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Evaluating the wage differential between the formal and informal economy: a gender perspective

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Abstract

Purpose
Despite a widespread assertion that wages are lower in the informal than formal economy, there have been few empirical evaluations of whether this is the case and even fewer studies of the gender variations in wage rates in the formal and informal economies. Consequently, whether there are wage benefits to formal employment for men and women is unknown. The aim of this paper is to evaluate the wage differential between formal and informal employment for men and women.

Methodology
To evaluate this, data are reported from a 2017 survey involving 8,533 household interviews conducted in Kosovo.

Findings
Using decomposition analysis, and after controlling for other determinants of wage differentials, the finding is that the net hourly earnings of men in formal employment are 26% higher than men in informal employment, and 14% higher for women in formal employment compared with women in informal employment.

Practical Implications
Given the size of the wage differential, the costs for employers will need to significantly increase in terms of the penalties and risks of detection if informal employment is to be prevented, along with more formal employment opportunities using active labour market policies for vulnerable groups, perhaps targeted at men (who constitute 82.8% of those in informal employment).

Originality/value
This is one of the first studies to evaluate the differentials in wage rates in the formal and economy from a gender perspective.

Keywords: informal economy; gender inequality; wage gap; public policy; Kosovo.

INTRODUCTION

For much of the twentieth century, the belief was that the informal economy was a leftover from pre-modern economies that was disappearing with economic development and the modernisation of governments (Boeke, 1942; Geertz, 1963; Lewis, 1959). However, for the past half century, the extensiveness of such work has been recognised (ILO, 2018; OECD,

2017; World Bank, 2019). Indeed, the ILO (2018) find that the majority (61.2%) of the world's employed population have their main employment in the informal economy, with 39.7% of all employees worldwide in informal employment and 86.1% of all own-account workers operating informally. The outcome has been greater scholarly attention by economists to understanding this realm (Arbet et al., 2013; Bahmani-Oskooee, 1999; Carvaial, 2015; Dessing, 2004; Loureriro et al., 2013; McCrohan and Surgrue, 2001; Quintani and Mazzocchi, 2015). Most studies so far have sought to understand the variable magnitude of the informal economy (Bose et al., 2012; Gang and Gangopadhyay, 1990; Williams and Schneider, 2016). Recently, however, scholars have started to pay greater attention to understanding its characteristics, especially who participates and their motives (Williams, 2009; Williams and Horodnic, 2016; Williams and Krasniqi, 2017; Williams et al., 2017). Nevertheless, many gaps in knowledge remain. One major gap concerns the wage rates in the informal economy compared with the formal economy.

The starting point of this paper is a recognition that despite the widespread belief that wages are lower in the informal than formal economy (e.g., Castells and Portes, 1989; Davis, 2006), the evidence-base is very thin. Few empirical evaluations exist and even fewer of the gender variations in wage rates in the formal and informal economies. Therefore, the aim of this paper is to evaluate whether there are wage benefits to formal employment compared with informal employment and whether this varies by gender. To achieve this, the next section reviews the literature on what is known about wages in the informal compared with the formal economy, along with whether there are gender differences. The second section then outlines the data and methodology here used to fill this gap in the knowledge base, namely a decomposition analysis of data from a 2017 survey conducted in Kosovo. The fourth section reports the findings on whether the benefits of formal employment in terms of hourly earnings are greater for men than women. The fifth and final section then concludes by discussing the theoretical and policy implications of the findings, along with the limitations of the study reported and future research required.

Before commencing, a few words are required concerning what is here meant by the informal economy. Reflecting the strong consensus among academics and policy makers studying advanced and transition economies, the informal economy covers remunerated work that is not registered by, or declared to, the authorities for tax, social security and/or labour purposes when it should be declared (European Commission 2007; OECD, 2017; Webb et al., 2020; Williams, 2019). If there are other absences, such as no payment, or the goods and services sold are illegal (e.g., illegal drugs or trafficking firearms), then this remunerated work is not considered part of the informal economy, but are "criminal" activities, which together with the informal economy, constitute the wider "shadow economy" (Williams and Windebank, 1998).

