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Incomes and Poverty of the Greek Elderly

by

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DISCUSSION PAPERS

Incomes and Poverty of the Greek Elderly

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CONTENTS

		Page
1.	Introduction	15
2.	Scope and Method of the Analysis	16
3.	The Distribution of Income in Households with Aged	
	Headss	20
4.	The Adequacy of Income of the Aged	30
5.	Conclusions	43
REFI	ERENCES	45

¥.

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LIST OF TABLES

Page

Table	1:	Income of Aged Households and Total popula-	
		tion	21
Table	2:	Income Inequality Indices pf Elderly by Sex,	
		Age and Region	24
Table	3:	Monthey Income for Aged Income Recipients,	
		1982	29
Table	4:	Summary of Poverty Indices	33
Table	5:	Profile of Aged Poverty	36
Table	6:	Percentage Distribution of Household Income	
		by Source	40

ABSTRACT

The distribution and level of income of the elderly in Greece and its adequacy to support their standard of living are examined for 1974 and 1982, using primary household data the National from the Family Expenditure Surveys of Statistical Service of Greece. It emerges that the standard of living attainable by the Greek elderly differs widely within the group and is influenced by their place of residence, their propensity to continue to work, the social transfers to them as well as by their age, sex, education and family structure. Between 1974-1982 income inequalities and poverty among the aged decreased drastically, while the social security benefits for aged (pensions) became more important sources of income individuals.

1. INTRODUCTION

The economic status of the elderly population has come to center of policy debate in Greece, as in many other the European countries, during the last decade. Between 1950 and 1980. **a** S Greece was one of the most rapidly developing world (annual growth rate of GDP economies of the 5.3 was thought that economic position of the percent), it aged sufficiently improving. The prolonged economic slowdown, was which prevails in the 1980s (annual growth rate of GDP 1.8 1980-1989), and percent in theassociated deterioration in conditions macroeconomic (average annual public sector borrowing requirement 14.1 percent of GDP) have caused a detailed scrutiny of the economic position of the elderly and of its supporting framework. However, the data utilized in this controversy are taken from the National Accounts or from records of various social security organizations and no systematic study has undertaken to analyze aspects of income its distribution of the aged and adeguacy to sustain a socially acceptable standard of living.

This paper provides a profile of the distribution and of ageing in Greece, examines its adequacy in level of income supporting their standard of living and traces the changes of these variables between 1974 and 1982, employing the primary of two Family Expenditure Surveys carried out by the data National Statistical Service of Greece. The scope and limitations of the paper, the features of the used data and employed inequality measures are presented in the the next section. The results of the analysis regarding income presented in Section distribution are 3, while Section 4 assesses and analyses poverty among the elderly. Finally some conclusions are presented in Section 5.

2. SCOPE AND METHOD OF THE ANALYSIS

The analysis of the economic situation of the aged population in Greece is restricted by the lack of statistical The only official data available are those derived from data. two country-wide Family Expenditure Surveys (FES) undertaken by the National Statistical Service in 1974 and 1982. These data provide information on various aspects of the economic and social status of the elderly. Their main advantage, which is made use of in this paper, is that income and consumption aged are correlated to many demographic, family of the and socioeconomic features. On the other hand, these data sets are subject to considerable limitations. They are derived from sample surveys and reported income is probably underestimated, due, either to ignorance about exact income, or reluctance by some people to disclose their income fully. However, as is seen below, the FES data exhibit the, more or less, expected regularities.

The purpose of this paper is to document the financial the elderly, because this constitutes status of a verv important factor in the determination of the overall level of living. While both income and total expenditure of the aged could be considered as measures of their economic position of equal importance, the analysis in this paper is carried out mainly in terms of income. This choice has been made because income seems to be a better measure of the individual budget constraint and its potential buying power, while tota1 expenditure rather reflects individual's preferences between consumption and savings and usually does not include capital transfers (Atkinson 1973, p. 31).

In analyzing the relative economic position of the aged, we concentrate mainly on the family as micro-unit, since this appears to be the smallest consuming unit, within which unknown transfers of income take place. However, in some cases, where it has been considered appropriate, the analysis is done in terms of individuals rather than households. Furthermore, as there are wide disparities of income among the aged and between them and the rest of the population, a special attempt is made to examine income differences or within the various sub-groups of the elderly and between the latter and the entire population.

The original income reported in the FES is the personal from all sources i.e. earnings, rents, money income investment, social pensions and other transfers. It pertains the time-period prior to the interview for which income to figures were available. However, this concept of money a complete measure of economic status. In order income is not to make it more accurate in measuring purchasing power we have the imputed rent of owner-occupied housing, as is added to it given by the primary data. Money income has also been adjusted as to neutralize the changes in the general price level 50 (inflation), since the FES was conducted during a 12 monthrespondents were period and asked for their money income during the previous period. This variable of the economic status does not, however, take into account the accumulated wealth of the aged, which could also finance extra spending. Moreover. the income variable used does not include consumption of own production and income in kind, which are the not evenly distributed among various socio-economic results groups. Hence, the reported should be taken cautiously. Finally, 173 households out of 6035 in the 1982 FES (118 out of 7424 in 1974) were excluded from the analysis because no income was reported.

In this study as elderly are considered those of 60 years older. The age of 60 has been chosen since many age or of retire at this age, or even earlier. As our analysis is people carried out at the household level, the sample refers to those households whose head is at least 60 years old. In this way the 50% of the entire elderly. we capture about However, of elderly heads of households are married since 35.2% and many of the spouses can also be presumed to be elderly, the sample actually covers at least 80% of the elderly. Those not covered are aged members of households with heads less than 60 years old.

