



Employment and Social Affairs Platform

**Diagnostic Report on
undeclared work in Bosnia and
Herzegovina**

Draft

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Introduction: Background context

The main objective of this study is to investigate undeclared employment in Bosnia and Herzegovina, its extent, character, potential determinants and current policy approach in tackling this problem. The study relies on the existing EU literature with similar focus, typical secondary data and two primary data sources gathered through a representative survey of BiH population and in-depth interviews with state officials working on undeclared employment. The study thus provides in-depth analysis of undeclared employment in BiH and as such it aims to serve as an underpinning tool which should help to identify new set of policies needed to improve the outcome of current policy approaches to this phenomenon.

The report is structured as follows. After introductory section, the next section provides explanation of the analytical and methodological approach adopted in this study and possible policy approaches to tackle the undeclared work in practice. The following section investigates the existing literature focused on BiH, provides available estimates about undeclared economy and employment. The main contribution of this part is that we report our own investigation of undeclared employment based on primary data from BiH, including a discussion of results obtained from an empirical model, which controls for possible determinants of undeclared employment in this post-conflict society. Thus, we elaborates possible drivers of undeclared economy in BiH by investigating primary and secondary sources and relevant indicators of socio-economic, political and institutional environment. The penultimate section explains complexity of BiH institutional environment and provides the main insights about the main institutions tackling undeclared economy in BiH. The final section provides summary about the current policy approaches and measures used to tackle undeclared economy in BiH.

The undeclared economy: Analytical and policy framework

Analytical framework¹

Undeclared work by definition is not declared to the public authorities and it is difficult to obtain reliable estimates of its magnitude and characteristics, with various methods used to estimate its size and character in practice. Evaluating the different measurement methods available, the European Commission (2007: 4) state:

‘Undeclared work can be measured both directly and indirectly. Indirect methods are based on the comparison of macroeconomic aggregates (such as national accounts,

¹ The Analytical framework and Policy approaches towards undeclared economy sections have been taken from Williams, C., Demetriades, S., and Patra, E.: “Diagnostic report on undeclared work in Greece”, ILO and EC report from August 2016. The text has been slightly modified at some places, but mostly it remains unchanged.



electricity consumption, cash transactions). Indirect (especially monetary) methods often over-estimate the level of undeclared work and say little about its socio-economic characteristics. Direct methods, on the contrary, are based on statistical surveys and have advantages in terms of comparability and detail, but tend to under-report the extent of undeclared work.'

The dominant practice among researchers is to use indirect methods to measure the size of the undeclared economy and direct methods to identify its characteristics (Eurofound, 2013; Williams and Schneider, 2016). This will be the methodological approach adopted in this report. To identify the drivers of the undeclared economy is important because it is these that need to be tackled to reduce the undeclared economy. Recently, significant improvements have been achieved in understanding the determinants of undeclared work by adopting an institutional perspective which transcends the previous competing debates about the varying causes of undeclared work (Godfrey, 2015; Webb et al., 2009, 2013; Williams and Franic, 2016; Williams and Horodnic, 2015a,b,c; Williams et al., 2015a). Institutions, or governance mechanisms, which prescribe, monitor and enforce the 'rules of the game' regarding what is socially acceptable or not, are seen to exist in every society (Baumol and Blinder, 2008; North, 1990; Scott, 1995). In all societies, these institutions include formal institutions that prescribe 'state morality' about what is socially acceptable (i.e., laws and regulations), and informal institutions which prescribe 'citizen morality' (i.e., socially shared rules, usually unwritten) (Helmke and Levitsky, 2004). Undeclared work, from this institutional perspective, is explained as arising when the failings of formal institutions lead to state morality being different to citizen morality. This would mean that there is a gap between formal and informal institutions, or simply, that formal and informal institutions are not aligned. As Webb and Ireland (2015) outline, these formal institutional failings are of four types:

- (i) formal institutional voids, such as no social protection or a welfare 'safety net' which forces citizens into undeclared work to survive;
- (ii) formal institutional inefficiencies, or resource misallocations by formal institutions, such as when formal institutions seek to protect or maximize economic rents for elites, or when state capture occurs by such elites, resulting in the majority not receiving a fair share in return for their contributions, or suffering from overly burdensome taxes, registration and licensing regulations and costs;
- (iii) formal institutional uncertainty, such as when there is fear regarding the future of specific formal institutions, or when technology and socio-cultural change outpaces the ability of formal institutions to accommodate new domains of activity (e.g., 'the sharing economy'), and/or
- (iv) formal institutional weaknesses and instability, manifested in their lack of capacity and capability to enforce legislation (Webb et al., 2009) and/or there are continuous changes in the formal 'rules of the game' about what is acceptable, which leads citizens to reject the continuously changing formal rules of the game in favour of their own more stable unwritten socially shared rules.



