# APPENDIX

The following material explains three computations referenced in the text: outlier adjustment, creating the sampling distribution, and merging the Kotter-Heskett market categories with the 1982 US Department of Commerce categories.

## Outlier Adjustment

The first task in refining the form of the contingency function is to clean the data of suspicious outliers.[10] Figure 8 shows how well the culture effect in each market is described by the contingency function. Two criteria are balanced against one another. The solid areas of the bars describe studentized residuals in the graph at the bottom of Figure 5. Publishing lies most away from the function. Petroleum is almost equally far from the function. White areas of the bars describe studentized residuals when market price-cost margins are used to predict the correlation between culture strength and performance. Since market structure predicts market profit (top graph in Figure 5) as the mirror image of its predicted culture-performance correlation (bottom graph in Figure 5), there is a strong negative correlation between market profit and the strength of the culture effect within the market. The culture effect increases linearly with decreasing profit margin. Publishing again is the most deviant from this prediction, followed by the food and drug retail market.

Publishing stands out as an outlier in both predictions. Culture strength is correlated -.04 with performance. It should be much higher according to the pattern of contingency observed across the other markets. Given the level of effective organization in the publishing market derived from census data, the correlation should be about .4 (draw a vertical line in Figure 5 up to the contingency function from the publishing market).

The graph inserted in Figure 8 shows how performance changes with the culture strength of publishing firms. Solid dots are the return to investment data used in the text. Hollow dots are net income growth, another performance measure in Kotter-Heskett's study (see footnote 2). There are nine firms; six newspaper companies, two book and magazine publishers, and one commercial printing company.

The problem is McGraw-Hill; one of the book and periodicals publishers. McGraw-Hill is the dot to the far left of the insert graph in Figure 8. It is perceived to have little unique or coherent culture, but it makes a handsome return to investment. Weak-culture McGraw-Hill is the third

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[10] We came back to this task when initial results on the sampling distribution around the contingency function showed a sharp increase in variance as the function passed through an interval around a .2 level of market constraint (which contains the publishing market). None of the nine publishing firms are among the 10 for which return on investment is imputed from net income growth (see footnote 2).