LITERATURE REVIEW

For many decades, the study of the informal economy was dominated by a modernisation thesis which depicts a modern formal sphere in the ascendancy and a pre-modern backward informal realm composed of lower-paid uneducated and unproductive workers serving "bottom of the pyramid" (BOP) markets (La Porta and Shleifer, 2008, 2014). Although the emergence of a political economy perspective transcended the view of the formal and informal economies as separate modern and pre-modern sectors, and instead viewed the informal economy as an integral component of contemporary capitalism, the depiction of informal workers as lower-paid and engaged in exploitative work has persisted (Aliyev, 2015; Castells and Portes, 1989; Davis, 2006). The increasing functional integration of a single global economic system is argued to have resulted in subcontracting and outsourcing becoming a means by which

employment in the informal economy has been integrated into contemporary capitalism, causing a downward pressure on wages and the erosion of incomes (Fernandez-Kelly, 2006; Meagher, 2010; Slavnic, 2010). As Hammer (2019: 344) states "economic liberalisation and globalisation have drawn even greater numbers of workers and firms into work that is informal, often pays below poverty levels and is highly insecure."

In recent years, however, this common assumption in the modernisation and political economy perspectives that those engaged in the informal economy are necessity-driven workers engaged in lower paid work as a survival tactic in the absence of alternative means of livelihood has been questioned. Agency-oriented theoretical perspectives have emerged that depict engagement in the informal economy as a matter of choice rather than due to a lack of choice. On the one hand, a neo-liberal perspective has asserted that participants weigh up the costs and benefits of engaging in informal work and choose to do so when the benefits outweigh the costs (De Soto, 1989, 2001). On the other hand, an institutionalist theory has depicted participants in the informal economy more as social actors doing so when they disagree with the formal rules (Webb et al., 2009, 2013; Williams, 2017). In both perspectives, it is argued to be less clear cut whether net earnings are indeed lower in the informal economy, especially once one takes into account the bribes requested by public officials which act as an additional informal tax on formal workers, especially those working on an own-account basis (Schneider and Williams, 2013; Williams, 2017).

However, despite the voluminous theoretical literature asserting either that earnings in the informal economy are lower than in the formal economy, or that this is not necessarily always the case, few empirical studies have evaluated this issue. Reviewing the few studies, Tansel and Kan (2012) earlier find mixed and inconclusive evidence regarding the wage differential between the formal and informal economy. Their analysis indicates that evidence of a wage differential was found in studies between the 1980s and early 2000s, but that studies in the first decade of the twentieth century find either no difference or differences across quantiles of earnings. Over the past decade, however, a wage differential has again been identified. For example, Baskaya and Hulagu (2011) investigate the formal/informal sector wage gap in Turkey using cross-sectional data from the TurkStat Household Labor Force Survey for the 2005-2009 period. They find that formal employees earn significantly more than informal workers, even when controlling for observable characteristics. Similarly, Blunch and Sulla (2011) examine empirical data for 2008 and 2009 and find a large formal/informal sector earnings gap. Their decomposition analysis displays that controlling for observable characteristics reduces the earnings gap, but a substantial part of the gap remains unexplained. Meanwhile, using panel data from Turkey, Tansel and Kan (2012) find evidence of lower wages in the informal sector. However, after controlling for observable and unobservable effects, the gap disappears entirely. Pratap and Quintin (2006) arrive at a similar conclusion in Argentina, finding that the differential disappears once they match observably similar workers. Kehyalar et al (2018) focusing their analysis on Turkey, find evidence of a wage gap between formal and informal sector, but the gap is explained by differing characteristics of workers. However, Dasgupta et al. (2015) using data on Thailand find evidence for a systematic and statistically significant disparity between earnings from formal and informal employment. However, most of the differential is explained by observed characteristics, although about 28 per cent remains unexplained.

A further set of studies has recognised the existence of a dual informal labour market composed of what Fields (2000) refers to as a lower tier of necessity-driven informal workers and an upper tier of informal workers who are more likely to choose to operate informally. Based on this depiction, earning variations have been identified within the informal economy. This better paid upper tier and lower paid lower tier has been identified by Günther and Launov (2012) using cross-sectional data from Cote d'Ivoire. Falco et al. (2010) using panel data from

Ghana and Tanzania similarly find that the formal/informal earnings gap differs by the position in the earnings distribution. Meanwhile, Bargain and Kwenda (2014) using datasets for South Africa, Brazil and Mexico, find the presence of an informal wage penalty, which is particularly significant in the lower part of the earnings distribution but tends to disappear at the top. Kumar and Ranjan (2015), using data for India for 1999-2000 and 2009-2010 reveal that informal workers earn approximately two times less than formal workers, but that the difference is greater in the upper tier of more skilled workers.

