## Title:

Protecting the elderly and children in times of crisis: An analysis based on National Transfer Accounts

## Authors:

Meritxell Solé [a]
e-mail: Meritxell.sole@ub.edu

Guadalupe Souto [b] **(Corresponding author)**
e-mail: Guadalupe.souto@uab.es

Elisenda Renteria [c]
e-mail: Elisenda.renteria@uab.es

Giorgos Papadomichelakis [a]
e-mail: g.papadomichelakis@ub.edu

Concepció Patxot [a]
e-mail: cio.patxot@ub.edu

[(a)] Department of Economics, Universitat de Barcelona
Avinguda Diagonal, 690-696
08034 – Barcelona – SPAIN

[(b)] Department of Applied Economics, Universitat Autonoma de Barcelona
Campus Bellaterra, Edifici B
08193 – Bellaterra – SPAIN

[(c)] Centre d'Estudis Demografics (CED), Universitat Autonoma de Barcelona
Campus Bellaterra, Edifici E2
08193 – Bellaterra – SPAIN

## Acknowledgements:

Authors would like to thank the valuable comments by the participants in the 2018 Global Conference of National Transfer Accounts celebrated in Mexico. Special thanks go to the National Transfer Accounts project leaders, Ronald Lee (University of Berkeley) and Andrew Mason (University of Hawaii). The paper has also benefited from the helpful suggestions received by two anonymous referees.
This work received institutional support from the Spanish Science and Technology System (projects CSO2016-77449-R, ECO2016-78991-R, ECO2015-71981-REDT and RTI2018-095799-B-I00), the European Commission (Joint Programming Initiative (JPI), 'More Years Better Lives (2016)', project PCIN-2016-151 WELTRANSIM) and the XREPP (Xarxa de Referència en Economia i Polítiques Públiques) of Catalan Government (Spain). Elisenda Renteria also thanks the funding from the Ramon y Cajal Fellowship RYC-2017-22586.

# Protecting the elderly and children in times of crisis: An analysis based on National Transfer Accounts

**Abstract**

The welfare state has been shown to be a powerful, effective mechanism in the fight against poverty and social exclusion. Yet, it retains a surprising bias towards the elderly, as identified in more than one strand of the social sciences literature. We construct the National Transfer Accounts (NTA) for Spain before and after the Great Recession to determine how this bias might have shifted during the crisis. Our results confirm that children have borne the brunt of the economic decline. The rise in unemployment and the fall in wages inevitably led to the impoverishment of families, deprived of adequate social policies to act as a counterbalance. In contrast, the elderly were by far better protected, thanks to the well-established public pension and health care systems. The question arises as to why high-income societies appear to be so averse to old-age poverty while they seemingly accept child poverty almost without flinching.

**Keywords:** economic crises, generations, redistribution, welfare state
**JEL classification**: H53, I38, J18

## 1. Introduction

Dependency on others, especially during childhood and old age, has been tackled by societies in a variety of ways. Historically, such needs were essentially handled within the family; however, the growth of the welfare state, in its various guises, led to the gradual substitution of these intergenerational arrangements by the market and by public transfers. In today's social welfare systems, the working-age population provides economic resources for both the young – in terms of education and family support – and the elderly – in terms of financing pensions, health and long-term care systems. These exchanges are the result of the extending of welfare state action over the past century from mere poverty reduction to broader programs that provide merit or social goods (primarily education and health) and which secure income in the face of adversity (i.e. unemployment and disability insurances) or during old-age (i.e. pension systems).

It is worth noting that the degree of substitution ('crowding-out') of intergenerational private transfers by public transfers and the age composition of such transfers vary markedly within the countries that share the European social model (Albertini, 2016).[1] Interestingly, the growing tendency to focus public policies on the needs of the elderly, as identified in different strands of the literature (Preston, 1984; Coder et al., 1989; Fuchs and Reklis, 1992; Folbre, 1994; Vanhuysse, 2013), is often overlooked. This trend has been associated with the population ageing process and the increasing political power of the elderly in representative democracies; however, the reasons underpinning it cannot be reduced to simple demographic forces. Countries have reacted differently to the common demographic transition, motivated by their specific national institutional arrangements and by policy inertia (Esping-Andersen and Sarasa, 2002). The extent to which this shift in public resources to the elderly challenges the distributive norms inherent to the social welfare system remains open to debate. In short, the age composition of transfers in a society can be seen as a reflection of the choices between alternative schemes for distributing resources to individuals, challenged by demographic and socioeconomic change.

Historical and current analyses of private and public transfers and of the market, and their respective roles in ensuring welfare, require a considerable amount and diversity of data, conditions that are unlikely to be satisfied by a single data set. Moreover, they require longitudinal – generational – observations not only of monetary transfers, but also of

transfers in-kind. An enlightened approximation to the question is offered by Mason and Lee (2011), who describe the *generational economy* as "the social institutions and economic mechanisms used by each generation or age group to produce, consume, share, and save". In the framework of the interdisciplinary research project, National Transfer Accounts (NTA), a comprehensive method for measuring the flow of transfers between different age groups has been developed, with the corresponding dataset. More specifically, NTA provides estimates of how the working-age population finances the needs of dependents (primarily children and the elderly) by resorting to the three, so-called, "welfare pillars" (Esping-Andersen, 2002): markets, families and government. This dataset greatly improves our ability to analyse the challenges that the European social model faces.

In recent decades, population ageing and the economic downturn have combined to change redistribution needs and the intergenerational balance. The crisis initiated in 2008, the start of what would become known as the 'Great Recession', created a temporary scarcity in the working population that can provide insights into the future consequences of the ageing process. Regarded as the worst economic crisis since the Great Depression of the 1930s, there is a vast body of literature dedicated to analysing both its causes and effects. Using historical data, Reinhart and Rogoff (2009) showed that the aftermaths of severe financial crises have three characteristics in common: a prolonged collapse of asset prices (especially housing), a marked fall in both output and employment and, finally, a veritable explosion in public debt. And, indeed, all three circumstances manifested themselves in the Great Recession, albeit with notable differences across countries. Looking beyond the strictly macroeconomic consequences of the Great Recession, several papers have also considered its effects on social welfare. For example, Deaton (2012) performed an insightful analysis of its impact on the subjective well-being of Americans while Somarriba-Arechavala et al. (2015) undertook a cross-country analysis of the variation presented by different quality of life indicators in the EU between 2007 and 2011. The latter confirm that in most countries – and more especially those of Southern and Eastern Europe – the crisis has had a severe impact on both economic indicators (low per capita income, high unemployment and income inequality) and social conditions (social exclusion, trust in public institutions, racial tension, etc.), making the Great Recession a truly *social crisis*.

This article analyses the impact of the Great Recession by ages and reviews the arguments that underpin intergenerational redistribution to examine the Spanish case. The structure of intergenerational transfers in Spain and their evolution during the crisis provide the backdrop for testing the compatibility of specific policy outcomes with these arguments. We employ the National Transfer Accounts (NTA) methodology to perform an in-depth analysis of the situation in Spain, one of the European countries hit hardest by the economic downturn. In Section 2 we present the empirical evidence available for various countries around the world and, in Section 3, we review the arguments forwarded to account for the bias observed towards the elderly in their welfare state policies. In Section 4, we provide an overview of the NTA method and outline the data used to construct the NTA for Spain 2012. The results reported in Section 5 confirm that the level of protection provided to children during the crisis was undermined. This can be attributed to the weak family policies implemented in Spain, which failed to mitigate the sharp drop in labour income resulting from unemployment and wage reductions. Finally, Section 6 concludes and we raise the question as to why high-income societies appear so averse to old-age poverty while they seemingly accept child poverty almost without flinching.

