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Are Children in Growing Danger of Social Exclusion? Evidence from Italy and Spain

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Luxembourg Income Study Working Paper No. 262

**ARE CHILDREN IN GROWING DANGER
OF SOCIAL EXCLUSION? EVIDENCE
FROM ITALY AND SPAIN**

**Conchita D'Ambrosio
Carlos Gradin**

September 2000

Are Children in Growing Danger of Social Exclusion? Evidence from Italy and Spain¹

This version September 2000

Conchita D'Ambrosio² and Carlos Gradín³

Abstract

In this paper, we claim that children are in danger of social exclusion both in Italy and in Spain since social distance between age groups has increased over time. We use as a measure of social exclusion an index of polarization since neither the Lorenz-consistent inequality indices nor the measures of poverty are suited to this task. We look for the causes of this phenomenon by grouping children according to some characteristics of the household to which they belong. Our last aim is to measure the effects that government intervention has had on this phenomenon. We focus on public provisions of education and health care. One of the main findings is that public intervention was not at all successful in fighting this phenomenon, since welfare state institutions of the two countries were designed to combat risks associated with old age and not with childhood.

¹ This paper was started while the authors were at CEPS/INSTEAD (Luxembourg) with the IRISS Training and Mobility of Researchers programme (“Access to Large Scale Facilities”) of the European Commission (DGXII). The support of the staff of the research center was very important for this study. We would like to thank Stephen Jenkins for comments on a previous version of this paper, as well as other participants at the “Child Well-Being in Rich and Transition Countries” conference in Luxembourg.

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1. Introduction

The last decade has witnessed a striking difference in the behavior of economic well-being of the children and the elderly, the two vulnerable age groups in any society. In particular, in many industrialized countries, the improvement in performance of well-being indices for the elderly is accompanied by a deep deterioration of the same measures for children. In this paper, we study the well-being of the children and the elderly in Italy and in Spain, and we argue that children are in danger of social exclusion in both these countries.

The definition of the concept of social exclusion is still very much debated in the economic literature;⁴ social exclusion is linked to both poverty (Atkinson, 1998) and inequality but it is not the same as either. It is a dynamic concept (Atkinson, 1998), in that an individual can become socially excluded if his condition worsens over time;⁵ and it is a relative concept (Atkinson, 1998), in that an individual can be socially excluded only in comparison with a particular social group at a given place and time. Given these premises, we believe that a group of individuals can be socially excluded if they lose command over resources relatively to all other social groups. In this way, the social distance increases between the excluded group and the rest of the society in which they live. Social exclusion is dangerous for any society not only in itself, but also, given the possibility of leading to nonoptimal choices made in order to conform to the subculture of the belonging group (Akerlof, 1997).

We propose to use as a measure of social exclusion an index of polarization,⁶ since none of the Lorenz-consistent inequality indices nor the measures of poverty are suited to this task. We apply the suggested measure to the relevant age groups in Italy and Spain in the 1980s and mid-1990s. We conclude that children are in danger of social exclusion in both countries, since the social distance between age groups increased over time owing to a deterioration of the well-being of children.

We chose these two countries based on the great similarities between them: both are Mediterranean; both have relatively few cases of single parents; in both countries, children live at home until very late; health, education, and pensions are provided mainly by the state; the policies of both countries in the years under analysis were aimed at decreasing public spending and improving the performance of the economy.

⁴ See Phipps and Curtis (2000) and Klasen (1998) as a reference on this debate with particular focus on children.

⁵ Hence having few prospects for the future.

We investigate the causes of our findings by grouping children according to certain characteristics of the household to which they belong. Our final aim is to measure the effects that government intervention had on this phenomenon. We focus on public provision of education and health care.

The paper is organized as follows. The next section presents the data and the method used for imputing in-kind transfers. The third section introduces the measure of social exclusion; the fourth section presents the results of the estimation for both age groups. Section 5 focuses exclusively on children. The last section summarizes the main results.

2. The data

This paper focuses on Spain (Encuesta de Presupuestos Familiares, INE, 1980/81 and 1990/91—for simplicity they will be referred to respectively as 1980 and 1990) and Italy (SHIW 1986, 1991, and 1995). To ensure the highest degree of comparability between the two countries, we take the data from the LIS database. We will use household disposable income as our definition for “initial income,” which includes wages, self-employment income, cash property income, and cash social transfers, net of mandatory contributions and income tax. Income is adjusted to take into account the economies of scale due to differences in size and composition of households. The equivalent income in a household is obtained by dividing the disposable income by the number of equivalent adults according to the OECD scales.⁷ Equivalent income is then assigned to each member of the household. The final units of analysis are individuals.

To approximate the actual opportunities of members of a household, beyond their disposable income, we construct “final income” by assigning to each individual his portion of in-kind transfers, defined as participating in some amount of public expenditure through health care and education.⁸ The process for imputation is the following. First, we compute the aggregate amount of public expenditure in health care and education for each country, according to various national sources. Second, we impute to each individual the corresponding amount according to his or her characteristics (age, sex, region, if attending

⁶ A similar idea has been proposed by D’Ambrosio (2000).

⁷ Assigning a weight 1 to the first adult, .7 to the rest of adults, and .5 to each child (less than eighteen years old).

⁸ We follow in this issue a similar approach to that in Smeeding *et al.* (1993). See this paper for a further discussion of imputation rules.

school, etc.). The appendix provides the details. Note that, unlike household income, in-kind transfers cannot be redistributed within the household. For this reason they are assigned directly to each person.

We take into consideration all public capital spent and current expenditure on all levels of education. The distribution among people takes into account each person's current level of schooling, provided she is going to school.⁹ In Spain, we also distinguish region, to account for regional differences in public expenditure in education that arose from the decentralization process begun in the early 1980s.

Regarding health care, we consider all capital and current expenditure, including primary and specialized care, hospitals, pharmaceuticals, and other social services. Health care is generally thought of as insurance; hence in-kind transfers are assigned to each individual based on available information on differences in the cost of assistance available to various demographic groups (distinguished by age and sex).

As already mentioned, using LIS data rather than national original data has the advantage of providing greater comparability of disposable income. Still, the choice is not costless, since it affects the definition of final income. Some information about households is lost; in particular, we cannot identify which families in Spain were not covered by the public system of Social Security in 1980 – a figure that is estimated to be around 20% of the population. As a consequence we need to assume that everybody was covered, thereby overestimating the impact of health care for that year. This implies that we do not take into account the effect of changes in the number of those with health care. This problem is not important in Spain in 1990 and in Italy in the years studied, since protection was almost universal in those cases. We also lose some relatively insignificant information regarding the level of education and how many children were attending school.

3. The measure of social exclusion

We describe distributional changes using non-parametric techniques. In particular, the non-parametric method used in this paper is the adaptive kernel modified in order to take into account sample weights, J_i , associated with each observation. As a consequence every

⁹ For children younger than fifteen years old, the level of education is estimated according to their age, assuming all of them go to school. For those older than fifteen, we estimate the level of education according to their age if it is determined that they are in fact in school.

observation is weighted by J_i , implying that the expressions used in the two stages of the estimation are, respectively:

$$\tilde{f}(y_i) = \sum_{j=1}^N \frac{J_j}{h_N} K\left(\frac{y_j - y_i}{h_N}\right) \forall i$$

and:

$$\tilde{f}_a(y_i) = \sum_{j=1}^N \frac{J_j}{h_N \mathbf{I}(y_j)} K\left(\frac{y_j - y_i}{h_N \mathbf{I}(y_j)}\right) \forall i$$

where the sample weights are normalized in order to sum to one, $\sum_i J_i = 1$.

We estimate the density functions of the logarithm of income for two reasons:

- The kernel estimator has difficulties dealing with densities that have a high degree of asymmetry. It is possible to show that the smallest MISE depends on f through $R(f'') = \int f''(y)^2 dy$, which is a measure of the total curvature of f . The magnitude of this quantity gives an indication of how well f can be estimated even when h_N is chosen optimally. Hence for a density with high skewness and kurtosis, several modes $|f''(y)|$ will assume relatively high values implying a larger value for $R(f'')$. It has been shown¹⁰ that the density BETA(4,4) is the easiest to estimate and that the order of some densities is the following:

Beta (4,4)
Normal
Gamma (3)
Lognormal

Densities close to normality appear to be easiest for the kernel estimator to estimate. Hence as the density of the level of income more closely resembles a Lognormal its logarithm will become closer to Normal.

¹⁰ For the proof see Wand and Jones (1995).

- We are interested in the movements of the distributions over time. These can be more easily detected by shrinking the long tails present in the distribution of the level of income.

Lorenz-consistent measures are not optimal at summarizing distributional changes, as they fail to distinguish adequately between convergence to the global mean and clustering around local points (which can be the mean of emerging groups). This dissatisfaction with Lorenz-consistent indices motivated independent work on the notion of polarization by Wolfson (1994) and Esteban and Ray (1994). Esteban, Gradín, and Ray (1999) (hereafter EGR) have further extended the analysis.

We propose to use the polarization index suggested by EGR to summarize changes in social distance between groups in the societies under analysis.¹¹

The index of polarization is derived as follows. Let us consider a density f of relative equivalent incomes—the original or a non-parametric estimate. Let $\rho=(y_1, y_2, \dots, y_k, p_1, p_2, \dots, p_k, z_1, z_2, \dots, z_k)$ indicate a partition of the population into k adjacent groups, with p_i population share, y_i conditional mean for group i , and z_i indicating the cut-off income between group i and $i+1$.

