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APPENDIX C

Employment, Value, and Population Data

EMPLOYMENT, VALUE, AND POPULATION DATA

TABLE C-1

PERSONS ENGAGED IN INDUSTRY, BY INDUSTRIES: SOVIET UNION, BENCHMARK YEARS, 1913-1955
(thousand full-time equivalents)

| Industry | 1913 | 1927/28 | 1933 | 1937 | 1940 | 1950 | 1955 |
|---|----------------|-----------------|------------------|------|------|-------|-------|
| I. Ferrous and nonferrous mining and metallurgy | 425 | 281 | 573 | 626 | 603 | 998 | 1,121 |
| Large-scale | 425 | 281 | 573 | | | | |
| Small-scale | — | — | — | | | | |
| A. Extraction of iron ore | 49 | 27 | 45 | | | | |
| Large-scale | 49 | 27 | 45 | | | | |
| Small-scale | — | — | — | | | | |
| B. Extraction of manganese ore | 7 | 6 | 8 | | | | |
| Large-scale | 7 | 6 | 8 | | | | |
| Small-scale | — | — | — | | | | |
| C. Ferrous metallurgy | 242 | 212 | 365 | | | | |
| Large-scale | 242 | 212 | 365 | | | | |
| Small-scale | — | — | — | | | | |
| D. Nonferrous mining and metallurgy | 127 | 36 | 155 | | | | |
| Large-scale | 127 | 36 | 155 | | | | |
| Small-scale | — | — | — | | | | |
| II. Fuel | 315 | 399 | 725 | 739 | 857 | 1,260 | 1,514 |
| Large-scale | 314 | 397 | 725 | | | | |
| Small-scale | 1 ^a | 2 | — | | | | |
| A. Coal and coke | 208 | 283 | 494 | | | | |
| Large-scale | 208 | 283 | 494 | | | | |
| Small-scale | — | — | — | | | | |
| B. Crude petroleum | 47 | 41 | 31 | | | | |
| Large-scale | 47 | 41 | 31 | | | | |
| Small-scale | — | — | — | | | | |
| C. Petroleum refining | 7 | 8 | 54 | | | | |
| Large-scale | 7 | 8 | 54 ^b | | | | |
| Small-scale | — | — | — | | | | |
| D. Peat | 52 | 67 | 146 | | | | |
| Large-scale | 52 | 65 | 146 ^c | | | | |
| Small-scale | — | 2 | — | | | | |
| III. Electric power stations | 20 | 28 | 97 | 125 | 134 | 229 | 295 |
| Large-scale | 20 | 28 | 95 | | | | |
| Small-scale | — | — | 2 | | | | |
| IV. Chemicals (incl. rubber) | 70 | 100 | 279 | 351 | 415 | 442 | 629 |
| Large-scale | 56 | 76 | 264 | | | | |
| Small-scale | 14 | 24 ^d | 15 | | | | |
| A. Basic chemicals | 13 | 18 | 54 | | | | |
| Large-scale | 13 | 18 | 54 | | | | |
| Small-scale | — | — | — | | | | |

(continued)

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TABLE C-1 (continued)

| Industry | 1913 | 1927/28 | 1933 | 1937 | 1940 | 1950 | 1955 |
|--|------------------|-----------------|-------|--------------------|--------------------|--------------------|--------------------|
| B. Paints and varnishes | n.a. | n.a. | 10 | | | | |
| Large-scale | n.a. | 5 | 9 | | | | |
| Small-scale | n.a. | n.a. | 1 | | | | |
| C. Pharmaceutical chemicals | n.a. | n.a. | 72 | | | | |
| Large-scale | n.a. | 5 | 71 | | | | |
| Small-scale | n.a. | n.a. | 1 | | | | |
| D. Rubber and asbestos | 17 | 31 | 54 | | | | |
| Large-scale | 17 | 31 | 54 | | | | |
| Small-scale | — | — | — | | | | |
| E. All other chemicals | 40 | 17 | 89 | | | | |
| Large-scale | 26 ^d | 17 ^e | 76 | | | | |
| Small-scale | 14 | — | 13 | | | | |
| V. Machine building and metal products | 602 | 663 | 1,504 | 3,262 | 3,550 | 4,572 | 5,792 |
| Large-scale | 391 | 446 | 1,488 | | | | |
| Small-scale | 211 | 217 | 16 | | | | |
| A. Machine building | 303 | 391 | 811 | 2,925 ^t | 3,202 ^t | 1,884 ^t | 2,594 ^t |
| Large-scale | 250 | 336 | 804 | | | | |
| Small-scale | 53 ^g | 55 | 7 | | | | |
| 1. Land transportation equipment (incl. tractors) | n.a. | n.a. | 355 | | | | |
| Large-scale | n.a. | 55 | 348 | | | | |
| Small-scale | n.a. | n.a. | 7 | | | | |
| 2. Shipbuilding | n.a. | n.a. | 106 | | | | |
| Large-scale | n.a. | 42 | 106 | | | | |
| Small-scale | n.a. | n.a. | — | | | | |
| 3. Agricultural machinery (excl. tractors) | n.a. | n.a. | 110 | | | | |
| Large-scale | n.a. | 51 | 110 | | | | |
| Small-scale | n.a. | n.a. | — | | | | |
| 4. Electrical and industrial machinery | n.a. | n.a. | 240 | | | | |
| Large-scale | n.a. | 188 | 240 | | | | |
| Small-scale | n.a. | n.a. | — | | | | |
| B. Metal products | 299 | 272 | 422 | 337 ^t | 384 ^t | 2,688 ^t | 3,195 ^t |
| Large-scale | 141 | 110 | 413 | | | | |
| Small-scale | 158 ^g | 162 | 9 | | | | |
| VI. Wood products, paper, and logging | 1,073 | 768 | 1,798 | 1,929 | 2,210 | 2,799 | 2,891 |
| Large-scale | 176 | 180 | 1,687 | | | | |
| Small-scale | 897 | 588 | 111 | | | | |
| A. Plywood and lumber | 89 | 92 | 252 | | | | |
| Large-scale | 89 | 92 | 247 | | | | |
| Small-scale | — | — | 5 | | | | |

(continued)

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TABLE C-1 (continued)

| Industry | 1913 | 1927/28 | 1933 | 1937 | 1940 | 1950 | 1955 |
|--|------------------|------------------|------------------|-------|-------|-------|-------|
| B. Miscellaneous wood products | 498 | 280 | 354 | | | | |
| Large-scale | 27 | 29 | 249 ^h | | | | |
| Small-scale | 471 | 251 ⁱ | 105 | | | | |
| C. Matches | 23 | 17 | 19 | | | | |
| Large-scale | 23 | 17 | 19 | | | | |
| Small-scale | — | — | — | | | | |
| D. Pulp and paper | 50 | 49 | 53 | | | | |
| Large-scale | 37 | 43 | 53 | | | | |
| Small-scale | 13 ^j | 6 | — | | | | |
| E. Logging | 413 | 331 | 1,120 | | | | |
| Large-scale | — | — | 1,119 | | | | |
| Small-scale | 413 ^k | 331 | 1 | | | | |
| VII. Construction materials | 231 | 221 | 520 | 351 | 455 | 802 | 1,160 |
| Large-scale | 168 | 162 | 495 | | | | |
| Small-scale | 63 | 59 | 25 | | | | |
| A. Cement industry | n.a. | 22 | 33 | | | | |
| Large-scale | 19 | 22 | 33 | | | | |
| Small-scale | n.a. | — | — | | | | |
| B. Bricks and other construction materials | n.a. | 83 | 161 | | | | |
| Large-scale | 87 | 47 | 145 | | | | |
| Small-scale | n.a. | 36 | 16 | | | | |
| C. Glass | n.a. | 71 | 83 | | | | |
| Large-scale | 59 | 71 | 83 | | | | |
| Small-scale | n.a. | — | — | | | | |
| D. Others | n.a. | 45 | 243 | | | | |
| Large-scale | 3 | 22 | 234 ^l | | | | |
| Small-scale | n.a. | 23 | 9 | | | | |
| VIII. Printing | 79 | 115 | 123 | 150 | 134 | 147 | 157 |
| Large-scale | 70 | 76 | 115 | | | | |
| Small-scale | 9 | 39 | 8 | | | | |
| A. Printing and publishing | n.a. | 71 | n.a. | | | | |
| Large-scale | 49 | 64 | n.a. | | | | |
| Small-scale | n.a. | 7 | n.a. | | | | |
| B. Stationery and art equipment | n.a. | 44 | n.a. | | | | |
| Large-scale | 21 | 12 | n.a. | | | | |
| Small-scale | n.a. | 32 | n.a. | | | | |
| IX. Textiles and allied products | 1,847 | 1,919 | 2,000 | 2,568 | 2,733 | 2,602 | 3,343 |
| Large-scale | 773 | 968 | 1,800 | | | | |
| Small-scale | 1,074 | 951 | 200 | | | | |
| A. Cotton ginning | n.a. | 5 | 16 | | | | |
| Large-scale | 11 | 5 | 16 | | | | |
| Small-scale | n.a. | — | — | | | | |

