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EVALUATING THE PREVALENCE AND DISTRIBUTION OF UNREGISTERED EMPLOYMENT IN KOSOVO: LESSONS FROM A 2017 SURVEY

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Abstract

Despite the growing recognition that unregistered employment remains a common problem both in South-East Europe and well beyond, there has been little evidence available on its prevalence and distribution. This paper contributes to filling the gap, by utilising data from a 2017 large scale national representative survey of 8,533 households in Kosovo. This reveals that 34.6% of all employees are engaged in unregistered employment (i.e., they have no employment contract). A Probit regression analysis reveals significant associations between unregistered employment and individual, household, employer and job-related characteristics. Unregistered employment is significantly more prevalent among men, younger people, single, widowed or divorced, those with fewer years in education, living in rural areas and in larger households. It is also significantly more prevalent among those working in construction and services, part-time employees, with shorter employment durations, lower wages, and those in elementary occupations and craft and related trades. The wider theoretical and policy implications are then discussed.

Keywords: *Informal employment; unregistered employment; undeclared work; Kosovo; economic development*

JEL classification: *H26, J46, K34, K42, O17, P2*

1. INTRODUCTION

There is a general agreement that unregistered employment has negative impacts on the employees without written contracts or terms of employment, who witness poor working conditions due to the absence of a written contract. Formal employees also indirectly suffer due to it weakening trade union power and effective collective bargaining, and formal businesses suffer from the unfair competition of those unscrupulous employers who reduce labour costs by using unregistered employees. Governments, meanwhile, lose their ability to collect taxes and social insurance contributions and as a result, invest in public goods and promote social cohesion (Andrews, Caldera Sanchez, and Johansson, 2011; Williams 2014). The outcome is that tackling unregistered employment is now firmly on the policy agenda of many South-East European governments (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). Unregistered

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employment remains a policy topic in many member states of the European Union, confirmed with the establishment of the European Platform Tackling Undeclared Work in 2016 (European Commission 2016) and also a top priority of many developing economies exemplified by the International Labour Organisation passing Recommendation 204 which seeks to formalise the informal economy (ILO 2015).

Until now, however, despite the strong calls for action, the evidence base regarding its prevalence and distribution has been weak. The result is that national governments have had little evidence for making decisions on where the resources of enforcement authorities (e.g., tax administrations and labour inspectorates) should be targeted to effectively tackle unregistered employment.

The aim of this paper, therefore, is to advance understanding by evaluating the prevalence and distribution of unregistered employment in Kosovo, by which is meant an employment relationship where a dependent employee has no written contract of employment. Although an extensive literature exists on the prevalence of the wider informal economy (for a review, see Williams and Schneider 2016), only a handful of studies have evaluated the extent of unregistered employment (Hazans 2011; Williams and Horodnic 2018; Williams and Kayagolu 2017; Krasniqi and Williams 2017). The intention is to provide empirical evidence o using an extensive dataset of the prevalence and distribution of unregistered employment in Kosovo, a South-East European economy in which it is widely recognised that the informal economy is extensive (Gashi and Williams 2018).

The next section, sets out the Kosovo context and provides information on prevalence of the informal economy. Section 3 provides a literature reviewed on determinants of unregistered employment and also highlights the rationale on the attention being paid to understanding this phenomenon. This section will discuss how the informal economy is now recognised to be a persistent feature of economies across the globe, and how its distribution across the population is widely theorised using a 'marginalisation' theoretical lens. This conceptualises informal economic activity as conducted by population groups marginalised from the formal labour market, such as women, unemployed people and immigrants (Ahmad 2008; Arnstberg and Boren 2003; Brill 2011; Castree et al. 2004; Katungi, Neale, and Barbour 2006; Rubić 2013, Slavnic 2010; Taiwo 2013; Williams and Horodnic 2015a; 2015b; 2015c). To evaluate the prevalence of unregistered employment and various hypotheses based on this marginalisation thesis regarding its distribution across the population, the fourth section introduces the data used and methodology, namely a 2017 nationally representative survey of 8,533 households in Kosovo. The fifth section provides an overview of descriptive statistics and discusses empirical findings using a Probit regression analysis. Revealing the prevalence and distribution of unregistered employment in Kosovo, the final section concludes by discussing the wider theoretical and policy implications of these findings.

