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Sweden's Iron Ore Exports to Germany, 1933–1944

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I

The importance of Swedish iron ore to the re-armament and wartime economy of Nazi Germany has been touched upon in a number of writings about the international politics of the period here under review. Erik Lönnroth has demonstrated how the question of continued ore deliveries constituted the flash-point of Swedish-German relations during the 1930s.[1] Gunnar Hägglöf describes the Swedish Foreign Office's balancing act between English and German desires in regard to the ore trade, and their role in the regulating of trade with the two belligerents in the autumn of 1939.[2] Magne Skodvin has explored the strategic and economic aspects of the attack on Norway and Denmark on 9 April 1940.[3]

The present study aims only to a limited extent at examining Swedish ore directly as a factor in diplomacy. It should be construed rather as an attempt to depict the real background against which we can see the political game being played. The two central questions to be posed then are: How much of the total consumption of this raw material by German industry did Swedish ore cover during these years? How far was access to Swedish iron ore a *sine qua non* for the continuance of the armaments programme?

The answers to these quantitative and strategic problems, however, are not altogether irrelevant for the analysis of happenings in the fields of military affairs and foreign policy as well, and they should make it possible to draw a clearer distinction between the significance of the ore deliveries as an object of diplomacy in themselves and as a factor affecting other objectives. Obviously, the vital assessment to be made centres mainly on the origins of the events of 9 April 1940.

[1] E. Lönnroth, *Den svenska utrikespolitikens historia 1919–1939,* (Stockholm, 1959), pp. 170 ff.

[2] G. Hägglöf, *Svensk krigshandelspolitik under andra världskriget,* (Stockholm, 1958), pp. 20 ff.

[3] M. Skodvin, *Striden om okkupasjonsstyret i Norge fram til 25. september 1940,* (Oslo, 1956), pp. 11 ff.

Before proceeding to the first part of the exposition it need only be stressed that, from the statistical standpoint, the numerical data contain a number of gaps. This seems to be unavoidable in view of the nature of the sources, for it was necessary to seek the data in a variety of places and the sources which would have allowed of re-assembly into strictly commensurable series have in many cases been destroyed.[4] On the other hand, a comparison of data from different sources relating to exactly the same phenomena provides valuable checks, and it appears from this that the data may be assumed to be a fairly reliable approximation.

II

Any accurate account of Germany's iron ore supply during the Hitler era presupposes some acquaintance with the world production of and trade in this commodity at that time. Tables 1–3 cover this aspect. They give production figures, measured gross and according to iron content (Table 1), as well as export surpluses (Table 2) and import surpluses (Table 3) for the major countries. From the figures certain facts emerge which seem to merit special attention.

While it is true that there were three main regions—Western Europe, the United States and the Soviet Union—producing iron ore during the later part of the inter-war period, it was only in the first of these areas that trade in this raw material was of major importance. Thus, under normal circumstances the European market constituted almost the entire world market in iron ore. France enjoyed an advantageous position from the point of view of armaments. In the ten years from 1928 to 1938 she had the highest output of iron ore after the United States, and on average exported one third of it. In other words, France had a considerable reserve available if a swift expansion of her iron industry were called for. Great Britain and Germany—especially the latter—were not so happily placed. Something like 30 per cent of England's total consumption of iron ore was imported. In the case of Germany, the figure was no less than 70 per cent. Spain and Sweden occupied a position alongside France in the ranks of Europe's largest exporters of iron ore. Both were notable ore producers, and their ores were among the richest in the world; for this reason the figures given in Table 2 tend to understate their importance as exporting nations.

[4] Cf. *inf.*, notes 10 and 17.

III

Sweden's emergence as a supplier of iron ore on an internationally significant scale had been intimately bound up with the development of the ingot steel processes (1858–78). These processes generated an enormously increased demand for the raw material, while the discovery of the so-called Gilchrist-Thomas process in 1878 made it possible to manufacture steel from phosphoric iron ores. The abundant deposits of this kind of ore, at Grängesberg and more particularly in Lapland, began to be exploited.[5]

The earlier embargo on the export of ore had been lifted as early as 1858, but there was no substantial export from Sweden prior to 1890.[6] After that date development was swift. The following figures of exports at ten-yearly intervals illustrate the vigour of the expansion:[7]

1890	0.19 million tons
1900	1.62 „ „
1910	4.42 „ „
1920	3.17 „ „
1930	8.95 „ „

This flood of iron ore from the north soon began to flow more and more towards Germany, as the following figures illustrate:[8]

1890	0.12 million tons
1900	0.42 „ „
1910	3.28 „ „
1920	2.11 „ „
1930	6.37 „ „

Even before Hitler came to power, sales on the German market were the key to the development of Swedish iron ore mining. Gerhard De Geer has summarised this dependence with typical crispness: 'If the blast-furnaces of the Ruhr were drawn, silence would reign in the great ironfields of Norrbotten'.[9]

[5] G. De Geer, *Sveriges naturrikedomar,* (Stockholm, 1946), i. 191 f. *Idem, Järnet i Sveriges näringsliv,* (Stockholm, 1947), pp. 35 ff. P. Geijer, *Järnmalmer i Norrbottens län,* (Umeå, 1945), *passim. Idem, Sveriges malmtillgångar,* (Stockholm, 1948), pp. 12, 35 ff.

[6] De Geer, *Sveriges naturrikedomar,* i. 254.

[7] *Bidrag till Sveriges officiella statistik. F. Utrikes handel och sjöfart,* 1890, 1900, 1910: tab. 3; *Sveriges officiella statistik, Handel,* 1920: tab. 3, 1930: tab. 2.

[8] *Bidrag* etc. *F. Utrikes handel och sjöfart,* 1890: tab. 9, 1900, 1910: tab. 10; *SOS. Handel,* 1920, 1930: tab. 6.

[9] De Geer, *Sveriges naturrikedomar,* i. 277.

