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APPENDIX B

BILATERAL COMPARISONS OF VALUE ADDED PER EMPLOYEE

Tables B-1, B-2, and B-3 give the variables plotted in Charts 11, 12, and 13, respectively. The United States data are derived from the *1958 Census of Manufactures* (used in the comparison with the United Kingdom), the *1962 Annual Survey of Manufactures* (used in the comparison with Japan), and the *1963 Census of Manufactures* (used in the comparison with India), all of which are publications of the Bureau of the Census, U.S. Department of Commerce. The sources of the data for the other three countries are as follows: United Kingdom: *Reports on the Census of Production, 1958*, London, Board of Trade, 1962; Japan: *Census of Manufactures, 1962*, Ministry of International Trade and Industry, Research and Statistics Division, Tokyo, 1964; India: *Annual Survey of Industries, 1961*, Central Statistical Organization, Calcutta, 1965.

To make these bilateral comparisons, it has been necessary to establish a conversion between the industrial classification used by the United States and that used in each of the other three countries. The conversions developed for this purpose are indicated in Tables B-1, B-2, and B-3.

The British classification, a very summary one of only 109 items (at the three-digit and four-digit levels, free of duplication), has been maintained almost intact, only a few combinations of items from the British schedule being necessary in the interest of comparability. This yields 103 items for comparison with the United States.

The Japanese classification is far more detailed, comprising 501 items at the four-digit level. In many cases, however, it has seemed preferable to establish the conversion at the three-digit level for Japan, and in other cases it has been deemed necessary to combine two or more four-digit items and, more exceptionally, some three-digit ones.

In addition, the following numbers from the Japanese classification have been omitted altogether because of inability to identify a corresponding item in the United States classification: 1841, 1845, 1891, 1892, 1893, 1895, 1896, 1897, 1898, 1899, 201, 2025, 2026, 2027, 2034, 2039, 2092, 2093, 2094, 2097, 2099, 2141, 215, 2191, 2192, 2199, 2241, 2321, 2425, 2426, 2427, 2439, 244, 249, 251, 2521, 2692, 2699, 2731, 2741, 2759, 2762, 2763, 2769, 3031, 3044, 3121, 3122, 3123, 319, 3212, 3215, 3216, 3217, 3219, 329, 3482, 3491, 3631, 3641, 3653, 3659, 369, 3811, 3971, 3981, 3982, 3983, 3984, 3986, 3987, 3988, 3989, 399. The net effect of these combinations and deletions has been to provide 178 items for which there seemed to be a reasonably close correspondence between the Japanese and the U.S. industries.

The Indian classification, comprising 194 items (some three-digit and others four- or five-digit), has also been subjected to some combinations in the search for comparability with the United States. More important, a considerable number of items have had to be deleted altogether. One reason, as in the case of Japan, has been the lack of reasonably similar items identifiable in the statistics for the United States, the Indian code numbers so deleted being as follows:¹ 2072, (2091, 20910), 2094, 2095, 2097, 2201, (2204, 2205), 2206, 2312, 2391, 2394, (2397, 2399), 2591, 2592, (3119, 31110), 31122, 3121, 3191, (3193, 3194), 31912, 3199, 329, 3333, 3397, 3398, 3505, (3508, 35014), 3509, 35013, (3609, 36010), 36042, 36045, (36047, 360410), 360412, 360413, 36051, (36054, 36056, 36062), 360514, (37015, 3704), 39915, (395, 3998, 39913, 39917).

A second reason for deletion of items from the Indian schedule is that, according to the details contained in the source, some industries are engaged mainly or largely in repair or service work as distinguished from manufacturing proper. The code numbers omitted for this reason are as follows: 2096, 2098, 2392, 2393, 3506, 36013, 36046, 3811, 3821, 3822, 3823, 384, 386, 3942, 39914. Finally, two items have been deleted from the Indian schedule because (according to details published for individual Indian states) the industries concerned employ sizable numbers of unpaid prison labor at nominal wages, the items deleted for this reason being Nos. 2092 and 2601.

The net effect of the combinations and deletions noted above is to give 117 items from the Indian side for comparison with the United States. As reported in Chapter 3, additional computations have been

¹ Indian numbers here grouped in parentheses are combined in the source.

made, excluding (1) Indian industries with total employment of less than 1,000 each and (2) others with total employment of less than 2,000 each. The items in question are as follows:

(1) 204, 208, 213, 214, 293, 3118, 31910, 3507, 36049, 360411, 360513, 37019, 3812, 393, 3995, 39910, (39911, 39912).

(2) 203, 2318, 232, (2395, 2396), 2398, 241, 3192, 3396, 3412, 35012, (360111, 360112), 36012, 360512, 36052, 36061, 3924, 3941.

A test of linearity and Bartlett's test for homoscedasticity were applied to the data in an effort to determine whether the arithmetic or logarithmic form of correlation was appropriate. The results of these tests are given in Table B-4. For both the United States-Japan and the United States-India comparisons the linearity test showed that the variables were not linearly related in the arithmetic form but were so related in the logarithmic form; the results were significant at the 1 per cent level of confidence. However, for both functional forms, Bartlett's test showed that the variances of the observations (the data were arranged in ascending order of the independent variable and divided into groups of approximately twenty observations) were not homogeneous for the complete sets of industries; the results were significant at the 1 per cent level of confidence. For the more limited number of observations, as specified in each case in Table 6, the variances were homogeneous in the logarithmic form but not in the arithmetic form. In brief, on statistical grounds alone, the logarithmic form seems more appropriate than the arithmetic form for both the U.S.-Japan and U.S.-India correlations, as shown in the accompanying table.

