

Policy Study 11



Overhaul of the social assistance system in Macedonia: Simulating the effects of introducing Guaranteed Minimum Income (GMI) scheme

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Abstract

The aim of the study is to propose options for reform of the social assistance system in Macedonia through an introduction of a guaranteed minimum income (GMI) scheme. We design and simulate three different GMI schemes: Old Oxford scheme, square root scheme and making work pay scheme. The methodology behind this study is composed of two parts: MK-MOD – the tax and benefit microsimulation model of Macedonia and MK-Labour – the structural labour supply model. Both constitute behavioural tax and benefit microsimulation model. Simulations show that in all three schemes, relative poverty declines significantly (by about a third), while absolute poverty is eradicated completely. Income inequality improves. Still, when the three schemes are compared among each other, the Old Oxford scheme produces the most favourable 'living standard' results. The labour supply responses suggest that the three schemes have larger effect on incentivising singles to enter the labour market, rather than couples. However, all three do not produce disincentives and manage to lift people from inactivity and sluggish job search. Labour market responses are further emphasized among the poor, and especially among female poor. There is a slight superiority of the making work pay scheme in this respect which is expected as it has a main goal to promote activation and reduce disincentives to work. The final decision of the appropriate scheme should be made by the government, based on ideology and priority given to equity vs. efficiency. In particular, the first two schemes are inherently focused on equity, redistributing the income towards the most vulnerable citizens. Although, the conditionalities which will be part of the scheme add an element of efficiency, in case of strict implementation. The third scheme aims at finding a balance between equity and efficiency, i.e. ensuring a minimum living standard for the poorest, but also giving incentives for work and possibility for self-efficacy.

Keywords: guarantee minimum income, incentives to work, labour supply, poverty, inequality

JEL Classification: H55, J22

Acknowledgement: This research has been generously supported by the Economic Research & Policy Institute "Finance Think" Skopje, within a project supported by the British Embassy in Skopje.



This product is prepared within the project "FISCAST+: Fiscal transparency and accountability improves policies in quality of life, education and health" funded by the UK Government with the support of the British Embassy Skopje. The content of this publication does not necessarily reflect the position or the opinions of the UK Government.

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1. Introduction

Employment is considered a primary pathway to individual independence and self-efficacy, as well as the best way to combat poverty and social exclusion. However, some categories of citizens face difficulty in accessing employment for different reasons, either temporary or for a prolonged period of time. The role of the social assistance is to provide for the material existence of those citizens and to preserve their living standard to a certain level, affordable and achievable by the state. Even among the workers who manage to find a job, there are some who will be employed at very low wages, working few hours, on temporary contracts, etc., hence still living in poverty (so called, working poor).

For many decades now, it has been believed that the economic growth and development are the main pathway to reducing poverty, inequality and social exclusion. However, in recent years, mainly following the global economic and financial crisis, a new line of thinking emerged according to which growth alone cannot solve social problems. Indeed, some of the famous economists, such as Nobel-prize winner Joseph Stiglitz, have been repeatedly bringing the attention to the rising inequalities. The OECD also asked for a new approach towards growth which should also be inclusive. There is a growing body of literature and authors arguing that greater support to those in need can lead to better economic and social outcomes (Crepaldi et al., 2017). Within the EU, there is a growing discussion and debate, as well as commitment towards strengthening the social dimension of the EU, even for introduction of a European Minimum Income scheme. There is a consensus for the need to implement various activities and initiatives to reach the goals of Europe 2020. The guaranteed minimum income (GMI) has an important place in the overall discussion on achieving the social targets, in particular the poverty target. At the same time, both at the EU level and in some states, the idea of introduction of universal basic income schemes is very vibrant and in experimental phase.

Although the GMI has been in place in the EU countries for almost three decades, the idea for introduction of similar program in Macedonia has only recently gained attention, being proposed as part of the pre-election program of the now ruling political party/government. Though, within the program, there is no detailed explanation about the design of the GMI, which leaves a room for the present study to simulate different options of the GMI scheme and to recommend the most effective and efficient one. In particular, different considerations have to be taken into account such as the cost of the program, the effect on poverty and inequality, the potential effect on the labour supply (i.e. disincentives to work), implementation mechanisms, etc.

The rest of the paper is organized as follows. Section 2 sets the scene by reviewing the system of social assistance in Macedonia. Section 3 reviews the setup of similar programs across the EU, main issues within the system and most recent reforms. Section 4 portrays

the data and underlying methodology. Section 5 presents our own GMI designs. Section 6 presents the obtained regression results. Section 7 presents the effectiveness and efficiency of the proposed schemes for Macedonia. Section 8 concludes.

2. Setting the scene: Social assistance system in the Republic of Macedonia

Similar to most European countries, Macedonia has a comprehensive system for social security which comprises: i) contributory benefits (such as pension and disability insurance), ii) passive and active labour-market programmes, and iii) social assistance programmes for protecting income and consumption of the poor. Passive policies are represented by the contribution-based unemployment benefit which is conditional on previous work history. However, given that about 80% of the unemployed in Macedonia are long-term unemployed, the coverage of the benefit in 2012 was only 9% (of the unemployed). Moreover, it is of short duration.

The social assistance system in Macedonia can be characterized as categorical rather than universal, given that it guarantees minimum resources/income to specific subgroups of population, such as unemployed, disabled, etc. In addition, the system is fragmented, consisting of many types of programs rather than having a single, comprehensive program. In total, there are 16 separate benefit schemes that are defined by laws as “entitlements” or “rights” and two social programs. Of those, 11 are social and 5 are child protection benefits. The main program is the social financial assistance (SFA). The other programs include: permanent social assistance (for those that are permanently unable to work, such as disabled, elderly), cash assistance for orphans, child allowances, benefits for care givers, one-time cash benefits, salary supplements for family members who face reduced work opportunities because of responsibilities to care for children with disabilities, housing, health insurance benefits, etc. In the last couple of years, the Government introduced new social protection measures aimed at further reducing the poverty, though some of those are in essence part of the demographic policy (to support fertility). The two social programs are the benefits for energy use and conditional cash transfers.

The SFA is the main social safety program, acting as a last resort support to poor individuals/households. It targets households whose members are able to work but are unable to make themselves materially secure. The amount of the benefit is related to family size (up to 5 members), and a maximum of MKD 7,020 (in 2017) or approximately EUR 115 per month, can be granted. It is means tested, meaning that the actual amount transferred to a household is calculated as the maximum amount (for the particular family size) reduced by any income earned by the family/household. The eligibility is lost if the family earns more than the SFA level.

The total spending on social assistance (SFA, child and family protection, non-contributory disability benefits, and war-related benefits) in Macedonia in 2016 was about one percent of GDP (0.99% of GDP). The SFA programme alone accounts for about 0.17% of GDP, whereas in recent years the most costly program is the third child allowance (0.37% of GDP in 2016).

The social assistance programmes have undergone several reforms in recent years aimed at improving targeting and efficiency. The introduction of the Management Information System (MIS), which provides an electronic connection among the social work centres (SWCs), has substantially decreased the number of SFA users through elimination of duplicative and flawed claims. Some changes were also made to some of the programs as to increase the activation component and to strengthen the link to the labour market. A large new program was introduced, the conditional cash transfer programme for parents of secondary-school pupils who are recipients of the SFA, as to break the vicious cycle of poverty and low education that transfers across generations. However, there were no detailed studies carried for the importance of the social assistance in reducing the overall poverty, nor strong efforts and commitment to deeply reform the system.

As elsewhere, while the SFA programme in Macedonia is aimed at safeguarding the income and social integration of poor citizens, there are some concerns about its potentially negative impact on the labour supply and welfare dependency. Vidovic et al. (2011) argue that there are two interrelated elements in the process of the activation of benefit recipients and their labour market integration. The first one is a demanding element; that is, whether an active job search is promoted by the legal environment. On the other hand, the enabling element should support poor and socially disadvantaged individuals in their job search efforts, as those individuals are likely to face some barriers to participation and/or employment. The assessment of the demanding and enabling environment in Macedonia shows that national legislation and policies do not provide a strong support for activity of the beneficiaries of the SFA (World Bank, 2013). Though, there are some incentives in the social system for speeding up the transition from SFA to work, such as: a) the declining benefit schedule (the benefit drops to 50% of the eligible amount after three years of receipt) and b) the legal pledge for keeping the entitlement to SFA while the beneficiary is engaged in a public work programme. However, there is no evidence that these incentives affect the labour market behaviour and outcomes of the SFA beneficiaries.

