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**Changes in Income Distribution in Poland
between 1987-1992**

by

Marian Wisniewski
Andrzej Grodner

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CEPS/INSTEAD
Anc. Bât. administratif ARBED
Rue E. Mark, Boîte postale 48
L- 4501 Differdange
Tel: +352 58 58 55-555
Fax: +352 58 55 88

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Changes in Income Distribution in Poland Between 1987 - 1992

by Marian Wisniewski and Andrzej Grodner

Faculty of Economics, Warsaw University

In this paper, we present an approach towards empirical verification of a few hypotheses related to changes in income distribution in Poland during the crucial period of a systemic transformation: during the last three years of the old system (1987-1989) and the first three years of the shock market theory initiated by Balcerowicz's plan (1990-1992). We will attempt to answer a few detailed questions, namely:

Has a crucial increase in income inequality explaining a common belief in this subject appeared after 1989 in Poland?

To what extent have the changes in income distribution taken a form of changes in income position of large socio-economic groups, and did they bring to these groups a promotion or degradation on an income scale?

How strong were stratification processes within the socio-economic groups of households and did they go towards an increase of income inequality?

To what degree does a period of transformation find a reflection in an income mobility perceived from the perspective of individual households? In other words, was it a period of intensive translocations of households on a relative income scale, or a milder process of the poor getting poorer and the rich getting richer?

We pursue the presented research goal in the following subsections by showing the most important empirical results.

1. Methodological remarks

The empirical results presented here are based on the material comprising individual records from the household budget surveys from the successive six years 1987-1992. After the control of data cohesion had been conducted, the sample included about 27 thousand households surveyed by GUS in 1987-1991 and 6600 households observed in 1992.

The drawbacks of the sample of households surveyed by GUS have been analysed in details by Górecki (1992) and are reviewed in a separate conference paper.

The concept "income" means here the so-called disposable income of a household, i.e. income in cash and in another form earned from work, from social benefits and the market value of consuming goods coming from one's own garden or agricultural farm. The income is a net, after-tax income.

The results presented here most frequently refer to a distribution structure which presents the ranking of people according to an increasing amount of income per person in a household. It is a typical distribution structure for Polish statistics while foreign statistics prefer different standards: a distribution of households according to an income per household and a distribution of households/persons according to an equivalent income per household/person. Who is arranged and how - the answer to this question determines the way an income distribution and income inequality are understood. Some results will be presented for various standards of the income distribution.

There are also various standards of the equivalence scale. In international comparisons conducted within the framework of the Luxembourg Income Studies (LIS) program the following scales for the successive individuals in a household are used: 1; 0,66; 0,33; 0,33;; 0,33. In OECD surveys the so-called Oxford scales are used: 1 for the first adult person, 0.7 for individuals over 16 and 0.5 for each child. Oxford's scales recognise lower effects of a scale than LIS scales do. Undoubtedly, however, consumer scales should be different for each country, alike prices, especially of those goods and services which effect fixed costs of maintaining a household (rent and housing fees, prices of house equipment goods, and the like). In Poland, several propositions of scales of consumer goods were presented (Starzec 1984, Szulc 1990), but none of them has become a commonly accepted standard. For these reasons, in the process of ranking people according an equivalent level of income, we are going to use Oxford's scales. In order to show what a significant influence a selection of a specific distribution formula has in evaluating income inequalities of the same group of people, we present below the value of Gini coefficient for all of the households surveyed by GUS in 1992:

0,299 for a distribution of households according to an income per household,
0,275 for a distribution of persons according to an income per person,
0,275 for a distribution of persons according to an equivalent income (Oxford's scales),
0,248 for a distribution of persons according to an equivalent income (LIS scales).

It is commonly known that the choice of the specific inequality measure has an essential influence on the evaluation of income inequalities. In this paper we use three measures referring to various value systems: Gini, Atkinson ($\epsilon=1$)_ and Robin Hood coefficients.

2. Income inequality from the perspective of the total population

The issue which is discussed in this section raises a question whether the process of systemic transformation in Poland (years 1990-1992) led the total population to a qualitative increase in income inequality. While answering this question we take into account the shortcomings regarding the representation of the Polish household surveys used for the purpose of verifying such a hypothesis.

The results which expose this problem are presented in Table 1. The table shows a sample of the households surveyed by GUS in three cross sections corresponding to three concepts of income inequalities, namely: (1) households according to total income per household, (2) persons according to income per person in a household and (3) persons according to an equivalent income (Oxford's equivalent scales) per person in a household. Among the presented characteristics of each distribution, the inequality measures are of fundamental importance for the thesis investigated here.

Table 1. Total households: Characteristics of income distribution 1987-1992

Specification	1987	1988	1989	1990	1991	1992
<u>Households/ income per household</u>						
Average income	54 182	94 263	367 780	1 787 145	3 059 895	4 089 964
Median	50 438	86 439	335 819	1 624 602	2 825 325	3 700 959
Real income (1987=100)	100.0	109.0	118.8	86.4	88.1	82.3
Coefficient of variation	57.72	62.73	64.81	60.03	57.82	57.46
Gini coefficient	0.2987	0.3145	0.3349	0.3069	0.2907	0.2993
Atkinson coefficient	0.3007	0.3292	0.3785	0.3048	0.2900	0.2838
Robin Hood coefficient	20.99	22.21	23.69	21.77	20.61	21.33
Number of households	27 978	28 686	26 888	27 571	26 789	6 600
CPI (1987=100)	100.00	159.57	571.44	3 817.45	6 408.67	9 172.70
<u>Persons/ income per person</u>						
Average income	16 582	30 357	113 917	567 316	973 496	1 300 758
Median	14 965	26 996	102 185	506 192	872 474	1 158 844
Real income (1987=100)	100.0	114.7	120.2	89.6	91.6	85.5
Coefficient of variation	92.19	94.81	97.13	97.75	96.82	99.50
Gini coefficient	0.2546	0.2568	0.2709	0.2695	0.2628	0.2753
Atkinson coefficient	0.1956	0.2030	0.2260	0.2165	0.2103	0.2253
Robin Hood coefficient	17.92	18.13	19.07	18.97	18.51	19.55
Number of persons	91 419	89 075	86 806	86 852	84 202	20 754
CPI (1987=100)	100.00	159.57	571.44	3 817.45	6 408.67	9 172.70
<u>Persons/ equivalent income per person</u>						
Average income						
Median	22 241	40 398	153 135	753 201	1 288 426	1 729 486
Real income (1987=100)	20 435	36 956	140 600	685 425	1 184 752	1 573 095
	100.0	113.8	120.5	88.7	90.4	84.8
Coefficient of variation	84.77	86.32	92.47	88.82	87.85	89.40
Gini coefficient	0.2346	0.2356	0.2579	0.2464	0.2369	0.2504
Atkinson coefficient	0.1689	0.1771	0.2098	0.1858	0.1772	0.1890
Robin Hood coefficient	16.48	16.56	18.11		16.64	17.76
Number of persons	91 419	89 075	86 806	86 852	84 202	20 754
CPI (1987=100)	100.0	159.6	571.4	3 817.5	6 408.7	9 172.7

Source: Individual calculations on the basis of individual data from budgets of households from corresponding years

The data presented here suggest the conclusion that in all three dimensions of income inequalities, the thesis stating that the first period of transformation on a macro-scale resulted in a significant increase in income inequalities is not supported. Neither do coefficients of income inequalities show a uniform trend for the whole period between 1987 and 1992 nor for the years after the systemic transition. It can be seen clearly, that in the balance of closing the old system, a comparatively high level of inequalities existed which underwent a slight reduction in the first two years of transformation, and then increased in the last of the investigated years. Only the inequality of persons ordered by income per person seems to slightly higher in the target period than in 1989. It is worth presenting here a sequence of Gini coefficients for this distribution: 0,225, 0,257 0,271 0,270 0,263 0,275. However, even in this case, the Atkinson coefficient, which is more sensitive to inequality at the bottom of the distribution, shows that the level of income differentiation in 1992 (0,225) was always higher than in 1989 (0,226).

As a result, an interpretation can be formulated stating that the processes of reforming and coming to the market economy in the final phase of the planned economy led to differentiation on a scale comparable to what was happening with incomes in the first three-year period of systemic transformation.