Undeclared work arises, therefore, due to these failings of formal institutions producing a situation in which the formal ‘rules of the game’ (state morality) differ to what citizens view as socially acceptable (citizen morality). Indeed, the greater is the non-alignment of state morality and citizen morality, the greater is the prevalence of the undeclared economy (Williams et al., 2016).

Which specific formal institutional failings, therefore, result in the non-alignment of citizen morality with state morality? Until now, there have been three competing theories which each identify different formal institutional failings as the cause of more extensive undeclared economies.

Firstly, *modernization theory* argues that undeclared work is common in societies which are under-developed economically (i.e., with lower levels of GDP per capita) and where the formal institutions of governance are not modernised, displayed by the existence for example of higher levels of public sector corruption and lower qualities of governance.

Secondly, ‘*state over-interference*’ theory argues that undeclared work is a resistance practice voluntarily pursued and a rational economic response to high tax rates and too much state interference such as over-burdensome rules and regulations (e.g., Becker, 2004; De Soto, 1989, 2001; London and Hart, 2004; Nwabuzor, 2005; Sauvy, 1984; Small Business Council, 2004).

Third, ‘*state under-intervention*’ theory views undeclared work as a direct by-product of too little, rather than too much, state intervention in work and welfare arrangements. In this approach, undeclared work is viewed as an inherent and integral component of contemporary capitalism and a key facet of the sub-contracting, downsizing and outsourcing arrangements that are emerging in advanced capitalism and enable enterprises to achieve profit through flexible production and cost reduction (Meagher, 2010; Taiwo, 2013). Consequently, undeclared work is depicted as unregulated, insecure and low paid employment conducted out of necessity by marginalized populations excluded from the declared economy and conducted as a last resort when no other options are available to them (Ahmad, 2008; Castells and Portes, 1989). As such, undeclared work is seen to result from a lack of social protection for workers and the remedy is greater state intervention in work and welfare provision to protect workers from poverty (Davis, 2006; Gallin, 2001; Slavnic, 2010).

Reviewing the studies that evaluate these theories by examining the cross-national variations in these economic and social conditions, and cross-national variations in the size of the undeclared economy, the consistent findings continuously arise. Whether one measures the size of the undeclared economy using Schneider’s MIMIC estimates (Williams, 2014d) or using direct surveys (Williams, 2014a,b,c, 2015a,b, 2016; Williams and Martinez-Perez, 2014) and whether one compares the 28 member states of the European Union (Williams, 2014c; 2016; Williams and Horodnic, 2016), post-socialist transition economies (Williams, 2014a, 2015b) or countries across the developing world (Williams, 2014b, 2015a,c,d), the finding is that there is no evidence to support the state over-interference thesis. Instead, the prevalence of the undeclared economy is found to be positively associated with the beliefs of the modernisation and state under-



intervention theses. To tackle the undeclared economy, therefore, these multiple studies reveal a need to focus upon the following policies:

- increasing GDP per capita;
- improving the quality of public governance and reducing corruption;
- increasing expenditure on labour market interventions to help the most vulnerable groups;
- increasing social expenditure; and
- reducing the level of inequality and severe material deprivation, which includes improving the efficiency of collection.

Indeed, unless these formal institutional failings are tackled that result in an asymmetry between state morality and citizen morality, undeclared work will persist. For example, Williams and Horodnic (2016) examine the formal institutional failings that are associated with higher level of under-declared work (i.e., the illegal employer practice of under-reporting employees' salaries) in the EU-28 using data from the 2013 Eurobarometer survey. Rather than an individual criminal act that increasing the risk of detection can tackle, they reveal that this is a symptom of systemic problems. They show that under-declared work is concentrated in EU countries with:

- lower levels of economic development and less modernised state bureaucracies;
- greater income inequality;
- higher rates of severe material deprivation;
- less effective redistribution via social transfers, and
- lower levels of labour market interventions to protect vulnerable groups in the labour market.

