# POVERTY AND EMPLOYMENT STATUS: EMPIRICAL EVIDENCE FROM NORTH MACEDONIA

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***ABSTRACT***
*Poverty and social exclusion are often associated with unemployment, but being employed is not always sufficient to provide decent living conditions for workers and their families. The 'low-wage' workers similarly as unemployed are often associated with an image of men and women struggling to support their families and living at risk of poverty and social exclusion. Dealing with the social stratification engendered from the employment status of workers in the post-transition countries represents a challenging task for the academics and policymakers. The aim of the paper is to assess the determinants of poverty in North Macedonia from the point of view of employment status, particularly the differences between low-paid and unemployed workers. We assess the factors affecting the probability of at-risk-of poverty status by estimating a logit model on cross-section data separately for employed and unemployed persons in 2015. The analysis draws from an examination of micro data from the Survey on Income and Living Conditions (SILC) whose main scope is to enable the compilation of statistics on income distribution, as well as indicators of monetary poverty. Besides other personal and household characteristics, being low-paid appears as the most important factor for at-risk-of poverty status among employed persons, while the low work intensity is the most responsible factor for at-risk-of poverty status among unemployed persons. In addition, our analysis reveals that the social transfers do not satisfactorily cover these categories, which assumes that we need a much broader arsenal of respective policy measures aiming to reduce poverty among the vulnerable labour market segments. The proposed policy recommendations cover the following areas: education and training, active labour market policies, unionisation and collective bargaining, wage subsidies and taxation and statutory minimum wage.*

***Keywords:*** *Employment, Unemployment, In-work poverty.*

***JEL classification:*** *I32*

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## 1. INTRODUCTION

Poverty and social exclusion are often associated with unemployment, but being employed is not always sufficient to provide decent living conditions for workers and their families. The 'low-wage' workers similarly as unemployed are often associated with an image of men and women struggling to support their families and living at risk of poverty and social exclusion. The Republic of North Macedonia is positioned among European countries with lowest level of workers' compensation and consequently on average scores much worse regarding the indicators of poverty and social exclusion *vis-à-vis* more developed EU countries. In these

circumstances, it is a challenging task to reveal the potential poverty implications of unemployment vis-à-vis low-paid employment, which in the case of North Macedonia is even more appealing due to the fact that wages on average are already low by international standards. Apart from creating hardship for workers and their families, unemployment as well as low-paid work impose a financial burden for countries' welfare systems. The costs for improving the living conditions of vulnerable segments encompass unemployment benefits, costs of activation programmes, social assistance and other cash transfers. In addition, the administration of all these programs requires a complex system of social assistance and it is associated with sizeable government spending. For instance, the current social assistance system in North Macedonia is fragmented consisting of many types of programmes rather than having a single comprehensive program, while the total spending on social assistance is about one percent of GDP.

Although most of the former socialist countries have substantially reduced the initially high unemployment, during the post-transitional development they still struggle in attaining satisfactory wage levels. Since wages represent the most prominent determinant of the households' wellbeing, the relatively stagnant real wages compared to more developed European countries have been considered as an important factor for high and sustainable rates of poverty and social exclusion in these countries. Therefore, the sub-optimal labour market outcomes in post-transition are generally result of the initially high unemployment followed by sharp decline of real wages which, remained stagnant despite subsequent unemployment reduction. In other words, the post-transition can be distinguished as a specific development period where transitional recession has had long lasting economic and social effects even after its formal termination

The aggregate compensation received by employees from their employers represents the most significant part of total household income. Personal earnings from work are important category in the economy since higher earnings mean higher consumption as well. If total consumption grows, this will boost sales throughout the industries, increasing productivity which, in turn is conducive to a further growth in earnings. According to the Keynesian multiplier assumption, income increase will be followed again by growth in consumption, giving rise to a positive feedback loop. Having in mind the importance of the wage share in total household income, we can assume that the wage level to great extent determines the level of living standard, poverty and social exclusion in the society.

In this context, the aim of this paper is to assess the determinants of poverty in North Macedonia from the point of view of employment status, particularly the differences between low-paid and unemployed workers. Despite the existence of a large body of works on wage determination, income inequality, various aspects of employment structure and labour market segmentation, no studies have so far specifically addressed the issue of poverty implications of the employment status in North Macedonia. Hence, the paper is structured as follows. In section 2, we outline the main context of research followed by presentation of data and sample used for this analysis in Section 3. Furthermore, in section 4 are presented the results from the empirical analyses. Finally, section 5 concludes and summarizes the main policy recommendations.

## 2. THE CONTEXT OF RESEARCH

One of the most important development goals of economic policy is the goal of full, productive and sustainable employment, *i.e.* employment for all those who are able to work, wish to be employed and actively looking for a job. This commitment becomes even more pronounced in the case of former transition economies where economic shocks have contracted the level of employment and redistributed wealth. Having in mind the social implications of persistent open unemployment manifested in rising poverty and social exclusion, all transition countries have placed unemployment reduction since the outset of transition among their most important

macroeconomic goals. However, the overall wellbeing of the population is determined not only by the level of employment, but also by the general level of compensations from work. Besides lacking a decent work opportunities, the relatively low real wages are considered as a source of poverty and social exclusion often referred as 'in-work poverty'[1]. Therefore, a comprehensive labour market analysis should take into consideration not only the official labour market indicators such as the rates of activity, employment and unemployment, but the dynamics of real wages as well.

