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REGIONAL DIFFERENTIATION OF THE WORLD'S SOCIAL SITUATION

The regional differentiation of the world's social situation, which I would like to present in my paper, is based entirely upon social indices. The social indices are those—I believe—which determine population's living standards and conditions. These are both indices of material situation as well as those which indicate the degree of the realization of population's aspirations, a general accessibility to cultural achievements, and the participation in social life. I have decided to base my study upon five indices: (1) quality of nourishment (amount of proteins consumed), (2) expectation of life, (3) hospital treatment, (4) access to education, (5) participation in cultural activities.

A full statistical documentation is available for all the attributes characterizing population's living standards in the particular countries. Moreover, the selected indices fulfil normal requirements of the technique adopted in the regionalization procedure, namely, the degree of mutual correlation is low but the coefficient of spatial differentiation is high. The selected indices of the level of social situation are recognized as attributes in the regionalization procedure. Since various measures are used to denote their values, the indices are normalized and thus their summing up is made possible. Specific values (ξ) obtained by subtracting the arithmetic mean (\bar{x}) from any value of the investigated variable in the series of attribute x , divided by the value of standard deviation (σ), are called here normalized attributes and can be obtained on the basis of the following formula: $\xi_i = \frac{x_i - \bar{x}}{\sigma}$.

In practice all these normalized values fall within the range of -3 to $+3$ according to the law of 3σ . Thus, any attribute, expressed in any measure, becomes, after normalization, abstract number from -3 to $+3$. The ordering function F , which follows the normalization, reads: $F = 1/n (\xi_1 + \xi_2 + \xi_3 + \dots \xi_n)$. Quantities obtained on the basis of the cal-

culatation described above are called the "indices of the situation" in consideration of the given pattern of the attributes.

The indices of the situation are a basis on which the units (countries) are arranged according to the values of the function. This, in turn, is the point of departure for grouping the countries into regions, uniform from the point of view of the indices (attributes) adopted.

The grouping is made by means of the analytical method, the graphic picture of which is an ogive.¹ According to the adopted method, the ordered statistical series is divided into homogenous and full groups—regions. This is a grouping by means of linear ordering on the basis of one global attribute, i.e. the function depending on all the attributes of the series.

By means of this procedure four groups of countries with various social situations in the 1970s are obtained. Fig. 1 presents the ogive with the singled out groups of countries.

Regional differentiation of the world's social situation.²

Group I (25 countries)

- in Asia: 6 Yemen, 9 Afghanistan, 11 Nepal, 21 Bangladesh, 24 Pakistan, 25 India
- in Africa: 1 Upper Volta, 2 Guinea, 3 Niger, 4 Mozambique, 5 Mali, 7 Ethiopia, 8 Burundi, 10 Chad, 12 Central African Republic, 13 Somalia, 14 Sierra Leone, 15 Mauritania, 17 Nigeria, 18 Angola, 19 Benin, 20 Liberia, 22 Senegal, 23 Rwanda
- in Latin America: 16 Haiti

Group II (41 countries)

- in Asia: 26 Cambodia, 28 Laos, 30 Saudi Arabia, 34 Birma, 44 Indonesia, 48 Thailand, 49 Iran, 54 Jordan, 56 Vietnam, 60 Sri Lanka, 61 Malesia, 62 Iraq, 63 Philippines
- in Africa: 27 Tanzania, 29 Zair, 31 Uganda, 32 Malawi, 33 Sudan, 35 Madagascar, 37 Togo, 39 Morocco, 40 Libya, 41 Ghana, 42 Ivory Coast, 45 Cameroon, 46 Tunisia, 47 Lesotho, 57 Kenya, 52 Algeria, 53 Congo, 55 Zambia, 57 Egypt

¹ I used this method in my study on the regionalization of Australia in 1970, which was published under the title *Regionalizacja Ekonomiczna Australii* (Economic Regionalization of Australia), University of Warsaw, 1971.