2. *BACKGROUND CONTEXT: INFORMAL ECONOMY IN KOSOVO*

Although Kosovo's economic growth has been robust and at rates above those in neighbouring South-East European countries, it remains one of the poorest economies in Europe with a low GDP per capita (World Bank 2017). The steady economic growth over the past decade has not been accompanied with robust job creation. The employment rate has remained low and stagnant: in 2017, employment rate was recorded at 29.8% whilst the labour force participation rate as low as 42.8%. Youth representing one of the main country's assets, has remained largely unutilised: with nearly 60% being unemployed. Additionally, informal employment remains a chronic feature of Kosovo's labour market, though no official estimates of its incidence and intensity exist.

The most recent assessment on the informal economy was conducted in 2017, commissioned by European Commission, and lead by the Ministry of Finance. According to this assessment the undeclared economy in Kosovo accounted for 31.7% of GDP, with about 45,000 fulltime equivalent employees estimated to be working in the undeclared economy and 33.2% of personal income for households not being declared. Similar estimates are obtained elsewhere. According to a recent survey implemented by Riinvest (2018), in 2017 about 32% of revenues were not declared by enterprises for tax purposes. Referring to a 2013 survey with 500 small and medium enterprise in Kosovo, Williams and Krasniqi (2018) report that 35.7% percent of sales are not reported for tax purposes. Comparable estimates are obtained also from a 2013 Riinvest survey conducted with 600 enterprises, finding that 32% of revenues are not declared for tax purposes. An alternative estimate of the undeclared economy is provided by the 2013 World Bank Enterprise Survey conducted with a sample of 202 non-agricultural formal private enterprises employing five or more employees. The study found that two thirds of surveyed formal enterprises in Kosovo asserted that they compete against unregistered or informal firms, and 58.8% identify the practices of competitors

in the undeclared economy as a major constraint.

With regards to unregistered employment, according to the Kosovo Labour Force Survey in period 2012-2015, on average, 16% of employees were without a contract, whilst this share increased to 26.3% in 2016 and was recorded at 21.5% in 2017. Using 2012 LFS data, a World Bank report of 2017 (Cojojaru 2017) utilised a wider definition of informality, which included all workers in small firms, unpaid family workers, and self-employed people in either small firms or nonprofessional occupations. With this much wider definition of informality, about 35% of workers are informal in Kosovo. A similar figure is found by the Riinvest survey of 2013, according to which, on average 37% of the total labour force is not registered.

These data, although not employing the same methodological approach, indicate that informal employment in Kosovo composes at least one third of employed individuals, an estimate similar to the one obtained by the dataset utilised in this paper.

3. *PREVALENCE AND DISTRIBUTION OF UNREGISTERED EMPLOYMENT: A LITERATURE REVIEW*

The informal economy, or what is sometimes called the 'cash-in-hand', 'hidden', 'off-the-books', 'undeclared' or 'underground' economic activity, work, sector or economy (Williams, 2005) can be defined as 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; Khan 2017; OECD 2012; Slack et al. 2017; Williams 2004; 2017; Williams and Windebank 1998; Windebank and Horodnic 2017). Therefore, the major difference between formal and informal employment relationships is that informal employment relationships are not registered by, or declared to, the authorities for tax, social security or labour law purposes when they should be declared or registered. If there are other differences, such as the goods and/or services traded are illegal (e.g., illegal drugs), then it is defined as part of the 'criminal' economy, and if there is no remuneration, it is considered part of the unpaid economy.

The informal economy has attracted interest from policymakers and academics is because contrary to conventional modernisation theory, which viewed the formal economy as expanding and the informal economy as a small disappearing sphere that existed in only a few marginal peripheral populations (Geertz 1963; Gilbert 1998; Lewis 1959), it has been found that, globally, for 60 per cent of workers the main employment is in the informal economy globally (Jütting and Laiglesia 2009). In consequence, studying the formal economy has started to be recognised as providing only a very partial picture of the full nature of labour markets and economies (see Williams 2016; Williams and Schneider 2016).

This has resulted in a burgeoning literature on the informal economy. This has recognised the diverse range of informal economic activities. Until now, the focus has been upon employers not declaring some and/or all of the work they undertake (Williams 2018) and under-declared employment where formal employers pay their formal employees an official declared wage and an additional undeclared (envelope) wage (Williams and Bezeredi 2018). In comparison, there is limited evidence on the unregistered employment, i.e. referring to employees is employed without a legal written contract of employment.