Poverty is referred as a condition of "pronounced deprivation in well-being" where people's basic needs for food, clothing and shelter are not being met (Haughton and Khandker, 2009). We can generally distinguish two types of poverty: absolute and relative. Absolute poverty is often related to destitution and occurs when people cannot obtain adequate resources in terms of calories or nutrition to support a minimum level of physical health. The term 'absolute poverty' when used in this fashion, is usually synonymous with 'extreme poverty'. On the other hand, relative poverty occurs when people do not enjoy a certain minimum level of living standard as compared to the rest of the population of that country. Therefore, the threshold at which relative poverty is defined varies from one country to another. Usually, relative poverty is measured as the percentage of the population with income less than some fixed proportion of median income.

The unemployment is negatively associated with households' disposable income and their spending ability, which reduces the domestic demand and hamper the economic growth. In addition, the unemployment induces social impacts resulting in increased income inequality and poverty. However, the empirical evidence from post-transition countries shows that employment does not necessarily provide protection from poverty (Bernabè and Kolev, 2005). In addition, these changes have exacerbated the segmentation of transitional labour markets, creating several distinct segments characterised by very different pay, employment and status conditions, thus reinforcing social divisions. Particularly, the sectoral restructuring has caused a sharp segmentation between highly paid finance and other intermediary sectors and less secure and low-paid employment in lower status sectors. As a consequence of the labour market segmentation we have witnessed an erosion of employment security and the emergence of in-work poverty.

According to the theory of labour market segmentation, the labour market segments to some extent can operate independently because jobs and workers in each segment match according to particular conditions on the demand and supply side (Cain, 1976). On the supply side, the labour market segmentation occurs as a result of the differences among the workers such as: age, gender, level of education, skills, professional preferences etc. On the demand side, the segmentation refers to the characteristics of the jobs such as: stability, wage level, required skills and education etc. Furthermore, the labour market segmentation can be differentiated according to various attributes of the labour market. According to the dual labour market theory, the labour market segments are differentiated by stability characteristics. In this context, the primary sector is characterised by higher level of wages, health benefit, and pension as well as higher level of job security. On the other side, the secondary sector is characterised by low wages, lower level of job security whereas jobs require low skilled workers and relatively little training. Moreover, primary jobs are rationed which means that not all workers who are qualified for primary sector jobs and desire one can obtain one (Reich et al., 1973).

The existence of labour market segmentation in transition countries has already been a subject of empirical assessment. For example, Pailhé (2003) has found that allocation of labour in the Central European labour markets during the first years of transition has differed from one segment to another. According to this author, labour market segmentation results from the

[1] The terms 'in-work poverty' and 'working poor' are used as synonyms.

growth of market uncertainty, a combination of new formal institutions and presence of old informal institutions. In addition, by using a flow analysis, Lehmann and Pignatti (2007) identified existence of a segmented labour market in Ukraine. They point out that most workers try to enter formal employment as most attractive and seem to use unemployment and informal employment as waiting stages for entry into formal employment. The peculiarities of transitional context contributed to specific features of poverty, including the existence of poverty even among households with employment (Brück et al., 2007).

This problem is not only a personal problem for the people who experience it, but it has become a problem for the economy as a whole since the labour market segmentation had adverse effects on the social stratification. Hence, dealing with the social stratification engendered from the employment status of workers in the post-transition countries represents a challenging task for the academics and policymakers. Most of the policy measures undertaken by the governments in these countries range from reduction of extensive payroll taxes, improvement of the social dialog, establishing balance between adjustment flexibility of employment and income security for workers as well as increased emphasis on the active labour market programmes (Cazes and Nesporova, 2003). However, not all post-transition countries have successfully coped with the problem of labour market segmentation. In this context, Western Balkan countries including North Macedonia also called 'lagging reformers' are still facing significant reform challenges. Although the unemployment rate in North Macedonia has marked continuous decrease during the last decade, it continues to be one of the most pressing social problems. In this context, the advocates for greater labour market flexibility consider the flexible wage setting as an opportunity for fighting the persistent unemployment but neglect the worsened conditions of those individuals located at the bottom end of wage distribution. In these circumstances, low-paid, low-skilled and less protected labour market segments generally bear most of the burden in terms of both lower wages and higher incidence of unemployment (World Bank, 2015). As a consequence, the Macedonian labour market is affected by strong segmentation, meaning that certain social groups such as youths, less skilled workers, and women, face a higher risk of unemployment and inactivity than the rest of the labour force. The high Macedonian unemployment rate has enormous social implications such as rising poverty, income inequality and social exclusion of deprived social segments (Nikoloski, 2011).

