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## Appendix

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**NOTE:** In these appendixes the sources are cited by an italicized numbering code followed by the page number. The sources are arranged by that code in the bibliography at the end of the paper. In the case of articles, citations are given by an italicized number identifying the periodical or newspaper, followed by the year, issue, and page number.

# Appendix

TABLE A-1

PERSONS ENGAGED IN SMALL-SCALE INDUSTRY: SOVIET UNION, SELECTED YEARS  
(thousands \*)

Industry	1913	1926/27	1927/28	1928/29
I. Ferrous and nonferrous mining and metallurgy		1	1	1
A. Extraction of ore	} <sup>3b</sup>	1	1	1
II. Fuel		—	5	4
A. Peat		—	n.a.	4
III. Electric power stations	—	—	—	—
IV. Chemicals	46	54	116	98
A. Paints and varnishes	n.a.	2	n.a.	2
B. Pharmaceutical chemicals	n.a.	—	n.a.	—
C. Chemical wood processing	37 <sup>e</sup>	51	107	90
D. All other chemicals	n.a.	1	—	6
V. Machine building and metal products	349	427	536	431
A. Machine building	n.a.	50	140	105
1. Land transport. equip.	n.a.	—	n.a.	—
2. Shipbuilding	n.a.	2	n.a.	—
3. Agricultural machinery	n.a.	3	n.a.	74
4. Electrical and indus. machinery	n.a.	45	3	31
B. Metal products	n.a.	377	396	325
1. Ferrous metal products	n.a.	371	385	316
2. Nonferrous metal products	n.a.	6	11	9
VI. Wood products, paper, and logging	1,164	1,423	1,942	1,991
A. Plywood and lumber	—	17	29	26
B. Miscellaneous wood products	819	476	722	532
C. Pulp and paper	19 <sup>d</sup>	7	9	7
D. Logging	826 <sup>e</sup>	900 <sup>f</sup>	1,000 <sup>g</sup>	1,199 <sup>g</sup>
E. Carts, sleds, and parts	—	23	182	157
F. Others	—	—	—	70
VII. Construction materials	159	68	167	198
A. Bricks and others	n.a.	43	142	128
B. Glass	n.a.	1	—	—
C. Cement	n.a.	1	—	—
D. Other construc. materials	n.a.	23	25	70
VIII. Printing	13	13	63	8
A. Printing and publishing	n.a.	n.a.	4	n.a.
B. Stationery and art equipment	n.a.	n.a.	59	n.a.
IX. Textiles	1,911	2,068	2,451	2,210
A. Cotton ginning	—	—	—	—
B. Primary processing of flax	—	—	—	—
C. Cotton fabrics	—	115	146	125
D. Linen fabrics	—	23	8	6
E. Woolen fabrics <sup>h</sup>	1,427 <sup>i</sup>	290	427	358
F. Silk fabrics	—	16	32	27
G. Hemp and jute products	—	62	83	63
H. Processing of mixed fibers	—	16	48	41
I. Knitted goods	—	92	149	131
J. Garment industry	—	677	645	560
K. Leather industry	—	73	124	73
L. Fur industry	484	93	78	85
M. Boots and shoes (product. and repair)	—	607	624	557
N. Lace	—	—	63	149
O. Others	—	4	24	35

(continued)

## Appendix

TABLE A-1 (concluded)

Industry	1913	1926/27	1927/28	1928/29
X. Food and allied products	1,116	791	1,083	892
A. Flour and groats	345	328	566	345
B. Fishing	500 <sup>i</sup>	204 <sup>k</sup>	199 <sup>l</sup>	261 <sup>l</sup>
C. All other food	271	259	318	286
1. Confectionery	n.a.	19	32	28
2. Vegetable oil	n.a.	64	82	73
3. Starch and syrup	n.a.	4	12	10
4. Alcohol, wine, yeast, and vodka	n.a.	17	—	—
5. Tobacco and makhorka	n.a.	1	—	—
6. Grease, tallow, and soap	n.a.	14	5	4
7. Meat (incl. sausages)	n.a.	—	—	22
8. Dairy products	n.a.	25	46	40
9. Bakeries	n.a.	88	73	61
10. Others	n.a.	27	68	48
XI. All others	92 <sup>m</sup>	50	131	117
A. China and pottery	n.a.	46	50	46
B. Others	n.a.	4	81 <sup>n</sup>	71
Total	4,853	4,895	6,495	5,948

<sup>a</sup> In actual numbers, *not* in full-time equivalents.

<sup>b</sup> Includes all mining products.

<sup>c</sup> For 1912. From 73, 52.

<sup>d</sup> Paper products.

<sup>e</sup> Persons engaged in full-time equivalents (Table A-2) doubled on the assumption that the average working season was 6 months in logging.

<sup>f</sup> Assumed to be 90% of no. of persons engaged in 1927/28.

<sup>g</sup> From 34, 89. For 1927/28, includes 331.3 thous. in wood cutting and 668.3 thous. with their own horses and carts. For 1928/29, includes 387.2 thous. in wood cutting and 811.6 thous. with their own horses and carts.

<sup>h</sup> Includes felt and felt products.

<sup>i</sup> Includes lace and others.

<sup>j</sup> Estimated for 1913 in 7, 28.

<sup>k</sup> From 72, 126.

<sup>l</sup> Employment in 1926/27 extrapolated by fish catch (48, Table B-2).

<sup>m</sup> School supplies and other products.

<sup>n</sup> Includes materials of animal origin.

— negligible or nonexistent

### SOURCE AND DERIVATION OF TABLE A-1

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

1913: Estimates of no. of persons engaged in "noncensus" industry in 1913 on inter-war Soviet territory made by a special committee of the Central Statistical Administration (2, 91 ff).

1926/27: 87, 482 ff. For additional breakdown, see 44, 88 ff.

1927/28: Total no. of weeks worked in small-scale industry (87, 3) apportioned among industries according to percentage distribution for 1928/29 (40, 118 ff). For each industry, total no. of weeks worked was divided by avg. no. of weeks worked per worker in 1928/29 (40, 14 ff).

1928/29: 40, 11 ff, and 118 ff.

# Appendix

TABLE A-2

PERSONS ENGAGED IN LARGE- AND SMALL-SCALE INDUSTRY IN FULL-TIME  
EQUIVALENTS: SOVIET UNION, SELECTED YEARS  
(thousand full-time equivalents)

Industry	1913	1926/27	1927/28	1928/29	1933
<b>I. Ferrous and nonferrous mining and metallurgy</b>	425	269	281	276	573
Large-scale	425	269	281	276	573
Small-scale	—	—	—	—	—
<b>A. Extraction of iron ore</b>	49	25	27	33	45
Large-scale	49	25	27	33	45
Small-scale	—	—	—	—	—
<b>B. Extraction of manganese ore</b>	7	10	6	11	8
Large-scale	7	10	6	11	8
Small-scale	—	—	—	—	—
<b>C. Ferrous metallurgy</b>	242	202	212	232	365
Large-scale	242	202	212	232	365
Small-scale	—	—	—	—	—
<b>D. Nonferrous mining and metallurgy</b>	127	32	36	n.a.	155
Large-scale	127	32	36	n.a.	155
Small-scale	—	—	—	—	—
<b>II. Fuel</b>	315	368	400	421	725
Large-scale	314	368	399	419	725
Small-scale	1 <sup>a</sup>	—	2	2	—
<b>A. Coal and coke</b>	208	278	283	303	494
Large-scale	208	278	283	303	494
Small-scale	—	—	—	—	—
<b>B. Crude petroleum</b>	47	43	41	36	31
Large-scale	47	43	41	36	31
Small-scale	—	—	—	—	—
<b>C. Petroleum refining</b>	7	8	8	9	54
Large-scale	7	8	8	9	54 <sup>b</sup>
Small-scale	—	—	—	—	—
<b>D. Peat</b>	52	39	67	73	146
Large-scale	52	39	65	71	146 <sup>c</sup>
Small-scale	—	—	2	2	—
<b>III. Electric power stations</b>	20	28	28	33	97
Large-scale	20	28	28	33	95
Small-scale	—	—	—	—	2
<b>IV. Chemicals (incl. rubber)</b>	70	77	100	98	279
Large-scale	56	63	76	77	264
Small-scale	14	14	24 <sup>d</sup>	21	15

(continued)

# Appendix

TABLE A-2 (continued)