Indeed, only a handful of studies have been conducted that focus upon unregistered employment. Williams and Kayaoglu (2017) and Hazans (2011) both evaluate its prevalence. Williams and Kayaoglu (2017) find that in the European Union, 5 per cent of employees reported that they did not have a written contract of employment in 2013, while Hazans (2011), using European Social Survey data on 30 countries for the period between 2004 and 2009, finds that the proportion of employees without a contract is 2.7 per cent in Nordic countries, 9.5 per cent in Southern Europe, and 5 per cent in Western and East-Central Europe. Meanwhile, Williams and Horodnic (2018) examine unregistered employment in the service sector in 35 European countries and find that 7 per cent of service industry employees have no written contract of employment.

When studying who engages in the informal economy, meanwhile, a marginalisation thesis has dominated discourse. This asserts that the informal economy is concentrated among individuals and households marginalised from the formal labour market and social protection (Ahmad 2008; Arnstberg and Boren 2003; Castree et al. 2004; Rubić 2013; Sasunkevich 2014; Surdej and Ślęzak 2009). Studies have asserted that those working in the informal economy are more likely to be individuals from population groups marginalised from the formal labour market, including women, younger age groups, those with fewer years in formal education, those with lower skills, those not born in the country or without parents born in the country, and also individuals living in single person households, and in households having difficulties making ends meet (Barbour and Llanes 2013; ILO 2013; Leonard 1994; Smith and Stenning 2006; Stănculescu 2004).

According to marginalisation hypothesis (Williams and Horodnic 2017) women are expected to be more likely to work in informal sector as they have fewer information and networks. Young workers may voluntarily choose the informal sector, as an opportunity to accumulate experience or human capital (Jütting, Parlevliet *and* Xenogiani 2008; Patricia Vega Núñez 2018), as a way to accumulating experience and human capital, increasing chances towards formal employment. However, this is by no means clear-cut. A recent evaluation of this marginalisation thesis in relation to the informal economy across the European Union reveals that although younger people are more likely to work in the informal economy, this is not the case for those with fewer years in education, women and those with difficulties paying the household bills (Williams and Horodnic 2015b).

In accordance with the risk preference proposition, women may be less likely to work in the informal sector as they tend to queue for formal jobs in the public sector (Dohmen, Khamis, and Lehmann 2010; Lehmann and Zaiceva 2013). A similar explanation is provided for married individuals: Angel and Tanabe (2012) find that married individuals are less likely to work informally, opting for a better and stable employment, hence accept lower risks due to higher family related responsibilities. Anderson (2017) and Lehmann and Zaiceva (2013a) find that education is an important determinant of working informally. The relationship between education and formal employment, is determined by both supply and demand forces (Montes, Javier and Singh 2016). On the supply side, more educated individuals are more skilled and with greater personal networks, with greater linkages to formal employment whilst from the demand side, formal firms opt for more educated workers where education-as a proxy for higher productivity. Impact of education can also be explained with 'tax morale' literature. Using data from the 2010 Life in Transition Survey (LiTS) for 35 Eurasian countries, Krasniqi and Williams (2017) find that on a country-level, meanwhile, the prevalence of unregistered employment is strongly associated with tax morale. Given that tax morale is positively related to education (Horodnic 2018) i.e. that informal employment is less acceptable by more educated individuals, hence less likely to engage in such relations.

Examining relationship between informal employment and poverty, Canelas (2015) states that larger households are more likely to be poor, which decreases with more household members working, implying a higher pressure to work with a greater readiness to accepting informal employment. Informality is expected to be more pronounced among low-wage earners. Given that higher educated individuals are less likely to engage in informal employment, the same preposition can be expected for high wage earners-that have higher education level.

Bracha and Burke (2016) find that individuals who are classified as working part-time have the highest participation rate in informal work. This as per authors, suggests that workers engage in informal work as a way to compensate for weak labour demand, and may drop informal work as formal labour market conditions improve.

It has been also revealed that firm-level characteristics are influential with the propensity to employ informal workers being greater in smaller businesses and in some sectors such as construction, the hospitality and restaurant industry, and household services (Williams and Horodnic 2016; 2017).

There is limited evidence on the relevance of the marginalisation thesis to the distribution of unregistered employment. Hazans (2011) finds that in relation to individual-related characteristics, the likelihood of unregistered employment is inversely related to education level, older and younger employees more likely, and women more likely than men to work without a legal contract. Meanwhile, Williams and Kayaoglu (2017) find no significant association between the probability of unregistered employment and individual- and household related characteristics such as gender, age, educational level, and occupational status, but a significant association with firm-level characteristics such as firm size. Williams and Horodnic (2018) examining unregistered employment in the service sector, find that unregistered employment is more prevalent among women, younger people, those with fewer years in education, migrants, those living in households unable to make ends meet, those working in smaller businesses, and the hospitality and household service sectors. Krasniqi and Williams (2017) examine unregistered employment in 35 Eurasian countries using the 2010 Life in Transition Survey (LiTS) and reveal that such work is more common among younger age groups, the divorced, and those with fewer years in education.

