Tackling the illegitimate under-reporting of salaries in Southeast Europe: some lessons from a 2015 survey in Bulgaria, Croatia and FYR Macedonia

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Abstract

To tackle the illegitimate employer practice of under-reporting salaries, the conventional deterrence policy approach seeks to increase the penalties and risk of detection. Recently, however, calls have been made for a new more indirect approach that enhances tax morale so as to nurture a culture of self-regulation. The aim of this paper is to evaluate these two policy approaches. Reporting evidence from 6,019 face-to-face interviews conducted in Bulgaria, Croatia and FYR Macedonia in 2015, logit regression analysis reveals no association between salary under-reporting and the perceived level of penalties and risk of detection, but a strong association between salary under-reporting and the level of tax morale. The paper concludes by discussing the implications of the findings for theory and policy.

Keywords: envelope wages, tax morale, informal economy, Southeast Europe

Introduction

It is now widely recognised that some employers use illegal labour practices to reduce their labour costs. These illegal practices include employing wholly undeclared labour, outsourcing or sub-contracting work to the 'bogus self-employed', and declaring only a portion of the salary of a formal employee and paying the remainder as an undeclared ('envelope') wage (Aliyev, 2015; Boels, 2014; Horodnic, 2016; Karpuskiene, 2007; Meriküll and Staehr, 2010; Neef, 2002; Sedlenieks, 2003; Williams, 2007, 2008, 2009a,b; Williams, Horodnic and Horodnic, 2016; Žabko and Rajevska, 2007). Unless such illegal labour practices are addressed, the result will be a diminution of state control over the quality of working conditions, a weakening of collective bargaining, and unfair competition

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for legitimate businesses (Andrews, Caldera Sanchez and Johansson, 2011; TUC 2008). The aim of this paper is to advance knowledge on how to combat these illegal labour practices in southeast Europe by evaluating the specific fraudulent employer practice of under-reporting employees' salaries to the authorities in order to evade their full social insurance and tax liabilities (Chavdarova, 2014; Williams, 2009c, d; Woolfson, 2007).

Conventionally, the dominant approach has been to deter participation in illegal labour practices by ensuring that the perceived likelihood and cost of being caught and punished outweigh the benefits (Allingham and Sandmo, 1972). This is done by increasing the actual or perceived penalties and risks of detection. Given the difficulties in detecting formal employees who are paid an additional envelope wage by their formal employers, recent years have seen the emergence of a new more indirect approach that improves tax morale, namely the intrinsic motivation to pay taxes, in order to foster a culture of self-regulation (Alm, Cherry, Jones and McKee, 2010; Cummings, Martinez-Vazquez, McKee and Torgler, 2009; Kirchler, 2007; Murphy, 2008; Torgler, 2007). It therefore seeks to improve tax morale by aligning the informal institutions (i.e. the beliefs of employers and employees) with the codified laws and regulations of the formal institutions (Alm, Kirchler, Muelhbacher, Gangl, Hofmann, Logler and Pollai, 2012; Alm and Torgler, 2011; Torgler, 2012). The aim of this paper is to evaluate which of these two approaches is better suited to combating salary under-reporting in southeast Europe. This will reveal that across Bulgaria, Croatia and FYR Macedonia, the conventional deterrence approach is less relevant and effective than the new emergent tax morale approach which seeks to encourage self-regulation.

To commence, therefore, next section reviews the literature on salary under-reporting followed by the literature on these two policy approaches, namely the deterrence and tax morale approaches, so as to formulate some hypotheses for evaluation with regard to southeast Europe. The following section then introduces the data and methodology to evaluate these hypotheses, namely a logit regression analysis of 6,019 face-to-face interviews conducted in 2015 in Bulgaria, Croatia and FYR Macedonia. The results are reported in section 3. Finding no significant association between salary under-reporting and the perceived level of penalties and risk of detection on the one hand, but a significant association with the level of tax morale, last section then concludes by discussing the need for greater emphasis on improving tax morale when tackling salary under-reporting in southeast Europe and beyond.

1. Tackling salary under-reporting: a literature review

Since the turn of the millennium, a body of scholarship has brought to the fore how some formal employers pursue the illegal practice of evading social insurance and tax payments, and consequently labour costs, by paying a formal

employee two salaries; a declared official salary and an additional off-the-books undeclared 'envelope' wage that is hidden from the authorities. This happens usually when a candidate is interviewed for a job. Alongside agreeing an official declared wage, which is detailed in a formal written contract, the employer verbally states that the employee will receive an additional 'envelope wage' (Chavdarova, 2014; Williams, 2009a; Woolfson, 2007). Unless the employee agrees, then generally they do not get the job. Until now, very little, if any, research has been undertaken on whether additional conditions are attached when this verbal contract is agreed and, if so, the type of conditions that are attached by employers. These conditions might include firstly, that the employee will not take their full annual leave entitlement, secondly, that they will work for more hours than is stated in their written contract (such as working over the maximum hours in the work hours directive and/or receiving less than the minimum hourly wage), and/or thirdly, that they will undertake a different job in terms of tasks and responsibilities to that specified in their formal contract (Williams, 2014). This verbal contract, therefore, replaces the formal written contract of employment. It is the unwritten 'psychological contract' regarding their conditions of employment (Rousseau, 1995). Verbal agreements, of course, are not by definition illegal. Indeed, in many countries they hold the same weight in law as written contracts. Nevertheless, this particular verbal contract to under-report salaries is by definition illegal. It is an agreement to fraudulently under-report to the state the salary of an employee so as to evade the full tax and social security payments owed by the employee and employer.