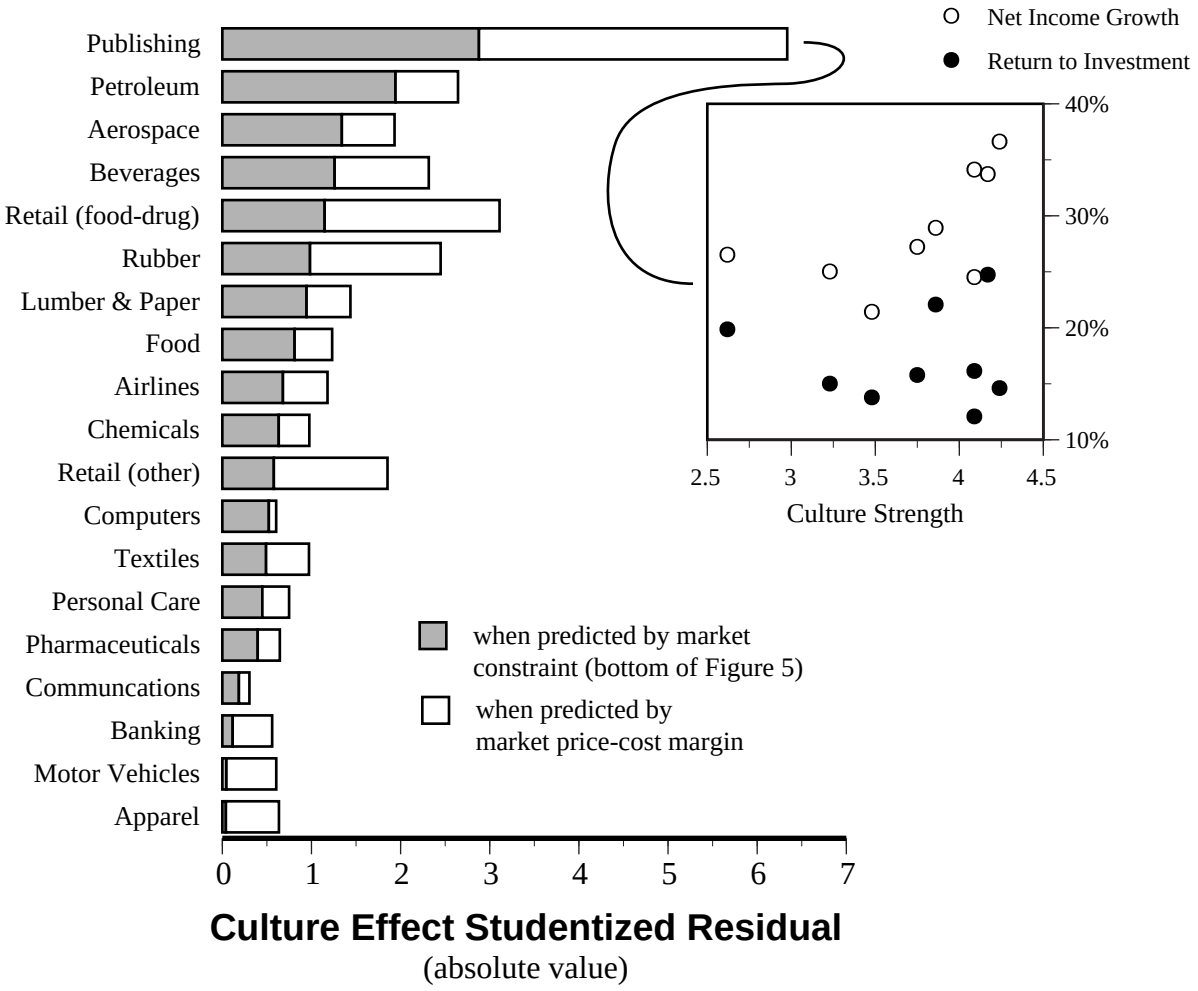


**Figure 8. Publishing Is Suspect**

highest performer in return to investment, so culture strength has no correlation with performance ($r = -.04$).

Publishing could be a special case not well described by the contingency function (raising the question of whether markets not in the Kotter-Heskett study are also special cases), but look at the other performance indicator. McGraw-Hill is the fourth lowest performer in terms of net income growth, which gives culture strength an intermediate (.59) correlation with performance. This is the reverse of conditions in other markets. Culture strength's .51 correlation with return to investment in Figure 2 is a smaller .28 with net income growth.

Therefore, given the inconsistent evidence on the culture effect within publishing, and the market's uniquely pronounced lack of fit to the contingency function, we've averaged the two performance measures within publishing to get a more "reliable" indicator of high and low performance in publishing. We converted measures to z-scores across the nine publishing firms, averaged them to define the relative performance of the firms, then gave them the original mean and standard deviation of return to investment for the nine firms so their performance scores can be

compared to other firms. The culture-performance correlation increases from the observed -.04 to .33, which is much closer to the correlation predicted by the contingency function in Figure 5. The aggregate fit of the 19 markets to the contingency function is not much changed (.81 correlation in Figure 5 increases to .85, and see footnote 9 for more detailed comparison), but now no market is an outlier from the function. The studentized residuals that initially vary from -3.4 to 1.7 in Figure 8, with publishing the -3.4 outlier having a low probability of being a random deviation from the contingency function (-3.4 t-test, 15 df., P = .004), now vary from -1.6 to 2.2, all of which lie within a .96 confidence interval around the contingency function.

## Creating the Sampling Distribution

Rank the 180 firms by market constraint. To construct the list, first rank firms by the market constraint score for their market (left to right on the horizontal axis in Figure 5 using the 23 market distinctions possible with SIC and input-output data, see below), then rank firms within markets in order of their return to invested capital (presuming that lower performance indicates operations in more constrained market segments). The 180 firms are now ranked across the horizontal axis in Figure 5.

To create the sampling distribution in Figure 6 we combined adjacent firms in sampling clusters around each firm. We studied clusters ranging in size from three to 180 adjacent firms. In size-3 clusters, firms in a cluster operate from very similar market conditions since they are adjacent on the horizontal axis in Figure 5. In size-180 clusters, there are in each cluster many firms from widely different markets.

Figure 9 displays results on cluster sizes three through 51. Consider the size-3 results. For each of the 180 firms, we cluster the next firm lower in the rank order and the next firm higher in the rank order. Performance is correlated with culture strength across the three firms in the cluster. Market constraint is averaged across the three firms in the cluster. The culture-performance correlation and average market constraint score for each cluster position 180 data points in a graph like Figure 6. We then estimate the intercept, slope, and standardized slope of the contingency function through the 180 data points. For size-3 clusters, the estimates are .54 intercept, .15 slope, and .16 standardized slope (versus .93, .32, and .81 in Figure 5). These estimates are the points in Figure 9 where the three lines begin. The lines then move to the right through estimates obtained with larger clusters. The thin line at the top of the graph describes estimates of the intercept and the thin line at the bottom describes estimates of the regression slope. The bold line describes estimates of the standardized regression slope.

