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The introduction of a GMI scheme in Cyprus: family structure, equivalence scales and policy challenges

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Abstract

Nowadays, Cyprus has engaged in an effort of reforming its tax-benefit system so as to adapt to the economic and social challenges of the post-crisis era. Among the most important social reforms is the introduction of a Guaranteed Minimum Income scheme (GMI). In this paper, we construct a number of hypothetical reform scenarios using the EUROMOD microsimulation model aiming at examining how certain features of the policy design affect the policy outcomes of the reform. The empirical analysis is accompanied with a wider discussion of the driving forces of the reform and the challenges which policymakers are expected to confront when implementing the new welfare scheme in the particular context of Cyprus.

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1. Introduction

The economic crisis that affected many European countries during the last few years has had a considerable impact upon the labour markets. Millions of people lost their jobs resulting to unprecedented unemployment rates in many countries, especially in the Southern part of Europe. Many of those who retained their jobs face increasing levels of economic uncertainty in terms of falling wages, high risk of layoff and, in general, a tendency for more flexible working arrangements. Meanwhile, a large number of unemployed persons experience considerable difficulties to re-enter the labour market. This depressing reality is vividly depicted in all relevant statistical indices. According to Eurostat, the EU27-wide unemployment rate increased from 7.1 in 2008 to 10.9 in 2012. Long-term unemployment increased from 2.6 per cent in 2008 to 4.6 per cent in 2012; while in some countries, such as Greece and Spain, it surpassed 10 per cent. As expected, these trends translated into higher rates of poverty. Poverty also increased among the working population (in-work poverty in most European countries fluctuates above 10 per cent), underscoring the fact that participation in the post-crisis labour markets does not necessarily lead to an escape from poverty.

What are the implications of these developments for social policy? A first layer of interpretation is that markets at this phase of the economic cycle fail to provide the means for achieving an adequate standard of living. In turn, this means that states should step in and counterbalance market inadequacies with policies that safeguard human dignity and foster social integration. Yet, austerity measures - a presumed antidote to fiscal imbalances - have impacted on social policy mostly by reducing both the generosity and coverage of numerous benefits, thus limiting the capacity of states to fill the "welfare gaps" which markets have created. In this line of thinking, the gradual shift from universal (or quasi-universal) policy instruments to means-tested ones such as the GMI schemes might be a sine qua non strategy for many cash-strapped European states.

This seems to be the case in Cyprus. During the last years, the government has been engaged in a strenuous effort of economic adjustment aiming at correcting fiscal imbalances and improving competitiveness so as to bring the economy into a growth orbit. Austerity measures have impacted on social policy mostly through the introduction of stricter income and asset eligibility criteria (Koutsampelas and Polycarpou, 2013). Many policy reforms are still pending, especially in the field of social policy. Among the

crucial ones is the introduction of a GMI scheme, due in mid-2014[2]. It is worth mentioning that this reform belongs to the prerequisites of the Memorandum of Understanding (MoU) agreement. The Cyprus Letter of Intent[3] states (on pg. 9): "*Our existing system does not in all cases provide benefits to those who are most in need, including the working poor, and its administration has shortcomings. To address these shortcomings and ensure adequate social protection during this economic downturn and beyond, we have developed a comprehensive reform plan to introduce a guaranteed minimum income (GMI) scheme while eliminating duplicate benefits. The GMI will provide assistance to those who do not have sufficient income to cover basic needs, thus effectively expanding the coverage of public assistance, while remaining within the budgetary envelope*."

Thus the aspirations of the reform are manifold; they extend from the simplification of administrative procedures to the coverage of groups who remain excluded by the design of the existing welfare system. Nevertheless, the challenges that lay ahead are formidable as the government should take into account the diverse needs of potential recipients, as well as the impact of the scheme on poverty, while, simultaneously, safeguarding tax payers' interests. The motivation of this paper is to analyse several of the complexities that surround the design of the scheme by simulating the effects of various hypothetical reform scenarios and discuss the merits and drawbacks of the impending reform. The design of the reform scenario is kept as simple as possible so as to minimize technical difficulties judged to offer minimal value added to the qualitative analysis of the results. Emphasis is put on the choice of the unit of assessment and how this choice interacts with the existing family structures in Cyprus in influencing the policy outcome. However attention is also paid to other related issues, too, such as the choice of equivalence scales for the determination of benefit levels.