To further contribute to examine the relationship between the marginalisation thesis and unregistered employment, therefore, the following propositions can be evaluated:

Individual-level marginalisation hypothesis (H1) Individuals from marginalised population groups are more likely to be in unregistered employment.

H1.1 Men are more likely to participate in unregistered employment than women.

H1.2 Younger age groups are more likely to participate in unregistered employment than older age groups.
H1.3 Those with lower formal education attainment are more likely to participate in unregistered employment than those who spent longer in formal education.
H1.4 The likelihood of engaging in unregistered employment differs by civil status.
H1.5 Heads of household are more likely to engage in unregistered employment.
H1.6 Some ethnic groups are more likely to participate in unregistered employment.

Household-level marginalisation hypothesis (H2): Individuals in larger households and in rural areas/ least developed areas are more likely to participate in unregistered employment

H2.1 Individuals living in larger households are more likely to participate in unregistered employment.
H2.2 Individuals living in rural areas are more likely to participate in unregistered employment.

Employer-level and job-related hypothesis (H3): Participation in unregistered employment varies by sector and type of job.

H3.1 There are significant variations in the prevalence of unregistered employment across sectors.
H3.2 Individuals that work on full-time basis are less likely to participate in unregistered employment.
H3.3 The longer an individual has been in a job, the less likely they are to participate in unregistered employment.
H3.4 Higher wage earners are less likely to participate in unregistered employment.
H3.5 There are significant variations in the prevalence of unregistered employment across occupations.

4. DATA AND METHODOLOGY

To evaluate the prevalence and distribution of unregistered employment in Kosovo, data are extracted from the labour force survey commissioned by the Millennium Challenge Corporation[1]. This survey was conducted in 2017 with 8,533 households, using multi-stage stratified cluster-randomized sampling to arrive at a representative sample for Kosovo. To ground the research design in the most recent literature and promote comparability with other datasets, this labour force survey is aligned to the Eurostat approach. The sample included in this study cover employed persons aged 15 and over living in private households and in employment who did at least one hour of work for pay or profit during the week preceding the interview. The definition of the dependent and independent variables is provided in Table 1, and discussed next.

The dependent variable is whether an employee has a written contract or terms of employment or not using the following question: *'If an employee has a contract?'*, with value 1 for those stating that they have no written contract or terms of employment and value 0 otherwise. The results need to be cautiously interpreted considering potential biases related to the sincerity or readiness of the respondents to give honest answers regarding an illegal working arrangement. Thus, the percentages reported might be lower-bound estimates.

As outlined above, and drawing upon previous research, explanatory variables are classified into three main groups: individual-related variables, household-related variables and employer and job-related characteristics.

Individual-level independent variables:
- *Gender:* a dummy variable with value 1 for men and 0 for women.
- *Age*: three dummy variables are included in the model, namely a) a dummy for youth aged 15-24; b) for individuals aged between 25-39, and c) a dichotomous variable for those aged 40-54. The reference category are individuals aged 55 and over.
- *Education*: two dummies are included, one for tertiary education equalling 1 for those that have completed tertiary education; and one for secondary education equal to 1 for those that have completed secondary education. The benchmark category are individuals with less than secondary education, as their highest level of education;
- Civil status: a dichotomous variable set at 1 for individuals that are single, widowed or divorced and zero for those that are married.
- Head of the household: A binary variable is created, equal to 1 for individuals that are head of households, and 0 otherwise.
- Ethnicity: A dummy variable equal to 1 for Albanian (who represent the majority population in Kosovo) and 0 for non-Albanians.

1 The Millennium Challenge Corporation (MCC) is an innovative and independent U.S. foreign aid agency that is helping lead the fight against global poverty.

