



UNIVERSITY OF CYPRUS  
ECONOMICS RESEARCH CENTRE



## Economic Analysis Papers

### **Child Poverty, Family Policies and the Effect of Economic Crisis**

**Christos Koutsampelas**  
*Economics Research Centre,  
University of Cyprus*

**Alexandros Polycarpou**  
*Economics Research Centre,  
University of Cyprus*

**Panos Pashardes**  
Department of Economics and Economics Research Centre,  
University of Cyprus

**No. 10-13**

**December 2013**

**Publication Editor: Christos Koutsampelas**

**ERC Sponsors (in alphabetical order)**

Association of Cyprus Banks

Central Bank of Cyprus

Department of Economics, University of Cyprus

Ministry of Finance

Ministry of Labour and Social Insurance

Planning Bureau

University of Cyprus

**Disclaimer: the views expressed in the Economic Policy Papers and Economic Analysis Papers are of the authors and do not necessarily represent the ERC.**

# **Child Poverty, Family Policies and the Effect of Economic Crisis**

**Christos Koutsampelas, Alexandros Polycarpou, Panos Pashardes**

## ***Abstract***

The recent economic crisis is likely to have a considerable impact on families with children, thus endangering EU's effort to promote children's well-being. Our analysis provides an assessment on issues surrounding child poverty in Cyprus, a country hardest hit by the on-going recession in South Europe. Using a variety of microsimulation techniques that take into account policy changes and the rise in unemployment - and by adjusting incomes in accordance to macroeconomic figures - we synthesise the 2013 income distribution from 2009 microdata drawn from the 2009 Cyprus Family Expenditure Survey. The aim of the analysis is twofold; to estimate the current levels of child poverty and explore the role of family policies in dampening the impact of economic crisis. According to our estimates, child poverty in Cyprus increased from 13.1 per cent in 2009 to 13.9 per cent in 2013. Child poverty varies across age groups, with single parent families continuing to face the highest risk and intensity of poverty. High and rising poverty also occurs among families with children in the 12-17 age group and multi-child families with a large number of children. Family transfers were found to be play a significant role in providing income support to families and thus fencing off child poverty. Furthermore, we find that child poverty estimates are, in general, sensitive to the choice of equivalence scales used to measure the cost of children. This argument gains more importance when considering that equivalence scales are used in many countries to determine the levels of various family benefits.



## TABLE OF CONTENTS

1. INTRODUCTION .....	1
2. DATA AND METHODOLOGY.....	3
3. EMPIRICAL APPLICATION.....	4
4. DISCUSSION.....	9
5. CONCLUSION .....	11
REFERENCES .....	12
APPENDIX.....	14
A.1 Policy rules of the single parent benefit	14
A. 2 Simulation methods for obtaining the 2013 income distribution	14
A.3 Equivalence scales estimation method	15
RECENT ECONOMIC POLICY/ANALYSIS PAPERS .....	1



# Παιδική φτώχεια, κοινωνική πολιτική και οι επιπτώσεις της οικονομικής κρίσης

Χρήστος Κουτσαμπέλας, Αλέξανδρος Πολυκάρπου, Πάνος Πασσιαρδής

## Περίληψη

Η οικονομική κρίση είναι πιθανόν να επιφέρει σημαντικές επιπτώσεις στις οικογένειες με παιδιά. Η μελέτη ποσοτικοποιεί τις επιπτώσεις στην παιδική φτώχεια στην Κύπρο χρησιμοποιώντας τεχνικές προσομοίωσης έτσι ώστε να ληφθούν υπόψη οι μεταρρυθμίσεις, η άνοδος της ανεργίας και να προσαρμοστούν τα εισοδήματα σύμφωνα με τα τρέχοντα μακροοικονομικά δεδομένα. Χάρη σε αυτές τις τεχνικές δημιουργούμε μια «συνθετική» κατανομή εισοδήματος του 2013 με βάση τα δεδομένα της Έρευνας Οικογενειακών Προϋπολογισμών του 2009 που διεξήχθη από τη Στατιστική Υπηρεσία της Κύπρου. Ο σκοπός της ανάλυσης είναι διττός: αφενός να εκτιμήσει τα τρέχοντα επίπεδα παιδικής φτώχειας και αφετέρου να διερευνήσει το ρόλο της κοινωνικής πολιτικής αναφορικά με το στόχο της άμβλυνσης των επιπτώσεων της κρίσης. Σύμφωνα με τα ευρήματα της μελέτης, η παιδική φτώχεια αυξήθηκε οριακά από 13.1% το 2009 σε 13.9% το 2013. Η παιδική φτώχεια διαφέρει ανάλογα με την ηλικιακή ομάδα των παιδιών, ενώ οι μονογονεϊκές οικογένειες συνεχίζουν να αντιμετωπίζουν το μεγαλύτερο κίνδυνο φτώχειας. Σχετικά υψηλή φτώχεια παρουσιάζεται στις οικογένειες με παιδιά από 12 έως 17 καθώς και στις οικογένειες με πολλά παιδιά. Η μελέτη επίσης καταδεικνύει ότι οι χρηματικές μεταβίβασεις παίζουν σημαντικό ρόλο στη συγκράτηση των εισοδημάτων των οικογενειών με παιδιά, ειδικά σε περίοδο οικονομικής κρίσης. Τέλος, βρέθηκε ότι η εκτίμηση της φτώχειας των επιμέρους πληθυσμιακών ομάδων επηρεάζεται από την επιλογή των κλιμάκων ισοδυναμίας που χρησιμοποιούνται για να καθοριστεί το κόστος των παιδιών. Καθώς οι κλίμακες ισοδυναμίας χρησιμοποιούνται επιπρόσθετα για τον καθορισμό των κρατικών παροχών, το εύρημα αυτό παρουσιάζει ενδιαφέρον.