1.1. Prevalence and distribution of salary under-reporting

What, therefore, is known about the prevalence and distribution of salary under-reporting? Most of the early studies were small-scale qualitative studies of this practice in specific East-Central European nations, such as Bulgaria (Chavdarova, 2014), Estonia (Meriküll and Staehr, 2010), Latvia (Kukk and Staehr, 2014; Meriküll and Staehr, 2010; OECD, 2003; Sedlenieks, 2003), Lithuania (Meriküll and Staehr, 2010; Woolfson, 2007), Romania (Neef, 2002), Russia (Williams and Round, 2008) and Ukraine (Round, Williams and Rodgers, 2008; Williams, 2007). For instance, Woolfson (2007) provides an in-depth case study of one person, a *cause celebre*, in Lithuania, whilst Sedlenieks (2003) in Latvia uses 15 interviews with people in Riga. The Ukraine survey, meanwhile, is based on 600 households, but in only three localities (Williams, 2007), whilst the study in Russia is confined to 313 households in three districts of the city of Moscow (Williams and Round, 2007). The result is that these nationally unrepresentative studies have been unable to document its prevalence and distribution.

Nevertheless, they have provided clues to its extensiveness. In Ukraine, 30 per cent of formal employees are found to receive an envelope wage from their

formal employer (Williams, 2007), whilst 65 per cent do so in Moscow (Williams and Round, 2007). In a survey in Estonia, Latvia and Lithuania in 1998 and 2002 comprising 900 interviews, the finding is that 19.5 per cent, 16.3 per cent and 7.2 per cent received envelope wages respectively in 1998 and 9.6 per cent, 22.5 per cent and 11.7 per cent respectively in 2002 (Meriküll and Staehr, 2010). These studies, however, were at the peak of the transition process in these post-socialist societies.

The first extensive cross-national study of the extent of envelope wages was undertaken in 2007 when, as part of a Eurobarometer survey on undeclared work, several questions were asked on whether employees had been paid envelope wages. The resultant dataset, namely special Eurobarometer no. 284, involved 11,135 interviews with formal employees across the 27 member states of the European Union (EU-27). This revealed not only the extent of the practice of salary under-reporting in European regions such as the Baltic region (Williams, 2009d), South-Eastern Europe (Williams, 2010, 2012a; Williams et al., 2011), and Central and Eastern Europe (Williams, 2008a,b, 2009b,c, 2012b; Williams and Round, 2008) but also in the EU-27 as a whole (Williams, 2009a; Williams and Padmore, 2013a,b). This survey identifies that 5.5 per cent of formal employees had under-reported salaries in the EU-27 in 2007, and that 43 per cent of their gross salary was on average paid in this manner. However, variations across EU regions were apparent with a clear East/West and North/South divide with salary under-reporting much higher in the East and South than the West and North, as was the portion of the gross wage paid as an undeclared wage higher (e.g., Williams, 2009a, 2013).

This Eurobarometer survey was repeated in 2013 in special Eurobarometer no. 402 involving face-to-face interviews with 11.025 dependent employees from 28 member states (European Commission, 2014). This revealed that one in 33 employees receives under-reported salaries and that similar variations continued to persist across the EU regions (Williams and Horodnic, 2016).

How, therefore, can this illegal practice of under-reporting salaries be tackled? To answer this, it is important to evaluate the effectiveness of the two main policy approaches so far discussed. Each is here considered in turn.

1.2. Deterrence approach

The origins of the deterrence approach lie in the classical works of both Jeremy Bentham (Bentham, 1983, first published in 1788) and Cesare Beccaria (Beccaria, 1986, first published in 1797). In their utilitarian theory of crime, citizens evaluate the opportunities and risks, and break the law if the expected penalty and probability of being caught is smaller than the benefits to be gained by disobeying the law. This view was popularised by Becker (1968) in the late 1960s. During the early 1970s, Allingham and Sandmo (1972) then applied it to

tax non-compliance, arguing that the non-compliant evade tax as long as the pay-off is greater than the expected cost of being caught and punished. The intention thus became one of changing the cost/benefit ratio confronting those engaged or thinking about participating in non-compliance. Akin to the study of crime, this was achieved by increasing the actual and/or perceived risks of detection and thus costs. This was subsequently widely adopted (e.g., Grabiner, 2000; Hasseldine and Li, 1999; Job, Stout and Smith, 2007; Richardson and Sawyer, 2001).

Despite its wide acceptance and common usage by most governments in southeast Europe and beyond, the evidence that increasing the risks of detection elicits compliance is less than conclusive (Alm, McClelland and Schulze, 1992; Alm, Sanchez and De Juan, 1995; Slemrod, Blumenthal and Christian, 2001; Varma and Doob, 1998). Not only are studies inconclusive that increasing the perceived or actual penalties, and increasing the risks of detection, reduces non-compliance, but the particular problem confronted with salary under-reporting is that this is difficult for tax and labour inspectorates to detect. These, after all, are formal employees with a formal written contract of employment working for a formal employer and the additional contract is verbal. As such, this additional unwritten agreement is not only difficult to detect but also to prove. Despite this, such an approach remains dominant. To evaluate the validity of this deterrence approach in relation to salary under-reporting, therefore, the following hypothesis can be tested:

Deterrence hypothesis (H1): the greater the perceived penalties and risk of detection, the lower is the likelihood of salary under-reporting, ceteris paribus.

H1a: the greater the perceived penalties, the lower the likelihood of salary under-reporting.

H1b: the greater the perceived risks of detection, the lower the likelihood of salary under-reporting.