From a statistical point of view, the partition \mathbf{r} is a representation of f , which induces an approximation error, $\mathbf{e}(f, \mathbf{r})$. For $G(f)$ indicating the Gini index of inequality for the distribution f , the error is expressed as:

$$\mathbf{e}(f, \mathbf{r}) = G(f) - G(\mathbf{r}) \quad (3)$$

This error term can also be referred to as the *lack of identification* or *intragroup heterogeneity*.

Polarization is assumed to be the result of each individual's identifying with people of his own group and feeling alienated from people of other groups. Polarization in f is then expressed as polarization in the representation \mathbf{r} minus the lack of identification within the groups, accounted by the error:

$$P(f; \mathbf{a}, \mathbf{b}, \mathbf{r}) = ER(\mathbf{a}, \mathbf{r}) - \mathbf{be}(f, \mathbf{r}) \quad (4)$$

where ER indicates the measure of Esteban and Ray (1994), given by:

¹¹ See Gradín (1999, 1999b) and D'Ambrosio (1998, 2000) for the analysis of Spain and Italy respectively with a similar approach.

$$ER(\mathbf{a}, \mathbf{r}) = \sum_{i=1}^n \sum_{j=1}^n p_i^{1+\mathbf{a}} p_j / \ln(y_i) - \ln(y_j) / \quad (5)$$

for $\mathbf{a} \in [1, 1.6]$ the sensitivity to polarization, and $\mathbf{b} \in \mathbb{R}$ the weight to the identification. The ER term is called *simple polarization* because it measures polarization in the representation, while the measure P is referred to as *extended polarization*, as it combines both simple polarization and intragroup heterogeneity. Gradín (1999a) extends the EGR approach to deal with overlapping groups, showing that the lack of identification can be the result of intragroup inequality as well as overlapping among groups. In this last case, polarization as defined in (4) might be negative. In order to normalize the index to take only non-negative values, we subtract the minimum value that the index can take, $-\beta$, and then consider the following index:

$$P^*(f; \mathbf{a}, \mathbf{b}, \mathbf{r}) = P(f; \mathbf{a}, \mathbf{b}, \mathbf{r}) + \mathbf{b} \quad (6)$$

The index above described can be used to determine social distance with respect to different partitions suggested by economic theories since it keeps track of movements in the distribution of social groups. That is, it can monitor how the well-being of educational groups is evolving, whether there are regional differences in income, whether there are changes in social distance between generations, as individuals belonging to the same age-class may earn different incomes in different years, to mention a few.

4. Social distance among age groups

During the second half of the 1980s most European countries experienced an economic expansion. Table 1 reports changes in average incomes in Spain and Italy. Aggregate initial income increased considerably, in real terms, during the 1980s in both countries, 23% in Spain for the whole decade, and 40% for Italy for the second half; in Italy, the recession in early 1990s caused an 8% reduction in aggregate income. Introducing in-kind transfers increased opportunities of households by augmenting their final income by 12.5% in Spain in 1980, while this percentage grew to 14.5% in 1990.¹² The case of Italy is more striking: the transfers expanded initial income by 13.7% in 1986 and by 23% in 1995. Hence in-kind transfers contributed to the expansion of income during the 1980s (an additional 2% in Spain

¹² Actually this increase was 20% larger; recall the overestimation of expenditure in 1980.

and 7% in Italy) and curbed the recession during the early 1990s in Italy. In both countries the amount of the transfers was larger for health care.

Table 1. Average income in Spain and Italy							
	Initial	With Education		With Health care		With both	
		change (1)		change (1)		change (1)	
Spain							
1980	588,170	614,878	4.54	634,767	7.92	661,474	12.46
1990	723,607	764,170	5.61	787,830	8.88	828,392	14.48
Change 1980-90	23.03	24.28		24.11		25.23	
Italy							
1986	9,440	10,095	6.94	10,075	6.73	10,730	13.66
1991	13,197	14,249	7.97	14,738	11.68	15,791	19.65
1995	12,031	13,059	8.54	13,764	14.41	14,792	22.95
Change 1986-91	39.79	41.15		46.28		47.17	
Change 1991-95	-8.83	-8.36		-6.61		-6.32	

Notes:
 All incomes in constant terms, in pesetas and thousands of lire of 1990.
 (1) Change in percentage with respect to the value for the initial income in the same year
Source: Authors' construction using LIS dataset

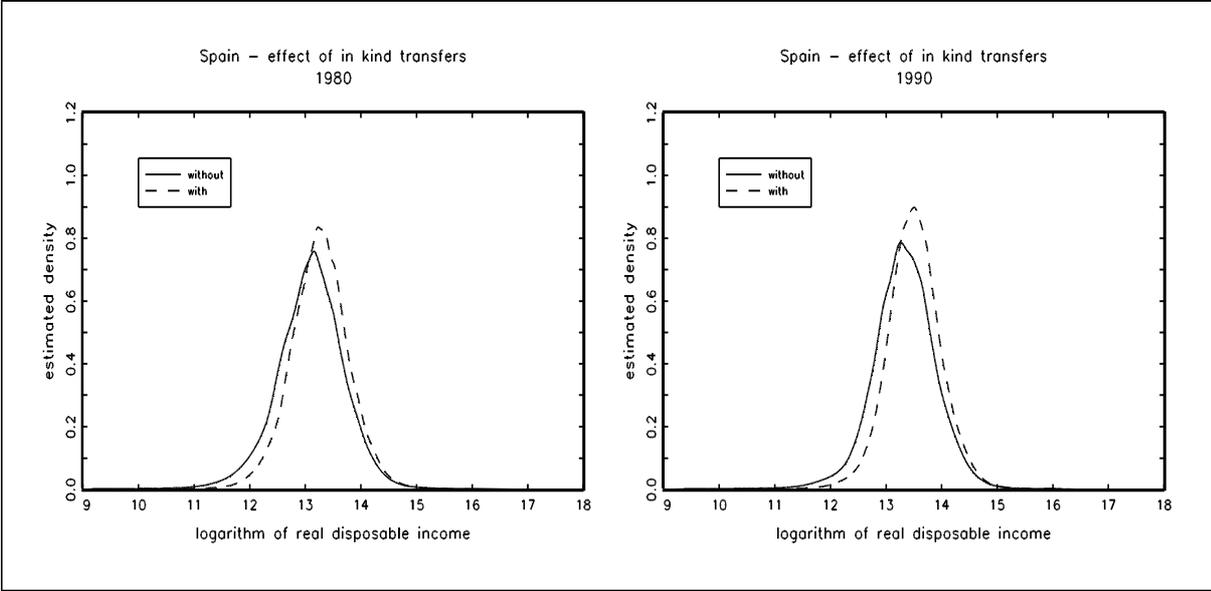


Figure 1: Spain - Income distribution with and without in-kind transfers. 1980 – 1990.

Moving our focus from average incomes to the entire distribution (Figures 1 and 2) we

notice that the effect of in-kind transfers is to move the whole density toward higher levels of income, shifting the mass from the left tail both to the center and to the right tail for both countries in all the years analyzed. This effect is more pronounced in the 1990s than in 1980s, especially for Italy in 1991 and in 1995, where the effect of the transfers is to reduce the dispersion of income present in the distribution due to a shift of mass from the left tail more to the center than to the right tail of the density.