Industry	1913	1926/27	1927/28	1928/29	1933
A. Basic chemicals	13	17	18	20	54
Large-scale	13	17	18	20	54
Small-scale	—	—	—	—	—
B. Paints and varnishes	n.a.	6	n.a.	6	10
Large-scale	n.a.	5	5	5	9
Small-scale	n.a.	1	n.a.	1	1
C. Pharmaceutical chemicals	n.a.	72	n.a.	5	72
Large-scale	n.a.	71	5	5	71
Small-scale	n.a.	1	n.a.	—	1
D. Rubber and asbestos	17	22	31	28	54
Large-scale	17	22	31	28	54
Small-scale	—	—	—	—	—
E. All other chemicals	40	27	17	39	89
Large-scale	26 <sup>d</sup>	14	17 <sup>e</sup>	19	76
Small-scale	14	13	—	20	13
V. Machine building and metal products	602	603	663	705	1,504
Large-scale	391	395	446	521	1,488
Small-scale	211	208	217	184	16
A. Machine building	303	296	391	415	811
Large-scale	250	276	336	371	804
Small-scale	53 <sup>f</sup>	20	55	44	7
1. Land transport. equipment (incl. tractors)	n.a.	60	n.a.	79	355
Large-scale	n.a.	60	55	79	348
Small-scale	n.a.	—	n.a.	—	7
2. Shipbuilding	n.a.	29	n.a.	43	106
Large-scale	n.a.	28	42	43	106
Small-scale	n.a.	1	n.a.	—	—
3. Agricultural machinery (excl. tractors)	n.a.	46	n.a.	94	110
Large-scale	n.a.	45	51	62	110
Small-scale	n.a.	1	n.a.	32	—
4. Electrical and industrial machinery	n.a.	161	n.a.	199	240
Large-scale	n.a.	143	188	187	240
Small-scale	n.a.	18	n.a.	12	—
B. Metal products	299	307	272	290	422
Large-scale	141	119	110	150	413
Small-scale	158 <sup>f</sup>	188	162	140	9

(continued)

# Appendix

TABLE A-2 (continued)

Industry	1913	1926/27	1927/28	1928/29	1933
<b>VI. Wood products, paper, and logging</b>	1,073	650	768	846	1,798
Large-scale	176	172	180	218	1,687
Small-scale	897	478	588	628	111
A. Plywood and lumber	89	94	92	122	252
Large-scale	89	89	92	116	247
Small-scale	—	5	—	6	5
B. Miscellaneous wood products	498	192	280	251	354
Large-scale	27	23	29	34	249
Small-scale	471	169 <sup>b</sup>	251 <sup>h</sup>	217 <sup>h</sup>	105
C. Matches	23	14	17	21	19
Large-scale	23	14	17	21	19
Small-scale	—	—	—	—	—
D. Pulp and paper	50	50	49	52	53
Large-scale	37	46	43	47	53
Small-scale	13 <sup>i</sup>	4	6	5	—
E. Logging	413	300	331	400	1,120
Large-scale	—	—	—	—	1,119
Small-scale	413 <sup>j</sup>	300 <sup>k</sup>	331 <sup>l</sup>	400 <sup>m</sup>	1
<b>VII. Construction materials</b>	231	172	221	243	520
Large-scale	168	153	162	192	495
Small-scale	63	19	59	51	25
A. Cement industry	n.a.	22	22	23	33
Large-scale	19	22	22	23	33
Small-scale	n.a.	—	—	—	—
B. Bricks and other construction materials	n.a.	55	83	94	161
Large-scale	87	43	47	62	145
Small-scale	n.a.	12	36	32	16
C. Glass	n.a.	69	71	73	83
Large-scale	59	69	71	73	83
Small-scale	n.a.	—	—	—	—
D. Others	n.a.	26	45	53	243
Large-scale	3	19	22	34	234
Small-scale	n.a.	7	23	19	9
<b>VIII. Printing</b>	79	85	115	93	123
Large-scale	70	77	76	87	115
Small-scale	9	8	39	6	8
A. Printing and publishing	n.a.	n.a.	71	n.a.	n.a.
Large-scale	49	69	64	69	n.a.
Small-scale	n.a.	n.a.	7	n.a.	n.a.

(continued)

# Appendix

TABLE A-2 (continued)

Industry	1913	1926/27	1927/28	1928/29	1933
B. Stationery and art equipment	n.a.	n.a.	44	n.a.	n.a.
Large-scale	21	8	12	18	n.a.
Small-scale	n.a.	n.a.	32	n.a.	n.a.
IX. Textiles and allied products	1,847	1,757	1,919	1,898	2,000
Large-scale	773	873	968	1,068	1,800
Small-scale	1,074	884	951	830	200
A. Cotton ginning	n.a.	5	5	7	16
Large-scale	11	5	5	7	16
Small-scale	n.a.	—	—	—	—
B. Primary processing of fibers	n.a. <sup>o</sup>	5	4	6	73
Large-scale	n.a.	5	4	6	73
Small-scale	n.a.	—	—	—	—
C. Cotton fabrics	n.a.	580	610	593	516
Large-scale	501	517	547	539	515
Small-scale	n.a.	63	63	54	1
D. Linen fabrics	n.a.	102	95	96	72
Large-scale	71	100	93	94	72
Small-scale	n.a.	9	2	2	—
E. Woolen fabrics	n.a.	154	182	167	126
Large-scale	91	76	77	78	97
Small-scale	n.a.	78	105 <sup>p</sup>	89	29
F. Silk fabrics	n.a.	18	34	36	25
Large-scale	35	11	18	23	25
Small-scale	n.a.	7	16	13	—
G. Hemp and jute products	n.a.	45	59	52	86
Large-scale	17	20	25	26	56
Small-scale	n.a.	25 <sup>q</sup>	34 <sup>q</sup>	26 <sup>q</sup>	30
H. Knitted goods	n.a.	66	104	103	192
Large-scale	6	18	31	47	156
Small-scale	n.a.	48	73	56	36
I. Garment industry	n.a.	328	410	332	436
Large-scale	6	50	79 <sup>p</sup>	114	403
Small-scale	n.a.	278	331	218	33
J. Leather industry	n.a.	81	93	85	48
Large-scale	17	41	45	49	47
Small-scale	n.a.	40	48	36	1
K. Fur industry	n.a.	34	27	33	43
Large-scale	4	3	5	8	41
Small-scale	n.a.	31	22	25	2

(continued)



# Appendix

TABLE A-2 (continued)

Industry	1913	1926/27	1927/28	1928/29	1933
L. Boots and shoes, production and repair	n.a.	330	296	317	283
Large-scale	14	27	39	77	239
Small-scale	n.a.	303	257	240	44
M. Others		2		71	84
Large-scale		—		—	60
Small-scale		2		71	24
X. Food and allied products	1,072	736	803	822	1,094
Large-scale	448	273	322	343	905
Small-scale	624	463	481	479	189
A. Flour and groats	n.a.	167	167	120	174
Large-scale	50	49	42	41	59
Small-scale	n.a.	118	125 <sup>r</sup>	79	115
B. Sugar	148	53	60	59	91
Large-scale	148	53	60	59	91
Small-scale	—	—	—	—	—
C. Confectionery	n.a.	31	42	47	64
Large-scale	26	17	22	28	58
Small-scale	n.a.	14	20	19	6
D. Vegetable oil	n.a.	29	34	34	27
Large-scale	13	12	14	16	20
Small-scale	n.a.	17	20	18	7
E. Starch and syrup	n.a.	5	5	6	15
Large-scale	9	4	3	4	14
Small-scale	n.a.	1	2	2	1
F. Alcohol, wine, yeast, and vodka	25	40	39	33	76
Large-scale	25	32	39	33	76
Small-scale	—	8	—	—	—
G. Beer and malt	12	16	15	13	
Large-scale	12	16	15	13	
Small-scale	—	—	—	—	—
H. Tobacco and makhorka	32	33	29	26	21
Large-scale	32	33	29	26	21
Small-scale	—	—	—	—	—
I. Salt	20	7	7	7	9
Large-scale	20	7	7	7	9
Small-scale	—	—	—	—	—
J. Grease, tallow, and soap	n.a.	17	14	14	27
Large-scale	11	9	11	12	24
Small-scale	n.a.	8	3	2	3

(continued)

# Appendix

TABLE A-2 (concluded)

Industry	1913	1926/27	1927/28	1928/29	1933
K. Fishing	277	204	229	299	180
Large-scale	—	—	30	38	179
Small-scale	277 <sup>t</sup>	204 <sup>u</sup>	199 <sup>u</sup>	261 <sup>u</sup>	1
L. Others	n.a.	134	162	167	410
Large-scale	102	41	50	67	354
Small-scale	n.a.	93 <sup>v</sup>	112 <sup>v</sup>	100 <sup>v</sup>	56
XI. All others	83	74	80	103	211
Large-scale	23	55	33	63	186
Small-scale	60	19	47	40	25
A. China and pottery	n.a.	43	39	40	37
Large-scale	21	26	25	26	31
Small-scale	n.a.	17	14	14	6
B. Others	n.a.	31	41	63	174
Large-scale	2 <sup>w</sup>	29	8 <sup>w</sup>	37	155
Small-scale	n.a.	2	33	26	19
Total excl. repair shops	5,817	4,819	5,379	5,538	8,653
Large-scale	2,864	2,726	2,971	3,296	8,062
Small-scale	2,953	2,093	2,408	2,241	591
Repair shops	86	81	86	96	1,573
Large-scale	86	81	86	96	1,303
Small-scale	—	—	—	—	270
District railroad repair shops	86	81	86	96	271
Large-scale	86 <sup>x</sup>	81	86 <sup>x</sup>	96	271
Small-scale	—	—	—	—	—
Other repair shops	n.a.	n.a.	n.a.	n.a.	1,572
Large-scale	n.a.	n.a.	n.a.	n.a.	1,302 <sup>y</sup>
Small-scale	n.a.	n.a.	n.a.	n.a.	270 <sup>y</sup>
Total incl. repair shops	5,903	4,900	5,465	5,634	10,226
Large-scale	2,950	2,807	3,057	3,393	9,365
Small-scale	2,953	2,093	2,408	2,241	861

— negligible.

