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The gender pay gap in North Macedonia: Assessing the difference between low-paid and high-paid employees[1]

Abstract

The labour market in North Macedonia is characterised by strong differences in terms of the vertical distribution of jobs and the higher probability of women being in low-paid and unpaid family jobs. Data from the EU-level Survey on Income and Living Conditions show that women are much more likely to be low-paid, while estimations of the earnings function indicates a significant gender pay gap and the potential for discrimination in the labour market against women. From a policy perspective, this article identifies the importance of the statutory minimum wage, particularly for low-paid workers, and that the high pay gap at the top end of the earnings distribution calls for supplementary interventions. In this context, we propose specific tailored programmes that target the female population in order to address the undervaluation of work typically done by women, as well as an extension of the duty on employers actively to promote gender equality. Moreover, an improvement in the position of low-paid workers, particularly women, may be achieved by upgrading the role of social dialogue and collective bargaining.

Keywords: *gender pay gap, gender equality, low pay, earnings function, statutory minimum wage, social dialogue*

Introduction

The gender pay gap is one of the empirically well-proven peculiarities of earnings distributions. In the simplest way, it is defined as the difference between the wages earned by men and women with the resulting gap considered either in an unadjusted or an adjusted context. The former does not take into account all of the factors that have a bearing on the gender pay gap, such as differences in education, labour market experience, hours worked, type of job, etc. In contrast, the latter takes into account the differences in hours worked, occupations chosen, education and job experience. In consequence, the unadjusted pay gap is expected to be higher compared to the adjusted one. Women have narrowed the educational and work experi-

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ence gaps with men, but the gender pay gap has persisted such that, in some cases, the adjusted pay gap may exceed the unadjusted gender one (ILO, 2014; Rubery and Koukiadaki, 2016).

The literature on the determinants of the gender pay gap has produced a number of theories helping to explain the persistence of this phenomenon. One strand of literature favours the importance of differences in individual characteristics, where lower earnings among women are attributed to the role of motherhood on labour supply or the higher incidence of part-time work. On the other hand, the second strand of literature is focused on the role of social norms and perceptions such as occupational segregation. Alternatively, the gender pay gap might be explained by the so-called phenomenon of statistical discrimination (Blau and Kahn, 2016).

In the case of North Macedonia, strong gender discrimination has already been documented in terms of the vertical distribution of jobs and the higher probability of women being in low-paid and unpaid family jobs (Kazandziska *et al*. 2012). In addition, a recent estimation based on Labour Force Survey data shows that women's wages are about 18-19 per cent lower than those of men (Petreski and Mojsoska-Blazevski, 2015).

In January 2013, the North Macedonian government adopted its first *National Strategy for Gender Equality*. This runs until 2020 and, in view of the government's commitments under the Equal Remuneration Convention[2] and the Discrimination (Employment and Occupation) Convention,[3] it prioritises the promotion of equal pay between women and men and combating discrimination based on sex. However, the evidence shows that the principle of equal remuneration for work of equal value is far from being fully implemented in practice.

An assessment of the difference in the gender pay gap between low-paid and high-paid workers in North Macedonia has still not been the subject of research. This issue is particularly important in estimating the effectiveness of policies aiming to reduce the gender pay gap, since various policy measures target different groups of workers within the earnings distribution. For instance, enacting a statutory minimum wage primarily focuses on improving the living conditions of low-paid workers. In this context, the adoption of the Law on the Minimum Wage, which came into force in 2012, could facilitate causal inferences akin to a 'natural experiment. For the textile and leather industry, where women are over-represented, the minimum wage was set lower, reaching the national level only in 2017. Earlier simulations of the introduction of a minimum wage in North Macedonia had demonstrated that it would contribute to decreasing the gender pay gap by up to 23 per cent (Angel-Urdinola, 2008).

The problem of 'low pay', as a relatively new social phenomenon in Europe, has received considerable attention over the past twenty years (Schnabel, 2016). The low pay phenomenon is a comparative concept designating the proportion of workers who are below a certain threshold whose determination is often the subject of debate

2 International Labour Organization *Equal Remuneration Convention* 1951 (No. 100).

3 International Labour Organization *Discrimination (Employment and Occupation) Convention* 1958 (No. 111).

and experiment (Lee and Sobeck, 2012). Lucifora *et al*. (2005) discuss various measures of low pay which might be applied in practice. Generally, it can be defined as a relative measure, most commonly as a percentage of the median wage, or it can be defined as an absolute level of pay below which one is assumed to be in poverty.

Regarding the characteristics of low-paid workers, the evidence shows that women, younger workers, the low-skilled and disabled people face a higher incidence of being low-paid. Similarly, certain jobs are more likely to be associated with low pay than others. For example, low-paid jobs might be concentrated in particular industries (hotel and catering, the retail trade, cleaning, personal services) and occupations (child care, catering, cleaning, sales and customer services). In addition, workers with part-time working arrangements are more at risk of being low-paid, as are those working in small enterprises (Lee and Sobeck, 2012; Deng and Li, 2012; Collins, 2016).

Having in mind the above considerations, the aim of this article is to estimate the gender pay gap in North Macedonia by assessing the difference between low-paid and highly-paid employees as a basis for creating more effective policy measures aiming to reduce the gender pay gap.

The article is structured as follows. In the next section are presented the data and the sample used for the empirical analyses, following which there is a summary of the characteristics of low-paid *vis-à-vis* highly-paid employment in North Macedonia, including an analysis of the low pay determinants. After this, we focus on an estimation of earnings functions separately for low-paid and highly-paid workers, as well as determining the gender pay gap for these two categories. The final section presents the study's conclusions and suggests policy recommendations for reducing the gender pay gap.

