	0.01591	0.09601	0.03494	0.08177	0.03361	0.03165
42. RAILROADS	0.00022	0.00028	0.00013	0.00068	0.00065	0.00196	0.00112	0.00049
43. TRUCKING + WAREHOUSING	0.00120	0.00097	0.00033	0.00256	0.00136	0.00615	0.00207	0.00480
44. ALL OTHER TRANSPORTATION	0.03640	0.00819	0.00079	0.00448	0.00189	0.00386	0.00174	0.00168
45. COMMUNICATIONS	0.01058	0.01733	0.00603	0.02629	0.01263	0.03863	0.00868	0.00934
46. ELECTRIC COMPANIES + SYSTEMS	0.00242	0.00203	0.00157	0.00598	0.00533	0.05541	0.00471	0.00849
47. GAS COMPANIES AND SYSTEMS	0.00424	0.00305	0.00537	0.01529	0.01211	0.02336	0.00953	0.01114
48. WATER + SANITARY SERVICES	0.00118	0.00064	0.00030	0.00292	0.00088	0.00831	0.00170	0.00244
49. TOTAL	1.17143	1.26717	1.15224	1.44814	1.57334	1.52103	1.18912	1.22181

TABLE III (CONTINUED)
 DIRECT AND INDIRECT REQUIREMENTS PER DOLLAR OF DELIVERY
 TO FINAL DEMAND, WEST VIRGINIA, 1975

	41	42	43	44	45	46	47	48
	ALL OTHR SERVICES	RAILR'DS	TRUCK & WAREHOUS	ALL OTHR TRANSPOT	COMMUN- ICATI'S	ELEC CO. &SYSTEMS	GAS CO. &SYSTEMS	WATER & SANITARY
1. AGRICULTURE	0.00005	0.00010	0.00004	0.00019	0.00005	0.00018	0.00008	0.00024
2. COAL MINING (UNDERGROUND)	0.00148	0.00135	0.00130	0.00292	0.00205	0.20102	0.00411	0.01245
3. COAL MINING (STRIP + AUGER)	0.00049	0.00033	0.00044	0.00066	0.00064	0.07438	0.00031	0.00398
4. PETROLEUM + NATURAL GAS	0.00160	0.00084	0.00677	0.03625	0.00120	0.00105	0.09226	0.00171
5. ALL OTHER MINING	0.00035	0.00680	0.00038	0.00100	0.00145	0.00060	0.00021	0.03466
6. GENERAL CONTRACTORS (BUILDING)	0.00072	0.00337	0.00039	0.00008	0.00011	0.00014	0.00033	0.00051
7. GENERAL CONTRACTORS (NON-BUILDING)	0.00099	0.00024	0.00743	0.00040	0.00543	0.00056	0.00022	0.08460
8. SPECIAL TRADES CONTRACTORS	0.00400	0.00847	0.00220	0.00477	0.00059	0.00094	0.00083	0.00527
9. FOOD + KINDRED PROD-MEATS+N.E.C.	0.00005	0.00002	0.00005	0.00026	0.00004	0.00006	0.00013	0.00006
10. FOOD + KINDRED PRODUCTS (DAIRIES)	0.00004	0.00001	0.00002	0.00001	0.00002	0.00003	0.00008	0.00005
11. FOOD + KINDRED PRODUCTS (BAKERIES)	0.00010	0.00001	0.00003	0.00001	0.00003	0.00004	0.00008	0.00005
12. FOOD + KINDRED PRODUCTS (BEVERAGES)	0.00004	0.00001	0.00002	0.00001	0.00002	0.00002	0.00005	0.00004
13. APPAREL + ACCESSORIES	0.00002	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00009
14. LOGGING + SAWMILLS	0.00015	0.00095	0.00009	0.00031	0.00008	0.00256	0.00009	0.00074
15. FURNITURE + OTHER WOOD FABRICATION	0.00023	0.00003	0.00008	0.00104	0.00006	0.00015	0.00012	0.00025
16. PRINTING + PUBLISHING	0.02633	0.00061	0.01037	0.00132	0.00467	0.00419	0.00249	0.00396
17. CHEMICALS	0.00556	0.00061	0.00035	0.00113	0.00054	0.00027	0.00012	0.02577
18. PETROLEUM	0.00212	0.00925	0.00207	0.00751	0.00377	0.00322	0.00026	0.01220
19. GLASS	0.00022	0.00005	0.00010	0.00005	0.00002	0.00003	0.00004	0.00051
20. STONE + CLAY PRODUCTS	0.00052	0.00157	0.00072	0.00045	0.02384	0.00417	0.00148	0.01086
21. PRIMARY METAL PRODUCTS	0.00229	0.00691	0.00052	0.06949	0.00244	0.00134	0.00078	0.00422
