

POLAND'S ECONOMY AGAINST THE BACKGROUND OF WORLD  
ECONOMY, 1913 - 1938  
(General Remarks)

I

The main problem which confronts the person who studies the period between the two World Wars is the necessity of establishing whether the Polish economy as a whole at that time showed a tendency towards regression, stagnation or growth. Historians' conclusions as to those years must largely depend upon which of those tendencies actually occurred.

But it is by no means easy to give an unequivocal answer to this question. For at the present stage of research, although it is easy to say with great precision what was the position in the diverse branches of production, especially in those branches where the output consisted of a single product, such as coal, steel, or grain, etc., it is more difficult to find out whether there was growth or regression in the manufacturing branches of industry with a variable production profile — for instance, the engineering, or the electrotechnical industry. And it is completely impossible — since no suitable methods are at hand for bringing industrial production and agricultural production under a single index — to indicate statistically in which way the entire economy was moving.

When we try to generalise about the trend of Poland's economy the situation is further complicated by the fact that the indexes worked out by the statisticians both for volume and for value of production are unreliable. The indexes for volume are unreliable because there is no way of bringing the diverse products under a common denominator without taking their value into account. On the other hand the indexes based on value are unreliable because they are related not only to the volume of production, but also to constantly fluctuating prices. Different groups of commodities might also be tending in different directions. Thus it sometimes happened that although there was a global in-

crease in the volume of production, the value of this volume of goods was down because prices had fallen.<sup>1</sup> It therefore clearly emerges that we do not yet have a yardstick which would show us clearly how the national economy is moving, or even industry or agriculture separately. We are therefore forced to take industry and agriculture separately.

Let us begin with industry. The measure most commonly used with reference to the growth of manufactures in Poland was what is known as the index of total industrial production. For several reasons, however, this index was not very accurate — in the first place, because for the years 1913 - 1923 it was only hypothetical, and in the second place since the method used in constructing the index was fundamentally changed in 1938.<sup>2</sup> Thus we now have for Poland not one index, but two in use, and these two differ from each other considerably. One is the "old" index used everywhere up till 1937, and the other is the "new" index which the Institute for Research on Economic Prosperity and Prices worked out for the period 1928 - 1938,<sup>3</sup> and which after World War II the Central Statistical Office also used for the years 1913 and 1922 - 1927.<sup>4</sup> Both indexes, however, had several defects, and could only give an approximate indication of the development of industrial production.<sup>5</sup> Therefore they cannot very well be regarded as completely objective quantitative measures of the changes taking place in the economy at that time, although they could be used to reveal certain general tendencies in the evolution of industry. In view of the above difficulties, other methods of analysis had to be sought.

One suitable method would seem to be a quantitative comparison of industrial production in the inter-war years with the level of production in Polish territo-

<sup>1</sup> In the crisis years of 1930 - 1935, for example, although the volume of agricultural production increased, there was a serious fall in terms of value.

<sup>2</sup> For wider discussion see J. Tomaszewski, *Ogólny wskaźnik produkcji przemysłowej Polski 1928 - 1938* [Index of Total Industrial Production in Poland, 1928 - 1938], "Kwartalnik Historyczny," 1965, No. 2.

<sup>3</sup> For more information on the method used in the construction of the "new" index see J. Wiśniewski, *Wskaźnik produkcji przemysłowej w Polsce* [Index of Industrial Production in Poland], "Przegląd Statystyczny," 1938, No. 3/4; E. Lipiński, *Nowy wskaźnik produkcji a rozwój gospodarczy Polski* [New Index of Production, and the Economic Growth of Poland], in: *Konjunktura gospodarcza Polski w liczbach i wykresach w latach 1928 - 1938* [The Economic Position of Poland in Figures and Indexes, 1928 - 1938], Warszawa 1939, pp. 1 - 10.

<sup>4</sup> *Polska w liczbach 1944 - 1964* [Poland in Figures, 1944 - 1964]. Warszawa 1964, p. 33. Before this, such calculations had been made by the staff of the Economics Centre of the Polish Academy of Sciences. For the results of these calculations see: *Materiały do badań nad gospodarką Polski* [Material for the Study of Poland's Economy], Part I: 1918 - 1939, Warszawa 1956, p. 165.

<sup>5</sup> Cf. Z. Landau, *Jeszcze raz w sprawie polityki gospodarczej rządu polskiego w latach 1936 - 1939* [Once More on the Subject of the Economic Policy of the Polish Government in 1936 - 1939], "Najnowsze Dzieje Polski. Materiały i Studia z lat 1914 - 1939," vol. IV; *Dyskusja nad referatem doc. dr. J. Wiśniewskiego* [Discussion on Dr. J. Wiśniewski's Paper], "Przegląd Statystyczny," 1938, No. 3/4, pp. 312 - 314.

ries in 1913.<sup>6</sup> Of course there were several basic drawbacks to comparisons of this type. In the first place, within the period under review many new branches of production were set up, whose output cannot be taken into account in a comparison with the pre-World War I period. In the second place, changes took place in the structure of industry, since certain branches of industry working for exports had a diminishing output, and others a steep rise in production. In the third place, since in 1913 Poland was divided among the Partition Powers, it was very difficult to separate from the total production of these Powers the output of those factories which later belonged to independent Poland, and as a result it was possible to make quite serious errors. However, it is possible, by the use of this method, to distinguish the outlines of certain trends. But in doing so two guiding lines have to be borne in mind. Firstly, only years of prosperity can be compared, since the base year — 1913 — was a period of prosperity; and secondly, the kind of products selected for comparison must be representative of the most important branches of industry.

Bearing these guiding lines in mind, it was decided to compare the years 1913, 1923, 1929, and 1938. The year 1923 was the peak of the inflationary period; 1929 marked the apex of production in the pre-crisis years; and 1938 marked the apex of production in the post-crisis years. It should be explained that in 1939 production in Poland was still rising,<sup>7</sup> but since the war broke out on September 1, 1939, that year cannot be taken as a basis for comparison.

