

Working Paper No. 189

**Old-Age Security Reforms in Central-Eastern Europe:
The Cases of Czech Republic,
Slovak, Hungary and Poland**

**Mechthild Schrooten, Timothy M. Smeeding
and Gert G. Wagner**

October 1998

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by Mechthild Schrooten, Timothy M. Smeeding and Gert G. Wagner¹

1 What we want to know

Our basic question is whether elderly people (pensioners) are among the losers or the winners of the economic transition, in particular in the reforms of the pension systems in Central-Eastern Europe (CEE). The aim of this paper is descriptive. However the descriptive task is not an easy one because we must bring together in one picture two different sources of empirical evidence: On the one hand the national accounts (and official statistics which are underlying the national accounts) and on the other hand evidence by surveys (which are conducted not only by national statistical agencies but by scientific institutes as well) which do not necessarily tell the same story in a straightforward manner.

This paper is organized as follows. In section 2 we give a brief overview over the statistical sources. In section 3 we present facts and figures, and section 4 summarizes the results.

2 Data and Methods

2.1 National Accounts

The overall transformation process created a special transformation within the statistical sphere. Socialism had developed out its own accounting system which not only tended to overestimate economic activity, but also was not comparable with international standards. This historical fact required a "statistical transition". CEE's data had to be made comparable to international statistics, not only to facilitate the

¹We are grateful to the participants of the Symposium „Transformation of Social Security: Pensions in Central-Eastern Europe“ of the „Frankfurt Institute for Transformation Studies (FIT)“, March 27 and 28 1998, Berlin, in particular to Friedrich Breyer, Stanisława Golinowska, Katharina Mueller and Maciej Zukowski, as well as to Maria Lodahl (DIW), Chunling Lu (LIS) and Koen Vleminckx (LIS).

measurement of economic activities, but also to document the progress of the transformation process. This statistical "transition" was an important part of the overall transition and became a great challenge for the former socialist countries.

With the beginning of the transformation process both national and international statistical agencies started to re-compile data by applying international standards. The interaction between these national statistical units and international organizations in providing relevant macroeconomic data forced the adaptation of better statistical standards. Up to now, the story of statistical transition sounds widely successful: Ten years after the beginning of transformation the quality and quantity of data has improved greatly². Most national statistical bureaus in Central-Eastern Europe are providing monthly reports of economic activity. Consequently, national account data are the usual source in analyzing the transformation process in Central-Eastern Europe. However, some problems remain. First of all, statistics on national accounts are plagued by numerous inconsistencies, inaccuracies, and omissions. Additionally, official statistics cover only registered economic activities. When compiling national account data, the scope of informal activity is usually taken as constant. This treatment does not reflect the fact that in all CEE countries, the informal sector may have been growing in the first years of transition.³ Certainly it seems that actual national account data tend to widely underestimate overall economic activity and also - what is highly important for our topic - household income.

2.2 Surveys

Household surveys present an opportunity to take into account not only of single sources of income but the full distribution of household income by source and amount. Survey data is especially helpful for measuring labor income and other income for elderly people who do not rely entirely on social retirement payments. Survey data also measure the incomes of other members of a household containing elderly persons. Hence household income gives the opportunity to overcome the shortcomings of

²SNA Statistics were introduced in the CEE in 1993. See Bloem et al. (1996).

³Much of what was "illegal" activity under communism became legal under capitalism. However the ability of new CEE nations to monitor this activity was also very weak. The net result was that much of this "informal" economy, though now legal, was nonetheless missed by the SNA accounts.