In examining the economic position of the aged a host of statistical measures and income distributions may be employed. Many such distributions would be sufficient to depict the income differences derived from cross-section data. Here, however, we are interested in examining the changes in income distribution of the elderly between 1974 and 1982, i.e. at two points of time during which Greece has experienced a high rate of inflation. Thus, to some extent, the observed absolute income differences of the elderly are due to increases in the general price level and do not reflect changes in their real purchasing power. Hence, in order to make the income distributions of these years comparable, rather than presenting the usual income frequencies, the share of each population decile (starting from the bottom) in the corresponding total income has been calculated. ln other words, points of the well known Lorenz curve are shown.

some of the most widely In addition. used overall measures of income inequality have also been estimated, i.e. deviation, coefficient standard of variation, standard deviation of logarithms and the Gini coefficient. The standard defined as the squared root of the deviation, variance, increases when any transfer of income from a poorer person to a richer takes place. This is an attractive property for an inequality measure (Pigou-Dalton condition). However, as it depends upon the mean income level, one distribution might greater dispersion than another and display show a lower standard deviation, if the corresponding mean income level is smaller than that of the other distribution. The coefficient of variation, which is simply the standard deviation divided mean income, does not have this deficiency is by the and independent of the mean income level. However, as Atkinson p.255) notes, coefficient of variation attaches equal (1970, weights to transfers of income at different income levels. The standard deviation of logarithms of incomes may be appropriate if one is interested in the percentage differences in income rather than absolute differences. Furthermore, standard deviation of logarithms attaches greater importance to income at the lower end of the distribution. transfers The above three mentioned measures of income inequality are based on the difference of each income level from the mean, and do not take differences between into account income every pair of incomes. These differences are captured by the well known Gini coefficient. The Gini coefficient can be presented in terms

of the Lorenz curve, whereby the percentages of the population arranged from the poorest to richest are represented on the horizontal axis and the percentages of income enjoyed by the corresponding percentages of population are shown on the If everyone receives the income, the Lorenz vertical axis. curve coincides with the egalitarian line (the diagonal), but in the absence of perfect equality the cumulative income groups will enjoy a proportionately lower share of income, so curve lies below the egalitarian line. The the Lorenz Gini ratio of the area between the Lorenz curve coefficient is the the area of the triangle below and the diagonal to the diagonal, and is exactly one-half of the arithmetic mean of the absolute values of dirrerences between all pairs of (Sen 1973, p.31). The Gini coefficient satisfies the incomes Pigou-Dalton condition, but fails to be more sensitive for transfers in the lower income brackets. However, it is perhaps overall measure of inequality the best single and is for international and inter particularly useful temporal comparisons.

3. THE DISTRIBUTION OF INCOME IN HOUSEHOLDS WITH AGED HEADS

The above presented statistical measures of income inequality and the shares of population deciles in total income have been calculated for various distributions. Our calculations are based on the individual primary data, so that income differences are not masked because of data grouping. In this respect our estimates have achieved the greatest possible degree of accuracy.

The fist two columns of Table 1 pertain to households the head of which is at least 60 years old and, starting from the bottom, it shows for each population decile its share in the total households income. From these data it can been seen that in 1982 the botton tenth of households with aged heads 1.73% of the total accounts for income of the population studied. Similarly, the second population decile accounts for the total income, while the upper decile accounts for 2.85% of 31.06% of the total income. It is clear, therefore, that the higher the income level the fewer the households enjoying such income. In other words, the income distribution of this population group, like other similar distributions, displays positive skewness.

From the second column of Table 1, which shows the cumulative frequency of income, the percentages of income accruing to various population deciles can be seen. For example, the lower half of households with elderly heads receives 19.76% of the total income. These figures suggest that inequality in income distribution is particularly marked among the households with an aged head. At the botton of thetable, some overall income inequality measures are given. The coefficient of variation is 0.949 and the Gini coefficient 0.442. The values of these measures indicate that income inequality is particularly pronounced among aged households.

1982					1974				
	Aged	Households	Total Po	opulation	Aged H	useholds	Total Pop	ulation	
Decile of Hshlds	es % of s Income	Cumulative Frequency of Income	e % of Income	Cumulative Frequency of Income	% of Income	Cumulative Frequency of Income	e % Cum of Fr Income of	equency Income	
1	1.73	1.73	2.00	2.00	1.06	1.06	1.47	1.47	
2	2.85	4.58	3.76	5.76	2.25	3.31	3.18	4.65	
3	3.87	8.45	5.34	11.10	3.30	6.61	4.61	9.26	
4	5.00	13.45	6.75	17.85	4.45	11.06	5.88	15.14	
5	6.31	19.76	8.04	25.89	5.65	16.71	7.18	22.32	
6	7.98	27.74	9.31	35.20	7.32	24.03	8.50	30.82	
7	10.20	37.94	10.81	46.01	9.59	33.62	10.13	40.95	
8	13.29	51.23	12.73	58.74	12.61	46.23	12.47	53.42	
9	17.71	68.94	15.71	74.45	17.60	63.83	15.47	69.39	
10	31.06	100.00	25.55	100.00	36.17	100.00	30.61	100.00	
N of H	Hshlds	1,687		5,862		2,210		7,306	
Mean i	income	36,551		49,082		9,271		11,319	
S.D.		34,698		37,398		11,206		11.272	
с.v.		0.949		0.762		1.206		0.996	
S.D.(1	logs)	0.918		0.718		0.990		0.845	
Gini c	coef.	0.442		0.353		0.500		0.415	

TABLE 1 Income of Aged Households and Total Population

Source: Tables of this paper are compiled from the primary individual data of 1974 and 1982 Family Expenditure Surveys.

It is interesting to compare the income distribution of the aged group to that of the total population. Columns three and four of table 2 give a similar analysis as that of columns one and two but pertains to the whole population. Comparing the two column sets, it appears that, while the average monthly income of households with aged heads is 36,551 drachmas, for the entire population the corresponding level is 49.082 drachmas. In other words, households headed by individuals at least 60 years old receive 74,5% of the mean of the total population, which implies income that the economic position of the aging is, on the average, worse than that of younger age groups. The same conclusion is reached if individual rather than household data are considered. The average individual income of the aged income receivers is 59% of that of a11 income earners. Thus, in our analysis the economic position of the aged is somewhat inflated by the income of the other economic active members of their households.