## 1. INTRODUCTION

Children in European countries face considerably higher risk of poverty than the rest of population (Atkinson and Marlier, 2010). In response, the European Union (EU) has set the target of improving child well-being through an array of anti-poverty initiatives. In February 2013, the European Commission (EC) issued a recommendation on child poverty, whose shibboleth of 'breaking the intergenerational cycle of disadvantage' very much characterises one of the key elements of the EU social policy<sup>1</sup>.

The achievement of social targets during an era of economic depression is an ambitious task and empirical analysis may provide valuable feedback to policymakers. To that end, this paper is a first attempt to gauge the effects of the crisis on child poverty, as well as to assess the situation of specific groups vulnerable to income deprivation. In doing so, the analysis assesses the role of family policies in the context of austerity implemented by the Cypriot government for fiscal consolidation. A by-product of this analysis is to provide a mapping of potential family policies which align with issues of fairness and efficiency. The analysis focuses on Cyprus, the newest entry in the group of program countries and consequently the less scrutinised in terms of social challenges caused by the recession.

The international literature on child poverty is extensive (Jarvis and Redmond, 1997; Bradshaw, 2005; Ritakallio and Bradshaw, 2006; Chzhen and Bradshaw, 2012) and provides indications of what one is likely to expect: the confluence of demographic factors (family arrangements), labour market attributes (labour market participation, low paid employment) and social policy (family transfers, provision of social services) determine the likelihood of a child being in poverty. The causal links between each of these factors and child well-being are relatively easy to establish. Unemployment and low-pay are obvious reasons for pushing a family into poverty, but they should be interpreted not only in the context of the current job-destructive crisis but also with *respect* to the extent each welfare systems achieves - or fails to achieve - the reconciliation of work and family. Special attention should be given to job precariousness; a powerful norm of the post-crisis labour markets. The evolution of family arrangements is another important aspect of the problem. In most European countries, the share of lone parents (mostly

---

<sup>1</sup> Commission recommendation of 20.2.2013 Investing in children: breaking the cycle of disadvantage: [http://ec.europa.eu/justice/fundamental-rights/files/c\\_2013\\_778\\_en.pdf](http://ec.europa.eu/justice/fundamental-rights/files/c_2013_778_en.pdf)

mothers) is steadily increasing. The intersection of this aspect of late modernity with the malevolent effects of the recession appears gloomy for the well-being of monoparental families. Bradshaw (2005) and Chzchen and Brandshaw (2013) embark on enlightening the analyses of these issues, however they refer to the pre-crisis period, which means that their findings and conclusions should be reassessed in the light of new evidence.

Invariably, the empirical studies in the literature base their estimates on income surveys (e.g. EU-SILC) or national Family Expenditure Surveys (FES), which usually are available with a considerable time lag due to the arduous process of data collection and organisation. For example, in Cyprus, the most recent FES contains data for 2009, while the next version is expected in 2015. EU-SILC databases are more up to date, yet currently the most updated version has income reference period the year 2011. This unavoidable time lag may not pose problems when the objective is the retrospective analysis of issues of academic interest. The informational value of this analysis, however, may not be helpful to policymakers pushed to introduce urgent and, in some cases, far-reaching reforms, whose impact on inequality, poverty and social exclusion may be critical.

This paper is in the spirit of the recent stream of the literature resorting to estimating current indicators of poverty using updated micro data to reflect developments registered in the most recent macro statistics (Navicke et al, 2013). The novelty of our analysis is that we examine the income effects of austerity and economic crisis using microsimulation techniques (Avram et al., 2012; Brewer et al., 2013; Keane et al. 2013; Matsaganis and Leventi, 2013; Koutsampelas and Polycarpou, 2013). Several common methodological choices and policy-oriented questions come together in this analysis. Firstly, the empirical investigation is based on cross-sectional microdata. Secondly, emphasis is placed on income relativities; indeed during harsh times almost everybody is worse-off but some population groups experience a disproportionately higher burden of the economic downfall. As a result their relative position in the income distribution deteriorates. Lastly, all authors acknowledge the problem of lagged income data and attempt to circumvent it through various techniques.