Data and sample

The analysis draws on an examination of micro data from the Survey on Income and Living Conditions (SILC), which is conducted under the regulations of the European Parliament and the European Council.[4] These regulations include, among others, the definitions, rules for the framing of the survey and the sample; rules for monitoring households; lists of main and secondary variables; variables for housing conditions; social and financial exclusion, and material deprivation; and are applied by all European countries (Eurostat, 2008). The advantage of SILC as a household survey lies in its extensive coverage since it captures earnings in both formal and informal sectors and can account for the combined pay of individuals who have several jobs. However, the data are collected directly from individuals in a household so they have a higher measurement error than surveys based on company records (Lee and Sobeck, 2012).

The EU-SILC project was launched in 2003 on the basis of an informal agreement in six member states (Belgium, Denmark, Greece, Ireland, Luxembourg and Austria) and Norway. The start of the EU-SILC instrument was 2004 as regards

4 Regulation EC No. 1177/2003.

EU-15 countries (other than Germany, the Netherlands and United Kingdom) but also encompassed Estonia, Norway and Iceland (Eurostat, 2007).

The North Macedonian State Statistical Office conducted SILC for the first time in 2010 and the survey has been carried out each year since; this research study incorporates the results for the period 2012-2015. The purpose of conducting 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 the calculation of structural indicators for comparative analysis, drawing on the EU as a whole, concerning the distribution of income and the level of manifestation of poverty and social exclusion.

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 target population in SILC consists of all those in private households who are aged 16 years and over. People living in collective households and institutions are excluded from the target population. The income and living conditions of a part of the sample are observed over four years in order to obtain data on certain long-term indicators. The reference period for earned income is the twelve months of the previous calendar year.

The sampling design for this survey consists of a stratified two-stage sample. In the first stage, a simple random sample is drawn from the population of primary sampling units. In the second stage, a simple random sample is drawn from secondary sampling units (households) by using random number generation. Stratification is done by region (eight NUTS3 regions) and the degree of urbanisation (urban or rural), resulting in a total of sixteen strata. The sample size in 2015 was 5 115 households. All regions are covered by type of settlement and proportionately to the target population. Therefore, the entire territory of North Macedonia is represented in the survey in a geographically appropriate way.

In our research, we focus on the category of people in employment, which is defined as being in work for a public or private employer and receiving compensation in the form of wages, salaries, fees, gratuities, payment by results or payment in kind. Employees in the sample are identified according to their own self-defined current economic status. 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 of their time is spent, although no criteria are explicitly specified.

This differs from the ILO concept to the extent that people's own perception of their main status differs from the strict definition used by the 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 for work. Additionally, if a subject is combining different part-time jobs as an employee that result in full-time equivalent hours, it is made clear that he or she should consider himself/herself as an employee working full-time.

Furthermore, the concept of 'current' implies that any definitive changes in activity situation are taken into account. For instance, if a person has lost a job or has re-

tired recently, or their activity status has otherwise changed in a definitive manner, then the situation as at the time of the interview should be reported. In this sense, the reliance on 'currency' rules out any concept of averaging over any specific reference period.

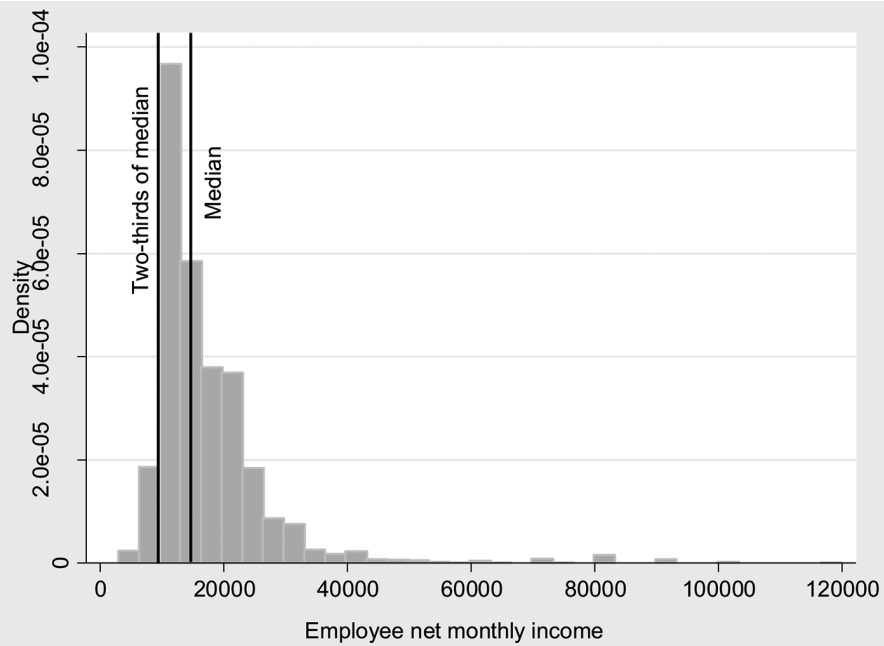
Characteristics of low-paid and high-paid employment

The use of SILC allows us to obtain information about employee cash, or near-cash, income instead of wages taken from companies' administrative records. Employee income is defined as 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; gross means that neither taxes nor social contributions have been deducted at source, while net refers to the figure following the deduction of taxes and social contributions.