22. FABRICATED METAL PRODUCTS	0.00536	0.00171	0.00039	0.02506	0.00086	0.00217	0.00152	0.01148
23. MACHINERY (EXCEPT ELECTRICAL)	0.00107	0.00171	0.00018	0.00454	0.00021	0.00028	0.00006	0.00192
24. ELECTRICAL MACHINERY + APPARATUS	0.00659	0.00025	0.00009	0.00025	0.00386	0.00053	0.00007	0.00704
25. TRANSPORTATION EQUIPMENT	0.00025	0.00808	0.00067	0.00018	0.00010	0.00027	0.00004	0.00011
26. INSTRUMENTS + RELATED PRODUCTS	0.00016	0.00003	0.00008	0.00037	0.00010	0.00004	0.00092	0.00017
27. ALL OTHER MANUFACTURING	0.00039	0.00048	0.00068	0.02163	0.00058	0.00044	0.00065	0.00104
28. EATING + DRINKING ESTABLISHMENTS	0.00044	0.00008	0.00058	0.00028	0.00067	0.00093	0.00231	0.00054
29. WHOLESALE TRADE	0.02113	0.00221	0.05932	0.00847	0.00356	0.00867	0.00539	0.02364
30. RETAIL FOOD STORES	0.00094	0.00003	0.00038	0.00005	0.00017	0.00016	0.00011	0.00015
31. RETAIL GASOLINE SERVICE STATIONS	0.00366	0.00020	0.00475	0.00237	0.00096	0.00039	0.00192	0.00306
32. ALL OTHER RETAIL	0.01998	0.00272	0.00708	0.00123	0.00139	0.00164	0.00227	0.03936
33. BANKING	0.00616	0.00044	0.00504	0.00860	0.00352	0.00175	0.00211	0.00241
34. OTHER FINANCE	0.00033	0.00009	0.00091	0.00027	0.00007	0.00040	0.00044	0.00041
35. INSURANCE AGENTS + BROKERS	0.00883	0.02223	0.02260	0.00440	0.00263	0.00516	0.00973	0.01092
36. REAL ESTATE	0.00689	0.00028	0.00165	0.00060	0.00145	0.00114	0.00593	0.00127
37. ALL OTHER FIN, INSUR, + REAL ESTATE	0.00180	0.00156	0.00176	0.00061	0.00180	0.00136	0.00200	0.00252
38. HOTELS + OTHER LODGING PLACES	0.00104	0.00018	0.00068	0.00046	0.00043	0.00064	0.00117	0.00021
39. MEDICAL + LEGAL SERVICES	0.00360	0.00286	0.00132	0.00129	0.00114	0.00312	0.00312	0.00233
40. EDUCATIONAL SERVICES	0.01937	0.00010	0.00008	0.00029	0.00048	0.00015	0.00013	0.00015
41. ALL OTHER SERVICES	1.03345	0.00518	0.00242	0.01448	0.02534	0.00736	0.00640	0.00569
42. RAILROADS	0.00086	1.00203	0.00162	0.00083	0.00892	0.01413	0.00169	0.00800
43. TRUCKING + WAREHOUSING	0.00667	0.00688	1.00183	0.00381	0.00963	0.02657	0.00220	0.01044
44. ALL OTHER TRANSPORTATION	0.00502	0.00090	0.00379	1.00501	0.00663	0.01128	0.00856	0.00234
45. COMMUNICATIONS	0.00983	0.00468	0.00562	0.00650	1.00196	0.00578	0.00497	0.01461
46. ELECTRIC COMPANIES + SYSTEMS	0.00512	0.00410	0.00552	0.00418	0.00843	1.03990	0.00208	0.05325
47. GAS COMPANIES AND SYSTEMS	0.01216	0.00172	0.00528	0.00375	0.00722	0.00193	1.00663	0.00622
48. WATER + SANITARY SERVICES	0.00303	0.00041	0.00080	0.00025	0.00017	0.00021	0.00096	1.01614
49. TOTAL	1.23148	1.11269	1.16847	1.24763	1.13936	1.43139	1.17745	1.42762

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APPENDIX

Regional Research Institute
West Virginia University

West Virginia Interindustry Relations Study
Instructions for Business Questionnaire

Will you please read the instructions to each set of questions carefully before responding. It is important that the information you provide be consistent with that of other establishments in the survey.