Comparing the aged with the total population, it can seen that the inequality among households with aged heads is very This much greater than that of the total population. is clearly observed either in the relative income distribution, or in the corresponding overall income inequality measures. It is sufficient to mention that the coefficient of variation whole population is 0.762, while that for for the the of the households with aged heads 0.949. The values Gini coefficient are 0.353 and 0.442 respectively.

The lower average income of elderly household heads their lower and reflects, among other things, decreasing productivity due to the obsolescence of their accumulated human capital, their crowding in low-productivity industries (e.g. agriculture) and, for those who have retired, their relatively low pensions. The greater income inequality among the retired aged persons is presumably related to the considerable inequities which exist regarding the levels and the eligibility requirements for retirement pensions. In Greece there are, on the one hand pension plans where the level of pensions exceeds significantly pre-retirement earnings, and on the other insurance organizations offering

pensions equivalent to only a very low percentage of preretirement earnings. Furthermore, the property income enjoying by the elderly displays considerable dispersion as it accrues to the most fortunate.

analysis however, of limited value The up to now is, only, since the aggregate data concerning the aged seriously the reality of their economic situation. distort From these it is apparent that the elderly are a heterogeneous data group, and international research has indicated that from many aspects they are frequently more heterogeneous than the population (Crystal and Shea 1990 p. 241). Thus, the general concerning households with an aged head have also been data disaggregated and analyzed by sex and age of the head, and by degree of urbanization.

When households with aged heads are analyzed by sex it is (from the summary indices of Table 2) that there seen are great differences between the two gender groups. The average income of households with a male head is 110% of the average income of all households with aged heads. In the case of households with a female head the corresponding percentage is Furthermore, 69.6%. comparing the mean income of the it deciles (not reported here) successive is seen that with woman head consistently households aged earn as lower income. This relatively inferior economic remarkably position of households with female heads reflects, among other the lower labour force participation of things, women, and their relatively lower pensions as survivors. An interesting feature of Table 3 is that income inequality is greater among households with female head than among those with male heads. greater heterogeneity of the economic status of women The appears to be correlated to this difference. The figures in this table illustrate the wide differentials existing among various subgroups of the aged population and emphasize the significance of disaggregating data used to examine the economic status of old people.

The next three columns of Table 2 show the overall income distribution indices of the households with aged heads by age sub-groups. Such an analysis seems appropriate since the needs of people who differ in age by as much as fifteen or twenty

			1	982				
	Males	Females	60-64	65-74	75+	Urban	Semiurb	Rural
of Hshlds	1,273	414	423	844	420	910	154	623
ean income	40161	25451	45205	37177	26577	45016	31198	25510
. D .	34948	31457	34348	37509	25484	38903	28980	24718
ν.	0.870	1.236	0.760	1.009	0.959	0.864	0.929	0.969
D.(logs)	0.805	0.835	0.765	0.841	0.811	0.864	0.929	0.969
ni coef.	0.423	0.461	0.387	0.448	0.444	0.405	0.448	0.441
			1	974				
of Hshlds	1732	478	771	1050	389	1132	226	852
ean income	10322	5462	11363	8527	7129	12224	8059	5668
D.	11926	6849	12638	10109	10342	13631	8819	5788
v.	1.155	1.272	1.112	1.186	1.451	1.115	1.094	1.021
D.(logs)	0.931	1.001	0.886	0.977	1.061	0.897	0.922	0.944
ni coef.	0.481	0.516	0.462	0.498	0.551	0.469	0.464	0.477

TABLE 2Income Inequality Indices of Elderly by Sex, Age and Region

years may be quite different. For example, the very old tend to have expenditure patterns that are significantly different from people who have just retired. Furthermore, the customary standard of living for the very old usually varies from that of the less old. If one wants to evaluate the adequacy of the people perhaps it is helpful to take into income for aged account the fact that the very old themselves may have lower living-standards than other persons who retire many years later (Schulz 1973, p.15). Retirement in Greece does not take place at a specific age. On the contrary, many people, especially women, retire before the age of 60, even before the age of 50. Thus, it appears necessary to look at age subgroups, because as age advances more people become retired and number of the households where there are the no economic active workers increases.

From Table 2 it is clear that the older the household head the greater the probability for the household to have a Furthermore the income differences relatively lower income. elderly appear wider among the very old compared to among the the relatively younger. For the age group 60-64 no great difference is observed between their economic position and that of the whole population. In contrast, for next age groups i.e. 65-74 and the so called "fourth age", 75 and over, it that their incomes are much lower. These income can be seen differences presumably are related to low labour force participation of the elderly, to the fact that the very old. have been retired for a long time, receive who relatively lower pensions, because their earnings were typically lower and pensions calculated on this basis are consequently lower. Furthermore, some very old pensioners do not receive a pension newly established supplement from theor extended supplementary pension plans.

data sets also allow us to look at income differences Our aged by degree of urbanization. The last three columns of the show income distribution indices of the aged in of Table 2 urban, semiurban and rural areas. With the reservation that consumption of own production and income in kind, mainly received by rural households, are not included in the definition of income used, these figures show important

average income differences of the elderly by region. The average income of the aged in semiurban areas is 69.3% of the income of the urban elderly, while the aged in rural areas, who for the most part are small scale farmers, receive only 56.7% of that income.

Another dimension of the economic situation of the aged is its evolution through time. The right hand side of Table 1 presents the income distribution for households with aged heads as derived from the 1974 Family Expenditure Survey. Comparing the two sides of Table 1 it can be seen that the relative economic position of households with aged heads has somewhat deteriorated in comparison to the younger age groups during the period 1974-82. The mean household income of the aged decreased from 82.0% of the average of all ages in 1974 to 74.4% in 1982. Movement in this direction is also observed if individual incomes are examined. In particular, in 1974 the average income of the aged income receivers was 61.6% of all incomes receivers, while in 1982 it decreased to 58.8%.

In contrast income inequality among households with aged heads has decreased remarkably during the same period. The Gini coefficient for example fell from 0.500 to 0.442. Indeed, all the estimated measures and distributions show movement towards the reduction of income inequality between 1974 and 1982. It is worth mentioning that reduction in income dispersion during this period is also observed for the whole population.