Moreover, a recent OECD/ILO (2019) report provides evidence that women in informal waged employment generally face a double penalty: on average, informal wage workers are paid lower wages than formal workers, and women are paid lower wages than men. The analysis stipulates that given that women are over-represented in the lower end of the informal occupational spectrum, gender wage gaps are also likely to be larger in the informal than in the formal economy (OECD/ILO, 2019). There have been studies that adopt Fields (2000) depiction of an upper and lower tier of the informal labour market, but while there exists evidence on the gender pay gap, few studies have adopted a gender lens when empirically analysing wage variations in the formal and informal economies. Given this lacuna, this paper aims to empirically examine the wage differences between the formal and informal sectors, for women and men specifically.

DATA, VARIABLES AND METHODOLOGY

To evaluate whether there are wage benefits to formal employment compared with informal employment and whether this varies by gender, a case study is here undertaken of Kosovo. Kosovo is among the poorest countries in the Western Balkans. In 2017, 18% of Kosovo's population lived below the poverty line, with 5.1% of the population below the extreme poverty line (KAS, 2019). Economic growth over the past decade has not been associated with robust job creation in the private sector. As a result, Kosovo's labour market is characterised with activity rate as low as 40.5%, with only 30.1% of working age population in employment and an unemployment rate of 25.7% in 2019. Kosovo's labour market is characterized by a deep gender divide. In 2019, women's employment-to-population ratio was only 13.9% compared with 46.2% for men, while women's labour force participation rate was only 21.1% compared to men's 59.7%. The unemployment rate was 34.4% for women and 22.6% for men, the youth unemployment rate was 60.3% for women and 44.1% for men while the share of the youth population not in education, employment or training (NEET) was 31.4% for men compared to 34.2% for women.

Informal employment remains a chronic feature of the labour market. The estimated level of informal employment by the Kosovo Labour Force Survey varies from 26.3% in 2016 to 13.4% in 2019, which can be mainly attributed to data quality rather than any improvements in formalisation. A large scale and rigorous Labour Force and Time Use Survey (LFTUS) conducted in 2017 and commissioned by the Millennium Challenge Corporation (MCC) in Kosovo reveals that 34.6% of waged employees do not have a formal contract (Gashi and Williams, 2019), which is similar to a Reinvest survey (2017).

Indeed, it is this 2017 LFTUS survey that is here used to assess the wage gap between the formal and informal economy from a gender perspective. The survey was conducted with 8,533 households, collecting employment information on 32,742 individuals. The survey was cross-sectional, with data collection occurring over a 17-week period.

Similar to the Labour Force Survey (LFS) conducted by the Kosovo Agency of Statistics (KAS), the MCC survey is aligned with the Eurostat methodology. A multi-stage random (probability) sampling method was used. Sampling points were drawn with probability proportional to population size (for total coverage of the country), population density according to the Eurostats NUTS II (or equivalent) and the distribution of the resident population in terms of metropolitan, urban and rural areas and it was ensured that on the issues of gender, age, region and locality size, both the national and each level of the sample is representative in proportion to its population size. In each selected sampling unit, a starting address was drawn at random and then further addresses using a standard "random route" procedure. For each household, the respondent was selected using the "closest birthday rule". All interviews were conducted face-to-face in the national language. For data collation, CAPI (computer assisted personal interview) was used.

The rationale for using this MCC survey is that it is one of the few datasets that has collected data on actual wages in the formal and informal economies. This data on wages is collected for individuals reporting that they are an employee (i.e., excluding the self-employed). In total, 8,367 waged employees reported that they were employees, of which 32% (2,663) were women.

The dependent variable used in this paper is the net hourly wage reported by employees. Informal employees are those reporting that they are working without a contract and are not declared to the tax and pension contribution authorities. A binary variable is thus included which equals 1 if the employee possesses an employment contract and 0 if there is no contract. To control for other variables that determine wage levels, three groups of explanatory variables are included in the model: personal and household characteristics, job characteristics and employer characteristics.