² Countries are arranged according to the values of the ordering function and places on the diagram of the ogive.

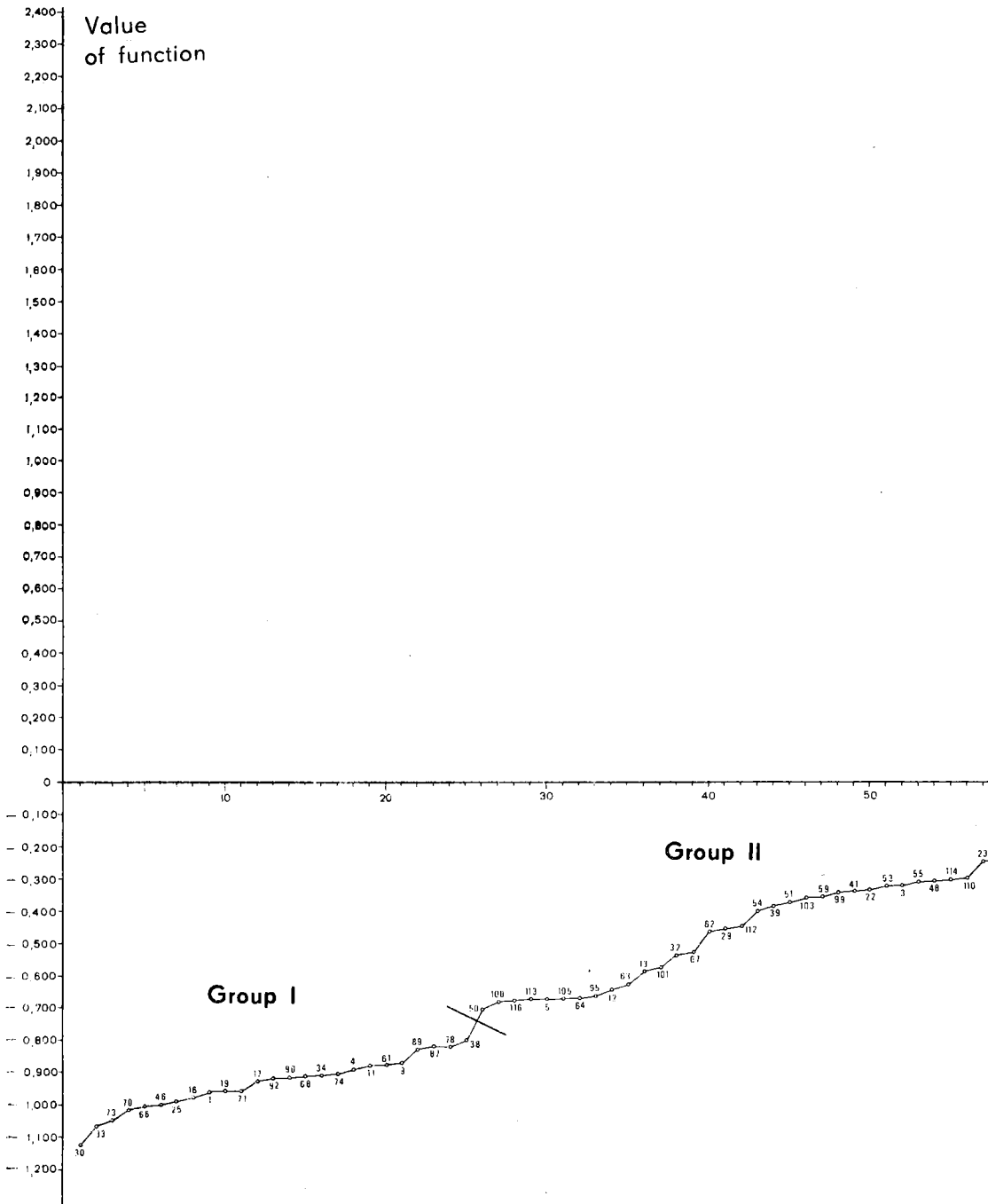
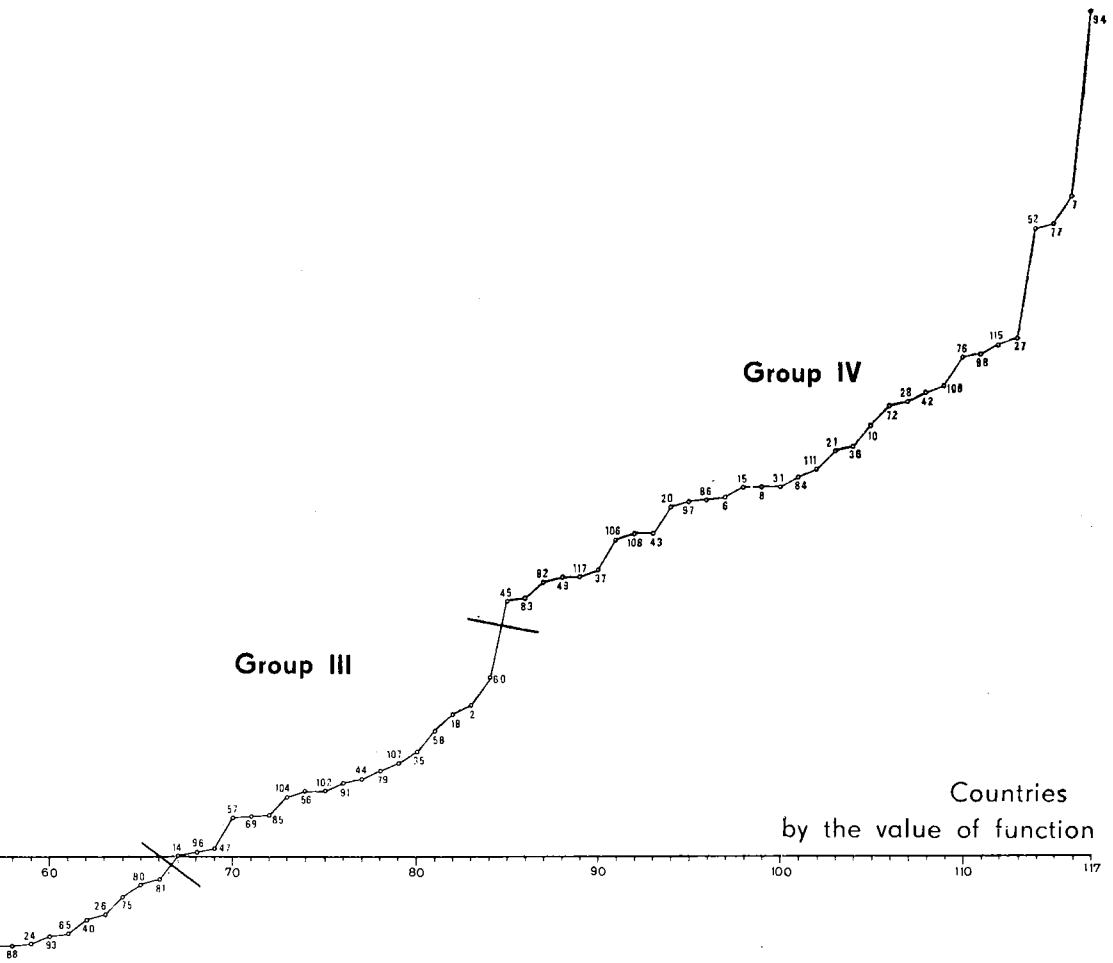