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 by the number of months declared in the subject's employment status. 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. However, within the SILC we have available only the number of hours usually worked per week in the main job, which might introduce another source of error. Namely, by using the number of hours usually worked instead of the exact number of hours, the derived hourly earnings variable could be biased (Lee and Sobeck, 2012). Hence, in what follows we base our analysis on employees' net monthly income.

The distribution of employees' net monthly income for 2015 is presented in Figure 1.

Figure 1 – Distribution of employees' net monthly income, 2015



From Figure 1, we can see that the distribution of earnings is positively skewed, since median employee income is 15 000 MKD[5] (€245). According to this, the incidence of low pay in North Macedonia, calculated as the share of employees whose net monthly income is less than two-thirds of median income, is 12.3 per cent. This is relatively low by international standards. In addition, from Figure 1 it is noticeable that the highest concentration of the population lies between median income and two-thirds of median income, which makes low pay indicators highly sensitive to small changes in the threshold.

In the case of low-income countries, median employee income can be positioned low, causing the usual OECD low pay threshold to be even lower than the statutory minimum wage or the country's poverty threshold. For instance, the statutory minimum wage in 2015 was 9 590 MKD (€156), while this was further increased to 12 000 MKD (€195) in 2017.[6] Moreover, the monthly threshold in 2015 for those at risk of poverty was 13 713 MKD (€223). Bearing in mind that both the new statutory minimum wage and the threshold for those at risk of poverty are higher than the standard relative threshold, we will, in addition to using a threshold of two-thirds of me-

5 MKD stands for North Macedonian Denar.

6 Minimum Wage Law *Official Gazette of the Republic of Macedonia* No. 11/2012, 30/2014, 180/2014, 81/2015, 129/2015 and 132/2017.

dian earnings, experiment with alternative absolute thresholds as presented in Table 1.

Table 1 – Low pay indicators for different low pay thresholds

	Threshold 1	Threshold 2	Threshold 3	Threshold 4
Threshold (in MKD)	10,000	11,000	12,000	13,000
Percentage of median	66.67	73.33	80.00	86.67
Number of low-paid workers	392	653	993	1,252
Incidence of low pay	12.3%	20.6%	31.3%	39.4%
Depth of low pay	8.9%	11.6%	12.8%	15.9%

From Table 1, we can observe that, by increasing the low pay threshold, the incidence of low pay as well as the depth of low pay also increase.

The incidence of low pay in North Macedonia is relatively low compared to other countries, but it is far from a uniform problem across workers and across jobs. The sample structure, according to employees' personal and job-related characteristics, are presented in Tables 2 and 3 respectively; while Figure 2 depicts the distribution of employees' net monthly income by gender.

According to personal characteristics, we can conclude that there are more women than men among low-paid employees, while place of living (urban/rural) does not seem to form an important dividing line with respect to the level of wages. Regarding the age of employees, in both sub-samples we can observe an inverted U-shaped distribution. With respect to education, those most represented among low-paid employees are workers with a secondary level of education, whereas those with tertiary education are represented to a considerably greater degree among highly-paid workers. Finally, concerning health conditions, we can observe only a slight increase among low-paid workers of people who have poor general health or who suffer from chronic illness.

Table 2 – Structure of the sample according to employees' personal characteristics

	Low-paid	High-paid
Gender		
Male	168 (42.9%)	1,708 (61.4%)
Female	224 (57.1%)	1,075 (38.6%)
Place of living		
Urban	237 (60.5%)	1,740 (62.5%)
Rural	155 (39.5%)	1,043 (37.5%)
Age (years)		
15-24	51 (13.0%)	171 (6.1%)
25-34	99 (25.3%)	662 (23.8%)
35-49	147 (37.5%)	1,075 (38.6%)
50-57	63 (16.1%)	571 (20.5%)
58-over	32 (8.2%)	304 (10.9%)
Marital status		
Never married	99 (25.3%)	528 (19.0%)
Married	276 (70.4%)	2,159 (77.6%)
Widowed	7 (1.8%)	46 (1.7%)
Divorced	10 (2.6%)	50 (1.8%)
Education		
Primary	12 (3.1%)	20 (0.7%)
Secondary	337 (86.0%)	1,981 (71.2%)
Tertiary	43 (11.0%)	782 (28.1%)
Current education activity		
In education	8 (2.0%)	51 (1.8%)
Not in education	384 (98.0%)	2,732 (98.2%)
General health		
Very good	88 (22.4%)	889 (31.9%)
Good	247 (63.0%)	1,632 (58.6%)
Fair	38 (9.7%)	212 (7.6%)
Poor	18 (4.6%)	46 (1.7%)
Very poor	1 (0.3%)	4 (0.1%)
Suffers from any chronic illness		
Yes	34 (8.7%)	155 (5.6%)
No	357 (91.3%)	2,621 (94.4%)

Note: In Tables 2 and 3, 'low-paid' and 'high-paid' refer to those either side of the threshold of two-thirds median earnings.

Regarding job-related characteristics, it is noticeable that workers employed on a temporary basis are much more likely to be low-paid than are those who are permanently employed. Moreover, higher proportions of low-paid jobs are predominant among non-supervisory positions. With respect to accumulated human capital, it is

obvious that low-paid workers are predominantly found among those with shorter periods of prior experience, whereas high-paid workers are more evenly distributed. Regarding occupation, the highest proportions of low-paid workers are in services and sales roles, followed by those in craft and related trades and in elementary occupations. On the other hand, high-paid workers are distributed predominantly also among workers in services and sales, and craft and related trades, but also among professionals. Hence, it is those in low-skilled occupations such as elementary occupations who are more strongly affected by the probability of being low-paid. Finally, low-paid workers are noticeably more likely than high-paid workers to have changed their job in the last year and to be working for a small company.