The reduction in income inequality during this period has been well documented (see Athanassiou 1991, p. 97; Voloudakis and Panourgias 1984, p. 95). It has been related to the generous minimum wage policy implemented since 1974, to the remarkable increases in the price of agricultural products, aiming to approach levels in the European Communities, to the slowdown of economic growth during the period and finally to the increase of state transfers as proportion of public expenditure (see KEPE 1990a Ch. 3). In regard to the relative decline of the average income of the households headed by the aged it seems to be related to demographic changes. Between 1974 and 1982 the average number of retired persons belonging to households with aged heads increased, while the average

number of the economically active decreased. Such changes were not observed for the middle-aged groups. As a result of these changes, which imply a trend towards the nuclear family, a statistical worsening of the relative economic position of the aged appears, which is not necessarily real.

changes between 1974 The examination of theand 1982 (first and second panel of Table 2) makes clear that the relative economic position of households with female heads has somewhat improved over the period. The ratio of female-male income increased from 53.0% to 63.4%. average household This improvement seems to be related to the equalization of the wage rate of both sexes within the 1974-82 period (see minimum KEPE 1990a, Table 3.7).

It is also worth mentioning that the relatively poor of elderly farmers has somewhat improved between 1974 position and 1982 (compare their average income to the other subgroups in Table 2). While in 1974 the average income of the urban aged was above the general average (108%), in 1982 it was lower (91.7%). This was influenced by the faster than general growth of prices of agricultural products during the period under study. While the GDP deflator during the period 1974-82 increased by 5.5 times in the case of agricultural it was 7.31 (MNE). The differences in the average product income between urban and rural income are clearly due to the great differences in pensions of farmers on the one hand and the urban sector on the other. It should be borne pension in mind that farmers' pensions have been considered as in complementary to their income, to the extent that even in old age farmers can reap some income from their farms. This is not usually the case for urban workers, who, when retired, lose their income and have to rely exclusively on their pension. In addition the successful entrepreneurs and the self-employed accumulate wealth and real estate and are frequently concentrated in urban areas. As a partial explanation of the lower rural income, the relatively low educational level of and the declining trend of the whole agricultural farmers sector are evoked (Kanellopoulos 1984, p. 59).

Our analysis of the economic status of the aged has been mainly in terms of households. This seems appropriate since

empirical evidence indicates considerable income pooling within households. However, some old people, especially old women, apparently live with their children and so benefit from children's income and avoid falling under the poverty line. The fact that some old people live with their children is possibly a consequence of their relatively poor economic position. The average monthly income of aged income recipients only 59% of that of all income recipients in the total is population. The corresponding percentage is 74.4% if we compare household groups instead of individual earners. Thus, the relative economic position of the aged, on an individual basis, appears worse that if we confine our analysis to the household level. Related to this are also the greater income differences among individual aged income recipients as shown in Table 3.

TTA TIT TI	2
TUDDD	-

Monthly Income for Aged Income Recipients, 1982

 	و الحالي الحالة حوى الحالة عليه حوالة حوالة حمله والله الحالة الحالة الحالة الحالة الحالة الحالة الحالة	والمحاف المرواد محمل موالة شامو والالة منزور المحور ومرور المائة المائة المائلة مناك المحق والت		
Deciles	Average	Percentage	Cumulative	
of Income	Income	of	Frequency of	
Recipients	(Drachmas)	Income	Income	
 1	2,378	1.38	1.38	
2	3,470	2.13	3.51	
3	5,597	3.43	6.94	
4	6,242	3.74	10.68	
5	7,949	4.72	15.40	
6	11,145	6.66	22.06	
7	15,205	9.12	31.18	
8	20,839	12.50	43.68	
9	31,040	18.62	62.30	
10	63,206	37.78	100.00	
Number of Ag	ed Income Recip:	ients	2,787	
Mean Income		16,688		
Standard Dev		20,898		
Coefficient		1.252		
Standard Dev	iation of Logs		0.973	
Gini Coeffic	ient		0.519	
 ay dati yayi tilik gan tila yak tiya taki taya taki yaya tila	و محمد البليد منها البليد بالبليد عليه والله عنية اللهم محمد البلية البليد محمد ال	من المراجع ا	and tage with data lifts and lifts the tigs the tage time and the	

4. THE ADEQUACY OF INCOME OF THE AGED

In this section of the paper an attempt is made to relate income of the aged to their needs, and to assess whether or it is adequate to support a socially acceptable standard not of living. In other words we try to identify the families with an aged head which have a relatively low income or, as has been done by other researchers, to locate and count the poor Such an attempt requires the specification of what is aged. by low income or in other words the definition of the meant well known poverty line.

a poverty line, can be Low income, or defined in a since such definitions involve social variety of ways, and economic value judgments. In some countries poverty is defined in terms of a low income standard, which is in current official use. In Greece, no official poverty line has yet been adopted. We have therefore to follow one of the two main approaches usually proposed in the literature for the definition of the poverty standard. That is, either to define in terms of some absolute standard consistent poverty with mere physical existence, or to consider poverty in terms of some relative standard connected to general living conditions.

The procedure adopted below, like previous studies on Greece and the European Economic Community, poverty in (see Kanellopoulos 1986, Ch. 1), is the relative approach to the definition of poverty. More specifically, we define as the poverty line, half of the average per capita income. Beckerman 6) follows the same definition but, because of lack (1979, p. of income data, he relies on consumption data. However, since differences in the size and composition of households imply different levels of income necessary to support a particular standard of living, per adult equivalent income has to be calculated for each household. Accepting that there are economies of scale in household expenditures we assume, as do researchers (for other a theoretical survey see Deaton and that 1980), additional Muellbauer on average, household members require an extra 70 percent of the income of the head of the household. However, the choice of a 50 percent line and of a 70% percent adjustment are relatively arbitrary and small

changes in these percentages could lead to major changes in the number of households, persons and groups estimated to the poor. Moreover, in interpreting the following results it should be kept in mind that this is a relative definition of poverty. As mentioned above, however, these percentages have been adopted in many similar studies.