"replacement ratios" which take into account retirement income relative to wages only. Relative income positions on the basis of survey data tell a much better story about the economic welfare of elderly people than "replacement ratios" which are estimated by means of the national accounts, and which do not vary by income level of the recipient. Survey data also allows us to take account of differences in the composition of private households measuring economic welfare. This provides a somewhat better result than the per-capita for benefit levels measured on the basis of the national accounts. We know there are economies of scale when the number of persons in a private household increases. This is due to fix-costs or quasi fixed costs (for example for a refrigerator, a bathroom etc.) that are found in households of all sizes. There is no doubt that there are basic economies of scale, but there is much discussion about the magnitude of these economies of scale in a quantitative matter. There are a lot of "equivalence scales" which try to make comparable different household sizes and different compositions of household members (besides household size we can also account for adults and children). There is no straightforward theoretical or empirical solution for the best equivalence scale. (Buhman, et. al. 1988) Thus we use a scale which is widely used and agreed upon by most international researchers. It is the so-called "OECD-scale" which was developed by social policy researchers at OECD. It counts the first adult as 1.0; all other adults at .66, and children as .33. There are no adjustments for age. Thus a single elderly adult (1.0) needs only 60 percent the income of a couple ($1.0 / 1.66 = .602$) to be as well off. Other similar equivalence scales produce similar results (Burkhauser, Smeeding and Merz, 1996)

We are lucky to have survey data for all the countries which are under consideration in this volume. It is the result of a serious attempt to make these surveys available for research (all over the world). The Luxembourg Income Study (LIS) has been harmonizing income surveys since 1985, and a major attempt of the last years was to bring in survey data from Central and Eastern Europe into the LIS data-base (LIS, 1998). The result is that we now have household income microdata from LIS for Czech Republic (1992); Hungary (1992, 1995); Poland (1986, 1990, 1992); and Russia (1992). We have also been able to combine these LIS data with earlier data from these nations to develop the trend estimates presented here (see also Torrey, Smeeding and Bailey, 1998, for additional analyses involving these nations.).

It should be noted that the LIS is able to reduce errors in comparing surveys, but cannot eliminate them. Thus these estimates, while the most accurate available, may also have some error. For instance, the informal economy is liable to not be captured by LIS as well as not captured by the SNA.

2.3 National Accounts and Household Surveys in Comparison

The advantages and disadvantages of national accounts and survey data are very different. National accounts (for Eastern Europe) are much more quickly available than survey-data but survey-data cover much more information about distributional dimensions. A special problem of national accounts in Eastern Europe is that the methodological adjustment took time; there was no statistical "shock-therapy". This "gradualism" in the adaptation of international standards caused deep statistical inconsistencies. Consequently, remarkable problems appear in calculating time series. In addition, definition problems offer the possibility to get varying numbers for describing the same phenomenon even using only official data. Beyond this, from the beginning of the transformation process on, there were great difficulties in calculating the dynamics of the informal economy.⁴ This creates some questioning that need to be asked. First of all, we want to know the processes behind those highly aggregated official figures. Second, is the real income situation of pensioners reported realistically by national account data? Third, national account data provide replacement ratios, which could be used to evaluate the current income position of pensioners. But if GDP and household income is more or less systematically underreported, what does this mean for the relative situation of pensioners?⁵ And last but not least, using the empirical background offered by the comparison of national and survey data, we can begin to reconsider the current pension system reform in CEE Countries.

Due to the problems of measuring total amounts by means of official SNA data, a basic disadvantage of survey data seems to be less important in Central and Eastern Europe than in the Western World. It is well known that due to under-reporting, surveys do not

⁴GDP, its components and growth rates had to be recalculated.

⁵Note that survey data may also be underreported as we mention below.

cover the full aggregates of the national accounts; this is especially true for capital income and income of the self-employed. Because it is most likely that those income components, and incomes from the informal economy as well, are under-covered by the national accounts, survey data might give a better picture than the national accounts in Middle and Eastern Europe than in Western nations.

3 Facts and Figures

3.1 National Account Data

The economic transformation in capital Europe caused a rethinking of the role of the state. Private and public responsibilities had to be redefined. Although the different countries solved this problem in quite varying ways, all CEE-nations suffered through some type of transformation crisis. Normally, the economic crisis, which led to a sharp break-down of production, would have caused a high degree of unemployment. But in order not to risk the social acceptance of the new market oriented framework, everything was done to avoid open unemployment.