For the U.S.-U.K. comparison, the variables are shown to be linearly related in both the arithmetic and logarithmic forms, according to the linearity test. Bartlett's test shows, however, that the variances of the observations (the data were arranged in ascending order of the independent variable and divided into four groups) were homogeneous in the logarithmic form but not in the arithmetic form. That is, only the logarithmic form passes both of these tests. On the basis of these tests, all of the bilateral comparisons were computed with the variables transformed into logarithms.

The regression equations obtained from the bilateral comparisons and used in deriving the middle column of figures in each of Tables B-1, B-2, and B-3 are given below, X being in each case the log of value added by manufacture per employee in the United States and Y the log of value added by manufacture per employee in the foreign country concerned:

United States–United Kingdom (103 industries)

$$Y = -.317 + .795X$$

United States–Japan (178 industries)

$$Y = -.608 + .966X$$

United States–India (117 industries)

$$Y = -1.053 + .917X$$

TABLE B-1
Variables Used in Comparison of Value Added per Employee in the United Kingdom and the United States, 1958
 (dollars)

Code No.	U.K. Industrial Classification Name of Industry	Matched with U.S. SIC No.	Value Added per Employee		
			U.K. Actual (1)	U.K. Estimated by Regressing 1 on 3 (2)	U.S. Actual (3)
211,9	Grain-mill products	204 (less 2046)	5,199	4,209	15,269
212	Bread and related products	2051	2,296	2,572	8,217
213	Biscuits and crackers	2052	2,192	3,428	11,795
214	Meat and fish products	201, 2031, 6	2,634	2,467	7,796
215	Dairy products	202	4,033	2,949	9,758
216	Sugar	206	2,532	3,436	11,828
217	Candy and related products	207	2,645	2,854	9,364
218	Fruit and vegetable products	203, 2087 (less 2031, 6)	2,584	2,969	9,842
2392	Starch and misc. foods	2046, 2098, 9	4,341	4,282	15,604
231	Brewing and malting	2082, 3	5,533	4,331	15,828
2391	Spirit distilling and compounding	2085	8,285	5,565	21,698
2392, 3	Wines and soft drinks	2084, 6	3,858	2,858	9,383
240	Tobacco products	21	5,354	4,525	16,728
262	Petroleum refining	2911	5,014	4,043	14,516

(continued)

TABLE B-1 (continued)

Code No.	U.K. Industrial Classification Name of Industry	Matched with U.S. SIC No.	Value Added per Employee		
			U.K. Actual (1)	U.K. Estimated by Regressing 1 on 3 (2)	U.S. Actual (3)
263	Lubricating oils and greases	2992	7,268	3,831	13,566
2711	Dyestuffs	2815, 2861	3,971	3,858	13,684
2712	Agricultural chemicals	287	4,361	3,177	10,718
2713	Industrial chemicals and chemical products	281 (less 2815) 289	3,778	4,822	18,118
2721	Pharmaceutical preparations	283	4,368	5,597	21,858
2722	Toilet preparations	2844	5,161	5,958	23,644
273	Explosives	2892	2,828	2,710	8,773
274	Paint and printing ink	2851, 2893	4,029	3,867	13,725
2291, 2751	Vegetable and animal oils and fats	209 (less 2095, 7-9	4,777	3,837	13,590
2752	Soap, detergents, and candles	2841, 3984	5,263	6,672	27,268
276	Synthetic resins and plastic materials	2821, 2	4,500	4,605	17,098
2771	Polishes, etc.	2842	4,947	4,802	18,024
2772	Glue and gelatin	2891	3,304	3,810	13,468
311	Iron and steel forging and rolling	331, 3391 (less 3315, 7)	3,772	3,408	11,709
312	Pipes, tubes, and fittings	3494, 9, 3317	3,667	3,038	10,130
321	Light metals	3334, 3352, 3361	2,767	3,512	12,159
322	Copper, brass, and other base metals	33a, 3461	3,238	2,799	9,139

(continued)

TABLE B-1 (continued)

Code No.	U.K. Industrial Classification Name of Industry	Matched with U.S. SIC No.	Value Added per Employee		
			U.K. Actual (1)	U.K. Estimated by Regressing 1 on 3 (2)	U.S. Actual (3)
331	Farm machinery and equipment	3522	3,208	3,011	10,017
332, 3	Metalworking machinery and tools	354, 3623 (less 35481, 2)	2,906	2,712	8,780
3341	Internal combustion engines	3519	2,373	2,994	9,946
335	Textile machinery	3552	2,452	2,068	6,245
336	Construction machinery and equipment	3531	2,861	3,181	10,732
337	Mechanical handling equipment	3534-6	3,041	3,084	10,326
338	Office machinery	3571-2, 3579	2,746	2,499	7,923
339	Miscellaneous machinery	3532, 3548, 355-9b	3,081	2,775	9,040
341	Fabricated structural metal products	344 (less 3442)	3,336	2,721	8,819
3491	Ball and roller bearings	3562	2,984	2,713	8,787
351	Scientific, surgical, and photographic instruments	38 (less 387)	2,813	3,023	10,066
352	Watches and clocks	387	1,985	2,267	7,008
361	Electrical machinery	3511, 361, 2 (less 3623, 4)	2,918	2,975	9,865
363	Telephone and telegraph apparatus	3661	2,200	2,683	8,666
364	Radio and other electronic apparatus	365-7, 3693 (less 3661)	2,389	2,655	8,551

(continued)

TABLE B-1 (continued)