Undeclared or under-declared work is nevertheless systematically associated with the non-alignment of state morality and citizen morality. To reduce under-declared work, therefore, the conventional approach of improving detection seems to be ineffective. Instead, if under-declared work is to be tackled properly, policy measures are required that address the formal institutional failings which lead to an asymmetry between the formal 'rules of the game' and citizen morality. Simply, by reducing the gap or misalignment between the formal and informal institutions in these societies, the undeclared work will consequently reduce.

Policy approaches towards undeclared economy

It is now widely accepted across the world that the aim of governments is not to eliminate the undeclared economy but to move undeclared work into the declared economy (Dekker et al., 2010; Eurofound, 2013; European Commission, 2007a; ILO, 2015b; Small Business Council, 2004; Williams, 2014; Williams and Nadin, 2012a,b, 2013, 2014). If undeclared work is identified, penalized, repressed but not transformed into the declared economy, the net effect on the society is at least ambiguous, but it might be negative in the end.

Figure 1 displays the full range of tools available for transforming undeclared work into declared work. On the one hand, there are direct tools which transform undeclared into declared work by

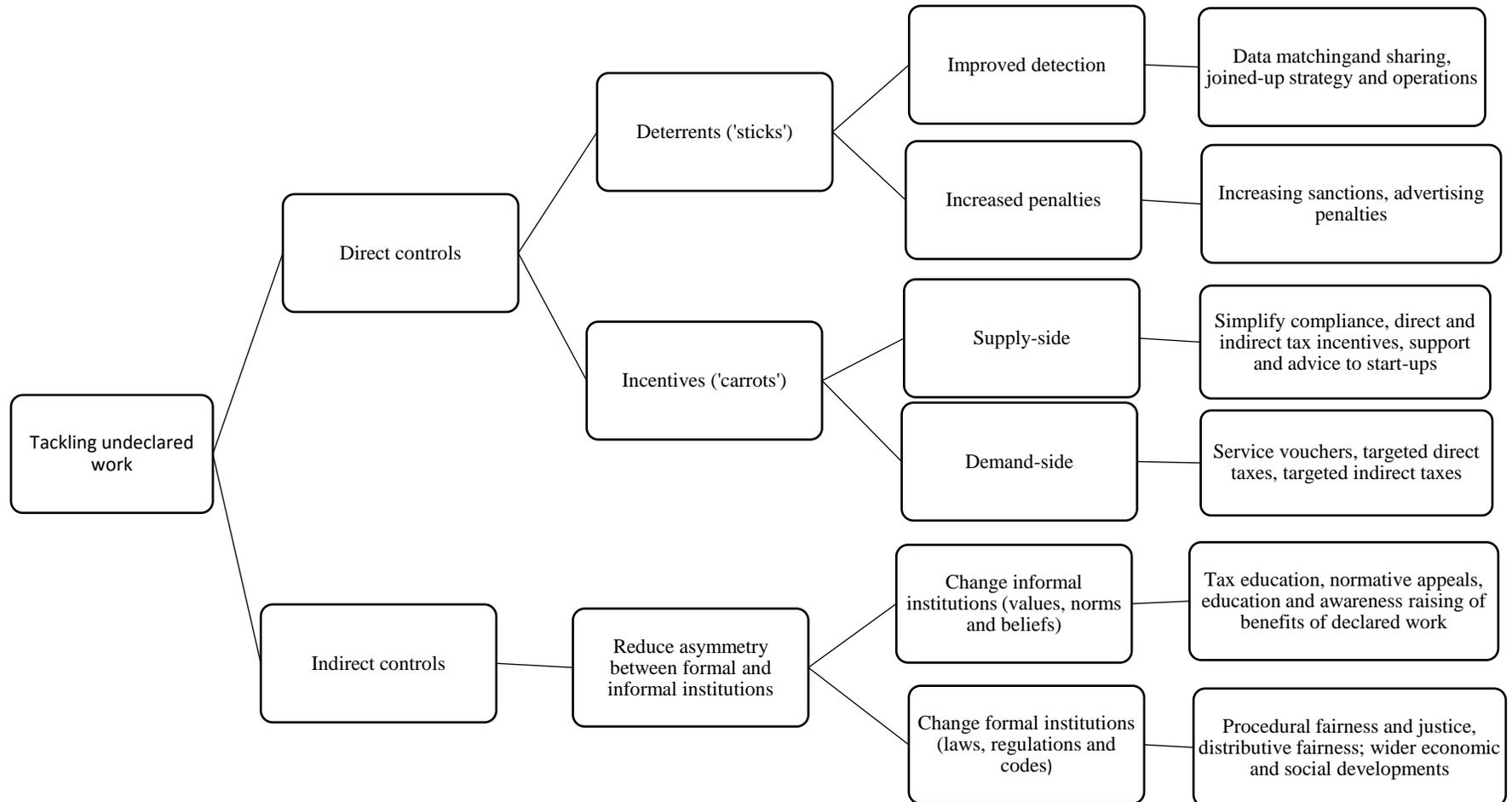


ensuring that benefits of operating in the declared economy outweigh the costs of working in the undeclared economy. This is accomplished either by using deterrence measures to increase the costs of non-compliance ('sticks') and/or by making the conduct of declared work more beneficial and easier ('carrots'). On the other hand, there are indirect tools that shift away from using 'sticks' and 'carrots', and instead focus on dealing with the formal institutional failings. The aim of indirect methods is to repair the social contracts between the state and its citizens to foster a high trust high commitment culture.



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Figure 1. Policy approaches and measures for tackling undeclared work





Direct controls aim to reduce the costs and increase the benefits of operating on a declared basis (OECD, 2008). Viewing the non-compliant as rational economic actors who engage in undeclared work when the pay-off is greater than the expected cost of detection and punishment, the objective is to change the cost/benefit ratio facing those participating or considering participation in undeclared work (e.g., Allingham and Sandmo, 1972; Hasseldine and Li, 1999; Richardson and Sawyer, 2001). This can be achieved in two ways:

- *Deterrence measures* seek to detect and punish non-compliant ('bad') behaviour (i.e., undeclared work). This is achieved by firstly, raising the perceived or actual likelihood of detection and/or secondly, increasing the penalties and sanctions for those caught. This 'negative reinforcement' approach thus seeks behaviour change by using 'sticks' to punish non-compliant ('bad') behaviour.