Table 4 a–b, which shows the distribution of Swedish exports of iron ore for the years 1933–44, indicates that this assessment remained equally valid in the days of the Third Reich. The proportion of Sweden's exports taken by Germany was never less than two-thirds during the pre-war years: after Sweden was cut off in 1940 from the world beyond the Baltic it was regularly 90 per cent. Sweden's next largest customer, Great Britain, never took more than 16 per cent.

In a study of this sort it is particularly interesting to determine the importance of the Narvik route to the ore traffic from Sweden. Unfortunately, according to the Central Office of Statistics in Oslo, the records of shipments from Narvik for the period before 1935 have been destroyed.[10] The figures that are available are set out in Table 5 a–d, where the volume of through-freights to the various countries can be viewed in both absolute and relative terms, and also in relation both to Sweden's total exports and to her exports to Germany alone. The distribution of Norrbotten ore transported by rail to the ports of Luleå and Narvik is shown in Table 6 a–b.

It is evident from these summaries that during the peacetime years of the 1930s over 70 per cent of the exports originating from Lapland—about 55 per cent of the total for Sweden as a whole—were as a rule routed via Narvik. In 1940–41 these quantities fell to insignificant proportions compared with the normal level, but later in the war displayed a clear upward trend. The figures relating to Germany do not appear to diverge perceptibly from the mean. This fact, in conjunction with a marked re-routing of the consignments via Luleå in the early years of the war, indicates that the availability of the Narvik route cannot in itself have really been an indispensable condition of the continuance of Germany's ore imports from Sweden for more than one winter season.

IV

The development of a modern steel industry in Germany acquired no decisive momentum until after the unification of the Reich. The Peace of Frankfurt in 1871 had brought the valuable ironfields of Lorraine within the boundaries of the great new power. These contained chiefly phosphoric and low-yield ores.[11] The result was that the vast majority of the newly-established German steelworks were designed to use the Thomas process of manufacture.[12] It is scarcely necessary

[10] Information in a letter to the author 2 August 1956.

[11] F. Friedensburg, *Die Bergwirtschaft der Erde,* (4th ed., Stuttgart, 1948), pp. 14 ff.

[12] *Gemeinfassliche Darstellung des Eisenhüttewesens,* ed. by Verein Deutscher Eisenshüttenleute in Düsseldorf, (16th ed., Düsseldorf, 1953), pp. 103 f., 284 f.

to point out that, quite apart from economic considerations, this structure offered advantages in the field of defence policy.

Germany's defeat in the first world war brought with it the break-up of the integrated structure of her steel industry. The effect this had on the peace negotiations at Versailles has been analysed in detail in a suggestive but not altogether unbiased work by F. Friedensburg.[13] Whatever view one takes of his conclusions as a whole, it is certainly indisputable that, with the inauguration of the Weimar republic, a radically new situation emerged.

From one of Friedensburg's tables it appears that scarcely 30 per cent of Germany's total requirement of ore was previously obtained from external sources.[14] During the years 1920–32, on the other hand, 60–70 per cent of total consumption was met from imports (Table 7 a–b). The trend was moving perceptibly in the direction of increased dependence on foreign supplies of ore. It was primarily Sweden, France and Spain which filled the deficit in supplies.

On the other hand, autarky was the keynote of Nazi economic policy.[15] We have already shown (Tables 1 and 3) that, in the case of iron ore at least, no very great success was achieved in this direction. The material in Tables 8 a–c and 9 a–b bears upon the first of the questions that were posed at the beginning of this paper. In any attempt to measure the quantitative importance of Swedish iron ore on the expansion of armaments in Hitler's Germany, there are two possible bases of calculation. Imports and domestic production can be compared with one another on an unweighted basis, as in Table 8 a–b. This method suffers, however, from the defect that no account is taken of the varying iron content of different ores. So far as is known, no information is available about the iron content of the ore imported into Germany. The procedure adopted in Table 9 a–b has been to assume that the average iron content of the *whole* ore production of countries which exported to Germany in 1933–38 is also representative of the *proportion* so exported. Of course, figures derived in such a fashion are in the strict sense fictitious, but this estimate may nevertheless give us a considerably more accurate picture of the value to German industry of the various supplies of ore than that offered by the unmodified figures.

We may begin by looking at the data in Table 8 a–b. Over the whole period

[13] F. Friedensburg, *Kohle und Eisen im Weltkriege und in den Friedensschlüssen,* (München/Berlin, 1934), pp. 18 ff., 39 ff., 271 ff.

[14] *Ibid.,* p. 135 (Tab. 13).

[15] See e.g. G. Westin-Silverstolpe, *Välstånd och fattigdom. Den ekonomiska och sociala omdaningen 1880–1930,* (Stockholm, 1938), pp. 442 ff. B. H. Klein, *Germany's Economic Preparations for War,* (Cambridge, 1959), pp. 3 ff.

1933–43 on average rather more than 40 per cent of the total German consumption of iron ore originated from domestic mines. The largest individual items in the import statistics, relating to Sweden and France, accounted during the same period for an average of 27 per cent and 18 per cent respectively of Germany's total requirement.

The 'net figures' cited in Table 9 a–b (calculated according to iron content) make the Swedish contribution weigh even more heavily. The figures corresponding to those quoted in the preceding paragraph for the decade 1933–43 give the following average percentages when added together:

Sweden	43.0
Domestic production	28.2
France	12.9

The importance of Swedish ore in the arming of Hitler's Germany can only be described as vital, whether it is the absolute or the relative figures that are taken as a guide. Figures, however, do not tell the whole story. The fact that, during these years, Swedish ore formed the raw material of four out of every ten German guns, speaks more powerfully. Even so, one must not jump to over-hasty conclusions concerning our second question merely on the basis of the facts cited. For instance, a comparison between the columns for the years 1934 and 1935 or 1937 and 1938 in Tables 8 and 9 make it plain that there was considerable flexibility from year to year in Germany's sources of ore. Sweden's prominent position on the German market does not necessarily reflect a relationship of strategic dependence.