Pensions play a very important role in reducing poverty. Poverty before social transfers in 2015 was 40.5%, however pensions reduce the AROPE to 24.8. However, the effect of the social transfers on poverty is quite low, as they manage to further reduce the AROPE (after pensions are taken into account) to 21.5 (only by 3.3 percentage points). Though, the situation is similar even across the EU countries, where social transfers do not play an important role in reducing the poverty: the average effect for the EU-28 is 4.1 p.p.,

whereas the average AROPE in 2015 was 23.8% (Crepaldi et al., 2017). Major safeguard against poverty is the labour market status of a person. Despite the overall high poverty rate in the country (21.5% in 2015), employed persons face a relatively low risk of poverty, with 8.9% of employed persons living in poverty (i.e. being at-risk of poverty and social exclusion-AROE). Poverty is highest among the unemployed (39.7%) and other inactive persons (other than pensioners), 26.7%.

There are generally three main arguments for more profound reform of the social assistance system in the country: i) the small effectiveness of the social transfers in reducing poverty; ii) the low spending on social assistance programs, and iii) the labour market disincentives arising from the social assistance given the low general level of wages and large grey economy.



3. Guaranteed minimum income programs across the EU: practices and recent reforms

3.1. The design of GMI across the EU

The European Pillar of Social Rights¹ defines the minimum income as providing “sufficient resources and social assistance to live in a manner compatible with human dignity and is part of a comprehensive and consistent strategy to combat poverty and social exclusion.”(p.1). Usually, the minimum income programs are last-resort schemes available to the poorest citizens to provide them with some minimum standard of living when they do not have other means of financial support. The minimum income programs provide safety net to those who cannot find a job, do not have access to decent job or who cannot work. In practice, its main beneficiaries are persons who are able to work but cannot find a job, given that unemployment is the main reason why people cannot enjoy an adequate living standard (Crepaldi et al., 2017).

The guaranteed minimum income (GMI) schemes fall into the category of non-contributory, general or universal assistance since they provide income support (cash benefits) to all eligible claimants whose income falls below some threshold, i.e. a specified minimum income. There are different approaches among Member States (MS) as how to set the threshold: some base the threshold on studies of poverty, some on other yardsticks within the economy, for instance minimum pension, reference budgets (for goods and services necessary to reach an acceptable standard of living), etc. They also provide indexation with inflation, or the annual changes are based on the government capacity to fund the GMI. The GMI support is means-tested, meaning the recipient receives the guaranteed income level minus earned income from different resources, whereas the non-monetary income is rarely considered. GMI programs usually have built-in conditionalities, commonly related to labour market activity, active job search, obligatory participation in programs for social integration, participation in vocational training, in some community work, etc. These conditions are thought to make the GMI a comprehensive active inclusion strategy rather than a mere income support program.

The primary role of the GMI is to reduce poverty, although the evaluation studies for the EU countries show that they usually fail to do so (Figari, 2013; Penas-Casas, 2013). In particular, studies show that the GMI is a significant addition to the incomes of the poor, but still fail to lift many people out of poverty. The effectiveness of the GMI in reducing the poverty depends on the overall design of the program. The literature identifies several issues/elements of the program which are important in terms of the effectiveness (Farinha Rodrigues, 2004; Clavet et al., 2012; Frazer and Marlier, 2016; Crepaldi et al., 2017):

¹ Minimum Income-Towards a European Pillar of Social Rights, available at: https://ec.europa.eu/commission/publications/minimum-income-european-pillar-social-rights_en.

- *Adequacy* – the failure of the GMI programs to reduce substantially poverty is related to the adequacy of the scheme, i.e. generosity. Studies find that many poor who receive the GMI still remain below the poverty threshold level. The main reason is that the benefit levels are usually below the AROPE poverty threshold of 60% of the median income and even below what is considered as extreme poverty level (40% of the median income). Moreover, the benefit levels are usually far below the minimum wage (to avoid the potential disincentives effect), the take up is very low, but also countries generally spend little on GMI and some EU countries consider it as a residual scheme in the overall social assistance and redistribution schemes. For instance, Penas-Casas (2013) classifies EU countries into five groups based on the generosity of their minimum income schemes, with Denmark being most generous (minimum income is set at 50% of the median income), whereas Latvia, Poland, Bulgaria and Slovakia having a least generous threshold at 20% of the median income.
- *Poverty trap* – Inadequate GMI schemes can lead to poverty trap. While the GMI helps people to satisfy their very basic needs, they can lock the beneficiaries into a cycle of poverty and dependency without improving their prospects for access to education, training, jobs, etc. or, in general, the access to opportunities.
- *Disincentives* – GMI programs may lead to disincentives in the labour supply, further exacerbating the poverty trap problem (Farihna Rodrigues, 2004; Clavet et al., 2012). There are several possible situations in which GMI program may raise disincentives: a worker whose income from work is only slightly above the GMI level may decide to withdraw from the labour market and become a GMI beneficiary; an unemployed persons who is eligible to receive GMI may reduce his/hers job-search intensity and/or decline wage offers (the latter depends on the conditions for eligibility and strictness of the implementation); a low-wage worker receiving wage below the GMI threshold may not have an incentive to progress in the job as then s/he will no longer be eligible to receive the GMI. These situations for disincentives may be heightened in an economy with high grey economy; for instance, workers may ask employers to formally pay them lower wages in order to receive GMI, and to pay the rest of the wage in cash (envelope wages). These disincentives are the primary reasons (in addition to the budgetary constraints) why the generosity of the GMI is low in many countries. It is important that the eligibility mechanisms and taxes are set as not to discourage people from making an effort to find a job or to earn more. Though, there are ways in which the disincentives may be reduced if not avoided fully. For instance, the GMI scheme may consider only 80% of the income form work in the calculations (Farinha Rodrigues, 2004). The in-work benefits are also designed as to minimize these disincentives.

- *Monitoring issues* – As the main criteria for awarding the GMI is the individual/household income level, it is crucial to correctly calculate the income, from different sources. Within the legislation or by-legislation, countries define in detail all sources of income that are considered in calculation of the income, but in practice there are problems arising from the income earned in the informal economy, remittances (which can be large in some countries, as in Macedonia), non-monetary income, etc.
- *Incomplete take-up* – Practice shows that not all eligible persons for the GMI apply for the scheme and receive the benefit. There are different factors leading to the incomplete take-up, such as lack of information among those in need of the program (the socially excluded), complexity of procedures and application, stigma associated with receipt of the GMI, etc. One can assume that these issues may be larger for the most vulnerable, socially excluded and poor citizens, i.e. those in the largest need for GMI. The incomplete take-up significantly reduces the effectiveness of the GMI. A recent study of EMIN Network (2015) shows that the non-take-up among the EU countries ranges between 20 and 75%.

These and other issues are the motivation for the continuous reforms of the GMI schemes across the EU, but have also given a rise to a new concept, that is the basic income. Most recent reforms in the GMI system across the EU countries were in following three areas (Crepaldi et al., 2017):

- Strengthening of the conditionalities and activation component of the GMI. The main goal is to reduce the labour market disincentives, though conditioning the eligibility with labour market activity, work commitments and employment policies. This trend led, for instance, to opening up of one-stop-shop centres for the GMI recipients (combining social and employment services), signing of a claimant commitment agreement (UK), etc. In general, across the EU countries, the nature of the minimum income schemes has been changed from economic support measure to active measure aimed at supporting the poor to transition from social exclusion to an inclusive social and economic life.
- Increasing the strictness of the eligibility criteria, such as reducing the maximum time use of the GMI, reduction of the level of benefits (in Germany), etc.
- To simplify the complicated systems of many types of benefits into a single, general minimum income program (such as in France, Italy and UK). However there are not yet studies showing the substitution effect of these new schemes relative to the old ones. Austria also moved from the traditional social assistance to GMI, with plans to open a one-stop-shop for all benefit recipients who are able to work at the Public Employment Service as to increase their attachment to the labour market. However, the latter plan failed due to resistance from the federal provinces. Cyprus established a GMI scheme in 2014 replacing the previous Public

Assistance program. The GMI extended the coverage to some groups of citizens who were becoming increasingly vulnerable and at risk of deprivation. It should lead to better targeting of those in need relative to the previous program and hence to have a larger effect on poverty.

Some of the new MS are also designing new GMI schemes or improving the schemes already in place. Bulgaria has a basic GMI scheme in place and is currently piloting Centres for Employment and Social Assistance as a new model for integrated social and employment services. Croatia has introduced a general GMI scheme in 2014, replacing the previous system of fragmented and limited social assistance measures. The GMI in Croatia is means- and asset-tested. It was slightly changed in 2015 and 2016 so that there are no more time limits for receiving the benefit (even for work-able persons), and has a component of the in-work benefits (making work pay benefits), given that those beneficiaries who find a job will continue receiving the benefit for the first three months of employment.

3.2. Guaranteed minimum versus universal basic income

On the other side, there is an increasing debate throughout the EU countries in the possibility of introducing a universal basic income (UBI). Although the Parliament's Legal Affairs committee adopted a universal basic income, the European parliament plenary in a vote from 16 February 2017 rejected the UBI. However, some of the EU MS are proceeding with this idea and have started experiments to test it and to examine the potential effects. Moreover, the UBI were also an important topic discussed at leaders' gatherings, such as at the World Economic Forum (WEF) in Davos in 2017 and the International Economic Forum in St. Petersburg in 2017.