1.3. Tax morale approach

In the past few years, an alternative policy approach has emerged which asserts that employers and employees do not always weigh up the cost/benefit ratio since many voluntarily comply even when the benefit/cost ratio suggests that they should not (Alm *et al*., 2010; Kirchler, 2007; Murphy, 2008; Murphy and Harris, 2007). A 'tax morale' approach has thus emerged viewing participation in non-compliance to result from low tax morale, by which is meant a low intrinsic motivation to pay taxes (Alm and Torgler, 2006, 2011; Cummings *et al*., 2009; McKerchar, Bloomquist and Pope, 2013; Torgler, 2011; Torgler and Schneider, 2007). The goal is therefore to improve tax morale so that they self-regulate (Kirchler, 2007; Torgler, 2007, 2011).

Its roots lie in the work of Georg von Schanz (1890) who well over a century ago highlighted the relevance of a tax contract between the state and its citizens. Some six decades later, the German 'Cologne school of tax psychology' measured tax morale (see Schmölders, 1952, 1960, 1962; Strümpel, 1969) and saw it as strongly related to tax non-compliance (Schmölders, 1960). Although the rise of the deterrence approach from the 1970s resulted in the demise of such a tax morale approach, since the turn of the millennium, it has begun to come to the fore again (Alm *et al*., 2012; Kirchler, 2007; Torgler, 2007, 2011). The goal is to raise tax morale so as to elicit greater voluntary commitment to compliant behaviour (Alm and Torgler, 2011; Torgler, 2012; Williams, 2014).

This tax morale approach can be conceptualised from the perspective of institutional theory (Baumol and Blinder, 2008; North, 1990). Here, societies are composed of firstly, formal institutions, defined as the codified laws and regulations which are the legal rules of the game, and secondly, informal institutions, defined as the 'socially shared rules, usually unwritten, that are created, communicated and enforced outside officially sanctioned channels (Helmke and Levitsky, 2004, p. 727). Tax morale measures the degree to which the formal institutions ('state morale') are not aligned with the informal institutions ('civic morale'). When there is asymmetry, tax morale is low and participation in under-declared employment more extensive. To evaluate the validity of adopting this policy approach towards tackling salary under-reporting, therefore, the following hypothesis can be evaluated:

Tax morale hypothesis (H2): the greater the tax morale, the lower the likelihood of salary under-reporting.

2. Data and variables

2.1. Data

To evaluate these hypotheses, data is reported from 6,019 face-to-face interviews conducted in Bulgaria, Croatia and FYR Macedonia between July and October 2015 (approximately 2,000 per country). This survey was conducted for the purpose of the European Commission's Framework 7 Industry-Academia Partnerships Programme (IAPP) research project entitled 'Out of the shadows: developing capacities and capabilities for tackling undeclared work in Bulgaria, Croatia and FYR Macedonia' (GREY). A purpose was to examine not only which employees receive envelope wages but also the perceived penalties and risk of detection, and level of tax morale.

To collect this data, a nationally representative sample of the population was surveyed in each country. To achieve this, a multi-stage random (probability) sampling methodology was used to ensure that on the specific issues of gender,

age, region and locality size, the national level sample in each country, as well as each level of the sample, was representative in proportion to each of these variables. As such, the survey is representative of the national population with regard to not only gender and age, but also to the regional distribution of the population and the proportions of the population living in rural areas and villages, towns and larger cities (see Appendix 1). In every household the 'closest birthday' rule was applied to selected respondents, while every subsequent address where an interview was conducted was determined by the standard 'random route' procedure used in Eurobarometer surveys.

2.2. Variables

To evaluate who receives envelope wages, and whether increasing the penalties and risks of detection, and greater tax morale, reduces the likelihood of salary under-reporting in southeast Europe, the dependent variable is whether employees received envelope wages based on the following question: *"Sometimes employers prefer to pay all or part of the salary or the regular salary of the remuneration for extra work or overtime hours cash-in-hand and without declaring it to tax or social security authorities. Did your employer pay you all or part of your income in the last 12 months in this way?"*

To analyse the association between the under-reporting of salaries and the policy measures, three explanatory variables are used. Firstly, the association between participation and the perceived risk of detection is evaluated using a categorical variable that rates the perceived risk of being caught as either very small, fairly small, fairly high or very high. Secondly, the relationship between salary under-reporting and penalties is evaluated using a categorical variable that examines whether the perceived sanctions are that: normal tax or social security contributions are due; normal tax or social security contributions are due, plus a fine; or prison.

Third and finally, the relationship between envelope wages and institutional asymmetry is evaluated using an interval variable where respondents rated the acceptability of four different types of undeclared work using a 10-point Likert scale (1 equals absolutely unacceptable and 10 equals absolutely acceptable). These were: a firm hires an individual and all or a part of the wages paid to him/her are not officially declared; a firm hires another firm on an undeclared basis; a firm is hired by a household to do work that is not declared; and somebody evades taxes by not declaring or only partially declaring their income.

Table 1 reports these explanatory variables along with control variables which have been selected based on the results of past studies of participation in salary under-reporting (Williams and Horodnic, 2015a,b, 2016; Williams and Padmore, 2013a,b).