(continued)

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TABLE C-1 (continued)

| Industry | 1913 | 1927/28 | 1933 | 1937 | 1940 | 1950 | 1955 |
|---|-------------------|------------------|-------|-------|-------|-------|-------|
| B. Primary processing of fibers | n.a. | 4 | 73 | | | | |
| Large-scale | n.a. ^m | 4 | 73 | | | | |
| Small-scale | n.a. | — | — | | | | |
| C. Cotton fabrics | n.a. | 610 | 516 | | | | |
| Large-scale | 501 | 547 | 515 | | | | |
| Small-scale | n.a. | 63 | 1 | | | | |
| D. Linen fabrics | n.a. | 95 | 72 | | | | |
| Large-scale | 71 | 93 | 72 | | | | |
| Small-scale | n.a. | 2 | — | | | | |
| E. Woolen fabrics | n.a. | 182 | 126 | | | | |
| Large-scale | 91 | 77 | 97 | | | | |
| Small-scale | n.a. | 105 ⁿ | 29 | | | | |
| F. Silk fabrics | n.a. | 34 | 25 | | | | |
| Large-scale | 35 | 18 | 25 | | | | |
| Small-scale | n.a. | 16 | — | | | | |
| G. Hemp and jute products | n.a. | 59 | 86 | | | | |
| Large-scale | 17 | 25 | 56 | | | | |
| Small-scale | n.a. | 34 ^o | 30 | | | | |
| H. Knitted goods | n.a. | 104 | 192 | | | | |
| Large-scale | 6 | 31 | 156 | | | | |
| Small-scale | n.a. | 73 | 36 | | | | |
| I. Garment industry | n.a. | 410 | 436 | | | | |
| Large-scale | 6 | 79 ⁿ | 403 | | | | |
| Small-scale | n.a. | 331 | 33 | | | | |
| J. Leather industry | n.a. | 93 | 48 | | | | |
| Large-scale | 17 | 45 | 47 | | | | |
| Small-scale | n.a. | 48 | 1 | | | | |
| K. Fur industry | n.a. | 27 | 43 | | | | |
| Large-scale | 4 | 5 | 41 | | | | |
| Small-scale | n.a. | 22 | 2 | | | | |
| L. Boots and shoes, production and repair | n.a. | 296 | 283 | | | | |
| Large-scale | 14 | 39 | 239 | | | | |
| Small-scale | n.a. | 257 | 44 | | | | |
| M. Others | | | 84 | | | | |
| Large-scale | | | 60 | | | | |
| Small-scale | | | 24 | | | | |
| X. Food and allied products | 1,072 | 803 | 1,094 | 1,478 | 1,554 | 1,637 | 1,790 |
| Large-scale | 448 | 322 | 905 | | | | |
| Small-scale | 624 | 481 | 189 | | | | |
| A. Flour and groats | n.a. | 167 | 174 | | | | |
| Large-scale | 50 | 42 | 59 | | | | |
| Small-scale | n.a. | 125 ^p | 115 | | | | |

(continued)

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TABLE C-1 (continued)

| Industry | 1913 | 1927/28 | 1933 | 1937 | 1940 | 1950 | 1955 |
|------------------------------------|------------------|------------------|-----------------|------|------|------|------|
| B. Sugar | 148 | 60 | 91 | | | | |
| Large-scale | 148 | 60 | 91 | | | | |
| Small-scale | — | — | — | | | | |
| C. Confectionery | n.a. | 42 | 64 | | | | |
| Large-scale | 26 | 22 | 58 | | | | |
| Small-scale | n.a. | 20 | 6 | | | | |
| D. Vegetable oil | n.a. | 34 | 27 | | | | |
| Large-scale | 13 | 14 | 20 | | | | |
| Small-scale | n.a. | 20 | 7 | | | | |
| E. Starch and syrup | n.a. | 5 | 15 | | | | |
| Large-scale | 9 | 3 | 14 | | | | |
| Small-scale | n.a. | 2 | 1 | | | | |
| F. Alcohol, wine, yeast, and vodka | 25 | 39 | 76 | | | | |
| Large-scale | 25 | 39 | 76 ^q | | | | |
| Small-scale | — | — | — | | | | |
| G. Beer and malt | 12 | 15 | | | | | |
| Large-scale | 12 | 15 | | | | | |
| Small-scale | — | — | — | | | | |
| H. Tobacco and makhorka | 32 | 29 | 21 | | | | |
| Large-scale | 32 | 29 | 21 | | | | |
| Small-scale | — | — | — | | | | |
| I. Salt | 20 | 7 | 9 | | | | |
| Large-scale | 20 | 7 | 9 | | | | |
| Small-scale | — | — | — | | | | |
| J. Grease, tallow, and soap | n.a. | 14 | 27 | | | | |
| Large-scale | 11 | 11 | 24 | | | | |
| Small-scale | n.a. | 3 | 3 | | | | |
| K. Fishing | 277 | 229 | 180 | | | | |
| Large-scale | — | 30 | 179 | | | | |
| Small-scale | 277 ^f | 199 ^r | 1 | | | | |
| L. Others | n.a. | 162 | 410 | | | | |
| Large-scale | 102 | 50 | 354 | | | | |
| Small-scale | n.a. | 112 ^s | 56 | | | | |
| XI. All others | 83 | 80 | 211 | 664 | 455 | 491 | 669 |
| Large-scale | 23 | 33 | 186 | | | | |
| Small-scale | 60 ^t | 47 | 25 | | | | |
| A. China and pottery | n.a. | 39 | 37 | | | | |
| Large-scale | 21 | 25 | 31 | | | | |
| Small-scale | n.a. | 14 | 6 | | | | |
| B. Others | n.a. | 41 | 174 | | | | |
| Large-scale | 2 ^u | 8 ^v | 155 | | | | |
| Small-scale | n.a. | 33 ^w | 19 | | | | |

(continued)

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TABLE C-1 (concluded)

| Industry | 1913 | 1927/28 | 1933 | 1937 | 1940 | 1950 | 1955 |
|-----------------------------------|-----------------|-----------------|--------------------|------------------|------------------|------------------|------------------|
| Total excl. repair shops | 5,817 | 5,379 | 8,653 | 12,243 | 13,100 | 15,979 | 19,361 |
| Large-scale | 2,864 | 2,971 | 8,062 | | | | |
| Small-scale | 2,953 | 2,408 | 591 | | | | |
| XII. Repair shops | 86 | 86 | 1,573 | 283 ^f | 294 ^f | 387 ^f | 305 ^f |
| Large-scale | 86 | 86 | 1,303 | | | | |
| Small-scale | — | — | 270 | | | | |
| A. District railroad repair shops | 86 | 86 | 271 | | | | |
| Large-scale | 86 ^x | 86 ^x | 271 | | | | |
| Small-scale | — | — | — | | | | |
| B. Other repair shops | n.a. | n.a. | 1,302 | | | | |
| Large-scale | n.a. | n.a. | 1,032 ^y | | | | |
| Small-scale | n.a. | n.a. | 270 ^y | | | | |
| Total incl. repair shops | 5,903 | 5,465 | 10,226 | 12,526 | 13,394 | 16,366 | 19,666 |
| Large-scale | 2,950 | 3,057 | 9,365 | | | | |
| Small-scale | 2,953 | 2,408 | 861 | | | | |

—: negligible.

^a Includes all mining products.

^b Includes all kinds of fuel processing.

^c Includes oil shale.

^d Includes paints, varnishes, and pharmaceutical chemicals.

^e Includes tar (4.4 th.), chemical wood processing (1.2 th.), and others (11.7 th.).

^f Sum of machine building, metal products, and repair shops apportioned to components by official gross production as estimated in Table F-1. For 1940, repair shops and metal products are apportioned by their 1937 breakdown. Conventional military products were apparently included under machine building up to 1950 and under metal products for 1950 and after; atomic energy may be included under machine building. See Appendix F.

^g Total small-scale for machine building and metal products apportioned to components by small-scale employment in 1927/28.

^h Includes furniture and prefabricated houses.

ⁱ Includes carts and sleds.

^j Paper products.

^k Employment in 1927/28 extrapolated by haulage of industrial timber (Table B-2).

Data underestimated because seasonal workers hired with their own horses are not included.

Includes extraction of minerals (125 th.) and others (109 th.).

^m Distributed among individual fibers.

ⁿ Includes felt and felt products.

^o Includes mixed fibers.

^p Derived from total no. of weeks worked in 1927/28 and the percentage share of total weeks worked accounted for by flour milling and grain cracking in 1928/29 (129, 189). This was divided by average annual no. of weeks worked in large-scale flour industry (45.4).

^q Includes beer and malt.

^r Employment in 1926/27 (203.7 th., 216, 126) extrapolated by fish catch (Table B-2).

^s Includes bakeries (49.3 th.), dairy products (31.5 th.), and others (31.3 th.).

^t School supplies and other products.

^u Artificial gas.

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^v Includes water supply (7.4 th.) and artificial gas (0.9 th.).

^w Includes processing of materials of animal origin (10.6 th.).