The main difference between the MGI and the UBI is that the UBI is unconditional, meaning that every person with income falling below some threshold level is eligible for the UBI, without conditioning the support on labour market activity or other behaviour. The idea of basic income has gained importance in the era of large structural changes that fundamentally affect the labour market. Automation, digital revolution, globalization and the economic crises increased the unemployment, reduced the chances for the unemployed to find a job, increased job insecurity, weakened the social protection, increased the poverty and inequality (European Parliament, 2016). All these changes and expected future digitalization increase the interest for the unconditional basic income. The study of the European Parliament argues that the UBI would help in fairer redistribution of the benefits from automation and digitalization. The UBI, being simple, transparent and comprehensive may replace the current GMI schemes (or other social assistance programs) and produce greater effects on poverty reduction, rather than continuously reforming the GMI to avoid its administrative constraints and costs,

complex rules, to prevent fraud and abuse, etc. Still, it seems that the introduction of such a scheme is more a privilege of the most developed countries rather than an option for all.

Switzerland was the first country to have held a referendum for introduction of an UBI of CHF 2,500 per month, in June 2016, but the proposal was rejected by the voters. Among the EU countries, Finland, Netherlands and Denmark have been implementing experiments throughout 2017 as to examine the potential effects of an UBI scheme. For instance, Finland will involve about 5,000-10,000 citizens in the experiment which will provide the participants with EUR 500-700 per month as an unconditional and universal monthly payment. The aim is to examine the effect of the UBI and potentially replace the current complex system of state subsidies for unemployment, housing, studying, parental leave, etc. The experiment is mainly devised as to assess the effect of UBI on employment (given the idea that basic income promotes employment) rather than the welfare dimension of the scheme. In the Utrecht experiment that started on 1 January 2017, the Dutch government tests several alternatives of an UBI scheme, such that some recipients receive the benefit unconditionally (plus getting some bonus if they do some volunteering work) and some with conditionality. The results of these experiments may further promote the idea of introduction of UBI or may show that the scheme is not effective and does not address the main deficiencies of the GMI.



4. Methodology and data

The methodological construct behind this study is composed of two parts: MK-MOD – the tax and benefit microsimulation model of Macedonia and MK-Labour – the structural labour supply model in Macedonia. Both constitute behavioural tax and benefit microsimulation model. They are explained as follows.

4.1. Tax and Benefit Microsimulation Model – MK-MOD

MK-MOD is a tax and benefit micro-simulation model within the EUROMOD family. It is a static model where individual behaviour (labour-market activity, employment, childcare, saving, etc.) is assumed to be exogenous to the tax-benefit system. It belongs to the family of “standard” static models where individuals/households choose to supply labour (hours of work) until the point where the “marginal disutility of work equals the marginal utility of disposable (net-of-tax) income.” (Saez, 2010, p.180). In this setting, taxes and social transfers affect the labour-market behaviour by changing the relative value of work vs. leisure.

It allows the simulation of income assistance, child benefits, unemployment benefits, direct taxes and social security contributions. The advantage of the database we use here – the Quality of Life Survey 2017 is that provides detailed data on the income sources (such as income from wages, self-employment, pensions, dividends, interest rates, etc.) including social transfers (such as the social financial assistance, child allowance, unemployment benefit, financial reimbursement for assistance and care by other person, etc.) and remittances. We simulate direct taxes, social security contributions and social assistance benefits. The simulated versus the actual figures are provided in **Table 1**. Results from the simulations quite robustly mimic the actual figures, with the exception of the special and third child allowance. The large deviation with the former probably appears because of model’s inability to succinctly identify children with disabilities who are eligible for the benefit, while in the case of the latter, the deviation cannot be explained, especially considering that the rule for obtaining a third child allowance is quite simple.²



² At least small part of this difference can be explained by the fact that some households receive allowance for second and fourth child, as initially the law was granting such benefits.

Table 1 – Validation of MK-MOD

	MK-MOD Estimation (Mil. MKD)	Official figures (Mil. MKD)	Deviation
Taxes			
Pension contributions	35,221,881,480	34,952,000,000	0.8%
Health contributions	20,632,654,680	20,682,477,000	-0.2%
Contributions for case of unemployment	2,342,015,940	2,160,000,000	8.4%
Personal income tax	15,229,451,640	15,306,000,000	0.7%
Benefits			
Social financial assistance	1,014,634,285	1,020,401,047	-0.6%
Permanent financial assistance	336,136,456	376,245,664	-10.7%
Child allowance	129,988,405	103,114,064	26.1%
Special child allowance	160,054,096	390,648,341	-59.0%
Third child allowance	1,144,446,460	2,225,492,365	-48.6%
Disability care	1,567,824,206	1,713,987,026	-8.5%
Conditional cash transfer	60,943,968	59,265,000	2.8%

Source: MK-MOD; Ministry of Finance; Ministry of Labour and Social Policy.

Moreover, MK-MOD allows for computation of the disposable income, replacement rates and effective marginal tax rates. It allows the reproduction of the budget constraint for each household, i.e. the latent set of working hours and household disposable income alternatives based on the simulated values, while the labour supply model rationalizes observed behaviour.

4.2. Labour supply model

In order to conduct coherent policy simulations, the labour supply model must investigate individual behaviour in a theoretically consistent manner (Clavet et al. 2013). The non-linearity of the budget constraints complicate the task when treating work hours as a continuous choice variable. Hence, the structural labour supply model we use here – MK-Labour, is a discrete choice one (van Soest, 1995), appearing in two sub-models: one estimates the preferences for singles and the other one for couples. The computation of the model relies on a maximum-likelihood estimation of a conditional logit function. The labour supply model is fully integrated with the static model. It is used to derive the budget sets under the baseline and reformed scenarios. It imposes revenue neutrality conditions taking into account the behavioural reactions. The MK-MOD along with the labour supply model compose a behavioural tax and benefit model.

For inactive and unemployed workers the hourly wage is not observed. We first need to construct wage predictions for these categories of individuals. Hence, we rely on the predictions from Heckman's (1979) selection model for their estimation.³ The Heckman model is of the standard two-stage form. In the first stage, the following probit model is used:

$$\Pr(\text{Emp}_i = 1) = \alpha_2 + \gamma_1 \text{secondary}_i + \gamma_2 \text{tertiary}_i + \gamma_3 \text{age}_i + \gamma_4 \text{age_sq}_i + \gamma_5 \text{gender}_i + \gamma_6 \text{children}_i + \gamma_7 \text{partner}_i + \gamma_8 \text{benefits}_i + u_i \quad (1)$$

Whereby Emp_i takes a value of 1 if the person is in employment and 0 otherwise, regressed on a vector of explanatory variables: secondary_i and tertiary_i are dummies for the level of education (the primary education being the referent category); age_i denotes person's i age in years; age_sq_i is its square to capture wage non-linearity with age; gender_i refers to individual's gender; children_i is the number of children of person i ; partner_i is a dummy taking a value of 1 if person i has a partner; and benefits_i is the amount of social benefits (including pension) received by person i , in thousand denars; u_i is the idiosyncratic shock to the propensity of employment.

In the second stage, self-selection into employment is corrected by incorporation of the transformation of the predicted individual probabilities of (1) as an additional explanatory variable. We run the following wage equation:

$$\ln w_i = \alpha_1 + \beta_1 \text{secondary}_i + \beta_2 \text{tertiary}_i + \beta_3 \text{age}_i + \beta_4 \text{age_sq}_i + \beta_5 \text{gender}_i + \varepsilon_i \quad (2)$$

Whereby, $\ln w_i$ is the log hourly wage of person i , which is not observed if the person is not in employment; the other explanatory variables are as in (1); ε_i is the idiosyncratic shock to the wage. Under the assumption that the error terms are jointly normal, the following is obtained:

$$\ln w_i = \alpha_1 + \beta_1 \text{secondary}_i + \beta_2 \text{tertiary}_i + \beta_3 \text{age}_i + \beta_4 \text{age_sq}_i + \beta_5 \text{gender}_i + \rho \sigma_u \lambda + \varepsilon_i \quad (3)$$

Whereby ρ is the correlation between unobserved determinants of the propensity to work u_i and the unobserved determinants of wage ε_i , σ_u is the standard deviation of u_i , and λ is the inverse Mills ratio. Predictions of (3) are used to calculate the labour income of the non-employed for the three working time alternatives and the corresponding sets of disposable income.

After we calculate the disposable income for all choices and for all individuals, employed and non-employed, the next step is to apply the ML method on a conditional logit function so as to find out the preference parameters in the utility function.