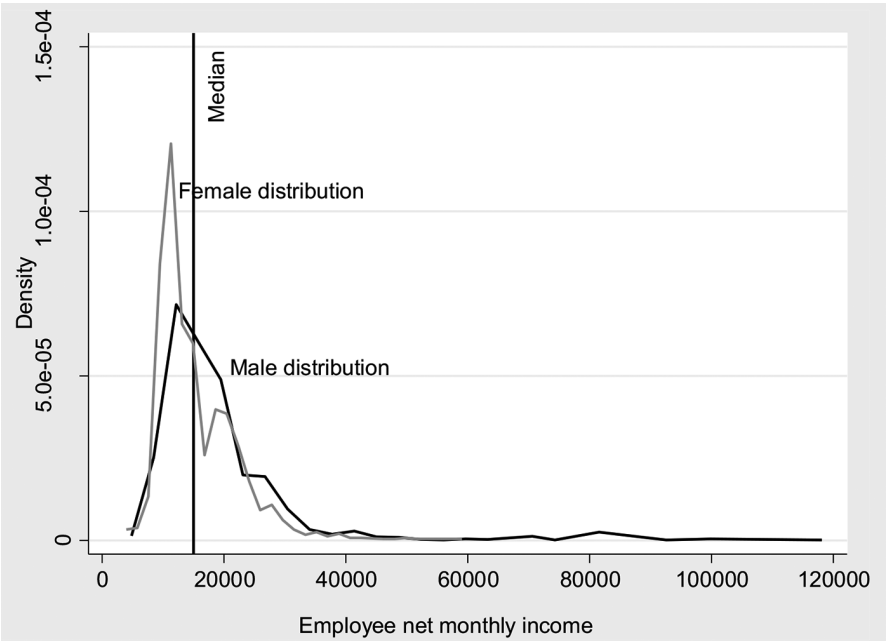
Table 3 – Structure of the sample according to job-related characteristics

	Low-paid	High-paid
Type of contract		
Temporary	100 (25.5%)	283 (10.2%)
Permanent	292 (74.5%)	2,500 (89.8%)
Managerial position		
Non-supervisory	371 (94.6%)	2,452 (88.1%)
Supervisory	21 (5.4%)	331 (11.9%)
Occupation		
Managers	16 (4.1%)	123 (4.4%)
Professionals	13 (3.3%)	454 (16.3%)
Technicians, ass. professionals	17 (4.3%)	336 (12.1%)
Clerical support workers	13 (3.3%)	195 (7.0%)
Service and sales workers	97 (24.7%)	479 (17.2%)
Skilled agricultural, forestry etc.	9 (2.3%)	18 (0.6%)
Craft and related trad. workers	89 (22.7%)	466 (16.7%)
Plant and machine operators	66 (16.8%)	431 (15.5%)
Elementary occupations	72 (18.4%)	281 (10.1%)
Experience (years)		
0-5	163 (41.6%)	711 (25.5%)
6-10	57 (14.5%)	442 (15.9%)
11-15	43 (11.0%)	344 (12.4%)
16-20	41 (10.5%)	317 (11.4%)
21-25	31 (7.9%)	311 (11.2%)
26-30	26 (6.6%)	295 (10.6%)
31-35	21 (5.4%)	222 (8.0%)
36-over	10 (2.6%)	141 (5.1%)
Change of job since last year		
Yes	71 (18.1%)	190 (6.8%)
No	321 (81.9%)	2,593 (93.2%)
Company size		
Small	257 (65.6%)	1,660 (59.6%)
Medium and large	135 (34.4%)	1,123 (40.4%)

See Note to Table 2.

From Figure 2, it is clear that the female earnings distribution is sharper i.e. it is characterised by lower dispersion than the male distribution. In addition, the female distribution is more negatively skewed with respect to the median, which clearly indicates the existence of a gender pay gap.

Figure 2 – Distributions of employees' net monthly income by gender, 2015



The most common strategy for revealing the nature of low-paid work and assessing its determinants is by estimating a model with binary response variables. The purpose of the modelling approach is to isolate the effect of certain characteristics on low pay and, by controlling for other variables, to establish whether they have statistically significant individual effects on the probability of an employee being low-paid. In this context, most of the authors in the relevant literature have found striking labour market segmentation with respect to low pay, meaning that specific employee or job-related characteristics are particularly associated with an increased probability of being low-paid. Among employee-related characteristics, being female, young and less educated are considered as statistically significant factors that are associated with low pay. With respect to job-related characteristics, having a temporary job, working in either the informal or the private sector and being employed in a small company are also considered as risk factors for low pay (Collins, 2016; Gisselmann, 2014; Oosthuizen, 2012; Rani and Belser, 2012).

We further assess the determinants of low pay by estimating a logistic regression model based on cross-sectional data of people employed in 2015. The specification of the logistic regression model is as follows:

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

where dependent variable Y_i takes value 1 if the employee's income falls below the low pay threshold of 2/3 of the median and 0 otherwise. At the same time, X_i is a vector of independent variables whose effect on the dependent variable is assessed by the estimated coefficients.

The results of the estimated logit model, together with the calculated differences in odd ratios, are presented in Table 4.