## Appendix

### NOTES TO TABLE A-2

- <sup>a</sup> Includes all mining products.
- <sup>b</sup> Includes all kinds of fuel processing.
- <sup>c</sup> Includes oil shale.
- <sup>d</sup> Includes paints, varnishes, and pharmaceutical chemicals.
- <sup>e</sup> Includes tar (4 thous.), chemical wood processing (1 thous.), and others (12 thous.).
- <sup>f</sup> Total small-scale for machine building and metal products apportioned to components by small-scale employment in 1927/28.
- <sup>g</sup> Includes furniture and prefabricated houses.
- <sup>h</sup> Includes carts and sleds.
- <sup>i</sup> Paper products.
- <sup>j</sup> Employment in 1927/28 extrapolated by haulage of industrial timber (48, Table B-2). Data underestimated because seasonal workers hired with their own horses are not included.
- <sup>k</sup> Assumed to be 90% of 1927/28 employment.
- <sup>l</sup> 89, 10.
- <sup>m</sup> No. of persons engaged (Table A-1) divided by 3 on the assumption that average logging season was 4 months.
- <sup>n</sup> Includes extraction of minerals (125 thous.) and others (109 thous.).
- <sup>o</sup> Distributed among individual fibers.
- <sup>p</sup> Includes felt and felt products.
- <sup>q</sup> Includes mixed fibers.
- <sup>r</sup> 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 (40, 189). This was divided by average annual no. of weeks worked in large-scale flour industry (45.4).
- <sup>s</sup> Includes beer and malt.
- <sup>t</sup> Employment in 1926/27 extrapolated by fish catch (48, Table B-2).
- <sup>u</sup> Taken from Table A-1 without adjustment because assumed to be full-time equivalents.
- <sup>v</sup> Includes bakeries, dairy products, and other food products.
- <sup>w</sup> For 1913, artificial gas; for 1927/28, includes water supply (7 thous.) and artificial gas (1 thous.).
- <sup>x</sup> No. of workers is taken to be half the 1932 level (75, 3 f) and salaried personnel the same fraction of workers as for machine building in 1913 (see Table A-2a below).
- <sup>y</sup> 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.

### SOURCE AND DERIVATION OF TABLE A-2

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

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

#### 1913

*Large-scale industry:* For "census" industry, sum of no. of workers on interwar territory (42, 398 ff, or 75, 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 A-2a below, which is derived from data in the 1918 industrial census on employment in 1913 in "census" enterprises that still existed in 1918 (65, 180 f). When data were lacking for particular industries, the average ratio for all covered industries was used.

TABLE A-2a  
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 in Table A-1, col. 1, reduced to full-time equivalents by multiplying them by ratio (see Table A-2b), for each industry, of no. of weeks worked per year in small-scale sector in 1913 to full-time work year (assumed to be 48 weeks). When data were lacking for particular industries, the avg. no. of weeks worked per year was used to compute the ratio. The data in Table A-2b were derived from 2, 196.

TABLE A-2b  
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

## Appendix

1926/27

*Large-scale industry: 14.*

*Small-scale industry:* Data in Table A-1, col. 2, reduced to full-time equivalents by multiplying them by ratio, for each industry, of no. of weeks worked per year in small-scale sector to no. of weeks worked per year in large-scale sector. The former was derived as a simple avg. of the no. of weeks worked per year in small-scale industry in 1924/25 (80, 256 ff) and in 1928/29 (40, 14 ff). The latter was taken as 44 weeks for all industries (see 14). When data were lacking for particular industries, the avg. no. of weeks worked per year was used to compute the ratio.

1927/28

*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, both in 23, 88 ff) and no. of salaried personnel as of Jan. 1, 1928 (73, 12 ff).

*Small-scale industry:* Total no. of weeks worked in small-scale industry (87) apportioned among industries according to the percentage distribution for 1928/29 (40, 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 (23, 88 ff) divided by 6 times the avg. annual no. of workers in the corresponding large-scale industry.

1928/29

*Large-scale industry: 23, 88 ff.*

*Small-scale industry:* Data in Table A-1, col. 4, reduced to full-time equivalents by multiplying them by ratio, for each industry, of no. of weeks worked per year in small-scale sector (40, 14 ff) to no. of weeks worked per year in large-scale sector (taken as 44 for all industries). When data were lacking for particular industries, the avg. no. of weeks worked per year was used to compute the ratio.

1933

*Large-scale industry:* Avg. annual no. of workers (24, 41 ff) multiplied by ratio of total no. of persons engaged to no. of workers (derived from labor statistics for 1933 in 88, 62 ff).

*Small-scale industry: 24, 41 ff.* These figures are already in full-time equivalents.

# Appendix

TABLE A-3

VALUE OF OUTPUT OF LARGE- AND SMALL-SCALE INDUSTRY:  
SOVIET UNION, SELECTED YEARS  
(million rubles \*)

Industry	1913	1926/27	1927/28	1928/29	1933
I. Electric power stations	105.4 <sup>b</sup>	158.9	191.7	237.3	855.5
Large-scale	105.4	158.9	191.7	236.5	854.3
Small-scale	—	—	—	0.8	1.1
II. Fuel	647.6	1,025.5	1,186.9	1,315.7	2,766.6
Large-scale	647.2	1,025.5	1,186.0	1,314.3	2,766.2
Small-scale	0.4	—	0.9	1.4	0.4
A. Coal and coke	213.3	354.4	416.7	455.1	1,102.9
Large-scale	213.3	354.4	416.7	455.1	1,102.9
Small-scale	—	—	—	—	—
B. Petroleum	426.8	615.0	713.9	787.4	1,468.2
Large-scale	426.8	615.0	713.9	787.4	1,468.2
Small-scale	—	—	—	—	—
1. Crude petroleum and natural gas extraction	240.7	304.2	336.0	375.4	498.6
Large-scale	240.7	304.2	336.0	375.4	498.6
Small-scale	—	—	—	—	—
2. Petroleum refining	186.1	310.8	377.9	412.0	969.6
Large-scale	186.1	310.8	377.9	412.0	969.6
Small-scale	—	—	—	—	—
C. Peat	7.5	51.4	52.0	67.8	178.0
Large-scale	7.1	51.4	51.1	66.4 <sup>c</sup>	177.6
Small-scale	0.4	—	0.9	1.4	0.4
D. Artificial gas	—	4.6	4.3	5.4	17.5
Large-scale	—	4.6	4.3	5.4	17.5 <sup>d</sup>
Small-scale	—	—	—	—	—
III. Ferrous mining and metallurgy	334.3	677.1	720.3	845.3	1,880.1
Large-scale	334.3	677.1	720.3	845.3	1,880.1
Small-scale	—	—	—	—	—
A. Mining of ferrous ores	49.3	38.3	44.0	65.7	313.9
Large-scale	49.3	38.3	44.0	65.7	313.9
Small-scale	—	—	—	—	—
1. Iron ore	42.6	30.7	35.4	46.6	96.8
Large-scale	42.6	30.7	35.4	46.6	96.8
Small-scale	—	—	—	—	—
2. Manganese ore	6.7	7.6	8.7	19.0	14.5
Large-scale	6.7	7.6	8.7	19.0	14.5
Small-scale	—	—	—	—	—

(continued)

# Appendix

TABLE A-3 (continued)