³ The estimation disregards the following groups: non-employed persons under 18 and over 64 years of age, students, pensioners, persons with a disability due to inflexible labour supply; employed with zero wages as these are likely not the result of their human capital, but a specific situation in the labour market; and self-employed due to the different factors affecting their wages.

The assumption is that each individual/partner in a couple may work 0, 20 or 40 hours, corresponding to non-participation, part-time and full-time employment⁴, respectively, leading to three alternatives for singles and nine alternatives for a couple, and providing a triplet of disposable income and working hours of the individual/partner. The choice of the individual/partner is given by $\{h^1, h^2, \dots, h^p\}$, whereby p is the number of choices of the work hours (0, 20, 40). Individuals/partners are assumed to maximize a well-behaved utility function defined over leisure, l , and net-income, y , with respect to time and income constraints:

$$\max U^i(I^i, y^i) \quad s. t. \quad y^i \leq y^i(I^i, w) \quad \text{and} \quad I^i \leq T, \quad (4)$$

Where i corresponds to a given level of leisure. Hours of leisure, $I^i = T - h^i$, are given by the time endowment, T , minus the work hours h^i . Net income equals labour earnings, wh^i , plus non-labour income, N , plus pensions and social benefits, B , less income taxes and contributions, T (Keane and Moffitt, 1998):

$$y^i(h^i) = wh^i + N + B(wh^i, N, Z^n) - T(wh^i, N, Z^n), \quad (5)$$

Where Z^n is a vector of demographic variables. Note that only labour income and social assistance are dependent on the choice of the working hours and the respective wage rates. Hence, depending on the person's choice of working hours, he/she may be or not eligible for social benefits. The disposable income we use here is the one computed within the MK-MOD (Section 4.1).

We write the translog utility function as the sum of a systematic part and a random component:

$$U_{ij}(y^i, I^i) = V(y^i, I^i; Z^n, \theta) + \xi^i \quad (6)$$

Whereby, U_{ij} is the utility of household i making choice j ; y^i, I^i and Z^n are as before; θ is a vector of parameters to be estimated; and ξ^i is a random variable capturing the effect of unobserved variables upon the evaluation of (y^i, I^i) . For a couple, choices $j=0, \dots, J$ correspond to all combinations of the spouses' discrete working hours. In (4), we make the assumption that the utility function has a random component so as to allow for the possibility that individuals/partners may not know their utility levels perfectly, or for the fact that their optimal choice of labour supply may not correspond exactly to the discrete choice we made; it also allows for the fact that the kinks introduced by taxation may generate bunching at levels of labour supply different from those specified by the discrete model that we implement. For the purpose of identification, ξ^i is assumed to be

⁴ Part-time working in Macedonia is not usual: neither employees nor employers are accustomed to ask for/ offer part-time contracts. Hence, the share of those working part-time in all working individuals is only 2.9%. The median hours per week of part-timers is slightly above 20. However, we decide to work with the 0, 20 and 40 hours options.

28% of our working sample are overtime workers, half of which work 48 hours. However, we decide to simulate in our analysis only up to forty hours, because we believe this reporting of overtime work is arbitrary, i.e. respondents mostly referred to 'staying overtime' rather than to 'being paid overtime' and having that embedded into the contract.

independently and identically distributed as a Type-I extreme value random variate (i.e., the Gumble distribution) (Clevet et al. 2013).

The following estimable model is used:

$$U_{ij} = \alpha_3 + \delta_1 y_i + \delta_2 y_{sq_i} + \delta_3 (y * secondary)_i + \delta_4 (y * tertiary)_i + \delta_5 (y * age)_i + \delta_6 (y * age_{sq})_i + \delta_7 (y * child)_i + \tau_1 h_i + \tau_2 h_{sq_i} + \tau_3 (h * secondary)_i + \tau_4 (h * tertiary)_i + \tau_5 (h * age)_i + \tau_6 (h * age_{sq})_i + \tau_7 (h * child)_i + \tau_8 (i * h)_i + u_i \quad (7)$$

Whereby, U_{ij} is a dummy variable taking a value of 1 when the observed choice of household j equals the assigned choice, and zero otherwise; y_i stands for the disposable income of person i ; h_i is the hours worked by person i ; $child$ is a dummy for single parent; while other notations are as before (here used as interactions with the income and hours). Note that in the case of couples, y_i represents the disposable household income, $child$ will be a dummy for the joint child(ren) of the couple, while all the other terms enter the regression for the two spouses separately, as well a term for their interacted hours of work. As in Mojsoska-Blazevski et al. (2015), we estimate the labour supply effects by comparing the predicted probability of each choice under the pre-reform and post-reform conditions. Predicted probabilities of the post-reform scenarios are based on the optimal behaviour conditional on the pre-reform budget constraints, i.e. the same estimates from the pre-reform conditional logit coefficients, and the new income, from the post-reform scenario.

4.3. Data

The study is based on the newly-collected Quality of Life Survey in Macedonia 2017. It is a nationally-representative survey of 1.200 households and 4.071 individuals providing rich dataset on labour income, social income, pensions and remittances. Other existing surveys do not provide all sources of income.



5. Design of the scheme in Macedonia

For the purpose of this research, and in absence of information about potential scheme design from government officials, we present three designs of the guaranteed minimum income frequently found in the literature. The first two rely on the so-called equivalence scales⁵: the first on the 'old Oxford' OECD equivalence scale (OECD, 1982) whereby the head of the family obtains a value of 1, each next adult a value of 0.7, while each child a value of 0.5; the second is a newer scale also proposed by the OECD (2011), whereby the square root of the total number of the family is taken. The utilization of different equivalence scales may affect the calculation of poverty and other indicators. For instance, a scale giving larger prominence to each subsequent member of the household will result in lower poverty for adults and higher for children (Förster, 1994).

The sum of the weights within the equivalence scales is then multiplied by a monetary value. In the former case, this is the value of 4.000 MKD, while in the second it is the 35th percentile of the relative poverty line, presently being equal to 4.830 MKD. With this design, a family composed of two parents and two children will receive maximums of 10.800 MKD and 9.660 MKD, respectively, if their total income (labour income and pensions) is below these levels. If they receive some income below these thresholds, they would still be entitled to receive the difference between the threshold and the income they already receive. The specific of these two schemes is that the maximum benefit families could receive does not exceed the current minimum wage of 10.800 MKD, which is essential so as it does not exert distortions on the labour market. The scheme contains provisions for disabled persons and lone parents to take into account the level of vulnerability of the recipients and their individual needs (which, in the current system, is done through different types of social assistance programs, as previously explained). All details are presented in Table 2.

The third scheme is slightly different than the other two. It targets all households with income below 15.300 MKD, which is well above the minimum wage, but the benefit is tied to the currently earned income, so that it prevents any possible distortion on the labour market. In this scheme, a family is entitled to receive a benefit which equals between 50-70% of the earned income, depending on the number of children, up to 9,000 MKD. This is done with two objectives: i) families to be incentivized to report all earned income,

⁵ The rationale behind the use of equivalence scales is based on the simple fact that e.g. a six-person household cannot be expected to live as cheaply as a single person household, but, as a result of economies of scale, a six-person household does not need six times the resources of a one person household to reach the same welfare level. There is an elaborate literature on equivalence scales, ranging from normative scales devised by experts and equivalence scales implied by the social security system in question to equivalence scales estimated from consumer demand models, and equivalence scales based on subjective welfare measurement (see e.g. Hagenaars, 1986; Buhmann et al., 1988). The utilization of the equivalence scales may affect the composition of the poor population; de Vos and Zaidi (1997) document that this is the case. Bishop et al. (2014) provide some evidence about the effect of subjective equivalence scales on poverty.

especially the one paid in cash and/or in the grey economy; and ii) to prevent that individuals decline job offers as the benefit per family mimics the minimum wage per person. When the family earns income between 9,000 and 15,300 MKD, the benefit equals the difference between the maximum (15,300 MKD) and the earned income. Even though one of the objectives of this scheme is to incentivize activation of the claimants, it still provides minimal income to those families without income as well, with the objective to draw them out of extreme poverty, but not necessarily from relative poverty. Hence, those families will receive a benefit at the level of the extreme (also called absolute) poverty line (1.125 MKD) increased by 30%, per household member. For a standard 4-member family, this would imply a benefit of 5,850 MKD, being at a similar level with the current level of the SFA of 5,973 MKD. The scheme also incorporates provisions for disables persons and lone parents. All details are presented in Table 2. Based on these designs, we continue with presenting the results.

A note on the issue of take-up. Our analysis here is based on the assumption of a full take-up of the scheme, which may be the theoretical maximum. However, the methodological construct of the model described in Section 4 is not set to allow for lower take-up rate, in the sense of the selection issue, i.e. who actually does not take up the assistance. If these are random families, then the model does not require any additions. However, it is likely that the probability for take up is lower among the most excluded, less literate and those living in distant areas. Hence, any approach to simulate the scheme effects onto vital indicators, given a take-up rate lower than 100%, would require proper consideration and modelling of the selectivity issue. This is presently beyond the current study.