The structure of the paper is the following: section 2 presents the methods for deriving the results, section 3 is devoted to empirical analysis. Section 4 hosts the discussion of the results.

## 2. DATA AND METHODOLOGY

### The data

The informational base of the model is the 2009 Cyprus Household Budget (CyFES) Survey provided by the Statistical Service of Cyprus. The CyFES covers the households living in the area controlled by the Republic of Cyprus and its sampling fraction is 1/100 (2,707 households/7,976 individuals). The income reference period extends from October 2008 to November 2009 and all monetary values are annual and expressed in Euro. The database contains detailed information on the consumption, income, and a large number of demographic and other socio-demographic characteristics of the household.

### Microsimulation

Our purpose is to use the 2009 CyFES to generate a predicted income distribution which can serve as a proxy of the actual income distribution in 2013. The simplest route is to multiply each income component with appropriate uprate factors reflecting changes in the macro variables, such as salary and wage.<sup>2</sup> However, during the 2009 to 2013 period the rules of existing policy instruments changed and new instruments were introduced. Thus, there we need to simulate the relevant instruments: the introduction of a series of special contributions and scalar reductions imposed on the gross income of employees and pensioners (implemented in the framework of fiscal consolidation), several benefits whose rules were reformed (the child benefit, the public assistance and the student grant) and the single parent (a new policy which came into effect in 2012). Furthermore, we need to simulated social insurance contributions and income taxation. Details about the simulated policies are listed in detail in the Appendix.

Despite the adjustments described above, the distribution of income would still be far from realistic due to the large increase in unemployment that occurred during the 2009 to 2013 period. In the Appendix, we explain the techniques used for taking into account unemployment. Finally, we adjusted private wages downwardly adopting as yardstick the forecasts for GDP growth.<sup>3</sup>

---

<sup>2</sup> Typically, the uprate factors are constructed using administrative or macro data depending on the income component.

<sup>3</sup> We perform the simulations above assuming that changes in taxes and benefit rates do not elicit behavioural responses. This assumption is standard in the literature and at the same time one of its caveats.

### Poverty analysis and equivalence scales

After adjusting the nominal incomes, the next step is to construct distributions of the *equivalised* disposable income which serves as proxy of the unobserved household welfare. We use the 'modified OECD equivalence scales' that assign weights of 1.00 to the household head, 0.50 to each of the remaining adults in the household and 0.30 to each child (a person aged below 14). A typical definition of income is adopted, including all monetary income components (wages, income from self-employment, passive income, pensions and cash transfers) except for non-cash incomes for which information is unavailable. The unit of analysis is the individual in the context of the household. The household is treated as a single spending unit and all incomes are added up to form total household income. The poverty line is set at 60 per cent of the median of the distribution of equivalised disposable income, as in Eurostat. Finally, we measure poverty using the headcount ratio, which measures the *incidence of poverty* (the proportion of individuals below the poverty threshold); and the normalised poverty gap, which measures the *intensity of poverty* (the average relative distance of household incomes from the poverty threshold).

### **3. EMPIRICAL APPLICATION**

Child poverty in Cyprus fluctuated around 12-13% during the last decade. This level stands lower than the overall rate in the population and below the levels of most European states. Pashardes (2007) analyses the level and determinants of child poverty in Cyprus, however the economic recession in the country renders necessary the reassessment of these findings.

Table 1 shows the profile of child poverty in Cyprus in 2009 and the one simulated for 2013. Children are classified in different groups according to their age, the household type which they are members of, the education level of the household head and the area of residence. For each of these groups we compute poverty rates in each of the two years and compute their percentage difference. Comparing the two years allows one to see how this profile changed over this period. Here, it may be worth re-iterating that in making this comparison one has to bear in mind that the figures for 2009 represent actual income distribution statistics obtained from CyFES data, whereas those for 2013 represent corresponding statistics obtained from 'nowcasted' data, simulated described in the previous section.

**Table 1: Child poverty by age groups (2009, 2013)**

	Incidence			Intensity		
	2009	2013	%	2009	2013	%
Poverty	0.136	0.148	8.38	0.026	0.033	24.75
Child poverty	0.131	0.139	6.17	0.025	0.029	15.67
0-5	0.123	0.119	-3.16	0.022	0.023	4.44
6-11	0.119	0.121	1.620	0.019	0.025	30.33
12-17	0.147	0.170	15.20	0.033	0.037	14.42
Single parent	0.378	0.240	-36.43	0.082	0.035	-56.88
Couple with 1 child	0.082	0.113	37.93	0.015	0.027	77.81
Couple with 2	0.081	0.090	11.25	0.019	0.027	41.60
Couple with 3	0.165	0.188	14.09	0.026	0.035	32.59
Couple with 4+ children	0.241	0.264	9.80	0.038	0.028	-25.02
Primary	0.220	0.188	-14.51	0.044	0.058	32.23
Secondary	0.166	0.182	9.46	0.034	0.038	10.36
Tertiary	0.038	0.044	15.50	0.009	0.009	4.29
Urban	0.133	0.132	-0.86	0.027	0.030	11.75
Rural	0.126	0.157	24.05	0.029	0.034	15.92

Source: 2009 FES and own calculations using microsimulation techniques

Notes: <sup>1</sup> refers to the age of the child, <sup>2</sup> refers to the education of the household head.