Code No.	U.K. Industrial Classification Name of Industry	Matched with U.S. SIC No.	Value Added per Employee		
			U.K. Actual (1)	U.K. Estimated by Regressing 1 on 3 (2)	U.S. Actual (3)
365	Domestic electric appliances	363 (less 3632)	2,915	3,241	10,989
369	Miscellaneous electrical goods	364, 9 (less 3693)	2,582	2,858	9,381
3701 3342, 3702	Shipbuilding and ship repairing	373	2,261	2,371	7,417
381	Steam engines	3511 (less 35111)	2,755	3,128	10,509
382	Motor vehicle manufacturing	3537, 371, 3791	3,371	3,350	11,456
383	Motorcycles, bicycles, and parts	3751	2,234	2,227	6,855
385	Aircraft and parts	372	2,901	2,776	9,046
389	Railroad and street cars	3742	2,166	2,238	6,897
391	Perambulators, hand trucks, etc.	3943, 3799	2,193	2,356	7,358
392	Metal tools and implements	3423, 5	2,400	2,757	8,967
393	Cutlery	3421	4,039	3,174	10,703
362, 394	Bolts, nuts, screws, rivets, etc. Wire and wire manufactures	3451, 2 3315, 3357, 3481	2,558	2,733	8,868
395	Metal cans and boxes	3411	2,994	2,810	9,185
396	Jewelry, silverware, and plated ware	391	2,365	3,553	12,339
399	Miscellaneous fabricated metal products	25, 3442, 349 ^c	2,441	2,447	7,716
			2,560	2,581	8,250

(continued)

TABLE B-1 (continued)

Code No.	U.K. Industrial Classification Name of Industry	Matched with U.S. SIC No.	Value Added per Employee		
			U.K. Actual (1)	U.K. Estimated by Regressing 1 on 3 (2)	U.S. Actual (3)
411	Production of man-made fibers	2823-4	3,757	3,825	13,538
412	Spinning and doubling of cotton, flax, silk, and man-made fibers	228 (less 2283)	1,532	1,637	4,651
413	Broad-woven fabric mills, cotton, man-made fibers, and silk	2211, 2221	1,711	1,667	4,759
414	Woolen and worsted manufactures	2231, 2283, 2291, 7			
416	Rope, cordage, and twine	2296, 8	2,080	2,042	6,146
417	Knitting mills	225	2,095	2,053	6,188
418	Lace goods	2292	2,037	1,778	5,164
419	Carpets, rugs, and mats	227	2,050	1,762	5,105
421	Narrow fabrics	2241	2,721	2,451	7,730
422	Made-up textiles	239	1,976	1,950	5,797
423	Dyeing and finishing textiles	226	1,792	1,917	5,676
431	Leather tanning and finishing	311	2,133	2,064	6,228
432	Leather goods	312, 315-7, 319	2,511	2,376	7,434
433	Fur	2371, 3992	1,773	1,903	5,624
441	Raincoats and other weatherproof outerwear	2885	2,260	2,977	9,876
442	Men's and boys' suits, coats, and overcoats	281	1,546	1,880	5,538
			1,465	1,804	5,258

(continued)

TABLE B-1 (continued)

Code No.	U.K. Industrial Classification	Matched with U.S. SIC No.	Value Added per Employee		
			U. K. Actual (1)	U. K. Estimated by Regressing 1 on 3 (2)	U. S. Actual (3)
443	Women's and girls' outerwear	233	1,811	1,820	5,316
444	Men's and boys' furnishings	232	1,327	1,501	4,172
445	Dresses, lingerie, infants' wear, etc.	232, 6 2384	1,499	1,761	5,101
446	Millinery, hats, and caps	235	1,750	1,909	5,645
449	Miscellaneous apparel and umbrellas	2381, 7, 9, 3995	1,805	1,677	4,797
450	Nonrubber footwear	313, 4	1,958	1,756	5,083
461	Structural clay products	325	2,433	2,259	6,976
462	Pottery and related products	326	1,756	2,115	6,423
463	Glass	321-3	3,027	2,970	9,845
464	Cement	324	5,666	4,719	17,635
469	Abrasives and misc. building material	327-9	2,984	3,069	10,261
471	Sawmilling and related products	243	2,421	2,228	6,857
472	Wooden furniture	251-4 ^d	2,338	2,002	5,993
475	Wooden containers	244	2,103	1,632	4,634
479	Misc. wood products	249	2,132	1,981	5,915
481	Paper and paperboard mills	261-3, 266	3,602	3,592	12,507
482	Paperboard containers and boxes	265	2,396	2,590	8,287
483	Converted paper and paperboard products	264	2,656	2,852	9,357

(continued)

TABLE B-1 (concluded)

Code No.	U.K. Industrial Classification Name of Industry	Matched with U. S. SIC No.	Value Added per Employee		
			U. K. Actual (1)	U.K. Estimated by Regressing 1 on 3 (2)	U.S. Actual (3)
4911	Tires and tubes	3011	2,904	3,749	13,199
4912	Rubber footwear and other products	302-3, 306	2,561	2,571	8,212
492	Linoleum and other coated fabrics	2295, 3982	3,086	3,157	10,632
493	Brooms and brushes	3981	2,283	2,529	8,041
494	Toys and sporting goods	394 (less 3942)	2,260	2,325	7,235
495	Office supplies	395	2,737	2,554	8,144
496	Plastic molding and fabricating	3079	2,290	2,515	7,988

^aLess 381, 2, 3334, 3352, 7, 3361, 3391, 9.

^bLess 35483-5, 3552, 3562, 5, 6, 7, 3571, 2, 9, 3581, 2, 9.

^cLess 2511, 2, 9, 2521, 253, 2541, 259, 3494, 8, 9.

^dLess 2514, 5, 2522, 2542.