Three is the minimum size for nontrival culture-performance correlations. Points on the contingency function estimated with such small clusters vary widely above and below the function because of the extremes possible in drawing a regression line through three cases, especially when

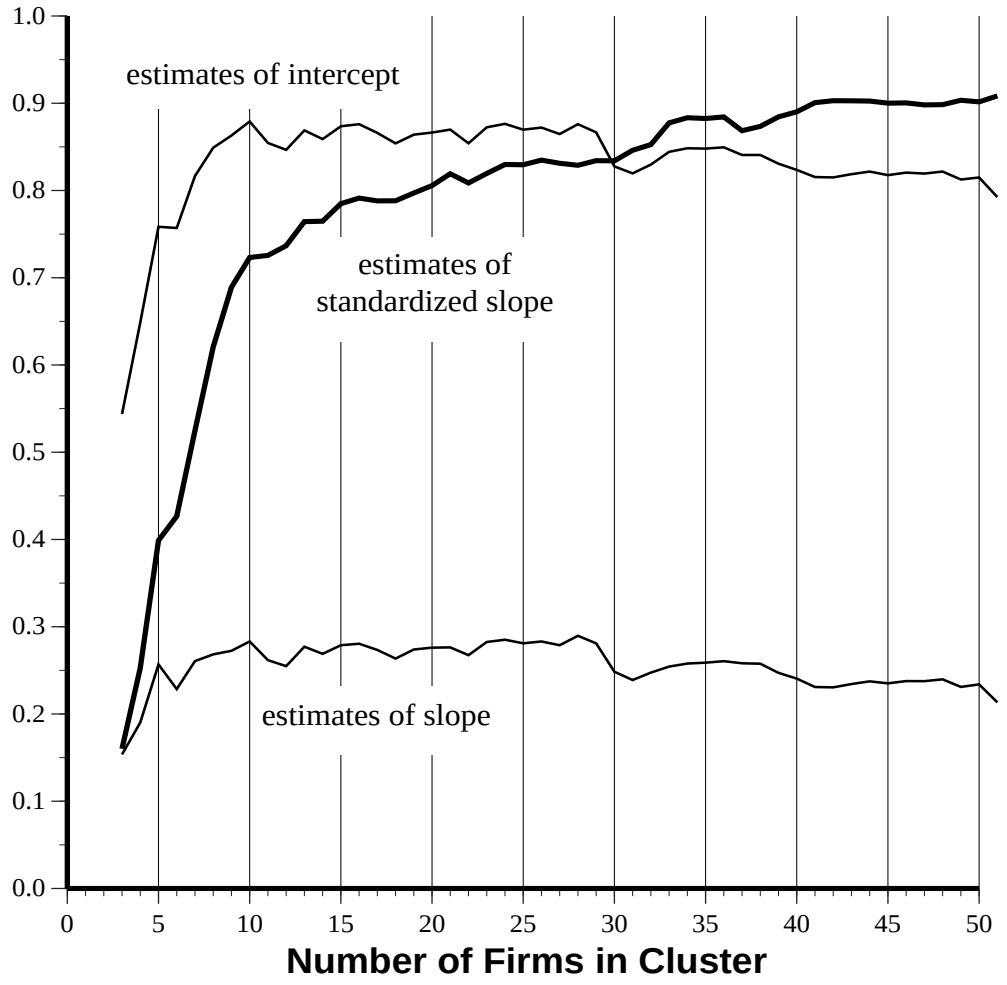


**Figure 9. Estimates of Contingency Function Parameters**

the small cluster contains firms from two markets adjacent, but not contiguous, on the horizontal axis of Figure 5. The sampling variance issue is illustrated in Figure 9 by the sharp increase in all three parameters across cluster sizes from three to 10. Kotter and Heskett began with ten firms drawn from each market.