## 3. DATA AND SAMPLE

This analysis draws from an examination of micro data from the Survey on Income and Living Conditions (SILC) whose main scope is to enable the compilation of statistics on income distribution, as well as indicators of monetary poverty. This survey is conducted under the regulations of the European Parliament and the Council[2] that include definitions, rules for the frame of the survey, sample, rules for monitoring households, lists of main and secondary variables, variables in terms of housing conditions, social and financial exclusion, material deprivation and other rules applied by all European countries (Eurostat, 2010). The advantage of SILC as a household survey consists of its extensive coverage as it captures earnings in both the formal and informal sectors and it can account for the combined pay of individuals who have several jobs. However, since the data are collected directly from individuals in a household they have higher measurement error than survey based on company records (Lee and Sobeck, 2012). Namely, due to the self-reporting character of SILC, the survey data may be affected by serious underreporting.

The EU-SILC project was launched in 2003 on the basis of a 'gentlemen's agreement' in six Member States (Belgium, Denmark, Greece, Ireland, Luxembourg and Austria) and Norway. The start of the EU-SILC instrument was in 2004 for the EU-15 (except Germany, the

[2] Regulation EC No.1177/2003.

Netherlands and United Kingdom) and Estonia, Norway and Iceland (Eurostat, 2007). The State Statistical Office in North Macedonia conducted SILC for the first time in 2010 as a new source of data on poverty and social exclusion. The survey has been carried out continuously each year, while in this research are used the results for the period 2012-2015. The primary focus of the survey is collecting data on income and living conditions of different types of households, which provide indicators of poverty and social exclusion comparable to the other European Union countries.

The survey is also conducted in accordance with international classification systems. The main classifications used are ISCED 2011 for levels of education, ISCO 08 and NACE Rev.2 for economic activity. The purpose of the survey is to establish a common framework for the systematic collection of data on income and living conditions. The survey is the basis for calculating the structural indicators for comparative analysis at the EU level and redistribution of income and manifestation of poverty and social exclusion. For instance, by using the SILC data, statistical officials produce the Laeken set of common European poverty indicators, called after they were established at the European Council of December 2001.

The target population in SILC consists of all persons in private households aged 16 years and over. The manner of conducting this survey makes it possible to monitor both the households and the individuals. Information on social exclusion and housing conditions is collected at household level, while labour, education and health related data are obtained in respect of persons aged 16 and over. Persons living in collective households and institutions are excluded from the target population. Some people with their income and living conditions are observed for 4 years in order to obtain data on certain long-term indicators. The reference period for earned income is 12 months of the previous calendar year.

The sampling design for this survey consists of stratified two-stage sample. In the first stage, it is drawn a simple random sample from the population of primary sampling units. In the second stage, it is drawn a simple random sample of secondary sampling units (households) by using a random number generation. Stratification is done by regions (8 regions - NUTS3) and degree of urbanization (urban or rural) resulting in a total of 16 strata. The sample size in 2015 was 5115 households, while in 2016 was increased to 5370 households. All regions by type of settlement are covered proportionally to the target population. Therefore, the entire territory of North Macedonia is with appropriate geographical representation in the survey.

All individuals aged 16 and above are categorised according to their most frequent activity status. The most frequent activity status is defined as the status that individuals declare to have occupied for more than half the number of months during the reference year. The categories of most frequent activity status are employed, self-employed, unemployed, retired and other inactive persons. The distribution of household members by most frequent activity status for 2015 is presented in Table 1.

*Table 1. Distribution of household members by activity status*

| Activity status | Share (%) |
|---|---|
| Employed | 25.0 |
| Self-employed | 8.3 |
| Unemployed | 16.3 |
| Retired | 9.3 |
| Other inactive persons | 23.0 |
| Persons aged under 16 | 18.1 |

*Source: State Statistical Office of the Republic of North Macedonia, SILC*

In this context, employed are defined as persons who work for a public or private employer and who receive compensation in the form of wages, salaries, fees, gratuities, payment by results or

payment in kind. The employed persons in the sample are identified according to the self-defined current economic status. The self-defined current economic status captures the person's own perception of their main activity at present. It is in principle determined on the basis of how most time is spent, but no criteria have been specified explicitly. It differs from the ILO concept to the extent that people's own perception of their main status differs from the strict definition used by ILO. For instance, many people who would regard themselves as full-time students or homemakers may be classified as ILO-employed if they have a part-time job. Similarly, some people who consider themselves 'unemployed' may not meet the strict ILO criteria of taking active steps to find work and being immediately available.
The concept of 'current' implies that any definitive changes in the activity situation are taken into account. For instance, if a person has lost a job or has retired recently, or activity status has otherwise changed in a definitive manner, then the situation as of the time of the interview should be reported. In this sense, 'current' overrides any concept of averaging over any specific reference period. If the person combines different part-time jobs as an employee that result in the equivalent hours of full-time job, the person should consider his/herself as employee working full-time. In this context, 'work' means any work for pay or profit, while pay includes cash payments or payments in kind (goods and services rather than money).

## 4. EMPIRICAL ANALYSIS

The at-risk-of-poverty rate is the share of people with an equivalised disposable income (after social transfer) below the at-risk-of-poverty threshold, which is set at 60 percent of the national median equivalised disposable income after social transfers. This indicator does not measure wealth or poverty, but low income in comparison to other residents in that country, which does not necessarily imply a low standard of living. The at-risk-of-poverty rate before social transfers is calculated as the share of people having an equivalised disposable income before social transfers that is below the at-risk-of-poverty threshold calculated after social transfers. Pensions, such as old-age and survivors' (widows' and widowers') benefits, are counted as income (before social transfers) and not as social transfers. This indicator examines the hypothetical non-existence of social transfers.
The at-risk-of poverty rates in North Macedonia according to the individuals' most frequent activity status for the period 2012-2018 is presented on Table 2.