Table 1: Variable definition

	Variable definition
Dependent variable: Employees without contract	Employed without a contract=1; Employed with contract=0
Explanatory variables	
1. *Individual level explanatory variables*	
Gender	Men=1; Women=0
1.1 Age dummies Youth-15-24 Aged between 25-39 Aged between 40-54 Aged 55+	
Reference category for age	*Individuals aged 55+*
Head of household	Head of household=1; 0 otherwise
Ethnicity	Albanian=1; Non-Albanian =0
1.2 Education dummies	
Tertiary education Secondary education	
Reference category for education level	*Less than secondary education*
1.3 Civil status dummies	
Not-married (single, widowed, divorced) Married	
Reference category for civil status	*Single status*
2. *Household level explanatory variables*	
2.1 Residence	Rural=1; Urban=0
2.2 Household size	Number of household members
3. *Firm and job related explanatory variables*	
3.1 Full-time job	Full time job=1; Part time job=0
3.2 Job duration	Number of years in employment with current employer
3.3 Wages	Monthly wages in Eur
3.4 Dummies for economic sectors	
Agriculture Construction Manufacturing Services Other services	
Benchmark category for sectors	*Public administration and other activities*
3.5 Dummies for occupations	
Managers Professionals Technicians and plants workers Clerical support workers Services and Sales Workers Skilled Agricultural, Forestry and Fishery Workers Craft and Related Trades Workers Plant and Machine Operators and Assemblers Armed Forces Occupations	
Benchmark category for occupations	*Benchmark category: Elementary occupations*

Household-level independent variables:

- *Household size: a continuous variable for the size of the household.*
- *Residence: a dummy variable equal to 1 for individuals living in rural areas and 0 in urban areas.*

Employer-level and job related independent variables:

- *Sector of the employer: five dummy variables are included for the following sectors: a) construction; b) agriculture; c) manufacturing; d) services and e) other services (- Activities of membership organizations; repair of computers and household good and other personal service activities). The reference category is public administration and other activities.*
- *Full time employment: A dummy variable with value of 1 for individuals working on a full-time basis and zero if employed on a part-time basis.*
- *Duration of employment with the current employer: A continuous variable, measuring number of years in the current job.*
- *Wages: A continuous variable for the net wages of employees.*
- *Occupation: Seven dummy variables are included for armed forces, clerical support workers, professionals, managers, skilled agriculture, technicians, crafts and plants workers. The benchmark category is 'elementary occupations'.*

Given that the dependent variable is dichotomous, equalling 1 for employees without a contract and 0 for those with a contract, the Probit model is utilised, investigating the probability (Pr) of a person working without a contract:

$$\Pr(Y = 1|X_i) = \Phi\,(\beta_i X_i)$$

where the dependent variable Y is equal to one if the worker has no contract and 0 if the worker has an employment contract; Φ is the Cumulative Distribution Function of the standard normal distribution and β_i are the parameters of the explanatory variables X_i that will be estimated by maximum likelihood. It is important to emphasise that in this analysis there is a possible effect of unobserved innate ability that could be associated with a selection into informal sector. However, constrained with data availability, the endogeneity is not addressed. The next section discusses descriptive statistics and empirical findings.

5. FINDINGS: PREVALENCE AND DISTRIBUTION OF UNREGISTERED EMPLOYMENT IN KOSOVO

The overarching finding is that 34.6% of employees surveyed reported working with no contract in Kosovo (see Table 2). Thus, over one-third of all employees have no written employment contract. Examining the descriptive statistics on the distribution of unregistered employment, Table 1 reveals that so far as the individual-level variables are concerned, this employment relationship is more common among men (37.8%) as opposed to women (21.1%). By age group, youth are at a significantly higher risk of being in unregistered employment, with nearly two-thirds in unregistered employment (64.1%) compared with 35.1% of those aged 25-39, 27.6% of employees aged 40-54 years old and 14% of those older than 55 years. Sone 27.9% of employees that are heads of households are unregistered, compared with 38.7% of employees that are not heads of households. Data indicate that 35.6% of Albanian workers are unregistered as opposed to 23.5% non-Albanian-representing ethnic minorities in Kosovo. The explanation may be due to limited social networks of ethnic minorities, hence less information on opportunities to working as undeclared workers (Williams and Horodnic, 2017a) and/or possibly higher risks of detection and less protection when caught.

Unregistered employment also declines with education level: only 8.9% of employees with tertiary education are in unregistered employment compared with 31% of those with secondary education and 64.6% of those with less than secondary education. Nearly half of employees that are single, widowed or divorced are in unregistered employment compared with 29.3% of those who are married.

Turning to the household-level characteristics, unregistered employment varies by location. It is higher for individuals residing in rural areas (41.1%) as opposed to those living in urban areas (27.2%). Unregistered employment is also more common among those in larger households; the average household size of individuals in unregistered employment is 6.2 members compared with 5.6 for those who are registered employees.