Industry	1913	1926/27	1927/28	1928/29	1933
3. Others					202.6
Large-scale					202.6
Small-scale					—
B. Ferrous metallurgy	285.0	638.9	676.2	779.6	1,566.2
Large-scale	285.0	638.9	676.2	779.6	1,566.2
Small-scale	—	—	—	—	—
IV. Nonferrous mining and metal-					
lurgy	109.8	80.6	95.0	79.0	390.8
Large-scale	109.8	80.6	94.8	78.6	390.8
Small-scale	—	—	0.2	0.4	—
A. Mining of nonferrous ores	81.4	41.6	51.4	14.7	55.3
Large-scale	81.4 <sup>a</sup>	41.6	51.2	14.3 <sup>f</sup>	55.3
Small-scale	—	—	0.2	0.4	—
B. Nonferrous metallurgy	28.4	39.0	43.6	64.3	335.5
Large-scale	28.4	39.0	43.6	64.3	335.5
Small-scale	—	—	—	—	—
V. Machine building and metal					
products	775.3	1,593.5	1,696.1	2,233.0	11,125.5
Large-scale	646.1	1,368.7	1,431.3	1,936.3	10,732.6
Small-scale	129.2	224.8	264.8	296.7	393.0
A. Machine building	398.1	945.2	963.9	1,424.2	7,627.0
Large-scale	398.1	924.9	917.1	1,352.3	7,614.3
Small-scale	—	20.3	46.8	71.9	12.7
1. Land transportation equip.					
(incl. tractors)	n.a.	206.2	142.3 <sup>g</sup>	246.9	2,286.1
Large-scale	n.a.	206.2	142.3	246.9	2,279.2
Small-scale	n.a.	—	—	—	6.9
2. Shipbuilding	n.a.	99.8	85.3	130.7	494.8
Large-scale	n.a.	99.1	79.0	119.0	494.8 <sup>h</sup>
Small-scale	n.a.	0.7	6.3	11.7	—
3. Agricultural machinery					
(excl. tractors)	n.a.	133.2	177.3 <sup>g</sup>	256.8	398.4
Large-scale	n.a.	132.4	163.8	231.0	398.2
Small-scale	n.a.	0.8	13.5	25.8	0.3
4. Electrical and industrial					
machinery	n.a.	506.0	559.1	789.7	4,447.7
Large-scale	n.a.	487.2	532.0	755.4	4,442.1
Small-scale	n.a.	18.8	27.1	34.3	5.5
B. Metal products	377.2	648.2	732.2	808.8	1,746.4
Large-scale	248.0	443.8	514.2	584.0 <sup>i</sup>	1,714.1
Small-scale	129.2	204.4	218.0	224.8	32.3

(continued)

# Appendix

TABLE A-3 (continued)

Industry	1913	1926/27	1927/28	1928/29	1933
VI. Extraction of minerals for chemical, construction, glass and china industries	—	37.0	52.3	79.7	269.5
Large-scale	—	30.3	40.2	62.3	259.6
Small-scale	—	6.7	12.1	17.4	10.0
VII. Chemicals	193.2	271.4	310.9	408.5	1,401.9
Large-scale	184.4	250.4	281.1	370.8	1,350.9
Small-scale	8.8 <sup>j</sup>	21.0	29.8	37.7	51.0
A. Basic chemicals	n.a.	78.6	85.6	103.5	324.9
Large-scale	n.a.	78.0	84.7	102.4	323.8
Small-scale	n.a.	0.6	0.9	1.1	1.2
B. Paints and varnishes	n.a.	49.9	60.8	72.3	166.4
Large-scale	n.a.	44.8	53.5	63.1	155.8
Small-scale	n.a.	5.1	7.3	9.2	10.6
C. Pharmaceutical chemicals	n.a.	43.6	50.0	69.2	173.2
Large-scale	n.a.	42.6	48.5	67.3	168.8
Small-scale	n.a.	1.0	1.5	1.9	4.4
D. All other chemicals	n.a.	99.2	114.7	163.6	737.3
Large-scale	0.2	85.0	94.5	138.1 <sup>k</sup>	702.4 <sup>l</sup>
Small-scale	n.a.	14.2	20.2	25.5	34.9 <sup>l</sup>
VIII. Construction materials	116.3	181.3	199.5	246.4	530.8
Large-scale	83.8	150.6	155.6	190.8	498.7
Small-scale	32.5	30.7	43.9	55.6	32.2
A. Cement	39.6	63.1	67.4	79.6	105.2
Large-scale	39.6	62.2	66.0	77.7	105.2
Small-scale	—	0.9	1.4	1.9	—
B. Bricks and other construction materials	76.7	118.2	132.1	167.0	425.7
Large-scale	44.2	88.3	89.6	113.2	393.5
Small-scale	32.5 <sup>m</sup>	29.9	42.5	53.8	32.2
IX. Glass and china industries	58.9	160.7	171.0	210.1	413.5
Large-scale	58.9	158.3	167.2	205.0	399.5
Small-scale	—	2.4	3.8	5.1	13.9
A. Glass	45.9	115.8	121.1	151.3	275.1
Large-scale	45.9	113.5	117.5	146.5	273.2
Small-scale	—	2.3	3.6	4.8	1.9
B. China	13.0	44.9	49.9	58.7	138.4
Large-scale	13.0	44.8	49.7	58.4	126.3
Small-scale	n	0.1	0.2	0.3	12.0

(continued)



# Appendix

TABLE A-3 (continued)

Industry	1913	1926/27	1927/28	1928/29	1933
<b>X. Extraction of all other minerals</b>					
(incl. asbestos, excl. salt)	5.7	28.9	32.7	42.0	74.5
Large-scale	5.7	28.3	31.7	40.7	74.2
Small-scale	—	0.6	1.0	1.3	0.3
<b>A. Asbestos</b>	2.1	6.9	7.8	9.3	24.4
Large-scale	2.1	6.9	7.8	9.3	24.4
Small-scale	—	0.01	0.02	0.03	—
<b>B. All other mineral products</b>	3.6	22.1	24.8	32.6	50.1
Large-scale	3.6	21.5	23.9	31.4	49.8
Small-scale	—	0.6	0.9	1.2	0.3
<b>XI. Rubber products</b>	85.6	148.7	184.0	225.9	623.1
Large-scale	85.6	147.8	182.7	224.2	623.1
Small-scale	—	0.9	1.3	1.7	—
<b>XII. Wood products (incl. matches)</b>	329.9	661.3	755.6	902.2	1,832.3
Large-scale	182.5	477.7	536.2	653.7	1,698.2
Small-scale	147.4	183.6	219.4	248.5	134.1
<b>A. Plywood and lumber</b>	n.a.	369.9	402.0	484.5	905.2
Large-scale	135.8	356.0	386.6	468.1	890.6
Small-scale	n.a.	13.9	15.4	16.4	14.7
<b>B. Miscellaneous wood products</b>	n.a.	261.2	319.3	372.6	875.7
Large-scale	35.4	91.5	115.3	140.5	756.4
Small-scale	n.a.	169.7	204.0	232.1	119.3
<b>C. Matches</b>	11.3	30.3	34.4	45.2	51.3
Large-scale	11.3	30.3	34.4	45.2	51.3
Small-scale	—	—	—	—	—
<b>XIII. Logging</b>	842	765.0	721.8	814.0	1,565.7
Large-scale	—	—	—	—	1,564.1
Small-scale	842 <sup>p</sup>	765.0 <sup>q</sup>	721.8 <sup>r</sup>	814.0 <sup>q</sup>	1.6
<b>XIV. Pulp and paper</b>	82.5	181.6	192.5	256.2	302.6
Large-scale	77.7	169.7	179.6	242.6	302.6
Small-scale	4.8	11.9	12.9	13.6	—
<b>XV. Textiles and allied products</b>	1,576.5	3,798.2	4,193.5	4,893.5	6,069.4
Large-scale	1,475.0	3,465.8	3,789.8	4,431.0	6,007.6
Small-scale	101.5	332.4	403.7	462.5	61.7
<b>A. Cotton industry</b>	1,065.6	2,541.3	2,775.5	3,148.9	3,612.9
Large-scale	1,065.6	2,474.5	2,687.4	3,042.1	3,608.4
Small-scale	—	66.8	88.1	106.8	4.5

(continued)

# Appendix

TABLE A-3 (continued)