Table 4 – Estimated logit model for low pay (two-thirds of the median threshold)

Independent variables	Coefficient	Diff. in odd ratio
Constant	1.1134 (0.106)	
Secondary	-1.1508** (0.038)	-68.4%
Tertiary	-2.4402*** (0.000)	-91.3%
Experience	-0.0308*** (0.000)	-3.0%
Sex (1= female)	0.7062*** (0.000)	102.6%
Marital status (1= married)	-0.2588* (0.090)	-22.8%
Place of living (1= rural)	-0.0470 (0.740)	
General health (1= poor or very poor)	0.6567 (0.106)	
Chronic illness (1= yes)	0.4813 (0.108)	
Type of contract (1= permanent job)	-0.6272*** (0.001)	-46.6%
Managerial position (1= yes)	-0.6879*** (0.012)	-49.7%
Number of hours usually worked per week	-0.0320*** (0.000)	-3.2%
Change of job since last year (1= yes)	-0.0661 (0.838)	

Independent variables	Coefficient	Diff. in odd ratio
Size of establishment (1= small)	0.3998*** (0.005)	49.2%
Elementary occupation (1= yes)	0.5281*** (0.005)	69.6%

Note: p-values are in parentheses; */**/*** indicate significance at the 10/5/1 percentage level, respectively.

From Table 4, we can observe that the obtained results are, to a great extent, consistent with the theoretical assumptions.

According to the model's specification, we can conclude that having secondary education would decrease the probability of being low-paid by 68.4 per cent, while having tertiary education would decrease the probability of being low-paid by 91.3 per cent. An additional year of work experience would reduce the incidence of low pay by 3 per cent, while being married would reduce the incidence of low pay by 22.8 per cent. Female workers are more than twice as likely to be low-paid than male workers.

Among job-related characteristics, having a permanent job, a supervisory position and working just one additional hour per week have negative and statistically significant impacts on the probability of being a low-paid worker. For instance, a worker with a permanent job is by 46.6 per cent less likely to be low-paid, while for those who have a supervisory position this probability is 49.7 per cent. Meanwhile, one additional hour usually worked per week is associated with a decrease in the probability of being low-paid by 3.2 per cent. In contrast, working in a small company and having no more than an elementary occupation would increase this probability by 49.2 and 69.6 per cent respectively.

Taking into account the identified low-pay determinants, there is room for policy interventions that would target disadvantaged segments of the labour force. This will reduce the probability of employees being trapped in low-paid positions, thus making low-paid jobs a stepping stone to better-paid ones.

Estimated earnings functions

Understanding individual earnings is important in answering the question as to what is behind the generation and maintenance of human well-being in society. In addition, comprehending the determinants of earnings can help policy-makers develop policy interventions for those who are at the highest risk of poverty and, eventually, to improve household welfare and the standard of living. According to human capital theory, differences in earnings among workers can be explained by differences in their productivity. In this context, research shows that earnings are not uniform across the population but vary in accordance with a series of socio-economic and demographic characteristics (Polachek, 2007).

The earnings function represents, in econometric terms, a single equation model that explains monthly wages using observed personal and job-related characteristics.

Usually, the dependent variable is expressed as a logarithm of wages in order to estimate the percentage change in the wage due to a unit change in a given independent variable, assuming *ceteris paribus* conditions. Hence, the general form of the earnings function is as follows:

$$\ln(y_i) = \alpha + \beta \mathbf{X}_i + u_i \quad \ldots (2)$$

where $\ln(y_i)$ is the natural log of monthly earnings; X_i is the matrix of observed characteristics of individuals such as age, sex, education, experience, etc; while u_i is a random disturbance term representing unobserved abilities. The most widely-used specification of the empirical earnings equation, and the starting point for our analysis, is the Mincer function, which is a single equation model that explains wage income as a function of schooling and experience.

Most applications of the Mincer equation attempt to estimate the returns to schooling for a country, region or level of education, but there has lately been interest in more disaggregated information, such as returns for certain population groups categorised according to specific characteristics such as: ethnicity; gender; minority groups; disabled people; and so forth. Estimating Mincer equations for different groups such as men and women, or ethnic group, can be used to study the extent of labour market discrimination (Patrinos, 2016).

In our analysis, we focus on distinguishing between low-paid and high-paid workers in order to assess the differences in benefits to an individual from increasing the amount of education undertaken. In addition to level of education and experience, we further extend the basic Mincer equation by taking into consideration other personal characteristics of people in employment such as: gender; marital status; general health conditions; and any chronic illness.

The failure of classical skills-related arguments to explain the substantial part of the observed variation in wages has caused an interest in the workplace as a determinant of wage inequality. Hence, we need to disentangle employee-specific determinants of wage level and wage inequality from job-specific ones (ILO, 2016). Therefore, among the explanatory variables are included job-related variables such as: type of contract; size of enterprise; number of hours usually worked per week in main job; whether the employed person is engaged in a managerial position; whether he/she has changed their job in the last year; and whether or not they have an elementary occupation. The estimated results of the earnings functions for the entire sample and for the sub-samples of men, women, low-paid and high-paid employees are presented in Table 5.

From Table 5 we can notice that the results obtained from the estimated extended earnings function are robust and consistent with the theoretical assumptions based on the Mincer equation. The returns to education, as expected, increase with the level of education and are considerably higher among high-paid workers than among low-paid ones. Namely, the wage premiums for secondary and tertiary education of high-paid workers are 16.5 and 48.2 per cent respectively, while the coefficients for low-paid workers are lower and not statistically significant. The wage premium for secondary education among female employees is not statistically significant but is lower

compared to that of male employees. In contrast, however, tertiary education is more worthwhile for women than for men.