Estimates of the standardized slope continue to increase with cluster size. At the extreme of all 180 firms included in each cluster, the contingency function disappears because the correlation between culture strength and performance is the same for all firms. This is the extreme of estimating the aggregate culture effect across markets as in Figure 2. Just before that extreme, the standardized slope is 1.0 for a cluster size of N-1 because there are only two data points; clusters around the first half of the firms contain the first 179 firms and clusters around the second half of the firms contain the final 179 firms. At some point, in other words, the estimates of the standardized slope increase with cluster size because the data bifurcate as firms are increasingly homogenized within fewer distinct clusters.

Optimum cluster size for the sampling distribution is the size at which the standardized slope

is strong and the metric parameters begin to decrease from data bifurcation. In Figure 9, the estimates of the metric parameters are high and stable for clusters size 15 through 28, after which they begin to decrease. Intercept estimates vary from .85 to .88 through this interval. Slope estimates vary from .26 to .29 through the interval. The standardized slope increases through the interval, but not by much after size 24 or 25. We choose a cluster size of 25 firms. Each of the 180 dots in Figure 6 is vertically positioned by the culture-performance correlation across a sample of 25 firms; a firm, the 12 firms lower in the market constraint rank order, and the 12 firms higher in the rank order.

## Merging the Market Categories and Interpolating Market Culture Effects

The 19 Kotter-Heskett markets combined with the 77 markets in the 1982 US Department of Commerce aggregate input-output table define 82 markets in total, and 23 market distinctions among the 180 Kotter and Heskett firms.

The markets are listed below in their order within Department of Commerce publications. Seven data are listed for each market. Names and sequential identification numbers are from the Department of Commerce input-output table in the July, 1991 issue of the *Survey of Current Business*. Identification numbers with a decimal are additional market distinctions created to match the Kotter-Heskett data as explained below. The third column lists the number of firms in each market from the Kotter-Heskett study. Firms are assigned to markets on the basis of the three-digit Standard Industrial Classification (SIC) in which each primarily operates (determined from *Ward's Business Directory of U.S. Private and Public Companies, Standard & Poor's Register of Corporations, Directors and Executives*, and *Hoover's Handbook of American Business*). The input-output table is published in the *Survey of Current Business* with a list of SIC categories contained in each sector of the table (pp. 68-71). Firms map into markets as described by Kotter and Heskett (1992:155-158) with a few additional market distinctions noted below. The fourth column below lists the volume of business through firms in each market, measured in millions of dollars. Volume is the sum of production costs and value added (Total Industry Input in the input-output table). The fifth column lists the market price-cost margin, also taken from the input-output table. This is the ratio of value added minus labor, quantity divided by total volume (see Burt, 1988, for construct validity comparisons to related measures). The sixth column lists market constraint scores. These are computed from the performance and input-output data as described in Burt, Yasuda, and Guilarte (1994). The seventh column lists the expected correlation between culture strength and performance, computed from market constraint and the equation describing the bold-line contingency function in Figure 6. The following are notes to the table (cited in parentheses before market names).

(1) The food and beverage markets in Kotter-Heskett's study combine to form the food sector in the aggregate input-output table. Data on the two markets for this analysis are taken from the 528-

sector detailed input-output table (available on microcomputer disk from the Bureau of Economic Analysis in Washington, DC at the Department of Commerce). Forty-five food categories are distinguished in the detailed table, 6 of which produce beverages (SIC 208). Food and beverage volume below are the sums of volumes across the 39 food product categories and the six beverage categories. Price-cost margins are computed from valued added summed across the two kinds of categories. Market constraint scores only exist for the markets in the aggregate input-output table. Separate food and beverage scores are interpolated from available data. We explain the interpolation in detail here for reference in subsequent notes. The beverage market is 15.0% of the aggregate volume of food business (41,746.8 million divided by 277,395.8 total in the below table). The price-cost margin for the aggregate market is a weighted average of margins in the two components:

$$(\text{P all}) = .150(\text{P beverages}) + .850(\text{P food products}).$$

Beverages are 2.347 times more profitable than food products (.284/.121 in the below table), so;

$$(\text{P all}) = .150(2.347\ X) + .850(X),$$

where X is the price-cost margin for food products. The association is linear between price-cost margins and the natural log of market constraint, so replace (P all) with the aggregate market constraint score;

$$\ln(\text{MC all}) = \ln(.281) = -1.269 = .150(2.347\ X) + .850(X),$$

and solve for X, which is ln(MC) for food products. Solving yields an X equal to -1.056, and $e^X$ is a market constraint score of .348 in the food products market. Market constraint in beverages is therefore .084 (2.347 times -1.056 is -2.478, and $e^X$ is .084).