Industry	1913	1926/27	1927/28	1928/29	1933
1. Cotton ginning	n.a.	186.9	212.0	267.2	470.2
Large-scale	n.a.	185.8	210.5	265.3	469.6
Small-scale	—	1.1	1.5	1.9	0.6
2. Cotton textiles	n.a.	2,354.4	2,563.5	2,881.6	3,142.7
Large-scale	n.a.	2,288.7	2,476.9	2,776.8	3,138.8
Small-scale	—	65.7	86.6	104.8	3.9
B. Flax and mixed fibers	136.4	254.9	249.6	305.4	422.1
Large-scale	119.5	248.2	241.1	295.4	421.3
Small-scale	16.9 *	6.7	8.5	10.0	0.8
1. Primary processing of mixed fibers	24.0	32.4	34.7	48.8	98.9
Large-scale	24.0	30.2	30.6	43.0	98.6
Small-scale	—	2.2	4.1	5.8	0.3
2. Processing of flax	112.4	222.4	214.8	256.5	323.2
Large-scale	95.5	218.0	210.5	252.4	322.7
Small-scale	16.9	4.4	4.3	4.1	0.5
C. Wool industry	199.1	538.0	595.6	698.0	718.4
Large-scale	195.1	464.1	496.9	577.7	706.9
Small-scale	4.0 *	73.9	98.7	120.3	11.4
1. Wool washing	n.a.	16.6	16.8	28.0	47.6
Large-scale	n.a.	16.2	16.3	27.3	47.3
Small-scale	n.a.	0.4	0.5	0.7	0.3
2. Wool products	n.a.	521.4	578.7	670.1	670.8
Large-scale	n.a.	447.9	480.6	550.4	659.6
Small-scale	n.a.	73.5	98.1	119.7	11.1
D. Silk industry	64.7	96.0	132.8	191.9	268.7
Large-scale	49.2	77.0	102.0	150.2	267.8
Small-scale	15.5 *	19.0	30.8	41.7	0.9
E. Hemp and jute products	56.7	86.7	99.4	116.7	185.4
Large-scale	30.6	69.9	78.3	91.9	173.3
Small-scale	26.1 *	16.8	21.1	24.8	12.1
F. Knitted goods	16.9	161.0	210.0	280.4	699.0
Large-scale	9.8	105.4	150.5	218.7	688.3
Small-scale	7.1 *	55.6	59.5	61.7	10.6
G. Felt and felt products	37.1	120.4	130.4	152.2	162.9
Large-scale	5.2	26.8 †	33.5	54.9 †	141.6
Small-scale	31.9 *	93.6	96.9	97.3	21.4
XVI. Garment industry	256.7	794.5	896.0	1,119.3	2,116.9
Large-scale	7.7	226.8 †	349.8	611.5 †	2,046.9
Small-scale	249.0 *	567.7	546.2	507.8	70.0

(continued)

# Appendix

TABLE A-3 (continued)

Industry	1913	1926/27	1927/28	1928/29	1933
<b>XVII. Leather, fur, and shoe industry</b>	605.1	1,323.2	1,355.9	1,549.6	1,833.0
Large-scale	91.1	558.1	670.4	964.7	1,760.8
Small-scale	514.0	765.1	685.5	584.9	72.2
<b>A. Leather, natural and artificial</b>		601.6	581.2	617.3	535.5
Large-scale	61.3	392.8	414.5	497.7	517.9
Small-scale	17.3 <sup>u</sup>	208.8	166.7	119.6	17.5
<b>B. Fur products</b>		87.2	129.7	169.8	432.3
Large-scale		25.9	50.5	75.1	422.1
Small-scale		61.3	79.2	94.7	10.1
<b>C. Boots and shoes, production and repair</b>	526.5	634.3	645.0	762.5	865.3
Large-scale	29.8	139.3	205.4	391.9	820.7
Small-scale	496.7 <sup>v</sup>	495.0	439.6	370.6	44.6
<b>XVIII. Grease, tallow, soap, and perfume</b>	75.1	171.2	218.4	246.5	342.9
Large-scale	75.1	145.8	197.4	230.5	320.7
Small-scale	<sup>w</sup>	25.4	21.0	16.0	22.2
<b>XIX. Food and allied products (excl. fish catch)</b>	2,743.9	4,649.4	5,447.2	6,088.6	9,693.2
Large-scale	1,812.3	2,560.5	3,069.2	3,494.7	6,949.6
Small-scale	931.6 <sup>x</sup>	2,088.9	2,378.0	2,593.9	2,743.5
<b>A. Flour milling and grain cracking</b>	n.a.	2,299.3	2,608.0	2,809.0	3,553.9
Large-scale	424.3	870.8	973.6	1,018.8	1,285.6
Small-scale	n.a.	1,428.5	1,634.4	1,790.2 <sup>y</sup>	2,268.3
<b>B. Beet sugar</b>	n.a.	443.0	604.5	605.2	449.2
Large-scale	297.6	443.0	604.5	605.2	449.2
Small-scale	n.a.	—	—	—	—
<b>C. Confectionery</b>	n.a.	156.3	217.2	311.4	737.7
Large-scale	55.2	99.1	149.2	234.6	688.2
Small-scale	n.a.	57.2	68.0	76.8	49.6
<b>D. Vegetable oil</b>	n.a.	201.1	245.6	296.2	273.9
Large-scale	95.2	129.6	173.1	224.9	261.6
Small-scale	n.a.	71.5	72.5	71.3	12.2
<b>E. Starch and syrup</b>	n.a.	30.8	28.0	46.2	63.9
Large-scale	19.1	26.5	20.6	36.0	60.0
Small-scale	n.a.	4.3	7.4	10.2	3.9
<b>F. Wine, yeast, and vodka</b>	n.a.	362.7	362.7	372.1	1,012.4
Large-scale	482.5 <sup>z</sup>	357.9	356.6	364.8	1,003.4
Small-scale	n.a.	4.8	6.1	7.3	8.9

(continued)

# Appendix

TABLE A-2 (concluded)

Industry	1913	1926/27	1927/28	1928/29	1933
G. Beer and malt	n.a.	104.2	97.1	95.4	164.0
Large-scale	64.7	103.7	96.5	94.7	164.0
Small-scale	n.a.	0.5	0.6	0.7	—
H. Tobacco and makhorka	n.a.	169.7	177.6	186.5	269.3
Large-scale	96.4	168.1	175.5	184.1	268.1
Small-scale	n.a.	1.6	2.1	2.4	1.2
I. Salt	n.a.	17.1	16.4	19.8	25.0
Large-scale	9.7	17.1	16.4	19.8	24.8
Small-scale	n.a.	—	—	—	—
J. Others	n.a.	865.2	1,090.2	1,347.0	3,143.9
Large-scale	267.6	344.7	503.3	711.8	2,744.7
Small-scale	n.a.	520.5	586.9	635.2	399.2
XX. Fishing	134.4	209.2 <sup>aa</sup>	242.8 <sup>r</sup>	276.3 <sup>r</sup>	410.8
Large-scale	—	—	31.8 <sup>bb</sup>	36.2 <sup>bb</sup>	406.8
Small-scale	134.4 <sup>r</sup>	209.2	211.0 <sup>bb</sup>	240.1 <sup>bb</sup>	4.0
XXI. Printing, publishing, stationery, etc.	100.3	265.8	294.5	377.9	612.3
Large-scale	92.0	216.6	237.9	315.7	572.9
Small-scale	8.3	49.2	56.6	62.2	39.9
A. Printing and publishing	n.a.	211.7	220.5	265.2	420.9
Large-scale	n.a.	190.0	204.2	254.8	395.5
Small-scale	n.a.	21.7	16.3	10.4	25.4
B. Stationery and art equipment	n.a.	54.1	74.1	112.7	191.4
Large-scale	n.a.	26.6	33.8	60.9	177.4
Small-scale	n.a.	27.5	40.3	51.8	14.0
XXII. All others	67.3	151.1	172.0	222.2	631.4
Large-scale	28.8	97.2	105.4	145.7	589.8
Small-scale	38.5	53.9	66.6	76.5	41.6
Total excl. repair shops	9,245.9	17,334.1	19,330.6	22,669.2	45,742.5
Large-scale	6,103.4	11,994.7	13,650.1	16,630.0	42,050.1
Small-scale	3,142.4	5,339.4	5,680.5	6,039.2	3,692.5
XXIII. District railroad repair shops	136.6	150.0	180.0	219.0	212.7
Large-scale	136.6	150.0 <sup>∞</sup>	180.0 <sup>∞</sup>	219.0 <sup>∞</sup>	210.7
Small-scale	—	—	—	—	1.9
Total incl. repair shops	9,382.5	17,484.1	19,510.6	22,888.2	45,955.2
Large-scale	6,240.0	12,144.7	13,830.1	16,849.0	42,260.8
Small-scale	3,142.4	5,339.4	5,680.5	6,039.2	3,694.4

— negligible.

## Appendix

### NOTES TO TABLE A-3

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).