Regarding work experience, on average one additional year is associated with an increase in earnings by about 1 per cent. In addition, work experience is almost twice as worthwhile for high-paid workers than for low-paid ones. For instance, one additional year of work experience would increase the income of high-paid workers by 0.93 per cent and for low-paid workers by 0.46 per cent. Similarly, female employees experience slightly higher returns on experience compared to male employees. In addition, the squared experience term is negative and statistically significant for high-paid workers, suggesting a concave earnings profile, but this is not the case for low-paid workers.

Furthermore, we find out that gender is a statistically significant factor in the earnings function. Namely, women have, on average, income which is 17.3 per cent lower than that of men, which can be considered as the adjusted gender pay gap. The polarisation with respect to gender is higher among high-paid workers than low-paid ones, suggesting the existence of a so-called 'glass ceiling' effect. Namely, high-paid women earn an income which is, on average, 15.4 per cent lower than that of men, whereas for low-paid workers this discrepancy is only 4.1 per cent. The considerably lower gender pay gap among low-paid workers can be attributed to the effects of the statutory minimum wage.

Table 5 – Estimated earnings functions

Independent variables	Entire sample	Male	Female	Low-paid	High-paid
Constant	9.111126*** (0.000)	9.184905*** (0.000)	8.947157*** (0.000)	8.885256*** (0.000)	9.419445*** (0.000)
Secondary	.253453*** (0.000)	.2341684*** (0.001)	.171849 (0.283)	.127357 (0.024)	.1645774*** (0.009)
Tertiary	.5984666*** (0.000)	.5286126*** (0.000)	.5713984*** (0.000)	.0845677 (0.219)	.481856*** (0.000)
Experience	.0103952*** (0.000)	.0082337** (0.012)	.0104636*** (0.003)	.0046468 (0.162)	.0092721*** (0.000)
Experience squared	-.0001237** (0.064)	-.000113 (0.184)	-.0000573 (0.566)	-.0000988 (0.287)	–.0001171* (0.069)
Sex (1= female)	-.1732972*** (0.000)			-.0413015** (0.065)	–.1540907*** (0.000)
Marital status (1= married)	.0486289*** (0.005)	.1042094*** (0.000)	-.0104733 (0.685)	.0254231 (0.423)	.0355818** (0.036)
Place of living (1= rural)	.0359713** (0.020)	.0447517** (0.029)	.0302336 (0.163)	-.0220704 (0.353)	.0452556*** (0.003)

Independent variables	Entire sample	Male	Female	Low-paid	High-paid
General health (1= poor or very poor)	-.0712765 (0.247)	-.1903467** (0.043)	.0265117 (0.685)	.0242685 (0.757)	–.0161308 (0.749)
Chronic illness (1= yes)	-.0146815 (0.699)	-.0108011 (0.839)	-.0385314 (0.445)	-.0753463 (0.305)	.028189 (0.389)
Type of contract (1= permanent job)	.0807874*** (0.001)	.0447125 (0.155)	.117697*** (0.001)	.0273447 (0.270)	.0406414* (0.075)
Managerial position (1= yes)	.1349087*** (0.000)	.1240364*** (0.000)	.1768692*** (0.000)	-.0841624* (0.077)	.1243747*** (0.000)
Hours usually worked per week in main job	.0028048*** (0.003)	.0028463** (0.010)	.0030111* (0.074)	.002184** (0.056)	–.000116 (0.899)
Change of job since last year (1= yes)	.0040811 (0.904)	.0735825* (0.084)	-.0557228 (0.326)	-.0073007 (0.881)	.0075646 (0.823)
Size of establishment (1= small)	-.1190939*** (0.000)	-.1719246*** (0.000)	-.0561664*** (0.003)	-.0040755 (0.846)	–.1068787*** (0.000)
Elementary occupation (1= yes)	-.1486848*** (0.000)	-.1985657*** (0.000)	-.0692622** (0.013)	-.0160897 (0.635)	–.1356721*** (0.000)
Number of observations R–squared Prob > F	3,175 0.2937 0.0000	1,876 0.2241 0.0000	1,299 0.4018 0.0000	392 0.1372 0.0038	2,783 0.2633 0.0000

Note: p-values are in parentheses; */**/*** indicate significance at the 10/5/1 percentage level, respectively.

Furthermore, we identify a positive and statistically significant marital wage premium for high-paid and male workers, accounting for income gaps of 3.6 and 10.4 per cent respectively. The marital wage premium is the situation in which married people (usually men) have significantly higher earnings than those who are not married. The plausible explanation for the marital wage premium among married men is the increase in their productivity due to the need to provide necessary living conditions for their families. Hence, we can conclude that, in the case of North Macedonia, the traditional male breadwinner model, in which women and young people are in an inferior position, continues to dominate. According to selection theory, the direction of causation ought to be the other way around, i.e. it is assumed that people

with higher earnings possess certain characteristics that render them more attractive on the marriage market (Strike, 2012).

Living in rural areas has a positive impact on earnings for high-paid workers but there is a negative, although not statistically significant, impact for low-paid workers. From the gender point of view, only male workers living in rural areas enjoy a positive and statistically significant wage premium. The impact of place of residence (urban/rural) on individual earnings is not clear-cut and generally depends on the role of agricultural production. If agricultural production is conducted on a small-scale basis as a strategy of last resort, than it is generally associated with lower earnings, while in the case of large-scale farming it might generate significant revenues (Collins, 2016).