^x No. of workers is taken to be half the 1932 level (222, 3 ff) and salaried personnel the same fraction of workers as for machine building in 1913 (see Table C-1a below).

^y Given in Soviet sources as "others" under machine building and metal products. The large-scale component is known to include maintenance repair shops, and we have assumed the entire category applies to repair shops of various kinds.

SOURCES AND DERIVATION OF TABLE C-1

(Note: Exceptions to these general explanations are separately footnoted above.)

1913

Total industry: Sum of large- and small-scale industry.

Large-scale industry: For "census" industry, sum of no. of workers (145, 398 ff, or 222, 3 ff) and of salaried personnel, the latter derived by dividing no. of workers by ratio of workers to salaried personnel. The ratios used are given in Table C-1a below, which is derived from data in the 1918 industrial census on employment in 1913 in "census" enterprises that still existed in 1918 (201, 180 f). When data were lacking for particular industries the avg. ratio for all covered industries was used.

TABLE C-1a
RATIO OF WORKERS TO SALARIED PERSONNEL IN LARGE-SCALE
INDUSTRY, BY INDUSTRIAL GROUP, 1913

| | |
|---------------------------------------|------|
| Extraction and processing of minerals | 15.4 |
| Mining and metallurgy | 16.3 |
| Metal products | 10.8 |
| Machine building | 10.0 |
| Wood products | 8.5 |
| Chemical industry | 7.5 |
| Food industry | 8.1 |
| Products of animal origin | 5.4 |
| Leather and fur industry | 14.7 |
| Cotton industry | 23.0 |
| Woolen industry | 16.9 |
| Silk industry | 24.4 |
| Linen industry | 20.0 |
| Hemp industry | 25.8 |
| Mixed fibers | 14.5 |
| Garment industry | 15.2 |
| Paper industry | 15.5 |
| Printing industry | 10.1 |
| Scientific, school, and art equipment | 7.3 |
| Water supply and gas industry | 4.5 |
| All industries above | 14.6 |

Small-scale industry: Estimates of no. of persons engaged in "noncensus" industry in 1913 on interwar Soviet territory made by a special committee of the Central Statistical Administration (10, pt. II, 91 ff). These estimates were reduced to full-time equivalents by multiplying them by ratio of no. of weeks worked in 1913 (see Table C-1b below) to full-time work year for "census" industry (assumed to be 48 weeks). When data were lacking for particular industries, the avg. no. of weeks worked for all covered industries was used to compute the ratio. The data in Table C-1b were derived from 10, 196.

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TABLE C-1b
AVERAGE NUMBER OF WEEKS WORKED PER YEAR IN SMALL-SCALE INDUSTRY,
BY INDUSTRIAL GROUP, 1913

| | |
|---------------------------------------|------|
| Extraction and processing of minerals | 19.2 |
| Metal products | 31.2 |
| Machine and machine tool building | 26.8 |
| Wood products | 27.6 |
| Chemical industry | 16.8 |
| Products of animal origin | 27.2 |
| Leather and fur industry | 29.2 |
| Cotton industry | 24.0 |
| Woolen industry | 20.8 |
| Silk industry | 38.8 |
| Linen industry | 25.2 |
| Hemp industry | 22.8 |
| Mixed fibers | 27.2 |
| Garment industry | 30.4 |
| Paper products | 32.4 |
| Scientific, school, and art equipment | 31.6 |
| All industries above | 27.0 |

1927/28

Total industry: Sum of large- and small-scale industry.

Large-scale industry: Sum of no. of workers (derived from no. of workers in 1928/29 and percentage increase between 1927/28 and 1928/29, 388, 1929, No. 12, 88 ff) and no. of salaried personnel as of Jan. 1, 1928 (390, 1928, No. 8, 12 ff).

Small-scale industry: Total no. of weeks worked in small-scale industry (407, 1931, No. 8) apportioned among industries according to the percentage distribution for 1928/29 (129, 118 ff). For each industry, the total no. of weeks worked was divided by the avg. no. of weeks worked per worker in the corresponding large-scale industry. The latter averages are derived from the no. of days worked in each large-scale industry (388, 1929, No. 12, 88 ff) divided by 6 times the avg. annual no. of workers in the corresponding large-scale industry.

1933

Total industry: Sum of large- and small-scale industry.

Large-scale industry: Avg. annual no. of workers (362, 1935, No. 7, 41 ff) times ratio of total no. of persons engaged to no. of workers (derived from labor statistics for 1933, 268, 62 ff).

Small-scale industry: Taken from 1933 census (362, 1935, No. 7, 41 ff). Does not include "unorganized" *kustari* and artisans, which are given elsewhere (362, 1936, No. 1, 14 ff) as 295,000 in the city and 115,000 in the country. The value of their output is given (362, 1935, No. 8, 9) as less than 100 million rubles.

1937

Total industry: The total no. of persons engaged in all industry is the sum of (1) the avg. annual no. of production employees (10,112 th., 140, 50); (2) members of industrial producer coops (estimated at 1,500 th. from 206, 40); and (3) workers in collective farm enterprises, estimated at 914 th. from no. of workers in such enterprises in the RSFSR in 1935 (645 th., 362, 1936, No. 20, 10) divided by ratio of no. of collective farms in RSFSR to no. in USSR in 1937 (derived as 706 from 136, 125, and 140, 100). These figures for collective farm workers are apparently not in full-time equivalents and have not been adjusted. The total thus derived was broken down by industries according to the percentage distribution of production workers in industry (140, 49).

1940

Total industry: The total no. of persons engaged in all industry is the sum of (1) the avg. annual no. of production employees (10,967 th., 140, 48); (2) members of industrial producer coops, estimated at 1,628 th. from members of all producer coops in 1940

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(1,832 th., 321, 10/17/40) times ratio of members in industrial coops to all members in 1955 (0.888 from data in 136, 44, and 140, 205); and (3) workers in enterprises belonging to collective farms (assumed to be 800 th., the same as in 1950). The total thus derived was broken down by industries according to the percentage distribution of production workers in industry (140, 49).

1950

Total industry: The total no. of persons engaged in all industry is the sum of (1) the avg. annual no. of production employees (14,144 th., 140, 205); (2) members of industrial producer coops, estimated at 1,422 th. from the members of producer coops in the RSFSR in 1950 (1,008 th., 136, 267) times the ratio of producer coop members in the USSR to those in the RSFSR in 1955 (derived as 1.41 from 138, 44, and 140, 267); and (3) workers in enterprises belonging to collective farms, estimated at 800 th. from no. of such enterprises (around 400 th. in 1949, 138, 42) and the assumption that each enterprise had an avg. of 2 full-time workers. The total thus derived was broken down by industries according to the percentage distribution of production workers in industry (140, 49).

1955

Total industry: The total no. of persons engaged in all industry is the sum of (1) the avg. annual no. of production employees (17,367 th., 140, 205, including a small no. of workers in nonfunded auxiliary enterprise directly attached to ministries); (2) members of industrial producer coops (1,600 th., 180, 23); and (3) workers in enterprises belonging to collective farms, estimated at 700 th. from the no. of such enterprises (350 th., 140, 48) and the assumption that each enterprise had an avg. of 2 full-time workers. The total thus derived was broken down by industries according to the percentage distribution of production workers in industry (140, 49).

GENERAL NOTE

The data on persons engaged in industry in 1937, 1940, 1950, and 1955 suffer from two main shortcomings. First, the total employment figures given in Soviet sources do not cover industrial overhead services, some categories of nonproduction employees, members of so-called "industrial collective farms," and industrial activities classified elsewhere (such as oil prospecting). Lack of information makes it impossible to estimate, even approximately, the overhead and maintenance personnel; but some information is available on the other categories of employment. Domestic help and day workers, who are not included in the total no. of persons engaged in industry, are given in Table C-1c below (269, 10 f):

TABLE C-1c
DOMESTIC HELP AND DAY WORKERS

| | Thousands | Per Cent of Total Employment |
|------|-----------|---------------------------------|
| 1928 | 809.0 | 7.0 |
| 1929 | 706.0 | 5.8 |
| 1930 | 399.0 | 2.7 |
| 1931 | 352.0 | 1.9 |
| 1932 | 341.5 | 1.5 |
| 1933 | 292.4 | 1.3 |
| 1934 | 288.8 | 1.2 |
| 1935 | 300.0 | 1.2 |

It may be assumed that at least a third of these workers were employed in industry. Employment in forestry improvement, excluded from industrial employment, was 2.5% of total employment in 1932, 2.45% in 1937 (223, 138), and 2.45% in 1940 (72, 543, 512). Employment in oil prospecting, also excluded, was 0.6% of total employment in 1940 (72, 512 ff).

The second shortcoming of employment data for 1937 onward is that the percentage breakdown by industry (140, 49) applies only to so-called "production" workers. Hence

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the ratio of production workers to salaried personnel is implicitly taken to be the same in all industries, which is not so. Employment in industries with a larger than average proportion of nonproduction personnel to production workers (such as machine building and electric power stations) is thereby understated. Employment in others with a smaller than average proportion (such as the fuel industry) is overstated. Table C-1d below shows the differences in percentage distributions of production workers and persons engaged by industry in 1933 and 1935 (data taken from *138*, 49; *269*, 71 ff; and Table C-1, this appendix).