*Table 2. The At-risk-of poverty rate by most frequent activity status in North Macedonia*

| | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|
| Unemployed persons | 46.5 | 43.7 | 40.5 | 39.7 | 41.1 | 38.7 | 41.9 |
| Not employed persons | 33.7 | 30.4 | 27.5 | 27.4 | 28.7 | 29.0 | 29.2 |
| Other inactive persons | 33.0 | 29.2 | 26.1 | 26.7 | 29.4 | 32.1 | 31.1 |
| Retired persons | 14.1 | 10.9 | 8.4 | 7.3 | 7.1 | 7.7 | 7.9 |
| Employed persons | 11.1 | 11.1 | 9.8 | 8.9 | 9.0 | 9.0 | 8.8 |
| **Population** | **24.6** | **22.4** | **20.3** | **19.7** | **20.1** | **20.2** | **20.1** |

*Source: Eurostat, Survey on Income and Living Conditions (SILC)*

From Table 2 we can notice that the highest risk of poverty face unemployed persons, while the lowest risk is encountered among employed persons. There is a broad consensus that the best means of reducing or avoiding poverty and social exclusion is employment. Fighting unemployment is therefore closely related to the fight against poverty. This is also supported by the previous analyses in Europe, which showed that in-work poverty is mainly an unemployment problem (Halleröd et al., 2015). However, having a job may not always be of sufficient quality to lift out an employed person and his/her family from poverty. In this context,

as ‘working poor’ are considered those individuals who work either full or part time and who live in households where the household income is below the poverty threshold. The presence of in-work poverty represents a crucial challenge and implies the need to reconsider our traditional view of the relationship between employment and poverty.

The level of real wages in a given society is a key factor with far reaching consequences on the wellbeing and living standard of its citizens. For instance, the risk of poverty among low-paid employed persons in North Macedonia in 2015 was 18.9 percent, while this rate among highly paid employed persons was only 5.2 percent. The relationship between the low pay and poverty is complex due to the fact that low pay is measured at individual level, while when we consider poverty we look at the household as a whole and its overall income through the year. Besides low hourly pay, there are several other key factors that may cause poverty for an individual employee such as: (i) stability of the work throughout the year; (ii) the presence of other earners in the household, their work intensity and their earnings; (iii) the number of dependents, usually children; and (iv) the impact of state taxes and social transfers (McKnight et al., 2016).

Generally, in-work poverty is driven by a combination of low pay, low work intensity at household level and household structure. The working poor indicators need to combine activity characteristics, which are individual, and a measure of income computed at the household level under the assumption of income pooling. Therefore, a given activity profile may or may not result in poverty depending on household configuration. As a consequence, there might be a case of workers working in stable and highly paid employment who are nevertheless at risk of poverty if he/she is only employed in the household. On the other hand, many unfavourable activity situations likely to result in low earnings are not associated with the risk of poverty as soon as low earnings are counterbalanced within the household.

The indicator persons living in households with very low work intensity is defined as the number of persons living in a household where the members of working age worked less than 20 % of their total potential during the previous 12 months. The work intensity of a household is the ratio of the total number of months that all working-age household members have worked during the income reference year and the total number of months the same household members theoretically could have worked in the same period. A working-age person is a person aged 18-59 years, with the exclusion of students in the age group between 18 and 24 years. Households composed only of children, of students aged less then 25 and/or people aged 60 or more are completely excluded from the indicator calculation.

Identifying the social implications of low-wage employment particularly its effects on poverty and social exclusion represents a challenging task. This arises from the need to combine activity characteristics, which are individual, and a measure of income at the household level which assume income pooling. Namely, the working poor poverty is not always clearly related to the individual activity status since an individual’s activity profile may or may not result in poverty depending on household configuration. This, so called ‘household factor’ depends on several elements such as: composition of the household, including the individual activity, subsequent earnings of other members, social transfers determined at the household level as well as the equivalence scale which is applied (Ponthieux, 2008).

In order to respond to this challenge, we perform an analysis at the individual level based on ‘poverty in earned income’. The poverty in earned income identifies individuals who would not escape poverty if they were living alone and could count only on their own earnings. However, since they do not necessarily live alone or only on their own earned income, we need to contrast this possible poverty risk with the actual poverty risk. In this way it is possible to assess to what extent transfers within the household offset or fail to offset this risk of poverty. The poverty threshold in this case is the same as in the usual approach to poverty i.e. 60% of the median equivalent income of all individuals.

In addition to personal characteristics of employed workers, social benefits received at household level play important role in alleviation of the in-work poverty (Ministry of Labour and Social Policy, 2010). Social benefits are defined as current transfers received during the income reference period by households intended to relieve them from the financial burden of a number of risks or needs. These benefits are usually provided through collectively organised schemes or outside such schemes by government units. It includes the value of any social contribution and income tax payable on the benefits by the beneficiary to social insurance schemes or to tax authorities. In order to be included as a social benefit, the transfer must meet one of the following two criteria: First, coverage is compulsory under law, regulation or a collective bargaining agreement for the group in question; and, second, it is based on the principle of social solidarity i.e. if it is an insurance-based pension, the premium an entitlements are not proportional to the individual's exposure to risk of the people protected.