TABLE B-2
Variables Used in Comparison of Value Added per Employee in Japan and the United States, 1962
 (dollars)

Code No.	U.S. Standard Industrial Classification Name of Industry	Matched with Japanese Code No.	Value Added per Employee		
			Japan Actual (1)	Japan Estimated by Regressing 1 on 3 (2)	U.S. Actual (3)
201	Meat products	1811	2,154	2,176	9,528
202	Dairy products	1812	2,472	2,711	11,960
2031, 6	Canned and frozen seafoods	182	1,552	1,825	7,941
2033	Canned fruits and vegetables	183	1,305	2,133	9,330
2035	Pickles and sauces	1842, 3, 4, 9	2,939	2,579	11,359
2044	Rice milling	1851	2,464	3,345	14,868
2041	Flour and meal	1852, 3, 1894	3,962	3,844	17,169
2042	Prepared animal feeds	1854	3,529	3,522	15,681
206	Sugar	186	7,846	3,504	15,600
205, 207	Bakery, candy, and related products	187	2,144	2,331	10,229
208	Beverages	188	3,563	3,677	16,395
2092, 3, 5, 6	Edible oil	2651	5,301	4,506	20,237
2094	Grease and tallow	2652	2,065	2,830	12,506
2211	Weaving mills, cotton	2031	1,034	1,396	6,020
222	Weaving mills, synthetics	2032	1,178	1,773	7,707
223	Weaving, finishing mills, wool	2033, 2056, 9	1,856	1,821	7,925

(continued)

TABLE B-2 (continued)

Code No.	U.S. Standard Industrial Classification Name of Industry	Matched with Japanese Code No.	Value Added per Employee		
			Japan Actual (1)	Japan by Regressing 1 on 3 (2)	U.S. Actual (3)
224	Narrow-fabric mills	2071	1,101	1,734	7,530
225	Knitting mills	204	1,534	1,392	6,001
226	Textile finishing, except wool	205 (less 2056, 9)	2,113	1,872	8,154
227 (less 2272)	Carpets and rugs	2096	1,298	1,932	8,422
2281, 2	Yarn mills, except wool	2021, 2, 4	1,899	1,402	6,044
2283	Wool yarn mills	2023	1,832	1,408	6,073
2284	Thread mills	2028	1,122	1,548	6,696
2298	Cordage and twine	206, 2074	1,349	1,624	7,040
2291	Felt goods, n.e.c.	2095	1,815	2,666	11,755
2292	Lace goods	2072, 3	2,175	1,511	6,533
2297	Scouring and combing plants	2091	1,654	1,830	7,963
231, 233, 236 ^a	Men's, women's, and children's outerwear	211	1,101	1,365	5,882
2321, 2, 234	Shirts, nightwear, and underwear	212	1,150	1,229	5,273
235	Millinery, hats, and caps	213	1,569	1,363	5,870
2393	Textile bags	2194	2,240	1,786	7,764
2394	Canvas products	2193	1,706	1,435	6,194

(continued)

TABLE B-2 (continued)

Code No.	U.S. Standard Industrial Classification Name of Industry	Matched with Japanese Code No.	Value Added per Employee		
			Japan Actual (1)	Japan Estimated by Regressing 1 on 3 (2)	U.S. Actual (3)
241, 242	Logging and sawmills	221	1,430	1,446	6,243
243	Millwork and related products	222, 233	1,768	1,706	7,404
244	Wooden containers	223	1,351	1,320	5,678
249	Miscellaneous wood products	229, 3985	1,407	1,563	6,767
2511, 2	Household wood furniture	2311	1,507	1,571	6,802
2514	Metal household furniture	2312	2,208	1,769	7,690
2515	Mattresses and bedsprings	2313	1,304	1,921	8,375
252, 253, 254, 259	Office and public bldg. furniture and fixtures	239	1,726	2,138	9,357
261	Pulp mills	241	4,461	3,158	14,006
262	Paper mills, except building	2421, 2	4,366	3,242	14,393
263, 266	Building paper and paperboard mills	2423, 4	3,835	3,527	15,705
2641	Paper coating and glazing	2431	2,483	3,405	15,141
2643	Bags, except textile bags	2451	1,768	2,141	9,370
2644	Wallpaper	2433	1,612	2,004	8,750
2645	Die-cut paper and board	2432	3,512	2,369	10,405
274, 2751	Paperboard containers and boxes	2452-5	1,820	2,184	9,564
2732	Commercial letterpress printing	253	1,917	2,118	9,266
2752, 3	Book printing	254	1,598	2,128	9,308
	Commercial lithographic printing and engraving	259	1,782	2,277	9,987

(continued)

TABLE B-2 (continued)

Code No.	U.S. Standard Industrial Classification Name of Industry	Matched with Japanese Code No.	Value Added per Employee		
			Japan Actual (1)	Japan by Regressing 1 on 3 (2)	U.S. Actual (3)
2871, 2	Fertilizers	261	4,445	2,645	11,658
2812, 3, 6, 9, 2895	Inorganic chemicals	262	3,847	4,803	21,620
2814, 5, 8 2822	Organic chemicals	263	5,811	6,018	27,301
282 (less 2822)	Fibers and plastic materials	264	4,550	4,139	18,532
283	Drugs	268	5,405	5,491	24,831
2844	Toilet preparations	2694, 5	6,134	6,639	30,223
2841-3, 2894	Cleaning agents and fatty acids	2661-3, 2666	4,424	6,371	28,961
286	Gum and wood chemicals	267	2,155	3,618	16,125
285	Paints and varnishes	2664	4,060	3,682	16,420
2873, 9	Agricultural chemicals	2693	5,393	3,774	16,845
2891	Glue and gelatin	2696	2,921	3,446	15,332
2892	Explosives	2691	2,418	2,418	10,624
2893	Printing ink	2665	3,080	3,403	15,133
2911	Petroleum refining	271	12,168	5,339	24,120
2992	Lubricating oils and greases	272	3,560	3,783	16,888
3011	Tires and inner tubes	281	4,442	3,332	14,806