One column, however, shows a marked divergence from the others—that for the year 1940. In 1938 and 1939, the quantity of raw material required by the German steel industry amounted to 36 to 37 million tons. The total for 1940 is only 29 million tons. Germany had been thrown back almost entirely upon her own mining resources and upon imports from Sweden. Without the latter, only one-third to one-half of Germany's steel-making capacity could have been employed. This unique situation at the beginning of the second world war is deserving of closer scrutiny.

V

On the outbreak of war in September 1939, Germany lost one of her two principal suppliers of ores, France. In consequence of the blockade of her commerce, she lost at the same time the whole of her trans-oceanic imports, which had

been growing in importance during the last years of peace and altogether accounted for 12–13 per cent of total consumption in 1938.[16] Unfortunately it seems that no monthly statistics of iron ore imports were kept in Germany after June 1939.[17] Consequently it is not possible to measure by that means the immediate repercussions of the attack on Poland on this vital sector of the armaments programme. But it is possible, after making appropriate allowances for seasonal variations, to trace the broad trend of the fluctuation in imports by using the available statistics to compare the first and second half-years of 1939. A comparison of this kind has been made in Table 10. If the figures given there are viewed in relation to the columns for the years 1938 and 1940 in Tables 8 a and 8 c, the radically altered situation which arose in September 1939 emerges fairly clearly.

Thus, French deliveries, for the full year 1938, the two half-years of 1939, and the full year 1940 constituted the following percentages of total German imports:

20.3; 18.0; 7.2; (0.0)

It is revealing to compare these figures with the corresponding percentages for Sweden:

36.7; 43.2; 61.6; (84.4)

From these comparisons there emerges one indisputable fact: that from the moment she took the field against Poland until her victory over France, Germany could not have done without Swedish iron ore. If the mines of Lapland had ceased working, the blast furnaces of the Ruhr would have shut down too.

This picture of Germany's delicate situation can be filled out at a number of points by referring to Table 11 a–c, which shows shipments from Narvik, consignments moving via the Narvik-Luleå railway, and Britain's imports of Swedish iron ore, for the months of September 1939–June 1940. The figures for shipments from Narvik for the months of February and March 1940 clearly reflect how, by their mastery of the seas, the allies were able not only to cut off the long-distance routes to Germany but were also in a position seriously to impede even a protected route such as the Norwegian coastal channel. The German government certainly made strenuous efforts to replace the vanished supplies

[16] On the organisation, tasks, etc. of the blockade see W. N. Medlicott, *The Economic Blockade*, (London, 1952), i. 12 ff.

[17] According to information from Statistisches Bundesamt, Wiesbaden, in a letter to the author 13 July 1956.

from other sources. According to a note by Schnurre, counsellor at the legation, the trade agreement signed between the Soviet Union and Germany on 11 February 1940 provided that within twelve months the Soviet Union would deliver 500,000 tons of iron ore to Germany,[18] It is clear that the promise was never fulfilled. German statistics for the years 1940–41 show an aggregate import of iron ore from the Soviet Union of 1,500 tons.[19] In July 1941, the Russian authorities concerned disclosed to the British Ministry of Economic Warfare information about Russian trade with Germany between September 1939 and June 1941. This was published by W.N. Medlicott in *The Economic Blockade* (1952), and includes no record of any export of iron ore for any part of the period in question.[20]

Another possible way for Germany to rectify the prevailing shortage was discussed by Gerhard de Geer in an article in the journal *Le Nord* in the autumn of 1939.[21] In it he sketched an optimistic assessment of the possibility of Germany's basing her steel production on domestic sources of raw material with the aid of scrap. According to his calculations, Germany's domestic production of iron ore and her own supplies of scrap could cover 61 per cent and 67 per cent respectively of her requirements. De Geer's argument presupposed that a considerably larger quantity of scrap could be collected in Germany than under normal conditions. It assumed in addition that the German steelworks could very rapidly convert to a different process of manufacture. Even if these requirements were met, it would still be necessary to use 30–40 per cent of imported iron ore.

VI

Hermann Rauschning, a member of the Danzig senate, relates in his memoirs *Gespräche mit Hitler* that in the spring of 1934 the German Chancellor declared to him that, if a war should come, one of his first steps must be to occupy Sweden. With the protection of the Navy and the assistance of the *Luftwaffe* he would carry out a series of surprise actions. The Swedes would not be prepared for organised resistance anywhere.[22]

[18] *Die Beziehungen zwischen Deutschland und der Sowjetunion 1939–1941,* ed. by A. Seidl, (Tübingen, 1949), p. 157.

[19] Statistisches Bundesamt, Wiesbaden. Die Deutsche Einfuhr von Eisenerz in den Jahren 1939–1944.

[20] Medlicott, *op. cit.,* i. 667.

[21] G. De Geer, 'The Importance of Sweden's Iron-ore in the Present War', *Le Nord,* (1939), p. 468.

[22] H. Rauschning, *Gespräche mit Hitler,* (New York, 1940), pp. 116, 131 f., 133.

In the light of Hitler's later pronouncements, Rauschning's account has been recognised by scholars to bear the stamp of truth.[23] It also conforms with the routine planning of *OKW,* the German High Command. As late as 26 February 1940, in a staff meeting with Colonel Warlimont, it was assumed that Operation *Weserübung* would include Norway, Denmark and Sweden.[24] But when Hitler gave orders on 1 March 1940 for the plan to be put into execution, Sweden had been excluded. By the occupation of Denmark and Norway 'soll englischen Übergriffen nach Skandinavien und der Ostsee vorgebeugt, unsere Erzbasis in Schweden gesichert und für Kriegsmarine und Luftwaffe die Ausgangs-stellung gegen England erweitert werden'.[25]

As was indicated at the beginning of this article, it is beyond the scope of the present study to seek an answer in the diplomatic archives to the question why, when Operation *Weserübung* was translated from project to reality, the attack upon Sweden was withheld. However, it does seem worth noticing that the operation was launched in a situation where the German steel industry found itself uniquely dependent upon iron ore deliveries from Sweden. Cessation of these deliveries because of war conditions, for example through sabotage of the sort which Gunnar Hägglöf may have hinted at hypothetically during Swedish-German negotiations,[26] would unquestionably have been a grave hindrance in the armaments race with the allied powers.