Table 1. Summary of covariates used in the logit regression

Variable name	Description	Values	Number of missing values
Gender	A dummy variable for respondent's Gender	0 - male; 1 – female	0
Age	An interval variable indicating the exact age of a respondent	Values representing exact age	0
Marital status	A categorical variable denoting the civil state of a respondent	1 – single 2 - married 3 - cohabiting 4 - divorced/separated 5 – widowed	29
Area of economic activity	A categorical variable describing the economic sector (in a wider sense) in which a respondent works	1 - construction; 2 - industry and transport; 3 - household and repair services; 4 - hospitality and service sector; 5 - retail; 6 - agriculture; 7 – other	72
Detection risk	A categorical variable for perceived risk of being detected when engaged in unregistered activities	1 - very small; 2 - fairy small; 3 - fairy high; 4 - very high	189
Expected sanctions	A categorical variable measuring anticipated penalties when caught in carrying out unregistered activities	1 - normal tax or social security contributions due; 2 - normal tax or social security contributions due, plus a fine; 3 – prison	446
Tax morale	An interval variable measuring respondents tax morale	'1' denotes the highest level of tax morale and '10' the lowest level	90
Country	A categorical variable denoting a country of residence	1 - Croatia 2 - Bulgaria 3 - FYR Macedonia	0

Source: own representation based on the GREY Survey

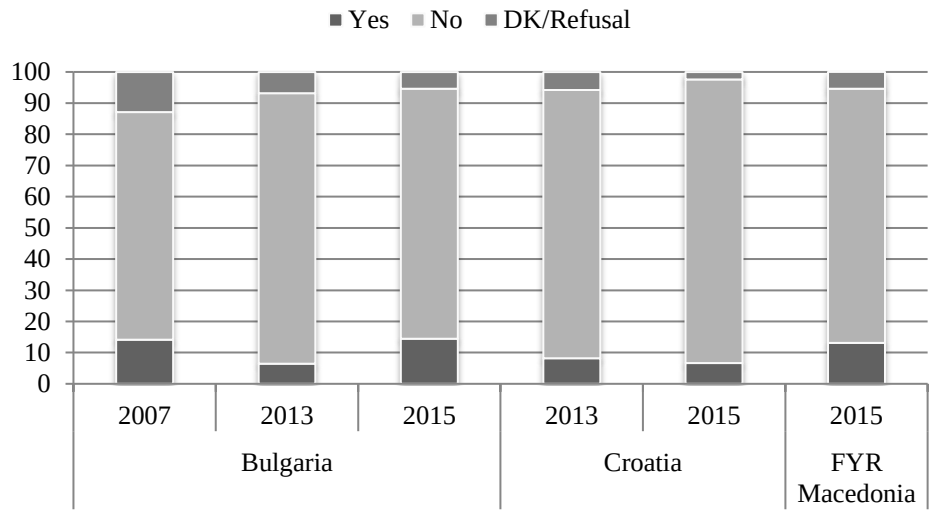
In this survey, there was a large number of missing answers and values (i.e. refusal and 'don't know') across not only the dependent but also independent variables. Multiple imputation was therefore used to predict these values. A system of chained equations was employed in order that for each variable with missing values, thirty imputations were simulated for each of the missing values. Moreover, population weighting was applied based on the age and gender characteristics in order to correct any over- or under-representation in the sample.

3. Findings

Of the 6,019 respondents interviewed in 2015 in Bulgaria, Croatia and FYR Macedonia, 2,545 were employees in employment, of which 291 (11.4 per cent) reported receiving envelope wages. Figure 1 compares the findings regarding the prevalence of salary under-reporting with the responses in the earlier 2007 and 2013 Eurobarometer surveys. Starting with Croatia, which was not included in the 2007 survey, the finding is that between 2013 and 2015, there was a slight decrease from 8.2 per cent in 2013 to 6.6 per cent in 2015 of employees receiving envelope wages. In Bulgaria, in contrast, the share was 14 per cent in 2007, 6.5 per cent in 2013 and 14.5 per cent in 2015. Whether such disparities reflect the changes in economic environment in Bulgaria or not, they are certainly not due to differences in methodological approach, given that an identical question and sampling procedure was applied in all three surveys. Finally, and in FYR Macedonia, not covered by the Eurobarometer survey, this 2015 survey is the first attempt to enumerate the level of salary under-reporting using a common methodology to that applied in other countries. The finding is that 13% of employees in this EU-candidate country were receiving envelope wages.

Table 2 reports the share of net income received as an undeclared (envelope) wage. This reveals that three out of ten employees receiving under-reported salaries did not receive more than 20 per cent of their income as an envelope wage, while four out of ten were receiving between 21 per cent and 40 per cent of their net income as an envelope wage. Some three out of ten refused to answer or did not know. There are again slight discrepancies between the countries, as it is noticeable that workers in FYR Macedonia were receiving a greater slice of their income as an envelope wage than their counterparts in Bulgaria and Croatia.

Figure 1. Prevalence of salary under-reporting, % of respondents



Source: own representation based on the Special Eurobarometer 284/Wave 67.3, the Special Eurobarometer 402/Wave 79.2 and the GREY Survey

Table 2. Share of net income received as an envelope wage, % of employees receiving under-reported salaries