(continued)

TABLE B-2 (continued)

Code No.	U.S. Standard Industrial Classification Name of Industry	Matched with Japanese Code No.	Value Added per Employee		
			Japan Actual (1)	Japan Estimated by Regressing 1 on 3 (2)	U.S. Actual (3)
3021	Rubber footwear	282	1,294	1,815	7,896
3031	Reclaimed rubber	283, 284			
		285	2,052	2,895	12,802
3069	Fabricated rubber products, n.e.c.	286, 289	2,407	2,353	10,329
3079	Plastics products, n.e.c.	396	1,940	2,178	9,536
3111	Leather tanning and finishing	291	2,439	1,910	8,326
3121	Industrial leather belting	292	2,013	3,104	13,761
3131,					
3141, 2	Footwear, except rubber	293, 294	1,743	1,322	5,690
3151	Leather gloves	295	1,793	972	4,138
3161	Luggage	296	1,669	1,582	6,849
3171	Handbags and purses	297	2,003	1,298	5,582
3172,					
3199	Small leather goods	299	1,890	1,513	6,542
3211	Flat glass	3011	10,244	3,176	14,092
3221, 9	Pressed and blown glassware	2013-6, 7, 9	2,563	2,519	11,084
3231	Products of purchased glass	3018	2,024	2,474	10,879
3241	Cement, hydraulic	302	9,423	4,753	21,386
3251	Brick and structural tile	3032	1,128	1,657	7,188
3253	Ceramic wall and floor tile	3045, 6	1,456	2,076	9,073

(continued)

TABLE B-2 (continued)

Code No.	U.S. Standard Industrial Classification Name of Industry	Matched with Japanese Code No.	Value Added per Employee		
			Japan Actual (1)	Japan Estimated by Regressing 1 on 3 (2)	U.S. Actual (3)
3255	Clay refractories	305	1,709	2,147	9,397
3259	Structural clay products, n.e.c.	3033, 9	1,347	1,966	8,577
3261	Vitreous plumbing fixtures	3041	1,944	2,279	9,992
3262, 3	China and earthenware food utensils	3042	1,214	1,351	5,817
3264	Porcelain electrical supplies	3043	2,119	1,899	8,276
3269	Pottery products, n.e.c.	3047, 9	1,235	1,415	6,102
327	Concrete and plaster products	308	2,252	2,657	11,713
329 (less 3291)	Nonmetallic minerals, n.e.c.	309	2,020	2,817	12,444
3291	Abrasive products	307	2,753	3,151	13,977
3312	Blast furnaces and steel mills	2761, 311, 3125, 315	3,658	2,978	13,183
3313	Electrometallurgical products	3133	3,107	3,306	14,688
3315, 6, 7	Steel pipe, tubes, and wire	313, 314 (less 3133)	3,268	2,903	12,837
332, 3391	Iron and steel foundries and forging	316, 317	2,101	2,168	9,491
3331	Primary copper	3211	3,131	3,627	16,167
3333	Primary zinc	3213	3,574	2,066	9,030
3334	Primary aluminum	3214	7,418	6,040	27,407
334	Secondary nonferrous metals	322	2,598	2,723	12,014

(continued)

TABLE B-2 (continued)

Code No.	U.S. Standard Industrial Classification Name of Industry	Matched with Japanese Code No.	Value Added per Employee		
			Japan Actual (1)	Japan Estimated by Regressing 1 on 3 (2)	U.S. Actual (3)
3351	Copper rolling and drawing	3231	2,756	2,624	11,564
3352	Aluminum rolling and drawing	3233	3,183	2,551	11,229
3356	Rolling and drawing, n.e.c.	3232, 9	3,314	2,644	11,655
3357	Nonferrous wire drawing, etc.	325	3,323	2,715	11,979
336, 3392	Nonferrous foundries and forgings	324	2,131	2,153	9,425
341	Metal cans	331	2,542	3,277	14,554
3421	Cutlery	3321, 3	1,937	2,062	9,010
3423	Edge tools	3322	2,339	2,417	10,621
3425	Hand saws and saw blades	3326	2,084	2,780	12,277
3429	Hardware, n.e.c.	3324, 5, 7, 9	2,041	2,445	10,750
343	Plumbing and nonelectric heating	333	2,080	2,597	11,438
3441, 9	Fabricated structural steel	3341	2,512	2,122	9,281
3442	Metal doors, sash, and trim	3342	2,858	2,087	9,123
3443, 4, 3491	Boiler shop products, metal drums, barrels, etc.	3343, 3411	2,316	2,167	9,485
345	Screw machine products and bolts	337	1,785	2,342	10,282
346, 347	Metal stampings	335	1,784	2,125	9,298
3492, 3, 6, 7, 9	Misc. fabricated metal products	339 (less 3396)	2,030	2,406	10,570

(continued)

TABLE B-2 (continued)

