Addressing Inclusion among Children & Adolescents Living in Poverty: Progress towards Achieving the SDGs

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Child poverty and child income support: reform scenario in Macedonia

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Abstract

The focus of this paper is on means tested benefits (guaranteed minimum income and child allowances) in Macedonia, and how their reformed design can improve coverage, the equal treatment among households receiving different benefits and reach a higher impact on poverty reduction.

The paper analysis the poverty trends among children and young people in Macedonia, emphasizing specific vulnerability factors related to child poverty in Macedonia. This among other includes - composition of the household in which the children live, the labour market situation of their parents, as well as the level of education of the parents. In addition, the paper outlines main income support mechanisms from the social and child protection system, indicating administrative barriers to access of benefits, as well as dramatic change of equivalence scales between benefits and within benefit, creating unequal treatment among households in need.

Hence, using qualitative and quantitative data the paper provides evidence-based arguments related to impact of a different scheme design on the broader coverage and a higher anti-poverty impact. It suggests different targeting and different equivalence scales that correlate with the risk factors for poverty among children. Similarly, the paper emphasizes that the same resources (budget) can be put to better use or better reach a certain policy objective within the same intervention area.

The evidence in the paper can be used as a possible example for reforming social and child protections systems in contexts where higher child poverty rates result not only from the demographics or labor market conditions, but also from national social policy choices.

Introduction

Child well-being and child quality of life is driven not only by biological or family status, but also by a number of different exogenous factors. Apart from socio-economic developments, child welfare can also depend from policy choices, including measures and services aimed at families and children. Social and child welfare schemes have a huge potential to improve life chances among vulnerable children. This can encompass both targeted provision, like interventions, services, and support in childhood, and policies directed at their parents and caregivers, i.e. employment policies. Minimum income schemes (or social assistance) as well as child income support (child allowances) are a common policy instrument to tackle vulnerable families and children. Although children are indirect beneficiaries of these means-tested programs, their design, targeting and administration can significantly affect children's lives. Expected positive outcomes include improved educational attainment and health status, as well as reduced poverty and deprivation among children. However, some of the evaluation studies analysed below reveal that many social and child protection schemes do not always achieve these positive outcomes.

In a comparative analysis of the European Union Survey of Income and Living Conditions (EU-SILC) in eight Central and Eastern European countries (Czech Republic, Poland, Slovakia, Slovenia, Hungary, Estonia, Latvia and Lithuania), Avram (2016) confirms the results from previous studies (de Neubourg et. al., 2007; Van Mechelen and Marchal, 2013), that factors such as: low level of benefits, small programme expenditure, as well as inability to reach the poor limit the poverty effect of these schemes.

In addition, results from the same survey (EU-SILC) in Macedonia, also show that the effect of social transfers (apart from pensions) is very limited. Although there is a trend of increased antipoverty effect of the social transfers (excluding pensions) in the period 2012-2016 (of 5.76 pp), still in 2016 other social transfers than pensions reduced the percentage of the risk of poverty rate[†] for 14.79%. This is quite low compared to the EU 28 average of 33.20%, and lower than in Slovenia (42.80%), Serbia (28.97%) and Croatia (28.57%), countries with whom Macedonia shared same social and child protection system until 1991.

Among positive outcomes of the minimum income and child income support is the improved household investment in education. Using a large-scale rural household survey data set, Zhao et al. studied the effects of the China's rural Minimum Living Standard Guarantee scheme, i.e. the rural Dibao programme on household expenditure. They found that it increased the beneficiaries expenditure on education by 19% and health by 46% (2017, 326). However, others have showed that effective use of household resources and their investment is dependent on parent's education. Using micro-level data from Tanzania, Ballon et al. (2018) demonstrate that household consumption expenditure and parental education are correlated. In particular, they show a link between maternal education and ability to adequately invest in multidimensional well-being of children (school and nutrition). Experiences in Macedonia related to the effects of conditional cash transfer for secondary education show that the effectiveness of the transfer (especially when payed to the mother) has a strong impact on food expenditure. This effect is particularly strong for Muslim households, in which the share of food is approximately 6 per cent higher when mothers receive the transfer (Armand and Carneiro, 2018).

[†] Calculated comparing at-risk-of poverty rates before social transfers with those after transfers as 60% of median equivalised income); pensions are not considered as social transfers in these calculations.

Hence, appropriate policy responses that address child wellbeing, as well as poverty and deprivation among families with children are extremely important. The focus of this paper is on means tested benefits (guaranteed minimum income and child allowances) in Macedonia, and how their reformed design can improve the antipoverty effect of social transfers (apart from pensions). Comparative study of three types of cash transfers targeting children in South Africa, Central and Eastern Europe and Latin America concludes that 'programmes focused on children in poor households are an effective instrument for poverty reduction' (Barrientos and DeJong, 2006).

Similarly, this paper will aim to demonstrate that the same resources (budget) can be put to better use or better reach a certain policy objective within the same intervention area.

The paper uses qualitative and quantitative data to provide evidence-based arguments related to impact of means-tested transfer on reduction of at risk of poverty rate. The evidence in the paper can be used as a possible example for reforming social and child protections systems in contexts where higher child poverty rates result not only from the demographics or labor market conditions, but also from national social policy choices.

1. Poverty trends among children and young people in Macedonia

Children in Macedonia are the population age group with the highest at risk of poverty[‡] as well as highest risk of poverty or social exclusion (AROPE)[§]. As it can be seen from the presented data for 2016, children's at risk of poverty rate is higher for 6.7 percentage points compared to the total population, higher for 7.3 percentage points when compared with adults and 14.1 percentage points higher when compared with the elderly. These data suggest that children in Macedonia are less protected from the risk of poverty when compared with older people and active population.