The social benefits collected at the household level are the following: family/children-related allowance, housing allowance and social exclusion not elsewhere classified. Family/children-related allowance refers to benefits that provide financial support to households for bringing up children and/or provide financial assistance to people who support relatives other than children. Housing allowances refer to interventions by public authorities to help households meet the cost of housing. An essential criterion for defining the scope of housing allowances is the existence of a qualifying means-test for the benefit. Social exclusion not elsewhere classified refers to the socially excluded or to those at risk of social exclusion. Generally, the target groups may be identified as destitute people, migrants, refugees, drug addicts, alcoholics, victims of criminal violence etc. On the other hand, the social benefits exclude benefits paid from schemes into which the recipient has made voluntary payments only, independently of his/her employer or government.

According to SILC data, the coverage of social benefits in North Macedonia is quite modest. Among low-paid employees only 2.8 percent receive family/children-related allowance, 2.5 percent receive allowance for social exclusion, while housing allowance is almost not existent. On the other hand, among unemployed 2.9 percent receive family/children-related allowance and 9.9 percent receive allowance for social exclusion not elsewhere classified. According to the State Statistical Office data, the number of social assistance beneficiaries in North Macedonia during the past two decades marks continual decrease. Namely, the number of households covered by the social benefits has declined from more than 78000 in 2000 to just 28000 in 2015, while the population under consideration has declined from 277000 in 2000 to 106230 in 2015.

We further assess the factors affecting the probability of being working poor by estimating a logit model on cross-section data of employed persons in 2015. The specification of the logistic regression model is as follows:

$$logit(E[Y_i|\mathbf{X_i}]) = logit(p_i) = ln\left(\frac{p_i}{1-p_i}\right) = \beta_0 + \beta_1 x_{1,i} + \cdots + \beta_m x_{m,i} \quad \ldots (1)$$

where, the dependent variable takes value 1 if the employed has been classified as poor and 0 otherwise. In order to identify the possible effects of social benefits on poverty reduction, the model will be estimated first by taking into account the total disposable household income before social transfers and second, after the transfers (Lohmann, 2008). The total disposable household income is computed as the sum for all household members of gross personal income components plus gross income components at household level minus regular taxes on wealth, regular inter-household cash transfers and tax on income and social insurance contributions. On the other hand, total disposable household income before social transfers is calculated as total disposable income minus total transfers plus old-age benefits and survivor benefits.

As explanatory variables we first consider a set of personal characteristics of the employed worker such as: level of education, experience, sex, marital status, place of living and health in terms of general health condition and chronic illnesses. Furthermore, the set of household

characteristics taken into consideration are the following: household size, number of dependent children and whether the household is single adult or low work intensity household. Finally, the level of low-paid employment is modelled by introducing a dummy variable, which takes value 1 if the employed person is classified as low-paid and 0 otherwise. The details regarding the determination of the incidence of low-pay are presented in Appendix 1. The estimation results are presented in Table 3.

*Table 3. Estimated logit model for at-risk-of poverty incidence among employed persons*

| Independent variables | Estimated model before transfers | | Estimated model after transfers | | The impact of transfers (percentage points) |
|---|---|---|---|---|---|
| | Coefficient | Diff. in odd ratio | Coefficient | Diff. in odd ratio | |
| Constant | -0.3894 (0.500) | | -0.0045 (0.993) | | |
| Secondary | -1.9317*** (0.000) | -85.5% | -2.1779*** (0.000) | -88.7% | -3.2 |
| Tertiary | -2.6062*** (0.000) | -92.6% | -2.9648*** (0.000) | -94.8% | -2.2 |
| Experience | -0.03972*** (0.001) | -3.9% | -0.0369*** (0.003) | -3.6% | 0.3 |
| Sex (1=female) | -0.3066 (0.112) | -26.4% | -0.4896** (0.012) | -38.7% | -12.3 |
| Marital status (1=married) | -0.0647 (0.816) | -6.3% | -0.0883 (0.761) | -8.5% | -2.2 |
| Place of living (1=rural) | 0.4014** (0.026) | 49.4% | 0.3541* (0.052) | 42.5% | -6.9 |
| General health (1=bad or very bad) | 0.8011 (0.100) | 122.8% | 0.4701 (0.357) | 60.0% | -62.8 |
| Chronic illness (1=yes) | -0.1471 (0.715) | -13.7% | -0.0749 (0.855) | -7.2% | 6.5 |
| Household size | -0.3168*** (0.000) | -27.2% | -0.3245*** (0.000) | -27.7% | -0.6 |
| Single adult household (1=yes) | -0.2150 (0.784) | -19.3% | -0.1742 (0.825) | -16.0% | 3.4 |
| Number of dependent children | 0.9664*** (0.000) | 162.8% | 0.9602*** (0.000) | 161.2% | -1.6 |
| Low work intensity household (1=yes) | 0.74343*** (0.000) | 110.3% | 0.6316*** (0.003) | 88.1% | -22.3 |
| Low-pay (1=below 2/3 of median) | 1.4820*** (0.000) | 340.2% | 1.4661*** (0.000) | 333.2% | -6.9 |