The following personal and household characteristics are included, given that wage levels have been previously identified as significantly associated with marital status (Bardasi and Taylor, 2008; Datta Gupta, Smith, & Stratton, 2007; Killewald and Gough, 2013; Watson, & McLanahan, 2011), age and education level (Becker, 1975; Borjas, 2005), and the presence of children and elderly in household (Adda et al. 2017, Becker, 1975; Kleven et al. 2019, Cukrowska-Torzewska and Matysiak, 2018):

- *Marital status* - a dummy variable for marital status is included, taking a value of 1 for married individuals and zero otherwise
- *Age* - to assess for the non-linear relationship between age and wages, the model includes a variable measuring age of the employee and the age square.
- *Educational level* - three dummy variables are included in the model: a group 2 dummy variable with value of 1 if a person's highest completed education was secondary or post-secondary vocational education and zero otherwise; group 3 is set to 1 for persons whose highest educational attainment was a completed graduate tertiary degree, zero otherwise; and group 4 represents individuals that have completed post-graduate tertiary degree. The reference category refers to employees who have not completed any schooling or whose highest completed education was primary or lower secondary education.
- *Children* - In line with previous studies, the model includes a measure for the presence of children, with a binary variable indicating if the household has children under the age of 15.
- *Presence of elderly people in household* – a dichotomous variable is included identifying individuals that live in households with members aged 65 or older. This positively impacts on providing childcare for women seeking to enter the labour market but may also negatively impact in terms of elder care responsibilities, which in Kosovo is typically borne by women.

The following job characteristics are included, given that wage levels have been previously identified as significantly associated with work experience (Becker, 1975; Borjas, 2005; Rosen, 1972; Mincer, 1974), including the number of years with an employer (Burdett and Cole, 2010), employment status and occupation (Becker, 1975; Borjas, 2005):

- *Number of years with employer* - literature suggests that wage levels are associated with work experience, but due to data limitations, the model includes a measure of the number of years with their current employer
- *Employment status* - to differentiate working arrangements, a dummy variable is included, equal to 1 for full-time employment and 0 for part-time employment.
- *Occupation* - five dummy variables are included-for managers, professionals, craft and related trade workers, elementary occupations and other occupations. Service and sales workers is set as the benchmark category.

The following employer characteristics are included, given that wage levels have been previously identified as significantly associated with the characteristics of the broad sector and industry (Becker, 1975; Borjas, 2005):

- *Public/private sector* - a variable differentiating between public, private and NGO and international organisations is included, the reference category being the private sector.
- *Sector* - seven dummy variables for industry sectors are included: agriculture, manufacturing, construction, public administration, education, health and other sectors, with trade as the benchmark category.

To analyse whether the net hourly earnings of men and women in formal employment are higher than men and women in informal employment, firstly, descriptive results are examined on the hourly wage rates of men and women participating in formal and informal employment. Secondly, these differences are analysed using the Blinder–Oaxaca decomposition statistical method (Blinder, 1973; Kitagawa, 1955; Oaxaca, 1973). The Blinder-Oaxaca decomposition (Blinder 1973, Oaxaca 1973) is a methodology commonly utilised in the study of differences in labour market outcomes by groups such as by gender and age (see for example Avlijaš et al., 2013; Leythienne and Ronkowski (2018). This explains the difference in the means of a dependent variable between two groups by decomposing the gap into that part which is due to differences in the mean values of the independent variable within the groups, and group differences in the effects of the independent variable. Here, it is employed to analyse the wage differential between informal and formal employees.

The following three equations illustrate this decomposition. Estimate separate linear wage regressions for individuals *i* in groups *A* and *B*:

$$(1) \qquad \ln(\text{wages}_{Ai}) = X_{Ai}\,\beta_A + \mu_{Ai}$$

$$(2) \qquad \ln(\text{wages}_{Bi}) = X_{Bi}\,\beta_B + \mu_{Bi}$$

where X is a vector of explanatory variables (i.e., marital status, age, children, education, experience, sector, and occupation), β_A and β_B are vectors of coefficients and μ is an error term. Let b_A and b_B be respectively the regression estimates of β_A and β_B. Then, since the average value of residuals in a linear regression is zero, we have:

$$(3) \qquad \begin{aligned} &\text{mean}(\ln(\text{wages}_A)) - \text{mean}(\ln(\text{wages}_B)) \\ &= b_A\,\text{mean}(X_A)\ 0\ b_B\text{mean}(X_B) \\ &= b_A(\text{mean}(X_A) - \text{mean}(X_B)) + \text{mean}(X_B)(b_A - b_B) \end{aligned}$$