If you have any questions will you please call Dr. Frank Giarratani at (304)293-2896, collect.

Questions 4, 5, & 6

Your answers to these questions will permit us to classify your establishment by size and industry. Once this is done, your establishment data will be combined with those of other firms in your industry. These data *and all other information you provide* will be used only at the *industry* level.

Question 7

By “typical” dollar of sales we mean an average sale by your establishment to intermediate *users* (other industries) and final *users* (households, government). The word “users” has been emphasized because it is important that we identify those sectors that actually use your products or services for additional production and those that buy your product or service for final consumption. If most of your sales are to a wholesaler or retailer- – who in turn passes your product on to other sectors – *it is the sector of final destination that we wish to identify.*

Example: Sales

Sector		Percent to West Virginia Sectors
Manufacturing	15	
9. Food & Kindred Products (meats)		_____ %
10. Food & Kindred Products (dairies)		_____ %
11. Food & Kindred Products (bakeries)		_____ %
12. Food & Kindred Products (beverages)		_____ %
13. Apparel & Accessories		_____ %
14. Logging & Sawmills	.02	50 %
15. Furniture & Other Wood Fabrication		_____ %
16. Printing & Publishing		_____ %
17. Chemicals	.03	80 %
18. Petroleum		_____ %
19. Glass		_____ %
20. Stone & Clay Products		_____ %
21. Primary Metal Products		_____ %
22. Fabricated Metal Products	.05	_____ %
23. Machinery (except electrical)		_____ %
24. Electrical Machinery & Apparatus		_____ %
25. Transportation Equipment		_____ %
26. Instruments & Related Products	.05	_____ %
27. All Other Manufacturing		_____ %

This hypothetical respondent has indicated that 15 cents of a typical dollar of sales went to the major group “Manufacturing.” This includes sales to West Virginia establishments in Sectors 14 and 17. All other manufacturing sales were to establishments outside of West Virginia.

Question 8

The purpose of this question is to identify the industrial *origin* of the goods and services required by your establishment for use in *current* production. Goods purchased on capital account are considered later in this questionnaire.

Please make every effort to assign to individual industries their appropriate share of your expenses. Your establishment may purchase a substantial part of its inputs from wholesalers, but it is important that such purchases be assigned *to the industry from which they originate*. Please indicate, where appropriate that this purchase “passed through” a wholesaler by an “X”

Sector 44a, Company-owned Transportation, includes leased vehicles.

Example: Current Expenses

Sector		Percent From West Virginia Establishments
Manufacturing	.10	
9. Food & Kindred Products (meats)		%
10. Food & Kindred Products (dairies)		%
11. Food & Kindred Products (bakeries)		%
12. Food & Kindred Products (beverages)		%
13. Apparel & Accessories		%
14. Logging & Sawmills	.03	%
15. Furniture & Other Wood Fabrication		%
16. Printing & Publishing		%
17. Chemicals	.02	100 %
18. Petroleum		%
19. Glass		%
20. Stone & Clay Products		%
21. Primary Metal Products		%
22. Fabricated Metal Products	.05	%
23. Machinery (except electrical)		%
24. Electrical Machinery & Apparatus		%
25. Transportation Equipment	.01	%
26. Instruments & Related Products	X .04	80 %
27. All Other Manufacturing		%

X = Purchases “passed through” wholesale sector. All others are direct purchases for sector shown.

This hypothetical respondent has indicated that 10 cents of a typical dollar of current expenses has been assigned to the major group “Manufacturing.” Of this amount, purchases were made from West Virginia establishments in Sectors 17 and 26. All other purchases were from establishments located outside of the state. Instruments and related products were purchased from a wholesale firm. All other purchases were from the industries shown.