The structure of the paper is the following: section 2 introduces the reader to the economic and institutional background of Cyprus as well as explains the driving forces of the reform and the need to deviate from the existing last-resort safety net; section 3 presents the methodology; section 4 includes the simulation results of five hypothetical

[2] The preparation and consultation of the draft law is expected at the end of April 2014 and the operational implementation of the scheme should be on track by 1 July 2014.
[3] http://www.imf.org/External/NP/LOI/2013/CYP/082913.pdf

reform scenarios and section 5 offers a discussion and summarizes the findings of the study.

2. The economic and institutional background

The Cypriot welfare state comprises of a net of contributory and non-contributory social benefits. Typically, most contributory benefits protect the working population against certain risks or contingencies (unemployment, employment accidents, maternity etc.) while the role of poverty relief is assigned to non-contributory benefits which usually target specific population groups. For example, public assistance is a means-tested benefit targeted to families with income not enough to cover their basic and special needs. The benefit covers a variety of recipients, yet families with working members do not usually fulfil the complex eligibility criteria of the Public Assistance Law. In 2009, the government responding to the problem of high poverty among the elderly initiated a programme to provide income support to pensioners with income below a certain threshold. Similarly, a social pension is given to elderly people who are not entitled to pension rights from any other source. In 2012, the single parent benefit was initiated aiming at supporting another group vulnerable to poverty and social exclusion. In brief, there are policies in place for combating poverty, the impact of which has been found to be clearly progressive and/or pro-poor (Koutsampelas, 2011; Koutsampelas and Polycarpou, 2013), but the overall approach lacks comprehensiveness.

The welfare gaps have started to become perceptible despite not reaching yet critical proportions. Additionally, the recession has changed the economic environment, gave rise to new social needs and placed unfamiliar demands upon the social protection system. The collection of the macroeconomic and poverty indicators of Table 1 portrays this changing socioeconomic landscape.

Table 1: Main Social and Macroeconomic Indicators

	2008	2009	2010	2011	2012	2013
Real GDP growth	3.6	-1.9	1.3	0.4	-2.4	-5.4
Unemployment	3.7	5.4	6.3	7.9	11.9	16.0
Long-term unemployment	0.5	0.6	1.3	1.6	3.6	-
Poverty	15.9	15.8	15.6	14.8	14.7	-
In-work poverty	6.3	6.8	8.5	10.1	9.0	-
Poverty or Social Exclusion (AROPE)	23.3	23.5	24.6	24.6	27.1	-
AROPE by age group:						
Less than 16	20.9	20.9	21.5	23.1	26.8	-
16-64	18.9	19.9	22.1	22.1	25.8	-
65 or over	49.3	48.6	42.6	39.8	33.4	-

Source: Eurostat Online Database.

Initially our attention is captured by the steadily increasing unemployment rate; from an impressively low rate of 3.7% in 2008 escalated to an unprecedented 16% in 2013 while the expectations are that it will peak close to 20% in 2014[4]. Likewise the real economy contracted by -1.7% in 2009, returned to meagre growth in 2010-2011 and thereafter sunk into deep recession. Expectedly, the number of long-term unemployed increased rapidly. In 2008, long-term unemployment was an unknown social problem in Cyprus. Today, it has entered the political agenda.

The poverty rate indicator exhibits a somewhat counterintuitive result; namely, relative poverty is declining during the period of reference. This is because of the assumption of a relative poverty threshold, which is falling as the economy sinks further in recession[5]. As a result, a number of households previously located slightly below the poverty line appear to escape from poverty. An interpretation could be that incomes are not falling at the same speed; with median income falling faster than the average income of the poor. However it is noteworthy that despite the fall in overall poverty, poverty among the working population is on the rise (from 6.3% in 2008 to 9.0% in 2012).

The bottom part of the Table presents a more comprehensive social indicator; the proportion of individuals at risk of poverty or social exclusion (AROPE), which captures

[4] Estimates for 2014 show that most macroeconomic indicators will deteriorate in 2014, and output loss will be considerable (Pashardes and Pashourtidou, 2013). In another very recent study, Pashourtidou and Savva (2013) quantify the impact of the contraction of deposits on a number of leading macroeconomic indicators, including unemployment. The estimated increase in unemployment rate is found to be 6 percentage points.
[5] Typically the poverty line is computed as 60 per cent of the median equivalised disposable income.

the loss of social welfare due to the crisis in addition to income relativities, therefore providing a more accurate picture of the social situation. Indeed, the AROPE indicator increased from 23.3% in 2008 to 27.1% in 2012; a statistical statement that conforms better to empirical intuition. The breakdown of the indicator by age group yields even more interesting results; while AROPE for children and the working-age population followed an upward trajectory, AROPE for the elderly substantially decreased from 49.3% in 2008 to 33.4% in 2012. The crux of this statistical portrait is that not only the level of poverty (and social exclusion) changed but also its profile.