Below we summarise our findings:

- The incidence of child poverty in Cyprus increased from 13.1% in 2009 to 13.9% in 2013. Poverty in total population followed a similar trend, while poverty intensity increased at a higher pace among both children and adults.
- The distribution of poverty appears to vary considerably across population groups. Children aged 12-17 face the highest while the youngest child group the lowest incidence of poverty. This is because the cost of children rises with age, a fact reflected in the equivalence scales, which statistically treat children above 14 years old as adults. Poverty increased between 2009 and 2013 mostly among children in the 12-17 age group.
- Poverty is positively associated with the number of children in the family. This is a common pattern in most European countries, reflecting the fact that children add to family needs, but do not add to family income.
- Single parent families face by far the highest risk and intensity of poverty, in spite the significant improvement observed between 2009 and 2013, which is

due to the new single parent benefit introduced in 2012 - and discussed elsewhere in this paper.

- Children of educated parents faced an increase in their risk of poverty (from 3.8% in 2009 to 4.4% in 2011); still this risk remains at very low level compared to other groups.
- The disaggregation of households between urban and rural does not yield significant difference in child poverty rates. Yet, rural households appear to be more affected by the economic crisis.
- Finally, the comparison between total and child poverty rates (first two rows of Table 1) shows that children face a lower risk of poverty vis-à-vis the rest of population in terms of both incidence and intensity.<sup>4</sup>

Table 2 has the same format as Table 1, and reports the results obtained from focusing on the anti-poverty impact of cash transfers. In doing so, the 'synthetic' 2013 income distribution serves as a benchmark from which to compute a counterfactual scenario: the distribution of income that would prevail in the absence of certain family policies. Here, these benefits are the child benefit and the single-parent benefit, which represent two important family-related cash transfers in Cyprus. The comparison of pre- and post-benefit distribution suggests that the two benefits under consideration have a strong anti-poverty effect, fending off both the incidence and intensity of child poverty the antipoverty effect of the two benefits under consideration.<sup>5</sup> As expected, under the counterfactual scenario, all groups are negatively affected but more so are single parent families and families with many children. Furthermore, poverty intensity is more pronounced.

The previous analysis is based on income comparisons between heterogeneous households that involve the use of equivalence scales. As said earlier, in our analysis we use the 'modified OECD equivalence scales' that assign weights of 1.0 to the household head, 0.5 to each of person aged 14 or over and 0.3 to each person aged below 14 in the household. Yet, this practice can be questioned on grounds that the 'true' relative cost of each family member may differ from the figures above. This criticism gains in importance during times of harsh economic

---

<sup>4</sup> This is rare and met only in three other EU States: Denmark, Slovenia and Finland (Frazer and Marlier, 2012).

<sup>5</sup> In interpreting these results one has to bear in mind that although they can be a good indication of the importance of cash transfers, especially in the context of the deep on-going economic recession in Cyprus, they are based on the assumption is that these transfers do not elicit behavioural responses that could cause pre-benefit to deviate from post-benefit income.

conditions when policymakers and analysts need poverty risk estimates that are as accurate as possible.

**Table 2: Child poverty by age groups, anti-poverty effects of family policies (2013)**

	Incidence			Intensity		
	pre-benefit	post-benefit	%	pre-benefit	post-benefit	%
Poverty	0.161	0.148	-8.61	0.040	0.033	-17.17
Child poverty	0.191	0.139	-27.13	0.051	0.029	-41.78
0-5	0.164	0.119	-27.54	0.038	0.023	-38.51
6-11	0.182	0.121	-33.51	0.048	0.025	-47.61
12-17	0.219	0.170	-22.51	0.062	0.037	-39.57
Single parent	0.512	0.240	-53.10	0.131	0.035	-72.91
Couple with 1 child	0.118	0.113	-4.24	0.029	0.027	-7.25
Couple with 2	0.104	0.090	-13.18	0.031	0.027	-13.86
Couple with 3	0.258	0.188	-27.04	0.064	0.035	-45.01
Couple with 4+	0.423	0.264	-37.52	0.114	0.028	-75.31
Primary	0.361	0.188	-47.87	0.078	0.058	-26.02
Secondary	0.238	0.182	-23.75	0.071	0.038	-46.26
Tertiary	0.050	0.044	-12.02	0.016	0.009	-41.47
Urban	0.178	0.132	-25.91	0.053	0.030	-43.64
Rural	0.222	0.157	-29.50	0.058	0.034	-41.54

Source: 2009 FES and own calculations using microsimulation techniques.