- *Incentive measures* seek to make it easier to undertake, and reward, compliant ('good') behaviour (i.e., declared work). To achieve this, one can use either:
 - Preventative measures to stop people moving into the undeclared economy in the first place (e.g., by simplifying compliance, using direct and indirect tax incentives to make it beneficial to operate on a declared basis, and providing support and advice about how to start-up legitimately); or
 - Curative measures to incentivise workers and businesses to make the transition to the declared realm. These can be either (a) supply-side incentives targeting businesses and workers in the undeclared economy or (b) demand-side incentives targeting their customers with rewards for using declared goods and services.

The problem with using these direct tools is that those operating on an undeclared basis are not always rational economic actors purely calculating the costs and benefits. They can be also social actors who engage in undeclared work because there is lack of alignment between their own morality and the laws and regulations, such as due to a lack of trust in the state and what it is seeking to achieve.

Indirect controls seek to deal with the formal institutional failings and repair the social contract between the state and its citizens to create a high trust high commitment culture (Alm et al., 1995; Torgler, 2003; Wenzel, 2002). The intention is to seek a voluntary commitment to compliant behaviour rather than force citizens to comply using threats, harassment and/or incentives (Kirchler, 2007; Torgler, 2007, 2011). Undeclared work occurs where formal institutional failings lead to citizens' norms, values and beliefs differing to the laws and regulations, meaning that what formal institutions deem illegal activities are seen as socially legitimate in the eyes of citizens. To tackle undeclared work therefore, there is a need to address the formal institutional failings and repair the social contract. To align citizen morality with state morality, one can either:

- *Change the informal institutions* - to change the norms, values and beliefs of citizens regarding the acceptability of undeclared work, so that these are in symmetry with the laws and regulations, one can use awareness raising campaigns and educational initiatives about the costs of undeclared work and benefits of declared work.
- *Change the formal institutions* – this is particularly important in societies in which there is a lack of trust in government, such as due to public sector corruption



(European Commission, 2014) or in societies where citizens do not believe that they receive back from government what they expect. This can involve either:

- Changes in the internal *processes* of the formal institutions to improve the perception amongst citizens that there is procedural and distributive fairness and justice; and/or
- Change in the *products* of formal institutions by pursuing wider economic and social developments (e.g., increased social expenditure levels, more effective social transfers).