These developments have implications for social policy. Overall, we discern two broad classes of issues: economic and social.

- Firstly, a combination of diverse economic and social problems hit the economy simultaneously. Crucially, tax revenues are falling, questioning the capacity of the state to deal with these problems. This economic reality increases the political attractiveness of targeted redistributive policies.
- Secondly, there is disconnectedness between the provisions of the existing social protection system and the new social risks that have already emerged and will continue to grow in the near future. In this regard, Table 1 demonstrates that the bulk of poverty steadily shifts from people of pensionable age onto the shoulders of working age population, gradually starting to affect even people who participate in the labour market. Note also that within the group of 16-64 years old, the very young (those aged 16-24) confront formidable barriers to entry the labour market; while the long-term unemployed, irrespectively of their age, face extreme difficulties to re-enter the market.

The social protection system ought to adapt in the light of these structural changes so as to fend off future threats to social cohesion. Responding efficiently to these challenges is likely to require a restructuring of the existing institutions. Several outdated social transfers ought to be reconsidered, while other instruments should be redesigned. Furthermore, there is a need for redefining the scope and range of coverage of many policy instruments, so as to provide more protection to population groups that until now enjoyed limited one. The analysis that follows examines under what conditions the introduction of the new GMI scheme can stand up to some of these challenges.

3. Empirical analysis

3.1 Data and Methods

The analysis uses microsimulation techniques employing the EUROMOD model for that purpose. EUROMOD is a multi-country tax benefit model which simulates a series of policy instruments using a micro-dataset and the existing rules of the tax-benefit system[6]. The Cypriot module of the EUROMOD micro-simulation model is the product of joint work between the Economics Research Centre of the University of Cyprus and the Institute for Social & Economic Research (ISER) of the University of Essex. The informational base of the model is the Cypriot microdata of the European (UDB) version of EU-SILC 2011. The dataset provides information about the demographic and socioeconomic characteristics of the households as well as their reported incomes earned in 2010. The tax and benefit rules are updated so as to correspond to policies pertaining today and, then, every income component is updated using appropriate uprate factors (e.g. consumer price index, GDP growth, benefit rates)[7]. Furthermore, we estimate a set of country-specific equivalence scales (the rationale of this approach is discussed in the next section) using the consumption data of the 2009 Family Expenditure Survey. The econometric technicalities surrounding the estimation of equivalence scales are presented in the Appendix.

The following methodological choices pertain to the analysis of the distributional effects of the hypothetical reforms:

- Disposable income is used as proxy of the unobservable welfare of the household. The definition of income includes all monetary income components (wages, income from self-employment, passive income, pensions and cash transfers) except of non-cash incomes.
- The unit of analysis is the individual in the context of the household, i.e. cost-sharing within the household is assumed.

[6] EUROMOD simulates the effects of tax-benefit policy reforms on the income distribution at national or EU level and is a valuable tool for the assessment of the distributional impact of tax-benefit changes in the context of planned or already implemented reforms, (Sutherland and Figari, 2013). Also, the reader may visit https://www.iser.essex.ac.uk/euromod for an in-depth presentation of the model.

[7] More detailed information is offered in Cyprus Euromod Country Report: https://www.iser.essex.ac.uk/euromod/resources-for-euromod-users/country-reports.

- Incomes are equivalized by assigning 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 (person aged below 14) in the household.

- The relative poverty line is set equal to 60 per cent of the median of the corresponding distribution. The poverty indices selected for measuring relative poverty belong to the parametric family of FGT indices. The poverty aversion parameter is set at 0 and 1.

3.2 GMI scenarios

The Guaranteed Minimum Income scheme is a means-tested benefit targeted to individuals or families with income not enough to cover their basic needs which are defined on the basis of a minimum consumption basket. The Social Welfare Services (SWS) will estimate for each recipient the amount corresponding to his/her needs and his/her current income. Then, the benefit level will be determined by the following formula:

$$GMI = \min(basic\ income - family\ income, 0)$$

Thus, the amount of the benefit is not fixed, but varies from recipient to recipient and acts as a top-up on his/her own economic resources.