Departing from the use of 'one-size-fits-all' equivalence scales demands econometric estimation of the spending behaviour of individual households. Here we do this using the model specification described in the Appendix and proposed by Pashardes (1995) for the estimation of equivalence scales from cross section data. As seen from the figures reported in Table 3, the application of this model to Cyprus data yields estimates of equivalence scales similar to those proposed by OECD for adults but not for children. In particular, our estimates for children are well below the OECD scales, especially for the 14-18 age group.

**Table 3: EU and national-specific equivalence scales**

	Cyprus estimates	Eurostat
Number of children aged between 0 and 13	0.199	0.30
Number of children aged between 14 and 18	0.217	0.50
Additional adult	0.546	0.50

Source: Eurostat and own estimations.

In Table 4 we report the child poverty estimates obtained using the Cyprus-specific equivalence scales instead of the OECD ones, adopted by Eurostat. Comparing the two tables, we observe that following:

- Unlike the Eurostat equivalence scales, the Cyprus-specific ones suggest a reduction in child poverty between 2009 and 2013, although the population living below the poverty threshold increases. In contrast, the intensity of child poverty appears to be unaffected by the choice of equivalence scales.

**Table 4: Estimates of child poverty using Cyprus-specific equivalence scales**

	Incidence			Intensity		
	2009	2013	%	2009	2013	%
Poverty	0.141	0.148	4.44	0.027	0.034	25.27
Child poverty	0.095	0.089	-6.42	0.016	0.022	32.43
0-5	0.097	0.088	-9.67	0.018	0.019	6.45
6-11	0.088	0.077	-12.21	0.012	0.020	61.00
12-17	0.098	0.099	0.36	0.018	0.025	36.38
Single parent	0.275	0.105	-61.68	0.044	0.016	-64.25
Couple with 1 child	0.072	0.108	49.00	0.013	0.024	89.35
Couple with 2	0.067	0.078	17.16	0.016	0.023	48.74
Couple with 3	0.111	0.078	-29.58	0.013	0.022	68.05
Couple with 4+children	0.106	0.106	0.00	0.014	0.008	-46.43
Primary	0.157	0.167	6.62	0.035	0.050	41.96
Secondary	0.118	0.107	-9.28	0.020	0.026	26.89
Tertiary	0.032	0.030	-6.17	0.006	0.006	8.15
Urban	0.093	0.083	-11.13	0.016	0.022	33.36
Rural	0.098	0.102	4.42	0.019	0.022	19.19

Source: 2009 FES and own calculations using microsimulation techniques

- When the Cyprus-specific equivalence scales are used poverty rates appear to decrease for the 6-11 and remain stable for the 12-17 age group; while the use of the Eurostat scales increases the poverty rates for both age groups.
- The choice of equivalence scales affects the estimation of child poverty in families with more than three children and in families with differences in the level of education of head.

In a nutshell, in the case of Cyprus the poverty rates calculated for different household groups appear to be sensitive to the choice of equivalence scales, while the population poverty rates do not. Since policymakers are keen on eradicating pockets of severe income deprivation observed in specific groups (highly

susceptible to poverty) more research is required to establish precisely and robustly the cost of children for families in these groups. Schemes of family-related cash transfers (for example, child benefit) should then be designed in the light of this child cost.

#### **4. DISCUSSION**

The level and depth of child poverty in Cyprus are influenced by cultural and institutional factors. This paper focuses on the impact of cash transfers. However a short discussion about family arrangements facilitates the interpretation of results as well as the formulation of policy recommendations.

The incidence of single parenthood, a situation highly correlated with child poverty, remains at moderate levels in Cyprus. Even so, a number of lone mothers reside in multi-unit households (e.g. return to their parental home and cohabit with their parent) therefore benefiting from economies of scale within the household or intra-household transfers. Intra-household transfers may be in-cash or in-kind (e.g. grandparents providing child care). In general, multi-unit family formations are common in Cyprus, as in other Mediterranean countries. Within these “extended” families, economic risk is pooled and thus the effects of economic crisis on several population groups (such as single parents or the very old) are moderated. Yet the commonality of these forms of family arrangements poses a challenge to the design of social policy as the prevalence of informal intra-household transfers renders the estimation the actual economic well-being of the various population groups problematic. In terms of targeting, this may mean that a better allocation of resources is possible but these informal monetary and non-monetary transfers blur the lines between the seemingly poor and the poor.

Family-related cash transfers, such as the child benefit, also play a chief role in reducing poverty. In 2011 the government reformed the child benefit by changing its eligibility rules. In particular, income and asset criteria were introduced and the age for defining dependent children was reduced. Overall, despite that the reform was inspired by a strategy of better targeting in the context of fiscal consolidation efforts, the benefit preserved its quasi-universal character providing income support to a wide range of beneficiaries. In 2012 a new single parent benefit was initiated. The introduction of this benefit was combined with changes in the public assistance scheme. Specifically, until May 2012 public assistance was assigned the task of providing income support to mono-parental families at high risk of poverty. In June 2011 the single-parent benefit replaced this provision, while single parenthood was excluded from the conditions determining eligibility for public

assistance. The single parent benefit is now given only to mono-parental families already receiving the child benefit; thus topping-up their income.<sup>6</sup> These developments affected positively the majority of single parent families and negatively only the lone parents who were eligible for the public assistance and whose income receipts were reduced due to the reform. The overall conclusion is that family benefits proved resilient to curtailment efforts, while still deliver considerable amount of poverty relief to families with children, partly counterbalancing the income losses of this group due to the effects of the economic crisis.