- <sup>a</sup> Current rubles for all years except 1933, for which data are official 1926/27 rubles.
- <sup>b</sup> Includes gas and water supply.
- <sup>c</sup> 1927/28 value of output extrapolated by output (48, Table B-2).
- <sup>d</sup> Includes oil shale and fuel refining other than oil refining.
- <sup>e</sup> Includes gold, platinum, and other nonferrous metals.
- <sup>f</sup> Includes lead, tin, and silver ore. Not comparable with 1927/28 data.
- <sup>g</sup> Value of output for tractors was 6.8 mill. rubles (48, Tables B-2 and D-8).
- <sup>h</sup> 77, 6 f.
- <sup>i</sup> Includes machine-made metal products for mass consumption, other ferrous products, type-foundry products, and nonferrous metal products.
- <sup>j</sup> Does not include chemical wood processing, for which data were not available.
- <sup>k</sup> Includes tar, chemical wood processing, and other chemical products.
- <sup>l</sup> Includes organic chemicals and chemical wood processing.
- <sup>m</sup> Includes pottery.
- <sup>n</sup> Included in bricks and other construction materials.
- <sup>o</sup> Includes prefabricated houses, furniture, and other wood products.
- <sup>p</sup> 1926/27 value of output in prewar rubles (976.9 mill. in 28, 339) extrapolated by output (48, Table B-2).
- <sup>q</sup> Marketed output in current prices (31, 422). Because of its close ties with agriculture, logging is put in small-scale industry.
- <sup>r</sup> Output times price (48, Tables B-2 and D-8).
- <sup>s</sup> Value of output of large-scale industry times ratio of small-scale to large-scale industry as given by Morgenshtern's data (47).
- <sup>t</sup> Derived from data for garment and other apparel industry.
- <sup>u</sup> Value of output of large-scale leather and fur industry times 1908 ratio of small-scale to large-scale value as given by Rybnikov (67, 6-8).
- <sup>v</sup> Value of output of large-scale industry times ratio of small-scale to large-scale value as given by Gorelik (77, 16).
- <sup>w</sup> Included in food and allied products.
- <sup>x</sup> Includes grease, soap, tallow, and perfume.
- <sup>y</sup> Total value of output including flour milling (26, 281) minus total value of output excluding flour milling (40, 118).
- <sup>z</sup> Includes excise tax.
- <sup>aa</sup> Derived from output in 1926/27 and price (280 rubles/m. ton, from 1927/28 output and value of output in 1926/27 prices in 51, 10).
- <sup>bb</sup> Total apportioned on the basis of employment in 1927/28 (Table A-2).
- <sup>cc</sup> Value of output per worker (assumed to be the same as in the large-scale machine-building industry, see above and Table A-2) multiplied by no. of workers in district railroad repair shops (Table A-2).

### SOURCE AND DERIVATION OF TABLE A-3

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

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

1913

*Large-scale industry:* Taken from 8 and 42, 318 ff. Interwar territory.

*Small-scale industry:* Taken from 2. Given in prewar rubles for interwar territory.

## *Appendix*

*1926/27*

*Large-scale industry:* Derived from 14, Table 3, 84 ff.

*Small-scale industry:* Turnover in 1926/27 (48, Table C-2) times avg. ratio of value of output to turnover for 1924/25 (from 80, 245 ff) and for 1928/29 (from 48, Table C-2).

*1927/28*

*Large-scale industry:* Derived from 81, 324 ff.

*Small-scale industry:* Avg. value of output for 1926/27 and 1928/29 times ratio for total small-scale industry (1.0156) of value of output for 1927/28 (6, 1929, 9, 281) to avg. for 1926/27 and 1928/29.

*1928/29*

*Large-scale industry:* Taken from 23, 88 ff.

*Small-scale industry:* Taken from 40, 14 ff.

*1933*

*Large- and small-scale industry:* Taken from 24, 41 ff.

TABLE A-4

BASIC DATA FOR PRODUCTION INDEXES FOR INDUSTRIAL MATERIALS,  
LARGE- AND SMALL-SCALE INDUSTRY: SOVIET UNION, 1913, 1927/28, AND 1933

Code	Product	Unit	1927/28 Unit Weight (rubles) <sup>a</sup>	Output, Large-Scale Industry			Output, Small-Scale Industry		
				1913	1927/28	1933	1913	1927/28	1933
103	Steel ingots and castings	th. m.t.	115.8	4,231	4,251	6,889	—	—	—
202	Copper	th. m.t.	995	31.1	30.0	44.3	—	—	—
203	Lead	th. m.t.	675	1.52	2.34	13.7	—	—	—
204	Zinc	th. m.t.	700	2.95	2.25	16.6	—	—	—
301.1	Hydroelectric power	bill. kwh.	0.0486	1.94	5.01	16.36	—	—	—
302	Anthracite	mill. m.t.	10.8	4.78	8.00	20.73	—	—	—
303	Bituminous coal	mill. m.t.	9.8	23.21	24.45	46.74	—	—	—
304	Lignite	mill. m.t.	6.9	1.13	3.06	8.87	—	—	—
305	Crude petroleum	mill. m.t.	28.7	9.23	11.63	21.49	—	—	—
306	Natural gas	mill. m <sup>3</sup>	0.058	29	304	1,066	—	—	—
307	Oil shale	th. m.t.	5.7	—	0.6	174	—	—	—
308	Peat	mill. m.t.	8.8	100	79	107	—	—	—
309	Firewood (consumption)	mill. m <sup>3</sup>	5.7	33	26	75	67	53	32
401	Soda ash	th. m.t.	73	160	217.3	329.7	—	—	—
404	Sulfuric acid	th. m.t.	101.9	121	211	627	—	—	—
405.1	Phosphoric fertilizer (18.7% P <sub>2</sub> O <sub>5</sub> )	th. m.t.	39.9	47.1	111.5	545.0	—	—	—
405.2	Ammonium sulfate	th. m.t.	100	13.8	11.2	110.9	—	—	—
405.3	Potash fertilizer (41.6% K <sub>2</sub> O)	th. m.t.	62.4	—	—	45.8	—	—	—
406	Ground natural phosphate	th. m.t.	12	7.9	12.7	332.0	—	—	—
410	Red lead	th. m.t.	830	2.4	4.6	7.6	—	0.8	0.2
416	Paper	th. m.t.	444	197.0	284.5	506.1	—	—	—
417	Paperboard	th. m.t.	275	20.0	47.1	79.0	—	—	—
418	Motor vehicle tires	thous.	83 <sup>b</sup>	19.2	85	679	—	—	—
501	Red bricks	millions	38 <sup>c</sup>	2,144	1,888	2,959	1,233	768	404
505	Sand-lime, silica, and slag bricks	millions	38 <sup>c</sup>	123	134	459	—	—	—
506	Cement	th. m.t.	33	1,520	1,850	2,709	—	—	—
507	Construction gypsum	th. m.t.	11	280	127	446	240	108	16
508	Construction lime	th. m.t.	15.4	275	284	1,394	235	242	73
510	Lumber	mill. m <sup>3</sup>	28.6	8	8	26.8	6	6	0.5
511	Plywood	th. m <sup>3</sup>	131.9	100	165	424	30	30	—
512	Magnesite metallurgical powder	th. m.t.	286.7	21.0	34.8	86	—	—	—
513	Roll roofing	mill. m <sup>2</sup>	0.355	8.8	19.2	89.4	—	—	—
516	Asbestos shingles	millions	147 <sup>c</sup>	9	38.5	61.4	—	—	—
519	Window glass	mill. m <sup>2</sup>	2.65	23.2	33.5	29.8	0.5	0.7	—
1501	Flour	mill. m.t.	21.3	10	8	7	18	16	13
1503	Butter	th. m.t.	429	—	—	89.5	104	82.1	34.8
1504	Vegetable oil	th. m.t.	120	264	280	300	207	338	21
1506	Meat slaughtering	th. m.t.	103	—	254	420	1,042	424	7
1507	Fish catch	th. m.t.	289	—	—	1,290	1,018	840	13
1509	Salt	th. m.t.	7.2	1,959	2,336	2,734	—	—	—
1510	Raw sugar	th. m.t.	184	1,347	1,283	995	—	—	—
1511	Starch and syrup	th. m.t.	104	115	69	142	30	27	9
1513	Canned food	mill. cans	0.0564	93	100	619	2	25	—
1514	Beer	th. hectol.	13.4	8,064	3,907	4,315	—	—	—
1515	Cigarettes	billions	1.3 <sup>c</sup>	21.0	47.1	62.7	1.1	2.4	—
1516	Low-grade tobacco	th. 20-kg. crates	3.5	2,872	3,150	2,513	1,062	1,143	—
601	Crude alcohol	th. hectol.	15.1	4,670	2,330	3,883	—	—	—
1604	Cotton fabrics	mill. m	0.347	2,453	2,539	2,732	129	139	—
1607	Linen fabrics	mill. m	0.662	102.0	174.4	170.9	18.0	3.5	—
1609	Silk and rayon fabrics	mill. m	{ 4.0 d 3.0 d	45	13	25.9	7	1	0.1
1611	Woolen and worsted fabrics	mill. m	1.855	87	83	74.0	18	34	12.1
1614	Felt footwear	mill. pairs	5.2	2.2	4.4	6.1	13.8	11.2	1.5
604	Hard leather	th. m.t.	750	17.9	63.8	38.9	5.1	25.2	0.8
605	Soft leather	mill. dcm <sup>2</sup>	27	897	2,175	2,436	253	875	50