The emerging evidence-base is that the ‘best practice’ when tackling undeclared work is to *combine direct and indirect tools* (Williams, 2014a; Williams and Renooy, 2013). For example, governments may pursue greater social expenditure to provide a welfare ‘safety net’ and culture changes in government departments towards a more customer-oriented approach, and introduce publicity campaigns to elicit greater commitment to compliance, but may also simplify regulatory compliance and introduce incentives (e.g., amnesties, tax deductions) to enable undeclared labour to move into the declared realm. At the same time, and in relation to those failing to comply, they may also pursue improvements in the probability of detection and tougher sanctions for those subsequently caught. The debate therefore is not over whether it is best to use either indirect tools or direct tools. The emergent evidence-base is that both are required to effectively tackle undeclared work. Rather than debate is over how to combine and sequence the various direct and indirect measures. Two contrasting approaches exist for doing this:

- *Responsive regulation* - this envisages a regulatory pyramid, sequenced from the least intrusive indirect controls at the bottom and used first, to the most intrusive direct controls at the top. The idea is that an authority does not need in most cases to pursue the coercion option at the top of the pyramid to win compliance. Instead, it can start with the commitment measures at the bottom of the pyramid and if these fail to elicit behaviour change with some groups, then the level of intrusiveness escalates up the pyramid until it reaches the intervention that elicits the desired response. The outcome is recognition of a continuum of attitudes towards compliance and different policy responses that can be temporally sequenced starting with commitment measures, then incentives and only after these fail are sanctions used (Braithwaite, 2002, 2009). The Australian government for example has adopted this ‘responsive regulation’ approach. In the first instance, indirect controls facilitate voluntary self-regulated compliance, followed by persuasion and only then punitive measures to tackle non-compliance (Braithwaite, 2009; Job et al., 2007).
- *Slippery slope framework* - this argues that citizens abide by the law either because they fear detection and fines due to the power of authorities (enforced compliance) or because they feel a commitment to be honest because they have trust in the authorities (voluntary cooperation). When there is effective enforced compliance as well as high voluntary cooperation (i.e., both power and trust), undeclared work is absent. When there is ineffective enforced compliance and little voluntary cooperation, undeclared work is extensive (Alm and Torgler, 2011; Alm et al., 2012; Kastlunger et al., 2013; Khurana and Diwan, 2014; Kirchler et al., 2008; Kogler et al., 2015; Muehlbacher et al., 2011a,b; Prinz et al., 2013).



This recognition that both effective enforced compliance and high voluntary cooperation are essential for tackling undeclared work is now being seriously considered by authorities in various countries (OECD, 2013).

Indeed, the European Commission's European Platform Tackling Undeclared Work has referred to this slippery slope framework as a 'full policy operationalisation model'. This is seen as a model for implementing the holistic approach that combines the range of policy approaches and measures available (and uses all measures concurrently). This approach asserts that the most effective approach is to concurrently implement direct measures (e.g., workplace inspections) to enhance the power of authorities as well as indirect measures (e.g., awareness raising) to enhance trust in authorities (Williams, 2016). This approach is based on evidence that a high trust high power approach is the most effective in tackling undeclared work.

Indeed, it is this analytical framework and policy approach that is the basis for this report. With this analytical framework and policy approach in hand, attention now turns to an analysis of Bosnia and Herzegovina and what needs to be done.

Extent and nature of undeclared economy in BiH

Magnitude of undeclared economy and undeclared work – secondary data

The very first analysis of the undeclared economy in the post-conflict period in BiH was done by Tomas (1997), while the government estimations were made later by the entity² (Federation of BiH entity, henceforth FBiH and Republika Srpska entity, henceforth RS) agencies for statistics within a project supported by Eurostat and OECD (BiH Agency for Statistics, 2010). The project was intended to improve the measurement of the unobserved economy in the countries of the Western Balkans and it covers the year 2007. Generally, there is a limited research on the undeclared economy in BiH, and this especially applies if we want to follow the dynamics of the undeclared economy. This implies that estimations are available for either one particular year, or a few successive years, but no longer time spans are observed. The longest estimate was provided by Schneider et al. (2010), who observed the period of nine years—from 1999 to 2007.