According to the timetable for the introduction of the GMI, the government is due to determine the eligibility criteria and prepare a draft law in early 2014. The scheme should operate in the summer of 2014. As the details of the scheme are not yet publicly available, the analysis here is based on a number of plausible scenarios. Thus, the remit of the paper is not to assess the distributional effects of the GMI - this is going to be the aim of future research- but to pinpoint several trade-offs policymakers are currently facing in the design of the programme. Below we simply theorise on various aspects of the programme:

Benefit levels

The basic benefit offered by the GMI will ensure individual's access to a complete consumption basket representing the amount of goods and services that meet the needs at the minimum level of living standard accepted by society. The value of the basket will vary according to changes in consumer prices. The current value of the basket has not been made publicly available; however, a plausible assumption is that it will be equal to the basic amount of social assistance, namely EUR 452 for a single individual. The

benefit amount will be increased according to the size of the recipient unit. In this respect it is reasonable to assume that the widely used OECD equivalence scales will be used for calculating how the benefit will increase for each dependent of the recipient. These equivalence scales assign a value of 0.5 to each additional adult and value of 0.3 to each additional child (children are defined as persons aged below 14 years old). Yet, this practice can be questioned on the grounds that the 'true' relative cost of each family member may differ from country to country. Therefore, we implemented a basic scenario based on the standard equivalence scales and two additional scenarios using Cyprus-specific equivalence scales. The latter are econometrically estimated using the model specification described in the Appendix and proposed by Pashardes (1995). The application of this model to Cyprus data yields estimates similar to OECD equivalence scales for adults but not for children. In particular, our estimates for children are below the OECD scales (especially those corresponding to 0-13 age group).

Table 2: Country-specific equivalence scales

	Conservative	Generous
children aged between 0 and 5	12%	15%
children aged between 6 and 12	20%	25%
children aged between 13 and 18	35%	45%
Additional adult	50%	65%

Source: Own estimations.

Unit of assessment

The definition of the unit of assessment is a very important consideration in the design of the GMI scheme as it affects the number of recipients, their demographic profile and total public spending. This feature of the system is of the most concern for multi-unit households (i.e. households that comprise of cohabiting families). In these cases, the question arising is whether income and needs should be separately or jointly assessed. The joint assessment of resources is an unusual choice. Most schemes in Europe assess the means and needs of families rather than the households in which they live. Yet the institutional context of Cyprus is unusual (compared to other European countries) due to the very high incidence of multi-unit households. To analyse the repercussions of this

choice, we simulate two different scenarios; in the first scenario we assume a family means-test and in the second a household means-test. We further differentiate the former with respect to the definition of family (i.e. adopting a stricter and a wider definition of family) as follows:

Definition of Family 1: Each spouse is responsible for the maintenance and care of the other spouse and any child up to the age of 18, or age 23 for a female child in full-time education, or age 25[8] for male child in full time education or in military service.

Definition of Family 2: Each spouse is responsible for the maintenance and care of the other spouse and any unmarried children up to the age of 28 who reside with him, or are in full time education or in military service.

Eligibility criteria – income disregard, asset criteria and other considerations

The definition of income for the purposes of means-testing is another important feature of the design responsible for potential changes in the behaviour of the recipients. Since the model does not account for behavioural responses, namely assumes that recipients behave the same irrespectively of changes in the tax-benefit system, we abstract from this problem but in acknowledgement of its importance[9]. Furthermore, it is assumed that the new scheme will substitute the basic-needs component of the existing public assistance scheme which will be abolished. Finally, third country nationals are excluded from the scheme. Definitely this is an oversimplification and certain criteria should be set so as to cover third country nationals depending on the specificity of their situation. That said, the simulations abstract from this problem, too. The hypothetical reform scenarios are summarised in Table 3.

[8] In Cyprus, military service is mandatory for males and lasts two years. Usually most people are conscripted after turning 18 years old. Thus, in many provisions of the Law, the age threshold which defines dependent children is higher for males.

[9] In particular we assume that the new scheme will inherit the earnings and income disregards of the public assistance, see Pashardes (2009) for a very detailed description of public assistance as well as the Cyprus EUROMOD Country Report.

Table 3: Hypothetical Reform scenarios

GMI parameter		Design alternatives for proposed GMI scheme				
		Reform 1	**Reform 2**	**Reform 3**	**Reform 4**	**Reform 5**
Benefit levels	Basic allowance	€ 452 per month	€ 452 per month	€ 452 per month	€ 452 per month	€ 452 per month
Eligibility conditions	Equivalence scales	OECD	Country-specific, 'conservative'	Country specific, 'generous'	OECD	OECD
	Unit of assessment	Family1	Family1	Family1	Household	Family2
	Earnings disregard	The same provisions of the Public Assistance Law				

3.4 Simulation results of hypothetical reform scenarios

In Table 4, the number of recipients (number of benefit units), total spending and the change in poverty rates associated with each policy scenario are reported. The poverty effect is measured as the percentage change in the poverty index using as base year (baseline) the 2013 income distribution (the system before the reform takes place), thus:

Poverty effect= 100*(Poverty_Reform-Poverty_Baseline)/Poverty_Baseline.