It was a much more difficult problem to choose which kind of commodities to take for comparison. For two factors had to be taken into account — their importance in the country's economy, and the availability of statistical data. Hence single products had to be taken for comparison, not a variable assortment of goods as in the engineering industry or railway rolling stock industry. It should be borne in mind, however, that the trends in the production of certain basic groups of commodities also gave an indirect picture of the processes taking place in the whole of manufacturing industry as well. A good example here is the production of coal or electricity, which are indispensable to production in every branch of industry. Consequently a rise or fall in the production of coal or electricity was indicative of the processes taking place in the economy as a whole (apart from agriculture, where the use of coal and electricity in Poland during the years 1913 - 1938 was inconsiderable). Similarly, the production of steel could be used as an approximate yardstick of the growth of metal manufactures. Likewise the figures for the output of yarn or cloth could be used as an index

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<sup>6</sup> A comparison of this kind was worked out by staff of the Economics Centre of the Polish Academy of Sciences. In our research, however, we used our own calculations, which in some points differ from the results obtained in the Centre.

<sup>7</sup> Cf. data for 1939 in: *Concise Statistical Yearbook of Poland. September 1939 - June 1941*, London 1941, pp. 53 - 54.

for the textile industry, and the production of sugar and pure spirit could likewise be used as an index of the output of the food industry.

Thus we were able to draw up a list of commodities which, in our view, were the most typical of diverse groups of factory production. This list is given in Table 2. The importance of these products in the country's industrial production as a whole shows how representative these commodities are. Thus according to the calculations made when drawing up the index of total industrial production, the particular branches of industry were accorded the percentages shown in Table 1.

Table 1. Various industries' percentage shares in the index of the industrial production

Source: J. Wiśniewski, *Wskaźnik produkcji przemysłowej w Polsce [Index of Industrial Production in Poland]* "Przegląd Statystyczny," 1938, No. 3/4, p. 296

Commodity	Percentages share of total industrial production (for 1928)	
	"new" index	"old" index
Coal mines	10.8	14.7
Mines of other minerals	4.3	3.3
Iron and steel works	8.4	6.6
Zinc works	0.8	1.6
Mineral industry	4.9	8.6
Metal industry	12.6	12.5
Chemical industry	10.6	4.8
Textile industry	16.7	21.4
Paper industry	2.1	1.7
Leather industry	1.0	0.7
Timber industry	3.8	7.3
Food industry	16.2	8.0
Clothing industry	1.7	1.9
Printing industry	1.6	1.4
Building industry	—	5.5
Electric power stations	4.5	—

It should be noted that when the various percentages representing the share of diverse industries in total industrial production were being worked out, an effort was made to make them correspond as closely as possible to the existing structure of production. The percentages in the "old" index were based on the structure of employment in the years 1925 and 1926,<sup>8</sup> whereas in the "new" index the percentages were based on nett industrial production according to 1935 prices.<sup>9</sup> Hence the differences between the two vertical columns in Table 1.

<sup>8</sup> E. Lipiński, S. Pszczółkowski, L. Landau, J. Wiśniewski, *Koniunktura gospodarcza w Polsce 1924 - 1927 [The Economic Conjuncture in Poland, 1924 - 1927]*, Warszawa 1928, p. 21.

<sup>9</sup> J. Wiśniewski, *ibidem*, p. 296.

Table 2. Production of selected industrial commodities in Poland, 1913-1938

Source: "Rocznik Statystyczny", 1920, 1923, 1924, 1925 - 1926, 1929; "Mały Rocznik Statystyczny" 1931, 1939; *Polska w liczbach, 1944 - 1964*, Warszawa 1964, p. 34; *Sprawozdanie komisji ankietowej badania warunków i kosztów produkcji oraz wymiany* [Report of Commission Investigating by Questionnaire the Conditions and Costs of Production and Commerce], vol. III, Warszawa 1928, p. 20; vol. XIV, p. 16; W. Jastrzębowski, *Gospodarka niemiecka w Polsce 1939 - 1944* [The German Economy in Poland 1939 - 1944], Warszawa 1946, p. 38 - 39; *Materiały do badań nad gospodarką Polski* [Material for the study of Poland's Economy], Part I: 1918 - 1939, Warszawa 1956, p. 162; W. Fabierkiewicz, *Polska w liczbach* [Poland in Figures], Warszawa 1924, p. 50; *Rocznik statystyczny przemysłu 1945 - 1965* [Statistical Yearbook for Industry 1945 - 1965], Warszawa 1967, pp. 798 - 801.

Commodity	Unit	1913	1923	1929	1938	1938
		volume				percentage (1913 = 100)
Coal	mln tons	41	36	46	38	92.6
Oil	)	1114	737	743	507	45.5
Salt		189	363	397	417	220.6
Potassium salt		14	62	359	567	4050.0
Iron ore	thous. tons	493	449	660	872	176.9
Lead ore	)	57	15	17	44	77.2
Zinc ore		502	280	374	498	99.2
Natural gas		mln cu m.	687	390	467	584
Coke	)	918	1373	2123	2292	249.7
Pig iron		1055	520	704	879	83.3
Steel		1677	1129	1377	1441	85.9
Rolled goods	thous. tons	1244	768	962	1074	86.3
Zinc	)	192	97	169	108	56.3
Lead		45	20	37	20	44.4
Electricity		mln kWh	660	1511	3048	3977
Oil products	)	1493	654	102	481	32.2
Cement		665	473	1008	1719	258.5
Yarn		127 <sup>a</sup>	.	132	138 <sup>b</sup>	108.6 <sup>b</sup>
Textiles	thous. tons	143 <sup>a</sup>	.	91	95 <sup>b</sup>	66.4 <sup>b</sup>
Paper	)	65	52 <sup>c</sup>	128	205	314.8
Refined sugar <sup>d</sup>		571	274	671	491	85.9
Pure spirit 100 <sup>od</sup>		thous. hl	2207	825	878	860 <sup>b</sup>
Artificial fertilizers	thous. tons	400	220	455	498 <sup>b</sup>	124.3 <sup>b</sup>
Sulphuric acid 100%		225	.	197	189	84.0 <sup>b</sup>

<sup>a</sup>Data for 1912; <sup>b</sup>data for 1937; <sup>c</sup>data for 1922; <sup>d</sup>the data for the production of sugar and of pure spirit refer to season, not year, e.g. 1913 - 1914.