Code No.	U.S. Standard Industrial Classification Name of Industry	Matched with Japanese Code No.	Value Added per Employee		
			Japan Actual (1)	Japan Estimated 1 on 3 (2)	U.S. Actual (3)
3481	Fabricated wire products, n.e.c.	336	2,441	2,126	9,300
3511	Steam engines and turbines	3412	9,375	2,791	12,325
3519	Internal combustion engines	3413, 4, 9	2,118	2,607	11,484
352	Farm machinery and equipment	342	2,664	2,578	11,352
3531, 2	Mining and construction machinery	3431	2,163	2,592	11,420
3534, 5	Elevators and conveyors	3473, 4	3,356	3,262	14,487
3537	Industrial trucks and tractors	3432	3,319	2,423	10,648
354	Metalworking machinery	344	2,796	2,576	11,345
3551	Food products machinery	3461	2,339	2,595	11,431
3552	Textile machinery	345	2,109	2,053	8,970
3553	Woodworking machinery	3462	2,219	2,602	11,461
3554	Paper industries machinery	3463	3,176	2,316	10,163
3555	Printing trades machinery	3464	2,293	2,764	12,201
3559	Special industry machinery, n.e.c.	3465, 9 3478	2,954	2,452	10,782
3561, 4	Pumps, compressors, blowers, fans, etc.	3471, 2	3,317	2,532	11,143
3566	Power transmission equipment	3475	2,753	2,575	11,340
3567	Industrial furnaces and ovens	3476	2,224	2,414	10,607
3569	General industry machinery, n.e.c.	3477, 9	2,633	1,973	8,609
3571, 2	Typewriters and office machines	3481	3,817	2,372	10,415

(continued)

TABLE B-2 (continued)

Code No.	U.S. Standard Industrial Classification	Matched with Japanese Code No.	Value Added per Employee		
			Japan Actual (1)	Japan Estimated by Regressing 1 on 3 (2)	U.S. Actual (3)
3579,					
3589	Office and service industry machines, n.e.c.	3489	2,347	3,020	13,376
3585	Refrigeration machinery, n.e.c.	3483	2,366	2,460	10,819
3494	Valves and pipe fittings	3492	2,667	2,606	11,481
3498	Fabricated pipe and fittings	3493	1,718	2,451	10,774
3562	Ball and roller bearings	3494	3,304	2,649	11,676
3599	Machine shops	3495, 9	2,101	2,208	9,672
3611	Electric measuring instruments	357	2,631	2,256	9,892
3612, 3,					
3643	Electric distribution products	3512-4	2,651	2,422	10,644
3621	Motors and generators	3511	2,784	2,363	10,375
3624	Carbon and graphite products	306	2,748	2,988	13,229
3623	Welding apparatus	3516	3,561	3,032	13,431
3629	Electric industrial goods, n.e.c.	3519	2,321	1,777	7,724
363 (less					
3636)	Electric household appliances ^b	352	3,925	2,984	13,210
3641	Electric lamps	353	1,523	3,647	16,256
3642	Lighting fixtures	3515	2,521	2,406	10,569
3651	Radios and TV receiving sets	3543, 4	4,947	2,385	10,475

(continued)

TABLE B-2 (continued)

Code No.	U.S. Standard Industrial Classification Name of Industry	Matched with Japanese Code No.	Value Added per Employee		
			Japan Actual (1)	Japan by Regressing 1 on 3 (2)	U.S. Actual (3)
3661, 2	Communications equipment	3541, 2, 5, 6, 9	1,962	2,439	10,723
367	Electronic components	355, 3569	3,160	1,987	8,670
3693	X-ray and therapeutic apparatus	3561	2,339	2,767	12,216
3691	Storage batteries	3591	4,187	2,933	12,976
3692	Primary batteries, dry and wet	3592	2,116	2,964	13,119
3694	Engine electrical equipment	3517	1,914	2,638	11,628
3699	Electrical products, n.e.c.	3599	1,659	1,862	8,110
3713, 7	Motor vehicles and parts	361	3,952	3,939	17,607
3721	Aircraft	3651	2,827	2,349	10,313
3722	Aircraft engines and parts	3652	2,936	2,524	11,106
3732	Boat building and repairing	3642, 3	1,379	1,511	6,533
374	Railroad equipment	362	2,612	2,728	12,037
3811	Scientific instruments	374	2,691	2,605	11,477
382	Mechanical measuring devices	371, 372	2,064	2,448	10,761
3831, 3851	Optical instruments and ophthalmic goods	3012, 375, 376 ^c	1,705	1,903	8,292
384	Medical instruments and supplies	2098, 373	1,978	2,722	12,013

(continued)

TABLE B-2 (concluded)

Code No.	U.S. Standard Industrial Classification Name of Industry	Matched with Japanese Code No.	Value Added per Employee		
			Japan Actual (1)	Japan Estimated by Regressing 1 on 3 (2)	U.S. Actual (3)
3861 (less					
38615, 6, 7)	Photographic equipment	3752, 3	1,773	3,202	14,212
38615, 6, 7	Sensitized photographic materials	2697	4,004	4,997	22,525
387	Watches and clocks	377	2,121	2,187	9,579
391	Jewelry and silverware	391	2,376	2,090	9,137
393	Musical instruments and parts	392	1,959	1,747	7,588
394	Toys and sporting goods	393	1,365	2,016	8,802
395	Office supplies	394	2,395	2,288	10,033
396	Costume jewelry and notions	395	1,734	1,678	7,281
3984	Candles	2667	1,338	1,734	7,530

Note: n.e.c. = not elsewhere classified.

^aPlus 2328 and 2385.

^bExcept sewing machines.

^cLess 3752 and 3753.