Several policy challenges appear in the horizon. The need fiscal consolidation while, at least, maintain poverty rates at the current levels will result to a preference for more selective policy instruments. Indeed, the shift from universalism to selectivism is reflected in several policy reforms implemented during the last years, and is continuously echoed in the public discourse. Since poverty relief is increasingly based on means-tested instruments the well-known problems associated with targeting should be addressed. In particular, the means testing of benefits requires information about the economic situation of potential beneficiaries which is not always possible to obtain. Furthermore, the way to obtain this information so as to avoid redistributing resources from truthful to deceitful persons is not straightforward. In Cyprus, Pashardes and Polycarpou (2008) find the size of black economy to be around 7–8% of GDP. But this study focuses on tax evasion among the self-employed. In reality the size of informal economy may be much larger, as suggested by evidence obtained from the analysis of macro data.

Targeted transfers may also induce behavioural changes. Beneficiaries of social benefits may be active economic agents, whose incentives may be distorted by the welfare system. These so-called ‘poverty traps’ are a manifestation of the problem of moral hazard, which typically arises in second-best environments of incomplete information. Such problems have been identified in the operation of the public assistance scheme (Pashardes and Polycarpou, 2011).

Stigmatisation stems from the division between recipients and non-recipients of state benefits. Thus, any welfare programme that requires people to be identified as ‘poor’ or ‘in need’ may have an adverse effect on their self-respect, as well as on the respect accorded to them by the society. However, the incidence and/or

---

<sup>6</sup> The benefit schedule is described in the Appendix.

extent of welfare stigma may vary according to the specific institutional context and social norms. The issue of stigmatisation of welfare recipients has not been analysed in Cyprus.

Finally, the dilemma of universal versus means-tested transfers is coloured by political economy arguments. Social benefits in Cyprus are said to be appropriated mainly by middle classes, especially those that are family related (Koutsampelas, 2011). A continuing shift towards targeting will change the proportion of poor to non-poor recipients and may lead to loss of political support for welfare programmes. In the long-run, this dynamic interaction between the welfare state and the political system may lead to further shrinkage of the former. Overall, this argument shows that, even if a stricter use of economic resources is unavoidable, policymakers should not be tempted by convenient oversimplifications and take note of the various side effects of targeting discussed above.

Another dimension of children's well-being which is not captured by the analysis in the paper concerns the in-kind public transfers accrued to families with children. Here, we discern two issues. Firstly, from a methodological point of view, the poverty indicators used in the analysis as well as the overwhelming majority of indicators reported by official agencies do not take into account in-kind transfers. This may result to biases, as the anti-poverty impact of public services is not accounted for. For example, some population groups may disproportionately benefit or lose from the adequacy or inadequacy of public services. Thus, child poverty indicators should be adjusted to take into account the quality and quantity of publicly provided services, so as to reflect more accurately the actual well-being of children, which is contingent to the existence of this infrastructure. Secondly, in-kind benefits possess properties that may be friendlier to the spirit of these harsh times than cash transfers: public spending on services is easier to gain political justification (compared to cash benefit); and the provision of services ensures that economic resources are channelled to children, while the effectiveness of cash transfers is contingent to parents' altruism.

## **5. CONCLUSION**

According to our estimates, child poverty in Cyprus increased from 13.1 per cent in 2009 to 13.9 per cent in 2013. This slight increase upholds Cyprus among the European Union countries with low child poverty. Yet, the currently increasing unemployment is likely to lead to further, probably more sizable, increase in child poverty. Child poverty varies across age groups, with single parent families continuing to face the highest risk and intensity of poverty. High and rising poverty

also occurs among families with children in the 12-17 age group; and families with a large number of children. Furthermore, we find that child poverty estimates are, in general, sensitive to the choice of equivalence scales used to measure the cost of children. This argument gains more importance when considering that equivalence scales are used in many countries to determine the levels of various family benefits.

Income support at its current levels is, in our view, adequate and delivers considerable child poverty relief. The aim should be to consolidate this support, while combating targeting errors. In this respect the government should investigate and find ways to eradicate the underreporting of income, for the purposes of both tax collection and payment of benefits. In the context of this investigation finding the sources of tax evasion and eliminating its effects on equity and efficiency should be given high priority. Although steps in the right direction have been recently taken under the fiscal pressure generated by the on-going recession, we believe stricter legislative and administrative procedures are still needed in order to improve the effectiveness of the Cyprus welfare system.