Reforms 1, 2 and 3 have the same unit of assessment; couples (or single persons) including children aged below 18 or 23 (25) for females (males) in full-time education. Reforms 2 and 3 differ with respect to Reform 1 with regard to the underlying equivalence scales used for the determination of the benefit levels. Reform 4 uses a household-level means test and finally Reform 5 extends the definition of the family unit by treating unmarried children aged below 28 as dependents.

A number of interesting findings spring from the results of the simulations. Firstly, we observe that Reforms 1, 2 and 3 expand considerably the number of potential beneficiaries (over 26 thousand according to these scenarios) and, consequently, the cost of the scheme. Reform 4 is the most frugal option and Reform 5 stands in between. After comparing Reform 1, 2 and 3 we discover that the choice of equivalence scales exerts a minimal influence on total spending. Indeed imposing a conservative scale (Reform 2) lowers costs but not much. This is because most recipient units are not large in size.

Nonetheless, specific population groups (evidently large families) will be affected. On the other hand, the poverty impact of the reform is affected with the 'generous' benefit scheme exerting a more sizable effect on the incidence and intensity of poverty. In that sense - and assuming all other equal- Reform 3 is a better choice than Reform 1 and 2 because a more progressive distributional outcome is achieved with a relatively small increase in spending. As regards the level of total spending we should reiterate that the model does not account for the large increase in unemployment that occurred during 2012 and 2013[10]. Thus, these estimates can be considered as very conservative and in reality the cost of these schemes will be much higher.

Table 4: Total recipients, spending and the effect on poverty, 2013.

Index	2013 (base system)	Reform 1	Reform 2	Reform 3	Reform 4	Reform 5
Recipients	-	26,643	26,074	27,242	8,717	17,773
Total spending	-	€114m	€112m	€118m	€34.5	€75.2m
	Poverty effect (%) (floating poverty line)					
FGT(0)	13.94	0.88	1.59	-0.08	0.34	0.86
FGT(1)	2.78	-2.96	-2.22	-3.86	0.08	-2.57
	Poverty effect (%) (stable poverty line)[a]					
FGT(0)	13.94	-3.36	-2.44	-4.19	0.40	-2.36
FGT(1)	2.78	-5.76	-5.05	-6.64	0.35	-4.24

Source: Authors' estimations using EUROMOD version G1.5.
Notes: [a] Poverty line is fixed at 60 per cent of the median of the observed 2013 income distribution.

The most important factor driving the difference between the first group of reforms (1, 2 and 3) and the rest are family structures. Specifically, a considerable number of adult young people are living with their parents and, depending of the definition of the unit of assessment, can be treated as independent units or not. In general, Cypriot societal structures are characterized by a prevalence of multi-unit households where adult children, parents and grandparents cohabit. Individuals living in these households pool their incomes together and possibly benefit from significant economies of scale within the household. Additionally, the social norms and habits of the local society are not aversive to this behaviour, rather they encourage it, and so the social costs of cohabiting are

[10] The model uses the 2010 EUSILC database and despite that income components were updated to 2013 values using appropriate factors, no adjustment for increased unemployment was made.

minimized. Cordon (1997) has argued that this phenomenon is chiefly generated by economic factors, most probably the absence of economic opportunities for young people in Southern Europe. However, Iacovou (2010) shows that in Mediterranean countries a preference for family closeness exists. Indeed, our knowledge of the Cypriot society suggests that young people from better-off backgrounds are very likely to live with their parents until a late age. This may produce the oxymoron of affluent GMI recipients; eligible beneficiaries whose reported incomes are very low but at the same time they enjoy high living standards.

To remedy this problem, it could be argued that the household should be assessed, rather than the family. This is the rationale of Reform 4, which, indeed, yields the lowest number of recipients across all five scenarios and the lowest spending by far. Yet this comes at the cost of poverty increase. Reform 5 represents a compromise between two extremes: the nuclear family is chosen as the unit of assessment but this time unmarried children aged below 28 are considered dependents of the head of family. In this case, the number of recipient units stands above those of Reform 4 but considerably lower than those in Reforms 1, 2 and 3.