Note: Since there were marked differences in the figures given by different sources, it was decided to give priority to the figures of the Central Statistical Office. In cases where there were discrepancies in the figures given by the Central Statistical Office, the rule was that the figures taken were those published latest in the inter-war years. Information was taken from other sources only if there were no official statistics.

In our study we took bituminous coal as the typical product of the coal-mining industry; and oil, rock salt, potassium salt, iron ore, lead ore, and zinc ore, as well as natural gas, as the basic products of the mining industry apart from coal mining. The metallurgical industry is represented by the smelting of

iron ore, the production of steel, zinc and lead as well as of rolled goods; the mineral industry is represented by cement; the chemical industry by artificial fertilizers, oil products, and sulphuric acid; the textile industry by yarn and cloth; the paper industry by paper; the food industry by sugar and pure spirit; and the electricity industry by the production of electricity. It will be noticed that of the more important branches of industry only the electro-technical industry has been omitted for lack of suitable data. All the other branches of industry that have been omitted were of minor importance, and altogether constituted only 7.1% of industrial production according to the "new" index, and 16.1% according to the "old" index. The commodities listed in Table 2 represented altogether about 40% of the gross value of production in 1938,<sup>10</sup> which is a figure high enough to justify us in regarding these products as representative, especially as the list includes all the main raw materials and the production of goods which are of basic importance to the manufacturing industries.

Table 2 shows that in the twenty years between the two World Wars our mining industry did not reach the level of 1913 production in many of the basic commodities, particularly coal, oil, natural gas, lead and zinc ore. On the other hand the 1913 level of production of potassium salt, rock salt, and iron ore was exceeded, and considerably so. The iron and steel, food, and textile industries definitely lagged behind the output of the pre-World War I period. But production of electricity, coke, cement, yarn, paper, and artificial fertilizers was up. Taking the figures all in all, however, out of 24 products analysed, 9 showed a higher level and 15 a lower level of production. By itself, of course, this is not necessarily significant. Yet the commodities whose output was falling were of decisive importance to the country. As Table 1 shows, their share of the whole economy was relatively greater than the group of commodities whose production was going up.

In these circumstances the conclusions to be drawn from Table 1 are necessarily rather pessimistic. Two important reservations should also be made. Firstly, our analysis was concerned only with the most prosperous years, so the average level of industrial production during the twenty years between the wars was lower; secondly, in the period under investigation there was a big increase in the size of the population in Polish territory (from 30.31 million in 1913 to 34.85 million in 1938),<sup>11</sup> that is, about 15%. In other words, an increase in production of less than 15% would automatically mean economic regression, since the most significant index of the growth of production is the size of output *per capita*. When these two factors were taken into consideration as well, the situation appeared even worse.

<sup>10</sup> *Materialy ... [Material...]*, p. 162.

<sup>11</sup> "Mały Rocznik Statystyczny," 1939, p. 40. The data for 1913 are approximations. In 1910, for which we have more accurate information about the size of the population in Polish territories, the figure was 28.97 million.

Of course one might regard as a compensating factor working in the other direction the fact that a number of new branches of production were coming into being in Poland, such as the manufacture of armaments, or electrotechnical goods, or locomotives, etc. These accounted for a gradually increasing share of the country's production as a whole. We should therefore see if the picture obtained when they are taken into account is different from the picture based on the figures in Table 2. This can be done by making an analysis of the index of total industrial production.

We have already mentioned that statisticians in Poland used two such indexes — known as the “old” index and the “new” index. The difference between them was fairly marked. The first of these indexes paid little attention to the changes taking place in productivity in manufacturing, and so it gave a depressed estimate of total industrial production,<sup>12</sup> whereas the “new” index was too optimistic in its estimate of the volume of production.<sup>13</sup> Probably J. Tomaszewski was right in suggesting that the arithmetic mean between these two indexes should be used, as it would give a better idea of the true situation. In our own work, however, we have used only the “new” index, since it is the only one that covers the whole period 1913 - 1938. It also has the advantage that it tends to give a higher level of production than was really the case, and not a lower one, thereby saving the author from the objection that he was deliberately trying to make the situation worse than it really was (see Table 3).<sup>14</sup>

Table 3 confirms the conclusions referred to above. But in view of the changes that took place in the structure of industry during this period (this factor was to some extent taken into account in the construction of the “new” index), and in view of the uncertainty as to the correctness of the 1913 estimates of production, these conclusions, too, should be treated with reserve. I should like to repeat the view I have already expressed elsewhere, namely: “Since, however, the index calculated in this way is not very accurate, and must be treated with considerable caution, it is justifiable to suppose that in view of the opening up of new branches of production the total volume of industrial output in Poland in the period 1918 - 1938 was not fundamentally different from the 1913 level.”<sup>15</sup>

<sup>12</sup> For a detailed description of this index, and also of changes made in it, see E. Lipiński, S. Pszczółkowski, L. Landau, J. Wiśniewski, *Koniunktura...* [*The Economic...*], pp. 20 - 21; “Koniunktura Gospodarcza,” 1929, No. 4; “Sprawozdania i przyczynki naukowe Instytutu Badania Koniunktur i Cen,” No. 4, pp. 1 - 12; “Koniunktura Gospodarcza. Miesięczne tablice statystyczne,” 1932, special issue (April), p. 15; “Prace Instytutu Badania Koniunktur i Cen,” vol. II, 1933, No. 2, pp. 20 - 25.