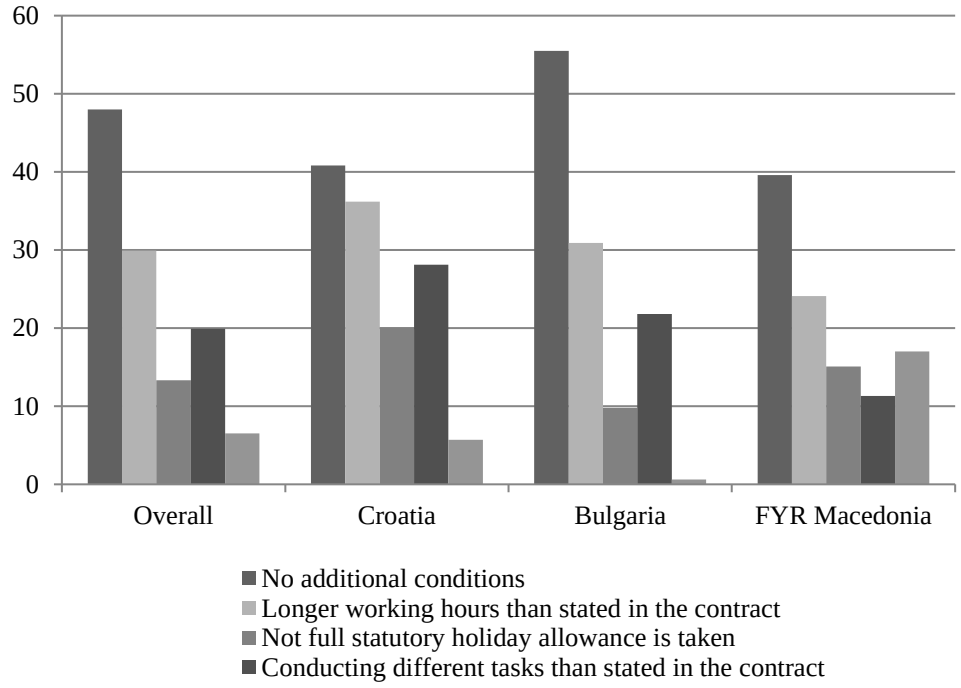
	Overall	Croatia	Bulgaria	FYR Macedonia
1-20%	30.4	31.4	30.3	30.0
21-40%	26.3	29.2	34.0	12.2
41-60%	8.7	10.5	6.7	11.1
61-80%	1.5	0.0	1.3	2.6
81-100%	4.4	1.7	2.1	9.6
DK/Refusal	28.7	27.2	25.6	34.5

Source: authors' own work based on the GREY Survey

As the literature review highlighted, no surveys have so far evaluated the conditions employers impose when such a verbal agreement is reached to pay an additional undeclared (envelope wage). For the first time, therefore, this survey asked respondents whether additional conditions were attached and if so, whether they agreed to a range of specific conditions in return for receiving an envelope wage, namely: no additional conditions were agreed; to work longer working hours than is stipulated in the formal contract; not to take the full statutory holiday allowance; to do different tasks from what is stated in the formal contract; and other conditions. Figure 2 reports the findings. Some 52 per cent of those receiving envelope wages had additional conditions attached to their receipt of this

undeclared additional wage; 30 per cent were asked to work longer hours, 19 per cent to conduct tasks not stated in their contract, and 13 per cent not to take their full statutory holiday entitlements. There are, nevertheless, variations across the countries. Recipients of envelope wages were not only more likely to have additional conditions attached in Croatia (60.1 per cent) than in FYR Macedonia (59.2 per cent) or Bulgaria (44.5 per cent), but the specific conditions attached varied cross-nationally. Although longer hours was the most frequently cited additional condition in all three countries, the next most commonly cited in Croatia and Bulgaria was to undertake different tasks from those in the formal contract, but it was to forego holiday entitlements in FYR Macedonia.

Figure 2. Additional conditions attached to envelope wage payments, % of employees with under-reported salaries



Source: own representation

Table 3. Prevalence and distribution of salary under-reporting, % of formal employees in 2015

		Overall			Croatia			Bulgaria			FYR Macedonia		
		Yes	No	DK/Refusa	Yes	No	DK/Refusa	Yes	No	DK/Refusa	Yes	No	DK/Refusa
Gender	Male	13.4	81.5	5.1	7.7	89.0	3.3	16.6	77.6	5.8	15.1	79.1	5.8
	Female	9.5	86.7	3.8	5.5	93.2	1.3	12.3	82.8	4.9	10.1	84.9	5.0
Age	15-24	19.0	76.0	5.0	22.3	75.7	2.0	15.5	78.1	6.4	20.1	73.6	6.3
	25-34	14.4	83.2	2.4	8.4	91.2	0.4	18.4	77.8	3.8	16.4	80.6	3.0
	35-44	11.7	82.7	5.6	5.1	90.9	4.0	13.7	80.2	6.1	16.0	77.2	6.8
	45-54	7.8	87.1	5.1	3.5	94.5	2.0	11.7	81.0	7.3	7.4	86.9	5.7
	55-64	10.2	84.7	5.1	2.3	93.2	4.5	16.4	79.2	4.4	6.9	86.1	7.0
Marital status	Single	15.1	82.1	2.8	11.6	87.1	1.3	17.9	76.7	5.4	16.6	81.6	1.8
	Married	9.4	86.2	5.4	3.3	94.6	2.1	11.4	83.6	5.0	12.2	82.2	5.6
	Cohabiting	18.9	75.6	5.5	8.6	87.1	4.3	25.1	68.2	6.7	20.7	79.3	0.0
	Divorced/Separated	15.1	79.8	5.1	11.3	84.5	4.2	18.9	74.9	6.2	16.3	79.1	4.6
	Widowed	16.9	73.5	9.6	16.2	83.8	0.0	18.8	73.5	7.7	12.0	61.3	26.7
Area of economic activity	Construction	22.2	70.6	7.2	16.1	79.4	4.5	21.9	67.6	10.5	27.6	66.3	6.1
	Industry and transport	12.7	83.1	4.2	6.0	89.9	4.1	17.9	76.6	5.5	12.2	85.2	2.6
	Household and repair services	16.1	80.3	3.6	8.6	91.4	0.0	24.9	69.6	5.5	6.3	90.3	3.4
	Hospitality and service sector	11.9	84.4	3.7	6.4	91.4	2.2	14.5	81.1	4.4	15.9	79.6	4.5
	Retail	11.3	85.9	2.8	7.5	90.7	1.8	12.8	84.5	2.7	12.0	83.0	5.0
	Agriculture	14.8	75.4	9.8	28.3	58.2	13.5	9.7	77.8	12.5	22.5	77.5	0.0
	Other	7.3	90.2	2.5	4.2	94.8	1.0	8.8	88.2	3.0	9.8	86.3	3.9
Detection risk	Very small	12.7	84.5	2.8	7.6	89.0	3.4	15.9	80.9	3.2	13.7	85.4	0.9
	Fairly small	10.9	85.3	3.8	7.2	90.8	2.0	11.4	84.2	4.4	16.2	78.3	5.5
	Fairly high	11.6	84.0	4.4	5.4	92.9	1.7	16.6	77.9	5.5	12.5	81.8	5.7
	Very high	14.2	81.9	3.9	7.5	92.5	0.0	28.5	63.9	7.6	11.9	83.8	4.3
Expected sanctions	Tax + social security contributions due	11.4	84.9	3.7	5.2	91.4	3.4	15.0	81.1	3.9	14.0	82.3	3.7
	Tax + contribution + fine	11.2	85.2	3.6	7.9	91.0	1.1	13.8	81.1	5.1	11.4	84.3	4.3
	Prison	11.4	86.7	1.9	0.0	100	0.0	11.6	86.3	2.1	20.2	76.4	3.4
Tax morale	<2	8.5	87.8	3.7	5.7	92.3	2.0	10.9	84.9	4.2	9.0	85.7	5.3
	2-4	13.7	81.9	4.4	7.7	91.6	0.7	15.4	78.3	6.3	17.1	78.4	4.5
	4-6	16.1	78.1	5.8	7.1	83.6	9.3	18.4	77.6	4.0	20.5	73.0	6.5
	6-8	26.2	63.8	10.0	18.4	81.6	0.0	32.9	48.3	18.8	24.5	67.9	7.6
	8-10	42.8	39.1	18.1	0.0	100	0.0	61.7	0.0	38.3	44.1	44.2	11.7