As far as poverty effects are considered, the results depend on whether we choose a floating or a stable poverty line. In the first case the poverty line is recalculated for each policy simulation (always as 60 per cent of the median of the corresponding distribution), while the second case uses the pre-reform poverty line to assess the post-reform poverty levels. The effect of the reforms on the incidence of poverty is insignificant when we adopt a floating poverty line and becomes negative (that is poverty-reducing) when the poverty line is kept stable. The intensity of poverty as measured by the FGT(1) decreases across all scenarios, irrespectively of the choice of the poverty threshold, with the exception of reform 4 which in general produces ambivalent distributional outcomes.

To elaborate further on the points raised in the previous paragraphs and especially on the interactions between family structures and the design of the reforms, Table 5 splits total recipients and spending into age groups. Note that here only the recipients are included in the accounting. However, several recipients may have dependents (mostly children and/or spouses) who also benefit from the scheme. This time, Reforms 2 and 3 are not reported in the table so as to focus on the issue of the unit of assessment. What this exercise demonstrates, is that the age profile of recipients is heavily influenced by the choice of the

unit of assessment. In the first scenario, the majority of recipients are aged 18-30 and nearly half of total spending is allocated to them. These persons are usually either unemployed or not in education, live with their parents and are not necessarily poor as they enjoy the common economic resources of their paternal household. When we adopt a means-test at the household level (Reform 4), i.e. take into account all the resources of the household, then the relative share of the 18-45 age group decreases and correspondingly the relative share of the 46-60 age group and the elderly (above 61 years) increases.

Finally, the last columns of the Table 5 assess the in-between scenario, where we have increased the age a person becomes entitled to the social benefit in her own right. In this scenario, a policymaker takes into account the fact that young people in Cyprus tend to leave home much later than in other European countries[11]. This is the rationale of Reform 5. In that case total spending is lower compared to the other scenarios and the distribution of resources to age groups becomes less skewed.

Table 5. Allocation of recipients and spending per age group

	Reform 1			Reform 4			Reform 5		
	Recip.	Spending	Relative share	Recip.	Spending	Relative share	Recip.	Spending	Relative share
Age group									
18-30	12,018	€52.2m	45.7	1,263	€2.8m	8.2	3,741	€15.8m	21.0
31-45	5,236	€22.6m	19.8	1,916	€9.1m	26.6	5,203	€22.4m	29.8
46-60	6,495	€29.6m	25.9	3,399	€15.6m	45.3	5,936	€27.2m	36.1
61+	2,893	€9.9m	8.6	2,140	€6.9m	20.0	2,893	€9.9m	13.1
All	26,643	€114m	100.0	26,074	€112m	100.0	27,242	€118m	100.0

Source: Authors' estimations using EUROMOD version G1.5.

Finally, Table 6 reports the potential poverty effects of the reforms on specific population groups. Poverty changes are computed as the percentage change in normalized poverty gap (FGT1) before and after the reform. A negative (positive) sign implies a reducing (increasing) poverty effect. The analysis focuses on the intensity of poverty (poverty

[11] Iacovou (2004) finds that home-leaving age is considerably higher in northern Europe compared to southern countries.

gaps) instead of the incidence of poverty (headcount ratio). This is because the estimates of Table 4 indicated a relatively low impact of the GMI scheme on the incidence of poverty. In general, these programmes are designed to provide poverty relief but are insufficient to lift families above the poverty threshold, especially when poverty is determined on a relative basis (Nelson, 2004; Bahle et al, 2010). Thus, a GMI scheme should be primarily judged in relation to this goal.

As we have already seen, the reforms deliver considerable amounts of poverty relief with the exception of Reform 4 which causes a marginal increase in overall poverty. Nevertheless the impact varies among population groups. The computation of age-specific poverty rates reveals that poverty among the working age population is clearly larger than the impact on the non-working age population (children and older persons). The decomposition by age group reveals that poor elderly improve their income position, too, but when we decompose population by household type, we see that the effect on elderly is larger when they live with their partners. Couples without children are positively affected as well as couples with children, but the impact is larger for couples with one or two children. On the other hand, poverty among single parent household is increasing. Here we should note that this group includes only single parents living along with their children. However other single parents choose to live in multi-unit households (e.g. cohabit with their parents and therefore are included in the "other household" group). Furthermore, the poverty gap of the 'Other household' group (mostly consisting of multi-family households) decreases considerably for almost all scenarios. Again, this is due to the design of the reforms as well as the high incidence of multi-family households in the population. A more balanced approach would entail to adjust equivalence scales so as to take better into account the benefits of cohabitating and thus shifting resources from multi- to single-family households. Finally, the poverty gaps among females decrease more than those among males, but the difference is marginal.