## 2. Empirical evidence: the unbalanced welfare state

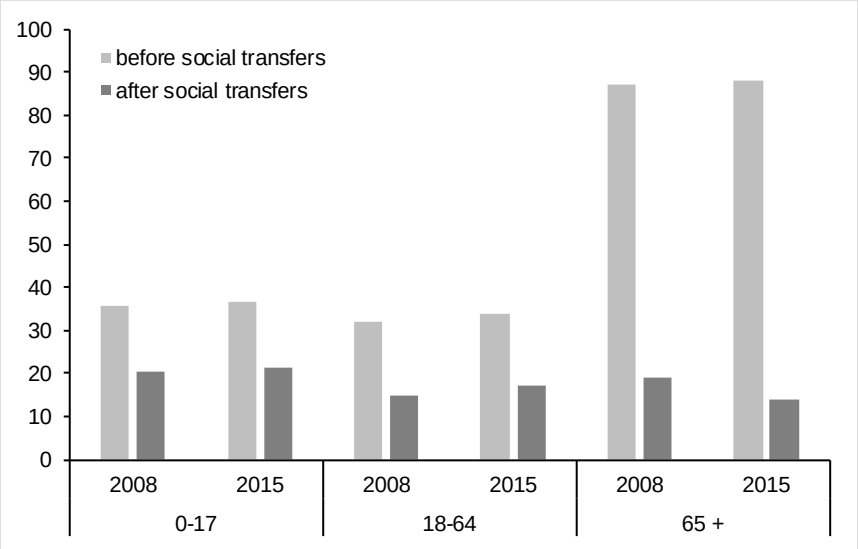
According to Eurostat, 118.7 million people (23.7% of the population) were at risk of poverty and social exclusion (AROPE) in the EU in 2015.[2] This meant a return to pre-crisis levels (23.8% in 2008), after peaking at 24.7% in 2012. However, this figure masks many more specific trends. Most significantly, as stressed above, the picture varied markedly across countries. The AROPE index ranged from values lower than 17% in the Czech Republic, Sweden and the Netherlands to values higher than 35% in Bulgaria, Romania and Greece. Moreover, the index also varied significantly according to such characteristics as sex, age, educational attainment and household composition. It has been well-documented that the risk of poverty is higher for women, for less-educated individuals and, interestingly, also for children. According to the OECD (2014), both income inequality and po[3]verty generally increased with the Great Recession, but children were the most negatively affected. Other reports, including UNICEF (2014b) and Save the Children (2014, 2016), have addressed the impact of the Great Recession on children's well-being and each highlights that children have been the greatest victims of the crisis to the point that the financial crisis became a 'crisis for children' (UNICEF 2014b, p. 14; Save the Children, 2016, p. 59).

In contrast, the elderly (that is, those aged 65 and over) seem to have enjoyed the most protection from the social impact of the recession and the crisis affecting public finances, primarily because their income depends mainly on relatively stable pension systems, which in most cases are protected against inflation. Indeed, the Ageing Report of the Economic Policy Committee (EC, 2015a) claims that pension systems, in particular public pension schemes, have ensured that most old people in the majority of EU countries are protected against the risk of poverty and deprivation. In this respect, the Pension Adequacy Report of the European Commission (EC, 2015b) provides interesting indicators. For example, the median relative income of the elderly – that is, the ratio between the median equivalised disposable income of persons aged 65 and over to that of persons aged between 0 and 64 – increased in 20 of the 28 Member States in the period 2005–2013. What is more, this increase was above 10 percentage points in Greece, Spain, Cyprus, Luxembourg, Portugal, Hungary, the UK and France. Indeed, Spain is one of the European countries with the highest median relative income ratios for the elderly (100% in 2013).

Welfare states across countries are far from homogeneous, as the degree of substitution of private intergenerational transfers and the composition of such transfers differ significantly.[4] As discussed, one feature of the social model of intergenerational transfers has been systematically overlooked: Welfare transfer policies mostly address the needs of the elderly. Figure 1, showing the share of EU population at risk of poverty before and after social transfers by age groups, provides initial evidence of this. In 2015, the risk of poverty after social transfers was, on average, 21.2% for children (under the age of 18) compared to 14.0% for the elderly (aged 65 and more). Social transfers reduce the risk of poverty by 84% in the case of the elderly, but that reduction is just 42% in the case of children. More significantly, with respect to the pre-crisis situation (2008), the risk of poverty has increased for children (and also for the working- age population), while it has fallen for the elderly. In fact, the increasing risk of child poverty is a pre-existing trend, observed in most developed countries over the last decades. It seems to be related to family changes – declining fertility, a concentration in poorer families and the rising number of mono-parental families – and over-crowded labour markets during the baby-boomers' active lives, causing wages to fall.

This same trend can be confirmed for most countries. Even in Northwest Europe, with its more generous family support programs, public transfers have traditionally been significantly biased to the elderly, as Coder et al. (1989) reported. Fuchs and Reklis (1992) also showed how public expenditure on adults had risen far more rapidly than expenditure on children since 1960 in the USA. More recently, Isaac (2009) confirmed the welfare state bias in favour of the elderly in 20 OECD countries, which included the USA, Canada, and Japan. More specifically, she estimated that in 2004 every individual aged 65 and older in the USA received, on average, $21,900 while each child under 19 received around $9,000. The NTA method allows comprehensive details of these differences, comparable across countries, to be made.

**Figure 1 Population at risk of poverty in the EU before and after social transfers**

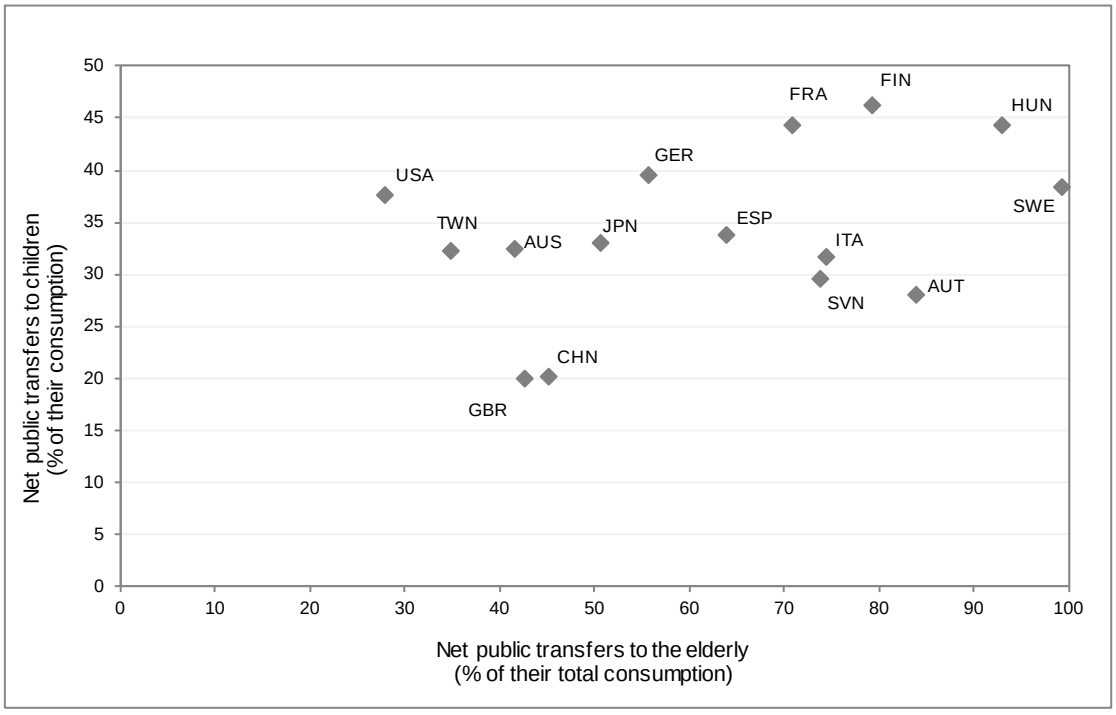



*Note: Data refer to the EU27 countries (not including Croatia, as in 2008 it had yet to join the EU)*
*Source: Eurostat, EU-SILC survey.*

Figure 2 plots the net public transfers (transfers received less taxes paid) received by children (age group 0-24) and the elderly (65 and more) as a share of their consumption, taken from the NTA project estimates (see Abio et al., 2015, for an earlier estimation). According to these data, Taiwan has the most balanced welfare state, with public transfers financing 32% of children's consumption vs. 34% of the elderly's; however, the level of public transfers in that country is significantly lower than those observed in European countries, with their better established welfare states. For example, in Sweden the elderly receive public transfers that represent 99% of their consumption, while children receive just 38%. The most generous countries with regards the consumption of children are Finland (46%), France and Hungary (both 43%), but even in these instances the marked

bias in favour of the elderly remains. Here, the case of the USA is worth noting insofar as its children receive public transfers that are closely in line with its European counterparts (38%), but those directed to the elderly are significantly lower (27%). Note these data do not contradict Isaac's (2009) estimations described above: Expressed in dollars per capita, the elderly in that study were reported as receiving more than twice what the children received but, as a percentage of their consumption, the figure was lower in the case of the elderly because their corresponding level of consumption was much higher. NTA data for the USA show that the consumption of the elderly is financed primarily by asset-based reallocations (asset income and dissaving) and even by labour income (the effective age of retirement being higher than in Europe), while in Europe public transfers are, in general, the most important source.