Abbreviations and symbols:

—	= negligible	m	= meter
bill.	= billion	m <sup>2</sup>	= square meter
dcm <sup>2</sup>	= square decimeter	m <sup>3</sup>	= cubic meter
hectol.	= hectoliter	m.t.	= metric ton
kg.	= kilogram	mill.	= million
kwh.	= kilowatt hour	th. or thous.	= thousand

<sup>a</sup> Weight applies to basic unit, such as metric ton, kilowatt hour, and so on, except as noted.<sup>b</sup> Per tire.<sup>c</sup> Per thousand.<sup>d</sup> Small-scale output weighted by value added per unit (taken as 80% of price) of pure silk fabrics, the first figure shown. Price (5 rubles/m) is derived from 1913 price (68, 1933, 2) and price index (1927/28 = 251% of 1913, in 11, 1928, Sept., 25).

## Appendix

### SOURCE AND DERIVATION OF TABLE A-4

1927/28 unit weights: 48, Table D-8.

#### *Output, Large-Scale Industry*

Except as noted, total output (48, Table B-2) minus small-scale output.

309 <i>Firewood</i>	
1913, 1927/28, 1933	Haulage of firewood for industry (38, 57).
410 <i>Red lead</i>	
1927/28	78, series 438.5, col. 6.
501 <i>Red bricks</i>	
1913, 1927/28	78, series 706.5.
507 <i>Construction gypsum</i>	
1913	4, Vol. 27, 536 ff.
510 <i>Lumber</i>	
1927/28	11, 1929, Sept., 2 ff.
511 <i>Plywood</i>	
1927/28	11, 1929, Sept., 2 ff.
604 <i>Hard leather</i>	
1927/28	18, 72.
605 <i>Soft leather</i>	
1927/28	18, 72.
1501 <i>Flour</i>	
1927/28	78, series 1103.5.
1504 <i>Vegetable oil</i>	
1913, 1927/28	78, series 1107.1, col. 6.
1506 <i>Meat slaughtering</i>	
1927/28	78, series 1109.2. State industry.
1511 <i>Starch and syrup</i>	
1913	78, series 1118.5.
1513 <i>Canned food</i>	
1913, 1927/28	78, series 1121.1, col. 6.
1515 <i>Cigarettes</i>	
1927/28	11, 1929, Sept., 22 ff.
1601 <i>Boots and shoes</i>	
1927/28	78, series 1201.1, col. 7.
1604 <i>Cotton fabrics</i>	
1927/28	11, 1929, Sept., 15.
1611 <i>Woolen and worsted fabrics</i>	
1927/28	11, 1929, Sept., 42.

#### *Output, Small-Scale Industry*

309 <i>Firewood</i>	
1913, 1927/28, 1933	Total consumption (48, Table B-2) minus haulage of firewood for industry (38, 57).
410 <i>Red lead</i>	
1913	No small-scale production.
1927/28	Total output minus large-scale output.
1933	Total output times share of small-scale industry (8%, 78, Part 4, Appendix on Small-Scale Industry).
501 <i>Red bricks</i>	
1913, 1927/28	Total output minus large-scale output.
1933	Total output times share of small-scale industry (12%, 78, Part 4, Appendix on Small-Scale Industry).



## *Appendix*

<i>507 Construction gypsum</i>	
1913	Total output minus large-scale output.
1927/28	Total output times share of small-scale industry (assumed to be the same as in 1913).
1933	Total output times share of small-scale extraction of mineral raw materials for the construction and ceramic industry given in value terms (3.7%, 77, 4).
<i>508 Construction lime</i>	
1913, 1927/28	Total output times share of small-scale industry (assumed to be the same as for construction gypsum in 1913).
1933	Total output times share of small-scale extraction of mineral raw materials for the construction and ceramic industries given in value terms (3.7%, 77, 4).
<i>510 Lumber</i>	
1913	Total output times share of small-scale industry (assumed to be the same as in 1927/28).
1927/28	Total output minus large-scale output.
1933	Total output times share of small-scale industry (2%, 78, Part 4, Appendix on Small-Scale Industry).
<i>511 Plywood</i>	
1913	Total output times share of small-scale industry (assumed to be the same as in 1927/28).
1927/28	Total output minus large-scale output.
1933	Small-scale production negligible (78, Part 4, Appendix on Small-Scale Industry).
<i>519 Window glass</i>	
1913, 1927/28	Total output times share of small-scale industry (assumed to be the same in 1913 as in 1927/28; in 1927/28 2%, 78, Part 4, Appendix on Small-Scale Industry).
1933	Small-scale production negligible (78, Part 4, Appendix on Small-Scale Industry).
<i>604 Hard leather</i>	
1913, 1933	Total output times share of small-scale industry (78, Part 4, Appendix on Small-Scale Industry).
1927/28	Total output minus large-scale output.
<i>605 Soft leather</i>	
1913, 1927/28, 1933	Same as for hard leather.
<i>1501 Flour</i>	
1913	Total output times share of small-scale industry (assumed to be the same as in 1927/28).
1927/28	Total output minus large-scale output.
1933	Total output (assumed to be the same as in 1932) times share of small-scale industry (63.8%, 24, 44).
<i>1503 Butter</i>	
1913, 1927/28	Total output assumed to be small-scale.
1933	Total output times share of small-scale industry (28%, 24, 42).
<i>1504 Vegetable oil</i>	
1913, 1927/28	Total output minus large-scale output.
1933	Total output times share of small-scale industry (6.6%, 24, 42).
<i>1506 Meat slaughtering</i>	
1913	Total output assumed to be small-scale.
1927/28	Total output minus large-scale output.
1933	Total output times share of small-scale industry (1.7%, 77, 10).

## *Appendix*

1507 <i>Fish catch</i>	
1913, 1927/28	Total output assumed to be small-scale.
1933	Total output times share of small-scale industry (1 %, 24, 44).
1508 <i>Soap</i>	
1913, 1927/28, 1933	Total output times share of small-scale industry (assumed to be the same in 1913 as in 1927/28; for 1927/28 and 1933 15% and 11 %, 78, Part 4, Appendix on Small-Scale Industry).
1511 <i>Starch and syrup</i>	
1913	Total output minus large-scale output.
1927/28, 1933	Total output times share of small-scale industry (28 % and 6 %, 78, Part 4, Appendix on Small-Scale Industry).
1513 <i>Canned food</i>	
1913, 1927/28	Total output minus large-scale output.
1933	No small-scale production (24, 41 ff).
1515 <i>Cigarettes</i>	
1913	Total output times share of small-scale industry (assumed to be the same as in 1927/28).
1927/28	Total output minus large-scale output.
1933	Small-scale production negligible (78, Part 4, Appendix on Small-Scale Industry).
1516 <i>Low-grade tobacco</i>	
1913, 1927/28, 1933	Same as for cigarettes.
1604 <i>Cotton fabrics</i>	
1913	Total output times share of small-scale industry (assumed to be the same as in 1927/28).
1927/28	Total output minus large-scale output.
1933	Small-scale production negligible (24, 42).
1607 <i>Linen fabrics</i>	
1913, 1927/28	Total output times share of small-scale industry (15 % and 2 %, 78, Part 4, Appendix on Small-Scale Industry).
1933	Small-scale production negligible (24, 42).
1609.1 <i>Pure silk fabrics</i>	
1913, 1927/28, 1933	Total output (48, Appendix Table B-2, series 1609.1) times share of small-scale industry (24 %, 32 %, and 1 %, 78, Part 4, Appendix on Small-Scale Industry).
1611 <i>Woolen and worsted fabrics</i>	
1913, 1933	Total output times share of small-scale industry (for 1913 assumed same as for 1927/28; for 1933 14 %, 78, Part 4, Appendix on Small-Scale Industry).
1927/28	Total output minus large-scale output.
1614 <i>Felt footwear</i>	
1913, 1933	Total output times share of small-scale industry (for 1913 86 %, 78, Part 4, Appendix on Small-Scale Industry; for 1933 20 %, 24, 42).
1927/28	Assumed same as in 1928/29 (11.2 mill pairs, 69, 1930, 5-6).