<sup>13</sup> For information about how the index was constructed see Footnote 3 as well as op. cit. by J. Tomaszewski.

<sup>14</sup> The difference between the two indexes is given in Table 10.

<sup>15</sup> Z. Landau, J. Tomaszewski, *Zarys historii gospodarczej Polski 1918 - 1939* [*Outline of the Economic History of Poland*], Warszawa 1962, pp. 240 - 241.

Table 3. General index of industrial production

Source: *Materiały do badań nad gospodarką Polski [Material for the Study of Poland's Economy]*, Part I: 1918 - 1939, Warszawa 1956, p. 165, Appendix I; *Polska w liczbach, 1944 - 1964 [Poland in Figures 1944 - 1964]*, p. 33

Year	Industrial production (except building)		Industrial production (including building)	
	total	per capita	total	per capita
1913	100.0	100.0	100.0	100.0
1921	.	.	46.8	52.9
1922	61.9	68.3	73.9	81.5
1923	66.9	72.6	71.2	77.2
1924	56.7	60.6	56.8	60.7
1925	57.8	60.7	63.1	66.4
1926	56.1	58.1	58.9	61.0
1927	69.9	71.5	73.0	74.4
1928	79.2	80.1	83.0	83.9
1929	80.7	80.5	84.6	84.3
1930	71.0	70.0	74.7	73.7
1931	61.9	60.3	64.7	61.9
1932	50.5	47.7	53.1	50.1
1933	55.4	51.5	58.1	54.0
1934	62.4	57.3	65.6	60.3
1935	67.3	61.1	70.1	63.6
1936	74.7	67.0	78.0	70.0
1937	87.7	77.7	92.1	81.3
1938	94.5	82.2	98.7	86.3

In other words, at best it can be taken that total industrial production in Poland was in a state of stagnation. But if we examine not the total volume of production, but production *per capita*, then one must go a step further, and admit that industrial production was in a state of regression. Of course this state of affairs was due partly to objective factors, such as war damage. Our purpose here, however, is not to state why this situation had come about, but merely to state what the situation was.

Let us now proceed to an analysis of the development of agricultural production, so that we can see what trends were taking place in that branch of the national economy that comes second in importance after industry. This is of particular importance in Poland, both because of the occupational structure of the population,<sup>16</sup> and because of agriculture's large share in production as a whole. The factors that we have taken into consideration were: the number of livestock, and the total production of crops since changes in the number of livestock and in the size of crop production are true indicators of the tendencies taking place in stock-rearing and crop-growing. The data are given in Tables 4 and 5.

<sup>16</sup> In Poland in 1921, 63.9% of the population made their living from agriculture, as compared with 60.9% in 1931. Analogously, 15.7% of the population made their living from industry and mining in 1921, as compared with 17.1% in 1931.



Table 4. Number of horses, cattle, and pigs in Poland, 1913—1938

Source: "Rocznik Statystyczny," 1928, pp. 98 - 99; 1929, p. 629; "Maly Rocznik Statystyczny," 1939, p. 91

Livestock	1913	1927	1938	1938
	in thous.			as a percent- age (1913=100)
Horses	3496	4127	3916	112.0
Cattle	8664	8602	10554	121.8
Pigs	5487	6334	7525	137.1
Sheep	4473	1918	3411	76.2

Note: The Table gives the figures for 1927 and not 1929, since a detailed census of farm animals was made in 1927.

Table 5. Average yearly production of the more important crops in Poland, 1909—1913 and 1934—1938

Source: "Maly Rocznik Statystyczny," 1931, p. 20; 1939, p. 77

Crops	1909—1913	1924—1928	1929—1933	1934—1938	1934—1938
	million quintals				percentage (1909-1913=100)
4 principal grains	116.9	103.1	125.6	125.0	106.9
of which:					
wheat	16.8	14.9	19.6	20.6	122.6
rye	57.1	55.3	65.7	64.7	113.3
barley	14.9	12.5	14.9	14.1	94.6
oats	28.1	20.4	25.4	25.6	91.1
Potatoes	247.9	246.3	303.9	350.1	141.2
Sugarbeet	41.1	39.1	33.4	28.1	68.3

Note: In order to eliminate the fluctuations caused in the size of crops by the weather, the Table gives the means for five-year periods.

The conclusions to be drawn from Tables 4 and 5 are more optimistic than those which emerged from the analysis of the situation in industry. For Polish agriculture showed a tendency to develop. This is shown both by the increase in livestock and in the bigger harvests. A decrease in the sugar-beet crop and in the number of sheep reflected only the changes taking place in industry, for reduced production of sugar had a curbing effect on the growing of sugar-beet, while a fall in the export and production of woollen goods had a depressing effect on sheep-rearing.

Yet in agriculture, too, certain disturbing signs could be observed. For example, the production of grain increased more slowly than the increase in the population, which meant that the production of grain *per capita* was on the downgrade.

The agricultural population protected themselves by growing far more potatoes. Another disquieting phenomenon was the stagnation in the level of crops produced per hectare, which was evidence of lack of progress in the intensification of agrotechnical processes, and of a gain in crop production mainly due to an increase in the area under cultivation. Data concerning the production of crops per hectare are given in Table 6.