[23] Lönnroth, *op. cit.,* p. 152.

[24] Skodvin, *op. cit.,* p. 12.

[25] *Handlingar rörande Sveriges politik under det andra världskriget,* (Stockholm, 1947), iii. 310.

[26] G. Hägglöf, 'Kampen om malmen', *Svenska Dagbladet,* 17. Dec. 1959.

Sweden's Iron Ore Exports to Germany, 1933–1944

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Statistisches Bundesamt, Wiesbaden:

Die Deutsche Einfuhr von Eisenerz in den Jahren 1939–1944.

Eisenerzbergbau des Deutschen Reiches (Gebietsstand 31.12.1937) in den Jahren 1938 bis 1943.

Eisenerzbergbau in der Ostmark (Austria) in den Jahren 1938 und 1939.

Board of Trade, Statistics Division, London:

Imports from Sweden into the United Kingdom: Iron ore and concentrates 1939–1940.

Table

The Major Iron Ore Producing Countries. Iron Ore Production

Country	1928		1929		1930		1931		1932	
	Iron Ore	Iron-content	Iron Ore	Iron-content	Iron Ore	Iron-content	Iron Ore	Iron-content	Iron Ore	Iron-content
Algeria	1986	1003	2196	1098	2232	1196	901	447	467	234
Australia	686	443	867	572	952	628	362	199	555	366
Austria	1928	606	1891	597	1180	395	512	181	307	107
Chile	1525	1006	1812	1196	1689	1118	742	440	172	107
China	1349	*560	1645	*680	1420	*590	1483	*620	1198	498
Czecho-Slovakia	1779	578	1808	591	1653	536	1235	400	602	199
France	49191	*17000	50731	*18000	48571	*17000	38559	*13000	27559	*9000
Germany	6296	2089	6191	2080	5659	1845	2574	842	1319	443
Great Britain	11443	3433	13427	4028	11814	3662	7748	2402	7446	2234
(Br.) India	2089	1341	2468	1575	1879	1199	1651	1057	1789	1148
Italy	641	315	722	360	729	359	575	*285	427	214
Luxemburg	7027	2152	7571	2287	6649	1999	4765	1438	3213	999
Newfoundland	1509	815	1518	789	1473	766	546	283	323	168
Norway	531	*350	746	490	772	510	575	378	374	245
Poland	737	206	659	185	477	133	285	74	77	20
Soviet Union	6133	*3100	7997	*4000	10663	*5300	10591	*5300	12086	*6000
Spain	5785	2784	6559	3185	5525	2611	3190	1504	1760	803
Sweden	4669	2833	11468	6952	11236	6848	7071	4344	3299	2032
Tunisia	909	500	973	508	828	437	442	229	209	108
USA	63195	31649	74200	37226	59346	29681	31632	15876	10005	5028
Yugoslavia	440	242	428	236	431	237	133	69	27	14

Source: *Statistical Year-Book,* 1928/29–1938/39.

Figures marked with an asterisk are estimated.

Tables 1–11

Printed Sources to the Tables

Statistisches Jahrbuch für das Deutsche Reich, 1920–1938, published by Statistischen Reichsamt, (Berlin, 1921–1939). Abbreviated *Statistisches Jahrbuch.*

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Norges offisielle statistik. Norges Handel, 1935–1937, published by Statistisk Sentralbyrå, (Oslo, 1935–1937). Abbreviated *NOS. Handel.*

The Statistical Year-Book of the League of Nations, 1928/29–1938/39, (Geneva, 1929–39). Abbreviated *Statistical Year-Book.*

1

and the Calculated Iron-Content, 1928–1938 (thousand of tons).

1933		1934		1935		1936		1937		1938	
Iron Ore	Iron-content	Iron Ore	Iron-content	Iron Ore	Iron-content	Iron Ore	Iron-content	Iron Ore	Iron-content	Iron Ore	Iron-content
761	381	1326	703	1675	907	1881	1010	2372	1260	*3000	1640
748	490	1281	847	1904	1257	1920	1267	–	1255	2287	1509
267	94	467	163	775	269	1020	364	1880	672	2648	898
565	350	973	584	849	517	1354	815	–	916	*1600	950
1127	457	1350	559	*1300	–	–	–	–	–	370	–
429	141	539	181	731	247	1183	359	–	*600	2090	–
30245	*10000	32015	*10450	32045	9832	33187	10186	37850	11520	33420	10100
2535	828	4214	1372	5852	1849	6384	2259	9792	2759	12351	3360
7581	2274	10757	3227	11070	3321	12905	3872	14443	4333	12050	3615
1248	803	1948	1250	2402	1534	2594	1666	–	1870	*2900	1790
526	264	502	252	569	286	825	449	952	*530	1030	520
3362	1036	3834	1174	4134	1269	4896	1476	7754	2440	5240	1507
326	170	515	267	673	350	739	384	–	853	*1700	887
474	309	567	368	765	497	822	599	1065	718	1425	972
161	50	247	78	332	105	469	149	780	248	872	270
14455	*7200	21509	*10800	26845	*13400	27918	*14000	–	*14600	*26500	*14600
1815	843	2094	986	2633	1240	*1700	960	–	460	2510	1180
2699	1686	5253	3250	7933	4859	11229	6853	14952	9136	13928	8411
291	150	547	281	504	254	722	387	947	480	820	460
17835	8918	24982	12584	31030	15608	49398	25078	74612	36991	76035	–
52	27	180	90	235	118	451	226	629	310	607	300

Table 2

Major Countries with Export Surplus of Iron Ore, 1927–1937

(thousands of tons).