TABLE B-3
 Variables Used in Comparison of Value Added Per Employee in India (1961) and the United States (1963)
 (dollars)

Code No.	Indian Industrial Classification Name of Industry	Value Added per Employee			
		Matched with U.S. SIC Code	India Actual (1)	India Estimated by Regressing 1 on 3 (2)	U.S. Actual (3)
2021,2	Manufacture of milk foods and other dairy products	202	1,066	891	12,400
203	Canning and preserving of fruits and vegetables	203,4,5,7	438	776	10,666
204	Canning and preserving of fish and other seafoods	2031,6	922	585	7,849
2052	Rice mills	2044	308	1,312	18,916
2051,3	Flour mills	2041	793	1,167	16,652
206	Manufacture of bakery products	205	1,087	786	10,818
2071	Sugar	206	899	1,283	18,460
208	Manufacture of cocoa, chocolate, and sugar confectionery	2071,2	774	820	11,330
2093	Hydrogenated oil	2096	1,664	1,354	19,576
2099	Salt	28991	451	1,340	19,363
211,2	Spirits and wine	2084,5	741	2,098	31,551
213	Breweries and manufacture of malt	2082,3	3,376	1,419	20,598

(continued)

TABLE B-3 (continued)

Code No.	Indian Industrial Classification Name of Industry	Value Added per Employee			
		Matched with U.S. SIC Code	India Actual (1)	India Estimated by Regressing 1 on 3 (2)	U.S. Actual (3)
214	Soft drinks and carbonated water industries	2086,7	1,216	1,001	14,092
2202,3	Cigars and cigarettes	2111,2121	1,908	1,800	26,702
2311	Cotton textiles	2211, 22811,2	676	452	5,924
2313	Woolen textiles	2231,2283	835	583	7,812
2314,5	Silk and artificial silk	2221	663	562	7,504
2316	Webbing, narrow fabrics embroidery and lace manufacturing	2241,2292	467	545	7,267
2317	Textiles dyeing, bleaching, etc.	226	640	611	8,221
2318	Thread and threadball making	2284	984	564	7,539
2319	Carpet weaving	2271,9	267	635	8,581
232	Knitting mills	225	517	481	6,331
233	Cordage, rope, and twine industries	2298	485	489	6,459
2395,6	Coated fabric and linoleum	2295,3982	1,202	1,064	15,057
2398	Tarpaulins, tents, sails, and other made-up, canvas goods	2394	524	498	6,583
2431,3	Clothing and tailoring	22 (less 239)	302	457	5,999
2432	Umbrella manufacture	3995	482	470	6,183

(continued)

TABLE B-3 (continued)

Code No.	Indian Industrial Classification Name of Industry	Value Added per Employee			U.S. Actual (3)
		Matched with U.S. SIC Code	India Actual (1)	India Estimated by Regressing 1 on 3 (2)	
241	Manufacture of footwear	313,314	781	460	6,032
2511	Sawmilling	242	325	491	6,480
2512	Plywood	2432	523	627	8,453
252	Wooden and cane containers and cane small ware	244	488	431	5,630
2711-3	Pulp and paper mills	2611,2621	1,065	1,051	14,851
2714,6	Paperboard	2631,2661	950	1,240	17,793
2715,7	Paper and paper products	264,265	1,211	772	10,613
2801,2	Printing and bookbinding	275,276, 277,2789	696	725	9,909
291	Tannery and leather finishing plants	3111	504	643	8,692
293	Manufacture of leather products, except footwear and other wearing apparel	312,316, 317,319	553	498	6,586
3001	Tires and tubes	301	4,715	1,093	15,502
3002,4	Surgical and medical products of rubber	30697	837	793	10,924
3003	Rubber footwear	3021	788	557	7,443
3111,3	Fertilizers	2871,2	1,238	956	13,393
31121	Heavy chemicals—inorganic	2812,9	1,351	1,535	22,450

(continued)

TABLE B-3 (continued)

Code No.	Indian Industrial Classification Name of Industry	Value Added per Employee			
		Matched with U.S. SIC Code	India Actual (1)	India Estimated by Regressing 1 on 3 (2)	U.S. Actual (3)
3113,5	Synthetic resins and man-made fibers	282	2,844	1,368	19,800
3116	Explosives including gunpowder and safety fuses	2892	920	810	11,187
3117	Dyestuffs	28152,3			
		2816	4,654	1,431	20,799
3118	Turpentine and rosin	28611	1,893	1,195	17,080
313	Manufacture of paints, varnishes, and lacquers	285	1,248	1,263	18,144
3196	Soaps and glycerine	2841	3,003	2,424	36,936
3195	Drugs and pharmaceuticals	283	1,982	1,902	28,356
3197	Perfumes, cosmetics, and other toilet preparations	2844	781	2,362	35,904
3198	Matches	3983	795	618	8,320
3192	Insecticides, fungicides, and weedicides	2879	1,821	1,343	19,398
31910	Glue and gelatin	2891	592	1,206	17,252
321	Petroleum refineries	2911,2992	9,798	1,764	26,122
3311-3	Fire bricks and refractories	3255,9	505	704	9,597
3314	Tiles	3251,3	341	589	7,898
3321,4-6	Pressed and blown glassware	322,323	390	822	11,370

(continued)

TABLE B-3 (continued)

Code No.	Indian Industrial Classification Name of Industry	Value Added per Employee			
		Matched with U.S. SIC Code	India Actual (1)	India Estimated by Regressing 1 on 3 (2)	U.S. Actual (3)
3322	Sheet and plate glass	3211	625	1,124	15,974
3331	China ware and pottery	326	332	486	6,403
3332	Sanitary ware and whiteware	3261	373	794	10,937
334	Manufacture of cement	3241	1,466	1,541	22,536
3391	Asbestos cement	32924	1,166	954	13,362
3392	Hume pipes and other cement and concrete products	3272	563	753	10,325
3395, 39916	Stone and slate products	3281	310	539	7,168
3411	Iron and steel (metal)	3312	1,488	1,060	14,996
3396	Grinding wheels and abrasives	3291	1,621	1,046	14,782
3412	Ferro-alloys	3313	2,013	992	13,941
3413	Iron and steel castings and forgings	332,3391	393	730	9,981
3414	Iron and steel structurals	344	643	724	9,892
3415	Iron and steel pipes	3317	1,347	924	12,902
342	Nonferrous basic metal industries	333	1,666	1,428	20,754
2602,3	Furniture and fixtures, metal	2514,5, 2522,2542	811	717	9,788
3501	Metal containers and steel trunks	341,3491	1,103	1,054	14,903