The first part of the last line of (3) is the impact of between-group differences in the explanatory variables X, evaluated using the coefficients for group A. The second part is the differential no explained by these differences in the observed characteristics X. In other words, this

methodology divides the wage differential between formal and informal employees into a part that is "explained" by group differences in their characteristics (e.g., age, education, sector, occupation, work experience) and a residual "unexplained" part that cannot be accounted for by such differences in wage determinants. By "taking away" the part of the unadjusted wage gap that is due to the differences in the labour market characteristics of the formal and informal employees, the remaining part-unexplained part compares the wages of (men and women) formal and informal employees with the same labour market characteristics (e.g., age, marital status, education, sector, occupation, work experience). This part measures the "true" magnitude of the wage gap between formal and informal employees (Jann, 2008). Some caution is required in interpreting the results of this decomposition method. The unexplained differential in wages for the same values of explanatory variables should not be interpreted as the amount of the difference in wages due only to informality. This is because other explanatory variables not included in the regression (e.g., because they are unobserved) may also account for these wage differences.

FINDINGS

Table 1 reveals that 35.4% of all the employees surveyed participate in informal employment (i.e., they are employed without a written contract or terms of employment), which is similar to the 39.7% of all employees worldwide in informal employment identified by the ILO (2018). However, there are gender variations in participation in informal employment in Kosovo. Men are more likely to participate in informal employment than women (39.6% of employees who are men engage in informal employment but just 23.5% of women employees), resulting in women constituting 26% of the labour force but just 17.2% of all informal employees. In consequence, the problem of informal employment in Kosovo is largely an issue for men; men constitute 82.8% of those engaged in informal employment.

INSERT TABLE 1 ABOUT HERE

Examining the descriptive findings regarding the net wage rates of men and women in formal and informal employment, Table 1 displays three important findings. Firstly, those in formal employment receive a higher average net wage per hour (€2.50) than those in informal employment (€1.40), with the net wage of those engaged in formal employment being 78% higher than those in informal employment. Secondly, both women and men in formal employment receive a higher net wage than those in informal employment. Women in formal employment receive an average net wage per hour of €2.50 which is 67% higher than the average net wage of €1.50 for women in informal employment. Similarly, men in formal employment receive an average net wage per hour of €2.60 which is 86% higher than the average net wage of €1.40 for men in informal employment. For both men and women, therefore, there is a wage penalty for engaging in informal employment, but the difference is greater for men. Therefore, the net benefit of engaging in formal employment is higher for men than for women. Third, and finally, although men in formal employment are paid 4% more than women (€2.60 compared with €2.50), the reverse applies for informal employment; women are paid 7.1% more than men (€1.50 compared with €1.40). The result is that women receive overall a 9.5% higher net hourly wage than men (€2.30 compared with €2.10) when employment in both the formal and informal economies are included.

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Table 2 provides regression results, separately for women and men which also includes a dummy variable to depict the difference between formal and informal sector. This reveals a large wage penalty for working in the informal sector for both genders. However, the wage gap

between the formal and informal sectors is less for women than for men. men in formal employment receive 26% higher wages than men in informal employment, while the gap is 14% for women. This implies that it is more beneficial for men to work in the formal than informal economy than it is for women to do so. This also indicates that if informal workers are rational economic actors, it will be more difficult to attract women out of the informal economy.