In 1989 the "normal" retirement age in most of these countries was 55 for women and 60 for men. A very important measure against open unemployment was the extensive use of early retirement and disability retirement to take the unemployed out of the labor market. As a consequence, the effective retirement age was very low; disability was certified very liberally and the number of pensioners grew very rapidly (see Fox 1994). The biggest dynamic was found in Poland in 1991, where the number of new pensioners nearly doubled (Figures 1 and 2). In CEE economies with high unemployment rates - like Poland and Hungary - the number of pensioners grew radically. In contrast, in the Czech Republic where unemployment remained low, the number of pensioners remained nearly stable (Figure 4). This bolsters the hypothesis of a close link between unemployment, labor market disturbances and the growth of the number of pensioners in transition countries, especially during the first years of transformation. This activity in Hungary and Poland resulted in a rapidly rising system dependency ratio⁶, while the old age dependency ratio remained largely stable (see

⁶System dependency ratio (SDR) is the number of pensioners, divided by the number of contributors to the pension scheme.

table 1).⁷ So, comparably "young" societies as in Poland as well as comparably "old" societies as in Hungary were confronted with a relatively high number of pensioners (for demographic structure see figure 7).

⁷ Old age dependency (OAR) ratio is the number of over 60 year old people, divided by the number of 20-59 year old ones.

Population, Employed and Pensioners 1989-1996

1) 60+ years old as a percentage of 20-59 years old. - 2) Pensioners as a percentage of contributors/employed.
Sources: National Statistics; own calculations.

Table 2

Replacement Rates 1989 - 1996

	1989	1990	1991	1992	1993	1994	1995	1996
Poland	53,3	65,0	76,1	72,5	72,8	74,8	74,5	72,5
Slovak	58,4	59,7	65,1	64,0	57,0	54,8	54,0	54,0
Czech Republic	63,8	65,2	70,4	67,7	60,5	57,2	56,6	56,0
Hungary	63,3	63,8	64,0	60,8	57,4	54,8	57,9	56,7
Sources: National Statistics; own calculations.								

Under socialism not only the phenomenon of unemployment but also private insurance against different life-risks as health and old-age was unknown. To make early retirement more attractive political decision makers raised the pensions in nearly all of the analyzed CEE-Countries, and often indexed them to prices where were increasing) not wages (which were falling). For example in Poland net old age pensions which amounted to only 53.3% of net wages in 1989, had risen to 72.5% in 1996. That means that the relative income situation of pensioners now was much better than under socialism. In brief: national account data give the impression that pensioners, especially in Poland, benefited greatly, especially in the first years of transformation.

High system dependency ratios and high replacement rates (see table 2) created high public expenditures for pensions not only in Poland but also in Hungary. (table 3) Due to the increasing number of beneficiaries, the decreasing number of contributors and high replacement rates, the notorious financial crisis of the public pension system was created. While the current pension crisis in CEE is mainly transformation-induced and in many cases not linked to population aging, projections of demographic trends show that in a few years these countries would be additionally confronted with the "aging-problem" which plagues most western nations (e.g. OECD, 1996) The old age dependency ratio is expected to increase while further increases in life expectancy will make the problem even worse. (see figure 8).

Table 3

Total Pension Expenditures in percent of GDP

	1989	1990	1991	1992	1993	1994	1995	1996
Poland	6,6	8,1	12,6	14,6	14,6	15,4	14,6	14,5
Slovak	7,4	8,1	8,1	8,4	8,9	8,6	8,3	8,3
Czech Rep.	8,3	8,0	8,9	8,1	8,4	8,5	9,1	9,0
Hungary	9,1	9,7	10,5	10,6	11,1	11,5	10,6	9,9
Sources: Główny urząd statystyczny: Rocznik statystyczny 1990, 1995 and 1996; Központi statisztikai hivatal: Magyar statisztikai évkönyv 1993, 1994, 1995 and 1996; Český statistický úřad: Statistická ročenka 1993, 1994, 1995 and 1996; Štatistický úrad Slovenskej republiky: Štatistická ročenka 1993, 1994, 1995 and 1996; DIW.								