## *Appendix*

TABLE A-5

OUTPUT OF ADDITIONAL SMALL-SCALE INDUSTRIES:  
SOVIET UNION, 1913, 1927/28, AND 1933

Code	Product	Unit	1913	1927/28	
509	Industrial timber hauled	mill. m. <sup>3</sup>	75.0	60.1	—
1508	Soap (40%)	th.m.t.	38	54	29
1601	Boots and shoes	mill. pairs	56.4	79.4	10.8

### SOURCE

*509 Industrial timber hauled*

1913, 1927/28      Total output assumed to be small-scale.  
1933      Small-scale production negligible (24, 44).

*1508 Soap (40%)*

1913, 1927/28, 1933      Total output times share of small-scale industry (1913 assumed to be same as 1927/28; 1927/28 and 1933 15% and 11%, 78, Part 4, Appendix on Small-Scale Industry).

*1601 Boots and shoes*

1913, 1933      Total output times share of small-scale industry (1913 94%, 17, 16; 1933 12%, 78, Part 4, Appendix on Small-Scale Industry).

1927/28      Total output minus large-scale output.

# Appendix

TABLE A-6

INDEX FOR INDUSTRIAL MATERIALS, LARGE- AND SMALL-SCALE INDUSTRY:  
SOVIET UNION, 1913, 1927/28, AND 1933

(million constant rubles, 1928 prices)

Code	Product	1913			1927/28			1933		
		Large-Scale (1)	Small-Scale (2)	Total (3)	Large-Scale (1)	Small-Scale (2)	Total (3)	Large-Scale (1)	Small-Scale (2)	Total (3)
103	Steel ingots and castings	489.9	—	489.9	492.3	—	492.3	797.7	—	797.7
202	Copper	30.0	—	30.9	29.9	—	29.9	44.1	—	44.1
203	Lead	1.0	—	1.0	1.6	—	1.6	9.2	—	9.2
204	Zinc	2.1	—	2.1	1.6	—	1.6	11.6	—	11.6
301.1	Hydroelectric power	1.7	—	1.7	20.9	—	20.9	60.7	—	60.7
302	Anthracite	51.6	—	51.6	86.4	—	86.4	223.9	—	223.9
303	Bituminous coal	227.5	—	227.5	239.6	—	239.6	458.1	—	458.1
304	Lignite	7.8	—	7.8	21.1	—	21.1	61.2	—	61.2
305	Crude petroleum	264.9	—	264.9	333.8	—	333.8	616.8	—	616.8
306	Natural gas	1.7	—	1.7	17.6	—	17.6	61.8	—	61.8
307	Oil shale	—	—	—	—	—	—	1.0	—	1.0
308	Peat	14.9	—	14.9	46.8	—	46.8	121.9	—	121.9
309	Firewood (consumption)	190.4	379.6	570.0	146.5	303.8	450.3	429.2	180.7	609.9
401	Soda ash	11.7	—	11.7	15.9	—	15.9	24.1	—	24.1
404	Sulfuric acid	12.3	—	12.3	21.5	—	21.5	63.9	—	63.9
405.1	Phosphoric fertilizer	1.9	—	1.9	4.5	—	4.5	21.7	—	21.7
405.2	Ammonium sulfate	1.4	—	1.4	1.1	—	1.1	11.1	—	11.1
405.3	Potash fertilizer	—	—	—	—	—	—	2.9	—	2.9
406	Ground natural phosphate	0.1	—	0.1	0.2	—	0.2	4.0	—	4.0
410	Red lead	2.0	—	2.0	3.8	0.7	4.5	2.1	0.2	2.3
416	Paper	87.5	—	87.5	126.3	—	126.3	224.7	—	224.7
417	Paperboard	5.5	—	5.5	13.0	—	13.0	21.7	—	21.7
418	Motor vehicle tires	1.6	—	1.6	7.1	—	7.1	56.4	—	56.4
501	Red bricks	81.4	46.9	128.3	71.7	29.2	100.9	112.4	15.4	127.8
505	Sand-lime, silica, and slag bricks	4.7	—	4.7	5.1	—	5.1	17.4	—	17.4
506	Cement	50.2	—	50.2	61.1	—	61.1	89.4	—	89.4
507	Construction gypsum	3.1	2.6	5.7	1.4	1.2	2.6	4.9	0.2	5.1
508	Construction lime	4.3	3.6	7.9	4.4	3.7	8.1	21.5	1.1	22.6
510	Lumber	217.4	193.0	400.4	217.4	183.0	400.4	766.5	14.3	780.8
511	Plywood	13.2	3.9	17.1	21.7	4.0	25.7	56.0	—	56.0
512	Magnesite metal- lurgical powder	6.0	—	6.0	10.0	—	10.0	24.7	—	24.7
513	Roll roofing	3.1	—	3.1	6.8	—	6.8	31.7	—	31.7
516	Asbestos shingles	1.3	—	1.3	5.7	—	5.7	9.0	—	9.0
519	Window glass	61.5	1.3	62.8	88.7	1.9	90.6	79.0	—	79.0
1501	Flour <sup>a</sup>	202.4	394.0	596.4	174.7	336.5	511.2	153.4	272.6	426.0
1503	Butter <sup>a</sup>	—	44.6	44.6	—	35.2	35.2	38.4	14.9	53.3
1504	Vegetable oil <sup>a</sup>	31.7	24.8	56.5	33.8	40.6	74.4	36.0	2.5	38.5
1506	Meat <sup>a</sup>	—	107.3	107.3	26.2	43.6	69.8	43.2	0.8	44.0
1507	Fish catch	—	294.2	294.2	—	242.8	242.8	372.8	3.8	376.6
1509	Salt	14.1	—	14.1	16.8	—	16.8	19.7	—	19.7
1510	Raw sugar <sup>a</sup>	247.8	—	247.8	236.1	—	236.1	183.1	—	183.1
1511	Starch and syrup <sup>a</sup>	11.9	3.1	15.0	7.2	2.8	10.0	14.8	0.9	15.7
1513	Canned food	5.3	0.1	5.4	5.7	1.4	7.1	34.9	—	34.9
1514	Beer <sup>a</sup>	108.1	—	108.1	52.4	—	52.4	57.8	—	57.8
1515	Cigarettes <sup>a</sup>	27.3	1.4	28.7	61.2	3.1	64.3	81.5	—	81.5
1516	Low-grade tobacco <sup>a</sup>	10.1	3.7	13.8	11.0	4.0	15.0	8.8	—	8.8
601	Crude alcohol <sup>a</sup>	70.5	—	70.5	35.2	—	35.2	58.6	—	58.6
1604	Cotton fabrics <sup>a</sup>	850.9	45.1	896.0	880.7	48.6	929.3	948.0	—	948.0
1607	Linen fabrics <sup>a</sup>	67.5	11.9	79.4	113.2	2.3	115.5	93.0	—	93.0
1609	Silk and synthetic fabrics <sup>a</sup>	129.2	26.8 <sup>b</sup>	156.0	39.6	2.4	42.0	77.6	0.4	78.0
1611	Woolen and worsted fabrics <sup>a</sup>	161.5	33.3	194.8	154.1	62.9	217.0	137.3	22.4	159.7
1614	Felt footwear <sup>a</sup>	11.4	71.8	83.2	22.9	58.2	81.1	31.7	7.8	39.5
604	Hard leather <sup>a</sup>	13.7	3.8	17.5	47.8	18.9	66.7	29.2	0.6	29.8
605	Soft leather <sup>a</sup>	24.2	6.8	31.0	58.7	23.6	82.3	65.8	1.3	67.1
Total		3,842.2	1,693.6	5,535.8	4,102.8	1,454.4	5,557.2	7,027.9	539.9	7,567.8
Total excl. flour		3,639.8	1,299.6	4,939.4	3,928.1	1,117.9	5,046.0	6,874.5	267.3	7,141.8

## *Appendix*

### NOTES TO TABLE A-6

<sup>a</sup> "Net" price used.

<sup>b</sup> Small-scale output of pure silk fabrics from Table A-4 (no synthetic fabrics produced by small-scale industry) multiplied by "net" price of pure silk fabrics (4 rubles/m., assumed to be 80% of gross price). Gross price, 5 rubles/m., derived from avg. 1913 price of pure silk fabrics, pile goods, and piece goods (68, 1933, 2) and price index for silk fabrics (1927/28 = 251, 1913 = 100, in 77, 1928, Sept., 23).

### SOURCE

Col. 1: Col. 3 minus col. 2.

Col. 2: Output of small-scale industry (Table A-4) multiplied by gross price unless otherwise noted (for prices, see 48, Table D-8). When small-scale output not available, it was assumed negligible or nonexistent.

Col. 3: Output of total industry (48, Table B-2) multiplied by price, as in col. 2.