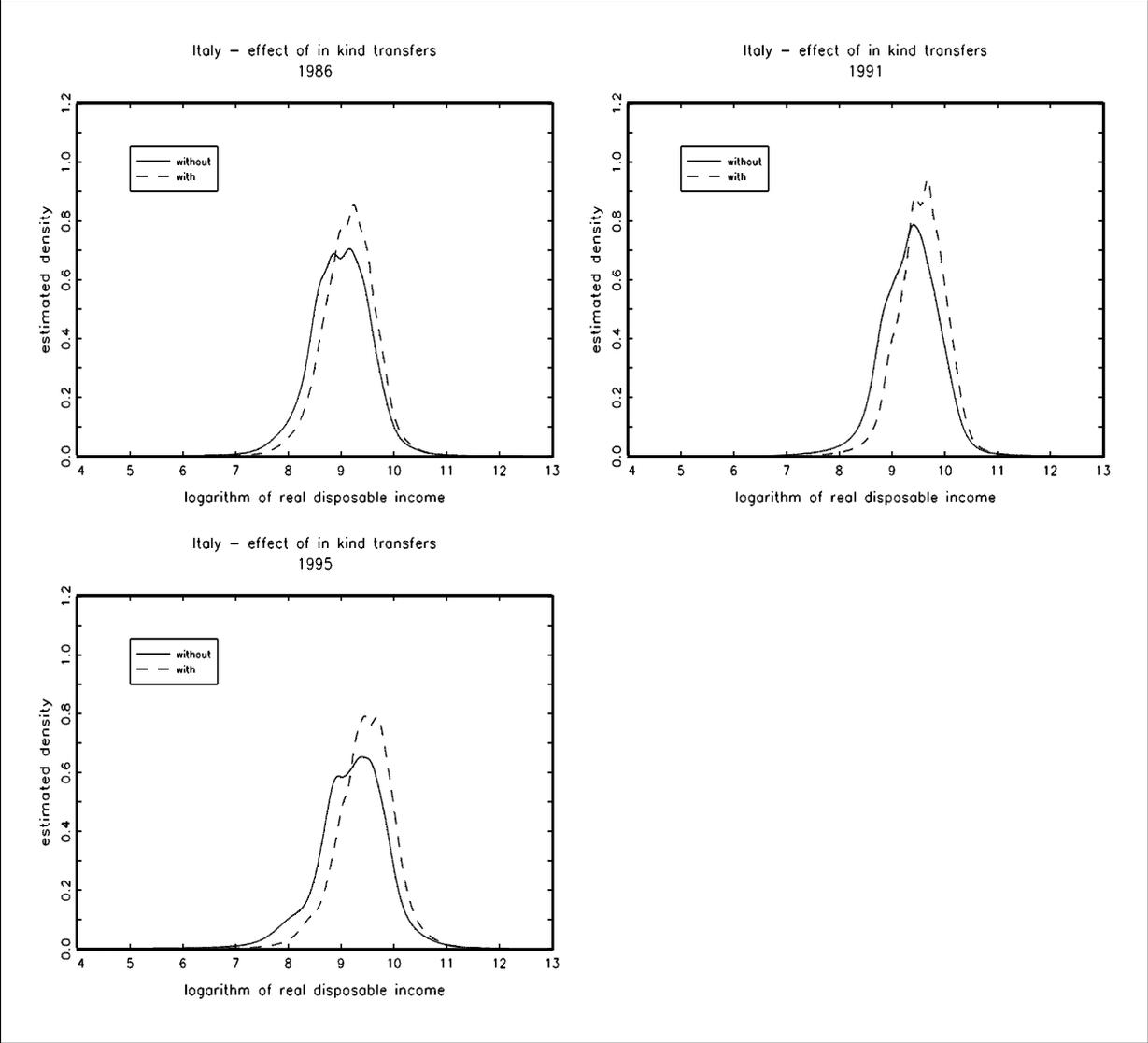


Figure 2: Italy- Income distribution with and without in-kind transfers. 1986 – 1991 - 1995.

In order to study social distance between generations, we divide each population into four groups according to their age: children (14 years old or younger), young adults (between 15 and 30 years old), adults (between 31 and 64), and elderly (older than 64). Since in-kind

transfers affect age groups in different ways, we also investigate how the distribution changes after introducing these transfers.

Table 2, which reports changes in average incomes, makes it clear that children progressively lose standing in terms of average initial income, especially in Italy from 90% of the average income to 80% in ten years time, and with less intensity in Spain, from 93% to 89%. Children became the poorest age group in both countries, significantly worse off than the rest of society. Adults have the highest average income in all cases.

	Initial Income		Final Income									
			With Education			With Health care			With both			
Spain	1980	1990	1980	1990		1980	1990		1980	1990		
<i>Children</i>	0.93	0.89	0.97	0.97		0.90	0.87		0.95	0.94		
<i>Young Adults</i>	1.04	1.02	1.09	1.08		1.05	1.01		1.10	1.07		
<i>Adults</i>	1.05	1.04	1.00	0.99		1.04	1.04		1.00	0.99		
<i>Elderly</i>	0.92	0.98	0.88	0.93		0.96	1.05		0.92	1.00		
Italy	1986	1991	1995	1986	1991	1995	1986	1991	1995	1986	1991	1995
<i>Children</i>	0.90	0.86	0.81	1.03	1.01	0.95	0.88	0.84	0.78	1.01	0.97	0.91
<i>Young Adults</i>	0.98	0.99	0.99	1.04	1.07	1.11	0.96	0.95	0.95	1.02	1.03	1.05
<i>Adults</i>	1.06	1.07	1.06	0.99	0.99	0.98	1.06	1.05	1.04	0.99	0.98	0.97
<i>Elderly</i>	0.95	0.96	1.04	0.89	0.89	0.96	1.04	1.10	1.18	0.98	1.02	1.09

Notes: Income relative to the global mean (=1)

Source: Own construction using LIS datasets for initial income. For final income see appendix.

If children became poorer over time, on the other side of the coin there was an improvement in the relative position of elderly (from 92% to 98% of the average initial income in Spain, and from 95% to 100% in Italy).

To understand the percentages of total population that underwent the changes in well-being reported above, we compute the population shares for age groups. As Table 3 shows, in Spain all groups increased in size except that of children, whose percentage decreased from 26% to 20% of the total population. The same phenomenon happened in Italy during the 1980s; during the 1990s both adult groups started to shrink in size as well. The global reduction in the proportion of children was not as significant in Italy as in Spain, the amount being 2.6% for the decade.

Table 3. Population shares for age groups in Spain and Italy			
Spain	1980	1990	
<i>children</i>	0.258	0.196	
<i>young adults</i>	0.229	0.251	
<i>adults</i>	0.398	0.412	
<i>Elderly</i>	0.115	0.141	
Italy	1986	1991	1995
<i>Children</i>	0.176	0.153	0.150
<i>Young Adults</i>	0.247	0.257	0.237
<i>Adults</i>	0.452	0.452	0.448
<i>Elderly</i>	0.125	0.138	0.164
Notes: All population=1			
Source: Own construction using LIS datasets			

The overall loss in relative position of children is smaller in Spain if we focus on final income (only from 95% to 94% of the average total income), whereas the decrease is still significant in Italy during the second half of 1980s, from 100% to 97%, and more so during the first half of the 1990s, from 97% to 91%. Obviously, for children, the education expenditure had a more relevant impact on income than health care. The latter, indeed, decreased their income in relative terms, since the main beneficiaries were the elderly. After adding in-kind transfers, Italian children were relatively better off than Spanish children in 1990, while the opposite was true for initial income. Despite the fact that children are the main beneficiaries of in-kind transfers (given their involvement with education), they remain the poorest group in both countries.

The densities of income distribution by age groups, with and without in-kind transfers, are reported in Figures 3 to 7. All age groups in Spain benefited from economic growth during the 1980s, but the gains were not equally shared. Note the change in the shape of the densities of income without in-kind transfers for children and the elderly from 1980 to 1990. Comparing the changes in the distributions of income without in-kind transfers in the ten years of analysis highlights a shift of all the densities toward higher levels of income, with this movement being extremely more pronounced for the elderly. The elderly were the group that experienced the highest gains in welfare from 1980 to 1990. In-kind transfers do not offset this result. Indeed, after adding in-kind transfers, we notice that the adult group's distribution is less affected by the transfers, while for children and the elderly, particularly in 1990's, there is an additional effect of reducing the dispersion of income, due to a shift of mass from the left

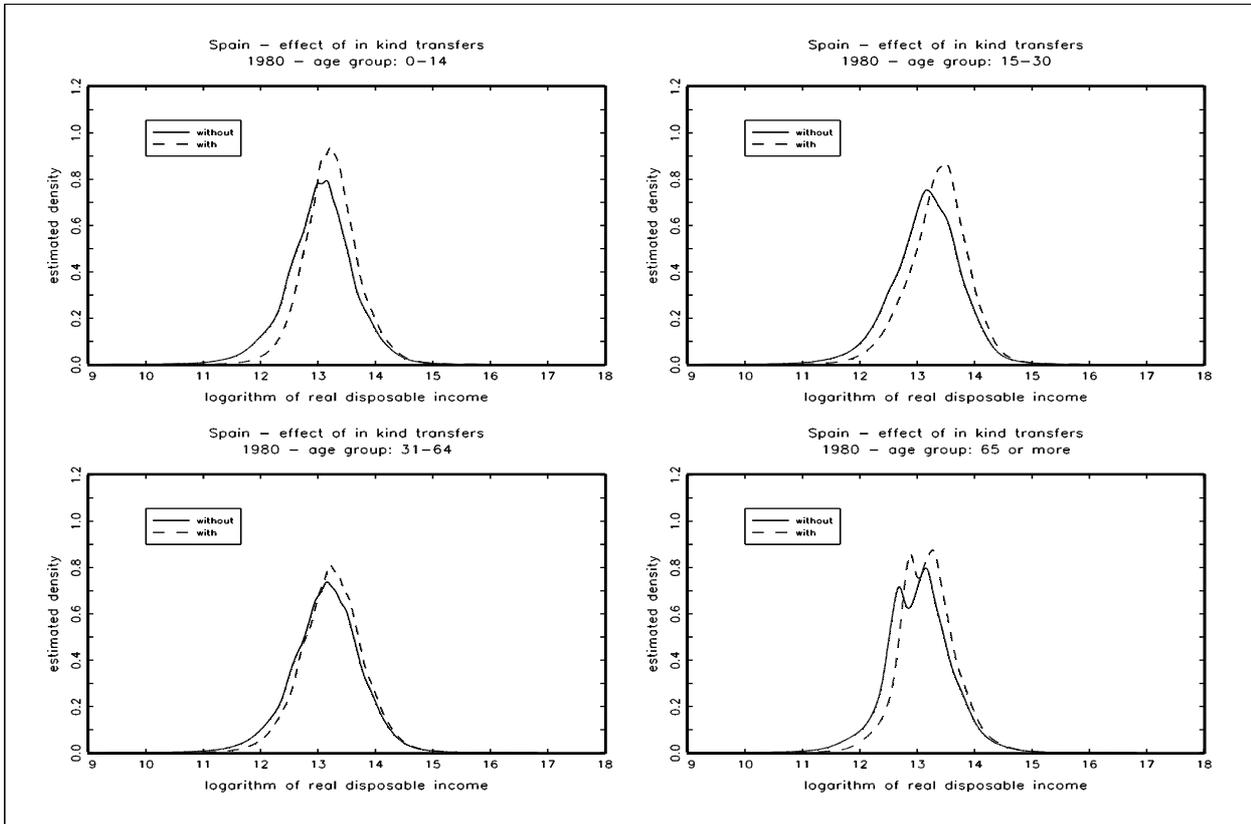


Figure 3: Spain- Income distribution with and without in-kind transfers. Age groups - 1980.

tail more to the center than to the right tail of the density.