Such a course of events must be conditioned by a specifically Polish factor because the example of Hungary proves that another scenario is possible, more consistent with an intuition (Table 2).

Table 2. Differentiation of incomes (Gini coefficient) in the Czech Republic, Poland and Hungary

Specification	1989	1990	1991	1992
<u>Households/ income per household</u>				
Czech Republic				0.3150
Hungary	0.3077	0.3201	0.3281	0.3359
Poland	0.3349	0.3069	0.2907	0.2993
 Persons/ income per person				
Czech Republic				0.2223
Hungary	0.2334	0.2422	0.2623	0.2651
Poland	0.2709	0.2695	0.2628	0.2753
 Persons/ equivalent income per person				
Czech Republic				0.2120
Hungary	0.2228	0.2329	0.2515	0.2561

Poland	0.2579	0.2464	0.2363	0.2504
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Source: For Hungary and the Czech Republic unpublished data was prepared within the framework of Sciences. For Poland data from Tab. 1.

A regularly progressive increase of income inequalities in Hungary deserves attention. The evolution of income distribution in the Czech Republic is not well known except the fact that it is still more egalitarian than in Poland and Hungary. High Gini coefficients for households in Hungary and the Czech Republic are an effect of demographic differences: a considerably higher frequency of small households than in Poland. The most resistant to demographic differences is a distribution of individuals according to equivalent incomes. The comparison of Poland with Hungary in this cross section gives an interesting result: Poland, the least egalitarian country in Central and Eastern Europe in the 1980s (see. also Atkinson, Micklewright 1992, p. 133 and the following), was surpassed by Hungary just during the period of reforms commonly considered as the most shocking form of transformation.

There appear to be two possible explanations of the facts observed here:

It is possible that the lack of a conspicuous increase in income inequalities in Poland is a quite accidental result of powerful changes in the process of income distribution among and within socio-professional groups.

It is possible that a significant decrease in real income -and, as it is believed, equally significant decrease in standard of living - blocked a possibility of an increase of income differentiation which was not too small anyway in the final phase of the 1980s. This would mean that the system of social security from the first years of transformation, although it could not stop a spreading of poverty, turned out to be effective in maintaining the existing income discrepancies.

The second hypothesis is impossible to verify on the basis of the material presented here. The first hypothesis will be discussed in the next section.

3. Group differentiation of incomes

We are interested now in a group composition of income distribution. We are searching for an explanation for minor changes in an income distribution pattern on a macro-scale in the period of vigorous systemic changes. We want to solve the problem of whether the situation of large socio-economic groups was equally stabilised as was the situation of the whole population participating in research of household budgets. If this hypothesis were confirmed, it would mean that the only statistically possible effect of transformation would be a decrease of real incomes in households. The changes of income distribution patterns, if they appeared at all, would have to take place in the area not available for income statistics.

Characteristics of income distribution for four socio-economic groups (worker households, farmer households, worker and farmer households and those of pensioners and retirees) contrasted in three respective tables (Tab. 3 - 5) would be the basis of the current consid-

erations. Each of these tables has the same information structure and presents a different pattern of income differentiation. We will focus on the distribution of persons ordered by an equivalent income per person (Tab. 5). This distribution pattern neutralises best the differences in the size of households and gives a better view of the scale of well-being.

**Table 3. Households by income per household
Parameters of income distribution 1987 - 1992**

Specification	1987	1988	1989	1990	1991	1992
<u>Worker Households</u>						
Average income	59,314	101,373	414,104	1,927,399	3,358,496	4,723,577
Median	56,698	97,294	392,774	1,820,897	3,154,635	4,542,043
Real income (1987=100)	100.0	107.7	122.1	86.7	90.7	89.1
Coefficient of variation	40.22	45.77	42.84	48.55	51.68	48.91
Gini coefficient	0.2099	0.2227	0.2175	0.2347	0.2358	0.2363
Atkinson coefficient	0.1441	0.1634	0.1547	0.1731	0.1772	0.1709
Robin Hood coefficient	14.41	16.34	15.47	17.31	17.72	17.09
% of income / % of households	109.47	107.54	112.60	107.85	109.76	115.49
CPI (1987=100)	100.00	158.70	571.95	3,746.88	6,242.30	8,938.97
<u>Farmer Households</u>						
Average income	56,563	111,696	425,298	1,869,529	2,673,444	4,403,865
Median	43,268	85,003	312,513	1,479,009	2,257,151	3,741,064
Real income (1987=100)	100.0	121.7	132.9	84.3	71.2	83.9
Coefficient of variation	83.94	79.85	89.45	85.24	97.21	64.56
Gini coefficient	0.3952	0.4027	0.4207	0.3892	0.3565	0.3237
Atkinson coefficient	0.4205	0.4599	0.5119	0.4371	0.4258	0.3089
Robin Hood coefficient	28.47	29.11	30.61	27.70	25.32	23.20
% of income / % of households	104.39	118.49	115.64	104.61	87.37	107.67
CPI (1987=100)	100.00	162.20	565.75	3,920.11	6 636.74	9,284.80
<u>Farmer-Worker Households</u>						
Average income	77,800	144,060	561,056	2,709,868	4,362,206	6,086,708
Median	71,216	130,475	510,759	2,494,463	4,056,078	5,566,731
Real income (1987=100)	100.0	115.2	126.6	90.5	87.0	86.6
Coefficient of variation	41.12	42.17	41.06	41.32	40.97	55.97
Gini coefficient	0.2265	0.2349	0.2468	0.2268	0.2178	0.2104
Atkinson coefficient	0.1513	0.1665	0.1830	0.1551	0.1456	0.1297
Robin Hood coefficient	15.88	16.58	17.48	15.93	15.36	14.78
% of income / % of households	143.59	152.83	152.55	151.63	142.56	148.82
CPI (1987=100)	100.00	160.80	569.55	3,850.75	6,446.16	9,031.07
<u>Pensioner Households</u>						
Average income	30,420	48,746	164,417	987,425	1,941,755	2,446,221
Median	26,250	42,254	137,483	871,998	1,706,227	2,199,704
Real income (1987=100)	100.0	100.6	93.4	80.7	92.1	80.4
Coefficient of variation	54.99	55.03	57.56	49.95	45.38	46.09
Gini coefficient	0.3108	0.3051	0.3132	0.2968	0.3047	0.2849
Atkinson coefficient	0.2601	0.2637	0.2606	0.2429	0.2567	0.2313
Robin Hood coefficient	22.65	22.23	22.72	21.31	21.96	20.56
% of income / % of households	56.14	51.71	44.71	55.25	63.46	59.81
CPI (1987=100)	100.00	159.30	578.42	4,023.48	6,932.45	10,003.53

Source: own calculations based on the data from household budgets of given years.

Table 4. Persons by income per person
Parameters of income distribution 1987 - 1992