Graph 1: At risk of poverty and at risk of poverty or social exclusion (AROPE) by age in Macedonia, 2016
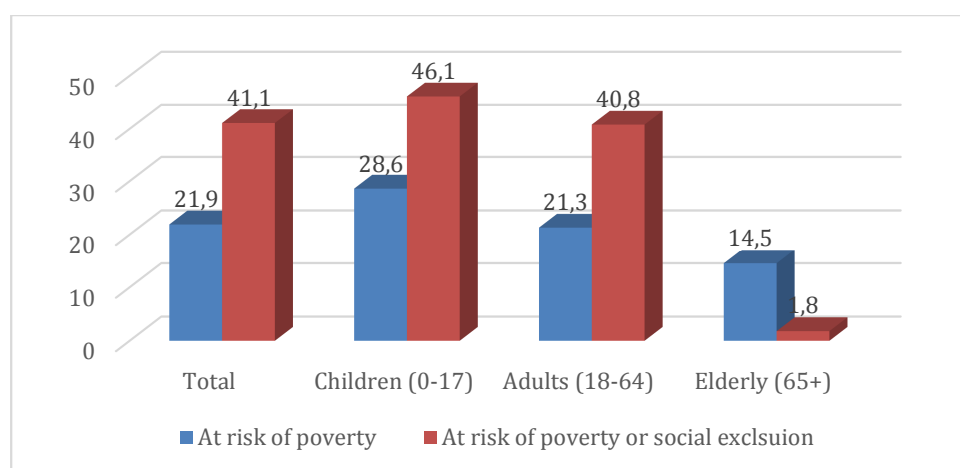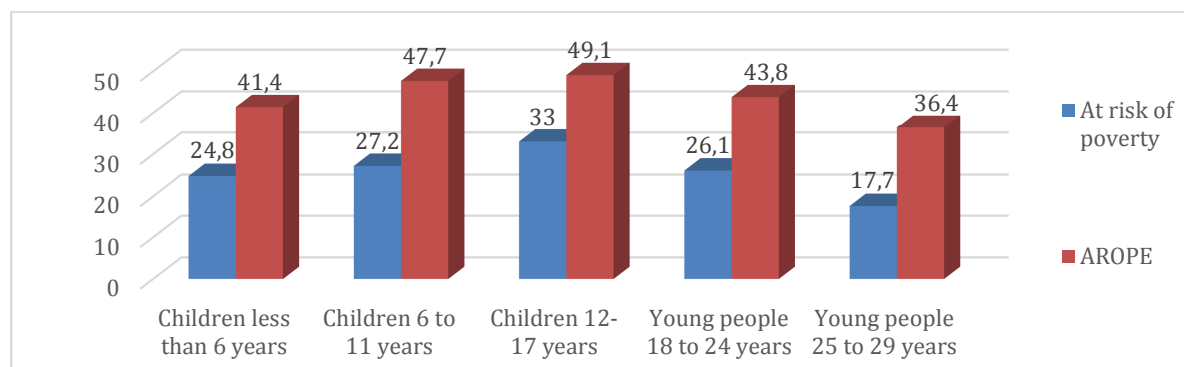

Source: Eurostat, accessed 20.08.2018

[‡] The source for poverty calculations is incomes, and the poverty threshold is defined at 60% of median equivalised income.
[§] The AROPE indicator is defined as the share of the population in at least one of the following three conditions:at risk of poverty, meaning below the poverty threshold; in a situation of severe material deprivation; living in a household with a very low work intensity.

In addition, poverty and material deprivation are experienced differently among children and young people at different age groups. Data indicate that children aged 12 to 17 have a highest at risk of poverty rate (33.0%), followed by children aged 6 to 11 years (27.2%) and young people 18 to 24 years (26.1%). Poverty seems to decrease in higher age groups, as lowest at risk of poverty is found among young people aged 25 to 29 years (17.7%). Data are similar in relation to material deprivation rates among different children age groups.

Graph 2: At risk of poverty rate and AROPE among children and young people in Macedonia, 2016

Source: Eurostat, accessed 20.08.2018

Going beyond income, when poverty is analysed through its multidimensional aspects, such as severe material deprivation, households with children are most affected. According to Eurostat, "severe material deprivation" refers to living conditions severely constrained by a lack of resources, and those severely materially deprived experience at least 4 out of 9 following deprivations items: cannot afford i) to pay rent or utility bills, ii) keep home adequately warm, iii) face unexpected expenses, iv) eat meat, fish or a protein equivalent every second day, v) a week holiday away from home, vi) a car, vii) a washing machine, viii) a colour TV, or ix) a telephone. Three most frequently lacked items among household in Macedonia are: inability to afford paying for one week annual holiday away from home, inability to face unexpected financial expenses and inability to afford a meal with meat, chicken, fish (or vegetarian equivalent) every second day. Most affected were children in single parent households, as 80.8% of them could not afford one week annual holiday away from home and households of two adults and three or more children, where 73.5% could not face unexpected financial expenses.

Graph 3: Severe material deprivation among household with dependent children, by three most frequently lacked items, 2016
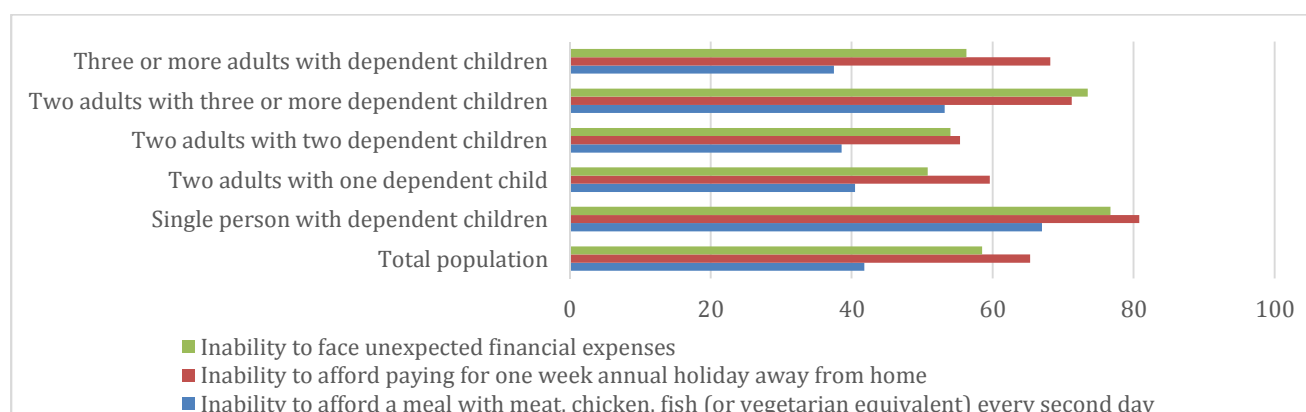
Source: Eurostat, accessed 20.08.2018.