*Note: */**/*** indicate significance at 10/5/1 percent level respectively.*

From Table 3 we can notice that having secondary education would decrease the probability of being working poor by 88.7 percent, while having tertiary education would decrease the probability of in-work poverty by 94.8 percent. An additional year of work experience would reduce the incidence of working poor by 3.6 percent, while female workers face 38.7 percent lower incidence to be poor compared to male workers. Living in rural areas would increase the probability of being working poor by 42.5 percent. Regarding the household characteristics, an additional dependent child increases the probability of in-work poverty by more than 1.5 times, while an additional household member decreases this probability by 27.7 percent. Hence, we can conclude that the income pooling and inter-household transfers play an important role in alleviation of poverty within the household particularly in the cases where more than one adult

is employed. In addition, the impact of social benefits with respect to both household characteristics is almost negligible. Furthermore, low work intensity significantly affects the household income by increasing the probability of in-work poverty of 110.3 percent. The indicator persons living in households with very low work intensity is defined as the number of persons living in a household where the members of working age worked less than 20% of their total potential during the previous 12 months. The impact of social benefits in this case is highest since they reduce the probability of in-work poverty after transfers by 22.3 percentage points and corroborates with the previous findings (Petreski and Mojsoska-Blazevski, 2017). Finally, being low-paid increases the incidence of in-work poverty by more than 3 times. This finding corroborates the previous evidence that low-pay and poverty are different but closely interrelated phenomena (Cabrero, 2010). Having in mind the relatively low coverage of social benefits, the reduction of this probability after transfers is only 6.9 percentage points.

Similarly as in the case of employed persons, we assess the factors affecting the probability of being unemployed at-risk-of poverty by estimating a logit model on cross-section data of unemployed persons in 2015. The estimation results are presented in Table 4.

*Table 4. Estimated logit model for at-risk-of poverty incidence among unemployed persons*

| Independent variables | Estimated model before transfers | | Estimated model after transfers | | The impact of transfers (percentage points) |
|---|---|---|---|---|---|
| | Coefficient | Diff. in odd ratio | Coefficient | Diff. in odd ratio | |
| Constant | 1.0902<br>(0.068) | | 1.0092<br>(0.082) | | |
| Secondary | -1.6215***<br>(0.000) | -80.2% | -1.5832***<br>(0.000) | -79.5% | 0.8 |
| Tertiary | -2.4168***<br>(0.000) | -91.1% | -2.3156***<br>(0.000) | -90.1% | 1.0 |
| Experience | -0.06422***<br>(0.000) | -6.2% | -0.0623***<br>(0.003) | -6.0% | 0.2 |
| Sex<br>(1=female) | -0.2500<br>(0.126) | -22.1% | -0.2998*<br>(0.065) | -25.9% | -3.8 |
| Marital status<br>(1=married) | 0.1323<br>(0.469) | 14.1% | 0.0779<br>(0.667) | 8.1% | -6.0 |
| Place of living<br>(1=rural) | -0.0041<br>(0.979) | -0.4% | -0.0173<br>(0.908) | -1.7% | -1.3 |
| General health<br>(1=bad or very bad) | -0.2282<br>(0.574) | -20.4% | -0.6328<br>(0.108) | -46.9% | -26.5 |
| Chronic illness<br>(1=yes) | 0.2716<br>(0.414) | 31.2% | 0.3879<br>(0.233) | 47.4% | 16.2 |
| Household size | -0.2854***<br>(0.000) | -24.8% | -0.2306***<br>(0.000) | -20.6% | 4.2 |
| Single adult household<br>(1=yes) | 1.3119*<br>(0.084) | 271.3% | 0.1136<br>(0.904) | 12.0% | -259.3 |
| Number of dependent children | 0.6196***<br>(0.000) | 85.8% | 0.5106***<br>(0.000) | 66.6% | -19.2 |
| Low work intensity household<br>(1=yes) | 1.5931***<br>(0.000) | 391.9% | 1.6207***<br>(0.000) | 405.7% | 13.8 |

*Note: */**/*** indicate significance at 10/5/1 percent level respectively.*

From Table 4 we can notice that having secondary education would decrease the probability of being unemployed poor by 80.7 percent, while having tertiary education would decrease the probability of unemployment poverty by 91.1 percent. An additional year of work experience

would reduce the incidence of unemployment poverty by 6.2 percent, while female unemployed face 22.1 percent lower incidence to be poor compared to male unemployed. Living in rural areas would increase the probability of being unemployed poor by 0.4 percent. Regarding the household characteristics, an additional dependent child increases the probability of unemployment poverty by 85.8 percent, while an additional household member decreases this probability by 24.8 percent. The same conclusion regarding the importance of income pooling and inter-household transfers holds in this case as well when it comes to alleviation of poverty within the household. In this context, the role of inter-household transfers has been already identified with respect to alleviation of perceived level of stress among unemployed (Nikoloski and Pechijareski, 2017). Being unemployed in a single adult household would increase the probability of poverty by more than 2.5 times, whereas the social benefits significantly reduce this probability. In contrast, the impact of social benefits with respect to other household characteristics is almost negligible. Finally, low work intensity significantly affects the household income by increasing the probability of poverty among unemployed by almost 4 times.