(continued)

TABLE B-3 (continued)

Code No.	Indian Industrial Classification Name of Industry	Value Added per Employee			U.S. Actual (3)
		Matched with U.S. SIC Code	India Actual (1)	India Estimated by Regressing 1 on 3 (2)	
3502	Cutlery, locks, etc.	3421 (less 34212), 34294	580	746	10,229
3503	Bolts, nuts, nails, screws, springs, chains, etc.	345, 348, 3493 3562	817 1,116	774 864	10,635 11,998
36061	Ball, roller, and tapered bearings	347	591	626	8,452
3504	Enameling, japanning and lacquering, galvanizing, plating, etc.	3492	370	1,177	16,803
3507	Safes and vaults	3423, 5	998	848	11,753
35010	Hand tools and small tools				
35012	Sanitary and plumbing fixtures and fittings of metal	3431, 2	425	816	11,270
360111, 2	Typewriters and office machines	3571, 2	1,722	848	11,754
3607	Machine tools	354	869	846	11,728
36012	Weighing machines	3576	972	809	11,164
3603	Internal combustion engines	3519	1,035	941	13,174
360411	Paper machinery	3554	592	844	11,689
36041	Textile machinery, etc.	3552	648	645	8,726

(continued)

TABLE B-3 (continued)

Code No.	Indian Industrial Classification Name of Industry	Value Added per Employee			U.S. Actual (3)
		Matched with U.S. SIC Code	India Actual (1)	India Estimated by Regressing 1 on 3 (2)	
36044, 360414	Food products machinery	3551	762	865	12,006
36049	Chemical machinery	35591	725	830	11,479
360513	Refrigeration plants for industrial use	3585	1,301	887	12,341
36081,2	Farm machinery and equipment	3522	667	851	11,795
360511	Power-driven pumps—reciprocating, centrifugal, etc.	35611	842	896	12,477
360512	Air and gas compressors and vacuum pumps	35614,6	1,279	841	11,656
360113	Household air conditioners and refrigerators	3632	1,150	1,038	14,658
360115	Sewing and knitting machines	3636	940	921	12,860
36052	Conveying equipment—bucket elevators, skip hoists, etc.	3535,6	747	904	12,607
37011	Equipment for generation, transmission, and distribution of electricity	3612,3 35111	845	834	11,542
37012	Electrical motors	3621	1,025	768	10,547
37013	Electrical fans	36341	1,110	842	11,670
37014	Electrical lamps	3641	953	1,091	15,477
37016	Electrical cables and wires	3357,33151	1,826	865.	12,014

(continued)

TABLE B-3 (continued)

Code No.	Indian Industrial Classification Name of Industry	Value Added per Employee			U.S. Actual (3)
		Matched with U.S. SIC Code	India Actual (1)	India Estimated by Regressing 1 on 3 (2)	
37019	Household appliances, such as electric irons, heaters, etc.	36343, 3635,9	673	949	13,295
370110	Storage batteries	3691	1,434	992	13,942
370111	Dry cells	3692	1,344	958	13,421
37021,2	Telephone and Telegraph apparatus	3661	727	820	11,331
37023,4	Radio communication apparatus and receivers	36511,3			
		3662,3671	1,120	795	10,963
3812	Boatbuilding	3732	663	552	7,363
383	Manufacture of motor vehicles	3717	1,272	1,317	18,995
385	Manufacture of motorcycles and bicycles	3751	868	631	8,512
3911,3,4	Scientific and medical instruments	381,382,384	849	850	11,789
39121					
3924	Manufacture of photographic and optical goods—others	3831,3851, 38611,3	424	765	10,512
393	Manufacture of watches and clocks	387	448	753	10,327

(continued)

TABLE B-3 (concluded)

Code No.	Indian Industrial Classification Name of Industry	Value Added per Employee			U.S. Actual (3)
		Matched with U.S. SIC Code	India Actual (1)	India Estimated by Regressing 1 on 3 (2)	
3941	Jewelry	391	628	706	9,634
3993,4	Pens and pencils	3951,2	630	729	9,972
3995	Buttonmaking	3963	1,073	583	7,814
3997	Plastic molded goods	30793	700	888	12,368
39910	Brooms and brushes	3981	606	737	10,089
39911,2	Toys, games, and sport goods	394	349	640	8,649

TABLE B-4

*Linearity and Bartlett Tests for Bilateral Comparisons
of Value Added per Employee*

Test	Number of Industries	Arithmetic Form	Logarithmic Form
<i>Linearity</i>			
U.S.—U.K.	103	1.16 (8,93)	.08 (8,93)
U.S.—Japan	178	3.67* (5,171)	1.10 (8,168)
U.S.—India	117	5.21* (9,106)	1.85 (18,97)
<i>Bartlett</i>			
U.S.—U.K.	103	67.18** (4)	12.54 (4)
U.S.—Japan	178	143.88** (7)	25.57** (7)
	169	56.06** (5)	9.28 (5)
U.S.—India	117	169.38** (5)	26.29** (5)
	76	29.75** (3)	.85 (3)

Note: See Table A-4 for sources of tests used. Numbers in parentheses indicate degrees of freedom for each statistic.

*Variables not linearly related at 1 per cent level of confidence.

**Variances significantly different from one another at 1 per cent level of confidence.