From 1986 to 1995, the distributions of all age groups in Italy moved toward higher levels of income, with relevant differences between the groups and the years of analysis. It is hence appropriate to distinguish two sub-periods: 1986-1991 and 1991-1995. From 1986 to 1991, the group that gained less was the one composed of children, as the density without in-kind transfers shifted less to the right than the densities of the other groups. In-kind transfers increased proportionally for all the groups without offsetting the relative gains. Furthermore, the transfers reduced the dispersion of income among children. From 1991 to 1995 (period that included years of recession for the Italian economy) the mass of the density without transfers shifted toward lower levels of income. This effect is very small for the elderly but extremely pronounced for children. The same considerations are valid if transfers are included.

The net effect of the reported movements in the distribution from 1986 to 1995 in Italy was that children composed the group that gained the least.

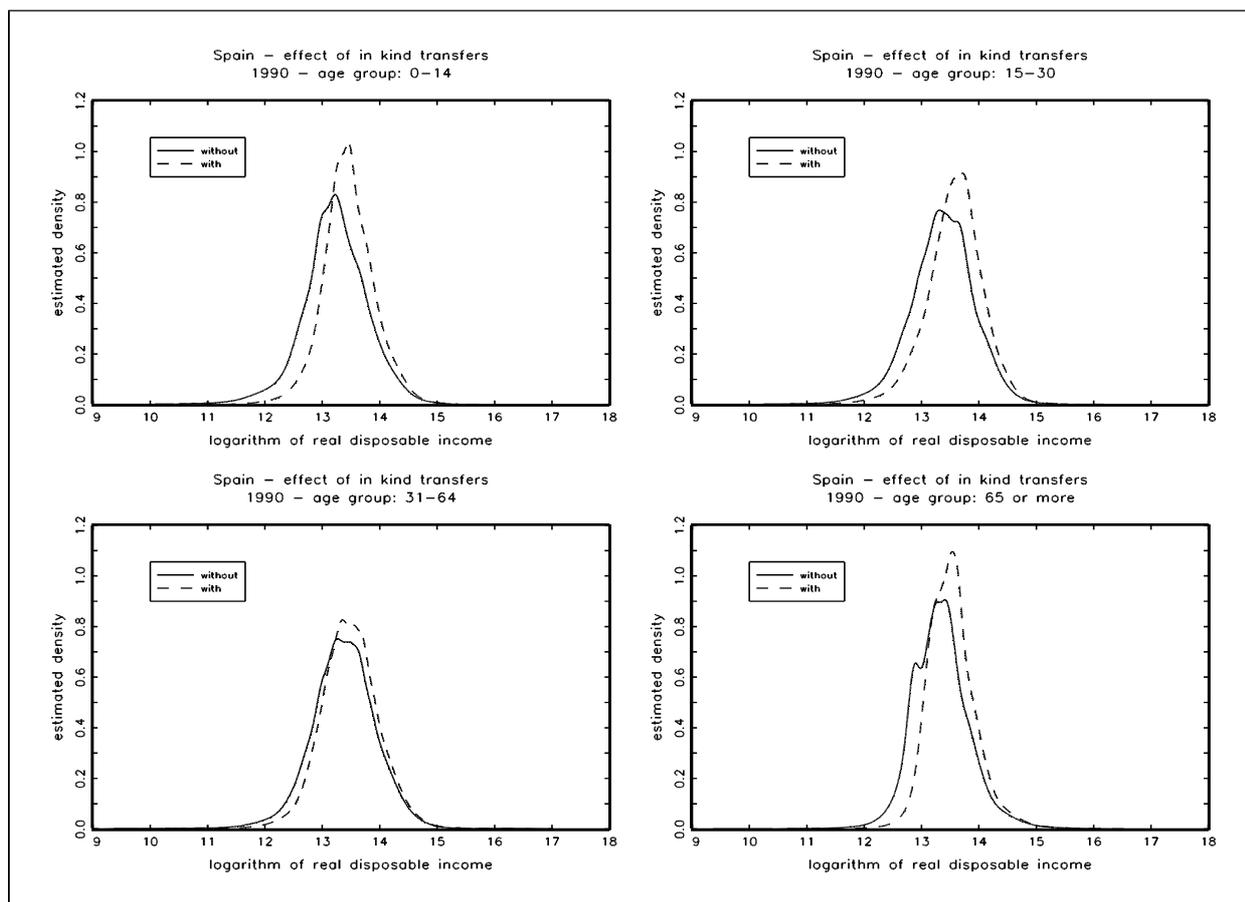


Figure 4: Spain- Income distribution with and without in-kind transfers. Age groups - 1990.

Table 4. Social distance among age groups in Spain and Italy: the case of $b=1, a=1.3$									
	Initial Income			Final Income					
	P*	ER	e	With Education		With Health care		With both	
P*				change (1)	P*	change (1)	P*	change (1)	
Spain									
1980	0.714	0.0110	0.297	0.742	1.90	0.727	3.92	0.750	5.15
1990	0.732	0.0108	0.279	0.757	1.41	0.742	3.52	0.760	3.81
Change 1980-90	2.51	-1.49	-6.08	2.01		2.11		1.20	
Italy									
1986	0.739	0.0146	0.276	0.758	-0.63	0.734	2.69	0.732	-0.88
1991	0.761	0.0162	0.255	0.798	-0.59	0.757	4.83	0.765	0.42
1995	0.707	0.0153	0.309	0.774	-0.21	0.705	9.55	0.750	6.06
Change 1986-91	3.08	11.07	-7.67	3.12		5.23		4.44	
Change 1991-95	-7.19	-5.66	21.11	-6.83		-3.00		-1.97	

Notes: (1) Change in percentage with respect to the value for the initial income in the same year
Source: Own construction using LIS dataset

Summarizing these changes through our indices of social distance in Table 4, we observe that extended polarization by age groups increased in Spain, 1980-90, and Italy 1986-91, but declined about 7% in Italy 1991-95.

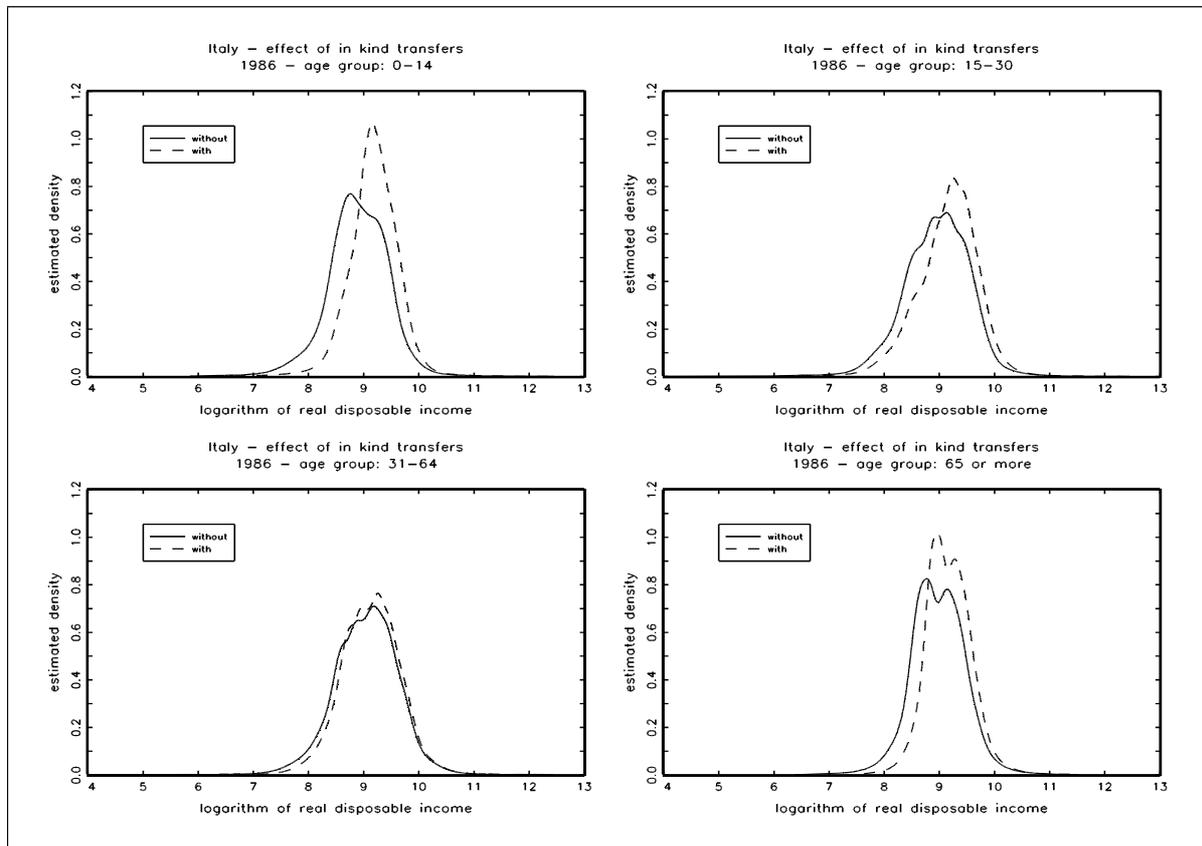


Figure 5: Italy- Income distribution with and without in-kind transfers. Age groups - 1986.