**Figure 2 Net public transfers received by children and the elderly as a percentage of their consumption**




*Source: Based on NTA data (http://www.ntaccounts.org/web/nta/show/Data%20Sheet). The profiles used refer to 2003 (Sweden), 2004 (Japan), 2005 (Hungary), 2006 (Finland), 2007 (United Kingdom and China), 2008 (Germany, Italy and Spain), 2010 (Australia, Austria, Slovenia and Taiwan) and 2011 (France and USA)*

It is worth mentioning that the nature of public transfers to the children (mainly education) is in general different from those received by the elderly (pensions). Transfers to the children do not aim at reducing poverty risk, at least in the short run, as they are an investment in human capital. On the contrary, pensions are clearly a mean to ensure income to the elderly.

Recently, Gal et al. (2017) have claimed that the pro-elderly bias of welfare states is somehow compensated by family transfers. Indeed, when considering the transfers (both in terms of money and time) made within families, the picture changes. Specifically, they estimate that children receive more than twice the family transfers received by the elderly. This implies an asymmetry in the socialization of the costs of dependents: while older persons are born by the whole society (through welfare state programs), children depends mainly on their families. However, statistics show that poverty rate data are higher in the case of children (as shown previously in Figure 1). Moreover, the reduction in the risk of poverty in the case of the elderly is dramatically high, indicating that public transfers are a much more powerful redistributive tool than private transfers: Children receive a greater amount of family transfers, but their poverty rate remains much higher than that of the elderly. On the contrary, the elderly receive a greater amount of public transfers, especially pensions, which reduce significantly their risk of poverty. Although it is beyond the scope of this paper, it is worth noting the existence of another related bias in this organization of the intergenerational transfers, which is not visible in NTA. We refer to the gender bias, as women bear the greater part of non-monetary family transfers. Gal et al. (2017) highlighted the relevance of this bias by observing National Time Transfer Accounts (NTTA) in ten European countries.

The question that interests us is how this overall picture has been affected by the Great Recession. While there is a large theoretical literature dedicated to studying how a negative income shock affects the aggregate economy, most of these studies use a representative agent to analyse the reaction to the shock, essentially in terms of consumption smoothing, saving/dissaving, and labour participation. Yet, the different instruments employed to smooth consumption across time (financial markets, social protection, family and interpersonal cooperation) play a critical role here. This means that when using a representative agent, any possible distributional effect both across income levels and age groups cannot be identified. A few papers have examined the evolution of inequality in recent years. Using Euromod, Matsaganis and Leventi (2014) analysed the evolution of inequality in seven EU countries (Greece, Italy, Portugal, Spain, Latvia, Lithuania and Romania) between 2009 and 2013. They observed that inequality generally worsened, and that the young were especially affected by the crisis, while the elderly were better protected. In the case of the UK, Hills et al. (2013) found that during the early years of the crisis (2007-2010) children and the elderly were protected against the recession,

while it was young adults that were most negatively affected as a result of unemployment and wage decreases. However, according to OECD (2014) data, the child poverty rate in the UK worsened significantly after 2010: the 2010 rate was the same as that recorded in 2007 (15.6%), but by 2011 it had risen by almost 5 points (up to 20.1%).

**3. What justifications are there for an asymmetric intergenerational redistribution?**

As seen in the previous sections, public transfers directed to the two economically dependent age groups show a clear asymmetry in favour of the elderly, while children are mostly supported by their families. This section revises the literature to investigate the reasons of this elderly bias of the welfare state. Preston (1984) seems to be the first author to point out this asymmetry (in the US), resulting from a set of private and public choices which have altered the age profile of wellbeing. Thirty-five years later than this seminal work, the picture has not changed and has been confirmed in most other countries. This Section revises the reasons behind those choices.

As a preliminary observation, one should consider that the dependent periods at the beginning and end of the lifecycle are quite distinct. First, having children is a joint decision reached by the parents influenced by various factors that range from the socioeconomic, cultural, ideological, etc. Clearly, not everybody can or, indeed, opts to have children, while everybody has a high probability of reaching old age. Second, all children are, by definition, equally dependent. However, the grade of economic dependency of the elderly is different and relies, to some extent, on choices and decisions they made along their previous life. Finally, childcare is considerably less substitutable by the market than elderly care, as children access to credit for finance this kind of services is severely limited. Hence, it is understandable that families support more the children, but is there any reason for the state to support more strongly the elderly? The most obvious reason comes from Political Economy. In the framework of a representative democracy and population ageing, public policies are likely to be shaped by the desires of the elderly, particularly if we consider that children do not vote. The so-called "generational conflict" hypothesis seems to be supported to some extent by the data.[5] Alternative views on the generational conflict scenario have been formulated. Esping-Andersen and Sarasa (2002) highlight the dynamic structure of the welfare state and foresee transfers to children and the elderly growing in parallel, on the understanding that

social investments in children now will have strong and positive secondary effects in terms of helping maintain welfare guarantees for the elderly in the future.[6]

The need for government intervention on forward (form parents to children) and backward (from children to parents) intergenerational transfers ultimately depends on the structure of family altruism. Altruism has usually been formalized into two categories, both of which are founded on the methodological individualism assumption, altering the individualistic shape of the utility function. On the one hand, there are models of pure altruism, in which the wellbeing of others is an individual's direct consideration: Giving in this instance is an unconditional.[7] On the other hand, there have been attempts to treat giving as a rational decision made by self-interested individuals as a means to an end (exchange reason or instrumental altruism). Arrondel and Masson (2006) discuss the need to formalize "mixed" motivations of transfers. According to them, indirect reciprocities (like the demonstration effect) appear more able to explain the heterogeneity observed the empirical analysis referring to downward financial transfers.[8]

Interestingly, the shape of individual preferences affects both the decision to have children and the level of transfers given to them to cover human capital investment and consumption needs. Besides the case of pure dynastic utility function, children have alternatively been described as investment goods, or as consumer durables providing utility flows to parents. The notion that a taste for altruism towards (one's own) children is an inherent aspect of human preferences is largely accepted, and the debate is focused more specifically on the magnitude of its effects and its implications for policy intervention (Romer, 1996). Seen in this light, commitment to children can be efficiently sustained by pure parental altruism, while government subsidies play a subsidiary role to investments in human capital aimed at avoiding persistent low earnings across generations. On the contrary, Folbre (1994) argues that children should be considered as public goods, with positive externalities for society: In short, children are an economic asset to the whole society, since they will become tomorrow's workforce and sustain the economic institutions we rely upon for our welfare state (health services, retirement, etc). In addition, children's education has been regarded as a means of promoting social cohesion and creating economic growth in a way that seems to ensure that everyone is a winner (Keep and Mayhew, 2010).[9]

Arguments in favour of non-parents supporting parents in child rearing seem intuitively hard to deploy from liberal approaches. However, Olsaretti's (2013) argument of children as 'socialized goods' points the way forward to making cost sharing compatible with liberal egalitarian theory. This author argues that children are not public goods in nature, but they become so because social and economic institutions are intentionally designed to ensure that they are (for example, with a welfare state financed on a PAYG basis). For this reason, she believes that the pro-sharing view is compatible with liberal egalitarian theories.

Arrondel and Masson (2006) point out several empirical puzzles claiming for a full picture of the "circulation" of private transfers between generations. Indeed, private transfers are in fact a result from the interplay between family, the markets and the government. To have the whole picture, they should be observed together with public transfers and intertemporal asset reallocations. This is precisely the information offered by NTA, capturing the "age profile of wellbeing" claimed by Preston (1984). Contradicting the pro-sharing view, NTA confirms the asymmetry of the welfare state in favour of the elderly (as shown in Section 2). What we are interested in analysing in this paper is how the picture has been affected by the Great Recession. Has this asymmetry been reduced? Which have been the consequences in terms of wellbeing for children and the elderly? Have they shared the brunt of the crisis equally?