The main factors affecting child poverty in Macedonia are the composition of the household in which the children live, the labour market situation of their parents, as well as the level of education of the parents. The household structure has a significant effect on the total household disposable income. Children living in single parent households as well as children living in households of two adults with three or more dependent children have the highest at risk of poverty rate (51.2% and 37.5% respectively). Children from single parent households have experienced growth of at risk of poverty rate (11.4 percentage points) in the period 2014-2016. This signals a need for particular targeting of social transfers towards this type of households.

Graph 4: At-risk-of-poverty rate by household type in Macedonia, 2012-2016
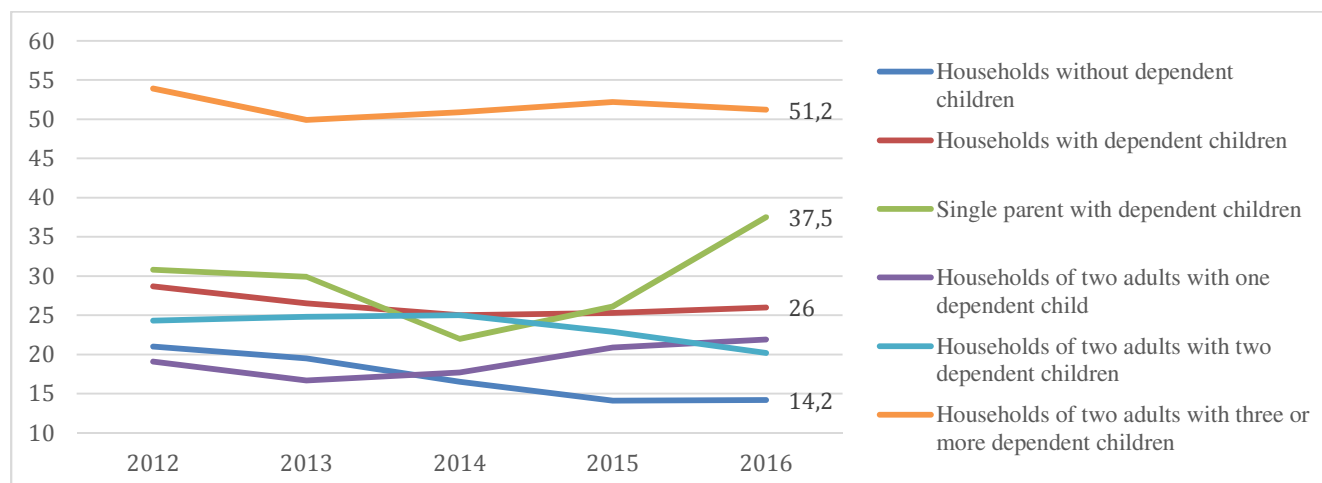
Source: State Statistical Office, MacStat database, accessed 20.08.2018

Relationship between employment and risk of poverty at household level is also one of high relevance in explaining child poverty in Macedonia. According to Eurostat definitions, work intensity reflects how much working age adults in a household worked in relation to their total work potential in a year. For example, dependent children who live in households with very low work intensity (equal or inferior to 0.2) are those living in households where, on average, the adults worked less than or equal to 20 % of their time in a year. In Macedonia, the highest at risk of poverty rate is found among households with children and with very low work intensity for whom the at risk of poverty rate stood at 76.7% in 2016. However, also in households with low work intensity the at risk of poverty rate was very high and equal to 42.8%.

Graph 5: At-risk-of-poverty rate by work intensity of households with dependent children (population aged 0 to 59 years) in Macedonia, 2016
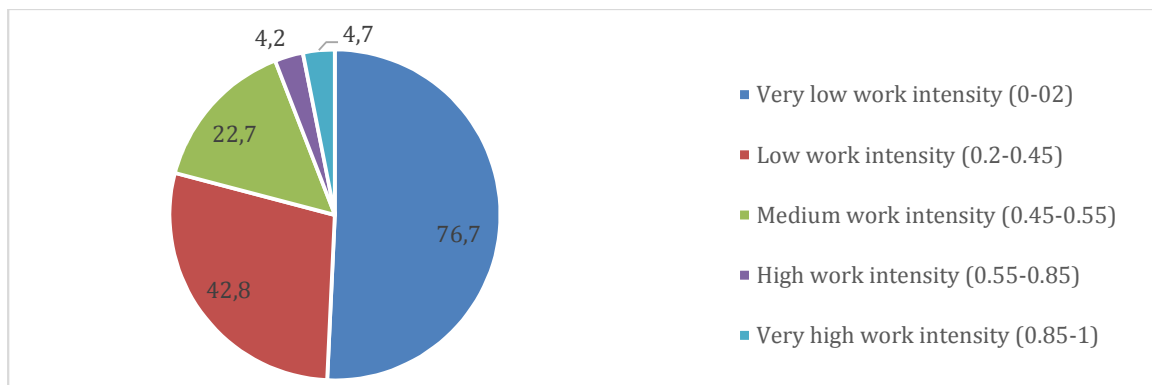
Finally, educational background of parents is highly correlated with child poverty. In Macedonia, more than half of the children whose parents have less than primary, primary and lower secondary education were at risk of poverty. The risk of poverty drops as the level of education increases. The difference in at risk of poverty rate between households with parents having achieved a high level of education (5–8 ISCED) and those with low level of education (0–2 ISCED) is 46.7 percentage points.