Table 4

Poland: Social Security Funds in percent of GDP

	1989	1990	1991	1992	1993	1994	1995	1996
Social Security Fund (FUS):								
Revenues	8,0	9,9	13,8	16,1	16,0	16,2	14,7	14,5
of which: Contributions	6,9	8,4	11,1	11,8	11,8	12,3	12,6	12,7
Budget	1,1	1,5	2,7	4,3	4,2	3,9	2,1	1,8
Expenditures	8,6	9,1	14,2	15,8	15,8	16,1	14,4	14,2
of which: Pensions	5,8	6,9	10,9	12,8	12,7	13,2	12,4	12,3
Others	2,8	2,2	3,3	3,0	3,1	2,9	2,0	1,9
Farmers Pension Funds (KRUS):								
Revenues	1,0	1,4	1,9	2,0	2,1	2,4	2,3	2,2
of which: Contributions	0,1	0,2	0,2	0,0	0,1	0,2	0,2	0,1
Budget	0,9	1,3	1,7	2,0	2,0	2,2	2,1	2,0
Expenditures	0,9	1,3	1,9	2,0	2,1	2,4	2,3	2,2
of which: Pensions	0,8	1,2	1,7	1,8	1,9	2,2	2,2	2,1
Sources: Polish Ministry of Finance. Own calculations.								

Table 5

Hungary: Pension Fund
in percent of GDP

	1993	1994	1995	1996
Revenues	9,2	8,8	9,0	8,2
Expenditures	9,4	9,4	9,3	8,6
Balance	-0,2	-0,6	-0,3	-0,4
Sources: Központi statisztikai hivatal: Magyar statisztikai évkönyv 1993 - 1996; National Bank of Hungary, Monthly Report Nr. 2, 1997, p. 29; DIW.				

Table 6

Czech Republic: Social Security Fund¹⁾
in percent of GDP

	1993	1994	1995	1996
Revenues	12,0	12,6	12,8	12,4
of which: Contributions to the Pension Fund	9,1	9,8	10,0	9,5
Expenditures	10,0	10,4	10,9	10,8
of which: Pension Expenditures	8,4	8,5	9,1	9,0
Balance	2,0	2,2	1,9	1,6
Pensions	0,5	1,1	0,7	0,3
1) Social Security Fund = Pension-, Health- and Employment Funds. Sources: Český statistický úřad: Statistická ročenka České republiky, 1993 - 1995; Pohledy (Praha) Nr. 4/1997; DIW.				

Table 7

Slovak: Social Security Fund¹⁾
in percent of GDP

	1993	1994	1995	1996
Revenue	.	10,1	10,7	10,3
of which: Contributions to the Pension Funds	.	9,0	8,6	9,1
Expenditure ¹⁾	.	9,5	9,4	9,3
of which: Pension Expenditures	8,8	8,6	8,3	8,3
Balance	.	0,6	1,3	1,0
Pensions	.	0,3	0,3	0,9
1) Pension-, Health- and Employment Funds. Sources: Štatistický úrad Slovenskej republiky: Štatistická ročenka, 1993 - 1995; OECD Economic Surveys, The Slovak Republic 1995 - 1996, p. 39; Trend (Bratislava) Nr. 21/1997; DIW.				

In the last few years various changes in parameters such as indexation and recalculation of the pension formula caused pension expenditures relative to GDP remained nearly stable or just fell (see tables 4 to 7). In the Czech republic the public pension system went into a small surplus, leading to a reduction in the contribution rate. But since then, the public pension system is running a deficit. Anticipating the future payment problems in all those countries, pension reform seemed to be unavoidable for policymakers. In Hungary and Poland, the reform of the pay-as-you-go system followed the same pattern and the implementation of a multipillar system was enacted. Still, it seems challenging for the future of the pension system to ensure high replacement rates comparable to those exhibited here.

3.2 Survey Results

In order to understand the amount of inequality in the middle and central-eastern European countries which are under consideration here, we start with a display of inequality measures for a wide variety of western and non-western countries. The measure of inequality is the well-known Gini coefficient. We also estimate Quintile-Shares and relative Median-Incomes for different groups in later tables.