(2) Three-digit SIC categories of primary operations show that two of the nine firms in the textiles market (input-output sector 16) operate in miscellaneous textiles and floor coverings (input-output sector 17). The Kotter-Heskett textiles market is given the general textiles market data (sector 16), except where we use finer market distinctions to estimate effects across firms (footnote 7).

(3) Three-digit SIC categories of primary operations show that the ten firms in Kotter and Heskett's lumber-paper market divide into four lumber firms and six paper firms. Data on the Kotter-Heskett market are the weighted average of the two markets (lumber is 40.3%; 40,432.4 million lumber volume below, divided by 100,207.9 million combined lumber and paper volume), except where we use finer market distinctions to estimate effects across firms (footnote 7).

(4) Three-digit SIC categories of primary operations show that the ten firms in Kotter and Heskett's chemicals market divide into six chemicals firms and four plastics firms. Data on the Kotter-Heskett market are a weighted average of the two markets (chemicals is 73.4%; 77,748.8 million chemicals volume below, divided by 105,871.3 million combined chemicals and plastics volume), except where we use finer market distinctions to estimate effects across firms (footnote 7).

(5) Kotter and Heskett study nine pharmaceuticals and eight firms that produce personal care products (soaps, creams, perfume, etc.). Three-digit SIC categories of primary operations show that

16 of the 17 firms operate in input-output sector 29; "drugs, cleaning, and toilet preparations." The one exception is Gillette, which has substantial razor and small appliance (Braun brand name) operations in the “othr fabricated metal products” market (input-output sector 43). Gillette lies in the middle of the sector 29 distribution of performance across culture strength, so we follow Kotter and Heskett in treating it as a personal care firm. Pharmaceuticals and personal care are both assigned the market data for input-output sector 29.

(6) Of eleven firms in the Kotter-Heskett computing and office equipment market, nine primarily manufacture computers and two (Xerox and Pitney Bowes) are other office equipment companies. In the text, this is the computer market.

(7) The Kotter-Heskett airlines market falls within the transportation and warehousing sector of the aggregate input-output table. There are eight transportation and warehousing categories in the detailed input-output table, one of which is air transportation. Data on the airlines market are taken from the detailed input-output table, and the other seven subsectors are summed as the other transportation market below. Since we only have a market constraint score for the aggregate transportation market, market constraint for airlines is interpolated as described for the food and beverage markets in note (1) above. Airlines are 21.6% of the transportation market (42,383 million divided by 196,418.9 million below), and other transportation is 2.780 times more profitable than airlines (.114/.041 below). In the following equation,

$$\ln(\text{MC all}) = \ln(.293) = -1.228 = .784(2.780\ X) + .216(X),$$

X is ln(MC) for the airlines market. Solving; X is -.527, and $e^X$ is a market constraint score of .590 for the airlines market.

(8) Wholesale and retail trade are a single sector of the aggregate input-output table. The two are separate in the detailed input-output table, but the two Kotter-Heskett retail markets can not be distinguished in the detailed table. All 18 of the retail firms in the study are given the market data for retail trade. Data on the wholesale and retail markets below are taken from the detailed input-output table. Since we only have a market constraint score for the aggregate market, separate market constraint scores for wholesale and retail are interpolated as described for the food and beverage markets in note (1) above. Retail trade is 48.9% of the combined wholesale and retail trade market (282,011.4 million divided by 577,029.1 million below), and wholesale trade is 1.682 times more profitable than retail trade (.333/.198 below). In the following equation,

$$\ln(\text{MC all}) = \ln(.293) = -1.228 = .511(1.682\ X) + .489(X),$$

X is ln(MC) for retail trade. Solving; X is -.911 and $e^X$ is a market constraint score of .402 for retail trade. Market constraint in wholesale trade is therefore .074 (1.682 times -.911 is -1.532, and $e^X$ is .216).

(9) There is one financial market in the aggregate input-output table. Kotter and Heskett study firms from three financial markets; banks, savings and loans, and life insurance. Three finance

markets are distinguished below with data from the detailed input-output table; banking (SIC category 602), credit agencies (SIC categories 61 and 67, which contain the five Kotter and Heskett savings and loan companies operating in SIC category 612), and insurance (the broker, insurance, and insurance agent sectors in the detailed table). Again, we only have a market constraint score for the aggregate finance market, so separate market constraint scores for the three finance markets are interpolated as described for the food and beverage markets in note (1) above.