Source: Authors' own work based on the GREY Survey

Table 3 reports the descriptive results on the distribution of salary under-reporting among various employee groups and also their views on penalties, risks of detection and the acceptability of the undeclared economy (i.e. their tax morale). Examining which categories of employees are more likely to receive envelope wages, there are substantial similarities between the three countries. In all three economies, men are far more likely to receive envelope wages than women (13.4 per cent compared with 9.5 per cent), although the gender difference is less pronounced in Croatia than in Bulgaria and FYR Macedonia. Similarity is also noticeable when it comes to age; the proportion of employees receiving an envelope wage declines with age. This is particularly pronounced in Croatia and FYR Macedonia. Marital status, however, has little impact on the propensity to receive envelope wages. Married individuals are slightly less prone to receive envelope wages, while no perceptible difference between the remaining groups is noticeable.

The distribution of envelope wage earners by sector, however, does show differences between countries. While in Croatia, envelope wages were most frequent among agricultural employees, in Bulgaria it is among those employed in household and repair services and in FYR Macedonia the construction sector. However, these differences should not be exaggerated. The construction sector is among the top two sectors for envelope wages in all three countries, while the same holds true for agriculture in Croatia and FYR Macedonia (but not Bulgaria).

Turning to the explanatory variables, no noticeable association seems to exist between detection risk and salary under-reporting, and this holds true for all three observed countries. In fact, in Bulgaria those who perceive this risk as very high more frequently receive envelope wages. A similar pattern is visible regarding the expected sanctions as, observing all three countries together, one can see that expected sanctions most likely have no effect on receiving envelope wages. Indeed, in FYR Macedonia for instance, those expecting imprisonment seem to be more likely to receive envelope wages than those who believe only financial consequences will occur.

However, there does appear to be an association between tax morale and the propensity to receive envelope wages in the three countries. While only 8.5 per cent of survey respondents expressing the highest tax morale stated they were receiving envelope wages from their formal employer, this share gradually increases up to 42 per cent for individuals who expressed absolute tolerance towards tax evasion. Even though the same pattern is noticeable for all three countries, the role of tax morale seems to be most pronounced in Bulgaria. The share of envelope wage earners in this country ranges from 10.9 per cent (for respondents strongly opposing noncompliant behaviour) to 61.7 per cent (for those with highly permissive attitude towards tax evasion).

To evaluate whether there is a significant association between salary under-reporting and these explanatory variables when the control variables are

introduced and held constant, as well as whether any of these control variables are significantly associated with salary under-reporting, Table 4 reports the results of a logit regression analysis. Given that only three countries are analysed, a multi-level approach is not feasible. Here, therefore, single-level logit modelling is used, with the potential differences between the countries controlled for using a country indicator.

Examining the control variables, and thus perhaps who should be targeted by inspectors seeking to tackle salary under-reporting, the first important point is that gender is not significantly associated with salary under-reporting. Although such an outcome might seem surprising at first glance, there is a plausible explanation. A sequential model building strategy was applied (i.e. variables were added one at a time), meaning that we were able to monitor how the effect of each individual predictor changed after adding subsequent covariates. Essentially, gender was significant until sector was included in the model. Once the latter was controlled for, the significance of gender disappeared. This is largely because the majority of construction workers in the survey were men, while women dominate in other sectors, such as retail and the service sector. Indeed, although there was a moderate correlation between gender and sector, it was within required limits and therefore both predictors were retained in the model. As the results display, firms from sectors in which women are the majority workforce are less likely to under-report salaries. More precisely, the findings are that workers in retail, industry and transport, as well as in the hospitality and service sector, are less likely to under-report salaries than their counterparts in construction. On the other hand, no statistically significant differences in propensity to receive envelope wages was found between individuals working in agriculture and construction workers, and the same applies for workers conducting household and repair services. Beyond this, it is also revealed that younger individuals are more likely to engage in this practice, while marital status seems not to be an important factor. Finally, the variable controlling for the country of residence confirms the descriptive findings that employees in Croatia are less likely to engage in salary under-reporting than their counterparts in Bulgaria and FYR Macedonia.