Graph 6: At-risk-of poverty rate for children by educational attainment level of their parents (population aged 0 to 17 years) in Macedonia, 2016
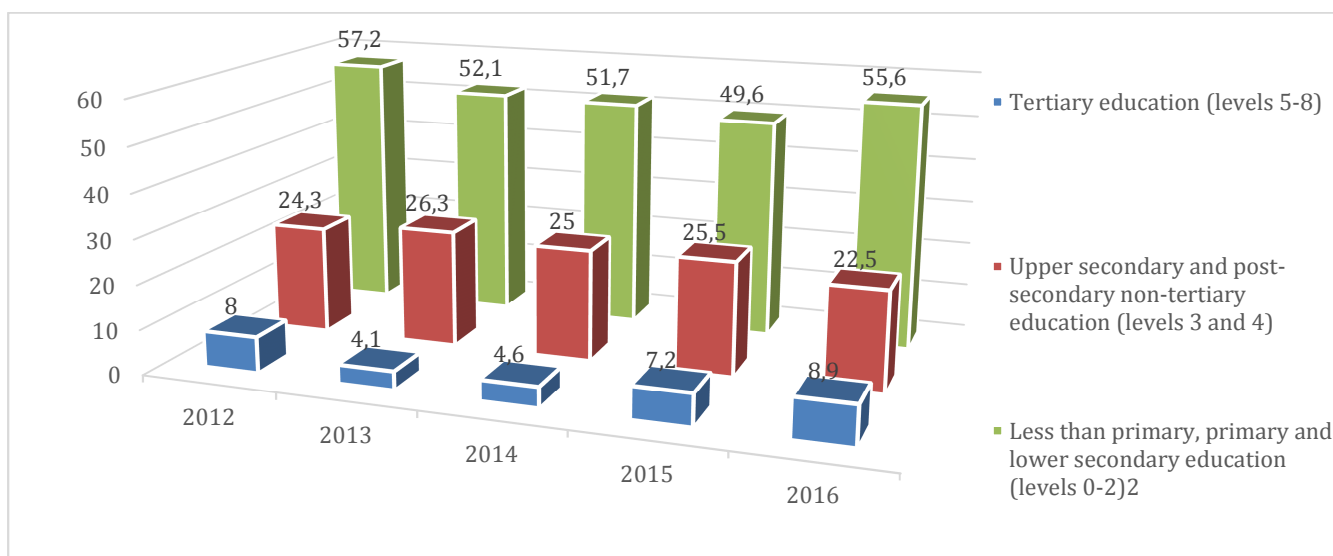
These statistical trends present important evidence to inform social and child support programs in Macedonia. It is more than obvious that children from single parent households and children from households with three and more children should receive special attention. In addition, households with very low work intensity as well as those where parents have lower educational background need to be supported with intensive training and employment incentives.

## 2. Social financial assistance and child allowances in Macedonia

According to the comparative analysis of minimum income schemes across 35 European states (Frazer and Marlier, 2016) Macedonia has been classified as having a "general scheme of last resort with additional categorical benefits". The evolution of this type of minimum

income scheme in Macedonia, understood in its wider use as all type of means-tested benefits including family and other more specifically targeted benefits is the result of targeting financial assistance within categories in the period 2008-2017. This "second generation of minimum income scheme" differentiated from the 'first generation" that was created in the period when Macedonia was part of Yugoslav federation, which was mostly simple and non-categorical scheme but with restricted eligibility and coverage.

Looking at the trends of beneficiaries of social financial assistance (minimum income) and child allowances shows a progressive decline in coverage. Among other things, this can be associated with the introduction of 'activation' requirement for SFA beneficiaries, electronic exchange of data among public institutions thus minimizing any potential for fraud with applicant documentation, as well as more rigid criteria for accessing the right (related to income, property, etc.). However, there are also administrative criteria that exclude potential social financial beneficiaries. For example, current social financial assistance stipulates that SFA applicants must be unemployed and registered at the Employment Centre. This criterion prohibits those in temporary and low-income jobs to apply for this benefit.

In addition, earlier studies found inconsistencies that refer to legislative barriers to access of social transfers. Namely, according to the UNICEF study (2013) "the child allowance is restricted to people who are currently working or receiving unemployment benefits, qualifying it as a contributory benefit" (p. 24). This effectively excludes social financial assistance beneficiaries to apply for child allowance, similarly as other vulnerable groups where there is no one in employment and no one benefits from the unemployment compensation, although in terms of income these categories include people most at risk of poverty.

Graph 7: Number of beneficiaries of social financial assistance and child allowance, 2008-2016
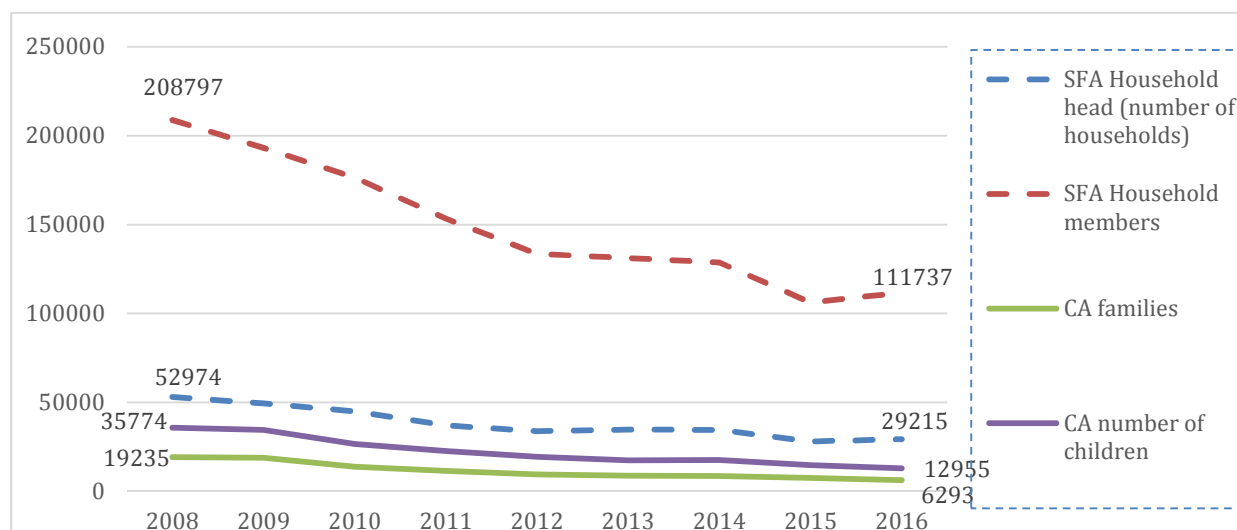
Source: State Statistical Office, MakStatDatabase, accessed 10.09.2018, State Statistical Office, 2008-2016

The current system of social and child protection offers financial support to households with children in a non-coherent manner. Existing analysis indicates that "different threshold levels of benefits create disparities of treatment among households; equivalence scales change dramatically between benefits and also within benefit, and the level of support through child protection benefits appears to be completely disproportionate as many poor households with children are left out" (Carraro, 2015). Moreover, administrative data from November 2017 suggests that only 2% of all households with children receive a child allowance.