Fig. 1. Grouping of countries



Group III

Group IV

Countries
by the value of function

in Latin America: 36 Bolivia, 38 Guatemala, 43 Colombia, 50 Dominican Republic 58 Salvador, 59 Ecuador, 64 Nicaragua, 65 Paraguay, 66 Peru

Group III (18 countries)

in Asia: 68 Syria, 69 Southern Yemen, 73 Turkey, 74 South Korea, 76 Singapore, 84 Lebanon

in Africa: 72 South African Republic

in Latin America: 67 Brazil, 70 Costa Rica, 71 Mexico, 75 Trinidad and Tobago, 77 Jamaica, 78 Panama, 79 Venezuela, 81 Cuba, 82 Chile

in Europe: 80 Spain, 83 Albania

Group IV (33 countries)

in Asia: 85 Japan, 89 Mongolia, 90 Hong Kong, 93 Israel

in Africa: — —

in Latin America: 91 Uruguay, 97 Argentina

in North America: 114 Canada, 117 USA

in Europe: 86 Portugal, 87 Poland, 88 Yugoslavia, 92 Hungary, 94 Czechoslovakia, 95 Switzerland, 96 Rumania, 98 Bulgaria, 99 Austria, 100 Greece, 101 Germany, Federal Republic, 102 Italy, 103 Denmark, 104 Netherlands, 106 Germany, Democratic Republic of, 107 France, 108 Ireland, 109 Great Britain, 110 Norway, 111 Sweden, 112 USSR, 113 Finland

in Oceania: 15 New Zealand, 116 Australia

The social situation of the countries in each group is characterized on the basis of the values of the attributes adopted at the initial stage of the regionalization procedure. It is presented in Tables 1 and 2.

All the indices of the social situation in the countries included in group I are under the world mean. Extreme differences appear in the expectation of life (the shortest in Upper Volta—31.6 years), in the number of hospital beds (the lowest in Afghanistan—1.7 per 10,000 people) and in the number of children under compulsory education (the lowest percentage of children between 6 and 18 under compulsory education is in Upper Volta — 9%).

Chad, Ethiopia and Mauritania are exceptions in this group, since they exceed the world mean regarding the amount of proteins consumed; Afghanistan is almost at the world's level.

Those countries can therefore be classified as developing ones with a very bad social situation.

Table 1

Group I

Country	Attributes				
	Proteins	Expectation of life	No. of hospital beds per 10,000 people	No. of children under compulsory education in per cent	No. of radio sets per 1000 inhabitants
1	2	3	4	5	6
in Asia:					
Yemen	61	42.3	6.9	15	14
Afghanistan	68	40.3	1.7	16	40
Nepal	52	43.6	1.5	33	15
Bangladesh	40	35.8	2.1	54	6
Pakistan	52	51.3	5.3	32	16
India	52	41.2	6.8	53	33
in Africa:					
Upper Volta	59	31.6	8.5	9	17
Guinea	45	40.7	17.0	22	26
Niger	62	38.6	8.3	12	36
Mozambique	41	43.5	13.0	30	24
Mali	64	38.0	7.0	19	14
Ethiopia	72	38.1	3.1	14	7
Burundi	62	41.5	11.7	14	27
Chad	75	32.0	8.6	22	19
Central African Republic	49	34.5	19.2	45	36
Somalia	55	41.0	17.6	28	22
Sierra Leone	51	43.5	10.8	26	91
Mauritania	75	38.6	4.3	13	64
Nigeria	62	37.0	8.6	29	79
Angola	42	38.6	31.1	44	17
Benin	56	41.0	13.8	32	46
Liberia	39	43.5	15.3	38	152
Senegal	65	40.0	11.7	29	57
Rwanda	58	41.0	19.6	35	18
in Latin America:					
Haiti	39	50.0	9.6	37	21
The world mean	69.82	55.52	41.70	64.69	195.99

Certain indices of the social situation of the countries classified as group II almost reach the world mean. This is mainly true of the amount of proteins consumed (the lowest in the Congo—40.0, the highest in Paraguay—74.0) and the expectation of life (the shortest in Laos—40 years and in the Congo—41 years, the longest in Sri Lanka—