Table 8 presents Ginis for a variety of OECD and transition-countries. The results for the OECD countries are for the middle of the eighties and the very beginning of the nineties. Within the OECD countries Finland has the lowest amount of inequality (a Gini coefficient of about 0.22, East Germany which is a quasi-transformation country is an outlier) and the United States have the highest degree of inequality (Gini is about 0.34). West-Germany, for example, is in between with a Gini coefficient of about 0.24. Compared to this range of inequality in OECD countries the range of inequality in Transition-Countries is much larger. Whereas the Czech Republic and the Slovak Republic have Gini coefficients which are smaller than the coefficient for Finland, Russia has a much higher degree of inequality than in any other nation and this inequality is in fact increasing over time (from 0.44 in 1992 to 0.48 in 1995). Hungary and Poland are in between, but the amount of inequality in those Transition-Countries is larger than in West-Germany; Gini coefficients of about 0.30 to .31 in these nations are as high as in Canada, France, Spain, Australia and the United Kingdom. Those coefficients are slightly smaller than for the United States. Note also that inequality is increasing in Hungary and Poland, just as it is in almost all other nations studied here (Gottschalk and Smeeding, 1998).

Table 9 displays the distribution of all persons (ranked by percentage of median income) for Czechoslovakia (and respectively the Czech Republic), Hungary and Poland. For these countries the comparison before and after transition is possible. For Hungary and Poland we have estimates for 1995, whereas for the Czech Republic the last estimates are for 1992. Another interesting phenomenon are the middle classes in these nations. The fraction of persons living between 75 and 150 percent of the median is falling in all nations studied here. In all nations, the fraction of the population

above 150 percent (to 200 percent) and above 200 percent of the median is rising rapidly. And in all nations, the fraction of poor and near poor (income less than 75 percent median) is either constant or rising slightly. This information corroborates the findings in table 8 above.

Table 10 displays the ratio of group median equivalent income for different types of households, especially for households with head under age of 60 and with head age 60 and more. The results confirm the numbers of the national accounts. On average the households of elderly people are doing better under transition than before. In particular, the last row of the table indicates that the elderly persons (and all types of elderly households in the rows above) are becoming better off relative to the median household (or persons) in each country (which remains in each year and country at 100). In the Czech Republic, elders are 13 percent better off; in Hungary 14 percent,

Table 8

Measures of Inequality in OECD Countries and in Transition Economies		
Country	Year	Gini
<i>A. OECD countries</i>		
Germany (East)	1995	.207
Finland	1991	.223
Sweden	1992	.229
Belgium	1992	.230
Norway	1991	.233
Germany (West)	1995	.241
Netherlands	1991	.254
Italy	1991	.255
Denmark	1987	.257
Canada	1991	.286
France	1984	.296
Spain	1990	.308
Australia	1989	.301
United Kingdom	1986	.304
United States	1991	.343
<i>B. Transition Countries</i>		
Czech Republic	1992	.189
Slovak Republic	1992	.208
Hungary	1991	.289
	1995	.299
Poland	1992	.291
	1995	.318
Russia	1992	.437
	1995	.478
Gini = Gini coefficient for equivalent disposable income (EI) where $EI = DPI/S^E$. S=family size, E=.5 person weighted		
Sources: Luxembourg Income Study (LIS); German Socio-Economic Panel Study (GSOEP).		

Table 9
Distribution of All Persons into Brackets Defined by Percentage of Median Income
(in percents)