Table 6. Average annual crop yield per hectare in Poland, 1909 - 1913 and 1934 - 1938 (in quintals)

Source: "Mały Rocznik Statystyczny," 1939, p. 77

Crops	1909 - 1913	1924 - 1928	1929 - 1933	1934 - 1938	1938 as compared with 1913
Wheat	12.4	11.4	11.8	11.9	- 0.5
Rye	11.2	10.0	11.4	11.2	—
Barley	11.8	11.2	12.1	11.8	—
Oats	10.2	10.3	11.6	11.4	+ 1.2
Potatoes	103.0	102.0	113.0	121.0	+ 18.0
Sugarbeet	245.0	200.0	212.0	216.0	- 29.0

It will be observed that productivity remained unchanged in the case of rye and barley, it increased in the case of oats and potatoes, and fell with regard to the most demanding crops — wheat and sugarbeet, this being connected with a diminution in the use of artificial fertilizers.

All in all, however, from the point of view of volume there was an undoubted rise in total agricultural production.

Our analysis has already given us some information about the changes taking place in industrial and in agricultural production. When we examined global production, we saw that industry was stagnating, and agriculture developing. When we calculated the level of production *per capita*, we asserted that industrial production was regressing, that grain production was not keeping pace with the increase of population, and that stockrearing was developing.

In order to formulate a general index, however, that would take in both industry and agriculture, we should have to determine the relative importance of each of those branches of production in the structure of the economy as a whole. To do so the best course would seem to be to take the estimates as to the value of production. According to these, in 1929 agriculture accounted for 68% of the value of total production, mining 6%, and industry 26%.<sup>17</sup> If we accept these figures, we must accept that agriculture was predominant in Poland's economy. This predominance was maintained right to the end of the interwar period. Hence if we accept the importance of agriculture in Poland's economy as a whole,

<sup>17</sup> "Mały Rocznik Statystyczny," 1939, p. 66.

and if we agree that between 1913 and 1938 agriculture tended to play an increasing part in the country's total production, we must come to the conclusion that in the years of greatest prosperity the general level of production in Poland increased slightly, whereas at the same time the level of production *per capita* fell. Unfortunately we have no statistical means for measuring quantitatively the changes that took place in this respect.

## II

To make our assessment of the trends in the Polish economy as rounded as possible, our analysis must not be confined exclusively to what was taking place inside the country. The processes taking place within the Polish economy must be compared with analogous processes taking place in the outside world. We shall then be able to determine whether or not the direction and tempo of the changes that took place in Poland were in line with those taking place outside. This is a question of first-rate importance. For if it turns out that in the rest of the world there was stagnation of total production accompanied by a certain increase in agricultural production, then Poland was no different from the average, and was maintaining her place in the world economy. If, however, in the period 1913 - 1938 industry in other countries was developing, then the distance was more or less automatically increasing between Poland and those countries which had started earlier than her along the road to economic development.

In order to find an answer to this problem, let us compare the output of certain industrial products in Poland and in other countries in the years 1913 and 1938 (see Table 7).

Table 7 omits data for the years 1923 and 1929 (which are given in Table 2), since they did not contain any information essential to the present question. The choice of the years 1913 and 1938 should not give rise to any objections. Both years were periods of marked prosperity. As a matter of fact, in Poland the year 1938 was the peak year for industrial production, whereas in other countries in that year there was already a tendency for industrial production to fall. Whereas in 1937 the index for total industrial production was 127% (taking the 1928 level as 100), by the next year this figure had fallen to 119%.<sup>18</sup> Our comparison is therefore made in conditions that are favourable to Poland. It should also be explained that we made unsuccessful efforts to construct a table with a list of products similar to that in Table 2. These efforts were unsuccessful because the author was unable to find reliable enough estimates of the world production of certain commodities.

Table 7 shows without any doubt that Poland's share in world production in the period 1913 - 1938 was a diminishing one. Out of the 14 commodities in

<sup>18</sup> *Concise Statistical...*, p. 67.

Table 7. Comparison of Poland with the rest of the world in the production of selected industrial commodities, 1913 and 1938

Source: *Annuaire statistique de la Société des Nations 1939 - 1940*, Geneva 1940, pp. 104, 127, 138, 144, 145, 50; "Mały Rocznik Statystyczny" 1939, pp. 147 - 152; *Concise Statistical Yearbook of Poland. September 1939 - June 1941*, London 1941, pp. 65 - 66; *Sprawozdanie komisji ankietowej badania warunków i kosztów produkcji oraz wymiany* [Report of Commission Investigating by Questionnaire the Conditions and Costs of Production and Commerce], Warszawa 1928, vol. III, p. 8; vol. IX, p. 10

Commodity	Unit	1913			1938			% change of Poland's share of world production (1913=100)
		production		Poland's share in world production (%)	production		Poland's share in world production (%)	
		World	Poland		World	Poland		
Coal	} mln. tons	1216.0	41.0	3.37	1220	38.0	3.11	92.3
Oil		53.7	1.1	2.05	273	0.5	0.18	8.7
Salt		19.3	0.2	1.03	34 <sup>a</sup>	0.6 <sup>a</sup>	1.76	170.8
Lead ore	} thous. tons	1229.0	57.0	4.63	1792	44.0	2.45	52.9
Zinc ore		1139.0	502.0	44.17	1867	498.0	26.67	60.3
Coke	} mln. tons	108.0	0.9	0.83	130 <sup>a</sup>	1.8 <sup>a</sup>	1.38	166.2
Pig iron		78.8	1.1	1.39	83	0.9	1.08	77.6
Steel		76.6	1.7	2.21	109	1.4	1.28	57.9
Zinc	} thous. tons	976.0	192.0	19.65	1550	108.0	6.96	35.4
Lead		1194.0	45.0	3.76	1664	20.0	1.20	31.9
Paper		11420.0	65.0	0.57	29750	205.0	0.68	119.2
Superphosphates		12255.0	196.0	1.60	14600	163.0 <sup>b</sup>	1.12	70.0
Cement	mln. tons	42.0	0.7	1.67	84	1.7	2.02	120.9
Sugarbeet	thous. tons	8400.0 <sup>c</sup>	571.4	6.70	9570	491.3	5.13	76.5

<sup>a</sup>1936; <sup>b</sup>1937; <sup>c</sup>yearly average for the years 1909 - 1914.

the list, only 4 showed a level of growth higher than the world average. Besides, apart from coke and cement, these were products of relatively minor importance (salt, paper). Other products showed a decrease. Among these, Poland's share in the world production of oil was only an eleventh of what it had been, while her production of lead and zinc fell by two-thirds, and her production of lead ore and zinc ore, as well as the production of steel, by about 40 - 50%. In other words, it can be seen from Table 7 that Poland was being left behind in the world's industrial race. For not only was industry as a whole undergoing stagnation, but even compared with the rest of the world, this stagnation amounted to regression.