Importantly for the policy approaches for tackling salary under-reporting, tax morale is a significant predictor for the propensity to receive envelope wages (confirming H2), while there is no statistically significant relationship between envelope wages and either the risk of detection (refuting H1b) or the level of penalties (refuting H1a).

Table 4. Logit regression of the likelihood of salary under-reporting

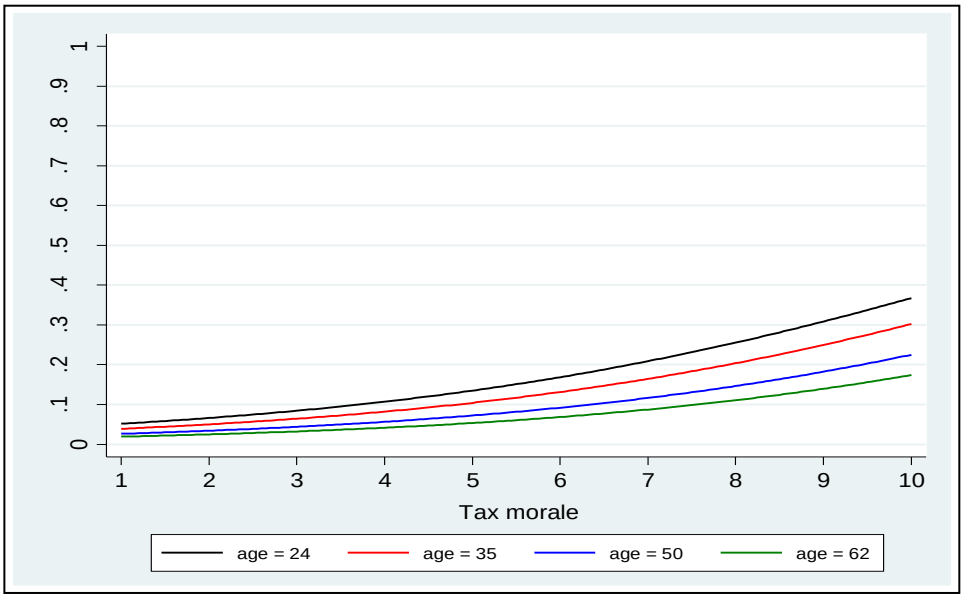
	β_k	Standard error
Female	-0.209	0.146
Age	-0.027***	0.007
Marital status (RC: Single)		
Married	-0.459*	0.196
Cohabiting	0.184	0.260
Divorced/Separated	0.594	0.338
Widowed	0.840	0.477
Area of economic activity (RC: Construction)		
Industry and transport	-0.727**	0.256
Household and repair services	-0.635	0.337
Hospitality and service sector	-0.926**	0.282
Retail	-1.122***	0.290
Agriculture	-0.598	0.487
Other	-1.268***	0.270
Detection risk (RC: Very small)		
Fairly small	-0.112	0.190
Fairly high	-0.034	0.203
Very high	0.202	0.243
Expected sanctions (RC: Tax + social security contributions due)		
Tax + contribution + fine	-0.070	0.154
Prison	-0.146	0.353
Tax morale	0.263***	0.035
Country (RC: Croatia)		
Bulgaria	1.000***	0.193
FYR Macedonia	0.899***	0.215
Cons	-1.164**	0.427
Number of observations	2539	
Number of imputations	30	
Prob > F	0.000	
Pseudo R2	0.119	
Area under ROC	0.739	

Notes: (1) Significance: *p<0.05, **p<0.01, ***p<0.001, (standard errors in parentheses). (2) Estimates based on multiple imputation technique with 30 imputations. (3) Since tax morale is given on an inverse scale, positive coefficients indicate that lower tax morale entails higher likelihood to participate in quasi-formal employment
Source: authors' own work based on the GREY Survey

To further explore the effects of these explanatory variables on the prevalence of salary under-reporting, Figure 3 outlines the predicted probabilities for a 'representative' employee engaging in salary under-reporting, according to

their age and level of tax morale. This 'representative' worker is defined using mean and modal values of the remaining six predictors. That is to say, the representative citizen is a married Croatian male working in the industry sector, who thinks that the risk of being detected by the authorities is fairly small and expects to pay taxes and social security contributions due plus a fine if prosecuted. For simplicity, only the figures for representative workers aged 24, 25, 50 and 62 are shown. This reveals that the probability of receiving envelope wages ranges from slightly above zero to almost 40 per cent, depending on the age and level of tax morale of the representative employee. For instance, while only two out of 100 workers who are 62 years old and with the highest tax morale (and with all other characteristics as defined above) are expected to receive envelope wages, it increases to 18 out of 100 for those who find tax evasion absolutely acceptable. For employees aged 24, one in 20 expressing zero-tolerance towards tax evasion are expected to receive envelope wages, but this rises to some 38 out of 100 for those with completely permissive attitude towards disobedience with tax legislation.

Figure 3. Predicted probability of receiving envelope wages of a 'representative' worker: by tax morale and age



Note: Tax morale is measured on the scale from 1 to 10, with value 1 indicating completely unacceptable and 10 absolutely acceptable. Therefore, higher levels mean lower tax morale.
Source: own representation based on the GREY Survey

A further interesting aspect to notice is the difference between age groups at different levels of tax morale. While this dissimilarity in probabilities to receive envelope wages is almost negligible for individuals with the highest tax morale, age appears to play an increasingly important role as tax morale declines.