From ...to in Median Income		0 to 50 (1)	50 to 75 (2)	0 to 75 (3=1+2)	75 to 100 (4)	100 to 125 (5)	125 to 150 (6)	75 to 150 (7=4+5+6)	150 to 200 (8)	200 and more (9)	All (10)
Czechoslovakia 1980, 1988, 1991 ^a and Czech Republic 1988, 1992											
All Persons, Equivalent Income											
Czechoslovakia	1980	5.4	13.4	18.8	31.1	31.1	13.0	75.2	5.4	0.6	100
	1988	3.5	14.3	17.8	32.2	31.2	13.1	76.5	5.2	0.5	100
	1991	5.7	17.5	23.2	29.9	17.3	10.3	57.5	9.7	9.6	100
Czech Republic	1988	3.1	13.3	16.4	29.9	31.9	14.8	76.6	6.3	0.7	100
	1992	6.9	9.5	16.4	17.7	19.3	17.9	54.9	19.1	9.7	100
Hungary 1987, 1992, 1995 ^b											
All Persons, Equivalent Income											
	1987	3.6	18.4	22.0	28.0	20.3	11.3	59.6	10.9	7.5	100
	1992	7.8	19.8	27.6	22.4	19.1	51.2	52.7	11.0	8.6	100
	1995	9.6	18.0	27.6	22.4	19.2	10.2	51.8	9.5	11.1	100
Poland 1987, 1990, 1992											
All Persons, Equivalent Income											
	1987	4.3	20.2	24.5	25.5	21.8	13.9	61.2	11.2	3.1	100
	1990	5.9	20.2	26.1	23.9	19.8	13.4	57.1	11.6	5.2	100
	1992	6.3	19.0	25.3	24.7	20.2	13.4	58.3	11.3	5.2	100
	1995	11.9	16.9	28.8	21.2	17.7	12.1	51.0	11.5	8.7	100

^a Uses 1.00, .66, .33 equivalence scale and person weights.

^b The Czechoslovakia 1991 and Hungary 1987 surveys differ from the 1980, 1988 Czechoslovakian and 1992 Hungarian surveys. Thus, trends should be interpreted with caution

Source: Luxembourg Income Study (LIS)

Table 10

Ratio of Group Median Equivalent Income to National Income

Household Type	Czech Republic			Hungary				Poland				
	Income Ratio ^a		Change in Ratio x 100	Income Ratio ^a		Change in Ratio x 100		Income Ratio ^a		Change in Ratio x 100		
	1988	1992		1988-1992	1987			1992	1994			1987-1994
Households with Head under Age 60												
One person household	1.05	0.98	-7	1.08	0.95	1.15	+7	0.96	0.95	1.17	1.11	+15
Couples without children	1.22	1.13	-9	1.18	1.21	1.14	-4	1.22	1.15	1.32	1.13	-9
Couples with children	1.01	1.03	+2	1.06	1.12	1.04	-2	0.99	0.96	1.01	.94	-5
One parent families	0.86	0.88	+2	*	1.01	1.02	+1	0.77	0.80	0.85	.93	+16
Other households with children	1.08	1.03	-5	0.98	1.00	.92	-6	na	na	0.92	0.85	0
Other households without children	1.16	1.12	-4	1.08	0.91	1.00	-8	1.17	1.16	1.10	0.97	-20
Households with Head over Age 60												
One person household	0.58	0.75	+17	0.72	0.60	0.85	+13	0.72 ^b	0.72 ^b	0.88 ^b	0.96	+24
Two person household	0.80	0.87	+7	na	0.75	1.03	+14	^b	^b	0.93	1.07	+14
Individuals												
Children under 18 ^c	0.98	1.01	+3	1.00	1.01	1.00	0	0.98 ^c	0.99 ^c	0.94	0.91	-7
Elderly over 60	0.72	0.85	+13	0.81	0.85	0.95	+14	0.77	0.75	0.94	1.04	+37

^a Ratio of median equivalent income of group to national median equivalent income.

^b Poland estimates in 1986 and 1990 are for person households with head aged 60 or over.

^c Children were defined as aged 16 and under in Poland in 1987 and 1990; otherwise they are under age 18.

Source: Luxembourg Income Study

and in Poland 37 percent better off than prior to the transformation. In Hungary, the aged now have adjusted incomes that put them at 95 percent of the median household. In Poland, they are now at 104 percent of the median. We can contrast these changes for the old with those for children where in the Czech Republic children gained less than the elderly (+3 vs +13 percent), in Hungary where children stayed the same while the aged rose by 14 percent (0 vs +14), and especially in Poland where children lost 7 percent and are now in households with incomes only 91 percent of the median, compared to 104 percent for the aged. In all countries, the elderly gained more in relative income terms than did other groups of the population over this period.