The reason for the increase in generational polarization had to do with a decrease in intragroup heterogeneity, or a lack of identification (age groups became internally more equal), and in Italy between 1986 and 1991 this was reinforced by an increase in the distance between age groups. Indeed, in the last case the position of all groups except that of children improved in relative terms (in Spain all groups are worse off except the elderly).

As Table 5 shows, all groups experienced a decline in their intragroup heterogeneity during the 1980s. This decline was increasing by the age of the group in Spain, while in Italy this reduction did not involve the elderly. During the 1990s all Italian groups experienced a similar broad increase in intragroup heterogeneity, once again less significant in the case of the elderly. In both countries the elderly became the most identified group, with children in an intermediate position.

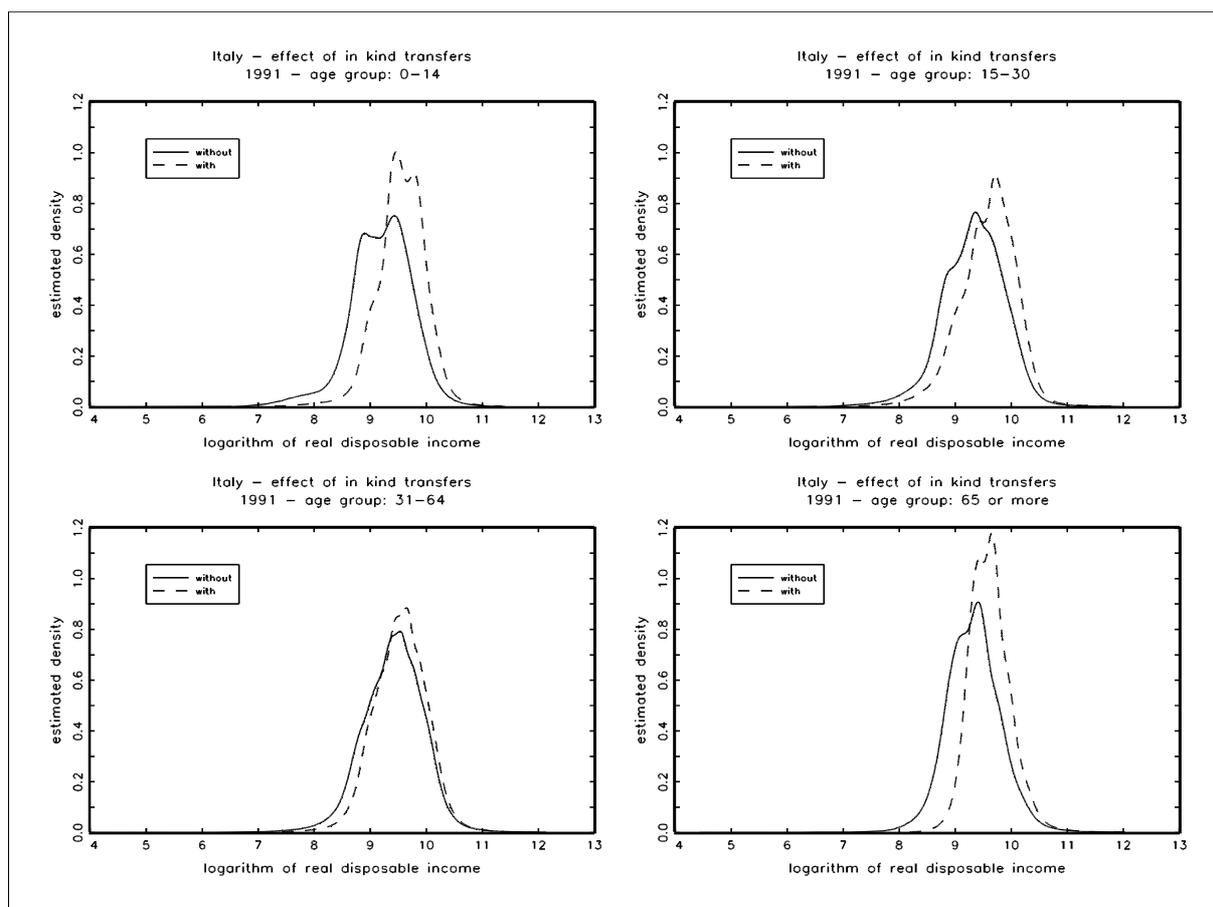


Figure 6: Italy- Income distribution with and without in-kind transfers. Age groups - 1991.

	Initial Income		Final Income									
			With Education			With health care			With both			
Spain	1980	1990	1980	1990		1980	1990		1980	1990		
<i>Children</i>	0.317	0.306	0.286	0.268		0.303	0.291		0.273	0.254		
<i>young adults</i>	0.316	0.303	0.303	0.282		0.292	0.282		0.281	0.264		
<i>Adults</i>	0.332	0.313	0.332	0.313		0.308	0.290		0.308	0.290		
<i>Elderly</i>	0.324	0.288	0.324	0.288		0.289	0.248		0.289	0.248		
Italy	1986	1991	1995	1986	1991	1995	1986	1991	1995	1986	1991	1995
<i>Children</i>	0.301	0.289	0.352	0.255	0.250	0.294	0.288	0.266	0.320	0.245	0.231	0.269
<i>young adults</i>	0.317	0.297	0.359	0.301	0.281	0.344	0.303	0.277	0.329	0.290	0.263	0.319
<i>Adults</i>	0.313	0.292	0.352	0.313	0.292	0.352	0.295	0.265	0.315	0.295	0.265	0.315
<i>Elderly</i>	0.273	0.272	0.297	0.273	0.272	0.297	0.234	0.214	0.229	0.234	0.214	0.229

Source: Own construction using LIS datasets for initial income. For final income see appendix.

Introducing in-kind transfers increased social distance in Spain in both years, with less intensity in 1990. In Italy, although education transfers had no effect, health care increased social distance, and did so with increasing intensity over time, since it increased simple polarization and decreased intragroup heterogeneity.

In Italy and Spain during the 1980s, in-kind transfers helped to lower the increase in extended polarization obtained by considering only initial income, but during the 1990s they also restrained declining extended polarization in Italy.

Our main finding so far, the increase in social distance between children and the other age groups both in Italy and in Spain, can be partially attributed to welfare state institutions of the two countries that were designed to combat risks associated with old age and not with childhood. Social security systems were successful both in reducing the dispersion within the elderly group, and hence increasing identification of the group, and in keeping the growth rate of income of this group in line with that experienced by younger working groups. Italy and Spain are the only countries, along with Greece, among EU members without a universal subsidy to families with children. In both countries this subsidy depends jointly on the income and occupation of the parents, and the amount is not sufficient to sustain the cost of raising children. Deductibles from personal income taxation for dependent children are universal, but once again the amount is extremely low; there is no national program that provides a minimum guaranteed income to families with dependent children. Public policies do not do much to help working mothers since the number of kindergartens is low and the schedules of maternal and junior high schools do not match those of the office. In contrast, the pension system has been quite generous in redistributing income toward the old age group. This was especially significant in Italy, where, for example, the pension system before the Amato reform (1992) could offer a pension equal to 80% of the average of the wages of the last 5 years. Workers could retire not only when reaching pension age (60 years old for men, 55 for women) but also if they had contributed for at least 35 years to the system; pensions were indexed to both inflation and growth rate of wages; and early retirements were used as a means to fight unemployment.