The presence of unregistered employment also varies depending on employer and job level characteristics. Unregistered employment is very high among employees in the construction sector with nearly 80 percent (77.1%) of construction employees being in unregistered employment. So too are a half of workers in the agricultural sector unregistered, 42.3% in the manufacturing sector, 41.7% in activities

Table 2: Prevalence of unregistered employment by individual, household and employer and job related characteristics

	% without a contract	Number of observations
Employees without contract	**34.6**	**6,923**
Individual level explanatory variables		
Women	21.1	1,557
Men	37.8	4,441
Youth-15-24	64.1	1,100
Aged between 25-39	35.1	2,812
Aged between 40-54	27.6	2,084
Aged 55+	14.0	927
Head of household	27.9	2,611
Not head of household	38.7	4,311
Non-Albanian	23.5	584
Albanian	35.6	6,339
Tertiary education	8.9	1,728
Secondary education	31.0	2,871
Less than secondary education	64.6	1,143
Not-married (single, widowed, divorced)	48.6	2,204
Married	29.3	4,497
Household level explanatory variables		
Rural areas	41.1	3,700
Urban areas	27.2	3,223
Household size of registered workers	5.6	4,527
Household size of unregistered workers	6.2	2,396
Employer and job related explanatory variables		
Sectors		
Agriculture	50.0	90
Construction	77.1	1,029
Manufacturing	42.3	535
Services	35.4	1,834
Other services (Activities of membership organizations; repair of computers and household good and other personal service activities)	41.7	988
Public administration and other	10.8	2,437
Full-time working individuals	30.5	6,326
Part-time working individuals	79.4	582
Job duration of registered employees: average in years	11	4,440
Job duration of unregistered employees: average in years	5.3	2,370
Average wages of registered employees, in Euro	384	3,326
Average wage of unregistered employees, Euro	268	1,792
Occupations		
Managers	8.3	325
Professionals	6.9	1,471
Technicians and plants workers	8.8	216
Clerical support workers	11.1	452
Services and Sales Workers	45.8	1,329
Skilled Agricultural, Forestry and Fishery Workers	34.3	35
Craft and Related Trades Workers	58.1	1,075
Plant and Machine Operators and Assemblers	33.1	396
Elementary Occupations	58.3	1,397
Armed Forces Occupations	1.90	210

of membership organizations, repair of computers and household good and other personal service activities; and 35.4% of workers in the service sector.

The longer on has been employed by an employer, the lower is the propensity to be unregistered employment; the average employment duration with the current employer for registered employees is 11 years, whilst it is 5.3 years for unregistered employees. Unregistered employees also receive lower wages than those in registered employment, 268 Euros and 384 Euros respectively. Finally, the prevalence of unregistered employment also varies by occupational grouping. Unregistered employment is found to be highest among individuals in low skilled occupations, namely 'elementary' and 'crafts and related workers' occupations (58.3% and 58.1%) and unregistered employment is lowest among professionals, managers and technicians (6.9%, 8.3% and 8.8%).

To evaluate whether these distributional patterns of unregistered employment persist when other variables are held constant, Table 3 presents the marginal effects of the estimated Probit model. To test the goodness of fit, the McFadden R-square is reported, also known as the "likelihood-ratio index", which compares a model with just the intercept to a model with all parameters (Long and Freese, 2001). However, Wooldridge (2002: 465) states that the goodness of fit is not as important as the statistical and economic significance of the explanatory variables. With regards to heteroskedasticity and normality in the Probit model, Wooldridge (2002: 479) emphasises that in the response probability, the non-normality in the latent error is a functional form problem, so it needs to be treated as such and hence there is no need to test or correct for it. A similar conclusion is reached in relation to the presence of heteroskedasticity. Wooldridge states that given that the focus is on the probability since in the Probit model the focus is on P (y=1|x), one should not attempt to compare heteroskedasticity in the latent variable model with the consequences of heteroskedasticity in a standard linear regression model. He further continues, stating that while the statement "Probit will be inconsistent for b when e is heteroskedastic" is correct, given that in Probit the focus is on marginal effects, inconsistent estimation of coefficients is practically irrelevant and Probit might provide very good estimates of the partial effects (Wooldridge 2002, p. 499).