INSERT TABLE 2 ABOUT HERE

Examining the other explanatory variables, Table 2 reveals that marital status is a determinant for women only: on average, compared to single and widowed/divorced women, married women earn 12% more. Age is a predictor of male wages only: for every additional year, on average, ceteris paribus, the wage of men increases 1%. Education is an important predictor of net hourly wages, with more educated individuals receiving a higher wage per hour. The returns to education are slightly higher for men. Compared to men with no education or primary or lower secondary completed only (the reference category), men with upper secondary education or post-secondary education receive 14% higher hourly wages (compared to 12% for women), those with tertiary receive 41% (39% for women) higher wages than the reference category and those with PhD receive a 60% premium (52% for women). The presence of children under 15 in the household does not impact on the wages of women but it positively impacts on the wages of men: men living in households with children under 15 were paid 3% more per hour compared to their counterparts with no children under 15 in the household. The variable indicating the presence of elderly in the household is not significant in any of the earnings functions. There is a positive relationship between net hourly wages and tenure with the current employer, with a 1% increase in wages for every additional year with their current employer. Compared to private sector employees those in the public sector and those working for NGOs or international organisations were paid more per hour, with a larger difference observed for men. The hourly wage for full-time workers was higher than that for those working part-time. By occupations, compared to service and sales workers (the benchmark category), for both genders, the highest wages are observed among managers and professionals. For men, there are statistically significant differences across all occupations, with sales and service workers receiving the lowest wage per hour. Compared to the trade sector (the reference category), women receive higher wages in education sector and other service activities, while for men higher wages are observed in construction sector with no differences across other sectors depicted.

In addition, to examine the wage gap between formal and informal workers, the quantile regressions of Mincer equations are also run, a technique that allows differentiation of the contribution of regressors along the distribution of the dependent variable and not simply at the mean, as with OLS. Empirical findings at the 25th, median and 75th quantile are shown in Table 3 and compared with OLS main results. The results reveal that the pay gap between formal and informal women workers is highest among the lower paid women workers and it reduces as wages increase (from 0.19 for the bottom quantile to 0.11 for the top one). This suggests that the wage gap between the formal and informal economies is lower among the upper tier of women informal workers and greater among the lower tier women informal workers. The opposite is observed for men, whereby the pay gap between formal and informal male workers increases from 0.19 for the bottom quantile (the 25th) up to 0.23 for the top quantile (the 75th). This suggests that the wage gap between the formal and informal economies for men is greater among upper tier male informal workers and lower among lower tier male informal workers.

INSERT TABLE 3 ABOUT HERE

To better understand the wage gap between formal and informal employment, Table 4 reports the Blinder-Oaxaca decomposition results, where the difference in the average log hourly wage (unadjusted wage gap) is decomposed into the explained part and the unexplained part. The results indicate that using a simple regression, on average, women in formal employment have a 55% higher hourly wage than women in informal employment, and that men in formal employment have a 53% higher hourly wage than men in informal employment. However, a portion of this can be explained by their different individual and household, job and employer characteristics. The finding is that 76% of the difference between log net hourly earnings between women in formal and informal employment can be attributed to the difference in average characteristics between formal and informal women employees and 49% of the difference between the log net hourly earnings between formally and informally employed men can be attributed to the difference in average characteristics between formal and informal men employees.

After correcting for the different individual and household, job and employer characteristics of women in formal and informal employment and men in formal and informal employment, the results show that women in formal employment earn 14% more than women in informal employment, and that men in formal employment earn 26% more than men in informal employment. The outcome is that both men and women in formal employment earn more than their counterparts in informal employment, but the wage gap between formal and informal employment is less for women that it is for men. Put another way, it is more beneficial for men to engage in formal than informal employment than it is for women to do so.

INSERT TABLE 4 ABOUT HERE

DISCUSSION AND CONCLUSIONS

This paper contributes to the scarce empirical evidence on the wage differential between formal and informal employment by displaying that both men and women in formal employment earn more than their counterparts in informal employment. It displays that women and men in formal employment earn 14% and 26% more respectively than their counterparts in informal employment. The outcome is that the wage gap between formal and informal employment is less for women that it is for men.

This paper therefore advances theory on the informal economy in two ways. Firstly, it provides empirical evidence supportive of the modernisation and political economy theories which argue that informal employment is lower-paid activity. However, and secondly, it does not necessarily provide evidence to refute the neo-liberal and neo-institutionalist arguments which argue that it is less clear cut whether net earnings are indeed lower in the informal economy, especially once one takes into account the bribes requested by public officials which act as an additional informal tax on formal workers, especially those working on an own-account basis (Schneider and Williams, 2013; Williams, 2017). This is because these agency-oriented theoretical perspectives largely focus upon own-account workers engaged in self-employment in the informal economy. This paper has only provided evidence on employees in informal waged employment. Whether this earnings differential between the formal and informal economy exists when own-account work is analysed remains open to question. This could be usefully investigated in future research.