4 Conclusion

It is somewhat hazardous to present an overall conclusion when dealing with these disparate data. But what can be said is that the income situation of pensioners is improved during the first years of the transition. Actual data from the national account statistics show that this relative improvement came to end, when the public pension system run into notorious deficit. The financial vulnerability of the pay-as-you-go pension scheme was caused by policy induced high and rapidly growing system dependency ratios and high replacement rates. The microdata from surveys show that pensioners continue to improve relative to other groups. The most likely reason for this discrepancy is an undercount of labor force participation of „retirees“ in transitional economies. A lot of older people who have low pension income only is still gainfully employed in „marginal jobs“. Thus non-state incomes increase the welfare position of elderly people. National accounts do undercount labor force participation of non-standard jobs and especially in the shadow economy which is a traditional domain of pensioners in CEE's economies.

Now, pension system reforms are under discussion in most of the CEE countries. Often the solution of the financial problem is seen in the implementation of a multi-pillar pension system, with a high degree of private insurance. However beyond the background of the performance of financial markets in CEEs countries, it will be a

big challenge to make the newly funded pension schemes more effective for future pensioners. Hopefully they will measure the performance of the new schemes by comparing replacement rates before and after pension reforms using not only aggregate data, but also household income survey microdata as well.

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Figure 1

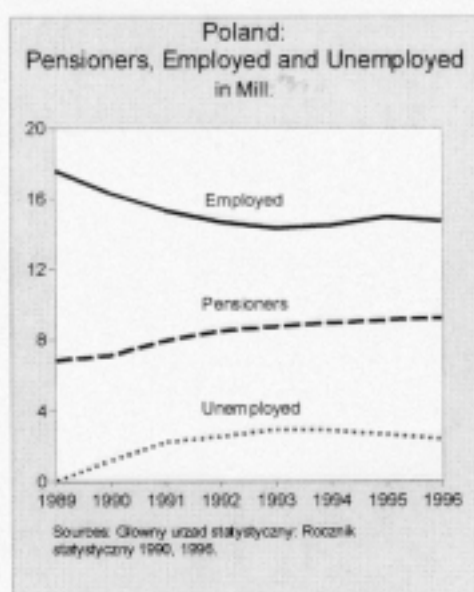


Figure 2

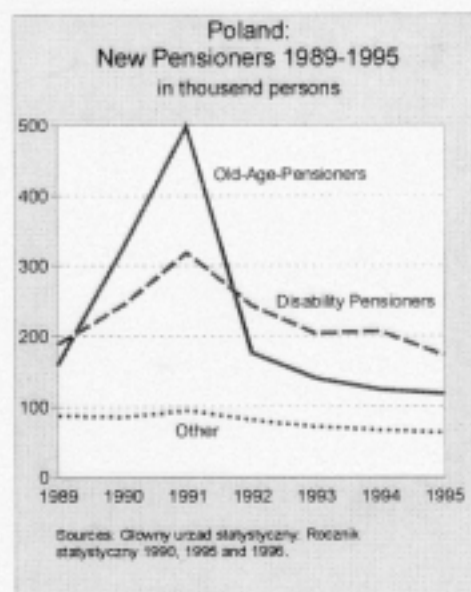


Figure 3

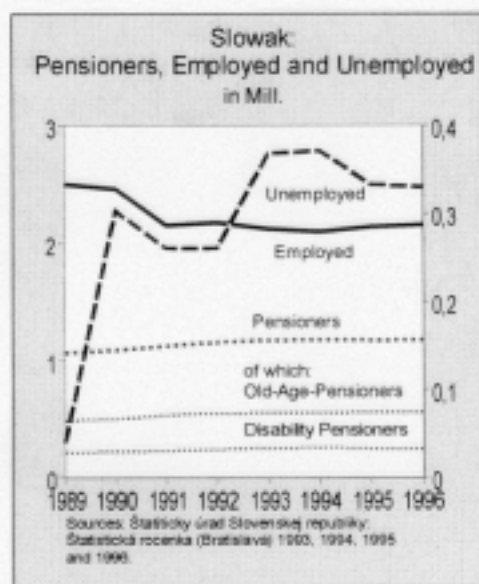


Figure 4

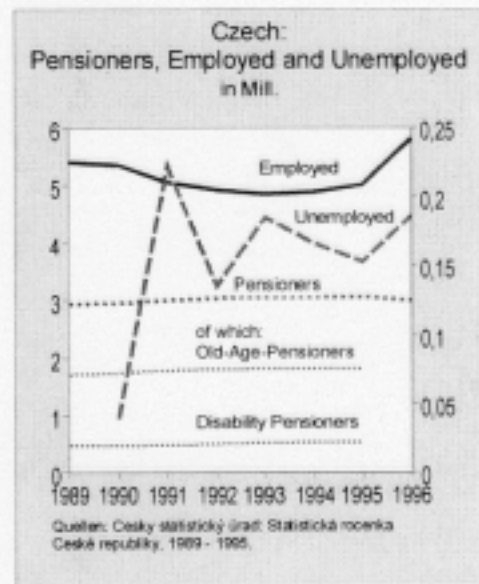


Figure 5

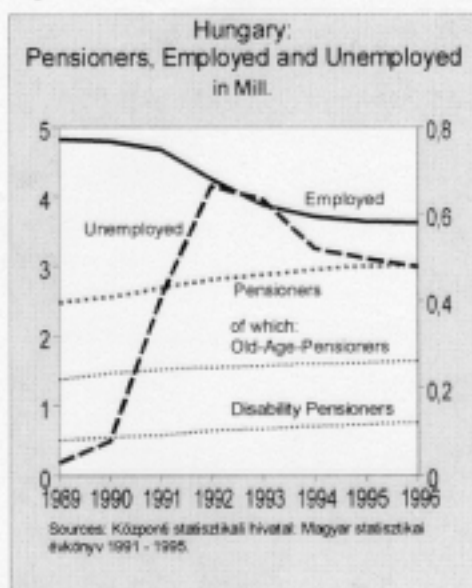


Figure 6

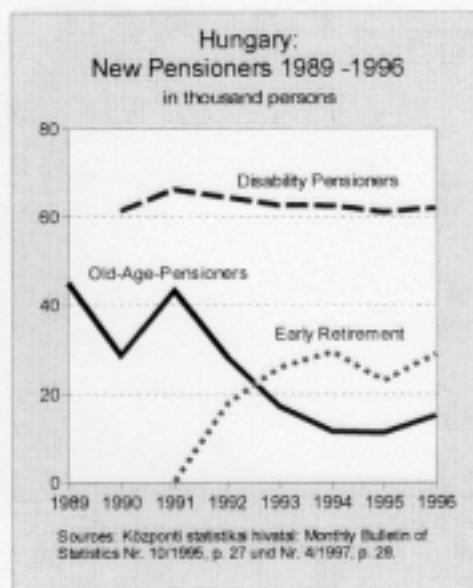


Figure 7

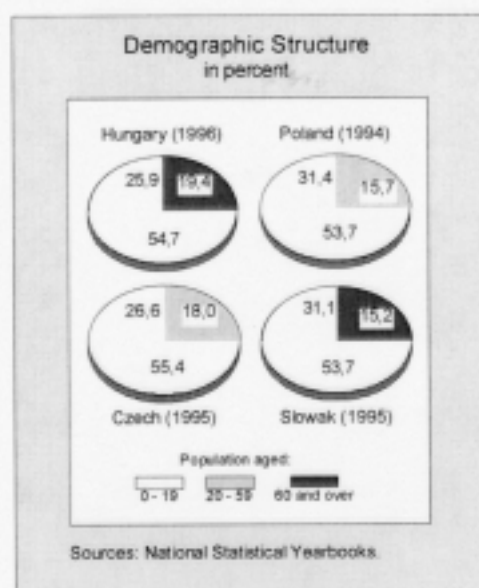


Figure 8