## 4. Methodological framework: National Transfer Accounts

### *4.1. An overview of National Transfer Accounts*

National Transfer Accounts (NTA) provide an accounting framework of economic flows to and from the residents of a country, classified by age, in a given year. As such, they give information about the economic lifecycle and age reallocations, offering a cross-sectional picture of the intergenerational transfers that occur in an economy. The aggregate values of NTA are consistent with those in National Accounts (NA), but they provide information about how resources are allocated across ages. The construction of NTA was initiated at the start of this century as part of a collaborative international network and the first results for twenty-three countries – including Spain – were published in 2011 (Mason and Lee, 2011). Today, the NTA project involves more than fifty countries around the world, and its corresponding methodological manual has been published by the United Nations Population Division (UN, 2013).

Individuals consume across their whole lifecycle but they only produce resources during a limited period (typically, the working age), which means a system for transferring resources across ages is needed. NTA disentangles the way in which resources move between different age groups by means of family transfers, government intervention and capital markets. The starting point is the transformation of the NA identity for a given year as:

$$YL + YA + TG^{+} + TF^{+} = C + S + TG^{-} + TF^{-} \quad [1]$$

where the terms on the left-hand side represent income sources – *YL* is labour income, *YA* is asset income and $TG^{+}$ and $TF^{+}$ are public and private transfers, received by individuals – and the terms on the right-hand side represent income uses – *C* is consumption, *S* stands for savings and $TG^{-}$ and $TF^{-}$ are transfers from individuals to the public sector and to other individuals, respectively. Rearranging this equation, the following expression is obtained:

$$C - YL = (YA - S) + (TG^{+} - TG^{-}) + (TF^{+} - TF^{-}) \quad [2]$$

In NTA methodology, the left-hand side is known as the lifecycle deficit (*LCD*) and can be defined as the excess of consumption over labour income. This has to be financed with reallocations in one of the three ways illustrated on the right-hand side of the equation: asset-based reallocations (*ABR*) – measured as the difference between asset income and savings ($YA - S$), net public transfers (*TG*) or net family transfers (*TF*) – in both cases calculated as the difference between inflows (+) and outflows (-), that is:

$$LCD = ABR + TG + TF \quad [3]$$

It should be stressed that Equation [3] holds both for the whole economy and for each specific age-group. During non-productive ages (essentially childhood and retirement), the *LCD* is expected to be positive (a deficit), while during most of the working age it should be negative (a surplus). When positive, the *LCD* needs to be financed via the three mechanisms on the right-hand side of equation [3]. For example, children would be expected to finance their *LCD* primarily via family transfers (*TF)* and public transfers (*TG)*, such as education and health services. In the case of the elderly, they receive a high amount of *TG* (mainly pensions and health) and probably use *ABR* (dissaving, asset income), while *TF* would be limited, even negative (transfers from the old to younger family members). When the *LCD* is negative, labour income can be assumed to be higher than consumption, so typically individuals can save (*ABR* is negative), although they pay

more in taxes than they receive in public transfers. Equation [3] highlights an interesting characteristic of the so-called generational economy: the standard of living of the society is heavily dependent on the success of the working-age population to generate sufficient resources to finance the *LCD* of the two economically dependent age groups (children and the elderly). This means that the population age structure is a critical factor in the analysis.

### *4.2. Constructing Spain's NTA for 2012*

NTA have been estimated for Spain for 2000 (Patxot et al., 2011), 2006 (Renteria et al., 2016, in this case also disaggregated by level of education) and 2008 (Patxot et al., 2015). All three estimations correspond to the pre-crisis period, which means any possible changes due to the recession cannot be analysed. Here, therefore, we construct the NTA profiles for 2012, typically considered one of the worst years of the crisis.[10]

To obtain all the age profiles for NTA requires considerable input from many different statistical sources – for full details consult the NTA manual (UN, 2013). Here, we outline the statistical sources and specific procedures used in obtaining the estimations for Spain for 2012.

First, to create labour income profiles we use the European Union Statistics on Income and Living Conditions (EU-SILC) for 2012. This Eurostat survey seeks to collect timely, and comparable cross-sectional and longitudinal multidimensional micro-data on income, poverty, social exclusion and living conditions.

Second, we estimate private consumption within three main categories: education, health and other. The first two are estimated directly using the 2012 Household Budget Survey, while the third includes not only all categories of consumption other than education and health, but also owner-occupants' housing consumption – that is, the value of annual services resulting from owning a house, typically measured as the amount for which the house could be rented. Each component of private consumption for each household ($j$) then has to be allocated to each household member ($i$). To do this, an equivalence scale is used. This scale, dependent on each member's age [$\alpha(a)$], is standard in NTA, and assumes a value of one for adults aged 20 years and more, declining linearly from ages 20 to 4, with a constant value of 0.4 for ages 0–4. Total household consumption ($CF$) is distributed among household members (where $M$ is the number of members) using the equivalence scale as follows:

$$CF_{ij}(a) = \frac{CF_j \alpha(a)}{\sum_a \alpha(a) M_j(a)} \quad [4]$$

Third, public consumption profiles are estimated distinguishing between education, health and other public consumption. The information required is drawn directly from various databases provided by the Ministries of Employment and Social Security – MEYSS, Education – MECD and Health and Social Services – MSSSI and the NHS (National Health Survey) produced by INE (National Statistics Institute).

Finally, all the age profiles obtained are adjusted to the corresponding aggregates in the Spanish NA provided by INE. In this way we ensure the NTA are perfectly consistent with the NA.

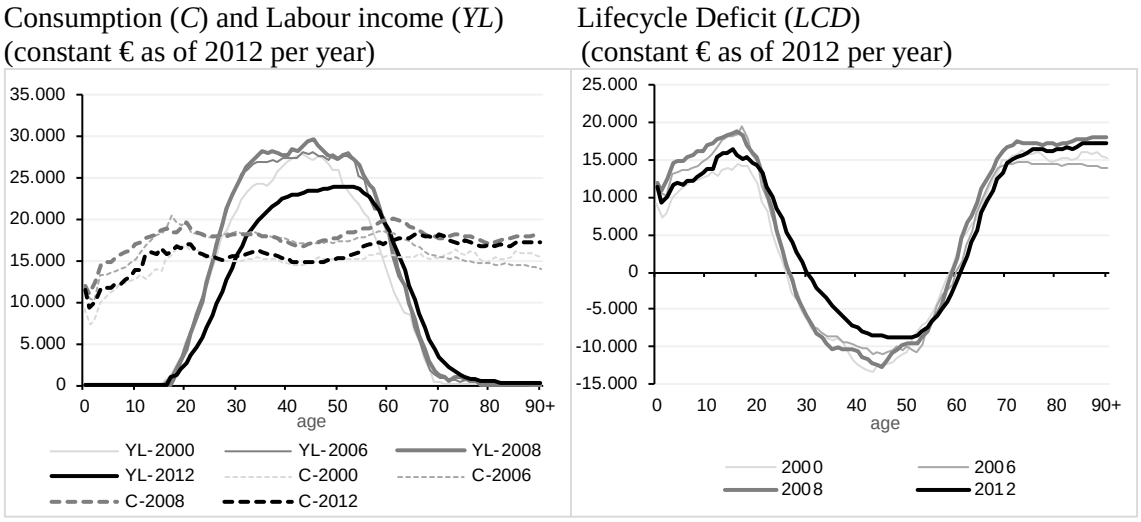
## 5. Analysing the impact of the crisis by age in Spain

We start by presenting the 2012 NTA age profiles estimated for Spain and compare them to those previously estimated for 2000, 2006 and 2008. The analysis of these results should reveal the impact of the crisis and, in particular, its effects on each age group. First panel in Figure 3 shows the evolution of the per capita labour income and consumption age profiles. Typically, labour income concentrates around the central period of the working age (25–50 years). Here, however, the evolution of this profile reveals two specific trends. First, it provides evidence of the impact of the crisis on labour income: while the aggregate level increased significantly from 2000 to 2008, it fell dramatically in 2012. Specifically, by 2012 the average labour income at age 45 was under 24,000 euros per year, a fall of 21 and 16% on the figures for 2008 and 2006, respectively. Second, not only does the level of labour income appear to be changing but also the age pattern: labour income fell more markedly in the case of workers under the age of 50, especially among the youngest cohort. In contrast, the labour income of the oldest workers (above 65) was higher in 2012 than in the other years, probably indicating that some of these workers have opted to delay retirement.