Turning to the implications for policy, these findings provide some important implications for tackling unregistered informal employment which is now firmly on the policy agenda of governments in both South-East Europe (Efendic and Williams 2018; Gashi and Williams 2018; Katnic and Williams 2018; Kosta and Williams 2018; Radulovic and Williams 2018; Mojsoska Blazevski and Williams 2018) and beyond (European Commission, 2016;

ILO, 2015; OECD, 2017; Williams, 2019; World Bank, 2019). The finding that the wage gap between formal and informal employment is greater for men (who constitute as shown 82.8% of all those engaged in informal employment) than women is important. Until now, the dominant policy approach in Kosovo and beyond has been to assume that those engaged in the informal economy are rational economic actors who do so when the benefits outweigh the costs (Allingham and Sandmo, 1972). If these participants in informal employment and their employers are to be persuaded to transform this work into formal employment, then either the costs of engaging informal employment will need to be increased (by increasing the risks of detection and penalties) or the benefits of formal employment will need to be increased for workers and employers. Firstly, therefore, these findings display that the costs for employers will need to significantly increase in terms of the penalties and risks of detection if informal employment is to be prevented. Secondly, it intimates that for employees, it is the lack of access to formal employment that leads them to engage in informal employment, suggesting that active labour market policies targeted at vulnerable groups are required to increase formal employment opportunities. Thirdly, given that men have a greater wage differential than women, and constitute the majority engaged in informal employment, these policies to detect and sanction informal employment as well as active labour market policies to pull workers into the formal economy perhaps require targeting more at men if informality is to be tackled.

Despite these advances in understanding the wage differentials in formal and informal employment for men and women, there are limitations to this study pointing to avenues for future research. Firstly, this research is on one country, namely Kosovo. Whether similar findings will be identified in other countries and global regions is unknown, and similar research is now required to evaluate whether this is the case. Secondly, this research only examines informal employment, not own-account work. Future research could therefore analyse earnings differentials in both informal waged employment and informal own-account work, to evaluate whether the same earnings differentials between the formal and informal economy, and between women and men, are identified. Again, this is required across a range of countries and global regions.

In sum, if this paper encourages further research on the earnings differentials between the formal and informal economy, and between women and men, then one intention of this paper will have been achieved. If it also encourages governments to measure these earnings differentials in order to consider the policy initiatives and the magnitude of the changes required to alter the cost/benefit ratio, then this paper will have achieved its fuller intention.

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Table 1: Participation and average net hourly wage in formal and informal employment: by gender

	No.	**% of labour force**	**% in formal and informal economy**	**Net wages per hour (Eur)**
All	6239	100		2.1
Formal	4028	64.6	64.6	2.5
Informal	2211	35.4	35.4	1.4
Women	1622	26.0		2.3
Formal	1241	19.9	76.5	2.5
Informal	381	6.1	23.5	1.5
Men	4617	74.0		2.1
Formal	2787	44.7	60.4	2.6
Informal	1830	29.3	39.6	1.4