Specification	1987	1988	1989	1990	1991	1992
<u>Persons in Workers' Households</u>						
Average income	16,537	30,580	115,731	580,093	1,013,157	1,359,408
Median	15,214	27,562	106,794	523,277	901,453	1,191,047
Real income (1987=100)	100.0	116.5	122.4	93.6	98.1	92.0
Coefficient of variation	87.50	91.36	89.76	102.04	109.08	113.39
Gini coefficient	0.2352	0.2342	0.2375	0.2604	0.2608	0.2763
Atkinson coefficient	0.1660	0.1598	0.1728	0.1990	0.1956	0.2141
Robin Hood coefficient	16.74	16.68	16.77	18.40	18.46	19.75
% of income / % of persons	99.73	100.74	101.59	102.25	104.07	104.51
CPI (1987=100)	100.0	158.7	572.0	3,746.9	6,242.3	8,939.0
<u>Persons in Farmers' Households</u>						
Average income	18,659	35,979	137,390	596,243	859,365	1,149,130
Median	15,025	29,007	110,926	473,339	739,902	1,008,438
Real income (1987=100)	100.0	118.9	130.1	81.5	69.4	66.3
Coefficient of variation	128.88	127.37	133.65	142.98	151.95	120.92
Gini coefficient	0.3494	0.3492	0.3680	0.3522	0.3132	0.3060
Atkinson coefficient	0.3275	0.3372	0.3987	0.3308	0.3072	0.2869
Robin Hood coefficient	24.92	24.89	26.24	25.23	22.12	21.80
% of income / % of persons	112.52	118.52	120.60	105.10	88.28	88.34
CPI (1987=100)	100.0	162.2	565.8	3,920.1	6,636.7	9,284.8
<u>Persons in Farmer-Workers' Households</u>						
Average income	16,980	31,739	123,629	595,105	954,410	1,265,741
Median	15,283	28,983	112,706	537,430	854,703	1,125,622
Real income (1987=100)	100.0	116.2	127.8	91.0	87.2	82.5
Coefficient of variation	94.50	90.82	89.34	92.73	95.88	154.97
Gini coefficient	0.2466	0.2430	0.2529	0.2448	0.2371	0.2390
Atkinson coefficient	0.1770	0.1796	0.1938	0.1735	0.1625	0.1600
Robin Hood coefficient	17.35	17.19	17.95	17.31	16.87	16.93
% of income / % of persons	102.40	104.55	108.52	104.90	98.04	97.31
CPI (1987=100)	100.0	160.8	569.6	3,850.8	6,446.2	9,031.1
<u>Persons in Pensioners' Households</u>						
Average income	14,670	24,042	81,105	468,209	921,369	1,216,674
Median	13,947	22,917	75,187	443,722	862,315	1,160,000
Real income (1987=100)	100.0	102.9	95.6	79.3	90.6	82.9
Coefficient variation	59.47	58.74	61.90	56.54	53.15	58.72
Gini coefficient	0.2346	0.2302	0.2452	0.2336	0.2450	0.2635
Atkinson coefficient	0.1907	0.2113	0.1930	0.1926	0.1972	0.2324
Robin Hood coefficient	16.23	16.01	17.25	16.21	16.98	18.67
% of income / % of households	88.47	79.20	71.20	82.53	94.65	93.54
CPI (1987=100)	100.0	159.3	578.4	4,023.5	6,932.5	10,003.5

Source: own calculations based on the data from household budgets of given years.

**Table 5. Persons by equivalent income
Parameters of income distribution 1987 - 1992**

Specification	1987	1988	1989	1990	1991	1992
<u>Persons in Workers' Households</u>						
Average income	22,627	41,195	126,800	777,311	1,356,212	1,843,205
Median	21,304	38,559	149,132	722,927	1,246,284	1,664,519
Real income (1987=100)	100.0	114.7	122.1	91.7	96.0	91.1
Coefficient of variation	76.84	77.41	80.25	87.34	94.08	98.11
Gini coefficient	0.2088	0.1995	0.2124	0.2264	0.2274	0.2446
Atkinson coefficient	0.1341	0.1218	0.1424	0.1563	0.1543	0.1730
Robin Hood coefficient	14.79	14.13	14.93	15.94	15.99	17.43
% of income / % of persons	101.74	101.97	103.19	103.20	105.26	106.58
CPI (1987=100)	100.0	158.7	572.0	3,746.9	6,242.3	8,939.0
<u>Persons in Farmers' Households</u>						
Average income	24,485	47,482	181,997	787,064	1,131,534	1,567,312
Median	20,138	39,352	150,595	642,596	976,808	1,377,168
Real income (1987=100)	100.0	119.6	131.4	82.0	69.6	68.9
Coefficient of variation	123.32	119.15	131.62	135.16	149.32	112.13
Gini coefficient	0.3326	0.3349	0.3573	0.3337	0.2912	0.2861
Atkinson coefficient	0.3007	0.3139	0.3794	0.3042	0.2806	0.2527
Robin Hood coefficient	23.63	23.84	25.36	23.74	20.53	20.40
% of income / % of persons	110.09	117.54	118.85	104.50	87.82	90.62
CPI (1987=100)	100.0	162.2	565.8	3,920.1	6,636.7	9,284.8
<u>Persons in Farmer-Workers' Households</u>						
Average income	23,435	43,908	170,995	823,274	1,319,571	1,772,717
Median	21,544	40,622	158,233	757,508	1,213,663	1,609,584
Real income (1987=100)	100.0	116.5	128.1	91.2	87.4	83.8
Coefficient of variation	85.41	83.39	82.63	84.94	86.76	136.70
Gini coefficient	0.2220	0.2213	0.2346	0.2227	0.2139	0.2131
Atkinson coefficient	0.1461	0.1517	0.1693	0.1455	0.1354	0.1311
Robin Hood coefficient	15.51	15.59	16.63	15.67	15.11	15.02
% of income / % of persons	105.37	108.69	111.66	109.30	102.42	102.50
CPI (1987=100)	100.0	160.8	569.6	3,850.8	6,446.2	9,031.1
<u>Persons in Pensioners' Households</u>						
Average income	17,698	28,854	97,613	565,386	1,110,257	1,440,706
Median	16,567	27,116	89,531	531,100	1,027,384	1,352,677
Real income (1987=100)	100.0	102.3	95.4	79.4	90.5	81.4
Coefficient of variation	55.33	54.40	58.33	53.36	49.58	54.07
Gini coefficient	0.2178	0.2178	0.2280	0.2157	0.2279	0.2400
Atkinson coefficient	0.1536	0.1721	0.1608	0.1568	0.1607	0.1793
Robin Hood coefficient	15.27	14.87	16.09	15.01	15.98	17.02
% of income / % of persons	79.57	71.42	63.74	75.06	86.17	83.30
CPI (1987=100)	100.0	159.3	578.4	4,023.5	6,932.5	10,003.5

Source: own calculations based on the data from household budgets of given years.

Two separate processes influence changes in income distribution. The first of those changes the flows of incomes that belong to a given group, and the second process consists in changes in the way the income is being distributed within the group. The changes of the first process can be measured by a relation of the percentage of income falling to a given group to the percentage of persons belonging to a given group (in tables marked as % of income / % of persons). That relation shows the relative advantage or disadvantage enjoyed by the group as a whole as far as distribution of profits is concerned.

It is evident that changes in income distribution observed at the group level are considerable. This observation is relevant to all groups. There is no group whose situation was stable throughout the whole analysed period, or which did not change significantly between 1989 and 1992. Simultaneously, a very simple rule that governs those changes can be noticed.

In the late 1980s there were two groups, both connected with the farming sector (farmers' households and farmer-workers' households), which occupied a privileged position as far as income distribution is concerned - they seized a disproportional amount of income. Those groups suffered deep regression in incomes in the 1990s. At the same time, within those groups a noticeable reduction of income diversification occurred. Both those observations apply particularly to the farmers' group which was most privileged and internally diverse in 1989, and in 1992 worst degraded and manifesting the largest reduction of internal inequalities. Therefore, the 1990s have brought a considerable loss to the farmers' group in terms of its position at the high end of the income scale.

On the other hand, the two groups connected with non-farming activities, namely workers' households and pensioners' households, have enjoyed a relative advance in the 1990s and, simultaneously, have increased their internal income diversification.

That two-way course of changes may be quoted as the reason for the zero net effect that can be observed on the macroscale. Farmers have traditionally been the most diversified group as far as income is concerned. Their income distribution has a bimodal form and is characterised by considerable concentration of people at both ends of the income scale. The farmers' group is also very unstable due to the fluctuation of harvests and variations in prices of farming products. Periods of increased (in relative terms) incomes were followed by increases in income diversification. In the 1990s, the simultaneous drop in the group's income and the reduction in the group's internal inequalities resulted in increased equality in general income distribution.

In the past, the farmer-workers' group occupied a relatively good position in terms of income distribution, profiting from the economically privileged position of the farming sector. Thanks to non-farming sources of income, the group also avoided in the past being at the low end of income distribution, a position that is frequently occupied by the smallest farmers' households. The relatively stable and equal income distribution of that group was changed little throughout the whole analysed period and its impact on the general income distribution was very small.

In the 1990s, workers' households enjoyed a small but systematic improvement in the relative income status, as well as a slow and systematic increase in income inequality. In the evolution of the group's income distribution, symptoms can be observed of processes that could have been expected in analysing the income distribution of the whole population. The increase of diversification, still modest, grew significantly in the final year of the analysed period.