TABLE C-1d
PERCENTAGE DISTRIBUTION OF LABOR FORCE, 1933 AND 1935

| | <i>Production Workers</i> (1) | | <i>Persons Engaged</i> (2) | | <i>Col. 1 as % of Col. 2</i> (3) | |
|-------------------------------------|--------------------------------------|------|-----------------------------------|------|---|------|
| | 1933 | 1935 | 1933 | 1935 | 1933 | 1935 |
| Ferrous and nonferrous metallurgy | 5.6 | 7.1 | 5.6 | 7.0 | 100 | 101 |
| Fuel | 7.2 | 7.9 | 7.1 | 7.6 | 101 | 104 |
| Electric power | 0.8 | 0.8 | 0.9 | 0.9 | 89 | 89 |
| Chemicals (incl. paper) | 2.8 | 3.4 | 2.7 | 3.5 | 104 | 97 |
| Machine building and metal products | 25.8 | 25.3 | 27.4 | 26.6 | 94 | 95 |
| Wood, paper, and logging | 18.0 | 20.1 | 17.6 | 19.4 | 102 | 104 |
| Construction materials | 4.0 | 4.9 | 5.1 | 4.8 | 78 | 102 |
| Printing | 1.1 | 1.2 | 1.2 | 1.3 | 92 | 92 |
| Textiles and allied products | 19.8 | 17.3 | 19.5 | 16.3 | 102 | 106 |
| Food and allied products | 11.8 | 10.2 | 10.8 | 10.7 | 109 | 95 |
| Others | 3.1 | 1.7 | 2.1 | 1.8 | 148 | 94 |

The relations between the two distributions (col. 3) are similar in both years except in the cases of chemicals, mineral construction materials, food and allied products, and "other industries." These inconsistencies may be explained by incomparabilities in the industrial classifications for the two sets of data for 1933. The data on production workers are taken from a source published in 1956 (*138*), while those on engaged persons are taken from sources published in the 1930's. It seems probable that the scope of some industrial categories (like "other industries") was redefined between 1933 and 1956.

For further comments on the reliability of our data on persons engaged, see Appendix A, technical note 7.

EMPLOYMENT, VALUE, AND POPULATION DATA

TABLE 12
 TURNOVER, VALUE OF OUTPUT, AND VALUE ADDED, BY INDUSTRIES: SOVIET UNION, 1926/27, 1927/28, AND 1928/29
 (million current rubles)

| Industry | Turnover | | | Value of Output | | | Value Added | | |
|---|----------|---------|---------|-----------------|---------|-------------------|-------------|---------|-------------------|
| | 1926/27 | 1927/28 | 1928/29 | 1926/27 | 1927/28 | 1928/29 | 1926/27 | 1927/28 | 1928/29 |
| I. Electric power stations | | | | | | | | | |
| Large-scale | 158.9 | 191.7 | 237.3 | 158.9 | 191.7 | 237.3 | 101.5 | 122.4 | 151.5 |
| Small-scale | — | — | 0.8 | — | — | 0.8 | — | — | 0.5 |
| II. Fuel | | | | | | | | | |
| Large-scale | 1,025.5 | 1,186.9 | 1,315.7 | 1,025.5 | 1,186.9 | 1,315.7 | 682.8 | 759.9 | 844.0 |
| Small-scale | — | 0.9 | 1.4 | — | 0.9 | 1.4 | — | 0.7 | 1.2 |
| A. Coal and coke | | | | | | | | | |
| Large-scale | 354.4 | 416.7 | 455.1 | 354.4 | 416.7 | 455.1 | 287.3 | 333.5 | 364.2 |
| Small-scale | — | — | — | — | — | — | — | — | — |
| B. Petroleum | | | | | | | | | |
| Large-scale | 615.0 | 713.9 | 787.4 | 615.0 | 713.9 | 787.4 | 347.0 | 392.8 | 436.1 |
| Small-scale | — | — | — | — | — | — | — | — | — |
| 1. Crude petroleum and natural gas extraction | | | | | | | | | |
| Large-scale | 304.2 | 336.0 | 375.4 | 304.2 | 336.0 | 375.4 | 260.2 | 287.3 | 321.1 |
| Small-scale | — | — | — | — | — | — | — | — | — |
| 2. Petroleum refining | | | | | | | | | |
| Large-scale | 310.8 | 377.9 | 412.0 | 310.8 | 377.9 | 412.0 | 86.8 | 105.5 | 115.0 |
| Small-scale | — | — | — | — | — | — | — | — | — |
| C. Peat | | | | | | | | | |
| Large-scale | 51.4 | 52.0 | 67.8 | 51.4 | 51.1 | 66.4 ^a | 46.0 | 30.4 | 39.5 ^b |
| Small-scale | — | 0.9 | 1.4 | — | 0.9 | 1.4 | — | 0.7 | 1.2 |
| D. Artificial gas | | | | | | | | | |
| Large-scale | 4.6 | 4.3 | 5.4 | 4.6 | 4.3 | 5.4 | 2.6 | 2.4 | 3.0 |
| Small-scale | — | — | — | — | — | — | — | 2.4 | 3.0 |
| III. Ferrous mining and metallurgy | | | | | | | | | |
| Large-scale | 677.1 | 720.3 | 845.3 | 677.1 | 720.3 | 845.3 | 300.9 | 321.2 | 382.0 |
| Small-scale | — | — | — | — | — | — | — | — | — |

(continued)

APPENDIX C

TABLE C-2 (continued)

| Industry | Turnover | | | Value of Output | | | Value Added | | |
|--|----------|--------------------|---------|-----------------|---------|---------|-------------|-------------------|---------|
| | 1926/27 | 1927/28 | 1928/29 | 1926/27 | 1927/28 | 1928/29 | 1926/27 | 1927/28 | 1928/29 |
| A. Mining of ferrous ores | | | | | | | | | |
| Large-scale | 38.3 | 44.0 | 65.7 | 38.3 | 44.0 | 65.7 | 29.9 | 34.4 | 51.4 |
| Small-scale | — | — | — | — | — | — | 29.9 | 34.4 | 51.4 |
| 1. Iron ore | | | | | | | | | |
| Large-scale | 30.7 | 35.4 | 46.6 | 30.7 | 35.4 | 46.6 | 23.9 | 27.6 | 36.3 |
| Small-scale | — | — | — | — | — | — | 23.9 | 27.6 | 36.3 |
| 2. Manganese ore | | | | | | | | | |
| Large-scale | 7.6 | 8.7 | 19.0 | 7.6 | 8.7 | 19.0 | 6.0 | 6.8 | 15.0 |
| Small-scale | — | — | — | — | — | — | 6.0 | 6.8 | 15.0 |
| B. Ferrous metallurgy | | | | | | | | | |
| Large-scale | 638.9 | 676.2 | 779.6 | 638.9 | 676.2 | 779.6 | 271.0 | 286.8 | 330.6 |
| Small-scale | — | — | — | — | — | — | 271.0 | 286.8 | 330.6 |
| IV. Nonferrous mining and metallurgy | | | | | | | | | |
| Large-scale | 80.6 | 95.0 | 79.0 | 80.6 | 95.0 | 79.0 | 46.6 | 52.2 | 34.5 |
| Small-scale | — | — | — | — | — | — | 46.6 | 52.1 | 34.3 |
| A. Mining of nonferrous ores | | | | | | | | | |
| Large-scale | — | 0.2 | 0.4 | — | 0.2 | 0.4 | — | 0.1 | 0.2 |
| Small-scale | — | — | — | — | — | — | — | — | — |
| B. Nonferrous metallurgy | | | | | | | | | |
| Large-scale | 41.6 | 51.4 | 14.7 | 41.6 | 51.4 | 14.7 | 32.5 | 36.5 | 11.3 |
| Small-scale | — | — | — | — | — | — | — | — | — |
| B. Nonferrous metallurgy | | | | | | | | | |
| Large-scale | 39.0 | 43.6 | 64.3 | 39.0 | 43.6 | 64.3 | 14.1 | 15.7 | 23.2 |
| Small-scale | — | — | — | — | — | — | 14.1 | 15.7 | 23.2 |
| V. Machine building and metal products | | | | | | | | | |
| Large-scale | 1,593.5 | 1,696.1 | 2,233.0 | 1,593.5 | 1,696.1 | 2,233.0 | 786.9 | 874.2 | 1,148.1 |
| Small-scale | 1,368.7 | 1,431.3 | 1,936.3 | 1,368.7 | 1,431.3 | 1,936.3 | 665.8 | 736.0 | 997.1 |
| A. Machine building | | | | | | | | | |
| Large-scale | 247.5 | 284.7 | 313.1 | 247.5 | 284.7 | 313.1 | 121.1 | 138.2 | 151.0 |
| Small-scale | — | — | — | — | — | — | — | — | — |
| B. Machine building | | | | | | | | | |
| Large-scale | 924.9 | 963.9 | 1,424.2 | 924.9 | 963.9 | 1,424.2 | 462.0 | 476.0 | 702.7 |
| Small-scale | — | — | — | — | — | — | — | — | — |
| 1. Land transportation equip. (incl. tractors) | | | | | | | | | |
| Large-scale | 20.8 | 48.1 | 73.9 | 20.3 | 46.8 | 71.9 | 11.1 | 26.5 | 41.0 |
| Small-scale | — | — | — | — | — | — | — | — | — |
| 1. Land transportation equip. (incl. tractors) | | | | | | | | | |
| Large-scale | 206.2 | 142.3 ^d | 246.9 | 206.2 | 142.3 | 246.9 | 92.7 | 64.0 ^a | 111.1 |
| Small-scale | — | — | — | — | — | — | 92.7 | 64.0 | 111.1 |