Table 2

Group II

Country	Attributes				
	Proteins	Expectation of life	No. of hospital beds per 10,000 people	No. of children under compulsory education in per cent	No. of radio sets per 1000 of inhabitants
1	2	3	4	5	6
in Asia:					
Cambodia	45.1	43.8	11.2	24	15
Laos	54.2	40.5	25.0	52	58
Saudi Arabia	56.0	45.0	11.9	35	29
Birma	49.0	52.6	8.9	53	22
Indonesia	43.0	47.5	6.2	57	37
Thailand	56.0	56.2	12.4	62	129
Iran	60.0	51.0	15.4	73	62
Jordan	55.9	52.3	11.2	70	191
Vietnam	51.1	44.6	34.2	92	43
Sri Lanka	50.0	65.9	29.9	61	72
Malesia	54.0	52.0	36.2	69	40
Iraq	62.0	52.8	20.4	75	168
Philippines	55.0	58.5	15.6	89	43
in Africa:					
Tanzania	63.0	44.5	14.3	43	19
Zair	44.0	44.0	30.6	60	4.9
Uganda	61.0	50.0	15.7	35	20
Malawi	63.0	42.6	17.4	46	25
Sudan	65.0	50.0	10.7	29	83
Madagascar	58.0	37.9	24.0	54	120
Togo	56.0	35.0	14.6	68	192
Morocco	64.0	53.0	13.5	39	88
Libya	62.0	53.0	44.6	32	45
Ghana	47.0	44.0	15.4	50	105
Ivory Coast	60.0	43.5	17.0	56	155
Cameroon	55.0	41.0	25.6	70	30
Tunisia	54.0	54.1	23.4	59	143
Lesotho	63.1	46.0	18.1	79	19
Kenya	71.0	49.0	12.9	69	37
Algeria	56.0	53.3	25.8	59	173
Congo	40.0	41.0	49.8	100	61
Zambia	68.0	44.5	40.0	66	22
Egypt	69.0	52.7	20.9	59	136
in Latin America:					
Bolivia	46.0	46.8	19.0	65	
Guatemala	59.0	53.0	18.9	43	43
Colombia	51.0	61.0	21.9	71	117
Dominican Rep.	48.0	57.9	28.5	69	42
Salvador	43.0	58.5	16.8	65	333
Ecuador	47.0	52.4	20.2	75	279
Nicaragua	71.0	52.9	21.1	63	260
Paraguay	74.0	62.0	14.4	67	67
Peru	62.0	54.0	21.6	89	134
The world mean	69.82	55.52	41.70	64.69	195.99

Table 4

Group IV

Country	Attributes				
	Proteins	Expectation of life	No. of hospital beds per 10,000 people	No. of children under compulsory education in per cent	No. of radio sets per 1000 of inhabitants
1	2	3	4	5	6
in Asia:					
Japan	59	52.3	105.3	96	571
Mongolia	94.1	60.7	106.4	90	82
Hong Kong	84	69.7	42.4	98	296
Israel	104.6	73	56.2	88	208
in Latin America:					
Uruguay	100	68.5	42.6	75	571
Argentina	118	68.3	56.8	76	384
in North America:					
Canada	101	70.0	92.6	96	1043
USA	106	73.0	64.5	87	2048
in Europe:					
Portugal	93	72.9	53.5	96	164
Poland	110	72.6	77.5	88	241
Yugoslavia	100	68.0	59.9	86	209
Hungary	90	71.2	87.7	88	242
Czechoslovakia	98	68.0	101.0	78	248
Switzerland	88	69.7	115.0	68	343
Rumania	100	69.7	92.6	95	143
Bulgaria	104	71.2	87.0	94	148
Austria	88	71.6	113.6	82	275
Greece	104	71.9	64.1		296
FRG	85	71.6	119.0		332
Italy	98	71.9	106.0	86	236
Denmark	89	74.0	97.1	92	366
Netherlands	88	74.8	101.0	98	296
Belgium	98	71.0	90.1	96	415
GDR	99	71.5	107.5	93	375
France	102	73.0	103.1	94	330
Ireland	104	71.2	106.4	100	330
Great Britain	91	70.8	85.5	93	706
Norway	87	75.0	147.1	96	326
Sweden	92	75.0	151.5	82	390
USSR	103	69.5	120.5	90	531
Finland	92	71.7	153.8	92	398
in Oceania:					
New Zealand	109	71.6	103.1	97	878
Australia	106	71.0	123.5	83	1037
The world mean ³	69.82	55.52	41.70	64.69	195.99