Country	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937
Algeria	2378	2110	2125	1630	920	490	915	1419	1450	2174	2556
Australia	–	10	45	590	133	35	14	7	402	439	271
Austria	146	309	263	229	46	9	38	101	170	254	428
Chile	1508	1525	1816	1721	712	199	510	953	845	1350	1473
China	–	–	980	849	594	560	593	858	1316	1303	587
France	13597	16057	15264	14068	11625	9726	9974	11270	15806	17351	18871
Greece	57	70	133	204	132	44	182	240	340	276	572
Italy	–	–	–	248	250	260	387	406	159	223	89
Newfoundland	1357	1573	1355	1671	990	478	197	368	639	843	–
Norway	379	546	735	632	348	343	1096	1395	1456	1796	1783
Soviet Union	404	480	545	467	1119	342	509	342	158	26	351
Spain	4756	5236	5595	3724	1873	1310	3120	3599	3701	–	–
Sweden	10716	5093	10899	9387	4496	2219	3279	6905	7747	11251	14053
Tunisia	986	887	974	750	443	215	331	505	487	798	974
Yugoslavia	319	370	388	356	27	1	34	143	243	383	626

Source: *Statistisches Jahrbuch,* 1929–1938.

Table 3

Major Countries with Import Surplus of Iron Ore, 1927–1937
(thousands of tons).

Country	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937
Belgium & Luxemb.	11775	12721	13307	12405	10346	9121	9337	9513	9741	9870	11193
Canada	1349	2017	2221	1347	821	69	209	993	1534	1195	1928
Czecho-Slovakia	461	996	1289	1246	1158	101	310	426	698	741	1756
Germany	17241	13615	16837	13814	7040	3432	5344	9152	15040	19472	22035
Great Britain	5239	4491	5780	4204	2153	1824	3051	4770	4931	6372	7611
Holland	392	512	461	534	468	397	841	815	641	795	978
Hungary	402	419	571	437	181	83	106	165	267	396	475
Japan	938	1617	1945	1974	1727	1634	1779	2312	3646	4023	–
Poland	496	300	434	164	217	65	198	209	302	410	650
USA	1749	1189	3190	2820	1489	592	718	831	827	1602	1197

Source: *Statistisches Jahrbuch,* 1929–1938.

Table 4 a

Swedish Exports of Iron Ore to Major Countries, 1933–1944

(thousands of tons).

Country	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944
Belgium	101	174	181	360	634	553	214	40	–	–	–	–
Czecho-Slovakia	139	167	242	371	737	743	114	252	658	687	822	485
France	29	79	33	67	181	75	35	–	–	–	–	–
Germany	2153	4804	5006	7479	8818	8441	9981	8170	7928	6876	8430	3652
Great Britain	423	801	987	1362	2136	1603	1421	584	–	–	–	–
Holland	135	201	189	169	180	199	122	5	46	29	19	7
Hungary	–	–	–	8	9	12	2	10	52	70	75	–
Poland	6	–	31	41	27	51	153	–	–	–	–	–
USA	54	122	196	428	384	295	487	196	–	–	–	–
Other Countries	4	28	41	4	4	4	33	14	11	22	40	26
Total Swedish Exp.	3044	6376	6906	10289	13110	11976	12562	9271	8695	7684	9386	4170

Source: *SOS, Handel,* 1933–1944.

Table 4 b

Swedish Exports of Iron Ore to Major Countries, 1933–1944

(per cent)

Country	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944
Belgium	3.3	2.7	2.6	3.5	4.8	4.6	1.7	0.4	–	–	–	–
Czecho-Slovakia	4.6	2.6	3.5	3.6	5.6	6.2	0.9	2.7	7.6	8.9	8.8	11.6
France	0.9	1.2	0.5	0.7	1.4	0.6	0.3	–	–	–	–	–
Germany	70.8	75.4	72.5	72.7	67.3	70.5	78.9	88.1	91.2	89.5	89.8	87.8
Great Britain	13.9	12.6	14.3	13.2	16.3	13.4	11.3	6.3	–	–	–	–
Holland	4.4	3.2	2.7	1.6	1.4	1.7	0.9	0.1	0.5	0.4	0.2	0.2
Hungary	–	–	–	0.1	0.1	0.1	0.0	0.1	0.6	0.9	0.9	–
Poland	0.2	–	0.4	0.4	0.2	0.4	1.2	0.0	–	–	–	–
USA	1.4	3.1	2.8	4.2	2.9	2.5	3.9	2.1	–	–	–	–
Other Countries	0.1	0.4	0.6	0.0	0.0	0.0	0.3	0.2	0.1	0.3	0.4	0.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Table 4 a.

Table 5 a

Swedish Exports of Iron Ore via Narvik, 1935–1944

(thousands of tons).

Country	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944
Belgium	236	360	612	502	185	49	–	–	–	–
Canada	71	25	126	80	14	–	–	–	–	–
France	–	18	34	26	17	–	–	–	–	–
Germany	2592	3843	4919	4771	4027	504	725	1140	1936	1106
Great Britain	786	998	1611	1222	1117	524	–	–	–	–
Holland	–	6	44	28	25	–	–	–	–	–
USA	128	280	232	215	481	183	–	–	–	–
Other Countries	8	0	2	–	–	6	–	–	–	–
Total	3821	5530	7580	6844	5866	1266	725	1140	1936	1106

Sources: Statistisk Sentralbyrå, Oslo. Svensk malm i transitt over Narvik, 1938–1944;
NOS. Handel, 1935–1937.

Table 5 b

Swedish Exports of Iron via Narvik, 1935–1944

(per cent)

Country	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944
Belgium	6.2	6.5	8.1	7.3	3.2	3.9	–	–	–	–
Canada	1.9	0.4	1.7	1.2	0.3	–	–	–	–	–
France	–	0.3	0.5	0.4	0.3	–	–	–	–	–
Germany	67.8	69.5	64.9	69.9	68.7	39.8	100.0	100.0	100.0	100.0
Great Britain	20.6	18.0	21.3	17.9	19.0	41.4	–	–	–	–
Holland	–	0.1	0.6	0.4	0.4	–	–	–	–	–
USA	3.4	5.1	3.1	3.1	8.4	14.5	–	–	–	–
Other Countries	0.2	0.0	0.0	–	–	0.5	–	–	–	–
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Sources: Statistisk Sentralbyrå, Oslo. Svensk malm i transitt over Narvik, 1938–1944;
NOS. Handel, 1935–1937.