EMPLOYMENT, VALUE, AND POPULATION DATA

| | | | | | | | | | | | |
|---|--|--|--|--|--|-------|--------------------|--------------------|-------|-------------------|--------------------|
| 2. Shipbuilding | | | | | | 99.8 | 85.3 | 130.7 | 37.4 | 30.2 | 46.8 |
| Large-scale | | | | | | 99.1 | 79.0 | 119.0 | 36.9 | 26.4 | 39.8 |
| Small-scale | | | | | | 0.7 | 6.3 | 11.7 | 0.5 | 3.8 | 7.0 |
| 3. Agricultural machinery (excl. tractors) | | | | | | | | | | | |
| Large-scale | | | | | | 133.2 | 177.3 ^a | 256.8 | 58.9 | 80.5 ^a | 117.4 |
| Small-scale | | | | | | 132.4 | 163.8 | 231.0 | 58.5 | 72.5 | 102.1 |
| 4. Electrical and industrial machinery | | | | | | | | | | | |
| Large-scale | | | | | | 506.0 | 559.1 | 789.7 | 273.0 | 301.3 | 427.3 |
| Small-scale | | | | | | 487.2 | 532.0 | 755.4 | 262.8 | 286.6 | 408.6 |
| B. Metal products | | | | | | 18.8 | 27.1 | 34.3 | 10.2 | 14.7 | 18.7 |
| Large-scale | | | | | | 648.2 | 732.2 | 808.8 | 324.8 | 398.2 | 445.5 |
| Small-scale | | | | | | 443.8 | 514.2 | 584.0 ^e | 214.8 | 286.4 | 335.5 ^e |
| VI. Extraction of minerals for chemical, construction, glass and china industries | | | | | | 204.4 | 218.0 | 224.8 | 110.0 | 111.8 | 110.0 |
| Large-scale | | | | | | 226.7 | 236.6 | 239.2 | | | |
| Small-scale | | | | | | | | | | | |
| VII. Chemicals | | | | | | | | | | | |
| Large-scale | | | | | | 37.0 | 52.3 | 79.7 | 26.6 | 37.5 | 57.3 |
| Small-scale | | | | | | 30.3 | 40.2 | 62.3 | 21.7 | 28.8 | 44.7 |
| A. Basic chemicals | | | | | | 6.7 | 12.1 | 17.4 | 4.9 | 8.7 | 12.6 |
| Large-scale | | | | | | 271.4 | 310.9 | 408.5 | 116.2 | 132.6 | 172.6 |
| Small-scale | | | | | | 250.4 | 281.1 | 370.8 | 105.4 | 118.0 | 154.8 |
| B. Paints and varnishes | | | | | | 21.0 | 29.8 | 37.7 | 10.8 | 14.6 | 17.8 |
| Large-scale | | | | | | 78.6 | 85.6 | 103.5 | 39.7 | 43.1 | 52.1 |
| Small-scale | | | | | | 78.0 | 84.7 | 102.4 | 39.4 | 42.8 | 51.7 |
| C. Pharmaceutical chemicals | | | | | | 0.6 | 0.9 | 1.1 | 0.3 | 0.3 | 0.4 |
| Large-scale | | | | | | 49.9 | 60.8 | 72.3 | 19.7 | 23.5 | 27.7 |
| Small-scale | | | | | | 44.8 | 53.5 | 63.1 | 17.5 | 20.8 | 24.6 |
| D. All other chemicals | | | | | | 5.1 | 7.3 | 9.2 | 2.2 | 2.7 | 3.1 |
| Large-scale | | | | | | 43.6 | 50.0 | 69.2 | 16.6 | 19.1 | 26.4 |
| Small-scale | | | | | | 42.6 | 48.5 | 67.3 | 16.2 | 18.5 | 25.7 |
| VIII. Construction materials | | | | | | 1.0 | 1.5 | 1.9 | 0.4 | 0.6 | 0.7 |
| Large-scale | | | | | | 99.2 | 114.7 | 163.6 | 40.4 | 46.9 | 66.6 |
| Small-scale | | | | | | 85.0 | 94.5 | 138.1 ^r | 32.4 | 35.9 | 52.9 ^r |
| Small-scale | | | | | | 14.2 | 20.2 | 25.5 | 8.0 | 11.0 | 13.7 |
| Small-scale | | | | | | 181.3 | 199.5 | 246.4 | 110.8 | 122.7 | 152.4 |
| Large-scale | | | | | | 150.6 | 155.6 | 190.8 | 89.8 | 92.5 | 113.9 |
| Small-scale | | | | | | 30.7 | 43.9 | 55.6 | 21.0 | 30.2 | 38.5 |

(continued)

APPENDIX C

TABLE C-2 (continued)

| Industry | Turnover | | | Value of Output | | | Value Added | | |
|--|----------|---------|---------|-----------------|---------|---------|-------------|---------|---------|
| | 1926/27 | 1927/28 | 1928/29 | 1926/27 | 1927/28 | 1928/29 | 1926/27 | 1927/28 | 1928/29 |
| A. Cement | | | | 63.1 | 67.4 | 79.6 | 31.8 | 33.9 | 40.1 |
| Large-scale | | | | 62.2 | 66.0 | 77.7 | 31.3 | 33.2 | 39.1 |
| Small-scale | 0.9 | 1.4 | 1.9 | 0.9 | 1.4 | 1.9 | 0.5 | 0.7 | 1.0 |
| B. Bricks and other construction materials | | | | 118.2 | 132.1 | 167.0 | 79.0 | 88.8 | 112.4 |
| Large-scale | | | | 88.3 | 89.6 | 113.2 | 58.4 | 59.3 | 74.9 |
| Small-scale | 30.1 | 42.7 | 54.0 | 29.9 | 42.5 | 53.8 | 20.6 | 29.5 | 37.5 |
| IX. Glass and china industries | | | | 160.7 | 171.0 | 210.1 | 105.5 | 112.2 | 137.0 |
| Large-scale | | | | 158.3 | 167.2 | 205.0 | 104.3 | 110.2 | 135.6 |
| Small-scale | 2.4 | 3.8 | 5.1 | 2.4 | 3.8 | 5.1 | 1.2 | 2.0 | 2.6 |
| A. Glass | | | | 115.8 | 121.1 | 151.3 | 75.2 | 78.5 | 98.0 |
| Large-scale | | | | 113.5 | 117.5 | 146.5 | 74.0 | 76.6 | 95.5 |
| Small-scale | 2.3 | 3.6 | 4.9 | 2.3 | 3.6 | 4.8 | 1.2 | 1.9 | 2.5 |
| B. China | | | | 44.9 | 49.9 | 58.7 | 30.3 | 33.7 | 39.6 |
| Large-scale | | | | 44.8 | 49.7 | 58.4 | 30.3 | 33.6 | 39.5 |
| Small-scale | 0.1 | 0.2 | 0.3 | 0.1 | 0.2 | 0.3 | 0.06 | 0.1 | 0.1 |
| X. Extraction of all other minerals (incl. asbestos, excl. salt) | | | | 28.9 | 32.7 | 42.0 | 17.8 | 20.1 | 25.8 |
| Large-scale | | | | 28.3 | 31.7 | 40.7 | 17.5 | 19.6 | 25.1 |
| Small-scale | 0.6 | 1.0 | 1.3 | 0.6 | 1.0 | 1.3 | 0.3 | 0.5 | 0.7 |
| A. Asbestos | | | | 6.9 | 7.8 | 9.3 | 4.7 | 5.3 | 6.4 |
| Large-scale | | | | 6.9 | 7.8 | 9.3 | 4.7 | 5.3 | 6.4 |
| Small-scale | 0.01 | 0.02 | 0.03 | 0.01 | 0.02 | 0.03 | 0.01 | 0.01 | 0.01 |
| B. All other mineral products | | | | 22.1 | 24.8 | 32.6 | 13.1 | 14.8 | 19.3 |
| Large-scale | | | | 21.5 | 23.9 | 31.4 | 12.8 | 14.3 | 18.7 |
| Small-scale | 0.6 | 0.9 | 1.3 | 0.6 | 0.9 | 1.2 | 0.3 | 0.5 | 0.6 |
| XI. Rubber products | | | | 148.7 | 184.0 | 225.9 | 83.1 | 102.6 | 126.0 |
| Large-scale | | | | 147.8 | 182.7 | 224.2 | 82.7 | 102.1 | 125.4 |
| Small-scale | 1.0 | 1.3 | 1.7 | 0.9 | 1.3 | 1.7 | 0.4 | 0.5 | 0.6 |