The reason for diversification of workers' household incomes is, besides the emergence of unemployment, undoubtedly an increase in diversification of earnings. The effect of the increase in unemployment is surprisingly insignificant, a fact that may be explained by a variety of reasons, such as:

relatively high level of unemployment benefits and their wide range in the analysed period;

low concentration of unemployment in particular households;

concentration of unemployment in the group of workers-peasants' households as well as in pensioners' households (younger pensioners, easier access to disability benefits);

efficient mechanism of compensating for the loss of incomes by the unemployed persons;

low representation of the unemployed persons in the survey sample of workers' households.

Interpretation of those facts will require separate research work.

The increase in earnings diversification can be observed in the comparative study dealing with Poland, Czech Republic, and Hungary (Table 6).

Table 6. Wage inequality in Poland, Czech Republic, and Hungary

Specification	1988	1989	1990	1991	1992
<u>Czech Republic</u>					
Coefficient of variation	0.351				0.426
Gini coefficient	0.186				0.208
Robin Hood coefficient	0.131				0.147
<u>Hungary</u>					
Coefficient of variation		0.673	0.675	0.708	0.764
Gini coefficient		0.294	0.297	0.304	0.321
Robin Hood coefficient		0.206	0.208	0.213	0.226
<u>Poland</u>					
Coefficient of variation		0.423	0.501	0.728	0.721
Gini coefficient		0.184	0.215	0.241	0.246
Robin Hood coefficient		0.147	0.169	0.186	0.192

Source: Poland - own calculations based on estimates of earnings' distribution functions of grouped data concerning earnings distribution in August (1989, 1991, 1992) or May (1990), published in yearbooks. For the years 1989-1991, gross earnings equal net earnings. Czech Republic -

unpublished data prepared for an international research project by the Human Sciences Institute in Vienna.

In all those three countries a clear trend of increasing wage diversification in the 1990s can be easily recognised. In 1992 in Poland, the level of diversification in earnings was significantly lower than in Hungary, but still a lot higher than in the Czech Republic.

The pensioners' group is an example of a paradoxical effect of systemic changes that were supposedly extremely ravaging and ruthless. The 1990s have brought a reversal in the progressive income degradation of that group and significant improvement in the group's position in comparison with the early period. The reason for that improvement has been the introduction of an automatic mechanism of benefits' indexation, and therefore, indirect protection from inflation. It was inflation that became the main cause of income degradation of that group. The indexation mechanism, preserving the original earnings' proportions, has resulted in a modest increase in income inequality among pensioners. The shift of the whole group to a somewhat higher level on the income scale has resulted in a more equal income distribution.

The analysis of income distribution from the perspective of social and professional groups has revealed many new elements showing dynamic changes that have taken place in the 1990s. In the next section several additional dimensions of an advance or degradation on the income scale will be analysed.

4. Other dimensions of income inequality

In the observed period the Polish household surveys, contrary to some appearances, do not present an opportunity for a more thorough analysis of income distribution cross-sections. The reason can be found in a relatively uninteresting identification of social status features among the members of a household: profession, work position, line of business, etc.

For obvious reasons, the main factor in diversification of the income position is the size of a household, especially if the distribution of persons by income per capita is taken into consideration. Limits to the income position that are closely linked to the size of a household are stable during the long period of the household's existence. It is unlikely, therefore, that the variable (i.e., the household's size) could become the sole component of improvement in incomes within a given period. Thus, an analysis of the household's size from the perspective of other features that have a more dynamic impact on income position seems more productive at this point.

For example, given a more interesting perspective of extreme quintile groups, i.e., the composition of 20% of the poorest and the wealthiest persons sorted according to the equivalent income, Table 7 shows how various heads of households influenced the composition of those groups in 1989 and 1992.

Many earlier propositions have been corroborated by the cross-sections contained in Table 7. An income degradation of the farmers' group can be noticed both in the first and in the fifth income group of persons. On the other hand, a much less steep decline of the income position of farmer-workers' households has been manifested only in a reduction in their rate of participation in the wealthiest class of persons. The advance of persons from pensioners' households seems very convincing from the perspective of both extreme ends of income distribution. In 1992 those persons qualified much less frequently for the poorest class and much more frequently for the wealthiest class. However, a slight improvement in the income position of workers' households has resulted in their members more frequently qualifying for both the first and the fifth quintile group in 1992. That would tend to substantiate the earlier proposition stating that income diversification increased in that group of households.

At the same time, it is apparent that differentiation between the families of white collar and blue collar workers has increased. The former have only slightly enhanced their presence in the poorest sector (from 6% to 7.5%), while considerably enhancing their presence in the wealthiest sector (from 30.1% to 42.9%). Simultaneously, changes in the families of blue collar workers went in the same direction, but with a reversed intensity: their presence in the poor sector significantly increased (from 29.2% to 39.4%) and their presence in the wealthy sector increased slightly (from 29.3% to 30.2%).

Some earlier research work (see: M. Wisniewski 1991) shows that households of white collar workers usually achieve a better income position as compared to the households of blue collar workers due to a more advantageous demographic structure (fewer children and more working women) rather than due to higher earnings. The changes observed between 1989 and 1992 prove that the role of income factors has significantly increased.

The first three years of the 1990s were unquestionably successful for the inhabitants of big cities (i.e., those over 100,000 inhabitants), thus shifting them from the low end (drop from 26.1% to 12.2%) to the high end (increase from 30.9% to 41.1%) of income distribution. The farmers, on the other hand, suffered a reversed trend. The unfavourable changes in the farmers' group occurred both on the low end (increase from 40.3% to 53.6%) and on the high end (drop from 44.5% to 28.3%) of income distribution.

In 1992 the participation of persons with a higher education (i.e., from the households whose head is a person with a higher education) in the wealthiest group has increased considerably (from 13.8% to 22.4%). The advance of persons with high-school education has occurred with less intensity (from 28.8% to 35.9%). Moreover that, the number of people with a vocational education shrank in the fifth quintile group (from 32.7% to 26.8%), as did the group with an elementary education (from 24.7% to 14.9%). As far as the low end of income distribution is concerned, there are no significant changes connected with education. For the persons with higher and high-school education, the low level of prosperity is mostly a temporary state resulting from a transitory phase of raising new-born children rather than a targeted level of prosperity in stable family conditions.

The age of a household head does not significantly determine the direction of changes occurring in the analysed period of the 1990s. Older people's households (over 55, and especially 65-year olds) are exceptions to that rule. Those households have improved their standings at both ends of the income distribution spectrum. That finding is in agreement with the previously discovered advance of members from pensioners' households.

**Table 7. Structure of the first and the fifth quintile group in 1989 and 1992
(persons by equivalent income)**

Specification	1st quintile group		5th quintile group	
	1989	1992	1989	1992
Average income in % of income in 1st quintile group	100.0	100.0	375.1	356.1
% of whole income in a given quintile group	9.34	9.75	35.02	34.74
Average size of a household	4.07	4.82	3.65	3.25
Average number of children under 15 in a household	1.50	2.05	0.85	0.74
Distribution by social-economic group (in %)				
white-collar worker	6.0	7.5	30.1	42.9
blue-collar worker	29.2	39.4	29.3	30.2
farmer	14.0	16.3	18.2	8.7
farmer-worker	7.9	5.9	20.2	8.3
pensioner	42.9	30.9	2.2	9.9
Distribution by residence (in %)				
big city	26.1	12.2	30.9	41.1
small city	33.6	34.2	24.6	30.6
rural area	40.3	53.6	44.5	28.3
Distribution by education (in %)				
higher education	2.2	1.0	13.8	22.4
high-school	15.1	13.8	28.8	35.9
vocational	34.7	40.2	32.7	26.8
elementary	48.0	45.0	24.7	14.9
Distribution by age (in %)				
25 and younger	3.7	3.7	6.6	3.7
26 - 35 years	21.2	26.9	21.3	20.9
36 - 45 years	27.3	39.3	31.2	35.7
46 - 55 years	13.5	15.9	25.6	22.9
56 - 65 years	16.3	6.6	13.2	12.7
66 - 75 years	12.8	5.2	1.2	3.5
76 and older	5.2	2.4	0.3	0.6

Source: own calculations based on the individual data from household budgets in given years.