Table 6. Poverty decomposition (stable poverty line)

Group	Pop. share	Reform1	Reform2	Reform3	Reform4	Reform5
		% change in poverty				
Age						
0-18	22.3%	-2.7	-0.89	-2.87	0.87	-1.54
19-64	65.0%	-8.4	-7.58	-9.80	0.25	-5.83
65 and over	12.7%	-3.0	-2.96	-3.30	0.25	-2.97
Household Types						
Older single persons (+65)	2.8%	0.0	0.00	0.00	0.00	0.00
Older couples (at least one 65+)	2.3%	-5.3	-5.28	-5.28	-0.36	-5.28
Couples w/out children*	15.6%	-1.4	-1.38	-3.96	-1.38	-1.38
Couple with 1 or 2 children*	24.1%	-4.7	-2.27	-4.98	-4.28	-4.72
Couple with 3+ children*	12.0%	-1.3	0.23	-0.66	7.35	-1.30
Single parent households	4.4%	2.5	2.49	2.49	2.49	2.49
Other household types	38.8%	-13.2	-12.74	-14.63	2.34	-8.28
Gender						
Male	49.6%	-6.0	-5.18	-7.07	0.77	-4.18
Female	50.4%	-5.6	-4.94	-6.30	0.02	-4.29
All		-5.8	-5.05	-6.64	0.35	-4.24

Source: Authors' estimations using EUROMOD version G1.5, * no other adults, children are persons aged under 18.

5. Discussion and conclusions

The establishment and operation of an effective Minimum Income Scheme is a challenging venture because of the need to reconcile multiple policy goals. Firstly, policymakers are obliged to shield the population from income deprivation. Secondly, the recipients of minimum income benefits should be offered worthwhile labour market reintegration options at times of inadequate labour demand. Thirdly, complex problems of imperfect targeting should be minimized. And finally, tax payers should be respected. The empirical analysis of the paper abstracts from these issues and only scratches the surface of the complexities surrounding the introduction and operation of the scheme. Our approach consists of simulating a number of hypothetical reform scenarios. We should make clear that these scenarios will not necessarily coincide with the actual policy reform

which is currently pending. Still the analysis offers valuable insight insofar it spots several trade-offs relevant to policy making.

Initially we examined the relevance of equivalence scales on determining how the level of a social benefit - in our case the GMI- should vary with family structure. The existing schemes determine the benefit levels on the basis of the standard equivalence scales used by Eurostat. An alternative, building on the idea that the cost of children as well as the economies of scale within the household may differ from country to country, would be to econometrically calculate country-specific scales using appropriate consumption data. To that end we used the 2009 Family Expenditure Survey applying a rank-3 demand system as developed by Pashardes (1995). The outcomes of this exercise gave rise to two reform scenarios. Admittedly these scenarios did not produce fundamentally different results as regards aggregate impact (compared to the basic scenario). Nonetheless the group-specific impacts are more substantial and furthermore it is possible to boost the distributional impact of the reform (with relative low cost) by choosing one of them. The equivalence scales are likely to be more relevant for other social policy instruments (child benefits are an obvious candidate) and our contention is that policymakers should consider the possibility of developing own estimates of the cost of children instead of relying solely on "off-the-self" scales.

The choice of the unit of assessment proved to be more pivotal. In the first scenario the family unit was defined as couples (or single individuals) who are responsible for the care of children up to the age of 18 or age 23 (25) for males (females) in full-time education. The rationale is to provide coverage to an increased number of people including young people who are either unemployed or their earnings are very low. The current system of social protection provided only limited coverage in terms of poverty relief to the working-age population, especially the working poor. Thus it makes sense to design the eligibility criteria of the new scheme so as to take into account this gap in income protection. Actually the international practice shows that low wage earners increasingly depend on means-tested top-up benefits, (Bahle et al, 2012) to maintain their living standards. The results of the simulation, however, show that this design might not be a prudent choice in terms of fiscal sustainability. An extreme alternative would be to assess the resources and the needs of the individuals in the context of the household in which they live. This is an

unusual treatment, rarely observed in social protection systems[12], but it could be argued that it is meaningful in the particular context of Cypriot society. This reform scenario reduces total spending but causes questionable distributional outcomes. This is because the policymakers in their attempt to reduce inclusion errors, simultaneously increase exclusion errors. Furthermore, household means-testing would entail further risks, such as motivating cohabiting units to split up.