One of the costliest social transfers in Macedonia is the parental allowance for the third child, introduced in 2009. This is a non-means tested transfer, whose pronounced goal was mainly to stimulate population growth. The amount of the parental allowance on a monthly basis when compared to all other transfers from the social and child protection scheme is the highest. However, beneficiaries of social financial assistance are not in position to apply for this benefit, as the parental allowance is taken into account as income when determining eligibility. As this transfer does not have an income eligibility threshold, it is not directly targeted towards low-income families with three children, making its anti-poverty effect low. In addition, statistical data related to birth rates in the country suggest that even its population goal has not been achieved. State Statistical Office data show that the overall fertility rate has remained stable at 1.5 throughout 2010-2016, and dropped to 1.4 in 2017. In addition, data on natural change in population show continual decline from from 2.5 in 2010 to 0.7 in 2017.

Hence, the aim of this paper is to provide evidence base for a different design of the social financial assistance and child allowance. It suggests different targeting and different equivalence scales can achieve a higher anti-poverty impact.

3. Proposal for a different design of social and child protection benefits in Macedonia

Since its election in 2017, the new Government has been working on a new design of the minimum income scheme that is aimed to increase the coverage, but also to reduce poverty rate in the country. What is hoped will become the "third generation" of minimum income scheme in Macedonia also envisages actions that will increase access to benefits among households with children. Reasons for reforming the current social and child protection scheme lay in the Government's ambition to remove some of the legislative obstacles to access social transfers, and provide people in poverty adequate living standards and integrated support.

3.1 Removing discriminative barriers that prevent access among low-income households
In order to achieve the aim of the envisaged reform, it is necessary to increase the coverage of the guaranteed minimum income and the child allowances among vulnerable households.

As indicated previously, eligibility for social financial assistance, as stipulated in the Law for Social protection, is associated with the unemployment status and registration at the Employment Centre of the applicant. While this criterion may target the social financial assistance among the most poor, still it does not allow other activation/employment statuses, such as: temporary workers, seasonal workers or those on low-incomes to access this benefit. Taking into account official statistical data for 2016, according to which 9.0% of the employed were at risk of poverty, these barriers are unjustified, as social financial assistance is aimed to target financial insecurity among its citizens.

Similarly, child allowance is limited towards families where at least one parent is employed or households that receive unemployment compensation. This in practice means that child allowance is practically reserved for those who pay contributions or have contributed towards the social insurance system, but when coupled with a very low-income eligibility threshold, this inevitably translates in an extremely limited coverage of children with child allowances. Hence, families that are most at risk i.e. social financial assistance beneficiaries or where no one works are not supported by the child allowance.

Therefore, the proposal would be to remove these legislative and discriminative barriers, which should increase financial assistance coverage among low-income households with children.

In turn, this is achieved by stopping parental allowances and using the current budget to increase eligibility thresholds for the Guaranteed Minimum Income (GMI) and Child Allowances (CA) schemes.

3.2 Changing equivalence scales

Another important aspect are the equivalence scales used for current social financial assistance and child allowance. There are different methodologies that can be used for the estimation of equivalence scales: classical econometric models, the subjective approach and budget standards. None of them is without some limitations, reflecting the fact that ultimately the very concept of an equivalence scale is in itself an approximation. In the current system, As demonstrated in the Table 1 (column 'current'), they change dramatically between benefits and within benefit, creating unequal treatment among different households in need. The value of 0.37 was probably originally calculated as a weighted average between the adult (0.5) and child (0.3) equivalence scale in the OECD scale system, but was not actually considering the conditions and needs of potential beneficiaries.

Table 1: Current and estimated equivalence scales

	Current	MIQ	OECD	
			2 adults+children	Only adults
One member	1	1	1	1
Two members	1.37	1.5	1.5	1.5
Three members	1.74	1.9	1.8	2.0
Four members	2.11	2.3	2.1	2.5
Five members	2.48	2.5	2.4	3.0
Six members	2.48	2.6	2.7	3.5
Seven members	2.48	2.7	3.0	4.0
Eight members	2.48	2.8	3.3	4.5

Source: Carraro's estimates based on 2016 SILC data.

Here we use a subjective poverty line to estimate equivalence scales. The approach presented makes use of a specific question asked in the SILC and commonly known as the 'minimum income question' (MIQ). Each household was asked to report a monthly amount of income that would meet their essential needs. Answers to such a question are used to determine a 'subjective minimum line'. In order to determine such line it is necessary to elaborate the answers from the MIQ to assure consistency in the definition. In particular, it is expected that the answer to the MIQ will be an increasing function of actual income, and the minimum line is usually determined at the intersection between the declared minimum subjective income and the actual income, adjusting for household characteristics that influence this relationship. A simplified relationship between minimum income and actual income is presented in Figure 9.

In order to determine the subjective minimum line, it is necessary to estimate a regression model in which the subjective minimum income is estimated as a function of actual income,

household composition variables and other variables that could influence the answer to the MIQ.

Moreover, determining the subjective minimum line using the regression model also allows the estimation of economies of size and equivalence of scale, since the subjective poverty line can be computed for different household types. The advantage of this methodology is that it calculates equivalence scales focusing specifically at what is considered a minimum requirement, thus making it particularly useful for social assistance benefits.