EMPLOYMENT, VALUE, AND POPULATION DATA

| | | | | | | | | | | | | | | |
|---|-------|-------|---------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--|--|--|--|--|
| XII. Wood products (incl. matches) | | | | | | | | | | | | | | |
| Large-scale | | | 691.3 | 733.0 | 663.7 | 702.2 | 769.3 | 627.0 | 675.1 | | | | | |
| Small-scale | 201.0 | 232.6 | 257.1 | 183.6 | 219.4 | 248.5 | 110.9 | 124.3 | 133.9 | | | | | |
| A. Plywood and lumber | | | | | | | | | | | | | | |
| Large-scale | | | 369.9 | 402.0 | 484.5 | 372.6 | 372.6 | 137.1 | 159.4 | | | | | |
| Small-scale | 16.0 | 16.5 | 16.5 | 13.9 | 15.4 | 16.4 | 16.4 | 7.6 | 7.6 | | | | | |
| B. Miscellaneous wood products | | | | | | | | | | | | | | |
| Large-scale | | | 251.2 | 319.3 | 326.6 | 372.6 | 33.8 | 42.6 | 51.9 | | | | | |
| Small-scale | 185.0 | 216.1 | 240.6 | 169.7 | 204.0 | 232.1 | 103.3 | 116.8 | 126.7 | | | | | |
| C. Matches | | | | | | | | | | | | | | |
| Large-scale | | | 30.3 | 34.4 | 45.2 | 45.2 | 18.1 | 20.6 | 27.0 | | | | | |
| Small-scale | | | | | | | 18.1 | 20.6 | 27.0 | | | | | |
| XIII. Logging | | | | | | | | | | | | | | |
| Large-scale | | | 765.0 | 721.8 | 814.0 | 814.0 | 612.0 | 577.0 | 651.0 | | | | | |
| Small-scale | 765.0 | 721.8 | 814.0 | 765.0 ^g | 721.8 ^b | 814.0 ^g | 612.0 ^a | 577.0 ^a | 651.0 ^a | | | | | |
| XIV. Pulp and paper | | | | | | | | | | | | | | |
| Large-scale | | | 181.6 | 192.5 | 256.2 | 242.6 | 84.0 | 88.4 | 117.7 | | | | | |
| Small-scale | 13.6 | 14.0 | 14.0 | 11.9 | 12.9 | 13.6 | 5.1 | 5.1 | 5.0 | | | | | |
| XV. Textiles and allied products | | | | | | | | | | | | | | |
| Large-scale | | | 3,798.2 | 4,193.5 | 4,893.5 | 4,431.0 | 1,397.9 | 1,532.6 | 1,778.2 | | | | | |
| Small-scale | 392.7 | 479.3 | 551.3 | 332.4 | 403.7 | 462.5 | 1,250.6 | 1,367.1 | 1,599.6 | | | | | |
| A. Cotton industry | | | | | | | | | | | | | | |
| Large-scale | | | 2,541.3 | 2,775.5 | 3,148.9 | 3,042.1 | 855.3 | 930.4 | 1,047.7 | | | | | |
| Small-scale | 87.4 | 115.0 | 139.0 | 66.8 | 88.1 | 106.8 | 16.9 | 22.1 | 26.6 | | | | | |
| 1. Cotton ginning | | | | | | | | | | | | | | |
| Large-scale | | | 186.9 | 212.0 | 267.2 | 267.2 | 18.3 | 20.9 | 26.4 | | | | | |
| Small-scale | 1.1 | 1.8 | 2.5 | 1.1 | 1.5 | 1.9 | 0.1 | 0.3 | 0.5 | | | | | |
| 2. Cotton textiles | | | | | | | | | | | | | | |
| Large-scale | | | 2,354.4 | 2,563.5 | 2,881.6 | 2,776.8 | 837.0 | 909.5 | 1,021.3 | | | | | |
| Small-scale | 86.3 | 113.1 | 136.5 | 65.7 | 86.6 | 104.8 | 16.8 | 21.8 | 26.1 | | | | | |
| B. Flax and mixed fibers | | | | | | | | | | | | | | |
| Large-scale | | | 254.9 | 249.6 | 305.4 | 305.4 | 117.6 | 116.2 | 141.5 | | | | | |
| Small-scale | 7.6 | 9.6 | 11.4 | 6.7 | 8.5 | 10.0 | 115.1 | 113.3 | 138.4 | | | | | |

(continued)

TABLE C-2 (continued)

| Industry | Turnover | | | Value of Output | | | Value Added | | |
|---------------------------------------|----------|---------|---------|--------------------|---------|--------------------|-------------------|---------|--------------------|
| | 1926/27 | 1927/28 | 1928/29 | 1926/27 | 1927/28 | 1928/29 | 1926/27 | 1927/28 | 1928/29 |
| 1. Primary processing of mixed fibers | | | | | | | | | |
| Large-scale | | | | 32.4 | 34.7 | 48.8 | 13.1 | 13.9 | 19.4 |
| Small-scale | 2.3 | 4.7 | 7.0 | 30.2 | 30.6 | 43.0 | 12.1 | 12.3 | 17.3 |
| | | | | 2.2 | 4.1 | 5.8 | 1.0 | 1.6 | 2.1 |
| 2. Processing of flax | | | | | | | | | |
| Large-scale | | | | 222.4 | 214.8 | 256.5 | 104.5 | 102.3 | 122.1 |
| Small-scale | 5.2 | 4.9 | 4.4 | 218.0 | 210.5 | 252.4 | 103.0 | 101.0 | 121.1 |
| | | | | 4.4 | 4.3 | 4.1 | 1.5 | 1.3 | 1.0 |
| C. Wool industry | | | | | | | | | |
| Large-scale | | | | 538.0 | 595.6 | 698.0 | 199.7 | 217.1 | 250.2 |
| Small-scale | 75.6 | 103.7 | 128.7 | 464.1 | 496.9 | 577.7 | 185.0 | 198.5 | 228.2 |
| | | | | 73.9 | 98.7 | 120.3 | 14.7 | 18.6 | 22.0 |
| 1. Wool washing | | | | | | | | | |
| Large-scale | | | | 16.6 | 16.8 | 28.0 | 1.7 | 1.7 | 2.9 |
| Small-scale | 0.4 | 0.6 | 0.7 | 16.2 | 16.3 | 27.3 | 1.7 | 1.7 | 2.8 |
| | | | | 0.4 | 0.5 | 0.7 | 0.04 | 0.08 | 0.1 |
| 2. Wool products | | | | | | | | | |
| Large-scale | | | | 521.4 | 578.7 | 670.1 | 197.9 | 215.3 | 247.1 |
| Small-scale | 75.1 | 103.2 | 128.0 | 447.9 | 480.6 | 550.4 | 183.3 | 196.8 | 225.3 |
| | | | | 73.5 | 98.1 | 119.7 | 14.6 | 18.5 | 21.8 |
| D. Silk industry | | | | | | | | | |
| Large-scale | | | | 96.0 | 132.8 | 191.9 | 31.7 | 42.9 | 60.6 |
| Small-scale | 25.0 | 36.3 | 46.5 | 77.0 | 102.0 | 150.2 | 23.1 | 30.6 | 45.0 |
| | | | | 19.0 | 30.8 | 41.7 | 8.6 | 12.3 | 15.6 |
| E. Hemp and jute products | | | | | | | | | |
| Large-scale | | | | 86.7 | 99.4 | 116.7 | 34.8 | 39.9 | 46.8 |
| Small-scale | 19.2 | 23.5 | 27.1 | 69.9 | 78.3 | 91.9 | 29.4 | 33.0 | 38.7 |
| | | | | 16.8 | 21.1 | 24.8 | 5.4 | 6.9 | 8.1 |
| F. Knitted goods | | | | | | | | | |
| Large-scale | | | | 161.0 | 210.0 | 280.4 | 70.2 | 89.4 | 116.8 |
| Small-scale | 81.1 | 91.0 | 98.0 | 105.4 | 150.5 | 218.7 | 42.1 | 60.2 | 87.4 |
| | | | | 55.6 | 59.5 | 61.7 | 28.1 | 29.2 | 29.4 |
| G. Felt products | | | | | | | | | |
| Large-scale | | | | 120.4 | 130.4 | 152.2 | 88.6 | 97.0 | 114.7 |
| Small-scale | 96.8 | 100.2 | 100.6 | 26.8 ^j | 33.5 | 54.9 ^j | 17.5 ^j | 23.4 | 40.8 ^j |
| | | | | 93.6 | 96.9 | 97.3 | 71.1 | 73.6 | 73.9 |
| XVI. Garment industry | | | | | | | | | |
| Large-scale | | | | 794.5 | 896.0 | 1,119.3 | 243.8 | 274.9 | 338.1 |
| Small-scale | 597.6 | 574.8 | 534.3 | 226.8 ^j | 349.8 | 611.5 ^j | 61.7 ^j | 94.9 | 165.7 ^j |
| | | | | 567.7 | 546.2 | 507.8 | 182.1 | 180.0 | 172.4 |