In order to obtain a more complete picture of this problem, let us look at Table 8, where Poland's 1938 share in the world production of certain basic commodities is compared with her share in 1928. By taking 1913 as the base year, we have largely eliminated the effect of the war damage which gave us a somewhat distorted picture when we drew up a list for the whole period 1913 - 1938. But

even so Table 8 shows that Poland's production of many industrial commodities and products of the mining industry was developing much slower than world production (Table 8).

Table 8. Comparison of Poland with the rest of the world in the production of selected industrial commodities, 1928 and 1938

Source: As for Table 7, as well as *Annuaire statistique de la Société des Nations 1935/1936*, Genève 1937, p. 104; 1939 - 1940 p. 149; "Maly Rocznik Statystyczny," 1939, p. 129

Commodity	Unit	1928			1938	
		production		Poland's share in world production (%)	Poland's share in world production (%)	changes in Poland's share in world production in % (1928=100)
		World	Poland			
Coal	} mln. tons	1251	41.0	3.27	3.11	95.10
Oil		184	0.7	0.38	0.18	47.36
Salt		28	0.5	1.78	1.76	98.87
Iron ore	} thous. tons	176	0.7	0.39	0.35 <sup>a</sup>	89.74
Lead ore		1636	17.0	1.03	2.45	237.86
Zinc ore		1595	321.0	20.12	26.67	132.55
Coke		129	1.1	0.85	1.38 <sup>b</sup>	162.35
Pig iron	} mln. tons	89	0.7	0.78	1.08	138.20
Steel		110	1.4	1.27	1.28	100.78
Zinc	} thous. tons	1401	162.0	11.56	6.96	60.20
Lead		1762	37.0	2.09	1.20	57.41
Cement	} mln. tons	72	1.1	1.52	2.02	132.89
Paper		22	0.2	0.90	0.68	75.55
Sugarbeet		85	6.7	7.88	5.13	62.56
Super-phosphates		15	0.3 <sup>c</sup>	2.00	1.12	56.00

<sup>a</sup>1937; <sup>b</sup>1936; <sup>c</sup>1929.

It can be seen from Table 8 that in the second decade of Poland's independence (1928 - 1938) the country's economic situation as compared with the world economy was better than in the first decade. The output of some important commodities was clearly on the increase. This was true of such commodities as pig iron, coke, cement, lead ore, and zinc ore. With regard to many other important commodities, however, we continued to lag behind the tempo of the world growth (e. g. in the production of coal, iron ore, oil, zinc, lead, superphosphates, etc.).<sup>19</sup> Yet in the period 1928 - 1938 the situation was somewhat better than in the period 1913 - 1927. It is worth trying to discover the reasons for this. Apart from the fact that the production in Poland was growing, the main reason for this was

<sup>19</sup> Cf. Table 7.

a certain slowing down of the rate of development of industrial production in the most economically advanced countries. Although the crisis in industrial production was broken as far back as 1933, many countries did not succeed in overcoming it even by the time the war broke out.<sup>20</sup> Another important factor was the fact that in 1938 there was a fall in world prosperity as compared with 1937. If we had taken 1937 as our year for comparison, and not 1938, our conclusions would have been much more pessimistic.

The comparisons we have made so far have been only partial. A more comprehensive analysis was impossible because of the lack of suitable material. For it was not until the middle of the twenties that many countries began to try to construct indexes of total industrial production. But these separate indexes were not converted into an index for the whole of world production in 1913. Hence we had to confine ourselves to the analysis of partial data. Nevertheless, the data which we did analyse seem to have been fairly typical and significant, particularly since a group of 14 - 15 products of very great economic importance were analysed. In justification of the adoption of this method, it may be said that S. Kurowski, for instance, based the whole of his extensive studies on world economic growth on a single index — iron and steel. He took the view that “the production of iron and steel is indicative of growth [...] it is a symptomatic process.”<sup>21</sup> The reasons he gave for choosing iron and steel as the basis of his index were that the production of iron and steel is not bound by natural limitations (geographical, geological or climatic); that iron and steel are used universally both in production and in consumption, and that they are also very important in reproduction; that they are expressions “not only of the quantitative growth of the economy, but also of its qualitative growth, in the form of the growth of the forces of production;” and, finally, that “the production of iron and steel can be counted, and has been statistically recorded for a very long time,” thus making long-term research possible.<sup>22</sup> Surely, then, it is all the more justifiable to base one’s conclusions not on one commodity, but on 14 - 15 different ones.

Although Kurowski’s method of seeking a single “growth index” is open to certain objections, let us follow him and try to define Poland’s economic position in the world on the basis of the data on steel production. Table 9 lists all the countries which were producing steel in 1913. The sole country omitted is Austria, since for 1913 Kurowski only had estimates for the whole of the Austro-Hungarian empire. The choice of years was dictated by the availability of the statistical data. The years given in the Table are years for which we have reliable

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<sup>20</sup> Cf. „Mały Rocznik Statystyczny,” 1939, pp. 1 - 6.

<sup>21</sup> S. Kurowski, *Historyczny proces wzrostu gospodarczego. Analiza trendów sekularnych na podstawie produkcji żelaza i stali* [History of Economic growth. Analysis of Secular Trends on the Basis of Iron and Steel Production], Warszawa 1963, p. 15.