The measurement of self-perceived health in the context of SILC is, by its very nature, rather subjective. Self-perceived health is influenced by the impressions or the opinions of others and follows the processing of such impressions by the individual relative to their own beliefs and attitudes. In this case, five response categories are presented: two are at the upper end of the scale (very good and good); two are at the lower (poor and very poor); while there is an intermediate category (fair) that should be translated into an appropriately neutral term (neither good nor poor). With respect to this, we establish that male workers with poor or very poor general health earn income that is 19 per cent lower on average. On the other hand, chronic illness does not appear as a statistically significant determinant of earnings for any category of worker.

With respect to job-related characteristics, we find out that being employed permanently increases workers' earnings with an impact that is higher for high-paid workers than for low-paid ones. For instance, having a permanent job increases a high-paid worker's earnings by 4 per cent, while the increase for low-paid workers is not statistically significant. With respect to gender, we find that having a permanent job has a positive and statistically significant impact on earnings only among female workers. In addition, having a supervisory position is a statistically significant determinant which, on average, positively affects the earnings of high-paid workers by 12.4 per cent. From a gender perspective, having a managerial position brings higher returns for female than for male employees.

The number of hours usually worked per week in the main job positively affects the earnings of low-paid workers, but it is not a statistically significant determinant for the earnings of high-paid ones. In this context, one additional hour usually worked per week increases the earnings of low-paid workers by 5.6 per cent. These findings are reasonable, since a significant share of low-paid workers are temporarily employed and have working hours that are lower than full-time. In contrast, the majority of high-paid workers are permanently employed and, presumably, have full-time employment arrangements, thus making the number of hours usually worked per week an insignificant explanatory variable for this category.

Change of job in the last year refers to whether an individual has left a job or changed from one to another since the date of the last survey interview. For employees, a change of job means a change of employer, not moving from one set of duties to another with the same employer. Nevertheless, a change of contract with the same

employer is still considered as a change of job. In our case, change of job has a positive impact on earnings only for male employees, indicating that the male working population is more mobile than the female one.

Regarding size of the establishment, this has been estimated in the context of SILC according to the number of people working in the local unit. The enterprise is considered small if it employs fewer than fifty people. Previous estimates show that, in the global context, firm size matters which means that, for identical schooling and experience, workers in bigger firms tend to earn more than workers in small firms (Montenegro and Patrinos, 2013). Small firms may not have the resources to pay higher wages or offer comprehensive benefits, while they are unlikely to be able to offer substantial flexibility to their workers (Acs and Nichols, 2007). In our case, working in a small company will, on average, lower the earnings for the entire sample by 11.9 per cent, although we do not find a statistically significant impact for the sub-sample of low-paid workers. From a gender point of view, male employees seem more affected by size of establishment than female employees.

Finally, we consider as an elementary occupation a job in which the knowledge and experience required to perform it is mostly simple and routine, involving the use of hand-held tools and, in some cases, considerable physical effort and, with few exceptions, only limited personal initiative or judgment. The main tasks consist of selling goods on the street; acting as door and security staff; cleaning, washing and pressing; and working as labourers in the fields of mining, agriculture and fishing, construction and manufacturing. Most occupations in this major group require skills at the first ISCO skill level. In this context, we highlight that working in an elementary occupation entails a large negative effect on workers' earnings.

Furthermore, we have conducted a decomposition of the gender wage gap based on the Blinder-Oaxaca decomposition method (Blinder, 1973; Oaxaca, 1973). This procedure enables us to deconstruct the mean difference in log earnings based on linear regression models in a counterfactual manner. The procedure divides the earnings differential between men and women into one part that is explained by group differences in productivity characteristics, such as education and work experience, and a residual part that cannot account for such differences in earnings determinants. This unexplained part is often used as a measure for discrimination, but it also includes the effects of group differences in unobserved predictors.

Hence, the Blinder-Oaxaca decomposition of the gender pay gap can be expressed in the following manner:

$$\bar{y}^{M} - \bar{y}^{F} = \left(\bar{X}^{M} - \bar{X}^{F}\right)'\hat{\theta}_{k}^{M} + \bar{X}^{F'}\left(\hat{\theta}_{k}^{M} - \hat{\theta}_{k}^{F}\right) \quad \ldots (3)$$

where $\bar{y}^{M}$ and $\bar{y}^{F}$ are the observed averages of the log monthly earnings of men and women, respectively; $\bar{X}^{M}$ and $\bar{X}^{F}$ are the averages of the individual characteristics; and $\hat{\theta}_{k}^{M}$ and $\hat{\theta}_{k}^{F}$ are the regression coefficients for the model explaining the separately estimated monthly earnings for men and women. The left side of (3) refers to the raw pay gap; the first term on the right-hand side refers to the explained part; while the last term refers to the unexplained part.

The results of the Blinder-Oaxaca decomposition are presented in Table 6.

Table 6 – Blinder-Oaxaca decomposition of the gender pay gap

Decomposition components	Estimation
Male (average log monthly income)	9.723758*** (0.000)
Female (average log monthly income)	9.570103*** (0.000)
Difference (unadjusted pay gap)	0.1536551*** (0.000)
Endowments (explained part by characteristics)	–0.025943*** (0.015)
Coefficients (unexplained part or adjusted pay gap)	0.1739013*** (0.000)
Interaction of the two parts	0.0056968 (0.413)

Note: p-values are in parentheses; */**/*** indicate significance at the 10/5/1 percentage level, respectively.