The evolution of the consumption age profile in Spain also presents a number of interesting features. The profile increases throughout childhood and, thereafter, tends to remain quite stable with a slight decrease at the end of the lifecycle. In fact, this profile is quite unique to Spain with other countries (most notably the USA, Sweden, Finland and Germany) presenting a marked increase in consumption at older ages, attributable to

much higher long-term expenditure. In common with labour income, the consumption age profile increased from 2000 to 2006 except in the case of the elderly. From 2006 to 2008, consumption increased again for young children and, in particular, for the elderly, while it remained almost constant for the working-age population. However, the impact of the crisis meant the age profile in 2012 returned to 2000 levels for all ages except those over 50. This clearly indicates that older workers and the retired suffered the consequences of the crisis in their consumption level much less than did the younger generations.

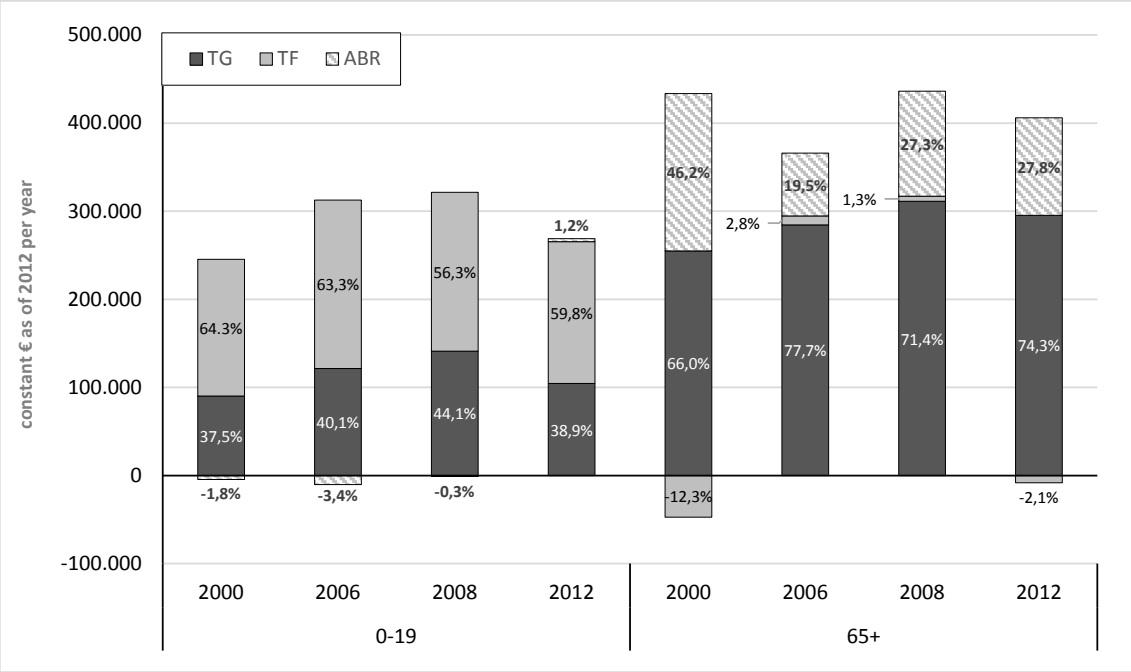
**Figure 3 Evolution of per capita age profiles in Spain**




*Note: All the age profiles are measured in constant euros as of 2012.*
*Source: 2012 authors' calculations; 2000 from Patxot et al. (2011); 2006 from Renteria et al. (2016); 2008 from Patxot et al. (2015).*

The evolution of the resulting lifecycle deficit (*LCD*) – estimated as the difference between consumption and labour income at each age – is shown in the second panel of Figure 3. While the age profile is quite similar for all four years analysed, a number of interesting differences can be observed. First, the surplus area decreased significantly in 2012 with respect to the previous years, while the deficit both during childhood and old age is much more similar. Second, because of the marked impact of the crisis on the labour income of the younger workers, the period of surplus has also shrunk significantly: labour income only surpasses consumption after the age of 30 (four years later than before the crisis), while at the end of the working age it extends slightly (61 vs 60 in 2006 and 2008).

**Figure 4 Financing *LCD* of children (0-19) and the elderly (65+)**

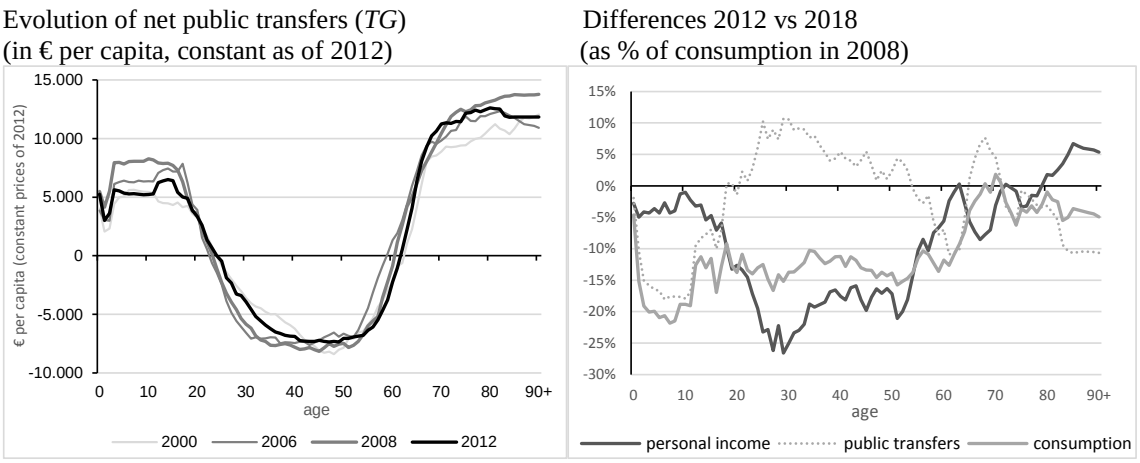



*Source: 2012 authors' calculations; 2000 from Patxot et al. (2011); 2006 from Renteria et al. (2016); 2008 from Patxot et al. (2015).*

Figure 4 summarises the role of the three instruments (public and private transfers and asset-based reallocations) in financing the *LCD* of the two economically dependent age groups, as stated in Equation [3]. We define as children the population up to age 19, and the elderly as those aged 65 and more. The pattern observed is very different for both age groups. In the case of children, asset-based reallocations are negligible, with public and, especially, private transfers constituting the main sources of funding. In contrast, public transfers are clearly the most important source of financing of elderly consumption, followed by asset-based reallocations, while private transfers are extremely low. Interestingly, the role of private transfers in financing the elderlies' *LCD* has changed over time: thus, in 2000 they were negative – indicating that the elderly were giving resources to younger members of the family, in 2006 and 2008 they became slightly positive before turning negative again in 2012. What is more significant in Figure 4 is the evolution of total *LCD* and its components in the two age groups. Between 2000 and 2006, *LCD* increased significantly in the case of children, while for the elderly it fell slightly. However, there was a change in the financing of the *LCD* of the elderly, with a marked reduction in asset-based reallocations, an increase in public transfers and, as mentioned, a sign change was recorded in private transfers. In 2008 – the onset of the crisis – public transfers to both age groups increased slightly, but this trend was reversed

in 2012. Moreover, private transfers received by children also fell substantially and, hence, they saw a reduction in their two main sources of financing. In the case of the elderly, their other main financing source, total asset-based reallocations (*ABR*) fell slightly between 2008 and 2012, although it increases in percentage (from 27.3% to 27.8%).