If we look at the available estimates of the undeclared economy for BiH, there are significant differences between different sources (Table 1), but all of them are consistent in reporting that the undeclared economy is a persistent phenomenon in this society. Even a simple check that can be done by looking at the GDP values calculated by different methodologies (e.g. production and expenditure approach) gives the difference in GDP by 4-7%, indicating the presence of the undeclared economy. Still, the available studies provide much higher

² Bosnia and Herzegovina (BiH) is the state composed of two entities and one district. The Federation of BiH (51% of BiH territory) and the Republika Srpska (49%) are the two entities, while the Brcko District of BiH is the district, which is a small part of BiH (less than 1%) in comparison to the entities.



estimates of the level of the undeclared economy in BiH, ranging between 25% to 40% of GDP over the last decade (Table 1).

Table 1. Estimates of the undeclared economy for BiH, % of GDP

	GDP: expenditure – production method	SABH (2010)	OECD (2008)	Schneider et al. (2010) Schneider (2015)*	Dell’Anno and Pirsild (2004)	IMF (2004, 2005)	Tomaš (2010)	Ernst & Young (2014)	SELDI (2016)
1999				34.3		42.4			
2000			8.9	34.1	59.0	40.9			
2001			8.2	34.0	57.7	40.9			
2002			7.7	33.9	55.2	38.8			
2003			7.9	36.7	52.6				
2004			7.6	33.6					
2005			7.2	33.2					
2006			7.1	32.9					
2007	5.7	6.2		32.8					
2008	4.4						26.52		
2009	6.2								
2010	4.0								
2011	4.0								
2012	6.1								
2013	6.1								
2014	3.9							25.5	
2015	3.8			34.2*					
2016	3.2								37.4

Note, the first row of every column provides the source of the data
*average for the period 1991 to 2015

The available studies that we summarize in Table 1 provide different approximations of the undeclared economy in BiH even for the same period. These diverging estimates reflect not only different levels of undeclared economy, but also different definitions of the undeclared economy, including also different periods in which the estimates were made, and finally, different methods of estimation. If we look at the latest estimates (2014-2016), they range between 25% to 35% of GDP. Such a high level of undeclared economy, which remains rather similar over the last years, indicates that BiH has not done enough to tackle the phenomenon and to transfer more undeclared employers, employees and undeclared economic activities to the declared sector of the economy.



The proportion of undeclared workers and what can be done to tackle this is a primary focus of this study. The existing literature includes a few estimations of participation in undeclared work in BiH (see Table 2).

Table 2. Estimations of participation in undeclared work in BiH, % of labour force

	WB (2005)	ETF (2006)	ILO (2009)	EI (2015)	SELDI (2016)
2001	37.0	35.0	36,5		
2002		35.7			
2003		36.3			
2004	42.0	39.5	41.3		
2005			33.6		
2011				24.0	
2012				26.7	
2013				24.4	
2016					11.02

Participation in undeclared work in BiH over the period 2001-2016 ranges between 10% to 40% of the workforce, which is a quite similar situation to estimates of the size of the undeclared economy. The estimates for the last couple of years range between 10% and 25%. Roughly, this would mean that between 120-300 thousand people are working undeclared, as the labour force in 2016 accounted around 1,074,000 people (BiH Agency for statistics, 2017). However, there is not enough time series available in a single study (with the same methodology employed) to get comprehensive information about the dynamics of participation in undeclared work.

Interestingly, it is possible to find the data about the distribution of undeclared work over different sectors of BiH economy. Bosnia and Herzegovina is one of the countries in Europe with the highest proportion of citizens living in rural areas (UNDP, 2013). It is understandable therefore that the highest concentration of undeclared work is expected to be in the agriculture sector (55%), which dominates traditionally among the rural population, followed by industry and construction (23%), and services (12%) (MCPBiH, 2010). On the one hand, the highest concentration of declared employment is recorded in service sector (around 50%), followed by industry (31%) and agriculture (18%) (Agency for Statistics, 2017).

Quantitative and qualitative primary data and methodology

The main contribution of our investigation is that we rely on specially gathered primary quantitative and qualitative data, which gives us possibility not only to estimate the level of the undeclared economy and participation in undeclared work, but also to analyse some of the underlying determinants linked to the individual characteristics, socio-demographic environment, and institutional context.