From Table 6 we can notice the negative sign of the explained part due to endowments. This means that women would actually earn more than men if discrimination and other unexplained factors did not exist. In other words, women employees have, on average, better personal characteristics than working men, although they still have lower incomes. The consequence is that the adjusted gender pay gap is higher than the raw or unadjusted pay gap. In addition, the adjusted wage gap is largely unexplained, suggesting possible discrimination in the labour market against women; or it might be that men have better unobserved characteristics that are valued by employers. This situation has been observed in many other post-transition countries such as Poland, Hungary, Slovenia, Lithuania, Latvia, Romania and Bulgaria (ILO, 2014).

Conclusions and policy recommendations

In this paper, we make an attempt to estimate the gender pay gap in North Macedonia by putting emphasis on the differences between low-paid and high-paid workers. Taking into account the previous estimations, although based on different data sources, we can notice a declining trend in the gender pay gap. Namely, this stood at around 25 per cent in 2006 (Angel-Urdinola, 2008) before falling to 18-19 per cent for the period 2011-2014 (Petreski and Mojsoska-Blazevski, 2015). Our estimates based on the Survey on Income and Living Conditions show that the gender pay gap in 2015 has been further reduced to around 17 per cent. Moreover, the gender pay gap among low-paid workers is much lower compared to that applicable to high-paid workers. This can, in part, be attributed to the statutory minimum wage enacted in 2012, which increased in 2015 from 8 050 MKD to 9 590 MKD. By taking into ac-

count the higher incidence of low pay among women, the minimum wage is likely to be binding more for women than for men and, thereby, it is likely to improve the wage level of low-paid women by more than it would that of low-paid men. In this context, our simulation, based on the earnings distributions of male and female workers, shows that the recent increase in the statutory minimum wage to 12 000 MKD for all industries would further narrow the gender pay gap by up to 3.6 percentage points.

The increase in the statutory minimum wage is expected to exert upwards pressure on wages throughout the wage distribution, thus extending benefits to workers earning more than the new minimum. The advocates for a higher statutory minimum wage claim that this measure will strengthen labour standards and improve the living conditions of the lowest-paid employees. On the other hand, opponents argue that a higher minimum wage will impose a major cost on employers and, in turn, that employers will tend to reduce the employed workforce. However, in the case of North Macedonia the rising trend of the statutory minimum wage has not exerted a negative impact on employment which, actually, continually increased during the period 2006-2017.

From a theoretical point of view, there are a number of adjustment channels through which businesses could absorb increased wages without resorting to layoffs or reducing workers' hours (Wick-Lim, 2012). First, a small increase in the price of a company's products would cover a relatively greater increase in the minimum wage. This measure would not generate a substantial competitive disadvantage, particularly in cases where competition is primarily with companies within the national boundaries. Second, offering workers higher wages tends to lower the rate of turnover which is another way to reduce costs. Hence, businesses can partially offset cost increases with such cost savings. Finally, businesses would experience revenue gains as the economy expands since people spend more as their incomes grow.

The considerably sizable gender pay gap at the top end of the earnings distribution calls for the design of supplementary policy interventions targeted towards reducing the gender pay gap among this category of workers.

For this purpose, legislation should aim not only at establishing a basic minimum floor of wages and extending its coverage, but should also be informed by the ambition of ensuring that the wage is sufficient to provide a decent standard of living. In this context, the concept of inclusive growth has to strengthen opportunities for the decent employment of vulnerable segments of the labour market, such as women. In this context, specifically tailored programmes should target the female population in order to address the undervaluation of women's work and to extend the duties on employers actively to promote gender equity. Moreover, changes in the labour legislation should take into account the principle of equal remuneration for work of equal value. This means that employers should be required to formulate job descriptions for every job position in their company in terms of the competencies and skills required as well as the expected results and outputs. In consequence, the formulation of wages would be based on measurable criteria.

In addition, changes are required in the legislation that covers wage setting and its implementation. One strand of changes includes reforms to the tax system, such

as introducing progressive tax rates and tax subsidies for low-paid workers. One of the existing measures of the North Macedonian government is financial support for increasing the wages of workers in labour-intensive companies (360 million MKD). Under this programme, the government provides direct financial support of 30 per cent of the increase in gross wages for companies paying higher wages up to 18 000 MKD. This measure is intended for companies whose labour costs are more than fifty per cent of total costs and which do not earn high profits (less than ten per cent of total expenditure). According to the estimates of the Ministry for Labour and Social Affairs, these conditions are met by about 15 000 companies and are applicable in respect of some 50 000 workers. The aim of this measure is to enable wage growth as a precondition for an improved standard of living while retaining sound financial conditions in the companies involved.

Finally, an improvement in the position of low-paid workers, and particularly women, can be carried out by upgrading the role of the social dialogue and collective bargaining. Collective bargaining is complementary to the legal regulation of inclusive labour markets, reinforcing the equity effects of legal minimum wages and reducing the compression of women's wages towards the minimum wage. In this context, the role of trade unions should be particularly strengthened in the private sector. Namely, in most newly-established firms, which are generally smaller employees, trade unions are not organised, while in the larger companies it is questionable whether trade unions operate completely independently of company owners.

Another, separate, issue is the fragmentation of trade unions and the formation of new trade union federations and confederations which substantially diminishes their bargaining power. In consequence, crucial changes in the Labour Code such as, for example, the recent increase in the statutory minimum wage are often initiated by the government and not by the trade unions. In this context, it is clear to us that social dialogue and collective bargaining are most likely to promote inclusive and gender equal employment systems where bargaining is co-ordinated and conducted at national or sectoral level.

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