Table 5 c

The Narvik Proportion of Total Swedish Exports, 1935–1944

(thousands of tons).

	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944
Swedish Export via Narvik	3821	5530	7580	6844	5866	1266	725	1140	1936	1106
Total Swedish Export	6906	10289	13110	11976	12562	9271	8965	7684	9386	4170
Export via Narvik as percentage of the total Swedish Export	55.5	53.8	57.8	57.1	46.7	13.7	8.3	14.8	20.6	26.5

Sources: Statistisk Sentralbyrå, Oslo. Svensk malm i transitt over Narvik, 1938–1944; *NOS. Handel,* 1935–1937; *SOS. Handel,* 1935–1944.

Table 5 d

The Narvik Proportion of Total Exports to Germany, 1935–1944

(thousands of tons).

	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944
Export to Germany via Narvik	2592	3843	4919	4771	4027	504	725	1140	1936	1106
Total Swedish Export to Germany	5006	7479	8818	8441	9981	8170	7928	6876	8430	3652
Export via Narvik as percentage of total Swedish Export to Germany	51.2	51.4	55.8	56.5	40.3	6.2	9.1	16.6	23.0	30.3

Sources: Tables 4 a and 5 a.

Table 6 a

Ore Shipments via the Narvik Railway, 1933–1944

(thousands of tons).

	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944
To Narvik	971	2542	3794	5747	7686	6754	6046	1101	470	1126	1808	1023
To Luleå	634	674	1276	1697	3125	2812	3356	5658	4954	3672	4355	2016
Total	1605	3216	5070	7444	10811	9566	9402	6759	5424	4798	6163	3039

Source: Kungl. Järnvägsstyrelsens Ekonomibyrå, Stockholm, Malmtransporter på järnvägen Luleå-Riksgränsen, 1933–1944.

Table 6 b

Ore Shipments via the Narvik Railway, 1933–1944

(per cent)

	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944
To Narvik	60.5	79.0	74.8	77.2	71.1	70.6	64.3	16.3	8.9	23.7	29.2	33.7
To Luleå	39.5	21.0	25.1	22.8	28.8	29.4	35.7	83.7	91.1	76.3	71.0	66.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Table 6 a.

Table 7 a

Germany's Imports and Domestic Production of Iron Ore, 1920–1932

(thousands of tons).

Country	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932
Algeria	–	163	666	117	143	385	234	700	782	784	601	403	147
France	1183	1216	2036	131	180	1208	1555	2866	3657	3253	2780	1920	716
Greece	2	–	–	–	–	–	–	97	261	107	160	181	78
Luxemburg	1331	1076	766	–	–	355	290	292	233	283	–	–	–
Newfoundland	–	–	243	59	196	320	354	808	826	750	657	345	191
Norway	580	1103	522	93	53	53	117	235	260	688	545	305	220
Spain	585	786	1329	337	335	1388	842	3081	3501	3025	1825	804	460
Sweden	2145	1894	4896	1254	2049	7402	5817	8682	3646	7382	6725	2803	1577
Tunisia	–	–	–	–	–	117	98	325	296	313	180	118	–
Other Countries	90	283	466	386	120	312	246	323	332	368	417	192	63
Total imports	5915	6521	11014	2377	3076	11540	9553	17409	13794	16953	13890	7071	3452
German Production	6362	5907	5928	5118	4457	5923	4793	6626	6475	6374	5741	2621	1340
German Export (—)	76	49	173	255	129	202	170	167	179	116	76	31	20
Total Consumption	12231	12379	16769	7240	7404	17261	14176	23868	20090	23211	19555	9661	4772

Source: *Statistisches Jahrbuch,* 1920–1933.

Table 7 b

Germany's Import of Iron Ore from Major Countries, 1920–1932

(per cent)

Country	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932
Algeria	–	2.5	6.0	4.9	4.6	3.3	2.5	4.0	5.7	4.5	4.3	5.7	4.2
France	20.0	18.6	18.5	5.5	5.8	10.5	16.2	16.5	26.5	19.8	20.0	27.2	20.7
Greece	0.0	–	–	–	–	–	–	0.6	1.9	0.6	1.2	2.5	2.3
Luxemburg	22.5	16.3	6.9	–	–	3.1	3.0	1.7	1.7	1.7	–	–	–
Newfoundland	–	–	2.2	2.5	6.4	2.8	3.7	4.7	5.9	4.4	4.7	4.9	5.5
Norway	9.8	16.9	4.7	3.9	1.7	0.5	1.2	1.3	1.9	4.1	3.9	4.3	6.4
Spain	9.9	12.1	12.1	14.2	10.9	12.0	8.8	17.7	25.2	17.8	13.1	11.4	13.3
Sweden	36.4	29.1	45.3	52.8	66.6	65.0	60.9	49.2	26.4	43.1	48.4	39.6	45.7
Tunisia	–	–	–	–	–	1.0	1.0	1.9	2.2	1.8	1.3	1.7	–
Other Countries	1.5	4.3	4.2	16.2	3.9	2.5	2.6	1.8	2.4	2.2	3.0	2.7	1.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Table 7 a.

Table 8 a

Germany's Total Consumption of Iron Ore, 1933–1944

(thousands of tons).