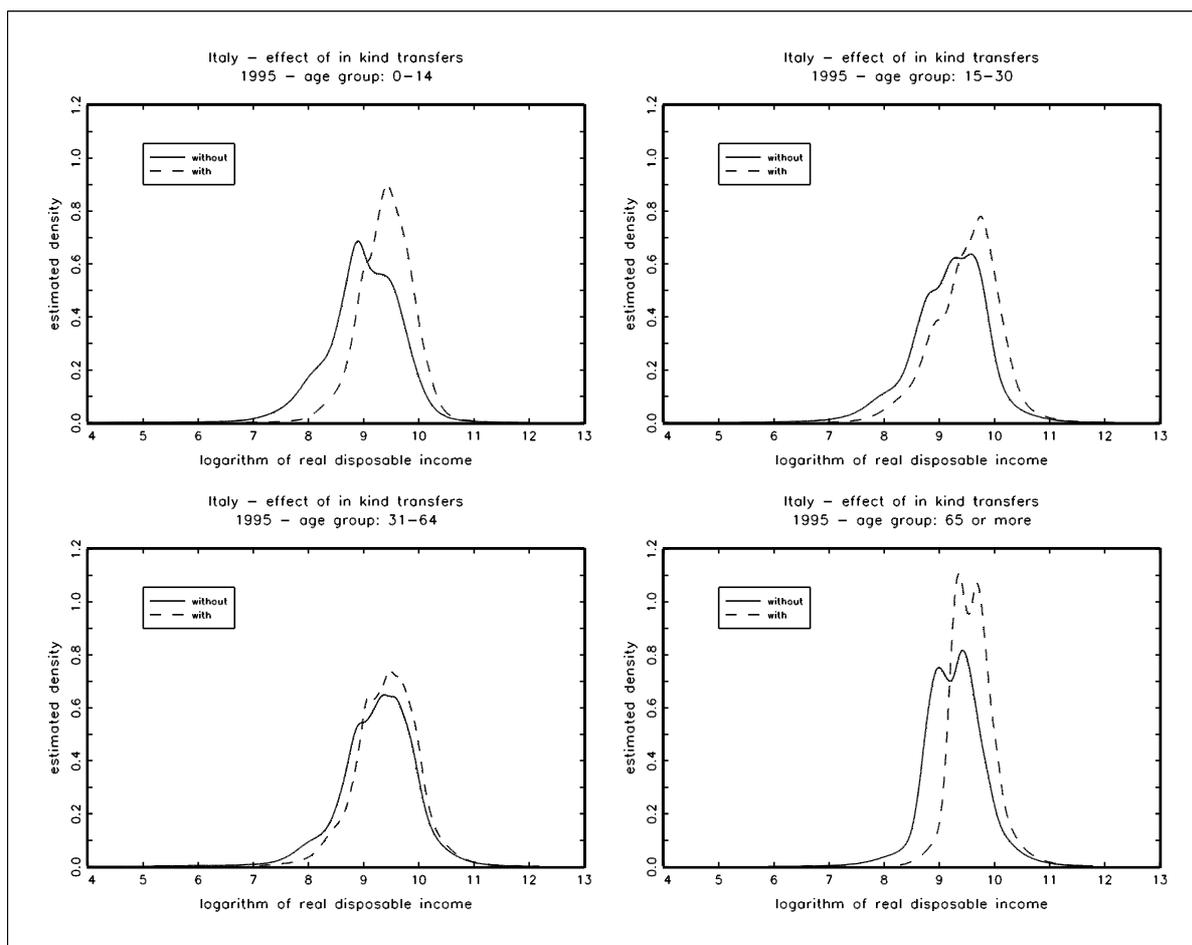


Figure 7: Italy- Income distribution with and without in-kind transfers. Age groups - 1995.

6. The distribution among children

So far we have focused on the position of children relative to that of other age groups. We now turn to investigating the changes that modified the distribution within this age group, and which factors were behind those changes.

As we have seen, the well-being of children declined during the 1980s in Italy and Spain, a trend that increased sharply in Italy during the 1990s. As Table 6 shows, extended polarization within the children's group declined in Spain during the 1980s, but by a smaller amount than what has been reported for the overall population. It approached the level of polarization of that of the whole population, regardless of whether we include in-kind transfers. Extended polarization among children either remained stable or increased in Italy during the 1980s but strongly increased during the 1990s, becoming higher than the observed levels for the entire population.

Table 6. Polarization in Spain and Italy within children: the case of 3 groups, $b=1$, $a=1.3$									
	Initial Income			Final Income					
				With Education		With Health care		With both	
	P	ER	e	P	change (1)	P	change (1)	P	change (1)
Spain									
1980	0.090	0.134	0.044	0.079	-12.23	0.085	-5.57	0.075	-16.82
1990	0.086	0.128	0.042	0.073	-14.49	0.081	-5.35	0.069	-19.54
Change 1980-90	-4.52	-4.35	-3.99	-6.98		-4.30		-7.64	
Italy									
1986	0.089	0.132	0.043	0.085	-4.68	0.082	-7.61	0.078	-12.38
1991	0.085	0.125	0.040	0.081	-4.33	0.075	-12.01	0.071	-16.73
1995	0.102	0.152	0.050	0.098	-3.74	0.088	-13.96	0.083	-18.28
Change 1986-91	-4.67	-5.36	-6.81	-4.32		-9.20		-9.40	
Change 1991-95	20.16	21.36	23.93	20.89		17.49		17.92	
Notes: (1) Change in percentage with respect to the value for the initial income in the same year									
Source: Own construction using LIS dataset									

To investigate how children might have become polarized with respect to some of their characteristics, we consider the following classifications:

- The level of education completed by the householder: none, primary school, secondary school, and higher education.¹³
- The region of residence: North, Center, and South in Italy and three groups of autonomous regions according to the 1980 initial income in Spain. For the latter we have used the three optimal groups minimizing intragroup dispersion.
- Household composition: we distinguish nine groups according to the number of children (none, one, and more than one) and the number of earners (at most one, two, and more than two).
- Employment status of the householder: the householder is either employed, self-employed/employee, retired, or not working for other reasons (unemployed, looking for first job, housekeeping, renting, going to school, etc.).

¹³ In order to make homogeneous the available information for both countries, these levels were defined, using the original level for each country, in terms of potential years of education, respectively: “less than eight”, “eight”, “between eight and thirteen”, “more than thirteen”. The level of education was estimated through the age of each person, assuming all children below fourteen went to school.

According to LIS definitions, the householder in married couples is always the husband, but when the data were missing for him, the wife was considered as the householder.¹⁴

One element that can explain an increasing process of polarization within children in a country is the increasing return to education in the labor market by the head of the household. This seems, indeed, to be the characteristic generating the most polarized distribution in both countries, regardless of the fact that the evolution during the 1980s was quite different. Table 7 presents the results for polarization according to the educational level of the householder, and Tables 8 and 9 present results for average income and population shares respectively for each level.

There was an increase in the average level of education during the 1980s in both countries, with a substantial reduction in the proportion of people with the lowest level in Spain. However, some differences emerged with respect to income distances between extreme groups, those without any formal education and those with a university degree. This distance substantially decreased in Spain because of the fall in the relative income of the latter group, though it strongly increased in Italy. As a consequence, simple polarization for educational groups declined in Spain and increased in Italy during this period. Comparing both countries in 1990, we see that an Italian child whose householder held a university degree possessed 3.2 times the income of a child whose householder had no education. In Spain this ratio was 2.7. The decline in the lack of identification within the groups in Italy and the increase in Spain reinforced these trends in income means.

During the early 1990s the process continued in Italy, but was accompanied by a decline in the income distance between the groups in the middle (those with primary and secondary school).

Introducing in-kind transfers, especially education, substantially reduced the level of simple polarization by shortening distances between the extremes, with more intensity in Italy (a reduction between 20% and 30%) than in Spain (about 15%). But the final impact on extended polarization was not so significant, owing to a decrease in the degree of intragroup heterogeneity.

¹⁴ The problem is more important in Spain in 1980, since the original survey provides information only for the householder, who was originally defined to be that person providing more income regularly to the household.

	Initial Income			Final Income					
				With Education		With Health care		With both	
	P*	ER	e	P*	change (1)	P*	change (1)	P*	change (1)
Spain									
1980	0.920	0.073	0.153	0.922	0.16	0.924	0.41	0.926	0.66
1990	0.906	0.062	0.156	0.910	0.51	0.910	0.54	0.917	1.25
change 1980-90	-1.59	-15.52	2.11	-1.25		-1.46		-1.02	
Italy									
1986	0.872	0.064	0.191	0.876	0.45	0.878	0.69	0.882	1.12
1991	0.920	0.071	0.152	0.912	-0.85	0.926	0.70	0.921	0.11
1995	0.872	0.075	0.203	0.867	-0.57	0.885	1.46	0.881	1.02
change 1986-91	5.47	12.16	-20.87	4.10		5.48		4.41	
change 1991-95	-5.22	4.59	33.86	-4.94		-4.50		-4.36	

Notes: (1) Change in percentage with respect to the value for the initial income in the same year

Source: Own construction using LIS dataset

	Initial Income			Final Income								
				With Education			With health care			With both		
	1980	1990		1980	1990		1980	1990		1980	1990	
Spain												
<i>None</i>	0.67	0.67		0.72	0.73		0.69	0.68		0.73	0.74	
<i>primary</i>	0.96	0.87		0.96	0.89		0.96	0.88		0.96	0.90	
<i>secondary</i>	1.45	1.21		1.39	1.17		1.43	1.20		1.38	1.16	
<i>university</i>	2.06	1.82		1.95	1.71		2.00	1.78		1.91	1.68	
Italy												
<i>none</i>	0.55	0.50	0.52	0.63	0.61	0.69	0.57	0.54	0.56	0.65	0.64	0.71
<i>primary</i>	0.87	0.85	0.80	0.90	0.88	0.85	0.87	0.86	0.81	0.91	0.89	0.86
<i>secondary</i>	1.22	1.23	1.11	1.16	1.17	1.07	1.21	1.21	1.11	1.16	1.16	1.07
<i>university</i>	1.50	1.62	1.98	1.40	1.49	1.75	1.48	1.57	1.89	1.38	1.46	1.70

Notes: Income relative to the global mean (=1)

Source: Own construction using LIS datasets for initial income. For final income see appendix.

Table 9. Population shares for children by level of education in Spain and Italy			
Spain	1980	1990	
<i>none</i>	0.280	0.145	
<i>primary</i>	0.570	0.582	
<i>secondary</i>	0.071	0.168	
<i>university</i>	0.078	0.105	
Italy	1986	1991	1995
<i>none</i>	0.038	0.015	0.022
<i>primary</i>	0.604	0.593	0.543
<i>secondary</i>	0.292	0.295	0.354
<i>university</i>	0.066	0.096	0.082
Notes: All population=1			
Source: Own construction using LIS dataset			

We can also see a highly polarized distribution among children when we consider the number of earners in the households and the number of children (see Tables 10-12). Furthermore, this kind of extended polarization increased sharply in both countries during the 1980s, and declined in Italy during the early 1990s. The former was owing to an increase in simple polarization but with an accompanying decrease in intragroup heterogeneity; the opposite was true for the latter. As is the case with education, in-kind transfers do not substantially modify polarization trends.

All groups in Spain increased in size except those with more than two children. The most vulnerable group, with at most one earner and more than two children, experienced the largest decline in relative income; this was indeed a unique group, with a fall in absolute terms. The groups with the best position and with the highest improvement were those children in households with no other children and with two earners. The existence of additional earners, most likely retired household members, does not improve the disposable income of the child.