The average implicit equivalence scales are reported in Table 2 and are obtained by comparing the subjective poverty lines of different households against the benchmark of a single-person household. It is important to take with care these results because in some cases there are relatively few observations (see in particular single adult with child) and because 'subjective parameters' differ from what theoretical needs are. In a context of setting equivalence scale parameters for social assistance, we should not determine a parameter for what people generally consume but what they ought to consume.

Nevertheless, these results suggest that equivalence scales in Macedonia appear to be closer to the new OECD scales, but we do not find significant differences between children and adult requirements. Moreover, over a certain number of household members stronger economies of size emerge.

Table 2 Subjective minimum line and implicit equivalence scale parameters

	Subjective poverty line	Implicit equivalence scales			% (sum=100)	Obs.
		Adult	Child	Elderly		
One adult	23119	1				
Working age	27187				2.14	127
Pension age	21982			0.81	7.47	435
Two adults	34805	0.51				
Working age	36305	0.34			7.39	406
Pension age	33754	0.54		0.93	11.48	648
Three adults	47206	0.52			14.33	557
Four adults	55536	0.47			12.81	419
Five adults (or more)	56572	0.36			3.61	169
Single adult and 1 or more child.	35961		0.56		0.68	20
Couple and one child	46277		0.50		3.37	119
Couple and two children	50392		0.29		9.99	239
Couple and three (+) children	44187		0.14		2.29	59
Other households	27187				24.45	916

Source: Carraro's estimates based on 2012 SILC data.

The regression model was estimated for different household types and controlling for age of households head, education of household members, whether there are employed household members, disabled members, and whether the household has in-kind income (the full regression model is reported in Table 3).

The regression model that was used to estimate equivalence scales has the following general framework:

$$\ln(miq) = \beta_0 + \beta_1 \ln(cons) + \beta_i (household\ type) + \beta_j (control\ variables) + \varepsilon$$

It is important to note that the various control variables are important in determining appropriate comparisons between household types but do not have to be included in the calculation of subjective poverty lines. Instead, subjective minimum lines for different household groups were computed using the following formula:

$$Pline_i = \exp\left(\frac{\beta_0 + \beta_i\ Htype_i + 0.5\sigma^2}{1 - \beta_i}\right)$$

Then, such values were adjusted by multiplying by the ratio of the mean subjective household poverty line (using all explanatory variables) and the weighted sum of the above poverty lines.

Table 3 Results of the regression model used to estimate minimum lines

Variables	Coef.	Std. Err.t		P>t
Household income (ln)	0.16	0.02	6.26	0.000
One member household in working age	-0.23	0.09	-2.64	0.010
One member household in pension age	-0.27	0.05	-5.30	0.000
Two member hh, at least one in pension age	0.00	0.04	0.06	0.953
Three adults household	0.20	0.04	4.56	0.000
Four adults household	0.32	0.05	5.91	0.000
Five or more adults	0.37	0.13	2.81	0.006
One adult and one or more children	0.02	0.10	0.16	0.872
Couple with one child	0.19	0.06	3.24	0.002
Couple with two children	0.27	0.05	5.31	0.000
Couple with three or more children	0.27	0.08	3.51	0.001
Three adults and one child	0.32	0.06	5.31	0.000
Three adults and two children	0.29	0.06	4.68	0.000
Three adults and three or more children	0.31	0.13	2.31	0.023
Four adults or more and one child	0.29	0.07	4.38	0.000
Four or more adults and two or more children	0.45	0.07	6.30	0.000
Whether disabled member	-0.11	0.06	-1.79	0.078
Age of household head	0.01	0.01	1.01	0.316
Squared age of household head	0.00	0.00	-1.20	0.235
Whether there are employed members	0.04	0.03	1.44	0.154
Whether Household has in kind income	-0.14	0.04	-3.27	0.002
Education of adult members is primary	-0.14	0.04	-3.93	0.000
Education of adult members is higher secondary	0.11	0.02	4.96	0.000
Education of adult members is tertiary	0.21	0.04	5.35	0.000
Constant	8.41	0.34	24.70	0.000
Number of observations	4020			
R-squared	0.2675			

Root MSE	0.5607

We believe that using these equivalence scales will provide more equal treatment among households receiving different benefits.

4. Estimated coverage of the proposed reformed design

If a reformed system removes access barriers to the Guaranteed Minimum Income (GMI, for those working but on low income) and to Child Allowances (CA, for unemployed and the current social financial assistance beneficiaries), and implements the suggested equivalence scales, the coverage among low income households with children would increase, and more equal treatment would be established.

The main variables considered in trying to describe households eligible to the new benefits, GMI and CA, include the household composition, by age, size and key relationships among household members, the level of education of working age members, the level of deprivations observed among those eligible for assistance and some subjective measures of the household's well-being.

Table 4 shows the distribution of households' composition by eligibility to CA, and the distribution is provided for households and children. There is over-representation among couples with three or more children and among single parents, while a category under-represented is that of multi-nuclear families with children, but it remains an important group with 40% of beneficiary households. Comparison of the percentage of eligible children against the percentage of eligible households helps to determine whether in the household there are more or less children than in the average household (on average in households with children, there are almost two children). As expected couples with one child and other nuclear families with children have less than the average, while couples with three or more children have more than the average.

Table 4: Households' composition among those eligible to CA

Households with children	Households			Children		
	Eligible to CA			Eligible to CA		
	No	Yes	Total	No	Yes	Total
Couple with 1 child	7.8	8.6	8.0	4.4	4.3	4.3
Couple with 2 children	21.8	21.0	21.7	24.4	20.8	23.6
Couple with 3 or more children	3.2	11.6	4.8	5.6	19.9	8.7
Single parent with children	0.6	4.6	1.4	0.6	4.3	1.4
Other nuclear family with children	13.4	14.5	13.6	8.6	9.4	8.8
Other multi-nuclear families with children	53.3	39.6	50.6	56.4	41.5	53.2
Total	100.0	100.0	100.0	100.0	100.0	100.0

It is also important to consider the main income sources of households eligible to GMI and CA and in particular looking at salary from paid employment (full or part-time), pension, self-employment, and remittances. Table 5 provides such statistics showing also the

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percentage of households who did not declare any income source, apart from social assistance. It is important to note that many households eligible to GMI do receive remittances, but as expected very few work and receive either employment income (from either salary or self-employment), with 44% of households eligible to GMI not having any income source. These statistics improve a bit for those eligible to CA.