Using the above chosen poverty line, (π) , the next step to decide how to measure the extent of poverty. The is approach has been to measure the proportion of traditional aged households below the poverty line, which has also been referred to as the incidence of poverty, (q/n). However, this "headcount" measure does not show how far on average these households fall below the line. For this purpose, the alternative measure of the "poverty gap" has been suggested, the former index ignores the $(\pi - v)$. Whilst amounts by which the incomes of the poor aged fall short of the poverty line, the latter index does not give an indication of the number actually in poverty. Furthermore, both these measures are from the poor to insensitive to transfers of income the very poor. Another measure of poverty has been developed by Sen which takes into account all three of these concerns in [1976] composite index, (P). Based on two main axioms regarding the а income-weighing scheme and the normalization procedure, Sen derives the following poverty index:

$$q 1$$

 $P = - - [(\pi - v) \cdot (1 - Gp)]$,
 $n \pi$

were Gp is the Gini coefficient of income distribution among the poor. The index P lies between 0 and 1. It assumes value 0 when everyone's income is above the poverty line (i.e. when q=0) and the value 1 when everyone has zero income (i.e. when v=0 and q=n).

The issue has been taken further by many writers who express the poverty gap as a percentage of various income variables or propose alternative income-weighing schemes. If, however, the weights attached to each person's income gap are unity, then all these Sen type poverty indexes result in an expression of the poverty gap as a fraction of various income aggregates. This is apparent in the above definition of Sen's poor have the same income (i.e. When all index. Gp=0) then P=(q/n)(p-v)/q, which shows the poverty gap as a fraction of income needed to the total support everyone at the poverty line. Anand (1977) modified this measure and has expressed the poverty gap either as a fraction of the total income of society (i.e. $M=(q/n)(q-v)/\mu$) or as a fraction of the income of the non poor (i.e. $F=q(p-v)/(n\mu-qv)$). Note, however, that M and F simply show the difficulty to alleviate poverty and can not be considered as poverty indices, since they decline when the incomes of the non-poor rise (violation of the focus axiom).

In this paper, besides the commonly used poverty indices, have estimated the above presented Sen type indices, where we each person's income gap assumes, on the one hand unity weights, and on the other hand rank-order weights. The former estimations are made because the Sen measure of poverty in the unit weights case has much more straightforward a interpretation than in the rank-order weighing case.

Table 4 shows the main statistics and indices of poverty for the whole population and for the households with aged heads, as derived from the 1982 and 1974 FES data. In 1982 the percentage of the population in poverty (head count ratio) was calculated as 20.7% and the average income shortfall from the adopted poverty line (poverty gap) as 2,985 drachmas per The poverty gap as a percentage of the month. total income needed to have everyone's income equal to the poverty level is given by P=0.0618, which implies 6.18% of that income. The M=0.0309, which means that the poverty gap in Greece is equal 3.09% of the total personal income of our sample. If to poverty were to be eradicated by transfers from the non poor to the poor, the former would have to give up 3.33% of their personal income as the value of F indicates.

On the basis of the criteria we have defined these numbers and percentages show the extent of poverty in Greece in 1982. These indices have also been computed separately for our sample group of the aged. From these data it can be seen that not only is the average income gap larger (3,315 drs per month) for the households with heads 60 years or older, but

Indices	Types	1982		1974		
	Symbols	Total Populat	Aged H/holds	Total Populat	Aged H/holds	
Size of Population	n n	5,862	1,687	7,306	2,210	
Poor Households	q	1,213	546	2,025	815	
Average Income of Population	μ	19,980	18,546	4,469	4,180	
Average Income of Poor	v	7,005	6,675	1,430	1,335	
Poverty Line	π=μ/2	9,990	9,990	2,235	2,235	
Head-Count Ratio	H=q/n	0.207	0.324	0.277	0.369	
Average Income Gap	n-v	2,985	3,315	804	899	
Unity weights on income gaps of the poor $q \pi - v$ Sen's index $P = 0.0618 0.1074 0.0998 0.1484$						
Anand's index M= - n	π-v 	0.0309	0.0578	0.0499	0.0793	
Fishlow's index $F = -\frac{q}{n_{\mu}}$	(π-v) μ-qv	0.0333	0.0655	0.0548	0.0899	
Rank-order weights on income	gaps of t	he poor				
Sen's index $P = \frac{q \ 1}{n \ \pi}$	-v(1-Gp)]	0.0856	0.1443	0.1378	0.1986	
Anand's index $M = [\pi - n \mu]$	-v(1-Gp)]	0.0428	0.0778	0.0689	0.1062	
Fishlow's index $F = n\mu-qv$	[π-ν(1-Gp)] 0.0461	0.0880	0.0756	0.1204	

TABLE 4									
Summary	of	Poverty	Indices						

also the incidence of poverty is 32.73% among the aged population, i.e. much higher than in the total population. Thus, it appears that in Greece poverty is more acute among the aged than among the total population, even though in some other countries like Ireland, Australia, Sweden the opposite holds (OECD 1988, p.45).

The relatively greater economic deprivation of the aged is shown in Table 4 by the greater values of all estimated indices of poverty for their group. For example, while for the whole population the poverty gap equals 3.09% of the total personal income, in the case of aged it stands at 5.78%. The greater values of poverty indices under the rank order weighing, as compared to those under the unity weighing, show the magnitude of the correction arising from the inequality in incomes among the poor (i.e. Gp>0).

the last two columns of Table 4 the In same set of and poverty indices has been estimated for 1974. statistics Comparing the two sets of indices the main observation is that between 1974 and 1982 there has been a remarkable reduction in extent of poverty, independently of the index used, even the though the value of the adopted poverty line has increased according to the general rise of incomes. For the whole population the incidence of poverty decreased from 27.72% in 1974 to 20.69% in 1982. Moreover, the average poverty gap as percentage of the defined poverty line came down from 36% to 30%. A considerable reduction in the extent and the acuteness of aged poverty, like in other countries (OECD 1988, p. 47), apparent during the same is also period. These changes presumably are related to the previously documented reduction in income inequality between 1974 and 1982, as this study adheres the relative concept of poverty and adopts at both points of time the same definition of the poverty line.