The policy dilemma arising is whether unemployed young persons living with their parents or elderly persons living with their children and/or grandchildren should be eligible for the GMI without testing the resources of their parents/children. Social structures in Cyprus encourage such patterns of obligation. According to our estimates about 40% of young persons aged 18-30 live with their parents. In general the incidence of multigenerational households is very high. As a result, switching the GMI to a family unit basis would increase the number of benefit units and expenditures. Another interconnected issue is that of intra-household transfers taking the form of inter-generational support. Cypriots of working age often take care of their parents in old age. They also provide for their grown-up children in certain contingencies. These informal monetary and non-monetary transfers blur the lines between the seemingly poor and the poor. As said earlier, distinguishing between those who are in need and those who are not is likely to be the largest challenge of forthcoming social policy reforms in Cyprus.

Perhaps, a good compromise would be to increase the age after which a young person becomes eligible for the GMI benefit. This is the rationale of Reform 5 in which we assume that the head of the family unit is responsible for unmarried children up to the age of 28 who reside with him. Indeed this scenario yielded the most reasonable results and appears to minimize trade-offs between cost and coverage.

Overall, the above arguments do not constitute a per se conviction or a eulogy of one choice or the other. Realism dictates a stricter use of economic resources during an era of enforced austerity, but the allocation of these resources and the extent or nature of redistribution can only be a societal choice. In fact, we found that the design of the scheme influences the age-profile of the recipients implying an intergenerational redistribution. In the end, the choice of the unit of assessment (as well as other features of

[12] A comprehensive description of social assistance schemes in OECD countries is provided by Eardley et al (1996). A more recent survey - for a selection of European countries- is offered by Avram (2013).

the scheme) cannot be but the product of political judgment. The crucial point we would like to make is to avoid convenient oversimplifications and take note of the various side effects, merits and shortcomings of the alternative scenarios discussed in the paper.

We close the essay with some observations on microsimulation and the way ahead for further improvements. Interestingly these issues are of high relevance for the GMI reform. The Cypriot version of the EUROMOD model is based on the assumption that a) policy changes do not elicit behavioural responses and, furthermore, that b) targeting of social benefits is perfect (namely, the model does not account for income misreporting and non take-up). These limitations can be innocuous in certain contexts (e.g. testing the impact of marginal changes in policy rules) or introduce biases in the results when a structural reform is assessed. The introduction of the GMI belongs to the second category, yet the focus of the analysis is on the interaction between family structures and certain design features of the system (most importantly, the unit of assessment) and we expect that the conclusions deriving from the analysis are relatively robust to the data limitations. That said, a comprehensive impact assessment of the reform would entail to take into account the points a) and b) stated above.

Firstly, targeted transfers induce behavioural changes. Beneficiaries of social benefits are 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) and possibly would re-emerge after the operation of the new scheme. Even worse, the economic costs associated with labour market disincentives most probably would exacerbate by weak demand for labour.

Secondly, effective means-testing requires information about the economic situation of potential beneficiaries. In Cyprus, there is evidence of widespread tax evasion, especially among the self-employed (Pashardes and Polycarpou, 2008). Taking into account tax evasion in microsimulation would enable us to estimate the distributional effects of mistargeting as well as the economic costs of introducing highly selective policy instruments. Finally the problem of benefit non-take up (which can be the product of lack of information and/or stigmatisation stemming from the division between recipients and

non-recipients of state benefits) is completely under researched in Cyprus. Future extensions of the model would enable us to throw light on these issues.

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APPENDIX

Equivalence scales estimation method

For the estimation of equivalence scales we use a rank-3 demand system as proposed by Pashardes (1995). The analysis assumes 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:

$$w_{ih} = a_i + \sum_k a_{ik} z_{kh} + \beta_\iota \left(lnY_h - a_0 - \sum_n a_{0n} z_{nh} \right) + \lambda_\iota \left(lnY_h - a_0 - \sum_n a_{0n} z_{nh} \right)^2$$

where w_{ih} is the budget share of the household h on non-durable expenditure category i, z_h is a vector of the demographic characteristic of household h and Y_h is the net income of each household. The parameters α_{ik} reflect demographic substitution effects and the parameters α_{0n} reflect the marginal (log) cost of the nth demographic characteristic. The "subsistence" (log) cost α_0 corresponds to the reference household defined by $z_{nh}=0$. Throughout the analysis α_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 Cyprus Household Budget Survey and include households with one or two adults, having one or two children aged between 0 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_h includes a large number of households' demographic attributes reflecting family composition, housing tenure and characteristics, availability of durable/luxury goods, and head's age, sex, education and employment position.