The above discussed results allow for a broader interpretation. The fundamental change of the previously existing income distribution, which has been brought by the period of systemic transformation, consisted to a great extent in deep revaluation of farming and non-farming activities. Concurrent with the transformation was the revaluation of the system of pensions that was definitely beneficial for the recipients. There are also data showing revaluation

occurring in the non-farming sector, corroborated by an apparent relative improvement of the standing of households that have been set up by highly qualified persons who are able to find access to the most attractive jobs in big cities.

5. Dynamics of changes in groups

Following is an analysis of changes in income distribution as seen from a different perspective. There are questions that need to be answered concerning the stability of income distribution in groups of households selected on the basis of some particular features. First, a determination will be needed whether the whole income distribution of a selected group has changed, and then a hypothesis will be tested submitting that the reason for the change in question was a reduction or an increase of the number of poor people (persons from the 1st income group) or of wealthy people (analogically for the 10th income group). Then analysis will follow of stability of income positions of the selected groups. Those positions will be shown through mean ranks of people from a given group in a classified distribution of the whole population.

Table 8 shows the data referring to changes of the situation in households selected according to the main demographic and social features of the household member. The most distant years of 1988 and 1992 have been chosen in order to sharpen the contrast between the period before and after the systemic transformation. Each category describing the dynamics of changes has been based on a statistical test whose possible values are explained at the bottom of the table. In the case of mean ranks - it is a variance test, and in the case of direct change in income group distribution - it is a Kolmogorow-Smirnow test (K-S). The latter test checks whether the distribution is the same. If the answer is yes, the results of tests for selected income groups may determine which households were decisive in bringing the change in income distribution - the poor, the wealthy, or the central ones, and also: whether they did it separately or jointly.

Table 8. Statistical tests, relative and absolute measures of the distributions for the years 1988-92

Value of the Variable	Variance Test for an Mean Rank	Relative Change of the Mean Rank ((rank92-rank88)/rank88)*100 %	K-S Test for the Whole Distribution	K-S Test for 1st Income Group	Absolute Change in Distribution of 1st Income Group	K-S Test for 10th Income Group	Absolute Change in Distribution of 10th Income Group
Household Type							
white-collar	**	10.75%	**	,	-0.40	**	8.50
blue-collar	**	-4.58%	**	,	2.40	,	0.60
farmer	**	-19.85%	**	,	2.60	**	-13.10
farmer-worker	**	-6.61%	**	,	-2.90	**	-5.40
pensioner	**	39.20%	**	**	-8.40	,	2.70
Education							
higher education	**	17.26%	**	,	-1.10	**	12.20
high sch. & post-h.sch..	**	5.98%	**	,	-1.10	,	2.00
vocational	**	-7.37%	**	,	2.50	,	-1.80
elementary	**	-7.52%	**	,	-0.20	,	-3.00
Household Size							
1-person	**	10.47%	**	**	-12.10	,	-1.40
2-person	**	12.98%	**	**	-6.10	,	1.50
3-person	**	7.12%	**	,	-1.00	,	3.50
4-person	**	-1.97%	**	,	1.00	,	1.50
5-person	**	-4.99%	,	,	3.40	,	-2.60
6-person	**	-18.81%	**	**	4.80	**	-3.90
7-person and bigger	**	-22.54%	**	**	5.90	**	-5.50
Age							
younger than 26	**	-10.27%	**	,	0.60	,	-3.90
26-35 years old	*	-1.53%	,	,	3.10	,	-0.80
36-45 years old	**	-3.04%	**	,	2.00	,	0.70
46-55 years old	**	-5.18%	**	,	1.40	,	1.20
56-65 years old	**	12.82%	**	**	-7.10	,	0.90
66-75 years old	**	43.05%	**	**	-15.10	,	0.20
76 and older	**	40.83%	**	**	-8.60	,	2.00

** : test significant on the significance level of 0.05 and less

* : test significant at the significance level of 0.05-0.10

, : test statistically insignificant

Source: own calculations based on the individual data of household budgets in the selected years

In order to interpret the resulting percentage differences, it is useful to take into consideration the test's results. For example, the workers' household group improved its relative income position by more than 10 percentage points. This is a statistically significant result, with the probability of 95% proved by the variance test. Those households have increased their participation in the 10th income group by more than 8 percentage points. This is a statistically significant result, too. However, this time it is not possible to determine the percentage change of the number of workers' households in the 1st income group. The K-S test has not come out with a statistically significant difference.

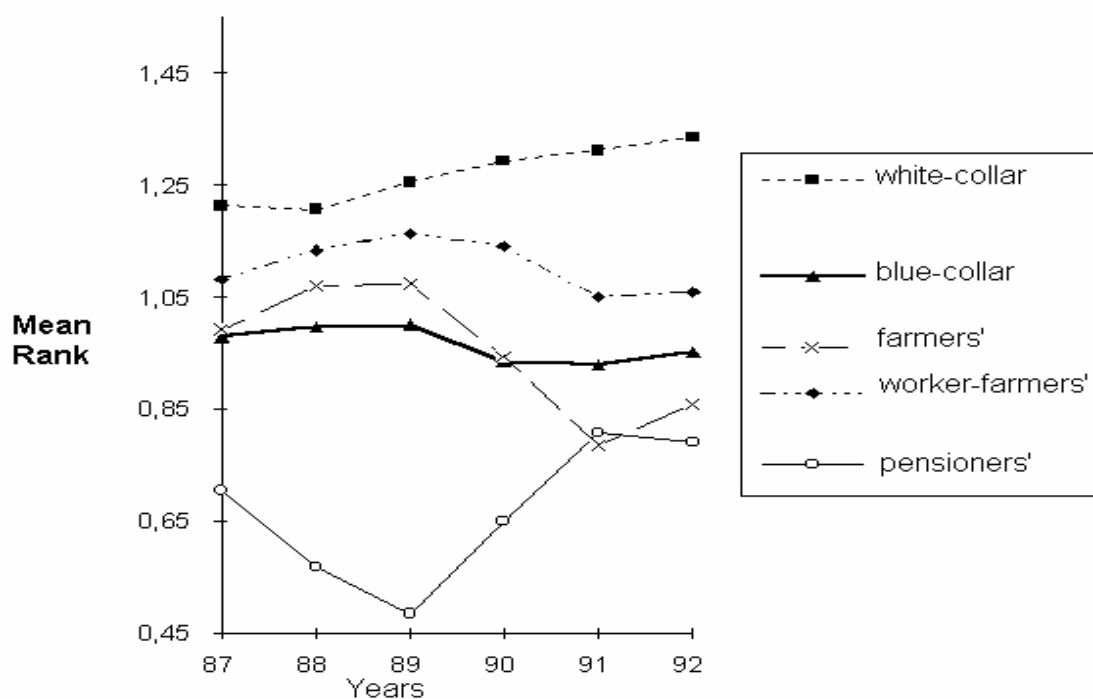
It is apparent that in all those cases a significant change occurred in relative positions of the households. The only exceptions were two households: the 5-person household and the household whose head (householder) is 26-35 years old. These results prove that the period of systemic transformation has caused changes in income distribution practically in every analysed cross-section.