Table 2 – Design of three GMI schemes

	OECD Equivalence scale (“Old Oxford” scale)	Square root scale	Making work pay scheme
Right to receive	<ul style="list-style-type: none"> - An equivalence value of 1 to the first household member - An equivalence value of 0.7 to each additional adult - An equivalence of 0.5 to each child - The equivalence values increase by 20% if an adult or child is physically or mentally disabled; or if an adult is a lone parent, or a child lives with one parent - The equivalence value per family equals the sum of individual equivalence values 	<ul style="list-style-type: none"> - An equivalence value of 1 for each household member - The equivalence value increases by 20% if an adult or child is physically or mentally disabled; or if an adult is a lone parent, or a child lives with one parent - The equivalence value per family equals the square root of the sum of individual equivalence values 	<ul style="list-style-type: none"> - All families with income below 15.300 MKD
Financial remuneration	<ul style="list-style-type: none"> - 4.000 MKD per unit of the equivalent scale (e.g. a family with 2 adults and 2 children receives 10.800 MKD) - If the income of a family (labour and pension income) exceeds the estimated amount of GMI, the family is not entitled to GMI; - If the income of a family (labour and pension income) is below the estimated amount of GMI, the family is receiving the difference between their income and estimated GMI; 	<ul style="list-style-type: none"> - 35% of the 60th percentile of the median per unit of the equivalent scale - If the income of a family (labour and pension income) exceeds the estimated amount of GMI, the family is not entitled to GMI; - If the income of a family (labour and pension income) is below the estimated amount of GMI, the family is receiving the difference between their income and estimated GMI; 	<p>Families with no income</p> <ul style="list-style-type: none"> - 1,463 MKD per family member (30% over the absolute poverty line) - 3,677 MKD for one disabled adult; 5,148 MKD for two disabled adults, if the family has no children - 1,575 MKD per member of family with children if family has one disabled adult; 1,800 MKD per family member if family has two disabled adults <p>Families with income</p> <ul style="list-style-type: none"> - If the family has income below 9,000 MKD, the benefit is: <ul style="list-style-type: none"> o 50% of the earned income in families with 2 or fewer children o 60% of the earned income in families with 3 children o 70% of the earned income in families with 4 or more children or with at least one disabled child or for lone parent - If the family receives between 9,000 and 15,300 MKD, then the benefit equals the difference between 15.300 MKD and the earned income - 80% of the minimum pension for disabled adult/child, or elderly over 65 or lone parent of child smaller than 3 years of age in families with non-zero-income lower than the minimum pension

Source: Authors' proposals, based on literature.

The proposed design of the schemes is based on the issues and problems of the current system of social assistance (see section 2), as well as the experience and lessons that can be drawn from the EU countries (section 3). Table 3 describes whether and how the three proposed schemes address some of the major challenges in the system. As the Table shows, the schemes mitigate most of the issues of the GMI schemes, with some superiority (especially related to activation component) of the MWP program.



Table 3 – The effect of the proposed schemes on the major problems of the GMI schemes

Issues	Old Oxford scale	Square root scale	MWP scheme
Adequacy of the scheme (levels compared to the poverty thresholds)	At the relative poverty threshold		<ul style="list-style-type: none"> - For those who do not work, the program is set at 30% over the absolute poverty line; - For the employed persons, the program is more generous
Complicated system with many types of programs	<ul style="list-style-type: none"> - Addressed, one scheme with some provisions for the most vulnerable individuals and families (for instance, disabled persons, etc.) - Large reduction in administrative costs and burden of the SWCs 		<ul style="list-style-type: none"> - Addressed, one scheme though with slightly different provisions for the working and non-working poor - Reduction in administrative costs and burden of the SWCs, although a reorganization of the work is required
Poverty trap	Can be reduced significantly given that the case-workers at SWCs will have time to focus on the real needs of the poor and help them to access education, training or employment		
Labour market disincentives	Can be addressed, if the scheme incorporates conditionality (we cannot simulate the effect of conditionalities but we do provide some recommendations for that)		Stronger decline of disincentives compared to the other two programs. The scheme can incorporate some conditionality, but the major strength of the scheme is that it has built-in incentives for people to search for a job and to accept a job offer
Income earned in the informal economy	Means-tested program but we do not envisage in the first 4 years any attempt to correctly capture the informal income (either from informal work or from remittances and similar). The conditionality and activation component should capture those who work informally, but will not address the issue of seasonal workers, farmers, etc.		Means-tested program focused on reporting, as well on incentivizing formalization of income for the lower-tail earners.
Potentially low take-up	Since the administration will be made easier, the take-up should increase		Since the administration will be made easier, the take-up should increase. Though, we may expect a bit lower take-up of the employed persons

6. Model results

6.1. Heckman estimates

Estimates of the wage equation (3) are presented in **Table 4**. All coefficients have the expected sign. Education pays off, but the effect is stronger for women. Age, on the other hand matters for men only. The gender wage gap is 10%, suggesting that it shrank compared to previous estimates (Petreski et al. 2014), likely mainly due to the introduction of the minimum wage in 2012. Results are similarly as expected in the selection equation: higher education increases the probability of employment. Older persons do have higher probability of employment, but up to a certain age after which this probability declines. Males have higher probability of employment than females. The three exclusion restrictions show significance, which is one of the two conditions for a good instrument, despite the first two are not significant all the times. However, expectedly, the number of children aged up to 6 years in the household is prevalently important for female labour market participation: the sign correctly predicts that presence of children reduces mother's probability to work. On the other hand, marriage (having a partner) is important for the probability of work of males; expectedly, married men are considered the main breadwinners in a patriarchal-minded households and, hence, their inclination to work increases after marriage.

The inverse Mill's ratio (λ) suggests a significant selection bias, i.e. a non-random selection into the labour force, though the coefficient is significant for males only. Unobserved factors that make employment more likely tend to be associated with lower wages for males.



Table 4 – Heckman results

VARIABLES		ALL	FEMALES	MALES	
		(1)	(2)	(3)	
Outcome equation (dependent: log of wage)	Secondary education	0.139* (0.082)	0.429*** (0.142)	0.100 (0.094)	
	Tertiary education	0.409*** (0.097)	0.798*** (0.194)	0.344*** (0.101)	
	Age	0.031*** (0.010)	0.009 (0.015)	0.005*** (0.002)	
	Age squared	-0.000*** (0.000)	0.000 (0.000)	0.000 (0.000)	
	Gender (1=male)	0.101*** (0.031)			
	Constant	4.005*** (0.263)	3.965*** (0.489)	4.656*** (0.132)	
	<hr/>				
	Selection equation (dependent: probability of employment)	Secondary education	1.418*** (0.108)	1.564*** (0.170)	1.345*** (0.157)
Tertiary education		2.281*** (0.124)	2.473*** (0.188)	2.073*** (0.176)	
Age		0.116*** (0.024)	0.144*** (0.033)	0.117*** (0.035)	
Age squared		-0.001*** (0.000)	-0.002*** (0.000)	-0.001*** (0.000)	
If the household has a child aged 3-6		-0.057 (0.059)	-0.288*** (0.096)	0.069 (0.087)	
If the person has a partner		0.143 (0.089)	-0.204 (0.127)	0.515*** (0.130)	
The amount of social benefits		-0.031*** (0.007)	-0.032*** (0.010)	-0.025** (0.011)	
Gender (1=male)		0.768*** (0.065)			
Constant		-4.203*** (0.495)	-4.583*** (0.685)	-3.576*** (0.696)	
<hr/>					
athrho		-0.416*** (0.148)	0.097 (0.322)	-0.534*** (0.121)	
Insigma		-0.891*** (0.037)	-1.057*** (0.043)	-0.805*** (0.039)	
<hr/>					
Observations		1,942	986	956	
Censored N		786	532	254	
lambda		-0.16	0.033	-0.22	
SE lambda		0.055	0.11	0.045	
rho		-0.39	0.096	-0.49	
sigma		0.41	0.35	0.45	
LR test of indep. eqns. (rho = 0):		7.87	0.09	19.3	
Prob > chi2:		0.005	0.76	0.000011	

Source: Authors' estimations.

*, ** and *** refer to statistical significance at the 10, 5 and 1% level of significance, respectively. Standard errors are robust to heteroskedasticity.

6.2. The utility function

Estimates of the conditional logit utility function are provided in **Table 5**: column (1) presented preferences for singles, while (2)-(4) for couples. Marginal utility of individuals increases with income and reduces with hours of work. In particular, the coefficient on the hours of work is quite high. Additional income, however, at higher age provides smaller marginal utility. Similarly, the marginal disutility with additional working hour is smaller at higher ages and for tertiary educated individuals.