³ The fact that only 117 countries are included in the study is caused by lack of reliable statistical material for the remaining countries. The statistical material for the five attributes and 117 countries was collected by Danuta Koperska, the calculations were made by Dorota Piątkowska, M.A. and Andrzej Rajkiewicz, M.A. The main statistical material is taken from the *Demographic Yearbook*, U.N.

—65.9 years and in Paraguay—62 years). The number of hospital beds per 10,000 people is in this group mostly two times lower than the world mean, with the exception of a few countries (the Congo—49.8 and Libya 44.6) where the index exceeds the world mean; the lowest value is noted in Indonesia—6.2 and Birma—8.9.

In comparison with group I the standard of education, measured by the number of children under compulsory schooling, is much higher, since, with a few exceptions (e.g. Cambodia — 24 per cent) the indices

Table 3

Group III

Country	Attributes				
	Proteins	Expectation of life	No. of hospital beds per 10,000 people	No. of children under compulsory education in per cent	No. of radio sets per 1000 of inhabitants
1	2	3	4	5	6
in Asia:					
Syria	72	56.6	10.5	80	218
Southern Yemen	56	44.8	15.4	54	57
Turkey	98	57.0	21.0	70	101
South Korea	68	65.0	7.1	99	144
Singapore	63	67.6	37.7	80	168
Lebanon	70	63.3	38.5	81	540
in Africa:					
South African Republic	77	49.0	65.8	73	96
in Latin America:					
Brazil	65	59.3	37.5	74	128
Costa Rica	66	63.4	38.3	81	78
Mexico	67	62.4	11.6	81	276
Trinidad and Tobago	64	66.5	44.6	66	246
Jamaica	63	64.6	38.9		270
Panama	61	65.9	37.3	92	157
Venezuela	64	64.8	29.2	73	414
Cuba	64	70.2	42.6	86	197
Chile	77	63.2	36.1	95	188
in Europe:					
Spain	93	72.3	52.6	92	259
Albania	76	66	61.0	88	76
The world mean	69.82	55.52	41.70	64.69	195

in the decisive majority of countries (three-fourths) either almost reach the world mean, or exceed it.

Altogether, those are developing countries with a higher living standard but a worse social situation than that in the world as a whole.

The indices of the amount of proteins consumed, expectation of life and compulsory schooling in the countries of group III are at the same level or almost equal to the world mean.

The situation is worse in health service (number of hospital beds per 10,000 people) with the exception of Albania, Spain, the South African Republic and Cuba, where the index exceeds the world mean, but in the majority of countries in this group the values of the index are under the world mean.

Similarly as in the previous groups the last index (the number of radio sets per 1000 of inhabitants), which is a measure of the access to mass information and also of a standard of living, is highly differentiated in this group.

In general, we may assume that group III is composed of the countries with a medium level of the social situation.

All the indices of the social situation in group IV exceed the world mean. Japan is here an exception because this country's amount of proteins consumed and the index of the expectation of life are lower than the world mean, though the remaining indices are higher. The group consists therefore of highly developed countries with a good social situation. All European socialist countries are included in this group.

The regional differentiation of the social situation and the variety of conditions which have produced it indicate that the social problems facing humanity are very complicated. Much time will be needed to solve them and measures should be undertaken to bring about an increased satisfaction of living conditions both of the individuals and of all the nations.