As far as interpretations of the test results are concerned, in a situation where only the distribution in the first income group was changed, it can be assumed that the change of the average was caused by an increased mobility of the poorer section of a given subgroup (the average's direction is set by an absolute change in the contents of the 1st income group). For example, pensioners owe their advance to the poorest group getting richer and to the reduction of the group's representation by 8.4 percentage points. Another situation, where only the 10th income group is changed, suggests that in the given subgroup the wealthiest people were most active. This is best seen in the case of the households whose head has a higher education. Here, an increase occurred of the richest group by 12.2 percentage points. Another interesting situation can occur in a situation where both above described cases occur. Then the transformation is proven to have contributed to changes in positions of households in the whole subpopulation, which may have caused, in turn, major changes in the distribution as a whole. Such a situation actually occurred in the case of households with more than 6 members. That observed change suggests that a strong degradation took place of wealthy households which in some cases dropped even to the level of the poorest group. Such process may have been caused by the fact that most households with many children are located in the country, and those households lost as many as 19.85 percentage points in terms of their status between 1988 and 1992. Finally, the least clear case is that of a significant change in the mean rank and in the distribution, without a significant change in the

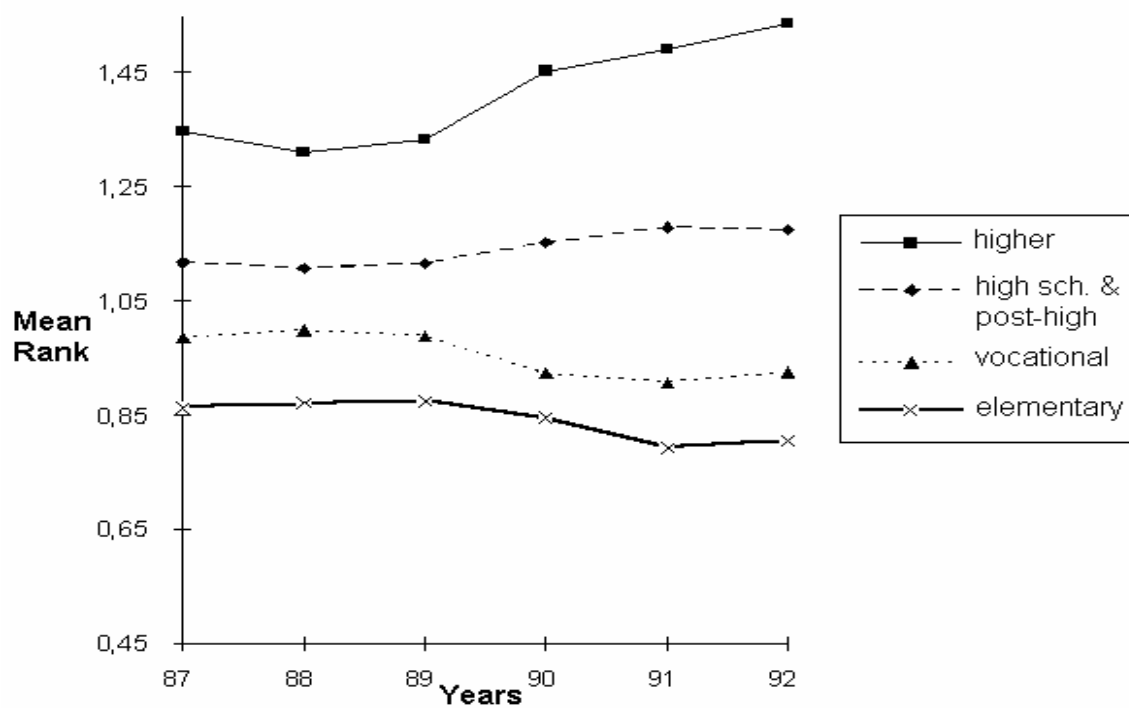
distribution of the first and the last income group. That situation may cause a change in the distribution to a multi-modal one or to a more concentrated one.

Another significant action, besides getting information about the occurrence of changes, seems to be the inspection of the changes in terms of how they actually occurred; precisely: their relative income position in each year and its change. Table 8 shows a measure revealing the relative positions of households or persons. That measure consists in a rank calculated on the basis of the income adjusted with Oxford equivalent scales. The ranks show income differences in a separate metric: big differences in incomes can be reduced to the minimum if the households adjoin each other and are located at the ends of the distribution. In central areas of the income scale small differences in the income level cause big changes in the relative position.

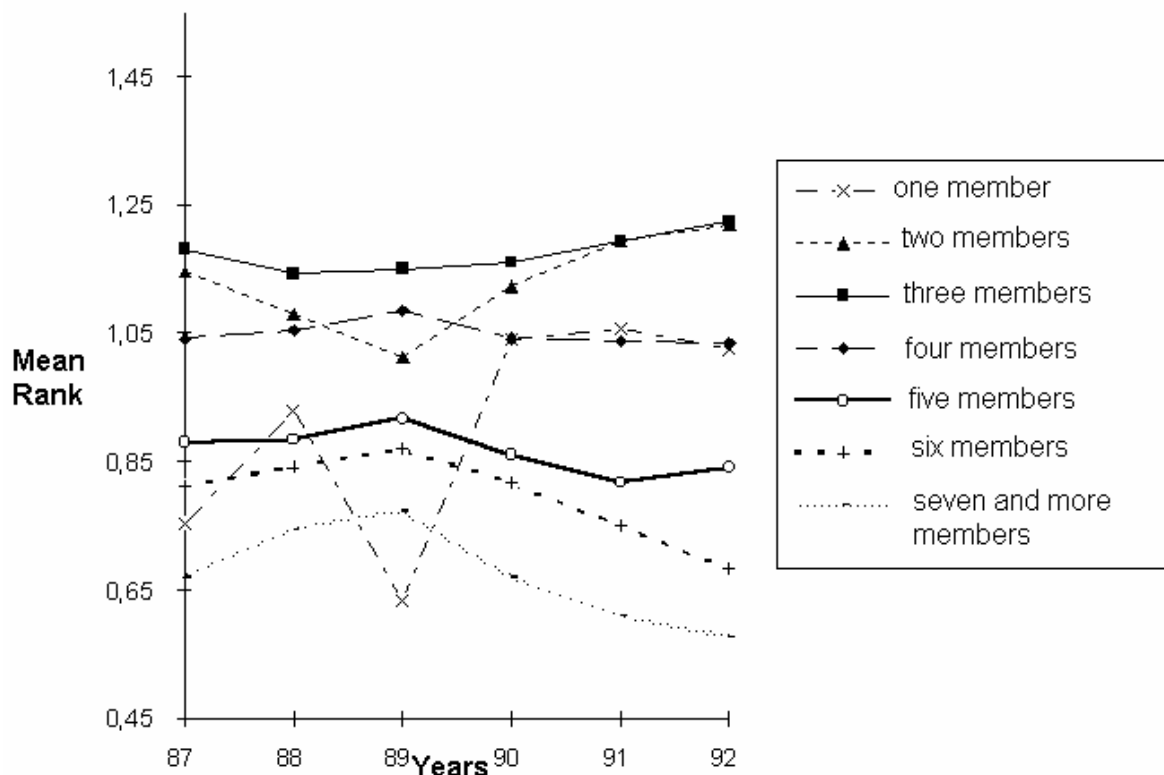
Graph 1. Mean Ranks According to Household's Type



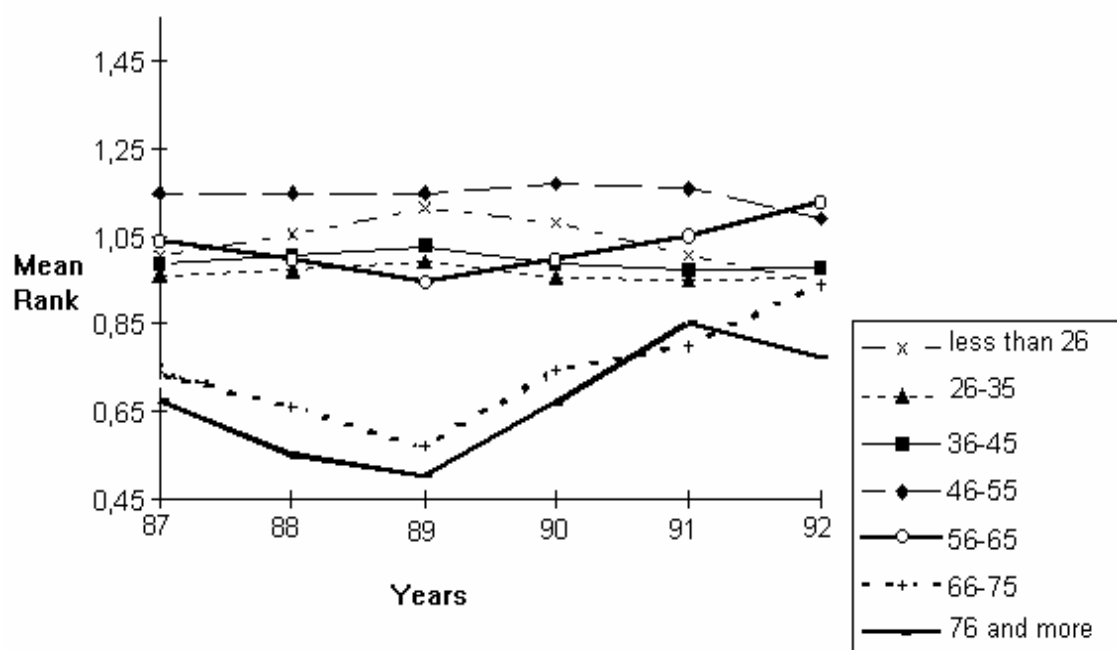
Graph 2. Mean Ranks According to Householder's Education Level



Graph 3. Mean Ranks According to the Number of Household Members



Graph 4. Mean Rank According to Householder's Age



A group's situation is illustrated by the mean rank (MR) divided by the mean rank of the given year for the whole population (conventional standardisation). This allows comparisons between the years, since the mean rank for the whole population equals one. The mean rank shows the average position of a given group in relation to the whole population or another subgroup. If the MR is bigger than the MR of the whole population, i.e. over 1, it means that the selected subgroup had incomes higher than average. It is obvious that the MR returns only the information about relative positions of the groups among themselves or in relation to the general trend, and not about the society getting poorer or richer. The results are shown on appropriate graphs.