<sup>22</sup> *Ibidem*, pp. 15 - 16.

information about the whole of world steel production. The only exception was 1938, for if we had left it out the whole comparison would not have had much meaning.

Table 9. Indexes of the growth of world steel production in the years 1913—1938 (1913=100)

Source: Author's calculations based on data contained in S. Kurowski's "Historyczny proces wzrostu gospodarczego. Analiza trendów sekularnych na podstawie produkcji żelaza i stali" [*The Historical Process of Economic Growth. Analysis of Secular Trends on the Basis of Iron and Steel Production*], Warszawa 1963, statistical appendix

Country	Year				
	1920	1929	1930	1932	1938
World	93	157	123	65	143
Australia	3000	4000	3000	2000	12000
Japan	400	1150	1150	1200	3200
India	336	1000	1000	1000	1666
Russia (USSR)	47	116	138	140	431
Italy	77	233	189	156	255
Sweden	60	116	100	83	166
United States	134	148	130	44	150
Hungary	15	125	100	50	150
Czechoslovakia	91	183	150	125	150
Great Britain	117	125	94	68	135
France	57	206	200	119	131
Luxemburg	50	225	191	166	116
Germany	48	95	67	34	115
Canada	100	172	90	27	109
Poland	49	82	74	34	93
Belgium	52	164	136	108	92
Spain	77	112	100	56	66

When we study Table 9, we again come to the conclusion that Poland was lagging behind. In 1938 we were in front of only two countries — Spain and Belgium. But Spain was suffering the direct consequences of civil war, while in Belgium the fall in steel production was clearly only a temporary matter due to market conditions. It should also be pointed out that the figures which Kurowski gives for Poland for 1938 were higher than the official statistics.<sup>23</sup> According to Kurowski, production amounted to 1.55 mln tons, whereas the „Maly Rocznik Statystyczny” quotes only 1.44 mln tons.<sup>24</sup> If we were to accept the data given by the Central Statistical Office, then as regards rate of growth of steel production Poland would also be outclassed by Belgium. A comparison of the data for 1920, 1929, 1930 and 1932 confirms these conclusions. In 1920 Poland was still ahead of Hungary, the Soviet Union, and Germany, but by 1929 had already fallen to

<sup>23</sup> Kurowski took as his basis data published in: *Un siècle de développement de la production d'acier*. Luxemburg 1957.

<sup>24</sup> „Maly Rocznik Statystyczny,” 1939, pp. 129, 139.

the bottom of the list. In 1930 she again moved up to second last place, coming before Germany, and in 1932 both Germany and Poland came before Canada. Yet even those countries whose economic structure was similar to that of Poland outstripped us — countries like Italy, Hungary, Sweden and Spain.

Of course it is a matter of controversy whether steel production was the best index to use for measuring the rate of industrial growth of different countries. But even if we think that the growth of steel production was a measure that was not absolutely reliable and representative, we cannot deny that it was a very important one. For when it comes to the bit the development of a whole number of other branches of manufacture depended on the size of steel production. In such circumstances, the fact that Poland was lagging behind in the production of steel inevitably affected the rate of her economic growth generally. Whereas world steel production increased by 43% during the period from 1913 to 1938, steel production in Poland increased by only 8%.

In order to satisfy those readers, too, who are critical of steel production as a yardstick, let us now take as our measure the general indexes of industrial production. There are many drawbacks here, too, however. In the first place, the year 1913 is not taken into account, which means that it would not be possible to make comparisons involving the whole of our period. Secondly, different countries followed different principles in drawing up their indexes,<sup>25</sup> so the various indexes mean many different things. Thirdly, the existence of two different indexes for Poland forces us to choose between them, and in either case the conclusions we come to are somewhat different. To make the picture clear, and to show what discrepancies occur, we have given both Polish indexes in Table 10.

Table 10. Comparison of Poland and the world, based on general index of industrial production (1928=100)

Source: "Mały Rocznik Statystyczny," 1938, p. 3; 1939, p. 3

	Year									
	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938
World	106	94	84	74	83	91	102	118	127	119
Poland (new index)	102	90	78	64	70	79	85	94	111	119
Poland (old index)	100	82	69	54	56	63	66	72	85	92

This analysis of the general indexes of industrial production refers only to the last decade before the war. Obviously the conclusions we draw from this analysis must be more cautious than if we had taken the whole period 1913 - 1938 into account, since it is difficult to judge a whole trend from part of it.

It can be seen from Table 10 (when we use the "new" index) that 1938 was the only year that Poland kept up with the tempo of world production. In the

<sup>25</sup> This can be seen from the description of methods given in: *Annuaire statistique de la Société des Nations 1939 - 1940*, Genève 1940, p. 163.



other 9 years she was decidedly in the rear, both in crisis years and boom years. When we apply the "old" index, we see that during this whole time Poland was unable to keep up with the average rate of world production. And yet, as we have already explained, the second decade of Poland's independence had a steeper rate of growth than the period 1913 - 1927.

It would be interesting, too, to have a look at the dispersion of the various countries as regards growth of industrial production during this time. We should be able to see how Poland stood as compared with the other countries. However, the set of figures which we were able to collect, and which are given in Table 11, has a number of shortcomings due to gaps in the statistics. This Table includes all the countries given in the League of Nations Statistical Yearbook. The most favourable year for Poland, 1938, in which for the first time she reached the average rate of world economic growth, was taken as the base year.