Source: authors' calculations from MCC LFTUS 2017

Table 2: Wage regression results, for women and men

		Log net hourly wages: WOMEN					Log net hourly wages: MEN				
		Coeff.	**Std. Err.**	**t**	**P>|t|**		**Coeff.**	**Std. Err.**	**t**	**P>|t|**	
Individual level characteristics											
Marital status, married=1 (DV)	DV	0.12	0.03	3.57	0.000	***	0.01	0.03	0.29	0.771	
Age		0.00	0.01	0.11	0.910		0.01	0.01	1.93	0.054	*
Age square		0.00	0.00	-0.20	0.840		0.00	0.00	-1.75	0.080	*
Upper secondary education and post-secondary vocational (DV)	DV	0.12	0.04	2.72	0.007	***	0.14	0.02	6.43	0.000	***
Tertiary: BA and MA (DV)	DV	0.39	0.05	7.49	0.000	***	0.41	0.03	12.42	0.000	***
PhD (DV)	DV	0.52	0.07	7.51	0.000	***	0.60	0.05	12.03	0.000	***
Living in a household with children under age of 15 years (DV)	DV	-0.04	0.03	-1.49	0.137		0.03	0.02	1.82	0.069	*
Living in a household with elderly 65 and older	DV	0.03	0.03	1.03	0.304		0.01	0.02	0.37	0.710	
Job characteristics											
Tenure with current employer		0.01	0.00	2.00	0.046	**	0.01	0.00	2.28	0.023	**
Tenure with current employer square		0.00	0.00	-0.65	0.518		0.00	0.00	0.04	0.968	
Public sector=1 (DV)	DV	0.18	0.05	3.98	0.000	***	0.32	0.03	12.10	0.000	***
NGO or International organisation=1 (DV)	DV	0.14	0.07	2.01	0.045	**	0.21	0.06	3.60	0.000	***
Full time employment=1 (DV)	DV	-0.24	0.05	-5.04	0.000	***	-0.21	0.03	-7.23	0.000	***
Formal employment=1 (DV)	DV	0.14	0.04	3.75	0.000	***	0.26	0.02	12.63	0.000	***
Occupations											
Managers=1 (DV)	DV	0.38	0.08	5.01	0.000	***	0.28	0.05	6.13	0.000	***

Professionals=1 (DV)	DV	0.31	0.06	5.25	0.000	***	0.30	0.04	7.64	0.000	***
Craft and Related Trades Workers=1 (DV)	DV	-0.12	0.07	-1.63	0.104		0.18	0.03	5.62	0.000	***
Elementary occupations=1 (DV)	DV	0.04	0.05	0.81	0.417		0.07	0.03	2.44	0.015	**
Other occupations=1 (DV)	DV	0.18	0.05	3.64	0.000	***	0.13	0.03	5.01	0.000	***
Sector dummies											
Manufacturing (DV)	DV	0.07	0.07	1.03	0.301		0.01	0.04	0.15	0.877	
Construction (DV)	DV	0.18	0.14	1.33	0.183		0.16	0.04	4.54	0.000	***
Agriculture (DV)	DV	0.32	0.22	1.48	0.140		-0.09	0.07	-1.33	0.184	
Public administration and defence; compulsory social security (DV)	DV	0.09	0.08	1.04	0.297		-0.03	0.04	-0.62	0.535	
Education (DV)	DV	0.23	0.07	3.52	0.000	***	-0.05	0.05	-1.09	0.274	
Health and social work activities (DV)	DV	0.08	0.06	1.27	0.206		-0.10	0.06	-1.56	0.119	
Other service activities (DV)	DV	0.12	0.05	2.45	0.014	**	-0.04	0.04	-1.21	0.227	
Other sectors (DV)	DV	0.11	0.05	2.20	0.028	**	0.07	0.03	2.06	0.040	**
Number of observations		1,134					3,313				
R2		0.53					0.43				

Notes: * p<0.10; ** $p< 0.05$, *** $p< 0.01$; for dummy variables (DV).

Table 3: Quantile regression results, for women and men

Women			
	Coefficient	95% confidence interval	
OLS main regression	0.14	0.06	0.21
25th quantile	0.19	0.13	0.25
50 quantile	0.13	0.05	0.22
75 quantile	0.11	0.01	0.20
Men			
	Coefficient	95% confidence interval	
OLS main regression	0.26	0.22	0.30
25th quantile	0.19	0.15	0.23
50 quantile	0.21	0.17	0.25
75 quantile	0.23	0.18	0.28

Table 4: Blinder-Oaxaca decomposition for net hourly wages

Women	Coefficients	Robust st. errors	z	P>|z|
Formal	0.74	0.02	38.66	0.000
Informal	0.19	0.04	5.33	0.000
Difference	-0.55	0.04	-13.58	0.000
Explained part	-0.42	0.03	-13.45	0.000
Unexplained part	-0.14	0.04	-3.40	0.001
Men				
Formal	0.75	0.01	60.18	0.000
Informal	0.21	0.01	16.13	0.000
Difference	-0.53	0.02	-29.70	0.000
Explained part	-0.27	0.02	-16.72	0.000
Unexplained part	-0.26	0.02	-12.33	0.000

Source: MCC LFTUS 2017, authors' calculations