Questions 9 & 10

Continued growth in West Virginia will cause some industries to expand capacity. Answers to questions 9 and 10 will permit us to estimate the anticipated increase in capacity associated with capital expenditures in any given year. We have chosen a three-year period to average the effect of unusual expenditures in any one year. *Potential* output is very difficult to estimate; but your response, along with those of other establishments, will permit us to estimate the amount of investment needed to expand capacity by a given amount.

Questions 11, 12, & 13

These questions ask that you identify generally the geographic origin of expansion and replacement capital goods purchased by your firm.

Question 14

Consider *only* those capital goods purchased from West Virginia establishments here and estimate the percent of your expenditures to each of the sectors indicated.

8. How much of a *typical* dollar of your establishment's current expenses (purchases) can be attributed to each of the following sectors:

Sector	Percent From <i>WEST VIRGINIA</i> Establishments
<hr/>	
Agriculture and Extractive Industries	
1. Agriculture	_____ %
2. Coal Mines (underground)	_____ %
3. Coal Mines (strip and auger)	_____ %
4. Petroleum & Natural Gas	_____ %
5. All Other Mining	_____ %
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Contractors	
6. General Contractors (building)	_____ %
7. General Contractors (non-building)	_____ %
8. Special Trade Contractors	_____ %
<hr/>	
Manufacturing	
9. Food & Kindred Products (meats)	_____ %
10. Food & Kindred Products (dairies)	_____ %
11. Food & Kindred Products (bakeries)	_____ %
12. Food & Kindred Products (beverages)	_____ %
13. Apparel & Accessories	_____ %
14. Logging & Sawmills	_____ %
15. Furniture & Other Wood Fabrication	_____ %
16. Printing & Publishing	_____ %
17. Chemicals	_____ %
18. Petroleum	_____ %
19. Glass	_____ %
20. Stone & Clay Products	_____ %
21. Primary Metal Products	_____ %
22. Fabricated Metal Products	_____ %
23. Machinery (except electrical)	_____ %
24. Electrical Machinery & Apparatus	_____ %
25. Transportation Equipment	_____ %
26. Instruments & Related Products	_____ %
27. All Other Manufacturing	_____ %
<hr/>	
Wholesale and Retail Trade	
28. Eating and Drinking Establishments	_____ %
29. Wholesale Trade	_____ %
30. Retail Food Stores	_____ %
31. Retail Gasoline Service Stations	_____ %
32. All Other Retail	_____ %
<hr/>	
Services	
33. Banking	_____ %
34. Other Finance	_____ %
30. Insurance Agents & Brokers	_____ %
35. Retail Gasoline Service Stations	_____ %
36. Real Estate	_____ %
37. All Other Finance, Ins. & Real Estate	_____ %
38. Hotels & Other Lodging Places	_____ %
39. Medical & Legal Services	_____ %
40. Educational Services	_____ %
41. All Other Services	_____ %
<hr/>	
Transportation	
42. Railroads	_____ %
43. Trucking & Warehousing	_____ %
44. All Other Transportation	_____ %
44a. Company-Owned Transportation	_____ %
<hr/>	
Communications & Utilities	
45. Communications	_____ %
46. Electric Companies & Systems	_____ %
47. Gas Companies & Systems	_____ %
48. Water & Sanitary Services	_____ %
<hr/>	
Final Payments	
49. Wages & Salaries	_____ %
50. Local Government (taxes)	_____ %
51. State Government (taxes)	_____ %
52. Federal Government (taxes)	_____ %
53. Profits, Retained Earnings	_____ %
54. Depreciation Allowance	_____ %
Typical Dollar of Expenses	<u>\$1.00</u>

9. What was your average yearly expenditure for capital goods over the period 1973-1975?
 (to the nearest thousand) _____

10. By what dollar amount was your *potential* output, or capacity, increased as a result of this expenditure?
 (The figure we want is the *average* annual increase in capacity over the three years covered by question 9.)