Table 5 Percentage of households eligible to GMI and CA with certain income sources

Income source	Eligible to GMI	Eligible to CA
Salary	9.2	30.8
Pension	18.0	16.4
Self-employment in agriculture	13.6	16.1
Other self-employment	15.5	18.3
Remittances	30.2	24.4
No declared income (excl. social assistance)	44.1	29.1

Source: Authors' estimates based on 2016 SILC data.

An understanding of the employability of the household members eligible to GMI and CA is obtained looking at the education level of household members in working age (16+). Results are given in Table 6, where we can see that the maximum level of education achieved by household members eligible to GMI is very low. 25% of them only achieved primary school or less, 48% low secondary and 24% high secondary school and just 2 % tertiary education. For CA percentages are marginally better, but still only 3% achieved tertiary education. Such statistics confirms that employability of these members is likely to require significant investment in skills training.

Table 6: Maximum level of education achieved among working age (16+) persons eligible to GMI and CA

Education level	GMI eligible		CA eligible		
	No	Yes	No	Yes	Total
Primary or less	8.2	25.5	8.7	14.6	9.2
Low secondary	26.4	48.4	25.5	52.2	27.7
High secondary	48.3	24.3	48.5	29.9	46.9
Tertiary	17.1	1.9	17.4	3.2	16.2
Total	100.0	100.0	100.0	100.0	100.0

Source: Authors' estimates based on 2016 SILC data.

A current assessment of the predicted eligibility is also useful to determine the living conditions of these people if such reformed new schemes are rolled out and so to some extent provide a sort of baseline, which could help in the assessment of future improvements.

Table 7 shows the level of deprivations experienced by households differentiating by eligibility to GMI and eligibility to CA. As expected households eligible to GMI appear much worse off, followed by those eligible to CA, with almost half of GMI households unable to keep the house warm, 80% with arrears in paying utility, 84% unable to eat meat or fish every other day. On the other hand, access to phones and TV is almost universal.

Table 7: Level of deprivations by households' eligibility to GMI and CA, 2016

Households' deprivations:	Eligible to GMI		Eligible to CA		
	No	Yes	No	Yes	Total
Without bath/shower	3.5	18.2	4.1	8.7	4.5
Without flushing toilet	5.0	21.6	5.4	13.9	6.1
Leaking roof	12.1	34.9	12.2	29.1	13.6
Unable to keep house warm	23.6	48.7	23.7	42.7	25.2
Dwelling is too dark	4.3	12.2	4.2	11.6	4.8
Arrears in paying for rent/mortgage	13.1	19.1	13.8	9.8	13.4
Arrears in paying for utility bills	35.4	77.9	34.6	79.8	38.2
Arrears in paying back a loan	27.6	69.3	27.5	53.5	28.3
Inability to eat meat/fish every other day	41.2	83.9	41.9	69.2	44.1
Without phone (including mobile)	0.8	6.3	1.1	1.6	1.2
Without color TV	0.1	1.6	0.1	0.5	0.2
Without computer	6.9	55.3	8.1	33.4	10.1
Without washing machine	2.3	20.8	3.1	8.3	3.5

Source: Authors' estimates based on 2016 SILC data.

Table 8 reports a self-assessment on people's ability to make ends meet. Once again, the result shows that those eligible to GMI report huge difficulties, which remain, albeit at a lower level, also among CA eligible households.

Table 8: Level of deprivations among households eligible to GMI and CA, 2016

	GMI Eligible		CA Eligible		
Ability to make ends meet	No	Yes	No	Yes	Total
With great difficulty	28.1	72.0	28.3	62.4	31.0
With difficulty	26.8	19.2	26.5	24.3	26.3
With some difficulty	31.1	7.0	31.1	11.4	29.5
Fairly easily	10.8	0.2	11.0	0.0	10.1
Easily	2.7	0.3	2.7	1.2	2.6
Very easily	0.5	1.3	0.5	0.7	0.5
Total	100.0	100.0	100.0	100.0	100.0

Source: Authors' estimates based on 2016 SILC data.

Using the SILC data is also possible to simulate the potential effect of the reform on poverty. Graph 1 shows the simulated income distribution, where people have been ordered from those with the lowest to the highest income and, at each per adult equivalent income level, one can observe the corresponding percentage of population with that level of income or less. More specifically the empirical income distribution curve is calculated under three different hypothetical situations:

- No social assistance and child protection benefits are provided to the population: detracted from the income aggregate are all incomes coming from social assistance and child protection (though social insurance benefits, including pensions, are included);

- All eligible people receive the current set of benefits: this should be equivalent to the observed income distribution. However, in order to compare this situation with the reform

proposal on equal grounds, entitlements of current benefits have been added to the household based on simulated eligibility and assuming perfect take-up;

• Proposed set of new benefits: entitlements have been computed and added to the 'no social assistance and child protection benefits' aggregate based on simulated eligibility to the new benefits.

As we can see from Graph 1, the income distribution with the new set of benefits is the one offering the optimal scenario, since the curve shifts on top of the one with current benefits on the lower part of the distribution and only at relatively high levels of income the curve with the current sets of benefits crosses the one with the new sets of benefits. At relatively high incomes, the cumulative curve of the current income distribution is above all others because there are relatively better-off households receiving PA. However, at low-income levels, at each per adult equivalent income, the percentage of population with low incomes is higher under the current set of benefits, rather than under the reform proposal (new set of benefits). This means that the reform provides the best poverty reduction outcome.