It should be noted that the above estimated indices do necessarily show the same ordering in the not extent of poverty among various groups. That is, where the simple headcount ratio appears lower for a group, other indicators show that its poverty gap is larger and income is more unequally distributed. Furthermore, the Sen poverty index does not show the contribution of a particular group to overall

poverty. For the purpose of formulating an antipoverty policy essential, however, to know the extent to which a it is particular group accounts for overall poverty. Hence, the dimensions of the measurement of poverty among the several aged must be examined. This is done in Table 5, which gives a profile of aged poverty for 1982 (and in parentheses for 1974) identifying the poor in terms of socioeconomic variables such age, marital status and employment as place of residence, sex, and educational status of the head, household facilities, etc.

(1) and (2) in Table 5 show simply the percentage Columns total distribution of population and aged households respectively among the values of each variable studied. From these columns it can be seen that households with aged heads are concentrated relatively more in rural areas, smaller households and their heads have comparatively lower educational attainment. Moreover, from column (2) the trend of aged towards earlier retirement, lower labour force households and urban residence is participation, smaller apparent. Column (3) presents the percentage distribution of poor households among the values of each written variable, i.e., the crowding of poverty. In column (4) the incidence of the groups with a relatively higher poverty indicating probability of being in poverty is shown. These two aspects aged poverty are significant for the formulation of of any antipoverty policy.

From this table it appears that poverty among households with aged heads is a somewhat rural phenomenon, with 64.1% of such households living in rural areas. Rural aged households, which constitute in 1982 36.9% of all elderly households, are over-represented among poor households by a coefficient of 1.74. Almost six out of ten (56.2%) rural aged households are while the incidence of poverty among the urban poor, aged 14.6%, households is only and among the semi-urban aged households 40.9%. Related to this is the fact that the incidence of poverty is considerably above the average of 32.4% in Epiros and Thessaly, where it is 48.5% and 39.8% respectively.

Similarly, a relatively higher incidence and concentration of poverty is observed among the groups with lower

T	ABI	E	5	
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Profile of Aged Poverty

	Percentage	Age	d	Populatio	n
Characteristics	Distribution	Percentage Distribution	Percentage Distribution	Incidence	Relative
of	of all	of Aged	among Poor	of Povertv	Incidence
Households	Households	Households	Households		Poverty
	(1)	(2)	(3)	(4)	(5)=(3):(2)
A. SEX OF HEAD					
1. Male	85.6 (85.8)	75.5 (78.4)	73.4 (73.5)	31.5 (34.6)	0.97 (0.94)
2. Female	14.4 (14.2)	24.5 (21.6)	26.6 (26.5)	35.0 (45.2)	1.09 (1.23)
Total	100.0(100.0)	100.0(100.0)	100.0(100.0)	32.4 (36.9)	1.00 (1.00)
B. MARITAL STATUS OF HEAD					
I. Married	82.4 (83.3)	70.6 (73.7)	69.0 (70.1)	31.7 (35.0)	0.98 (0.95)
2. Single	5.9 (6.2)	3.0 (3.5)	2.9 (3.4)	32.0 (36.4)	0.97 (0.97)
3. Widowed	10.2 (9.4)	25.3 (22.2)	27.3 (26.0)	34.9 (43.3)	1.08 (1.17)
4. Divorced	1.5 (1.1)	1.1 (0.6)	0.8 (0.5)	21.1 (30.8)	0.73 (0.83)
Total	100.0(100.0)	100.0(100.0)	100.0(100.0)	32.4 (36.9)	1.00 (1.00)
C. LOCATION					
1. Urban	61.4 (50.1)	53.9 (40.8)	24.4 (25.7)	14.6 (26.6)	0.45 (0.63)
2. Semi-urban	9.7 (12.7)	9.2 (12.4)	11.5 (11.7)	40.9 (39.8)	1.25 (0.94)
3. Rural	28.9 (37.2)	36.9 (46.8)	64.1 (62.6)	56.2 (56.7)	1.74 (1.34)
Total	100.0(100.0)	100.0(100.0)	100.0(100.0)	32.4 (42.3)	1.00 (1.00)
D. EDUCATION OF HEAD					
1. Tertiary Education	9.5 (7.7)	6.1 (5.5)	0.0 (0.1)	0.0 (0.8)	0.00 (0.02)
2. Secondary Education	17.7 (13.0)	11.7 (9.0)	2.9 (1.6)	8.1 (6.6)	0.25 (0.18)
3. Elementary Education	51.6 (51.8)	45.4 (41.6)	43.8 (35.2)	31.2 (31.2)	0.96 (0.85)
4. Some Primary School	21.2 (27.5)	36.8 (43.9)	53.3 (63.1)	46.9 (53.0)	1.45 (1.44)
Total	100.0(100.0)	100.0(100.0)	100.0(100.0)	32.4 (36.9)	1.00 (1.00)
E. AGE OF HEAD					
1. 60-64	7.2 (10.6)	25.1 (34.9)	17.6 (27.0)	22.7 (28.5)	0.70 (0.77)
2. 65-74	14.4 (14.4)	50.0 (47.5)	48.2 (50.4)	31.2 (39.1)	0.96 (1.06)
3. 74 +	7.2 (5.3)	24.9 (17.6)	34.2 (22.6)	44.5 (47.3)	1.37 (1.28)
Total	28.8 (30.3)	100.0(100.0)	100.0(100.0)	32.4 (36.9)	1.00 (1.00)