In the case of couples, utility is not correlated with household income, especially in the case of men. In the case of women, additional income brings higher marginal utility, but this is taken up by the cross-product of income and education variables, since the marginal utility of income is different for females with distinct education. Apparently, both secondary and tertiary education bring about quite higher marginal utility of the earned income than primary education. This finding may be related to the prevalent inactivity of females with primary education, who do not contribute to family income and hence have considerably different utility than higher-educated females who more frequently are in employment.

On the other hand, hours worked are significant for both males and females in the couples. Additional hour of work reduces utility for women more than for men, which could be explained by the household and child-raising chores of the women in patriarchal-minded society. In both cases, additional hour reduces marginal utility, but only up to a certain threshold: 25 hours for women and 21 for men. Longer work reduces marginal utility in smaller portions with the rise of education, the effect being stronger for females.

Overall, the pseudo R-square suggests satisfactory goodness of fit of the utility functions: 39.2% and 51.5% of utility could be explained by the variance of the included regressors for singles and couples, respectively.



Table 5 - Preference estimates (translog utility function)

	Singles		Couples	
	(1)	Both (2)	Female (3)	Male (4)
Income	0.072*** (0.027)	-0.002 (0.098)		
*Age	-0.003** (0.001)		-0.001 (0.002)	0.001 (0.002)
*Age squared	0.000** (0.000)			
*Secondary education^(a)	-0.001 (0.007)		0.080*** (0.017)	-0.004 (0.033)
*Tertiary education	-0.007 (0.008)		0.055** (0.022)	-0.033 (0.035)
*Children^(b)	0.011 (0.023)	0.001 (0.058)		
Income squared	0.000 (0.000)	0.002* (0.001)		
Hours of work	-0.814*** (0.142)		-0.457*** (0.054)	-0.340*** (0.063)
*Age	0.021*** (0.007)		0.001 (0.001)	0.000 (0.001)
*Age squared	-0.000*** (0.000)			
*Secondary education^(a)	0.051 (0.038)		0.044*** (0.015)	0.021 (0.020)
*Tertiary education	0.095** (0.044)		0.082*** (0.020)	0.072*** (0.025)
*Children^(b)	-0.035 (0.107)		-0.019 (0.026)	0.004 (0.031)
Hours squared	0.008*** (0.001)		0.009*** (0.001)	0.008*** (0.001)
Male and female hours interaction		0.001** (0.000)		
Income*Hours of work	0.000 (0.000)		-0.002** (0.001)	-0.002* (0.001)
N (c)	1,380	5,580		
Pseudo R Square	0.392	0.515		
Wald test: joint significance [Chi2 (16)]		1404		
Prob > Chi2	0.000	0.000		

Source: Authors' calculations.

Notes: (a) Primary education omitted; (b) Dummy variable for single family with child in the singles case.

The coefficients we obtained here determine the elasticity of labour supply. The mean elasticities are presented in Table 6. Two notable patterns could be observed in the table. First, married males do have lower elasticities than singles, while the pattern for females is the opposite. This is expected result as males in couples are considered the main breadwinners and hence cannot afford themselves not to work (McClelland and Mok, 2012; Mastrogiacomo et al., 2013),. On the other hand, the pattern of females could be explained with the more pronounced inactivity of married women, who usually rely on spouse's income, especially in rural areas, so that additional earned denar is more valuable for them.

Table 6 - Hours of work and participation elasticity for singles and couples

	Singles	Couples	
		Females	Males
Hours elasticity	0.640	0.731	0.366
Participation elasticity	0.621	0.730	0.351

Source: Authors' calculations.

Note: Elasticities have been computed numerically by increasing by 1% the gross wage of males and females and re-computing optimal labour supply. Labour supply responses are averaged over the whole sample.

7. Cost and effects of the GMI scheme

7.1. The cost of the GMI schemes

We first present the results related to the budgetary cost of the proposed schemes. **Table 7** presents the average amount of the GMI per family, the total absolute and relative cost and the size of the eligible recipients. The first column presents some comparative figures for the current social protection scheme in place, while the subsequent three columns present each of the three schemes we simulate herein. The simulations suggest that the three schemes have similar total cost of slightly below 250 million euro, being nearly 2.5% of GDP and 2.5 the size of the current cost for the social protection. One should note that the cost of the scheme is determined by the total potential amount per receiving family, which is dictated by the minimum wage, which represents a ceiling for our benefit. As an additional note, these estimated effects (both effect on the poverty and budgetary costs) are related to a 100% take-up rate, meaning that every eligible person receives the benefit. However, as we explained in section 3, in some countries and cases, the take-up can be very low.

Table 7 – Cost and recipient-families of various GMI schemes

	Current social protection scheme	OECD Equivalence scale scheme	Square root scale scheme	Making work pay scheme
Budget cost (Mil. MKD)	5,889	14,877	14,460	15,573
Budget cost (% of GDP)	0.73	2.45	2.38	2.56
Number of recipient families or individuals	110,575	205,686	202,300	399,945
% of recipient families in total families	-	23.0	22.6	44.7
Average guaranteed minimum income per family	NA	6,027	6,057	3,244

Source: Authors' calculations.

Devised this way, the reach of the GMI schemes far exceeds the reach of the current scheme, expectedly. However, there are notable differences among the three schemes. As the first and the second scheme are similar, their coverage is slightly above 200 thousand families, representing slightly below a quarter of the total number of families. On the other hand, the MWP scheme reach is double, i.e. 400 thousand families, hence being half of the total number of families. This is expected, since MWP 'works' on the principle of 'percentage of earned income' hence allowing for higher amount of minimum income per family (15,300 MKD versus on average 10,800 MKD in the other two schemes). As a consequence, the average GMI benefit in the first two schemes is about 100 EUR per month, while above 50 EUR per month under MWP.



7.2. The effects on poverty and inequality

Table 8 presents some development indicators: relative and absolute poverty, the Gini coefficient and the s80/s20 ratio. Column 1 presents the values of these development indicators had the current scheme for social protection not existed. Column 2 presents the values with the current scheme, while columns (3)-(5) those stemming from the simulation of the three GMI schemes. The readers should note that these estimates are done at the household rather than at the family level, so as to secure comparison with the national statistics, despite the benefits are defined and assigned at the family level.

Had current social transfers not existed, the relative poverty would have been 31.1%, while the absolute one 4.8%. The income inequality would have been 40.9% according to Gini, while the highest quintile would have had 10.6 times larger total income than the lowest quintile. The corresponding relative poverty from the national statistics for 2016 is 24.8%, hence being lower than our estimate. With the current social-protection scheme in place, the relative poverty drops by 5.8 p.p. to 25.3%. The drop in the national statistics is smaller, by 3.3 p.p. to 21.5%. The absolute poverty is halved to 2.5%, while income inequality reduces but marginally: by 2 p.p. (Gini) and by 12.2% (s80/s20).

Table 8 – Poverty and inequality effects of various GMI schemes

	Values without current social protection scheme	Values with current social protection scheme	OECD Equivalence scale scheme	Square root scale scheme	Making work pay scheme
Relative poverty*	31.1%	25.3%	21.1%	22.0%	22.0%
Absolute poverty**	4.8%	2.5%	0%	0%	0%
Gini coefficient	40.9%	38.9%	35.7%	35.9%	36.2%
S80/S20	10.6	9.3	6.6	6.8	7.1

Source: Authors' calculations.

* families living below 60% of the median; ** families living with PPP \$1.90 (36.9 MKD) per day per member

The three GMI schemes produce plausible results. In all three cases, relative poverty declines by a maximum of 10 p.p., i.e. by a sizeable third. Similarly, absolute poverty is eradicated completely. Income inequality improves by about 5 p.p. (Gini) and by about a third (s80/s20). Still, when the three schemes are compared among each other, the 'old Oxford' scheme produces the most favourable results, while the MWP scheme the least favourable results. Still, the differences among the three are not statistically significant.

7.3. The labour supply responses

Finally, we present the labour- supply responses of people to the schemes. This is especially important for two reasons: i) any benefit scheme to be introduced in the country must not exert distortions onto the labour market, especially at the low-skill end; and ii) labour-market reactions may be important for the policymakers when they design the GMI scheme when different GMI schemes produce similar development-indicator results, as is the case in Table 8.