In Italy the position of groups was similar to that of those in Spain. The best-off were children in households with two earners and a child, and the worst-off were children in households with one earner and more than two other children. The distance between both groups was larger than in Spain in 1990. The 1980s were characterized by a deterioration in the position of children in households with one earner and more than two children, and an improvement in households with two earners, even if they had more than two children. This process changed during the 1990s.

The introduction of in-kind transfers in both countries, mainly education, improved the position of children in households with more than two children.

Table 10. Polarization for household composition among children in Spain and Italy: b=1, a=1.3									
	Initial Income			Final Income					
				With Education		With Health care		With both	
	P*	ER	e	P*	change (1)	P*	change (1)	P*	change (1)
Spain									
1980	0.798	0.021	0.224	0.812	1.79	0.809	1.38	0.822	3.12
1990	0.860	0.026	0.166	0.872	1.40	0.867	0.91	0.880	2.39
Change 1980-90	7.77	22.50	-25.58	7.36		7.27		7.01	
Italy									
1986	0.860	0.026	0.166	0.869	1.01	0.867	0.80	0.875	1.77
1991	0.931	0.039	0.108	0.921	-1.01	0.935	0.80	0.929	-0.21
1995	0.866	0.041	0.175	0.869	0.27	0.879	1.45	0.882	1.79
Change 1986-91	8.18	45.70	-35.06	6.01		7.82		6.07	
Change 1991-95	-6.89	6.32	61.70	-5.69		-5.98		-5.02	
Notes: (1) Change in percentage with respect to the value for the initial income in the same year									
Source: Own construction using LIS dataset									

Extended regional polarization among children declined in Spain and increased in Italy during the 1980s (see Tables 13-15). In Spain the reduction of the distance between the poor and the rich decreased the level of simple polarization, and groups showed more intragroup heterogeneity,¹⁵ while in Italy the increase in the extended polarization was due to the decline in the lack of identification within the regions. While in Spain the regions that were poor in 1980 increased their population share, in Italy this group (the South) reduced its relative size.

During the 1990s, extended regional polarization declined also in Italy owing to the joint effect of a sharp increase in intragroup heterogeneity and a lesser increase in the distance between the South and the North.

In both countries, public expenditures on education offered the most benefit to the poorest regions, while health expenditure had almost no effect on relative incomes in both countries, except in Italy 1995, where it clearly benefited the poorest regions.

¹⁵ This result is also valid for the whole population but crucially depends on the choice of income as the relevant variable. In Gradín (1998) it is shown for the whole population that regional polarization increased during the 1980s.

Table 11. Average income for children by household composition in Spain and Italy												
	Initial Income			Final Income								
				With Education			With health care			With both		
Spain	1980	1990		1980	1990		1980	1990		1980	1990	
<i>n</i> ≤1, <i>c</i> =1	1.12	0.98		1.09	0.95		1.13	1.00		1.09	0.97	
<i>n</i> ≤1, <i>c</i> =2	1.04	0.89		1.02	0.90		1.04	0.89		1.02	0.90	
<i>n</i> ≤1, <i>c</i> >2	0.83	0.68		0.86	0.73		0.84	0.69		0.86	0.74	
<i>n</i> =2, <i>c</i> =1	1.45	1.51		1.39	1.41		1.43	1.50		1.38	1.41	
<i>n</i> =2, <i>c</i> =2	1.27	1.33		1.24	1.29		1.26	1.31		1.23	1.27	
<i>n</i> =2, <i>c</i> >2	0.91	0.96		0.93	0.99		0.91	0.96		0.93	0.98	
<i>n</i> >2, <i>c</i> =1	1.29	1.21		1.26	1.19		1.28	1.20		1.25	1.18	
<i>n</i> >2, <i>c</i> =2	1.08	1.11		1.08	1.11		1.08	1.09		1.07	1.10	
<i>n</i> >2, <i>c</i> >2	0.84	0.81		0.88	0.86		0.85	0.82		0.88	0.86	
Italy	1986	1991	1995	1986	1991	1995	1986	1991	1995	1986	1991	1995
<i>n</i> ≤1, <i>c</i> =1	0.90	0.90	0.91	0.89	0.88	0.92	0.90	0.92	0.92	0.90	0.89	0.92
<i>n</i> ≤1, <i>c</i> =2	0.85	0.75	0.71	0.89	0.80	0.78	0.85	0.77	0.74	0.89	0.82	0.80
<i>n</i> ≤1, <i>c</i> >2	0.63	0.57	0.64	0.72	0.66	0.74	0.65	0.60	0.67	0.73	0.69	0.76
<i>n</i> =2, <i>c</i> =1	1.42	1.50	1.53	1.31	1.37	1.38	1.41	1.46	1.49	1.30	1.35	1.36
<i>n</i> =2, <i>c</i> =2	1.23	1.30	1.30	1.18	1.25	1.23	1.22	1.27	1.27	1.17	1.23	1.21
<i>n</i> =2, <i>c</i> >2	0.84	1.08	1.11	0.87	1.08	1.09	0.85	1.07	1.10	0.88	1.07	1.08
<i>n</i> >2, <i>c</i> =1	1.29	1.34	1.38	1.26	1.32	1.36	1.27	1.31	1.33	1.25	1.30	1.32
<i>n</i> >2, <i>c</i> =2	1.08	1.07	1.12	1.10	1.08	1.15	1.08	1.06	1.10	1.09	1.07	1.13
<i>n</i> >2, <i>c</i> >2	0.96	0.83	0.72	1.04	0.86	0.83	0.95	0.84	0.74	1.04	0.86	0.83

Notes:
 -Income relative to the global mean (=1)
 -*n*=number of earners; *c*=number of children
Source: Own construction using LIS datasets for initial income. For final income see appendix.

Table 12. Population shares for children by level of education in Spain and Italy			
Spain	1980	1990	
<i>n</i> ≤1, <i>c</i> =1	0.075	0.094	
<i>n</i> ≤1, <i>c</i> =2	0.248	0.269	
<i>n</i> ≤1, <i>c</i> >2	0.319	0.195	
<i>n</i> =2, <i>c</i> =1	0.045	0.081	
<i>n</i> =2, <i>c</i> =2	0.098	0.156	
<i>n</i> =2, <i>c</i> >2	0.112	0.094	
<i>n</i> >2, <i>c</i> =1	0.016	0.032	
<i>n</i> >2, <i>c</i> =2	0.030	0.045	
<i>n</i> >2, <i>c</i> >2	0.057	0.035	
Italy	1986	1991	1995
<i>n</i> ≤1, <i>c</i> =1	0.124	0.116	0.122
<i>n</i> ≤1, <i>c</i> =2	0.273	0.259	0.281
<i>n</i> ≤1, <i>c</i> >2	0.118	0.111	0.151
<i>n</i> =2, <i>c</i> =1	0.134	0.132	0.129
<i>n</i> =2, <i>c</i> =2	0.202	0.254	0.221
<i>n</i> =2, <i>c</i> >2	0.076	0.067	0.074
<i>n</i> >2, <i>c</i> =1	0.023	0.020	0.011
<i>n</i> >2, <i>c</i> =2	0.031	0.026	0.009
<i>n</i> >2, <i>c</i> >2	0.019	0.014	0.002
Notes:			
-All population=1			
- <i>n</i> =number of earners; <i>c</i> =number of children			
Source: Own construction using LIS datasets			

	Initial Income			Final Income					
				With Education		With Health care		With both	
	P*	ER	e	P*	change (1)	P*	change (1)	P*	change (1)
Spain									
1980	0.828	0.049	0.221	0.832	0.47	0.836	0.91	0.840	1.42
1990	0.804	0.037	0.233	0.816	1.50	0.813	1.00	0.826	2.63
change 1980-90	-2.85	-23.22		-1.85		-2.75		-1.69	
Italy									
1986	0.834	0.051	0.217	0.854	2.40	0.841	0.85	0.860	3.15
1991	0.861	0.051	0.190	0.864	0.34	0.873	1.40	0.877	1.82
1995	0.834	0.068	0.234	0.848	1.69	0.849	1.85	0.862	3.42
change 1986-91	3.27	0.69	-12.38	1.18		3.83		1.94	
change 1991-95	-3.14	33.43	23.18	-1.83		-2.72		-1.62	
Notes: (1) Change in percentage with respect to the value for the initial income in the same year									
Source: Own construction using LIS dataset									

	Initial Income			Final Income								
				With Education			With health care			With both		
Spain	1980	1990		1980	1990		1980	1990		1980	1990	
<i>poor</i>	0.80	0.85		0.83	0.88		0.80	0.86		0.84	0.89	
<i>middle</i>	1.05	1.06		1.05	1.05		1.05	1.06		1.04	1.05	
<i>rich</i>	1.22	1.17		1.18	1.12		1.21	1.16		1.17	1.12	
Italy	1986	1991	1995	1986	1991	1995	1986	1991	1995	1986	1991	1995
<i>North</i>	1.17	1.20	1.25	1.14	1.16	1.19	1.16	1.19	1.23	1.13	1.15	1.18
<i>Center</i>	1.10	1.11	1.06	1.08	1.08	1.05	1.10	1.11	1.06	1.08	1.08	1.05
<i>South</i>	0.83	0.84	0.76	0.86	0.87	0.82	0.83	0.85	0.79	0.86	0.88	0.83
Notes: Income relative to the global mean (=1)												
Source: Own construction using LIS datasets for initial income. For final income see appendix.												