**Figure 5 Evolution of per capita age profiles of public transfers, personal income and consumption**



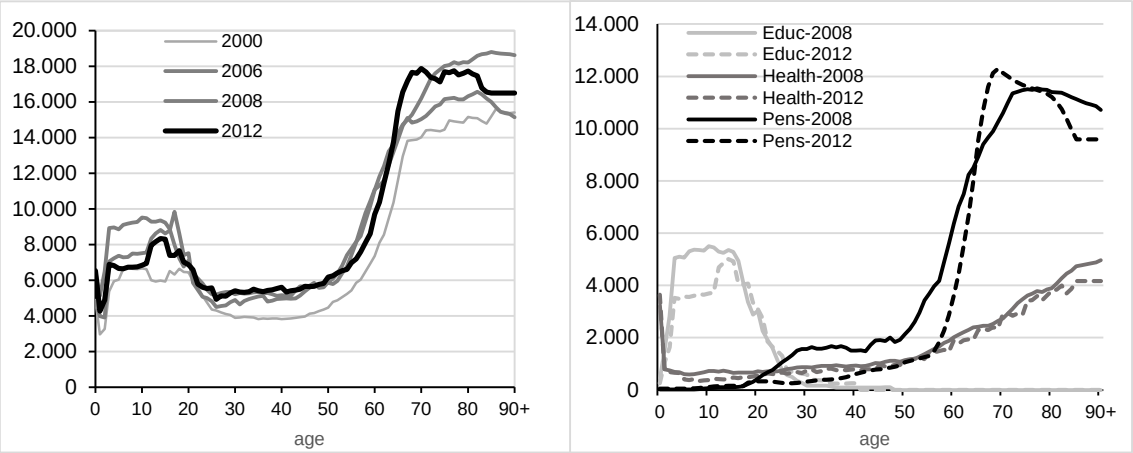

*Note: Per capita age profile of net public transfers is measured in constant euros as of 2012. Differences in income and consumption are also expressed in constant euros as of 2012.*
*Source: 2012 authors' calculations; 2000 from Patxot et al. (2011); 2006 from Renteria et al. (2016); 2008 from Patxot et al. (2015).*

Overall, the trends observed show that the financial crisis has had more of a negative effect on children than it has on the elderly. Figure 5 allows us to analyse in greater depth these effects on the two age groups and the mechanisms via which they operated. First panel shows the evolution of the per capita *TG* (net public transfers) profiles. As can be seen, transfers directed to children fell significantly with the onset of the crisis, while those directed to the elderly remained fairly constant until the age of 80. Interestingly, the net public transfer profile remained largely unchanged for the working-age population. Only a few differences can be observed in the case of younger workers (under the age of 35) who appear to have paid fewer taxes in 2012 than they did before the crisis. In contrast, older workers (above the age of 55) paid slightly more.

The second panel in Figure 5 compares the changes observed in private income (including labour income, private transfers and asset-based reallocations), public transfers and consumption between 2008 and 2012. The reduction in consumption is notable for all ages except for the elderly, being considerably higher for young children. While public

transfers partially compensate the fall in labour income for young adults (primarily through unemployment benefits), the fall in the consumption of children exceeds the reduction in the transfers received.

**Figure 6 Evolution of per capita age profiles of public transfers received by individuals**




*Note: Per capita age profiles are measured in constant euros as of 2012.*
*Source: 2012 authors' calculations; 2000 from Patxot et al. (2011); 2006 from Renteria et al. (2016); 2008 from Patxot et al. (2015).*

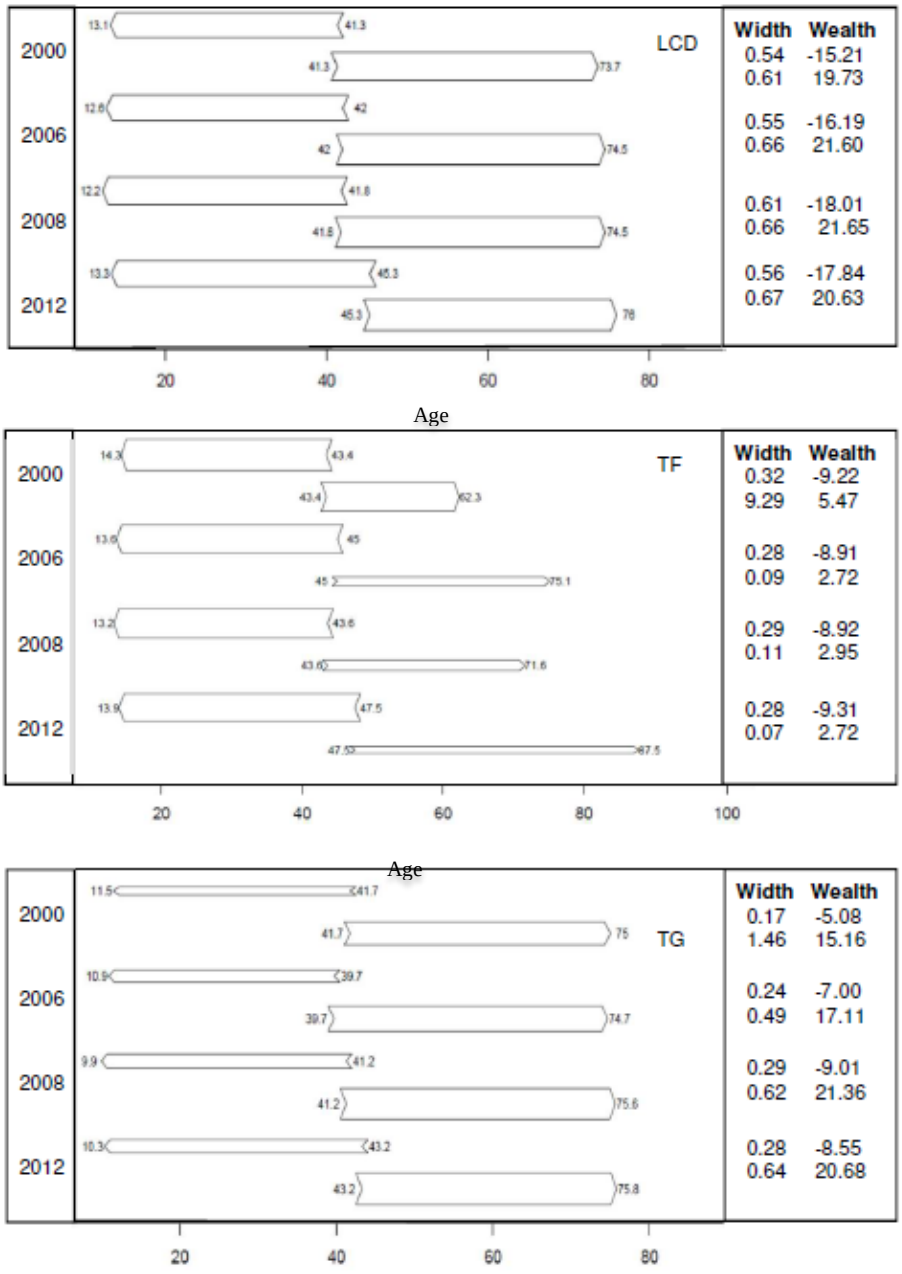
Figure 6 offers further details on the evolution of public transfers. First panel shows the per capita age profile of *TG* inflows (flows received by individuals, excluding tax payments). This highlights that the young were the most heavily affected by cuts in public expenditure. In 2008, children aged between 5 and 16 received, on average, around 6,500 euros in public transfers, a figure that fell to 5,100 euros in 2012 (a reduction of 21%). In contrast, individuals aged 65–80 received more public transfers in 2012 than they did in 2008, this increase being particularly high for those aged between 65 and 70 who received 12% more. Over the period, public transfers directed to the working-age population remained fairly constant up to the age of 55, falling slightly thereafter for older workers. The breakdown of the main public transfer programs (contributory pensions, health and education), shown in the second panel, provides confirmation as to why the cuts in public expenditure had an uneven effect across ages. While education transfers fell significantly between 2008 and 2012, contributory pensions for those aged 65 and more increased. In the case of health, although this is a program that benefits relatively more the elderly, expenditure remained fairly stable during the crisis, not affecting any age group in particular. At this point, it is worth considering the different nature of cash and in-kind public transfers. Cash transfers (being pensions the most important), are directly received by the beneficiaries, who can exchange that money by consumption, for example.

Conversely, in-kind transfers provide a service instead of money (education, health). Economists agree that, in general, an in-kind transfer is less -or at most the same- valuable than a cash transfer. However, in-kind transfers are an important component of the welfare state in all countries, for many reasons, as paternalism or externalities. To monetize the value of in-kind transfers, statistics in general, and NTA in particular, use just the cost of providing them, without any reference to the quality of the service. This implies that, for example, when doctors or teachers wages are cut (as happened in Spain during the crisis), transfers received by patients or children result automatically reduced in the same amount, even though it might not imply the same reduction in quality. Although we do not deal with this issue in this paper, it is worth considering it in interpreting some of our results, as those showed in the second panel of Figure 6. Education expenditure dropped almost by a third for ages 6-12, as a consequence of the teachers' wage cut and a set of measures to reduce expenditures (as increase the number of pupils in classroom). The health expenditure decrease seems more moderate because it is spread across all ages.