Undoubtedly, the graphs confirm the result obtained earlier, namely that already before the period of transformation substantial changes in the relative income positions of households occurred. This time the progress of the changes in the years 1987-1992 can be observed on a yearly basis. The particular lines seem to confirm the assumption about a very high income mobility of the population, as suggested in Table 8. However, in that case the quantity of information that is being put out is much bigger than the quantity of information on the directions of those changes. It is clearly noticeable that in most cases the period: end of 1989 - beginning of 1990 was a very important and sometimes even key period for those regroupments.

There are three relatively characteristic types of changes. One of them is the change that consists in the reversal of the upward trend into a downward one. Such a situation occurs in the case of the households with 6 or more members. In this case, 1989 was a turning point, after which households' low income position got even worse. Another type of change is the one in which the mean rank reverses its trend from the downward to the upward one. A most vivid example is a situation of pensioners' households which considerably reduced their distance to all other households after 1989. It is also worth noticing that already after 1991 pensioners' households had a better position than farmers' households. That fact would tend to substantiate the conclusion concerning the relative strong degradation of farmers and relative advance of pensioners' households.

Table 9. Characteristic behaviour of mean ranks 1987-1992

Behaviour	Household Group
Rising until 1989 and dropping after 1989	Farmer-workers and farmers, 4 or more members, householder under 26 years of age
Dropping until 1989 and rising after 1989	Pensioners, 2 members, householder over 55 years of age
Stable or sustaining its trend in the period 1987-92	Workers, 3 members, householder between 26 and 55 years of age

In conclusion, an observation can be added that in some cases relative positions remain stable or worsen and the current trend is retained, as it occurred in the case of the households whose heads were between 26 and 55 years old. It can be further observed that the mean rank circulates around 1, meaning that those households are still in the centre of the income distribution scale. It is interesting that the generation that was undoubtedly a source and power behind the systemic changes in Poland after 1989 has not undergone any substantial changes in its income position in relation to other groups. The main reason behind that fact is certainly the large size of that group, which makes it representative of the average situation in Poland in the analysed period. All economic shocks caused by the 40%-decline in the GNP and the huge increase in unemployment must have affected that group in exactly the same proportion as global economic indicators did. At the same time, that would also prove that the transformations that took place after 1989 were characterised by a weak generational component. Of greater importance were, therefore, other features of households, like type of work and, especially, education.

A puzzling phenomenon seems to be the changes in the mean rank for 1-person households. Their behaviour is very turbulent and is undoubtedly related to the fact that most of the households are those of pensioners and peasants. Divergent trends that both those groups underwent seem to explain the reason for the lack of stabilisation suffered by the group of single-person households.

6. Income mobility - panel results

Until now the problem of income mobility has been analysed while observing the situation in a given group of households. Presently, the way the problem is looked at will be reversed. Using the cluster analysis, groups of households will be arranged according to types of mobility, and only then, in the second stage, the groups will be arranged according to the features of their households. Another characteristic feature of the analysed data is that they are based on the household panel 1987-1990. The short time span of the panel allows analysis of the situation only from before and just after the systemic transformation.

The employed method consists in selecting from the sample of households those subgroups whose selected features have similar values. In order to do that, the data are grouped along estimated centres (feature averages) on the basis of the shortest distance from those points to the centres (i.e., a household is affiliated with the subgroup to whose central point it is closest). Thus, a practically unlimited number of subgroups can be used, with the restriction, though, that they have to be interpreted properly, or at least, their averages must have small deviations.

The selected features that define the distances between households and the centre of the given group are income ranks, standardised for each year (as in the Part 5 of this paper). Each generated subgroup has specified average values of those ranks; the yearly structure of those values should differ considerably from other subgroups.

The result of the work is shown on Graph 5 and in the Table 10. A division into four subgroups has been selected since, especially in terms of interpretation, such a selection has numerous advantages. The division is quite clear. On the one hand, there are stable households which have retained their positions during the pre-transformation period and immediately after it. These are the wealthiest households (subgroup 1) whose positions are

Graph 5. Results of Cluster Analysis for Four Subgroups

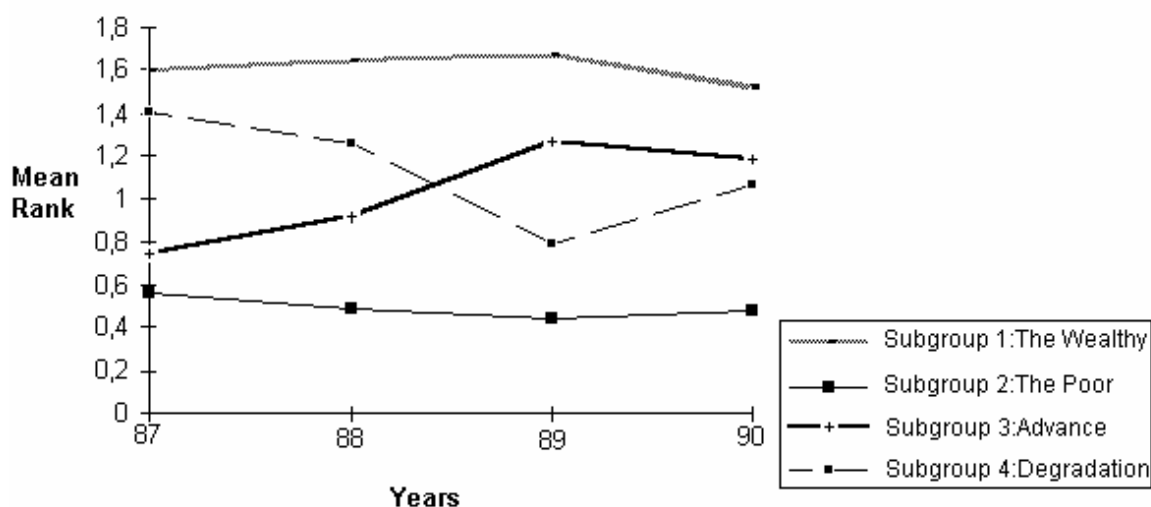


Table 10. Distributions of statistically significant subgroups according to the selected household features

Household Features	Subgroup 1 The Wealthy	Subgroup 2 The Poor	Subgroup 3 Advance	Subgroup 4 Degradation
Household Type				
white-collar	38.70%	21.10%	23.70%	16.50%
blue-collar	21.90%	35.60%	25.90%	16.60%
farmers'	28.50%	33.00%	22.60%	16.00%
worker-farmers'	30.20%	25.10%	27.30%	17.30%
pensioners'	6.70%	63.50%	16.20%	13.60%
Education				
higher education	47.40%	14.30%	19.20%	19.20%
high sch. & post-high sch.	33.30%	25.80%	24.70%	16.20%
vocational	21.70%	34.80%	26.30%	17.20%
elementary	19.50%	43.20%	22.80%	14.50%
Household Size				
1 member	12.40%	60.60%	14.90%	12.10%
2 members	28.70%	35.10%	13.50%	22.70%
3 members	36.30%	26.70%	19.60%	17.40%
4 members	26.30%	27.40%	27.70%	18.60%
5 members	17.80%	40.40%	29.60%	12.20%
6 members	17.20%	37.80%	31.50%	13.60%
7 and more members	14.70%	54.30%	23.50%	7.60%
Age				
less than 26 years old	24.30%	37.60%	23.40%	14.70%
26-35 years old	20.30%	37.20%	26.70%	15.90%
36-45 years old	25.60%	32.50%	29.20%	12.70%
46-55 years old	35.40%	23.00%	22.80%	18.70%
56-65 years old	25.10%	40.80%	12.60%	21.50%
66-75 years old	7.60%	61.30%	14.90%	16.10%
76 and older	3.20%	64.90%	20.30%	11.60%

Households on the Whole:	24.80%	35.10%	23.90%	16.20%
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Source: own calculations based on the individual data of household budgets from the 87-90 panel.

ca. 60% higher than the so-called average household (whose mean rank is 1); and the poorest households (subgroup 2) which remained ca. 40% below the average household. Another group consists of households that were very dynamic throughout the whole period, though 1989 brought a change in this trend, as well as of advancing households (subgroup 3) and households with increasing degradation (subgroup 4) that was clearly checked at the end of 1989 and at the beginning of 1990.