What, therefore, are the findings regarding the distribution of unregistered employment? Table 2 reveals that compared with women, men are more likely to be in unregistered employment by 8.5 percentage points (confirming H1.1). Compared with persons older than 55 years old, the propensity of youth to work without a contract is higher by 16 percentage points. However, the likelihood of being in unregistered employment does not significantly differ between other age groups (partially confirming H1.2). Education matters, with less educated more likely to be in unregistered employment. In comparison to the employees with less than secondary education (the benchmark category), the probability of employees to work informally is lower by 17.2 percentage points, and it is lower by 12.9 percentage points for those with higher education as the highest level of education (confirming H1.3). Compared to married employees, employees that are single, widowed or divorced are more likely to work without a contract (confirming H1.4). However, there is no statistical difference in the propensity of being in unregistered employment between employees that are heads and not heads of the household (refuting H1.5). Neither is there any significant difference in the likelihood of being in unregistered employment by ethnicity (refuting H1.6). These findings thus suggest that attributes of individuals are important determinants of the probability of being an unregistered employee. These characteristics, moreover, are often those associated with populations marginalised from the mainstream formal labour market, such as women, youth, and those with fewer years in education. However, it should be noted that not all characteristics associated with marginalised populations are significantly associated with a greater propensity to engage in unregistered employment. Ethnicity, for example, is not significantly associated with the likelihood of engagement in unregistered employment.

Turning to household-level characteristics, this Probit regression model reveals that although there is no significant association between the likelihood of participation in unregistered employment and household size (refuting H2.1), individuals residing in urban areas are less likely to be unregistered employees by 4.2 percentage points compared with those living in rural areas (confirming H2.2). This, therefore, again confirms another facet of the marginalisation thesis that marginal groups (i.e., those living in rural areas) are more likely to participate in unregistered employment.

Finally, and turning to firm-level and job-related characteristics, this model indicates that there are significant variations in the prevalence of unregistered employment across sectors with its prevalence most likely in the construction sector, other service sector (activities of membership organizations; repair of computers and household good and other personal service activities) activities, manufacturing and the service sector (confirming H3.1). Compared with part-time workers, meanwhile, full-time employees are less

Table 3: Unregistered employment determinants: Probit marginal effects

Explanatory variables	dy/dx	z-statistics
Individual level explanatory variables		
Men DV	0.085	4.80 ***
Youth-15-24 (DV)	0.159	3.36 ***
Aged between 25-39 (DV)	0.037	1.10
Aged between 40-54 (DV)	0.023	0.76
Head of household (DV)	0.028	1.27
Albanian (DV)	-0.004	-0.12
Tertiary education (DV)	-0.129	-6.39 ***
Secondary education (DV)	-0.172	-7.43 ***
Not-married-single, widowed, divorced (DV)	0.050	2.33 **
Household level explanatory variables		
Urban areas (DV)	-0.042	-2.79 ***
Household size	0.004	1.39
Employer and job related explanatory variables		
Sectors		
Agriculture (DV)	0.130	1.50
Construction (DV)	0.453	13.59 ***
Manufacturing (DV)	0.125	3.56 ***
Services (DV)	0.115	4.66 ***
Other services (DV)	0.164	5.36 ***
Full-time working individuals (DV)	-0.347	-9.70 ***
Job duration of formal employees in years	-0.010	-8.24 ***
Net monthly wages in Euro	-0.001	-11.02 ***
Occupations		
Managers (DV)	-0.117	-3.87 ***
Professionals (DV)	-0.138	-5.24 ***
Technicians and plants workers (DV)	-0.098	-2.40 **
Clerical support workers (DV)	-0.187	-10.87 ***
Services and Sales Workers (DV)	-0.008	-0.36
Skilled Agricultural, Forestry and Fishery Workers (DV)	-0.151	-3.01 ***
Craft and Related Trades Workers (DV)	0.062	2.52 **
Plant and Machine Operators and Assemblers (DV)	-0.086	-3.55 ***
Armed Forces Occupations (DV)	-0.184	-5.97 ***
Number of observations	4,376	
McFadden's R2	0.378	

Notes: **p< 0.05, ***p< 0.01; for dummy variables (DV), dy/dx is for the discrete change of DV from 0 to 1.

likely to be unregistered employee-by 35 percentage points (confirming H3.2). Ceteris paribus, on average for every additional year in employment, the probability of being unregistered employee declines by 1 percentage point (confirming H3.3). Employees with higher wages are also found to be significantly less likely to be in unregistered employment (confirming H3.4). Finally compared with employees in elementary occupations (the reference category), the probability of being in unregistered employment is lower for managers (11.7 percentage points), professionals (by 13.8 percentage points), technicians (9.8 percentage points), clerical support workers (18.7 percentage points), skilled agricultural, forestry and fishery workers (15.1 percentage points), plants and machine operators (8.6 percentage points) and armed forces (18.4 percentage points). In comparison to elementary occupations, crafts and related workers are more likely to work informally by 6.2 percentage points. This displays that there are indeed significant variations in the prevalence of unregistered employment across occupations (confirming H3.5).