Discussion and conclusions

This analysis of a 2015 survey conducted in Bulgaria, Croatia and FYR Macedonia for the first time reveals the conditions that are attached by employers to the receipt of envelope wages. It reveals that 52 per cent of those receiving envelope wages had additional conditions attached to their receipt of this undeclared additional wage; 30 per cent were asked to work longer hours, 19 per cent to conduct tasks not stated in their contract, and 13 per cent not to take their full statutory holiday entitlements.

It also reveals that despite most governments pursuing the deterrence approach when seeking to tackle salary under-reporting, there is no significant correlation between participation in salary under-reporting and either the risk of detection or level of penalties. There is, however, a strong significant correlation between tax morale and participation in salary under-reporting. In other words, when the norms, values and beliefs of workers do not adhere to those of the state in terms of the codified laws and regulations, there is a greater likelihood of them receiving envelope wages.

If salary under-reporting is to be tackled, therefore, it is primarily tax morale that needs to be addressed. Increasing the perceived level of penalties and risk of detection confronting employees has no impact on the probability of salary under-reporting. The currently widely used deterrence approach therefore needs to be at a very minimum complemented by a tax morale approach. What policy measures are therefore required to improve tax morale? To answer this, low tax morale has been here conceptualised through the lens of institutional theory as a measure of the lack of alignment of the laws, codes and regulations of formal institutions and the norms, beliefs and values of informal institutions (Helmke and Levitsky, 2004; Webb, Tihanyi, Ireland and Sirmon, 2009). As such, two sets of policy initiatives can reduce the asymmetry between formal institutions (‘state morale’) and informal institutions (‘civic morale’), and thus improve tax morale and in doing so, reduce salary under-reporting.

Firstly, policy initiatives are required to change the norms, values and beliefs regarding the acceptability of the undeclared economy. This requires marketing campaigns to raise awareness among employees about the benefits of not under-reporting salaries and the costs of doing so in terms of the future benefits foregone. It also requires initiatives to educate citizens about the wider benefits of taxation in terms of the public goods and services that they receive in return for the taxes they pay. Such policy initiatives might range from introducing the issue

of taxation in the civics curriculum in schools, through letters to taxpayers about how their taxes are being spent, to signs stating 'your taxes paid for this' on roads, ambulances and fire engines, and in hospitals, doctors surgeries and schools.

Secondly, however, formal institutions also need to be reformed, especially in countries where formal institutional inefficiencies and deficiencies result in a lack of trust in government. On the one hand, therefore, policy initiatives are needed to change the macro-level conditions that lead to lower tax morale, which includes increasing the level of expenditure on active labour market policies to support vulnerable groups and the level of expenditure on social protection (Autio and Fu, 2015; Horodnic, 2016; Thai and Turkina, 2014). On the other hand, it also involves modernising formal institutions. As shown in previous studies, voluntary compliance and tax morale improves when citizens: view the state authorities as treating them in a respectful, impartial and responsible manner (Gangl, Muehlbacher, de Groot, Goslinga, Hofmann, Kogler, Antonides and Kirchler, 2013; Murphy, 2005); believe that they pay their fair share compared with others (Kirchgässner, 2010, 2011; Molero and Pujol, 2012), and they believe that they receive the goods and services they deserve for the taxes they pay (McGee, 2005). These findings, nevertheless, are based on just one dataset and are thus tentative.

The limitation of this research is that it only examines employees' attitudes towards salary under-reporting and does not evaluate in the eyes of employers the effectiveness of the deterrence and tax morale approaches. It is also limited to just three countries. If this paper thus stimulates further evaluations of the effectiveness of these policy approaches among employers and in other Eastern European countries, it will have fulfilled one of its intentions. If this then stimulates governments to consider alternative approaches other than simply the deterrence approach, it will have fulfilled its wider intention.

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Appendix

Table A1. An overview of the sampled individuals by demographic and geographical characteristics, % of respondents

		Overall	Croatia	Bulgaria	FYR Macedonia
Gender	Male	45.5	41.3	47.2	47.9
	Female	54.5	58.7	52.8	52.1
Age	15-24	11.7	12.1	9.2	13.7
	25-34	16.5	15.8	16.9	16.9
	35-44	16.7	13.9	21.8	14.4
	45-54	18.7	18.6	19.8	17.6
	55-64	18.1	20.1	16.4	17.8
	65+	18.3	19.5	15.9	19.6
Type of commun.	Rural area or village	36.7	38.7	28.6	42.7
	Small or middle sized town	31.3	35.2	22.1	36.7
	Large town	32.0	26.1	49.3	20.6
Region (Croatia)	Zagreb and surroundings	-	25.8	-	-
	North Croatia	-	17.4	-	-
	Slavonia	-	16.6	-	-
	Lika and Banovina	-	8.2	-	-
	Istria, Primorje and Gorski Kotar	-	12.1	-	-
	Dalmatia	-	19.9	-	-
Region (Bulgaria)	North-West	-	-	11.0	-
	North-Central	-	-	11.7	-
	North-East	-	-	13.9	-
	South-East	-	-	14.2	-
	South-West	-	-	27.9	-
	South-Central	-	-	21.3	-
Region (FYR Macedonia)	Vardar	-	-	-	7.3
	East	-	-	-	8.8
	South-West	-	-	-	10.9
	South-East	-	-	-	8.4
	Pelagonia	-	-	-	10.9
	Polog	-	-	-	15.7
	North-East	-	-	-	8.4
	Skopje	-	-	-	29.6

Source: authors' own work based on the GREY Survey