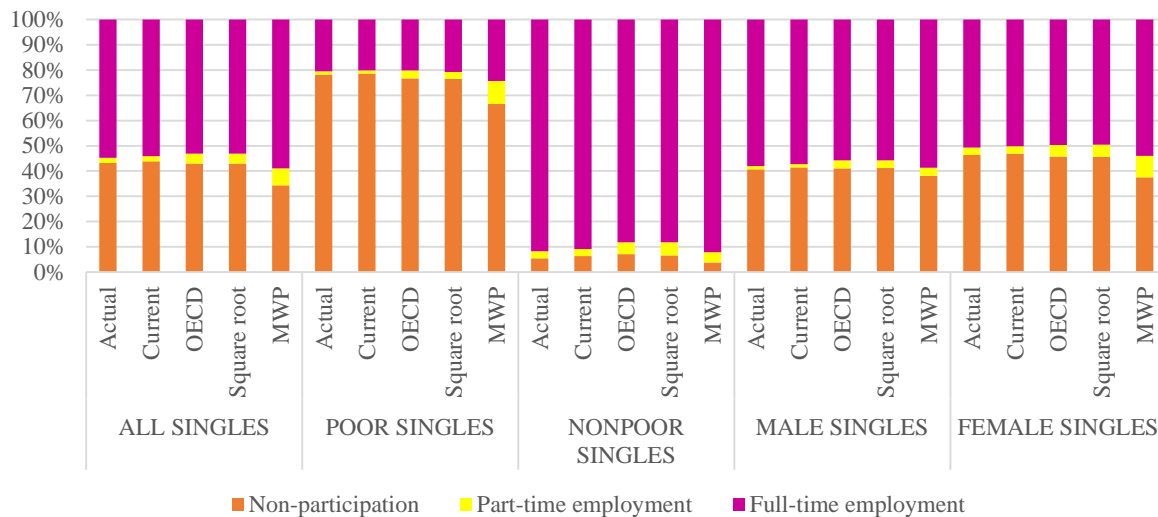
In the next figures, we present the results for singles (with or without children) and couples (with or without children) separately, along the construction of our MK-Labour Supply Model, while the tables with the background figures are presented in the Appendix for easier navigation through the difference.

In each subsequent figure we present a couple of responses' sets. The 'actual' labour-supply responses are those which are presently observed on the labour market, while the 'current' refer to the predicted labour-supply responses from model emulation of the current scheme. It is very critical that the predicted responses from the current scheme in place are as close as possible to the actual ones, which is a vein to test the model. It could be observed on the figures that this is the case all the way through, suggesting that the model produces robust results. Then, 'OECD', 'square root' and 'MWP' refer to the three GMI schemes we simulate (see Table 2).

Figure 1 presents the labour-supply responses for singles. When the entire sample of singles is observed, results for the first two schemes suggest that labour market inactivity is avoided (there is no increase of non-participation), but there is a small reaction of singles to switch from full-time to part-time job. The first result is driven by the construct in which the GMI does not exceed the minimum wage, while the second by the construct that GMI is topped up onto the earned income until the maximum provided by the equivalence value per family is attained. The reaction under MWP is further plausible and stronger. The MWP scheme drags singles out of non-participation, at the 'expense' of both part- and full-time work. The interest for part-time work increases 3.5 times the current setup, while the inclination to full-time job increases by 4.8 p.p. These are significant results driven by the scheme construct in which if the person does not earn, then the GMI is minimized so that the person is derived from absolute but not necessarily from relative poverty. Therefore, the scheme incentivizes activation, since working is a precondition for receiving higher benefit beyond the one determined by the absolute poverty line. The readers, though, must note that these are the responses from the supply side and they need to be matched with adequate demand in order to convert in actual jobs, which is plausible assumption with the exception of the part-time jobs which are not customary in the Macedonian labour market.

The disaggregation of the sample on poor and non-poor, as well on males and females, brings about similar conclusions. Still, the results of the MWP scheme, despite being stronger than under the other two schemes, are weaker for non-poor and males. Such result is expected, as the benefit is more prevalent on the left tale of the income distribution (where poor feature), as well will predominantly incentivize women since their non-participation is large on the Macedonian labour market.

Figure 1 – Labour supply responses for singles

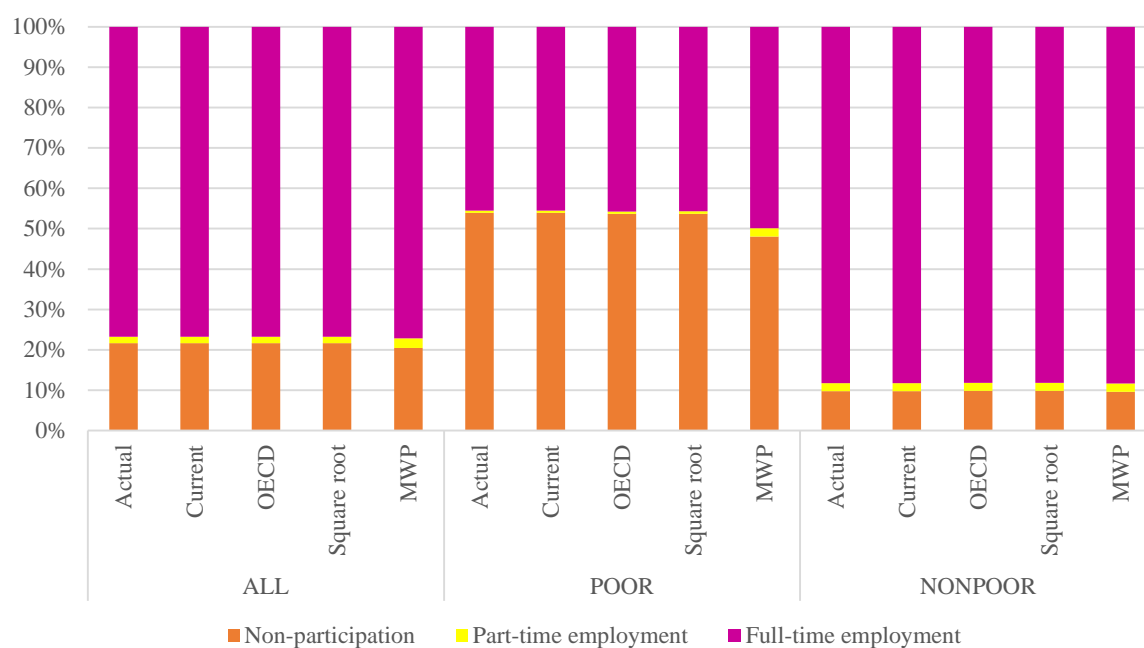


Source: Authors' calculations.

Figure 2 and Figure 3 present the result for the male and female partner in couples, respectively. In general, both figures suggest that the labour-supply responses for the couples are weaker than in the case of singles, which could be mainly attributed to the fact that the benefit is gauged/compared with one minimum wage. Expectedly, the responses are slightly higher under MWP, but still weaker than in the singles case, despite the pattern of the reactions is similar: reduction of inactivity at the 'expense' of part- and full-time jobs. Reactions are further emphasized among poor, and especially among female poor, while there is no reaction among non-poor couples.

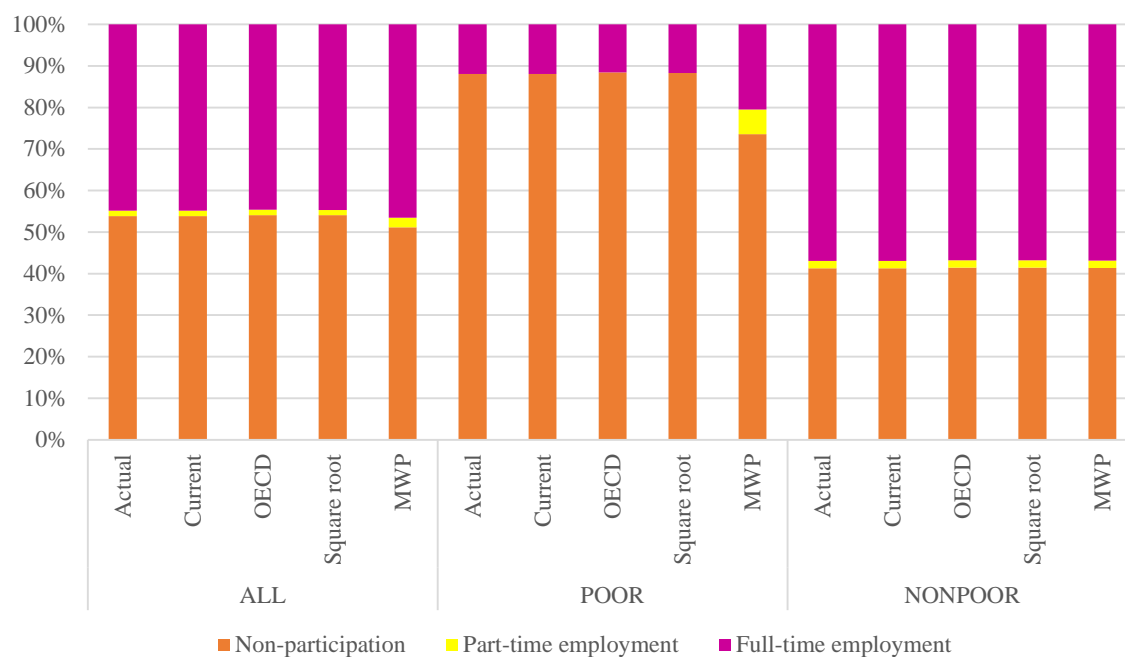


Figure 2 – Labour supply responses for males in couples



Source: Authors' calculations.