	(1)	(2)	(3)	(4)	(5)=(3):(2)
F. EMPLOYMENT STATUS OF HEAD					
1. Employed	69.0 (73.7)	25.5 (39.3)	20.9 (7.6)	26.6 (4.9)	0.82 (0.19)
2. Unemployed	1.2 (1.1)	0.2 (0.1)	- (0.2)	- (33.3)	- (2.00)
3. Housewife	6.1 (6.8)	11.0 (11.0)	8.6 (16.8)	25.4 (38.9)	0.78 (1.53)
4. Retired	20.5 (16.3)	60.6 (47.7)	66.6 (71.4)	35.6 (38.4)	1.10 (1.50)
5. Other Cases	3.2 (2.1)	2.7 (1.9)	3.9 (4.0)	45.7 (59.0)	1.44 (2.28)
Total	100.0(100.0)	100.0(100.0)	100.0(100.0)	32.4 (25.7)	1.00 (1.00)
G. HOUSEHOLD SIZE					
1. One Person	10.1 (8.5)	19.5 (15.4)	21.4 (19.6)	35.6 (47.1)	1.10 (1.27)
2. Two Persons	24.3 (22.2)	47.4 (40.8)	51.6 (42.8)	35.2 (38.7)	1.09 (1.05)
3. Three Persons	21.2 (21.3)	18.3 (19.5)	12.5 (16.7)	22.0 (31.6)	0.68 (0.86)
4. Four Persons	25.7 (27.0)	8.0 (12.3)	5.9 (6.8)	23.7 (26.5)	0.74 (0.72)
5. Five Persons	11.8 (13.1)	3.4 (6.2)	3.7 (5.8)	35.1 (34.3)	1.09 (0.94)
6. 6-10 Persons	6.9 (7.9)	3.4 (5.8)	4.9 (6.3)	47.4 (39.8)	1.44 (1.09)
Total	100.0(100.0)	100.0(100.0)	100.0(100.0)	32.4 (36.9)	1.00 (1.00)
H. INCOME RECIPIENTS					
1. One Person	55.2 (58.6)	55.5 (56.7)	56.0 (69.9)	32.7 (45.5)	1.01 (1.23)
2. Two Persons	34.3 (31.9)	34.9 (33.2)	38.5 (26.2)	35.7 (29.1)	1.10 (0.79)
3. Three Persons	8.7 (7.7)	7.6 (8.4)	4.2 (3.3)	17.8 (14.6)	0.55 (0.39)
4. 4-6 Persons	1.8 (1.8)	2.0 (1.7)	1.3 (0.6)	21.2 (12.8)	0.65 (0.35)
Total	100.0(100.0)	100.0(100.0)	100.0(100.0)	32.4 (36.9)	1.00 (1.00)
I. RETIRED MEMBERS					
1. None	69.1 (74.2)	34.7 (47.8)	28.8 (44.8)	26.8 (34.6)	0.83 (0.94)
2. One Member	24.9 (22.3)	50.0 (44.0)	47.6 (44.9)	30.5 (37.7)	0.94 (1.02)
3. 2-3 Members	6.0 (3.5)	14.8 (8.2)	23.6 (10.3)	51.6 (46.2)	1.59 (1.26)
Total	100.0(100.0)	100.0(100.0)	100.0(100.0)	32.4 (36.9)	1.00 (1.00)

TABLE 5 (Continued)

	(1)	(2)	(3)	(4)	(5)=(3):(2)
J. REGION					
1. Eastern Greece-Islands	51.8 (49.4)	52.7 (47.8)	41.3 (34.0)	25.3 (26.2)	0.78 (0.71)
2. Macedonia and Thrace	23.9 (24.4)	20.8 (22.7)	21.3 (28.1)	33.1 (45.6)	1.02 (1.24)
3. Peloponnesos-West Greece	13.0 (12.9)	15.6 (16.3)	22.5 (18.8)	4ú.8 (42.5)	1.44 (1.15)
4. Thessaly	7.1 (9.1)	5.2 (8.9)	6.4 (12.5)	39.8 (52.0)	1.23 (1.40)
5. Epiros	4.2 (4.2)	5.7 (4.3)	8.6 (6.6)	48.5 (56.8)	1.51 (1.53)
Total	100.0(100.0)	100.0(100.0)	100.0(100.0)	32.4 (36.9)	1.00 (1.00)
K. HOUSE EQUIPMENT					
al. Electricity Supply	99.4 (98.3)	98.9 (96.4)	97.4 (91.4)	31.9 (35.0)	0.98 (0.95)
a2. No Electricity	0.6 (1.7)	1.1 (4.6)	2.6 (8.6)	73.7 (87.5)	2.3t (1.87)
bl. Central Heating	30.6 (18.9)	23.7 (15.7)	6.2 (2.5)	8.5 (5,7)	0.26 (0.16)
b2. No Central Heating	69.4 (81.1)	76.3 (84.3)	93.8 (97.5)	39.8 (42.7)	1.23 (1.16)
cl. Bath or Douse	72.8 (50.7)	56.4 (38.7)	25.6 (10.8)	14.7 (10.3)	0.45 (0.28)
c2. No Bath or Douse	27.2 (49.3)	43.6 (61.3)	74.4 (89.2)	55.2 (53.7)	1.71 (1.46)
d1, Telephone	56.3 (42.9)	54.3 (38.7)	25.8 (12.3)	15.4 (11.7)	0.48 (0.32)
d2. No Telephone	43.7 (57.1)	45.7 (61.3)	74.2 (87.8)	52.5 (52.8)	1.62 (1.43)
el. Private Car	27.7 (11.2)	12.1 (5.8)	2.0 (0.9)	5.4 (5.4)	0.17 (0.16)
e2. No Private Car	72.3 (88.8)	87.9 (94.2)	98.0 (99.1)	36.1 (38.8)	1.11 (1.05)
fl. Internal Water Supply	97.9 (80.0)	95.7 (73.3)	91.0 (53.3)	30.8 (26.8)	0.95 (0.73)
f2. No Internal Water "	2.1 (20.0)	4.3 (26.7)	9.0 (46.7)	67.1 (64.7)	2.09 (1.75)
gl. Refrigerator	95.4 (77.7)	91.5 (67.4)	82.1 (42.0)	29.0 (23.0)	0.90 (0.62)
g2. No Refrigerator	4.6 (22.3)	8.5 (32.6)	17.9 (58.0)	68.5 (65.6)	2.11 (1.78)
hl. Television Set	91.0 (53.6)	80.0 (37.9)	59.2 (15.5)	23.9 (15.1)	0.74 (0.41)
h2. No Television Set	9.0 (46.4)	20.0 (62.1)	40.8 (84.5)	38.0 (50.2)	2.04 (1.36)

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education. Indeed there is no incidence in the 1982 sample of a poor aged household in the group where the head is a university graduate. As might be expected the higher the number of retired persons in the household the higher the incidence of poverty. The same is true for households at both extremes of household size, (at least five members, or up to two members).