EMPLOYMENT, VALUE, AND POPULATION DATA

XVII. Leather, fur, and shoe industry

| | | | | | | | | | |
|---|-------|-------|-------|---------|---------|---------|-------|-------|-------|
| Large-scale | 813.0 | 729.4 | 623.3 | 1,523.2 | 1,535.0 | 1,355.0 | 435.0 | 455.0 | 465.2 |
| Small-scale | | | | 558.1 | 670.4 | 964.7 | 148.8 | 182.8 | 271.4 |
| A. Leather, natural and artificial | | | | 765.1 | 685.5 | 584.9 | 284.5 | 255.0 | 213.8 |
| Large-scale | | | | 601.6 | 581.2 | 617.3 | 159.2 | 152.9 | 160.2 |
| Small-scale | 213.4 | 170.1 | 121.7 | 392.8 | 414.5 | 497.7 | 95.6 | 100.8 | 121.1 |
| B. Fur products | | | | 208.8 | 166.7 | 119.6 | 63.6 | 52.1 | 39.1 |
| Large-scale | | | | 87.2 | 129.7 | 169.8 | 25.1 | 34.9 | 44.1 |
| Small-scale | 67.1 | 86.3 | 102.9 | 25.9 | 50.5 | 75.1 | 7.4 | 14.4 | 21.5 |
| C. Boots and shoes, production and repair | | | | 61.3 | 79.2 | 94.7 | 17.7 | 20.5 | 22.6 |
| Large-scale | | | | 634.3 | 645.0 | 762.5 | 249.0 | 247.9 | 281.0 |
| Small-scale | 532.5 | 472.9 | 398.7 | 139.3 | 205.4 | 391.9 | 45.8 | 67.5 | 128.9 |

| | | | | | | | | | |
|--|------|------|------|-------|-------|-------|------|------|------|
| Large-scale | 25.9 | 21.3 | 16.0 | 171.2 | 218.4 | 246.5 | 58.1 | 73.5 | 82.5 |
| Small-scale | | | | 145.8 | 197.4 | 230.5 | 49.3 | 66.7 | 77.9 |
| XVIII. Grease, tallow, soap, and perfume | | | | 25.4 | 21.0 | 16.0 | 8.8 | 6.8 | 4.6 |
| Large-scale | | | | | | | | | |
| Small-scale | | | | | | | | | |

XIX. Food and allied products (excl. fishing)

| | | | | | | | | | |
|-------------------------------------|----------------------|----------------------|----------------------|---------|---------|----------------------|---------|---------|--------------------|
| Large-scale | 2,102.4 | 2,388.4 | 2,601.0 | 4,649.4 | 5,447.2 | 6,088.6 | 1,279.8 | 1,487.4 | 1,657.9 |
| Small-scale | | | | 2,560.5 | 3,069.2 | 3,494.7 | 840.7 | 991.3 | 1,120.2 |
| A. Flour milling and grain cracking | | | | 2,088.9 | 2,378.0 | 2,593.9 | 439.1 | 496.1 | 537.7 |
| Large-scale | 1,428.5 ^k | 1,634.4 ^k | 1,790.2 ^k | 2,299.3 | 2,608.0 | 2,809.0 | 451.4 | 511.5 | 549.6 |
| Small-scale | | | | 870.8 | 973.6 | 1,018.8 | 194.3 | 217.2 | 227.3 |
| B. Beet sugar | | | | 1,428.5 | 1,634.4 | 1,790.2 ^m | 257.1 | 294.3 | 322.3 ^m |
| Large-scale | | | | 443.0 | 604.5 | 605.2 | 154.5 | 210.8 | 211.1 |
| Small-scale | | | | 443.0 | 604.5 | 605.2 | 154.5 | 210.8 | 211.1 |
| C. Confectionery | | | | | | | | | |
| Large-scale | | | | 156.3 | 217.2 | 311.4 | 52.6 | 73.0 | 104.6 |
| Small-scale | 58.1 | 69.1 | 77.9 | 99.1 | 149.2 | 234.6 | 33.2 | 50.0 | 78.6 |
| D. Vegetable oil | | | | 57.2 | 68.0 | 76.8 | 19.4 | 23.0 | 26.0 |
| Large-scale | | | | 201.1 | 245.6 | 296.2 | 59.0 | 71.9 | 86.5 |
| Small-scale | 71.6 | 72.5 | 71.3 | 129.6 | 173.1 | 224.9 | 37.5 | 50.2 | 65.2 |
| E. Starch and syrup | | | | 71.5 | 72.5 | 71.3 | 21.5 | 21.7 | 21.3 |
| Large-scale | | | | 30.8 | 28.0 | 46.2 | 9.8 | 9.2 | 15.1 |
| Small-scale | 4.3 | 7.4 | 10.2 | 26.5 | 20.6 | 36.0 | 8.3 | 6.4 | 11.2 |

(continued)

TABLE C-2 (concluded)

| Industry | Turnover | | | Value of Output | | | Value Added | | |
|--|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| | 1926/27 | 1927/28 | 1928/29 | 1926/27 | 1927/28 | 1928/29 | 1926/27 | 1927/28 | 1928/29 |
| F. Wine, yeast, and vodka | | | | | | | | | |
| Large-scale | | | | 362.7 | 362.7 | 372.1 | 165.0 | 164.8 | 168.7 |
| Small-scale | 5.7 | 7.1 | 8.3 | 357.9 | 356.6 | 364.8 | 163.5 | 162.9 | 166.6 |
| | | | | 4.8 | 6.1 | 7.3 | 1.5 | 1.9 | 2.1 |
| G. Beer and malt | | | | | | | | | |
| Large-scale | | | | 104.2 | 97.1 | 95.4 | 65.4 | 60.9 | 59.8 |
| Small-scale | 0.5 | 0.7 | 0.8 | 103.7 | 96.5 | 94.7 | 65.3 | 60.7 | 59.6 |
| | | | | 0.5 | 0.6 | 0.7 | 0.1 | 0.2 | 0.2 |
| H. Tobacco and makhorika | | | | | | | | | |
| Large-scale | | | | 169.7 | 177.6 | 186.5 | 72.1 | 75.5 | 80.1 |
| Small-scale | 1.9 | 2.4 | 2.8 | 168.1 | 175.5 | 184.1 | 71.6 | 74.9 | 79.4 |
| | | | | 1.6 | 2.1 | 2.4 | 0.5 | 0.6 | 0.7 |
| I. Salt | | | | | | | | | |
| Large-scale | | | | 17.1 | 16.4 | 19.8 | 12.3 | 11.7 | 14.2 |
| Small-scale | — | — | — | 17.1 | 16.4 | 19.8 | 12.3 | 11.7 | 14.2 |
| J. Others | | | | | | | | | |
| Large-scale | | | | 865.2 | 1,090.2 | 1,347.0 | 237.6 | 297.9 | 368.1 |
| Small-scale | 531.9 | 594.8 | 639.5 | 344.7 | 503.3 | 711.8 | 100.2 | 146.3 | 207.0 |
| | | | | 520.5 | 586.9 | 635.2 | 137.4 | 151.6 | 161.1 |
| XX. Fishing | | | | | | | | | |
| Large-scale | | | | 209.2 ⁿ | 242.8 ^h | 276.3 ^o | 167.4 ⁱ | 194.2 ⁱ | 221.0 ⁱ |
| Small-scale | 209.2 ^k | 211.0 ^k | 236.5 ^k | — | 31.8 ^p | 36.2 ^p | — | 25.4 ^o | 29.0 ^p |
| | | | | 209.2 | 211.0 ^p | 240.1 ^p | 167.4 | 168.0 ^o | 192.0 ^p |
| XXXI. Printing, publishing, stationery, etc. | | | | | | | | | |
| Large-scale | | | | 265.8 | 294.5 | 377.9 | 143.2 | 158.8 | 204.5 |
| Small-scale | 53.3 | 60.3 | 65.4 | 216.6 | 237.9 | 315.7 | 112.8 | 124.6 | 167.6 |
| | | | | 49.2 | 56.6 | 62.2 | 30.4 | 34.2 | 36.9 |
| A. Printing and publishing | | | | | | | | | |
| Large-scale | | | | 211.7 | 220.5 | 265.2 | 109.0 | 112.7 | 134.2 |
| Small-scale | 24.5 | 18.2 | 11.3 | 190.0 | 204.2 | 254.8 | 95.5 | 102.7 | 128.1 |
| | | | | 21.7 | 16.3 | 10.4 | 13.5 | 10.0 | 6.1 |
| B. Stationery and art equipment | | | | | | | | | |
| Large-scale | | | | 54.1 | 74.1 | 112.7 | 34.2 | 46.1 | 70.4 |
| Small-scale | 28.8 | 42.1 | 54.1 | 26.6 | 33.8 | 60.9 | 17.3 | 21.9 | 39.6 |
| | | | | 27.5 | 40.3 | 51.8 | 16.9 | 24.2 | 30.8 |
| XXXII. All others | | | | | | | | | |
| Large-scale | | | | 151.1 | 172.0 | 222.2 | 82.6 | 88.5 | 105.7 |
| Small-scale | 50.2 | 79.0 | 91.7 | 97.2 | 105.4 | 145.7 | 58.6 | 63.3 | 80.6 |
| | | | | 52.0 | 66.6 | 76.5 | 24.0 | 25.2 | 30.1 |