To highlight the extent to which resources move towards the two dependent ends of the life cycle, we obtain the 'modified Lee arrows' following Patxot et al. (2012) who extend the methodology initially proposed by Lee (1994). This synthetic indicator illustrates how resources move from donors (typically in working ages) to recipients (both children and the elderly). For each NTA concept (*LCD*, *TF* and *TG*), we construct a double arrow going from the average age of the outflow profile (or the financing source) to the average age of the recipient at both ends of the lifecycle. The average ages are obtained by weighting the corresponding age profiles by the population age structure. The width of the arrow is the per capita amount of inflow resources received (weighted by the average labour income between 30 and 49 years old), and the area corresponds to the implied wealth. An inspection of the arrow diagrams in Figure 7 shows a number of interesting features. First, in the case of public transfers, there is a fall in the age of the average donor (taxpayer) between 2000 and 2006, but an increase thereafter, which is perfectly consistent with the changes observed above in relation to the labour income profiles (Figure 3). The greater width of the arrow going to the elderly indicates that they are clearly receiving more resources than children are. Again, this is consistent with the results obtained for the *TG* age profiles shown above. Second, private transfers go in the opposite direction. An examination of their evolution shows that the crisis has resulted in

an increase in the average age of the donor and a decrease in the amount of resources transferred (which increased until 2008). Here again both trends are consistent with those observed in the labour market – a general decrease in per capita labour income, especially at ages below 55 years, as shown in Figure 3. It is perhaps worth stressing that the patterns observed in *TG* and *TF* are, more than likely, largely complementary. As public transfers are mostly directed to the elderly, families tend to concentrate their support on their children.

**Figure 7 Modified Lee arrow diagrams. How resources move across generations**




*Note: In 2000 there is also a small transfer from age 74.9 to ages 14.3 and 62.3 that we omit here to ease comparability (See Abio et al. 2012).*
*Source: Authors' elaboration*

## 6. Conclusions

The impact of the crisis has varied across the generations. The pre-existing inertia of shifting public resources towards the elderly – the identification of which is far from novel in the literature – combined with a cut in family income resulted in a dramatic deterioration of children's consumption. Here, we have re-examined the reasons for this bias and provided new evidence of it using the National Transfer Accounts methodology to explore the effects of the crisis by age in Spain, one of the countries hit hardest by the economic downturn.

While the existing distribution of public and private transfers for financing consumption seems to ensure that all generations gain from economic expansion, the distribution of the costs of an economic crisis does not appear to be so equitable. The increase in children's consumption in the period of economic growth immediately preceding the Great Recession (2000-2008) was, in this sense, remarkable. However, the crisis meant that the 2012 age profile had returned to 2000 levels for all ages except those over the age of 50. As such, policy interventions need to consider the implications of cyclical policies for intergenerational equity. The absence of specific public programs to secure income during childhood, leaving the protection of children essentially in the hands of the family, has proved to be ineffective in guaranteeing their wellbeing (measured as the maintenance of consumption patterns). Moreover, programs designed to secure the income of the working-age population (such as unemployment programs) have also been insufficient in upholding consumption when faced by falling labour income. In this sense, it is worth noting that the crisis has not only changed the level but also the age pattern of labour income, with levels falling significantly more among younger workers. In the case of older workers (above the age of 65), labour income actually rose in 2012, indicating in all probability that some of these workers have delayed their retirement.

The timing of the changes made in public and private transfers during the crisis also allows us to draw some interesting conclusions. While families upheld private transfers to the young during the first years of the crisis, government transfers to children were almost immediately cut. In practice, this was undertaken without any public debate: transfers to the young being reduced quite simply because it was an easy policy to implement. While expenditure on unemployment was countercyclical, and pensions were secured without any link to the economic cycle, cutting resources to the young emerged as a timely way to contain public deficit.

The review conducted herein of the arguments forwarded to justify intergenerational redistribution sought to aid the explanation of the trends described in the case of Spain and to reflect on areas for future reform. The persistent bias of public resources in favour of the elderly finds no justification in the literature nor, for that matter, can it be justified in relation to any perspective committed to providing welfare. This trend, and the failure to protect children in times of crisis, is compatible with the predominance of strategic behaviour in the design of public policies, reflecting that certain rights of children (related to the securing of their income) are not institutionalized. However, individual strategic motives have not been shown to be the best solution for solving the collective moral duty of protecting the needy as generally recognised in all democracies.

Further research is needed to understand the causes and implications of the pro-elderly bias of the welfare state. More specifically, this means addressing three dimensions of a redistribution issue that to date have largely been ignored. First, as we show in this paper, the lack of automatic mechanisms for redistributing to children results in the deterioration of children's wellbeing when there is a decrease in labour income. Although cushioned to some degree by substantial family transfers, their poverty rates were maintained much higher than those of the elderly. Increasing child poverty is not only a moral question, it also has consequences for future development. Second, calls for a more equal distribution of the costs of children give rise to questions of intragenerational redistribution. The intergenerational redistribution schemes shared by most European democracies, which "socialize" the benefits of children more than they do the costs, means a flow of resources from families with children to childless individuals and families. Third, and finally, the consequences for gender equity are immediate. Poor child-support policies shift a greater share of the cost onto mothers, who usually have to bear greater child-raising costs than men.

**Acknowledgements**

This research received institutional support from the Spanish Science and Technology System (project numbers ECO2015-67999-R MINECO/FEDER, ECO2016-78991-R, and SIMBIEN network No. ECO2015-71981-REDT) as well as from XREPP (Xarxa de Referència en Economia e Polítiques Públiques) and the International Joint Programming Action (JPI) *More Years, Better Lives*, project WELTRANSIM.

## References


Abio, G., Patxot, C., Renteria E. and Souto G. (2015) 'Taking Care of our Elderly and our Children. Towards a Balanced Welfare State'. In Gas-Aixendri, M. and Cavalloti R., *Family and Sustainable Development*, Thomson Reuters, pp. 57–71.

Albertini, M. (2016) *Ageing and Family Solidarity in Europe: Patterns and Driving Factors of Intergenerational Support.* Policy Research Working Paper 7678, Poverty and Equity Global Practice Group, World Bank Group.

Andreoni, J. (1990) 'Impure Altruism and Donations to Public Goods: A Theory of Warm-Glow Giving', *The Economic Journal*, **100**, 464–477.

Arneson, R. J. (2014) 'What Do We Owe to Poor Families?', *Law, Ethics and Philosophy*, **2**, 7–31.

Becker, G. S. (1988) 'Family Economics and Macro Behavior', *American Economic Review*, **78**, 1–13.

Bénabou, R. and Tirole, J. (2006) 'Incentives and Prosocial Behavior', *American Economic Review*, **96**, 1652–1678.

Bradley, D., Huber, E., Moller, S., Nielsen, F. and Stephens, J.D. (2003) 'Distribution and Redistribution in Post-Industrial Democracies', *World Politics*, **55**, 193–228.

Coder, J., Rainwater, L. and Smeeding, T. (1989) 'Inequality among Children and Elderly in Ten Modern Nations: The United States in an International Context', *American Economic Review*, **79**, 320–324.

Deaton, A. (2012) 'The Financial Crisis and the Well-being of Americans: 2011 OEP Hicks Lecture', *Oxford Economic Papers*, **64**, 1–26.

EAPN (2015) *El Estado de la pobreza. Seguimiento del indicador de riesgo de pobreza y exclusión social en España, 2009-2014*.

EC (2015a) *The 2015 Ageing Report*. European Commission, European Economy 8/2014.

EC (2015b) *The 2015 Pension Adequacy Report*, The Social Protection Committee and the European Commission.

Esping-Andersen (1990). *The three Worlds of Welfare Capitalism*, Princeton University Press.

Esping-Andersen, G. (2002) *Why We Need a New Welfare State*. Oxford University Press.

Esping-Andersen, G. and Sarasa, S. (2002) 'The Generational Conflict Reconsidered', *Journal of European Social Policy*, **12**, 5–21.

Fehr, E. and Schmidt K. M. (1999) 'A Theory of Fairness, Competition, and Cooperation', *Quarterly Journal of Economics*, **114**, 817–868.