Another interesting finding is that the position of the household head in the labour market has a bearing upon the of the household being poor. The probability elderly households where the head is employed for example, face very chances of being in the poor category, while the small opposite holds for aged households with unemployed or retired clear from Table 5 that aged households heads. It is also which lack various household facilities consistently show a relatively higher incidence of poverty. Thus, in addition to income, those in this last group have an their low overall lower standard of living.

Numbers in parentheses in Table 5 present a similar profile of aged poverty for 1974. By comparing the two number sets it can be seen that there have not been important changes in the structure of the aged poverty profile between the two This implies that the documented reduction in the years. extent of poverty between 1974 and 1982 affected the whole of population and was not limited to specific the aged sub-groups.

So far we have analyzed the main dimensions of poverty among the elderly, and certain factors have been indicated as being crucial in determining the probability of an aged household being poor. Among these factors are the labour market status of the head, the place of residence and the head's age. These observations lead to a further step in the analysis, which is the source of income. Table 6 presents the structure of income sources for the total population, for all aged households and the poor aged households. As would be expected, the main feature of the table is that while for the whole population the main income source are wages and salaries (42.22%), for the aged the most important income source is pensions (38.14%). In the case of poor aged households,

Sources	1982					1974	
	Total Populat	Aged H/holds	Poor Aged	-	Total Populat	Aged H/holds	Poor Aged
Wages and Salaries	42.22	20.61	8.35		37.11	22.95	8.50
Pensions	12.77	38.14	48.72		9.65	26.08	29.40
Primary Sector	10.90	10.18	18.86		11.93	12.41	26.61
Enterprise or							
Self-Employment	18.36	11.32	3.81		24.00	15.02	7.39
Rents (+Imputed)	12.59	16.89	16.18		12.32	17.57	17.73
Interest + Dividends	0.40	0.65	0.05		0.47	1.15	0.07
Allowances and Other							
Sources	2.76	2.21	4.03		4.52	4.82	10.30
Total	100.00	100.00	100.00		100.00	100.00	100.00
Average Income	49.082	36,551	6,675		11,319	9,271	1,335

TABLE 6

Percentage Distribution of Household Income by Source

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pensions represent almost half of their income (48.72%), while wages and salaries only 8.35%. Thus, it appears that the aged, and to a greater extent the poor aged, are relied mainly on the money they get as pensioners. In contrast their income from wages and salaries is rather low.

Another interesting feature of Table 6 is that income from agriculture represents a relatively higher percentage for aged households than for the total households, reflecting the of the this economic concentration aged in activity. Similarly, income from rents (including imputed rent) are on the average a larger source of aged income, reflecting the higher proportion of home-owners among the elderly. Finally, entrepreneurial and self-employment activities income from makes a remarkably smaller contribution to their incomes. The general picture that emerges from Table 6 is the expected one the sense that the older the household head, the lower the in probabilities of the him or other household members being employed or even self-employed, and thehigher the probabilities of households having accumulated real estate accrues. It could from which financial return be argued that, since money from pensions is so important in the income of the level of pensions is crucial in determining whether aged, the a household with aged head is poor or not. This, in turn, leads to the issue of whether or not the social security system provides retirement pensions adequate to keep the elderly out of poverty.

Comparing the structure of income sources for 1974 and 1982 (Table 6), it can be seen that, while thesame regularities are observed in the two years, the Greek society has become less traditional in the sense that the aged relied 1982 more heavily on money from their pensions (i.e. 38.14% in of their income) than in 1974 (26.08%). Correspondingly, the opposite occurred for all other sources of income, whose share in the aged income declined. Such structural changes presumably reflect presumably therelatevively higher improvement of pension levels as compared to other sources of average income of households with aged head income. While, the increased by 3.94 times, their average pensions were increased by 5.76, which is remarkably higher than the increase of the

average income of the whole population. The latter implies an increase of the transfers from the younger age groups to the elderly. Moreover, the increase of the so called replacement ratios, i.e. retired income/preretirement income induced, was at least partially responsible for the decrease in the labour force participation of the older male workers in the 1980s. While in 1971 the 67.4 percent of males above 45 were in the labour market, this percentage fell to 64.2 percent in 1981 and to 58.3 percent in 1986 (NSSG, 1973, 1983, 1988).

5. CONCLUSIONS

The economic status of the Greek aged population as indicated by their income in the 1970s presents remarkable their sex, differences within the group depending upon the degree of urbanization of their residence and their specific Furthermore, the concentration and incidence of poverty age. among the aged are much higher than that of the whole population. Living in rural areas, being out of employment, lacking education, being female and living alone are crucial determinants of the aged poverty.

Between 1974 and 1982 income inequalities and poverty among the aged decreased remarkably according to all examined dimensions. However, the remaining income disparities within group still make their category rather heterogenous, the implying that there exist very poor and very fortunate people in this age group and calling for specific and eclectic social policy to diminish income inequality and to alleviate elderly economic hardship.

reduction of poverty incidence among the elderly, The which still remains above the average of the whole population, is due to increased eligibility for public pensions and higher real benefits. During the period 1974-82 the pensions' level share in the ageds' income increased remarkably, and while other sources, mainly wages and salaries, declined Such income sources changes tend to encourage accordingly. earlier retirement of older workers.

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