Table 15. Population shares for children by region in Spain and Italy			
Spain	1980	1990	
<i>poor</i>	0.395	0.416	
<i>middle</i>	0.315	0.319	
<i>rich</i>	0.290	0.266	
Italy	1986	1991	1995
<i>North</i>	0.386	0.395	0.372
<i>Center</i>	0.156	0.168	0.179
<i>South</i>	0.458	0.437	0.448
Notes: All population=1			
Source: Own construction using LIS datasets			

Extended polarization in employment or occupation (see Tables 16 to 18) remained stable for the entire period in both countries, since changes in simple polarization were often compensated by changes in the lack of identification component. Particularly relevant is what happened in Italy between 1991 and 1995, when simple polarization increased sharply, but was completely offset by a corresponding sharp increase in the lack of identification.

The children who benefited more from economic growth during the 1980s in Spain were those whose householder was either self-employed or retired; in Italy they were those whose householders were not working for any reason. In Spain children in non-working households were considerably worse off during that period, and the same happened in Italy during the 1990s. In general, the non-working and the retired constituted the groups who benefited the most from public expenditures in both countries.

7. Concluding remarks

If we are concerned with the social exclusion of children in Spanish and Italian societies, there are clearly symptoms to be worried about. Despite the fact that the number of children has been diminishing, their position relative to the rest of the age groups has worsened through time, especially in Italy. The worst position is that of children in households with many other children and at most one earner, a finding consistent with Cantó and Mercader's (1998) finding of a high risk of poverty for these children in Spain. This group represents respectively 20% of all children in 1990 in Spain (despite its reduction in size) and 15% of all children in Italy in 1995 (given its increase in size during the early 1990s).

Public intervention in the form of the state providing essential services such as education and health care to children has contributed somewhat to mitigate this trend by creating more opportunities for children, but it has not been able to reverse it. This deterioration of the well-being of children contrasts with improvements in the social position of the elderly. Welfare state institutions of the two countries were designed to combat and were successful in offsetting the risks associated with old age, not those associated with childhood.

Table 16. Employment polarization among children in Spain and Italy: b=1, a=1.3									
	Initial Income			Final Income					
				With Education		With Health care		With both	
	P*	ER	e	P*	change (1)	P*	change (1)	P*	change (1)
Spain									
1980	0.775	0.036	0.261	0.794	2.37	0.786	1.31	0.803	3.61
1990	0.773	0.030	0.257	0.800	3.52	0.782	1.20	0.809	4.75
Change 1980-90	-0.36	-16.89	-1.27	0.77		-0.47		0.74	
Italy									
1986	0.761	0.025	0.264	0.798	4.83	0.770	1.24	0.805	5.83
1991	0.760	0.016	0.256	0.780	2.59	0.780	2.59	0.797	4.91
1995	0.766	0.050	0.284	0.787	2.86	0.787	2.77	0.807	5.37
Change 1986-91	-0.12	-35.57	-3.07	-2.24		1.21		-0.98	
Change 1991-95	0.72	205.22	10.90	0.98		0.90		1.16	
Notes: (1) Change in percentage with respect to the value for the initial income in the same year									
Source: Own construction using LIS dataset									

	Initial Income		Final Income									
			With Education			With health care			With both			
Spain	1980	1990	1980	1990		1980	1990		1980	1990		
<i>non-working*</i>	0.90	0.65	0.91	0.70		0.90	0.68		0.91	0.72		
<i>Employee</i>	1.08	1.05	1.07	1.04		1.08	1.05		1.07	1.04		
<i>self-empl.**</i>	0.87	1.07	0.89	1.06		0.88	1.06		0.90	1.06		
<i>Retired</i>	0.65	0.76	0.70	0.80		0.67	0.77		0.71	0.81		
Italy	1986	1991	1995	1986	1991	1995	1986	1991	1995	1986	1991	1995
<i>non-working*</i>	0.54	0.68	0.36	0.61	0.81	0.53	0.56	0.69	0.41	0.63	0.81	0.56
<i>Employee</i>	0.99	1.01	1.08	0.98	1.01	1.06	0.99	1.00	1.08	0.99	1.01	1.06
<i>self-empl.**</i>	1.11	1.11	1.02	1.10	1.07	1.00	1.10	1.11	1.01	1.09	1.07	1.00
<i>Retired</i>	0.80	1.01	0.95	0.87	1.07	1.04	0.81	0.99	0.94	0.87	1.06	1.03

Notes:
- Income relative to the global mean (=1)
- * All type of inactivity except retired, or unemployed
- ** Self-employed or employer

Source: Own construction using LIS datasets for initial income. For final income see appendix.

Spain	1980	1990	
<i>non-working*</i>	0.147	0.089	
<i>employee</i>	0.652	0.677	
<i>self-empl.**</i>	0.149	0.170	
<i>retired</i>	0.052	0.065	
Italy	1986	1991	1995
<i>non-working*</i>	0.019	0.005	0.085
<i>employee</i>	0.700	0.738	0.650
<i>self-empl.**</i>	0.243	0.244	0.222
<i>retired</i>	0.038	0.013	0.042

Notes:
- All population=1
- * All type of inactivity except retired, or unemployed
- ** Self-employed or employer

Source: Own construction using LIS datasets

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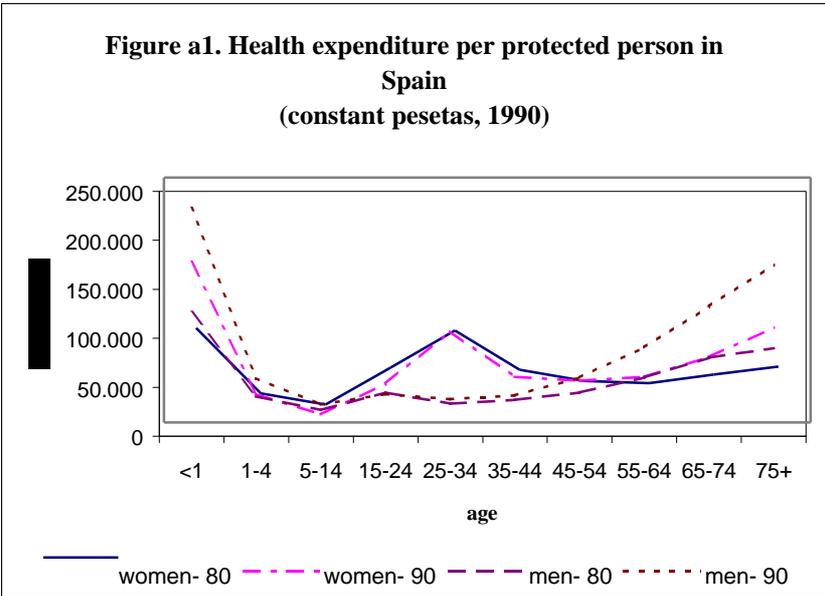
Appendix

Here we provide a few details for the computation of in-kind transfers.

Spain:

Total expenditure in health care in Spain was, according to Bandrés (1993), 1,487,946 and 2,554,100 millions of 1990 pesetas respectively in 1980 and 1990. This expenditure includes expenditure in different social and health in-kind care: hospitals, primary and specialized care, medicines, social services (attention to the elderly, disabled people, etc.) provided by the central state and the autonomous regions.

To compute the in-kind transfer we consider the existence of differences in cost by age and sex. In the absence of information about actual costs, we use the information about the use different population groups make of health services. The estimation was made using a survey based on the use hospitalization, the “Encuestas de Morbilidad Hospitalaria” of the Instituto Nacional de Estadística. Based on this “use” as weights we obtain expenditure per protected person, reported in Figure a1.



For the case of education, we have used the data of expenditure and number of students by region and level of education corresponding to the courses 1980/81, 1990/91 in Uriel et al. (1997). In the case of university we considered only the expenditure for all the country as there are autonomous regions with no universities and the geographic mobility of these students is larger. According to this, dividing the aggregate expenditure (current and capital) by the number of students in each case (each region, each level), the average expenditure per student was respectively for 1980 and 1990 in 1990 pesetas: 79,120 and 127,686 for primary

education, 156,280 and 233,049 for secondary education, and 190,978 and 354,486 for university.

Italy:

The data for in-kind transfers are derived from the official statistics reported on the *Relazione Generale sulla Situazione Economica del Paese*, an official publication printed yearly that reports expenditures on education and health sustained by the central government.

The data provided on education are mean expenditure sustained per pupil and per school level by the Ministry of Public Schooling. The data on indivisible expenditure are attributed to each pupil by the contribution of the mean expenditure for that pupil to the total expenditure. The expenditures reported do not include the expenditures made by local governments for any kind of school; hence in the in-kind transfers we do not include funding of kindergartens and maternal schools.

Public expenditure for health care has been attributed to each person depending on age by means of the official coefficients used for dividing the national health fund (*Fondo Sanitario Nazionale*) among the Italian regions in 1999. The coefficients are classified according to age in three groups: pharmaceutical, specialists, and hospitals. The pharmaceutical coefficients provide an additional grouping according to sex. Some imputations were necessary for computing expenditure for public hospitals, for special care provided within public hospitals, and for counseling and prevention - not reported - from the reported expenditure on good and services and employment. Capital expenditure has been attributed to each group depending on the contribution of the group to total expenditure. The final expenditure imputation by age groups is reported in Figure a2. A detailed description of the method and of the amounts can be provided upon request.

Figure a2. Health expenditure by age groups (thousands of italian lire)