## 5. CONCLUSIONS AND POLICY IMPLICATIONS

The achievement of a good combination between access to employment, adequate remuneration and sufficient social protection is a strategic goal of protection and active social inclusion policies. From a policy perspective, it is important to know the nature of the problem in order to formulate policies to combat poverty. In the case of employed persons for example, we need to know whether the working poor are poor because they receive too low wages, work too few hours or live in households with specific characteristics such as for example too many dependent members. Similarly, in the case of unemployed persons we consider a complex of different factors such as personal and household characteristics in order to reveal the nature of at-risk-of poverty status for this labour market category.

In this context, higher education and experience are statistically significant factors that reduce probability of poverty for both employed and unemployed persons with education being more valuable for employed, while experience more valuable for unemployed. For both categories of workers the gender, marital status and health conditions do not represent statistically significant factors of poverty. Living in rural areas is significant factor that increases the probability of poverty incidence among employed persons, but it does not appear as significant determinant of poverty among unemployed persons. Living in greater household would decrease the probability of being poor, while an additional dependent child would increase this probability, which is more emphasised among employed rather than unemployed persons. Finally, being low-paid appears as the most important factor for at-risk-of poverty status among employed persons, while the low work intensity is the most responsible factor for at-risk-of poverty status among unemployed persons. In addition, our analysis reveals that the social transfers do not satisfactorily cover these categories, which assumes that we need a much broader arsenal of respective policy measures aiming to reduce poverty among the vulnerable labour market segments. Most of the policies are both relevant for employed as well as for unemployed persons and particular attention is paid to the following: education and training, active labour market policies, unionisation and collective bargaining, wage subsidies and taxation and statutory minimum wage.

Education and training of workers is the most widely used supply-side strategy for improving their skills and competences as a precondition for better positioning in the labour market. Since increasing the productivity of low-paid employees is crucial to their wages, policy considerations should be given to increasing their human capital. In general, higher levels of skills acquired through education and training reduce the risk of low pay. The improvement of

training possibilities of low-paid workers could increase the skill endowment and possibility to move from low-paid to highly-paid contingent. This can be done by an appropriate design and greater funding of the education system including vocational education and training (VET) and higher education.

In the future reforms of vocational education and training the accent should be given to formation of professionals and service workers that will possess competitive skills and will be attractive on the labour market. In this context, we should emphasise that gathering practical skills is as important as acquiring theoretical knowledge that has so far received more attention by the policy makers. The future reforms of the VET curricula have to take into consideration the demand side of the labour market *i.e.* a careful analysis of the labour market needs has to be undertaken prior to any implementation of new or amend the existing curricula.

In addition, the Macedonian government has to consider the quality of higher education as top priority and intervene by rigorously implementing the quality standards at national level. The necessary preconditions for promotion of quality in the higher education are already provided by the adoption of the new Law for higher education.[3] Hopefully, the increased government awareness will further increase the investment in higher education and will contribute for gradually convergence of the higher education system toward the standards adopted in more developed countries. The skill imbalances due to disparities in the numbers of graduates have to be addressed by additional government stimuli for the students in technical and technological sciences.

The design of active labour market programmes (ALMP) can make an important contribution since a significant proportion of the labour force is concerned by the so called 'low-pay/no-pay' trap characterised by individuals cycling between unemployment and low paid precarious work, workers can become trapped in low paying jobs or scared by experiencing unemployment. With respect to this there is a challenging task for activation policies to focus not only on long term unemployed but to include a range of retention and advancement strategies for those cycling between low-pay and unemployment.

Even though the scope of the active labour market programmes in North Macedonia carried out by the Employment Service Agency is relatively large, their coverage is relatively modest. In our view the accent should be given to the apprenticeship programmes in order to increase the employability of the young unemployed persons and to prevent their lack of skills when they enter the labour market. Additionally, the preparatory programme for employment need to provide training for registered unemployed workers from disadvantaged segments in order to improve their competitiveness and employability on the labour market as well as improving the matching process between supply and demand of workers with appropriate skills. With respect to the targeting of disadvantaged labour market segment it has been identified a lack of coordination among the key institutions and social partners. Therefore, the future policy recommendations should focus on overcoming the lack of coordination among the institutions and social partners as well as encouraging their larger involvement in the process of anticipating skill demands.