| | | | | | | |
|---------------------------------------|--------------------|--------------------|--------------------|-------------------|-------------------|--------------------|
| Total excl. repair shops | 17,334.1 | 19,330.6 | 22,669.2 | 7,170.1 | 7,893.5 | 9,252.7 |
| Large-scale | 11,994.7 | 13,650.1 | 16,626.4 | 4,998.8 | 5,662.0 | 6,872.3 |
| Small-scale | 5,339.4 | 5,680.5 | 6,042.8 | 2,171.3 | 2,231.5 | 2,380.4 |
| XXIII. District railroad repair shops | | | | | | |
| Large-scale | 150.0 | 180.0 | 219.0 | 73.2 | 88.2 | 107.1 |
| Small-scale | 150.0 ^a | 180.0 ^a | 219.0 ^a | 73.2 ^r | 88.2 ^r | 107.1 ^r |
| Total incl. repair shops | | | | | | |
| Large-scale | 17,484.1 | 19,510.6 | 22,888.2 | 7,243.3 | 7,981.7 | 9,359.8 |
| Small-scale | 12,144.7 | 13,830.1 | 16,845.4 | 5,072.0 | 5,750.2 | 6,979.4 |
| | 5,339.4 | 5,680.5 | 6,042.8 | 2,171.3 | 2,231.5 | 2,380.4 |

—: negligible

^a 1927/28 value of output extrapolated by output (Table B-2).

^b Value of output times 1927/28 ratio of value added to value of output.

^c Includes lead, tin, and silver ore. Not comparable with 1927/28 data.

^d Value of output for tractors was 6.8 mill. rubles (Tables B-2 and D-8); value added, 3.1 mill. rubles on the assumption that the ratio of value added to value of output was the same as for all land transportation equipment.

^e Includes machine-made metal products for mass consumption, other ferrous products, type foundry products, and nonferrous metal products.

^f Includes tar, chemical wood processing, and other chemical products.

^g Marketed output in current prices (104, 422). Because of its close ties with agriculture, logging is put into small-scale industry.

^h Output times price (Tables B-2 and D-8).

ⁱ Assumed to be 80% of value of output, the approximate ratio for most extractive industries.

^j Derived from data for the garment and other apparel industry.
^k Assumed to be same as value of output.

^l Total including flour milling (363, 1929, No. 9, 281) minus total excluding flour milling (129, 118).

^m Value of output in 1928/29 (assumed to be same as turnover) times ratio of value added to turnover in 1924/25 (both given in 248, 249).

ⁿ Output (Table B-2) times price (280 rubles/m. ton, from output and value of output in 1926/27 prices for 1927/28 in 166, 10).

^o Output (Table B-2) times price (assumed to be same as for 1927/28 in Table D-8).

^p Total apportioned on the basis of employment in 1927/28 (see Table C-1).

^q Value of output for machine building, metal products, and repair shops minus value of output for machine building and metal products, both in "1926/27" rubles (467, 340 f). Data for 1927 used for 1926/27.

^r Value of output times ratio of value added to value of output in machine building.

APPENDIX C

SOURCES AND DERIVATION OF TABLE C-2

(Note: Exceptions to these general explanations are separately footnoted above.)

Turnover (valovoi oborot) is the value of all goods produced and work done on a shop basis. That is, value is calculated at the transfer of goods from one shop within an enterprise to another.

Value of output (valovaiia produktiia) is the value of goods produced and work done on an enterprise basis, but including some intershop transfers in a few industries (e.g., textiles, ferrous metals, and meat packing).

Value added (uslovnaia chistaia produktiia) is value of output minus the value of materials, fuel, and electricity consumed in the process of fabrication. As defined here, value added includes amortization and taxes.

Turnover (small-scale industry)

1926/27: Derived primarily from 249, 482 ff. Additional breakdown taken from 137, 88 ff, and estimated from the percentage distribution within an industry averaged for 1924/25 (248, 245 ff) and 1928/29 (129, 11 f, 117 ff). When no data were available for 1924/25, the 1928/29 distribution was used.

1927/28: Avg. turnover for 1926/27 and 1928/29 times ratio for total small-scale value of output (1.0156) of 1927/28 (363, 1929, No. 9, 281) to avg. for 1926/27 and 1928/29.

1928/29: Derived primarily from 129, 11 f. Additional breakdown derived from data in 129, 118 ff.

Value of Output (large-scale industry)

1926/27: Derived from 47, table 3, 84 ff.

1927/28: Derived from 249, 324 ff.

1928/29: Taken from 388, 1929, No. 12, 88 ff.

Value of Output (small-scale industry)

1926/27: Turnover times avg. ratio of value of output to turnover for 1924/25 (both in 248, 245 ff) and for 1928/29.

1927/28: Avg. value of output for 1926/27 and 1928/29 times ratio for total small-scale value of output (1.0156) of 1927/28 (363, 1929, No. 9, 281) to avg. for 1926/27 and 1928/29.

1928/29: Taken from 129, 14 ff.

Value Added (large-scale industry)

1926/27: Large-scale value of output minus cost of basic and auxiliary materials and fuel consumed (47, table 3, 84 ff).

1927/28: Large-scale value of output times 1926/27 ratio for large-scale industry of value added to value of output.

1928/29: Large-scale value of output times 1926/27 ratio for large-scale industry of value added to value of output.

Value Added (small-scale industry)

1926/27: Turnover times avg. ratio of value added to turnover for 1924/25 (both in 248, 245 ff) and for 1928/29 (both in 129, 14 ff). When no ratio could be computed for 1924/25, the 1928/29 ratio was used.

1927/28: Avg. value added for 1926/27 and 1928/29 times ratio for total small-scale value of output (1.0156) of 1927/28 (363, 1929, No. 9, 281) to avg. for 1926/27 for 1928/29.

1928/29: Value of output minus cost of materials and fuel consumed (129, 118 ff) times ratio of turnover in basic source (129, 14 ff) to turnover in the other source (129, 118 ff), the latter adjustment being required because of differences in coverage.

EMPLOYMENT, VALUE, AND POPULATION DATA

TABLE C-3

ESTIMATED POPULATION: RUSSIA AND SOVIET UNION, SELECTED YEARS, 1858-1958^a
(million persons)

| | | | |
|-------------------|-------|------|--------------------|
| 1858 | 72.8 | 1928 | 151.4 |
| 1860 | 74 | 1929 | 153.9 |
| 1865 | 80 | 1930 | 155.8 |
| 1870 | 86 | 1931 | 157.4 |
| 1875 | 92 | 1932 | 158.2 |
| 1880 | 99 | 1933 | 158.7 |
| 1885 | 106 | 1934 | 159.6 |
| 1890 | 113 | 1935 | 160.7 |
| 1895 | 122 | 1936 | 162.4 |
| 1897 | 125.6 | 1937 | 165.2 |
| 1900 | 132 | | |
| 1905 | 144 | 1938 | 168.6 |
| 1910 | 157 | 1939 | 172.1 |
| 1913 ^a | 164.2 | 1940 | 198.9 |
| 1913 ^a | 138.0 | 1945 | 175.3 ^b |
| 1914 | 140.8 | | |
| 1915 | 142.2 | 1946 | 174.9 |
| 1916 | 142.2 | 1947 | 175.0 |
| 1917 | 142.2 | 1948 | 176.1 |
| | | 1949 | 178.5 |
| 1918 | 140.8 | 1950 | 181.5 |
| 1919 | 139.2 | | |
| 1920 | 136.7 | 1951 | 184.7 |
| 1921 | 135.4 | 1952 | 187.9 |
| 1922 | 135.2 | 1953 | 191.0 |
| | | 1954 | 194.2 |
| 1923 | 136.1 | 1955 | 197.6 |
| 1924 | 138.6 | | |
| 1925 | 141.8 | 1956 | 201.0 |
| 1926 | 145.3 | 1957 | 204.0 |
| 1927 | 148.6 | 1958 | 207.2 |

^a Current territory. For 1913, first figure applies to Tsarist territory, the second to Soviet interwar territory. The former is estimated as the latter times the ratio for Jan. 1, 1914, of population in the two territories.

^b Annual change for 1945-1946 is assumed to be double the change for the first half of 1946 as estimated by Harold Wool (592).

SOURCE:

1858 286, 8.
 1860, 1865, 1870, 1875, 1880, Interpolated logarithmically between 1858 and 1897.
 1885, 1890, 1895 156, I, iii.
 1897 Interpolated logarithmically between 1897 and 1913.
 1900, 1905, 1910 592. Population as of July 1.
 1913-1955 Population as of July 1. Logarithmic interpolation between official estimate of 200.2 mill. as of April 1956 (138, 17) and census enumeration of 208.8 as of January 15, 1959 (141, 7).
 1956-1958