## REFERENCES

- Atkinson, A.B. and Marlier, E. (2010), *Income and Living Conditions in Europe*. Luxembourg: Eurostat.
- Avram, S., Figari, F., Leventi, C., Levy, H., Navicke, J., Matsaganis, M., Militaru, E., Paulus, A., Rastrigina, O., and Sutherland H., (2012), 'The Distributional Effects of Fiscal Consolidation in Nine Countries', EUROMOD Working Paper No. EM 2/13, January 2013.
- Bradshaw, J. (2005) 'A Review of the Comparative Evidence on Child Poverty', The Joseph Rowntree Foundation, University of York.
- Brewer et al. (2013). 'The Short- and Medium-Term Impacts of the Recession on the UK Income Distribution', *Fiscal Studies*, 34 (2): 179–201.
- Callan, T., C., Leventi, H., Levy, M., Matsaganis, A., Paulus and Sutherland, H. (2011), 'The distributional effects of austerity measures: a comparison of six EU countries', *Research Note 2/2011*. Brussels: Social Situation Observatory, European Commission.
- Chzhen, Y. and Bradshaw, J. (2012) 'Lone parents, poverty and policy in the European Union', *Journal of European Social Policy* 22: 487.
- Frazier, H. and Marlier, E. (2012). *Current situation in relation to child poverty and child well-being: EU policy context, key challenges ahead and ways forward*. Independent background paper prepared for the Cypriot EU Presidency Conference.

- Hagenaars, A.J.M., K. de Vos and Zaidi M. A., (1994), 'Poverty statistics in the late 1980s: Research based on micro-data', Theme 3, Series C, Eurostat Luxembourg.
- Jarvis, S. and Redmond, G. (1997) 'Welfare State Regimes and Child Poverty in the UK and Hungary', *Journal of European Social Policy*, 7: 275-290.
- Keane C., Callan, T., Savage, M., Walsh, J.R., Timoney, K. (2013). Identifying Policy Impacts in the Crisis: Microsimulation Evidence on Tax and Welfare. *Journal of the Statistical and Social Inquiry Society of Ireland* (forthcoming).
- Koutsampelas, C. (2011). 'Social transfers and income distribution in Cyprus', *Cyprus Economic Policy Review*, 5(2): 35-55.
- Koutsampelas, C. and Polycarpou, A. (2013), 'Austerity and the income distribution: The case of Cyprus', EUROMOD working papers No. EM4/13, EUROMOD at the Institute for Social and Economic Research.
- Matsaganis, M. and Leventi C. (2013), 'The Distributional Impact of the Greek Crisis in 2010' *Fiscal Studies* 34: 83-108.
- Navicke, J., Rastrigina, O., and Sutherland, H. (2013), 'Nowcasting Indicators of Poverty Risk in the European Union: A Microsimulation Approach', EUROMOD working papers No. EM 11/13. EUROMOD at the Institute for Social and Economic Research.
- Pashardes, P. (2007), 'Why child poverty is so low in Cyprus', *Cyprus Economic Policy Review* 2: 3-16.
- Pashardes, P. and Polycarpou, A. (2011). 'Poverty and Labour Market Participation of Public Assistance Recipients in Cyprus', *Cyprus Economic Policy Review*, 5(1): 23-42.
- Ritakallio, V. M. and Bradshaw, J. (2006) 'Family Poverty in the European Union', in J. Bradshaw and A. Hatland (eds) *Social Policy, Family Change and Employment in Comparative Perspective*. Cheltenham: Edward Elgar.

## APPENDIX

### A.1 Policy rules of the single parent benefit

The public assistance scheme was designed to provide income support to mono-parental families. In June 2012, a new single-parent benefit substituted this provision. The benefit is given to mono-parental families which already receive the child benefit.<sup>7</sup> The benefit is not taxable and means-tested, namely the value of the benefit depends on the value of the gross family income. Table A.1 reports benefit levels for 2012 and 2013.

**Table A.1 Benefit levels for 2012 and 2013**

Family income	Monthly amount of benefit	Monthly amount of benefit
	(2012)	(2013)
0 - 39,000	200 per child	180 per child
39,000 - 49,000	180 per child	160 per child
49,000 - 59,000	160 per child	140 per child
49,000 - 69,000	140 per child	120 per child
69,000 - 79,000	120 per child	100 per child
79,000 - 89,000	100 per child	90 per child
above 99,000	0	0

Source: Ministry of Finance

### A. 2 Simulation methods for obtaining the 2013 income distribution

Our model simulates a variety of instruments (contributory and non-contributory benefits, social assistance, social insurance contributions and direct taxes). Other incomes are also updated using appropriate factors, so as to correspond in the economic situation in 2013. In that regard, our estimations take into account the increase in unemployment which occurred during that period. More specifically, the changes simulated are as follows:

#### Unemployment

Unemployment increase (from 5.4% in 2009 to 11.9% in 2012) is factored in the model. In doing so, we used external statistics about employment disaggregated by gender, age and sector of employment for the years 2009 and 2012. The

---

<sup>7</sup> Mono-parental families consist of one parent who cohabits with at least one dependent child. The single parent may be unmarried, widowed or divorced.

decrease of the total employment rate between 2009 and 2012 is used to determine the number of employed individuals in the sample who should be moved from employment to unemployment; while the disaggregated data are used to determine which individuals in the sample have the higher risk to move from employment to unemployment. In particular, for each group of individuals, we created an index indicating the probability of moving from employment to unemployment. Then using this index, we assigned the unemployment status to a number of individuals following a random process.