The improvement of the workers' position can be done by providing more stable work arrangements. A potential strategy for this is by increasing the role of unionisation and its impact on wage levels in the process of collective bargaining. In the future, the role of trade unions should be particularly strengthened in the private sector. Namely, in most of the newly established firms which are generally smaller employees are not organised in trade unions, while in the big companies it is questionable whether trade unions operate completely independently from the company owners. Another issue is the fragmentation of trade unions and formation of new trade union federations and confederations which substantially

[3] Official Gazette of the Republic of Macedonia No.82, May 2018.

diminishes their bargaining power. As a consequence, trade unions should take the initiative and play a crucial role in proposing changes in the existing labour code.
Wage subsidies to private employers have often been proposed by economist as a potentially flexible and efficient method to improve the earnings and employment of low-wage workers. In this case, the decisions about job creation and hiring remain in the hands of employers but labour cost is partly born by the government. As a consequence, firms are expected to increase the utilisation of labour force of the targeted population. Hence, the idea behind the wage subsidies is to reduce the costs of employers of employing the targeted group of workers thereby stimulating demand for these workers and rising their employment rates and earnings. In the case of North Macedonia, there exists a long debate regarding the required changes in the legislation that covers wage setting and its implementation. This includes tax subsidies for low-paid workers and reforms in the tax system such as introducing progressive tax rates.
Finally, the quality of life and workers' moral particularly among low-paid workers can be improved by increasing the minimum wage. In turn, the increase of the statutory minimum wage is expected to exert an upward pressure on wages throughout the wage distribution, extending benefits to workers earning more than the new minimum[4]. However, in the literature about the minimum wage there exists a debate regarding to when to increase it and how much to increase it to. The statutory minimum wage in North Macedonia has been continually increasing from 8050 MKD in 2012 to 12000 MKD in 2017. The latest increase of the statutory minimum wage which is above the standard 2/3 of the median threshold would potentially contribute to reduction of the incidence of low pay. However, in the case of North Macedonia we have to take into account the possible non-compliance with the statutory minimum wage due to the informal employment. In this context, further research is needed in order to determine the possible shift of workers from the formal to the informal economy due to the opportunity of non-compliance.

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[4] Also known as 'ripple' or 'spillover' effect;

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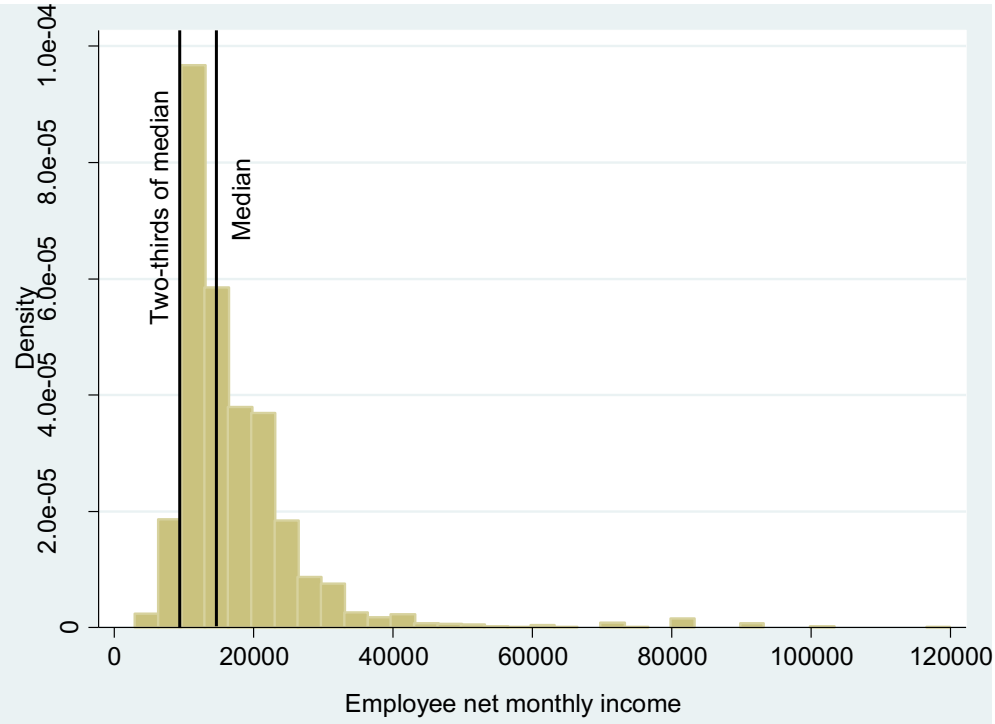
**Appendix 1**

*Identification of the low-paid employed persons*

In the context of SILC we get information about employee cash or near cash income instead of wages from companies' administrative records. Employee income is defined as the total remuneration in cash or in kind, payable by an employer to an employee in return for work done during the reference period. It can be expressed as gross or net income, where gross means that neither taxes nor social contributions have been deducted at source, while net refers to the case when taxes and social contributions are deducted. The data for both gross and net employee cash or near cash income are collected on a yearly basis. We express these variables in terms of average monthly amount by dividing the annual income with the number of months declared in the status of employment. Furthermore, in order to disentangle the influence of hours worked, a derived estimate of hourly earnings can be calculated by using the number of hours worked. The distribution of employees' net monthly income for 2015 is presented on the Figure 1.

*Figure 1. Distribution of employees' net monthly income, 2015*




From Figure 1, we can notice that the distribution of earnings is right-skewed and the median employee income is 15000 MKD[5] (245 Euro). Although there is no generally accepted definition, according to the OECD criterion as a low-wage workers can be considered those who earn less than two-thirds of the median wage. According to this, the low pay threshold in North Macedonia in 2015 was 10.000 MKD, while the incidence of low pay calculated as a share of employees whose net monthly income is less than two-thirds of the median income was 12.3 percent.

[5] MKD stands for Macedonian Denar;