The task is difficult here, however, because of dramatic differences in price-cost margins between the financial markets. Banking reports an above-average .302 margin, and insurance a below-average .078. Credit profits are beyond realistic comparison in 1982. The price-cost margin for credit agencies is -.850, much lower than any other margin in the table. We've simply assigned the maximum market constraint score of 1.0 to credit agencies. This fits the contingency function well in the sense that culture strength is more closely associated with savings and loan company performance (.94 correlation) than in any of the other Kotter-Heskett markets (see Figure 5). However, the market lies at some unknown point beyond the left of the horizontal axis in Figure 5 and the strong culture-performance correlation in the market depends on two of the five savings and loan companies being outliers away from the other three. Given the few data, the extremely poor performance of the market in 1982 making it difficult to interpolate its position on the effective organization continuum, and the importance of outliers to the observed culture effect, we've combined the five savings and loan firms with the ten commercial banks for the analysis. The combined banking and credit market discussed as banking in the text is 47.1% of the aggregate finance market, and banking is 1.423 times more profitable than insurance (weighted average of price-cost margins in commercial banking and credit agencies below is .111 versus the .078 insurance margin). In the following equation,

$$\ln(\text{MC all}) = \ln(.356) = -1.033 = .471(1.423\ X) + .529(X),$$

X is ln(MC) for insurance. Solving yields a value of -.862 for X, and $e^X$ is a market constraint score of .422 for insurance. Market constraint on banking is therefore .717 (1.423 times -.862 is -1.227, and $e^X$ is .293).

| Market | ID | N | Volume | P | Market Constraint | Culture Effect |
|---|---|---|---|---|---|---|
| LIVESTOCK AND LIVESTOCK PRODUCTS | 1 | | 80332.7 | 0.105 | 0.104 | 0.23 |
| OTHER AGRICULTURAL PRODUCTS | 2 | | 95719.5 | 0.478 | 0.016 | -0.32 |
| FORESTRY AND FISHERY PRODUCTS | 3 | | 6093.5 | 0.442 | 0.020 | -0.25 |
| AGRICULTURE, FORESTRY, FISHERY SERVICES | 4 | | 13244.6 | 0.070 | 0.213 | 0.43 |
| IRON AND FERROALLOY ORES MINING | 5 | | 1708.3 | -0.055 | 0.664 | 0.76 |
| NONFERROUS METAL ORES MINING | 6 | | 3520.1 | -0.207 | 1.000 | 0.88 |
| COAL MINING | 7 | | 28641.7 | 0.236 | 0.045 | -0.02 |
| CRUDE PETROLEUM AND NATURAL GAS DRILLING | 8 | | 149599.3 | 0.626 | 0.010 | -0.46 |
| STONE AND CLAY MINING AND QUARRYING | 9 | | 6055.8 | 0.253 | 0.053 | 0.03 |
| CHEMICAL AND FERTILIZER MINERAL MINING | 10 | | 3089.3 | 0.201 | 0.066 | 0.09 |
| NEW CONSTRUCTION | 11 | | 319129.6 | 0.145 | 0.147 | 0.33 |
| MAINTENANCE AND REPAIR CONSTRUCTION | 12 | | 119661.4 | 0.128 | 0.191 | 0.40 |
| ORDNANCE AND ACCESSORIES | 13 | | 17807.8 | 0.118 | 0.080 | 0.15 |