6. DISCUSSION AND CONCLUSIONS

To evaluate the prevalence and distribution of unregistered employment in Kosovo, this paper has used an extensive dataset using descriptive statistics and Probit regression analysis. The finding is that well over one-third of employees (34.6%) are in unregistered employment. However, the likelihood of engaging in unregistered employment is significantly affected by a range of individual-, household-, firm-level and job-related level characteristics.

Examining the theoretical implications, this study provides empirical evidence for the marginalisation thesis in Kosovo. Many individual-level characteristics normally associated with marginalisation in the formal labour market are found to be significantly associated with participation in unregistered employment. Women, youth and employees with fewer years in education are more significantly more likely to be engaged in unregistered employment, reinforcing the finding by Gerxhani and van de Werfhorst (2013) in Albania on the issue of education. This negative association between education level and unregistered employment can be explained in two ways. First, there is the human capital factor, whereby individuals with higher education and therefore usually higher income, have less necessity to work unregistered, as displayed in this paper. The second explanation for the negative association between education and unregistered employment is that education contributes to the forming of moral attitudes and values, which in turn leads to lower participation in unregistered employment (see Krasniqi and Williams 2017). As Gerxhani and van de Werfhorst (2013) suggest, the role of education in shaping broader civic attitudes explains relatively more of this relationship than the human capital factor. Theoretical expectations that due to family responsibilities, married individuals may be more likely to work unregistered are not confirmed with this study. Instead, quite the opposite is revealed. It is found that married employees are less likely to work unregistered, which may suggest that they prefer a more secure job and are more long-sighted, opting for jobs that offer secure income for the future through contributions to the pension fund. Turning to household-level characteristics, the finding is that individuals residing in rural areas, where employment opportunities are lower, are more likely to work as unregistered employees. This may suggest that unregistered employment is not a voluntary choice but rather occurring due to necessity, i.e. due to lack of other options available.

Firm-level and job-related characteristics are also important determinants of unregistered employment. Unregistered employment is more likely among those pursuing flexible employment, with part-time workers more likely to be engaged in unregistered employment than full-time employees. Moreover, the longer the job duration (i.e., attachment to the same employer), the lower is the likelihood of being in unregistered employment. Employees with higher wages (which may be a proxy of highly educated employees) are also less likely to be engaged in unregistered employment. Such employment is also far higher in some sectors and occupations than others. As explained by Görmüş (2017), there is a work-status consistency, with higher-ranked occupations being less prone to unregistered employment. This association is also related to educational level, as higher-ranked occupations demand higher educational attainments. This again confirms the impact of education. Together, these findings tentatively suggest that for unskilled and young people, especially men and those in rural areas, unregistered employment is very common and probably their most likely employment relationship.

Turning to the policy implications, there are three key important findings. The first is that these results display the specific population groups, employer-types and sectors that need targeting when seeking to tackle unregistered employment. It also identifies the sectors and marginalised populations that will be protected by taking action against unregistered employment in Kosovo. This, therefore, provides what is in effect a risk assessment of the groups with the greatest likelihood of participation in unregistered employment. This can and should be used by labour, tax and social security enforcement authorities when selecting enterprises and groups as priorities for workplace inspection. This evidence-base suggests that enforcement authorities might commence with targeting workplace inspections on enterprises in rural areas, especially in the construction and service industries. A second important finding is that beyond prioritising these groups for inspections, allocating resources to active labour market policies targeting vulnerable groups such as younger people may help prevent their insertion into unregistered employment. A third policy initiative relates to greater investment in education focused on shaping civic attitudes about the acceptability of unregistered employment, and this should target the groups with the greatest likelihood of engaging in unregistered employment, namely men, younger people, single, widowed or divorced, those with fewer years in education, living in rural areas and in larger households, working in construction and services, part-time employees, with shorter employment duration, lower wages, and those in elementary occupations and craft and related trades. In sum, this paper

has contributed to the small emergent literature on the prevalence and distribution of unregistered employment. If it leads to further empirical studies that seek to test whether unregistered employment is similarly concentrated among marginalised populations in other nations and regions, then it will have fulfilled one of its intentions. If it also encourages enforcement authorities to use such an evidence-based approach to target their enforcement activities when tackling unregistered employment, and to consider wider policy initiatives, which would have a greater and more sustainable impact. Finally, therefore, there is a need to assess the effectiveness of existing government policies in combating undeclared work in Kosovo, similar to Bosnia and Herzegovina (Pasavic and Efendic, 2018). This assessment concluded that 'stick' approaches have not been effective, and that a holistic approach to combating the undeclared work is required.

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