### Private and public sector wages

We adjusted private wages downwards adopting as yardstick the most recent forecasts on the GDP growth of the economy. Specifically we assume a 2.5 fall in private wages in 2013. Public sector wages are adjusted through simulating the impact of the scaled reductions introduced by the government during the period 2012 to 2013.

### Benefits and pensions

We simulated the following benefits:

- i. child benefit,
- ii. public assistance,
- iii. student grant,
- iv. single parent benefit,
- v. unemployment benefit,
- vi. financial aid to poor pensioners,
- vii. Easter allowance, and
- viii. financial assistance to large families for purchasing a car.

Income from pensions was adjusted by using appropriate update factors.

## **A.3 Equivalence scales estimation method**

For the estimation of equivalence scales we use a rank-3 demand system, as proposed by Pashardes (1995). Assuming implicitly separable preferences, Quadratic Logarithmic unit cost of nondurable goods and no price variation, the expenditure shares can be written as a system of Engel curves,

$$w_{ih} = a_i + \sum_k a_{ik} z_{kh} + \beta_i \left( \ln Y_h - a_0 - \sum_n a_{0n} z_{nh} \right) + \lambda_i \left( \ln Y_h - a_0 - \sum_n a_{0n} z_{nh} \right)^2$$

where  $w_{ih}$  is the budget share of household  $h$  on non-durable expenditure category  $z_{kh}$  is a vector of demographic characteristic of household  $h$  and  $Y_h$  is the net income of each household. The parameters  $a_{ik}$  reflect demographic substitution effects and the parameters  $a_{0n}$  reflect the marginal (log) cost of the  $n$ th

demographic characteristic. The “subsistence” (log) cost  $a_0$  corresponds to the reference household defined by  $z_{nh} = 0$ , all  $n$ . Throughout the analysis  $a_0$  is fixed at a level somewhat below the log of the expenditure of the poorest 1% of households in the sample.

For the demand system estimation we apply Seemingly Unrelated Regression (SUR) on two categories of non-durable goods, food and other goods/services. The data for the analysis were drawn from the 2009 Household Budget Survey in Cyprus and include household with one or two adults, with up to two children aged between 0 and 13 years old and with up to two children aged between 14 and 18 years old. In addition, households whose head is a pensioner or aged above 65 years old were excluded from the analysis.

The vector  $z_{kh}$  include a large number of households demographic characteristics reflecting family composition, housing tenure and characteristics, availability of durable/luxury goods, and head’s age, sex, education and employment position. Parameters reflecting demographic costs,  $a_{0n}$ , were estimated for children aged up to 13 years old, for children aged between 14 and 18 years old, and for the second adult in the household.

## RECENT ECONOMIC POLICY/ANALYSIS PAPERS

- 09-13 Pashourtidou, N., and C. Savva, "Effects of bail-in on macroeconomic indicators: the case of Cyprus", November 2013.
- 08-13 Mamuneas, T., Ketteni, E. and C. Karagiannakis, "Productivity in Cyprus", November 2013.
- 07-13 Pashardes, P. and N. Pashourtidou, "Output Loss from the Banking Crisis in Cyprus", November 2013.
- 06-13 Zoumides, C. and T. Zachariadis, "Development and Application of an Agro-economic Model for Optimal Allocation of Water Resources for Agriculture in Cyprus", October 2013.
- 05-13 Andreou, A., Pashourtidou, N. and C. Papamichael, "An Evaluation of Business Survey Data for Cyprus", September 2013.
- 04-13 Adamou. A. and S. Clerides, "Tax Reform in the Cypriot Road Transport System", July 2013.
- 03-13 Koutsampelas, C. and A. Polycarpou, "The Distributional Consequences of the Cypriot Crisis", June 2013.
- 02-13 Pashardes, P., Pashourtidou, N. and T. Zachariadis, "Estimating Welfare aspects of changes in energy prices from preference heterogeneity", March 2013.
- 01-13 Ketteni, E., Mamuneas, T. and T. Zachariadis, "The Effect of EU Energy and Climate Policies on the Production Sectors of the Economy of Cyprus – Final Results", February 2013.
- 09-12 Pashardes, P. and A. Polycarpou, "The Labour Market Behaviour of Public Assistance Recipients in Cyprus", December 2012.
- 08-12 Zachariadis, T. and P. Hadjinicolaou, "The Economic Effect of Climate Change on Electricity Use – A Case Study from Cyprus, December 2012.
- 07-12 Andreou, S. N., "Analysis of Household Expenditure on Education in Cyprus", December 2012.
- 06-12 Papamichael, C. and N. Pashourtidou, "A Monthly Indicator for GDP Growth in Cyprus", October 2012.