| Market | ID | N | Volume | P | Market Constraint | Culture Effect |
|---|---|---|---|---|---|---|
| (1) FOOD (excluding beverages) | 14 | 11 | 235649.0 | 0.121 | 0.348 | 0.58 |
| (1) FOOD (beverages) | 14.5 | 8 | 41746.8 | 0.284 | 0.084 | 0.16 |
| TOBACCO MANUFACTURES | 15 | | 19654.9 | 0.396 | 0.036 | -0.08 |
| (2) BROAD AND NARROW FABRICS, YARN AND THREAD MILLS | 16 | 7 | 30220.6 | 0.005 | 0.723 | 0.79 |
| (2) MISCELLANEOUS TEXTILE GOODS AND FLOOR COVERINGS | 17 | 2 | 10621.4 | 0.015 | 0.733 | 0.79 |
| APPAREL | 18 | 8 | 54031.4 | 0.069 | 0.604 | 0.74 |
| MISCELLANEOUS FABRICATED TEXTILE PRODUCTS | 19 | | 10104.3 | 0.084 | 0.544 | 0.71 |
| (3) LUMBER AND WOOD PRODUCTS (except containers) | 20 | 4 | 40432.4 | 0.071 | 0.259 | 0.49 |
| WOOD CONTAINERS | 21 | | 598.3 | -0.221 | 0.384 | 0.61 |
| HOUSEHOLD FURNITURE | 22 | | 12671.6 | 0.077 | 0.563 | 0.72 |
| OTHER FURNITURE AND FIXTURES | 23 | | 10990.8 | 0.121 | 0.251 | 0.48 |
| (3) PAPER AND ALLIED PRODUCTS (except containers) | 24 | 6 | 59775.5 | 0.141 | 0.213 | 0.43 |
| PAPERBOARD CONTAINERS AND BOXES | 25 | | 18807.1 | 0.093 | 0.246 | 0.48 |
| PRINTING AND PUBLISHING | 26 | 9 | 86803.4 | 0.155 | 0.186 | 0.39 |
| (4) CHEMICALS AND SELECTED CHEMICAL PRODUCTS | 27 | 6 | 77748.8 | 0.146 | 0.246 | 0.48 |
| (4) PLASTICS AND SYNTHETIC MATERIALS | 28 | 4 | 28122.5 | 0.055 | 0.336 | 0.57 |
| (5) DRUGS, CLEANING, AND TOILET PREPARATIONS | 29 | 17 | 48149.8 | 0.255 | 0.103 | 0.22 |
| PAINTS AND ALLIED PRODUCTS | 30 | | 8532.0 | 0.110 | 0.260 | 0.49 |
| PETROLEUM REFINING AND RELATED INDUSTRIES | 31 | 11 | 206705.8 | 0.101 | 0.177 | 0.38 |
| RUBBER AND MISCELLANEOUS PLASTIC PRODUCTS | 32 | 8 | 54707.3 | 0.143 | 0.294 | 0.53 |
| LEATHER TANNING AND FINISHING | 33 | | 1731.9 | -0.034 | 0.557 | 0.71 |
| FOOTWEAR AND OTHER LEATHER PRODUCTS | 34 | | 7367.2 | 0.087 | 0.511 | 0.69 |
| GLASS AND GLASS PRODUCTS | 35 | | 12427.0 | 0.022 | 0.605 | 0.74 |
| STONE AND CLAY PRODUCTS | 36 | | 32118.6 | 0.139 | 0.117 | 0.26 |
| PRIMARY IRON AND STEEL MANUFACTURING | 37 | | 59033.3 | -0.056 | 0.831 | 0.83 |
| PRIMARY NONFERROUS METALS MANUFACTURING | 38 | | 47098.5 | -0.042 | 0.955 | 0.87 |
| METAL CONTAINERS | 39 | | 12006.0 | 0.125 | 0.152 | 0.34 |
| HEATING, PLUMBING & STRUCTURAL METALS PRODUCTS | 40 | | 36996.8 | 0.056 | 0.252 | 0.48 |
| SCREW MACHINE PRODUCTS AND STAMPINGS | 41 | | 21473.6 | 0.026 | 0.746 | 0.80 |
| OTHER FABRICATED METAL PRODUCTS | 42 | | 36144.9 | 0.105 | 0.360 | 0.59 |
| ENGINES AND TURBINES | 43 | | 12216.5 | 0.073 | 0.466 | 0.66 |
| FARM AND GARDEN MACHINERY | 44 | | 12597.9 | 0.125 | 0.254 | 0.49 |
| CONSTRUCTION AND MINING EQUIPMENT | 45 | | 23736.3 | 0.177 | 0.149 | 0.33 |
| MATERIALS HANDLING MACHINERY AND EQUIPMENT | 46 | | 6580.7 | 0.087 | 0.245 | 0.47 |