Table 10 presents data concerning the size of the above-mentioned subgroups and their distribution. As shown in this table, only 40% (23.9%+16.2%) of households are placed in the third or fourth subgroup. These are the households with noticeable mobility. The households that went over 40% were those of farmer-workers, with two members, whose head had a vocational education and was 26-45 years old. As a result, it transpires that ca. 60% of the households remained stable in the period 1987-90 and were not subject to any dramatic changes in the relative income position. Most stable were pensioners' households, with one member who was over 56 years old, and who had a higher or elementary education.

Simultaneously, subgroups qualified as "poor" (subgroup 2) can be selected. These are undoubtedly pensioners' households, workers' households with five, or seven or more members, where the householder's age is over 56, and his/her education is elementary. Next, there is a category of wealthy households (subgroup 1) that consists mainly of white-collar workers' households, and of the households whose heads have a higher education. The analysis of percentage participation of the given feature in a particular subgroup explains how households with certain features behaved most typically.

7. Poor households

One of the characteristic examples of income diversification is the state referred to as "poverty". This category shows the bottom of income distribution in a slightly different way than the previously analysed first quintile group. Instead of the statistical criterion that cuts off the number of analysed persons to 20% of the least wealthy members of the whole population, here an external criterion is introduced that determines the minimal desired standard of wealth of persons and families (the poverty line).

The research on poverty is hampered very strongly by the fact that the definition of the poverty line is arbitrary. In the recent Polish literature on the subject, many interpretations of the poverty line have been proposed (e.g., H. Góralska 1986, T. Panek 1992, M. Rudzikiewicz 1994, A. Szulc 1994, *Ubóstwo w Polsce [Poverty in Poland]* 1994). The measures that are statistical constructions compete with the concepts of a minimal basket of goods (e.g., the social minimum). The latter approach has gained the greatest popularity as more demonstrative and clearer. The social minimum as calculated by the Institute of Labour and Social Problems (Instytut Pracy i Spraw Socjalnych, IPiSS) has achieved a standard of

poverty criterion, used in statistical research by the Central Statistical Office (Główny Urząd Statystyczny, GUS).

Table 11. Characteristics of Poverty in the Years 1987 -1992

Specification	1987	1988	1989	1990	1991	1992
Average poverty line *	12,725	19,882	70,118	484,820	818,470	1,159,807
Poverty line in % of average income	57.2	49.2	45.8	64.4	63.5	67.1
% of the poor	14.26	6.86	8.67	27.02	22.66	32.49
% of poor households	10.53	5.74	7.96	18.57	15.58	20.10
Average income of the poor *	10,331	16,022	55,904	381,528	646,101	896,140
Average poverty gap *	1,663	2,740	10,245	72,789	121,193	182,487
Gap in % of ave. inc. of the poor	16.10	17.10	18.33	19.08	18.76	20.36
Gap in % of the poverty line	13.07	13.78	14.61	15.01	14.81	15.73
Gap in % of average income	7.48	6.78	6.69	9.66	9.41	10.55
Total gap in % of total income	1.07	0.47	0.58	2.61	2.13	3.43
Average size of a poor household	3.87	3.47	3.23	3.61	3.73	3.84
Average number of children in poor household	1.54	1.24	1.03	1.29	1.33	1.44
% of total children in poor households	18.57	8.78	9.78	29.55	26.18	33.67
Ave. age of head in a poor household	44.5	49.0	52.4	47.6	46.0	46.0
Average education level	1.71	1.65	1.61	1.74	1.70	1.69
% of persons in a given category in the poor group **						
white-collar worker	6.96	2.56	2.06	9.01	6.81	10.49
blue-collar worker	14.00	5.15	6.10	24.43	20.29	26.68
farmer	19.43	13.13	13.83	31.51	36.57	36.87
worker-farmer	8.51	3.98	3.97	13.91	14.20	16.01
pensioner	14.06	11.83	19.28	30.32	22.53	32.59
Big city	9.09	4.46	6.11	15.55	10.45	12.01
Small city	12.37	6.57	8.56	22.60	17.80	25.24
The country	15.12	7.79	8.92	24.64	25.25	32.14
Higher education	4.20	1.81	2.13	5.53	3.47	3.47
High school education	8.17	4.18	4.48	12.80	9.84	14.74
Vocational education	12.65	5.94	7.59	23.87	21.12	26.78
Elementary education	17.19	9.70	12.32	29.90	28.24	36.03
Age: 25 and younger	13.53	6.51	5.80	17.39	16.83	21.85
26-35 years old	14.87	6.37	7.32	24.26	20.90	28.21
36-45 years old	13.96	6.68	7.56	22.65	20.19	26.78
46-55 years old	8.54	5.59	5.91	14.88	13.41	22.55
56-65 years old	9.35	5.47	9.61	19.96	16.51	14.33
66-75 years old	13.00	9.22	15.75	24.91	18.61	19.05
76 and older	8.96	9.29	16.20	27.05	16.06	28.29

*) in z³oty, monthly, per equivalent unit (adult person)

**) percentage of poor persons among all the people in the households possessing a given feature

E.g., in 1987, 6.96% of all the members of white-collar workers' households were poor people.

Source: own calculations based on the individual data from household budgets of the relevant years.

IPiSS's social minimum has one basic flaw, in that it results in a very high fraction of people referred to as "poor". However, that property does not come in the way of analysing the level of prosperity in Poland; on the other hand, it is inconvenient when formulating social policy goals: in the country where 40% of the citizens are classified as poor, the social policy is often hindered when concentrated on helping the poor.

The goal of this paper has not been to propose a new definition of the poverty line. Therefore, an evaluation of the IPiSS's social minimum that has been standardised for the whole analysed period will be employed. The goal of the standardisation is making the basket of goods uniform for the whole period of 1987-92, as well as graduating the scale of the minimum with equivalent units.

Thus, the basis for the analysis presented below is an evaluation of the social minimum of a single-person worker's or pensioner's household, presented by the IPiSS for 1990 (zł³ 486,335 and 442,395 per month respectively). Those values have been deflated by the cost-of-living indicator (separately for each social-professional group of households) for the years before and after 1990. The poverty line for the given household is defined by the product of the real value of social minimum for one person multiplied by the number of household's equivalent units. The results of the analysis are presented in Table 11.

The poverty offers a perspective which shows in dramatic dimensions the systemic turn that took place in Poland. The percentage of poor people in the years 1988-89 did not exceed 9%, while in 1990 it increased up to 27% and, after a temporary slump in 1991 (down to 22.7%), it reached 32.5% in the last year of the analysed period. Many arguments can be given undermining the importance of the presented results. The most important of those is the discrepancy between incomes and the opportunity to spend it on the unbalanced market in the 1980s. It can also be pointed out that the poverty line occurs in the area of income distribution with very strong concentration of people: small shifts of the poverty line must, therefore, result in big changes in the number of poor people. This conclusion is substantiated by the fact that the average distance between the poor and the poverty line increased only slightly in the 1990s. The income measure of the poverty level does not depict, therefore, the dramatics of the situation that is painted by quantitative measures.

Despite those reservations, there can be no doubt that poverty has been recognised by the society as the main political and social problem of the transformation period.

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