Figure 3 – Labour supply responses for females in couples



Source: Authors' calculations.

8. Conclusion

The aim of this research study is to propose options for reform of the social assistance system in Macedonia through an introduction of a guaranteed minimum income (GMI) scheme. We design and simulate three different GMI schemes which take into account the major issues of the current social assistance system in the country, as well as the experiences and designs of the GMI schemes in EU countries.

The methodology behind this study is composed of two parts: MK-MOD – the tax and benefit microsimulation model of Macedonia (resembling the EUROMOD - tax and benefit simulation model of the European Union) and MK-Labour – the structural labour supply model in Macedonia. Both constitute behavioural tax and benefit microsimulation model.

Simulations show that in all three cases/designs, relative poverty declines from the current 31.1% (25.3% with the current social assistance system) to close to 20%. The GMI scheme based on the OECD equivalence scale (the Old Oxford scheme) produces largest decline in poverty, to 21.1% although the poverty declines substantially (to 22%) with the other two designs as well. Absolute poverty is eradicated completely within the three schemes. Income inequality improves by about 5 p.p. (Gini) and by about a third (s80/s20), with similar result across the three programs. Still, when the three schemes are compared among each other, the 'old Oxford' scheme produces the most favourable 'living standard' results, while the MWP scheme the least favourable results. Still, the differences among the three are not statistically significant.

The labour supply model, examining the potential effect of the schemes on the disincentives to work show that the three schemes have larger effect on incentivising singles to enter the labour market, rather than couples. However, all three schemes do not produce disincentives and manage to lift poor people out of inactivity and low job-search activity. Labour market responses are further emphasized among the poor, and especially among female poor, while there is no reaction among non-poor couples. There is a slight superiority of the MWP scheme in this respect relative to the other two schemes which is expected as the scheme itself has a main goal to promote activation and reduce disincentives to work.

We, therefore do not make a strong proposal to the government of which form of GMI to implement. Rather, the decision of the optimal or appropriate scheme should be made by the government (actually, the society), based on the ideology and the priority given to equity vs. efficiency. In particular, the first two schemes are inherently focused on equity, redistributing the income towards the most vulnerable citizens. Although, the conditionalities which will be part of the scheme add an element of efficiency, in case of their strict implementation. The third scheme aims at finding a balance between equity and efficiency, i.e. ensuring some minimum living standard for the most poor, but also giving incentives for work and possibility for self-efficacy.

There are, nevertheless, several issues that we want to raise related to the simulation technique and results, and which are pertinent to the policy advice:

- Within the simulation of the three schemes/scenarios, we assume that all eligible individuals/households will apply and will receive the social assistance. In other words, within the model, we assign the social assistance to all eligible individuals/households (a take up of 100%). The reality from other countries shows that the take up can sometimes be very low, which means that we might overestimate the effect of the schemes on poverty, but also the costs of the schemes. Within the current administration of the SFA, there is no possibility to identify the take-up rate and even refusal rate of the applicants. We therefore advice policymakers, in case of a reform, to put a strong effort on informing the citizens / raising awareness about the program, assisting them in applications and especially reaching to those most in need (who are usually those with lower probability of applying and take up, due to issues of unawareness, ignorance or insufficient literacy).
- Whatever GMI scheme the authorities devise and implement, there has to be a strong activation component in the program. As previously explained, the MWP program has built-in activation component, i.e. provides incentives for the poor, unemployed persons to search for a job and accept a job offer. On the other hand, the other two programs have to provide strong conditionalities. These conditionalities are commonly related to labour market activity, active job search, obligatory participation in programs for social integration, participation in vocational training, etc. The legislation which will be developed for introducing the new system has to be very clear in defining what can be considered as active job search, which job offers cannot be refused, etc. For those individuals who are not work-able, the schemes can involve requirements for participation in some community work, volunteering work, etc.
- However, the strict implementation of the conditionalities will require strong coordination between the SWCs, the Public Employment Service, but also adult education and training system as to ensure access of the vulnerable citizens to education, training and employment. These coordinated actions can help to avoid the poverty trap and the vicious cycle of poverty that transfers from one to another generation.
- We propose that in the first 4 years of the introduction of the system, the authorities do not focus on investigating if the applicants have some informal income, receive remittances and similar. This is important as to avoid some situations from the past in which one-off income stream of the beneficiaries have led them to losing the right to SFA. Once the system is well in place, the implementation works smoothly, data will be analysed and then some provisions

related to the additional (informal) income can be made (also based on the experience from the EU countries).

- Introduction of any of the three proposed social assistance schemes would require a change of the current organization of the work of the SWCs. In particular, the current system of case work where each social worker administers one type of social assistance program should be replaced with a case management system. In the latter, the social worker will work with the household/family for all types of support (actually, there will be one type of support, but the specific support granted to a family is related to some conditions of the individuals such as health, presence of children in the household, etc.).
- The current system of social assistance in Macedonia is based on the households' support. The simulations presented above, on the other hand, are related to a family. This is done given that the labour supply model and predictions are related to decisions made within a family, i.e. a family cannot have more than two adults over 26 years of age. It does not necessarily mean that the system should be switched to a family (as was the system prior to 2000), although the design of the schemes can address the arguments which were used when switching to this system. For instance, if two families are living in a same household (grandparents, parents and children), then the level of the support to which they are entitled would be reduced by certain percentage or absolute amount (to take into account that they are sharing the utilities and similar costs).



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Appendix

Table 9 – Labour supply responses for singles

		Non- participation	Part-time employment	Full-time employment
ALL SINGLES	Actual	43.3%	2.0%	54.8%
	Current	43.9%	2.0%	54.1%
	OECD	43.0%	3.9%	53.1%
	Square root	42.9%	4.0%	53.1%
	MWP	34.4%	6.7%	58.9%
POOR SINGLES	Actual	78.2%	1.3%	20.5%
	Current	78.7%	1.3%	20.1%
	OECD	76.7%	3.1%	20.2%
	Square root	76.6%	2.7%	20.7%
	MWP	66.5%	9.1%	24.3%
NONPOOR SINGLES	Actual	5.4%	2.7%	91.9%
	Current	6.3%	2.7%	91.0%
	OECD	7.1%	4.7%	88.2%
	Square root	6.5%	5.2%	88.3%
	MWP	3.8%	4.0%	92.2%
MALE SINGLES	Actual	40.7%	1.2%	58.1%
	Current	41.5%	1.2%	57.3%
	OECD	41.0%	3.2%	55.8%
	Square root	41.1%	3.1%	55.8%
	MWP	38.1%	3.2%	58.7%
FEMALE SINGLES	Actual	46.4%	2.9%	50.7%
	Current	46.9%	2.9%	50.2%
	OECD	45.7%	4.6%	49.7%
	Square root	45.6%	4.8%	49.6%
	MWP	37.6%	8.5%	54.0%

Source: Authors' calculations.

Table 10 – Labour supply responses for males in couples

		Non- participation	Part-time employment	Full-time employment
ALL	Actual	21.6%	1.6%	76.8%
	Current	21.6%	1.6%	76.8%
	OECD	21.6%	1.6%	76.8%
	Square root	21.6%	1.6%	76.8%
	MWP	20.4%	2.4%	77.2%
POOR	Actual	53.9%	0.6%	45.5%
	Current	53.9%	0.6%	45.5%
	OECD	53.7%	0.6%	45.7%
	Square root	53.7%	0.6%	45.7%
	MWP	48.1%	2.1%	49.8%
NONPOOR	Actual	9.7%	2.0%	88.3%
	Current	9.7%	2.0%	88.3%
	OECD	9.8%	2.0%	88.2%
	Square root	9.8%	2.0%	88.2%
	MWP	9.6%	2.1%	88.3%

Source: Authors' calculations.

Table 11 – Labour supply responses for females in couples

		Non- participation	Part-time employment	Full-time employment
ALL	Actual	53.9%	1.3%	44.8%
	Current	53.9%	1.3%	44.8%
	OECD	54.1%	1.3%	44.6%
	Square root	54.0%	1.3%	44.7%
	MWP	51.2%	2.3%	46.5%
POOR	Actual	88.0%	0.0%	12.0%
	Current	88.0%	0.0%	12.0%
	OECD	88.4%	0.0%	11.6%
	Square root	88.3%	0.0%	11.7%
	MWP	73.5%	6.0%	20.5%
NONPOOR	Actual	41.3%	1.8%	57.0%
	Current	41.3%	1.8%	57.0%
	OECD	41.4%	1.8%	56.8%
	Square root	41.4%	1.8%	56.8%
	MWP	41.3%	1.8%	56.9%

Source: Authors' calculations.