Country	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944
Algeria	173	188	213	531	725	755	546	–	102	270	–	–
Austria	–	–	–	–	219	2998	2648	–	–	–	–	–
Brazil	–	–	–	–	–	122	173	–	–	–	–	–
France	1031	1631	5614	6860	5740	5056	2624	–	6486	7351	7902	4267
Fr. Morocco	–	–	–	–	–	160	339	–	–	3	–	–
Greece	80	84	199	182	219	249	245	10	–	–	–	–
Luxemburg	–	85	366	568	1538	1776	1568	629	–	–	–	–
Newfoundland	224	342	189	171	808	1122	656	–	–	–	–	–
Norway	252	529	515	527	510	1118	1031	124	391	490	292	101
Switzerland	–	–	–	–	–	121	138	146	288	275	178	73
Sierra Leone	–	–	–	165	214	462	598	–	–	–	–	–
Spain	391	634	1321	1068	1382	1818	1164	5	170	728	456	123
Sweden	2257	4695	5509	8248	9084	8992	10038	8418	9260	7975	9550	3378
Tunisia	–	–	–	–	–	131	88	–	3	1	–	–
Other Countries	164	77	135	149	182	46	441	645	680	727	1250	269
Total imports	4572	8265	14061	18469	20621	24926	19649	9977	17380	17820	19628	8211
German prod.	2952	4343	6044	7570	9792	12351	14710	19204	18119	15341	15208	–
German exp. (—)	44	81	18	6	10	5	1	–	–	–	–	–
Total Consump.	7480	12527	20087	26033	30403	37277	36996	29181	35499	33161	34836	–

Source: Statistisches Bundesamt, Wiesbaden. Die Deutsche Einfuhr von Eisenerz ...; Eisenerzbergbau des Deutschen Reiches ...; Eisenerzbergbau in der Ostmark ...; *Statistisches Jahrbuch,* 1933–1938.

Table 8 b

Germany's Total Consumption of Iron Ore, 1933–1944

(per cent)

Country	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944
Algeria	2.3	1.5	1.1	2.1	2.4	2.0	1.5	–	0.3	0.8	–	–
Austria	–	–	–	–	0.7	8.0	7.2	–	–	–	–	–
Brazil	–	–	–	–	–	0.3	0.5	–	–	–	–	–
France	13.8	13.0	27.9	26.3	18.9	13.6	7.1	–	18.3	22.2	22.7	–
Fr. Morocco	–	–	–	–	–	0.4	0.9	–	–	0.0	–	–
Greece	1.1	0.7	0.9	0.7	0.7	0.7	0.6	0.0	–	–	–	–
Luxemburg	–	0.7	1.8	2.2	5.1	4.7	4.2	2.1	–	–	–	–
Newfoundland	2.9	2.7	0.9	0.7	2.7	3.0	1.5	–	–	–	–	–
Norway	3.4	4.3	2.6	2.0	1.6	3.0	2.8	0.4	1.1	1.5	0.8	–
Switzerland	–	–	–	–	–	0.3	0.4	0.5	0.8	0.8	0.5	–
Sierra Leone	–	–	–	0.6	0.7	1.2	1.6	–	–	–	–	–
Spain	5.1	5.1	6.6	4.1	4.2	4.9	3.1	0.0	0.5	2.2	1.3	–
Sweden	30.2	36.7	27.4	31.7	29.9	24.1	27.1	28.8	26.1	24.0	27.4	–
Tunisia	–	–	–	–	–	0.4	0.2	–	0.0	0.0	–	–
Other Countries	1.8	0.6	0.6	0.6	0.6	0.1	1.2	2.2	1.9	2.2	3.6	–
German. prod.	39.5	34.8	30.1	29.1	32.2	33.2	39.8	65.9	51.0	46.3	43.6	–
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	–

Source: Table 8 a.

Table 8 c

Germany's Imports of Iron Ore, 1933–1944

(per cent)

Country	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944
Algeria	3.8	2.3	1.5	2.9	3.5	3.1	2.8	–	0.6	1.5	–	–
Austria	–	–	–	–	1.1	12.0	13.4	–	–	–	–	–
Brazil	–	–	–	–	–	0.5	0.9	–	–	–	–	–
France	22.5	19.7	39.9	37.1	27.8	20.3	13.4	–	37.3	41.3	40.4	52.0
Fr. Morocco	–	–	–	–	–	0.6	1.7	–	–	0.0	–	–
Greece	1.7	1.0	1.4	0.9	1.1	1.0	1.2	0.1	–	–	–	–
Luxemburg	–	1.0	2.6	3.1	7.5	7.1	8.0	6.3	–	–	–	–
Newfoundland	4.9	4.1	1.3	0.9	3.9	4.5	3.3	–	–	–	–	–
Norway	5.7	6.4	3.7	2.9	2.5	4.5	5.2	1.2	2.2	2.7	1.5	1.2
Switzerland	–	–	–	–	–	0.5	0.7	1.5	1.7	1.5	0.9	0.9
Sierra Leone	–	–	–	0.9	1.0	1.9	3.0	–	–	–	–	–
Spain	8.6	7.6	9.5	5.8	6.7	7.3	5.9	0.1	1.0	4.1	2.3	1.5
Sweden	49.4	56.8	39.1	44.7	44.1	36.7	51.1	84.4	53.3	44.8	48.9	41.1
Tunisia	–	–	–	–	–	0.5	0.4	–	–	–	–	–
Other Countries	3.7	0.9	0.9	0.8	0.8	0.2	2.2	6.5	3.9	4.1	6.4	3.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Table 8 a.

Table 9 a

The Pattern of Germany's Total Consumption by Estimated Iron Content, 1933–1944
(thousands of tons).