Graph 1: Simulated income distribution before and after the reform
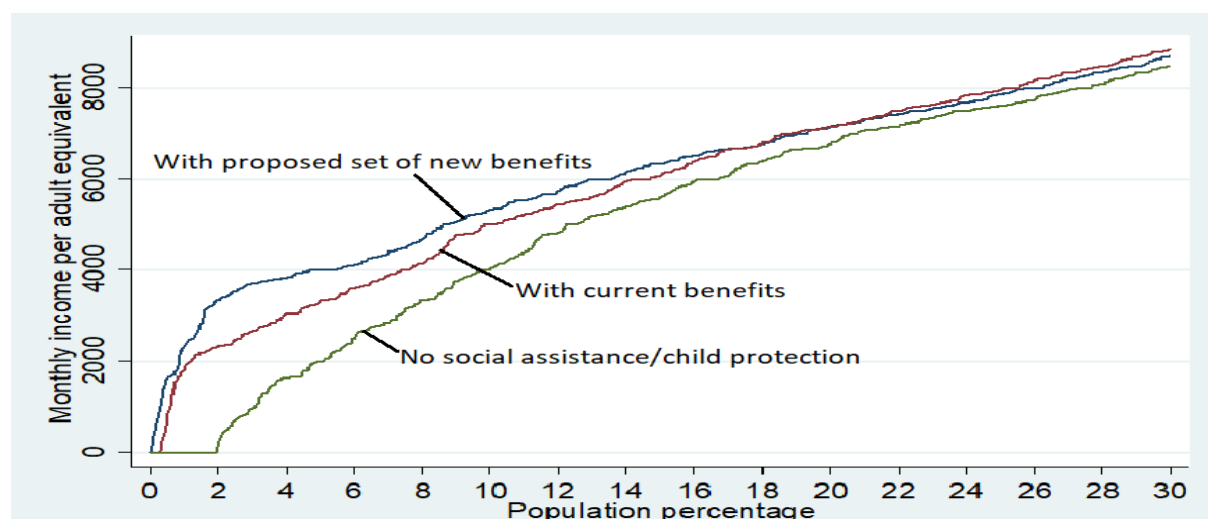
Source: Authors' estimates based on 2016 SILC data.

Table 9 summarises the expected poverty reduction under the current and reformed scheme of benefits using three different poverty lines: 60% of the median income (6880 MKD per adult equivalent), 40% of the median income (4587 MKD per adult equivalent) and the international 3.1 USD expressed in per adult equivalent terms (3475 MKD per adult equivalent)[**]. Poverty reduction is computed as the simulated poverty level with and without social assistance under the current set of benefits and the reformed ones (the comparison of the 'no social assistance/child protection' curve with the other two where benefits are added). Two poverty indexes are used: the percentage of the poor and the poverty gap, which not only considers whether people have an income below the poverty line, but also how far their income is from the poverty line[††]. With the exception of the percentage of the poor at the

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[**] The 3.1 USD in purchasing power parity international poverty line is expressed in per capita terms, so this has been corrected multiplying by the ratio between population and the overall number of per adult equivalent in the population.
[††] The poverty gap is computed using the following formula:

highest poverty line, suggested reform would achieve a better outcome in all other cases and the difference is particularly large when looking at the poverty gap. For example, with a poverty line at 40% of the median income, the percentage of the poor is reduced by 23% under the current set of benefits, and 35% under the reformed benefits; while the poverty gap is reduced respectively by 46% and 72%.

Table 9: Simulated poverty reduction

	60% of median		40% of median		3.1 $PPP equivalised	
	Current	Reform	Current	Reform	Current	Reform
% of poor	9.7	7.9	22.7	34.9	34.7	74.0
% of poverty gap	26.8	42.6	45.6	71.7	60.6	82.8

Source: Authors' estimates based on 2016 SILC data.

At a relatively high poverty line (60% of the median income), the effect on the percentage of the poor is lower for the proposed reform, rather than the current set of benefits. This is because parental allowances are received independently from the level of income and this allows some households to jump above the poverty line. However, overall the reform has a higher impact when we consider the poverty gap. Furthermore, at lower poverty lines the reform has a significant higher impact on poverty reduction on all different poverty measures.

5. Discussion

The paper tried to provide evidence that using the same budget resources and making parametric changes in the design of the social and child protection system in Macedonia can improve coverage and reach a higher impact on poverty reduction. Still, this does not imply per se that the social transfers solely are able to improve child poverty, but that their design is an important factor that can soften and mitigate negative poverty effects.

The reform design presented here is in line with previous finding related to vulnerability among children in Macedonia (Gerovska-Mitev, 2010). Estimated coverage of the suggested reform shows that main risk factors for child poverty in Macedonia (i.e. composition of the household, labour market situation of the parents and level of education of parents) are tackled, as the reformed design increases coverage among: a) households with three and more children as well as among single parents; b)households with no declared income, remittances and other self-employment as well as c) households where parents have primary or lower than primary education. In addition, suggested reform estimates coverage among 83% of the households that face material deprivation related to inability to eat meat/fish every other day, which further contributes towards prevention of inadequate nutrition among children.

The suggested reform design is in line with the global agendas, specifically the Sustainable Development Goal (SDG) 1, that explicitlly includes redution of child poverty as a target. In

$$P_{FGT} = \frac{1}{N} \sum_{i=1}^{M} \left(\frac{z - x_i}{z} * Adeqsize_i \right)^{\alpha}$$

Where z is the poverty line, x is consumption, i represents individuals, N is the total population, M is the number of individuals with consumption below the poverty line, and $\alpha = 1$. This formula takes into account the gap in terms of adult equivalent.

that respect, the suggested reform tackles both monetary poverty among households with children as well as increase in coverage among households with children that face multiple deprivations.

In the context of middle-income countries, the presented case of Macedonia should serve as an example that policy choices and the design of the social and child protection scheme can have significant impact on poverty among households with children. Limited budget resources for social and child protection imply the need for targeting benefits towards those most at risk. However, excessive targeting with very limited coverage leave too many people in a sate of severe deprivations. For this reason, administrative barriers that prevent access among vulnerable households to the basic anti-poverty instruments should be mapped and removed. In addition, guarantying adequate coverage and resources among households with children who face both monetary poverty as well as multiple dimensions of material deprivation should be crucial factors considered in the administrative fight against poverty.

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