Average increase in capacity _____

11. How much of this average yearly investment was for:

- a) expansion \$ _____
- b) replacement \$ _____
- Total* \$ _____ (From question 9)

12. What percent of the *replacement* capital goods purchased by your establishment were produced.

- a) in West Virginia _____%
- b) outside of West Virginia _____%
- Total* _____100%

13. What percent of the *expansion* capital goods purchased by your establishment produced by firms located...

- a) in West Virginia _____%
- b) outside of West Virginia _____%
- Total* _____100%

14. What percent of your expenditures on expansion and replacement capital can be attributed to the following *West Virginia* sectors:

<u>Sector</u>	Expansion Capital	Replacement Capital
5. Mining (other than coal)		
Contractors		
6. General Contractors (building)		
7. General Contractors (non-building)		
8. Special Trade Contractors		
Manufacturing		
14. Logging & Sawmills		
15. Furniture & Other Wood Fabrication		
20. Stone & Clay Products		
21. Primary Metal Products		
22. Fabricated Metal Products		
23. Machinery (except electrical)		
24. Electrical Machinery & Apparatus		
25. Transportation Equipment		
26. Instruments & Related Products		
27. All Other Manufacturing		
Wholesale and Retail Trade		
29. Wholesale Trade		
32. Retail Trade		
Total	100%	100%

15. What percent of your total sales in 1975 were made from inventory accumulated in 1974 or earlier?
 _____%

16. What percent of your total production in 1975 was accumulated in inventory to be sold in 1976 or later?
 _____%

Regional Research Institute West
Virginia University
West Virginia Interindustry Relations Study
Business Questionnaire
(for year ending December 31, 1975)

Establishment Code Number _____

1. Name of Establishment _____

2. Address _____

3. Respondent and Title _____

4. Principal Products or Services (and % of total sales)

1. _____	_____%	4. _____	_____%
2. _____	_____%	5. _____	_____%
3. _____	_____%	6. _____	_____%

5. What was your average monthly employment in 1975? _____

6. What were your total sales in 1975 (to the nearest thousand)? _____

7. How much of a *typical* dollar of your establishment's sales went to the following sectors:

Sector	Percent From WEST VIRGINIA Sectors
Agriculture and Extractive Industries	
1. Agriculture	_____ %
2. Coal Mines (underground)	_____ %
3. Coal Mines (strip and auger)	_____ %
4. Petroleum & Natural Gas	_____ %
5. All Other Mining	_____ %
Contractors	
6. General Contractors (building)	_____ %
7. General Contractors (non-building)	_____ %
8. Special Trade Contractors	_____ %
Manufacturing	
9. Food & Kindred Products (meats)	_____ %
10. Food & Kindred Products (dairies)	_____ %
11. Food & Kindred Products (bakeries)	_____ %
12. Food & Kindred Products (beverages)	_____ %
13. Apparel & Accessories	_____ %
14. Logging & Sawmills	_____ %
15. Furniture & Other Wood Fabrication	_____ %
16. Printing & Publishing	_____ %
17. Chemicals	_____ %
18. Petroleum	_____ %
19. Glass	_____ %
20. Stone & Clay Products	_____ %
21. Primary Metal Products	_____ %
22. Fabricated Metal Products	_____ %
23. Machinery (except electrical)	_____ %
24. Electrical Machinery & Apparatus	_____ %
25. Transportation Equipment	_____ %
26. Instruments & Related Products	_____ %
27. All Other Manufacturing	_____ %
Wholesale and Retail Trade	
28. Eating and Drinking Establishments	_____ %
29. Wholesale Trade	_____ %
30. Retail Food Stores	_____ %
31. Retail Gasoline Service Stations	_____ %
32. All Other Retail	_____ %
Services	
33. Banking	_____ %
34. Other Finance	_____ %
30. Insurance Agents & Brokers	_____ %
35. Retail Gasoline Service Stations	_____ %
36. Real Estate	_____ %
37. All Other Finance, Ins. & Real Estate	_____ %
38. Hotels & Other Lodging Places	_____ %
39. Medical & Legal Services	_____ %
40. Educational Services	_____ %
41. All Other Services	_____ %
Transportation	
42. Railroads	_____ %
43. Trucking & Warehousing	_____ %
44. All Other Transportation	_____ %
44a. Company-Owned Transportation	_____ %
Communications & Utilities	
45. Communications	_____ %
46. Electric Companies & Systems	_____ %
47. Gas Companies & Systems	_____ %
48. Water & Sanitary Services	_____ %
Final Sales	
49. Households	_____ %
50. Local Government (taxes)	_____ %
51. State Government (taxes)	_____ %
52. Federal Government (taxes)	_____ %
Typical Dollar of Sales	<u>\$1.00</u>

7a. What per cent of your total sales typically pass through a wholesaler? _____