Country	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944
Algeria	96	101	114	285	389	405	293	–	55	145	–	–
Austria	–	–	–	–	75	1036	924	–	–	–	–	–
Brazil	–	–	–	–	–	81	114	–	–	–	–	–
France	322	509	1752	2140	1791	1578	817	–	2023	2294	2466	1331
Fr. Morocco	–	–	–	–	–	84	177	–	–	–	–	–
Greece	43	45	106	97	117	133	130	5	–	–	–	–
Luxemburg	–	25	109	169	458	529	467	191	–	–	–	–
Newfoundland	117	178	99	89	421	585	341	–	–	–	–	–
Norway	171	358	349	357	345	757	698	84	265	332	198	68
Switzerland	–	–	–	–	–	34	39	41	81	78	50	14
Sierra Leone	–	–	–	95	123	266	344	–	–	–	–	–
Spain	189	307	639	537	669	880	555	2	82	352	221	60
Sweden	1379	2869	3366	5040	5550	5494	6133	5143	5658	4873	5835	2064
Tunisia	–	–	–	–	–	69	46	–	2	1	–	–
Other Countries	72	34	59	66	80	20	194	284	299	310	550	118
German prod.	828	1372	1849	2259	2759	3360	3928	5019	4755	4137	4080	–
Total Consump.	3217	5798	8442	11134	12777	15311	15200	10769	13219	12522	13400	–

Sources: Tables 1 and 8.

Table 9 b

The Pattern of Germany's Total Consumption by Estimated Iron Content, 1933–1944

(per cent)

Country	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944
Algeria	3.0	1.7	1.4	2.6	3.0	2.6	1.9	–	0.4	1.2	–	–
Austria	–	–	–	–	10.6	6.8	6.1	–	–	–	–	–
Brazil	–	–	–	–	–	0.5	0.8	–	–	–	–	–
France	10.0	8.8	20.8	19.2	14.0	10.3	5.4	–	15.3	18.3	18.4	–
Fr. Morocco	–	–	–	–	–	0.5	1.2	–	–	–	–	–
Greece	1.3	0.8	1.3	0.9	0.9	0.9	0.9	0.0	–	–	–	–
Luxemburg	–	0.4	1.3	1.5	3.6	3.5	3.1	1.8	–	–	–	–
Newfoundland	3.6	3.1	1.2	0.8	3.3	3.8	2.2	–	–	–	–	–
Norway	5.3	6.2	4.1	3.2	2.7	4.9	4.6	0.8	2.0	2.7	1.5	–
Switzerland	–	–	–	–	–	0.2	0.3	0.4	0.6	0.6	0.4	–
Sierra Leone	–	–	–	0.9	1.0	1.7	2.3	–	–	–	–	–
Spain	5.9	5.3	7.6	4.7	5.2	5.7	3.7	0.0	0.6	2.8	1.6	–
Sweden	42.9	49.3	39.9	45.3	43.4	35.9	40.3	47.8	42.8	38.9	43.5	–
Tunisia	–	–	–	–	–	0.5	0.3	–	0.0	0.0	–	–
Other Countries	2.2	0.6	0.7	0.6	0.6	0.1	1.3	2.7	2.3	2.5	4.1	–
German prod.	25.8	23.7	21.9	20.3	21.6	21.9	25.8	46.6	36.0	33.0	30.4	–
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	–

Source: Table 9 a.

Table 10a

Germany's Imports of Iron Ore 1939 (thousands of tons).

Country	Jan.–June 1939	July–Dec. 1939
Algeria	525	21
Brazil	123	50
France	2023	601
Fr. Morocco	229	110
Greece	154	91
Luxemburg	945	623
Newfoundland	287	369
Norway	639	392
Switzerland	86	52
Sierra Leone	481	117
Spain	789	372
Sweden	4862	5176
Tunisia	88	–
Total	11246	8403

Table 10b

Germany's Imports of Iron Ore 1939 (per cent)

Country	Jan.–June 1939	July–Dec. 1939
Algeria	4.7	0.2
Brazil	1.1	0.6
France	18.0	7.2
Fr. Morocco	2.0	1.3
Greece	1.4	1.1
Luxemburg	8.4	7.4
Newfoundland	2.6	4.4
Norway	5.7	4.7
Switzerland	0.8	0.6
Sierra Leone	4.3	1.4
Spain	7.0	4.4
Sweden	43.2	61.6
Tunisia	0.8	–
Total	100.0	100.0

Sources: Statistisches Bundesamt, Wiesbaden. Die Deutsche Einfuhr von Eisenerz in den Jahren 1939–1944. *Monatliche Nachweise.*

Table 11 a

Ore Shipments from Narvik, Sept. 1939–June 1940
(thousands of tons).

Country	Sept. 1939	Oct. 1939	Nov. 1939	Dec. 1939	Jan. 1940	Febr. 1940	March 1940	April 1940	May 1940	June 1940
Belgium-Luxemburg	10	7	46	17	32	17	–	–	–	–
Canada	–	–	6	8	6	6	–	–	–	–
Germany	70	16	75	97	290	99	114	–	–	–
Great Britain	21	117	59	76	178	132	213	–	–	–
Holland	11									
USA	46	93	62	13	87	42	55	–	–	–
Total	158	233	248	211	593	296	482	–	–	–

Source: Statistisk Sentralbyrå, Oslo. Svensk malm i transitt over Narvik, 1938–1944.

Table 11 b

Ore Shipments via the Narvik Railway, Sept. 1939–June 1940

(thousands of tons).

	Sept. 1939	Oct. 1939	Nov. 1939	Dec. 1939	Jan. 1940	Febr. 1940	March 1940	April 1940	May 1940	June 1940
To Narvik	235	167	184	283	498	298	228	78	–	–
To Luleå	469	454	446	275	225	373	315	373	371	496
Total	704	621	630	558	723	671	543	451	371	496

Source: Kungl. Järnvägsstyrelsens Ekonomibyrå, Stockholm. Malmtransporter på järnvägen Luleå-Riksgränsen, 1933–1944.

Table 11 c

England's Import of Swedish Ore, Sept. 1939–June 1940

(thousands of tons).

Sept. 1939	Oct. 1939	Nov. 1939	Dec. 1939	Jan. 1940	Febr. 1940	March 1940	April 1940	May 1940	June 1940
21	6	141	104	67	80	139	197	–	–

Source: Board of Trade, London, Statistics Division. Imports from Sweden into the United Kingdom: Iron Ore and concentrates 1939–1940.