Table 11. General index of industrial production in various countries in 1938  
(1929=100)

Source: *Annuaire statistique de la Société des Nations 1939 - 1940*, Genève 1940, pp. 164 - 165; *Concise Statistical Year-Book of Poland. September 1939 - June 1941*, p. 67

Country	Index	Country	Index
World	119.0	Mexico	124.0 <sup>a</sup>
U.S.S.R.	413.0	Poland ("new" index)	119.0 <sup>b</sup>
Japan	174.7	Great Britain	115.5
Latvia	174.5	Holland	104.1
Greece	165.1	Italy	98.5
Finland	155.6	Czechoslovakia	96.3 <sup>a</sup>
Sweden	146.0	Poland ("old" index)	92.0
Estonia	145.5	Canada	90.0
Chile	136.9	United States	80.0
Denmark	136.0	Belgium	78.7
Rumania	133.0	France	76.1
Norway	129.1		
Hungary	126.5		
Germany	126.2		

<sup>a</sup>1937; <sup>b</sup>the *League of Nations Statistical Yearbook* gives this figure as 118.

The above Table allows us to compare Poland's rate of economic growth with that of other countries. On the surface, the situation seems rather favourable to Poland, for she comes before a number of other highly industrialised countries. But there was no reason for particular optimism. To show that this was so we must take only one index for Poland. Here we decided to follow J. Tomaszewski's device of replacing the two indexes hitherto used by another one that was a compromise between the two. This gave us an index of 106 as compared with the

1929 level of 100.<sup>26</sup> As a result, Poland found herself in a position between Great Britain and Holland. This re-grouping, then, made little difference to the rank order.

An important rule emerges from Table 11 — namely, all the highly industrialised countries, such as France, Belgium, the United States, Czechoslovakia, and Great Britain found themselves down near the bottom of the list. Of the highly developed countries, only Germany (because of intense rearmament) found herself in the middle group. The economically backward countries, on the other hand, that were only beginning to enter the phase of rapid industrialisation, found themselves in the upper part of the Table. There was a good reason for this. For although the different countries had identical growth rates, the fact that they started at different levels produced different percentage results. For example, a growth of 1.94 million tons in India's steel production (from 60,000 tons in 1913 to 2,000,000 tons in 1938) gave a percentage increase of 1666%. In the United States, on the other hand, steel production during the same period increased by 16,1 million tons (from 31.8 million tons in 1913 to 47.9 million tons in 1938), giving a percentage increase of only 50%.<sup>27</sup> Here we have a case of "extinction of the curve", where the higher the output of the base period, the smaller the succeeding percentage increments. This is why all the countries that already had a high economic level to begin with showed a smaller percentage growth of industrial production than the poorly developed ones.

In this context Poland was definitely poorly placed. In view of her economic structure she should have found herself much higher, among the countries whose economy was based mainly on agriculture. In the group of countries whose economic structure was similar to Poland's we outstripped only Canada and Italy. All the others outstripped us, and very considerably so. Among the countries which were superior to Poland in their rate of industrial growth were Latvia and Greece, Chile and Rumania, that is, countries that were decidedly weaker than Poland economically.

In concluding these remarks on Poland's rate of economic growth as compared with the world rate of economic growth in the period 1913 - 1938, it must be said once more that according to our analysis the gap between Poland and the average rate of industrial growth increased all the time. But this trend, which was particularly marked in the first decade, showed a tendency to diminish in the period 1929 - 1938. Yet up to 1938 we were still lagging behind. Therefore against a background of growing world industrial production, our industrial stagnation really meant regression.

It remains to define Poland's place in the world as regards growth of agricultural production. For this purpose let us compare the changes that took place

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<sup>26</sup> J. Tomaszewski, *op. cit.*, p. 292.

<sup>27</sup> Data taken from S. Kurowski, *Historyczny...* [*Historical...*], statistical appendix.

in the production of the four main grain crops and of potatoes and sugarbeet in 1909 - 1913 and 1934 - 1938.

Before we begin to draw conclusions from Table 12, we must remember that the yearly average for agricultural production in Poland in the years 1934 - 1938 was greater than the yearly average for 1909 - 1913 (Table 4). But even so we were behind the world growth rate here, too. Out of the six agricultural products in the Table, only one showed a more rapid growth rate than the world rate. In four of the other commodities, Poland's share of world production fell by 10%, and, in the case of sugarbeet, by nearly 50%. Unfortunately we cannot make similar comparisons in the case of livestock, since we failed to obtain data suitable for comparison.

Table 12. Comparison between Poland and the rest of the world as regards agricultural production, 1909 - 1913 and 1934 - 1938

Source: Own calculations, based on data contained in: *Annuaire international de statistique agricole 1939 - 1940*, Rome 1940, pp. 278 - 281, 284 - 285, 288 - 289, 304 - 305, 310 - 311; "Maly Rocznik Statystyczny", 1939, p. 77

Commodity	1909 - 1913			1934 - 1938			Changes in Poland's percentage share of world production 1909 - 13 and 1934 - 38 (1909 - 13 = 100)
	Production in mln quintals (yearly averages)		Poland's share in world production %	Production (in mln quintals yearly averages)		Poland's share in world production (%)	
	world	Poland		world	Poland		
4 grain crops	2514.0	116.9	4.65	2900.2	125.0	4.31	92.69
of which:							
wheat	1028.6	16.8	1.63	1389.4	20.6	1.48	90.79
rye	450.4	57.1	12.67	462.9	64.7	13.97	110.26
barley	379.5	14.9	3.92	411.7	14.1	3.42	87.24
oats	655.5	28.1	4.28	636.2	25.6	4.02	93.92
Potatoes	1488.0	247.9	16.65	2267.7 <sup>a</sup>	350.1	15.43	92.76
Sugarbeet	543.1	41.1	7.56	738.5	28.1	3.80	50.26

<sup>a</sup>Average for the years 1934 - 1937.

Thus our information indicates that in agriculture, as well as in industry, Poland was unable to keep up a rate of crop production equal to the world rate. As regards both industry and agriculture the Polish economy was in a similar position compared with the world economy. Our development in both cases was slower than the average.

(Translated by Krystyna Kozłowska)