| METALWORKING MACHINERY AND EQUIPMENT | 47 | | 17246.8 | 0.097 | 0.448 | 0.65 |
| SPECIAL INDUSTRY MACHINERY AND EQUIPMENT | 48 | | 12470.0 | 0.007 | 0.951 | 0.87 |
| GENERAL INDUSTRIAL MACHINERY AND EQUIPMENT | 49 | | 23242.9 | 0.062 | 0.528 | 0.70 |
| MISCELLANEOUS MACHINERY, EXCEPT ELECTRICAL | 50 | | 14949.7 | 0.056 | 0.558 | 0.71 |
| (6) OFFICE, COMPUTING, AND ACCOUNTING MACHINES | 51 | 11 | 40696.6 | 0.080 | 0.303 | 0.54 |
| SERVICE INDUSTRY MACHINES | 52 | | 15479.9 | 0.101 | 0.284 | 0.52 |
| ELECTRICAL INDUSTRIAL EQUIPMENT AND APPARATUS | 53 | | 26732.6 | 0.046 | 0.560 | 0.72 |
| HOUSEHOLD APPLIANCES | 54 | | 12119.9 | 0.097 | 0.478 | 0.67 |
| ELECTRIC LIGHTING AND WIRING EQUIPMENT | 55 | | 11818.4 | 0.104 | 0.228 | 0.45 |
| RADIO, TV, AND COMMUNICATION EQUIPMENT | 56 | | 53332.6 | 0.102 | 0.220 | 0.44 |
| ELECTRONIC COMPONENTS AND ACCESSORIES | 57 | | 32792.5 | -0.085 | 0.625 | 0.75 |
| MISCELLANEOUS ELECTRICAL MACHINERY & SUPPLIES | 58 | | 11880.3 | -0.042 | 0.975 | 0.88 |
| MOTOR VEHICLES AND EQUIPMENT | 59 | 10 | 111240.8 | 0.076 | 0.534 | 0.70 |
| AIRCRAFT AND PARTS | 60 | 10 | 58439.1 | 0.095 | 0.121 | 0.27 |
| OTHER TRANSPORTATION EQUIPMENT | 61 | | 26564.8 | 0.063 | 0.407 | 0.62 |
| SCIENTIFIC AND CONTROLLING INSTRUMENTS | 62 | | 22637.8 | 0.126 | 0.257 | 0.49 |
| OPTICAL, OPHTHALMIC, AND PHOTOGRAPHIC EQUIPMENT | 63 | | 21253.3 | 0.264 | 0.074 | 0.13 |
| MISCELLANEOUS MANUFACTURING | 64 | | 27993.2 | 0.124 | 0.353 | 0.58 |
| (7) TRANSPORTATION & WAREHOUSING (except airlines) | 65 | | 154035.9 | 0.114 | 0.241 | 0.47 |
| (7) AIRLINES | 65.5 | 10 | 42383.0 | 0.041 | 0.590 | 0.73 |
| COMMUNICATIONS (except radio and TV) | 66 | 5 | 96111.0 | 0.388 | 0.037 | -0.08 |
| RADIO AND TV BROADCASTING | 67 | | 15714.6 | 0.136 | 0.092 | 0.19 |
| ELECTRIC, GAS, WATER, AND SANITARY SERVICES | 68 | | 221388.7 | 0.245 | 0.095 | 0.20 |
| (8) WHOLESALE TRADE | 69 | | 295017.7 | 0.333 | 0.216 | 0.44 |
| (8) RETAIL TRADE (except eating and drinking) | 69.5 | 18 | 282011.4 | 0.198 | 0.402 | 0.62 |
| (9) FINANCE (banking) | 70 | 10 | 95155.7 | 0.302 | 0.293 | 0.53 |
| (9) FINANCE (credit agencies) | 70.3 | 5 | 18946.0 | -0.850 | 1.000 | 0.88 |
| (9) FINANCE (brokers and insurance) | 70.6 | | 127906.4 | 0.078 | 0.422 | 0.63 |
| REAL ESTATE AND RENTAL | 71 | | 473823.1 | 0.785 | 0.010 | -0.46 |
| HOTELS PERSONAL & REPAIR SERVICES (except auto) | 72 | | 70102.7 | 0.257 | 0.102 | 0.22 |
| BUSINESS SERVICES | 73 | | 268217.2 | 0.301 | 0.058 | 0.06 |
| EATING AND DRINKING PLACES | 74 | | 143208.8 | 0.127 | 0.245 | 0.47 |
| AUTOMOBILE REPAIR AND SERVICES | 75 | | 61078.6 | 0.273 | 0.083 | 0.16 |
| AMUSEMENTS | 76 | | 43516.9 | 0.229 | 0.122 | 0.27 |
| MEDICAL/EDUCATIONAL SERVICES & NONPROFIT ORGS | 77 | | 307653.5 | 0.112 | 0.372 | 0.60 |