Folbre, N. (1994) 'Children as Public Goods', *American Economic Review, Papers and Proceedings of the 106th American Economic Association*, **84**, 86-90.

Fuchs, V. and Reklis, D. (1992). 'America's Children: Economic Perspectives and Policy Options', *Science*, **255** (5040), 41–46.

Gal, R., Vanhuysse, P. and Vargha, L. (2017) 'Pro-elderly Welfare States within Child-oriented Societies', *Journal of European Public Policy*, **25**, 944–958.

Grob, U. and Wolter, S. (2007) 'Demographic Change and Public Education Spending: A Conflict between Young and Old?', *Education Economics*, **15,** 277–292.

Hills, J., Cunliffe, J., Gambaro L. and Obolenskaya P. (2013) 'Winners and Losers in the Crisis: The Changing Anatomy of Economic Inequality in the UK 2007-2010', *Social Policy in a Cold Climate Research Report*, SPCCRR02. Centre for Analysis of Social Exclusion, London School of Economics and Political Science, London, UK.

Holzmann, R. and Hinz, R. (2005). *Old-Age Income Support in the 21st Century: An International Perspective on Pensions Systems and Reform*. The World Bank, Washington D.C.

Huber, E. and Stephens J.D. (2014) 'Income Inequality and Redistribution in Postindustrial Democracies: Demographic, Economic and Political Determinants', *Socio-economic Review*, **12** 245–267.

Isaac, J.B. (2009) *Spending on Children and the Elderly*, Brookings Issue Brief November 2009, Washington.

Kemnitz, A. (2000) 'Social Security, Public Education, and Growth in a Representative Democracy', *Journal of Population Economics*, **13**, 443–462.

Keep, E. and Mayhew, K. (2010) 'Moving Beyond Skills as a Social and Economic Panacea', *Work, Employment & Society* **24**, 565–77.

Kolm, S. C. (2006) 'Introduction to the Economics of Giving, Altruism and Reciprocity', *Handbook of the Economics of Giving, Altruism and Reciprocity*, **1**, 1-122.

Konrad, K. (1995) 'Social Security and Strategic *Inter-vivos* Transfers of Social Capital', *Journal of Population Economics*, **8**, 315–326.

Künemund, H., and Rein, M. (1999) 'There is More to Receiving than Needing: Theoretical Arguments and Empirical Explorations of Crowding In and Crowding Out', *Ageing and Society*, **19**, 93–121.

Ladd, H. and Murray, S. (2001) 'Intergenerational Conflict Reconsidered: County Demographic Structure and the Demand for Public Education', *Economics of Education Review*, **20**, 343–357.

Levine, D. K. (1998) 'Modeling Altruism and Spitefulness in Experiments', *Review of Economic Dynamics*, 1, 593–622.

Mason, A. and Lee, R. (2011) 'Population Aging and the Generational Economy: Key Findings'. In Lee, R. and Mason, A. (eds), *Population Aging and the Generational Economy. A Global Perspective*, Edward Elgar.

Matsaganis, M. and Leventi, C. (2014) *Distributive Effects of the Crisis and Austerity in Seven EU countries*, ImPRovE Discussion Paper No. 14/04. Antwerp: Herman Deleeck Centre for Social Policy – University of Antwerp.

OECD (2014) *Society at a Glance 2014: OECD Social Indicators*, OECD Publishing. http://dx.doi.org/10.1787/soc_glance-2014-en

Olsaretti, C. (2013) 'Children as Public Goods?', *Philosophy and Public Affairs*, **41**, 226–258.

Pampel, F. (1994) 'Population Aging, Class Context, and Age Inequality in Public Spending', *American Journal of Sociology*, **100**, 153 –195.

Patxot, C., Renteria, E., Sánchez-Romero M. and Souto, G. (2011) 'How Intergenerational Transfers Finance the Lifecycle Deficit in Spain'. In Lee, R. and Mason, A. (eds), *Population Aging and the Generational Economy. A Global Perspective*, Edward Elgar, 241–255.

Patxot, C., Renteria, E., Sánchez-Romero M. and Souto, G. (2012) 'Measuring the Balance of Government Intervention on Forward and Backward Family Transfers using NTA Estimates: The Modified Lee Arrows', *International Tax and Public Finance*, **19**, 442–461.

Patxot, C., Renteria, E., and Souto, G. (2015) 'Can We Keep the Pre-crisis Living Standards? An Analysis Based on NTA Profiles in Spain', *Journal of Economics of Ageing*, **5**, 54–62.

Pogue, T. and Sgontz, L. (1977) 'Social Security and Investment in Human Capital', *National Tax Journal*, **30**, 157–169.

Poterba, J.M. (1997) 'Demographic Structure and the Political Economy of Public Education', *Journal of Policy Analysis and Management*, **16**, 48–66.

Reinhart, C.M. and Rogoff K. S. (2009) 'The Aftermath of Financial Crises', *American Economic Review*, **99**, 466–472.

Renteria, E., Souto, G., Mejía-Guevara I. and Patxot, C. (2016) 'The Effects of Education on the Demographic Dividend', *Population and Development Review*, **42**, 651–671.

Romer, P. M. (1996) 'Preferences, Promises, and the Politics of Entitlement'. In *Individual and Social Responsibility: Child Care, Education, Medical Care, and Long-term Care in America*, University of Chicago Press, pp. 195–228.

Save the Children (2014) *Child Poverty and Social Exclusion in Europe. A Matter of Children's Rights*. Save the Children, Belgium.

Save the Children (2016) *Child Poverty. What Drives it and What it Means to Children across the World.*

Solga, H. (2012) 'Education, Economic Inequality and the Promises of the Social Investment State', *Socio-Economic Review*, **12**, 269–297.

Somarriba-Arechavala, N., Zarzosa-Espinosa, P. and Pena-Trapero, B. (2015) 'The Economic Crisis and its Effects on the Quality of Life in the European Union', *Social Indicators Research*, **120**, 323–343.

UN (2013) *National Transfer Accounts Manual. Measuring and Analysing the Generational Economy*. Population Division, Department of Economic and Social Affairs, United Nations, New York.

UNICEF (2014a) *La Infancia en España 2014*. UNICEF, Madrid.

UNICEF (2014b) *Children of the Recession: The Impact of the Economic Crisis on Child Well-being in Rich Countries*. Innocenti Report Card, 12. UNICEF Office of Research, Florence.

UNICEF (2016) *Fairness for Children: A League Table of Inequality in Child Well-being in Rich Countries.* Innocenti Report Card 13, UNICEF Office of Research, Florence.

Vanhuysse, P. (2013) 'Intergenerational Justice in Aging Societies: A Cross-National Comparison of 29 OECD Countries', accessed at http://dx.doi.org/10.2139/ssrn.2309278 on April 20, 2018.

## Endnotes

[1] Künemund and Rein (1999) highlight the fact that family transfers have feedback effects, that is, giving money and services to adult children increases the probability of the elderly subsequently receiving their help ('crowding-in').

[2] The AROPE index, developed by the EU 2020 Strategy, combines the monetary indicator of poverty (the share of the population at risk of poverty) with other indicators of social exclusion (severe material deprivation and living in a household with a very low work intensity).

[3] See also data from the European Anti-Poverty Network (EAPN, 2015) which point in the same direction: children below the age of 16 present the highest poverty rate (30.1% in 2014) among all age groups.

[4] Esping-Andersen (1990) stated the classical typology of welfare states.

[5] See, for example, Poterba (1997), Ladd and Murray (2001) and Grob and Wolter (2007), who investigated the effects of population age structure on education expenditure.

[6] See also previous papers in this line by Pogue and Sgontz (1977), Pampel (1994), Konrad (1995) and Kemnitz (2000).

[7] See Kolm (2006) for a survey of different forms of altruism.

[8] A wide array of possible motivations have been discussed in the literature, some of them receiving considerable empirical support. Outstanding examples are Andreoni's (1990) "warm-glow" motivation for contributing to a public good; Levine's (1998) reciprocal altruism; "self-image" in Bénabou and Tirole (2006) and "inequity aversion" in Fehr and Schmidt (1999).

[9] Other arguments in favor of pro-sharing are based on the existence of a collective duty of procreation (Arneson, 2014)

[10] As highlighted by various macroeconomic indicators. For example, unemployment reached a record high (25.77%) and the public debt risk premium rose 600 points in July, leaving the country on the verge of a financial rescue from the European Union.