The primary survey data has been collected by a professional research agency for social, media and marketing research in BiH³ in 2015. A total of 6,021 randomly selected respondents between 16 and 65 years of age participated in the survey.⁴ The survey was conducted via computer-assisted telephone interviewing (CATI) and prepared in a special survey program *The Survey System 9.0*. The survey was designed so that each municipality should have at least 40 participants and that the total number from all municipalities should be at least 6,000. Although we operate with household survey data in this study, the undeclared work in our case is measured through individuals (Williams and Horodnic, 2017). In our investigation, we rely on indicators relevant for undeclared work, which we distinguish on:

- *Individual determinants* – typical indicators linked to respondents as age, gender, the level of education and area of living;
- *Household background determinants* – include indicators linked to the performance of households as household size, income and wealth;
- *Institutional environment* – here we control for the level of trust in institutions and general people, for administrative structure in BiH, and for the municipalities as the lowest level in our investigation;
- *Post-conflict specific influences* – here we include migration status of respondents as around 50% of the current population migrated either internally or externally (Efendic et al., 2014), which is typically found to be important influence in socio-economic research focused on such environments.

The descriptive statistics with a short explanation of the variables used in empirical modelling is reported in Annex 1.

Additionally, we have also collected primary qualitative data through 10 in-depth interviews with state officials responsible for tackling undeclared work in BiH. The interviewed officials range from those working on strategic and policy issues (e.g. economic advisors in governments and directors of institutions responsible for informal employment issues) to those who implement these policies on the ground (e.g. labour and tax inspectors, state officials). We have also interviewed a few entrepreneurs to get a better understanding of undeclared work issues from their perspective. The following analysis reflects all the data we have collected as part of this research, but firstly we investigate the quantitative data available for this study.

³ The data were collected as part of the RRPP supported project: 'Social capital, migration and economic performance – evidence from a post-conflict environment', implemented by CISAR, Sarajevo, 2014-2016. Please see link for additional material (data set/questionnaire): <https://seedsdata.unil.ch/project/study-public-overview/153/2/>.

⁴ The technique of random selection by closest birthday was used to implement the survey. On first contact, the interviewers asked about the number of persons living in one apartment or house in the specified age range. The interviewers conducted the interview with a selected household member whose birthday was closest to the date they are interviewing. If that person was not at home, they arranged call-backs, if possible. The software schedules the call-backs five times before omitting the number. This method ensures a random selection of respondents. In the final dataset, there are 44 observations per municipality, on average. The minimum number of observations per municipality is 40 and the maximum is 46.



Undeclared work in BiH – empirical investigation

In this study we provide our estimation of undeclared work using the primary data described in the previous section. Our dependent variable *undeclwork* is constructed in such a way to give information on those participants in undeclared work whose income comes from a paid undeclared job or activity and these individuals do not have a job in the declared economy simultaneously.

The variable is constructed using several questions. First, we asked participants in our survey “Do you have formal job which brings you income?” – those who answered “Yes” are treated as employed. In addition, those who answered affirmatively on the question “Are you looking for a job?” are treated as unemployed, and these two categories (employed and unemployed) are used to calculate the labour force in the dataset.

The main research question that we investigate is: “Do you have some informal job(s) or activities which bring you some income?”. Those defined as undeclared workers in our dataset are those that answered “Yes”, but we exclude those who also have declared jobs (i.e. those who work in the declared economy but generate some income through undeclared economic activities, e.g. providing repairs after regular working time). Below, we provide the distribution of those undeclared workers (*undeclwork*), including at the aggregated BiH level, but also for different sub-categories like labour force, age, gender, area of living and entity in which they reside.

Table 3. Distribution of undeclared workers over labour force and demographic variables

%	LABOUR FORCE			AGE		GENDER		URBAN			ENTITY		
	BiH	Yes	No	Young (16-35)	Old (35+)	Male	Female	Urban	Suburb	Rural	FBiH	RS	BD
NO	74	79	70	72	74	71	76	80	76	69	75	72	74
YES	26	21	30	28	26	29	24	20	24	31	25	28	26

*Those who have informal employment and activities but not formal employment

Source: Authors’ calculations

Undeclared workers are relatively more present among respondents who are out of the labour force, among younger individuals, among males, those in rural areas while the situation between entities is quite similar. If we focus on undeclared workers across these categories, we find that around 34% of respondents in our dataset earn their income through an undeclared job(s) or activities, while around 8% of these individuals have a regular formal job simultaneously. This leaves around 26% of respondents whose income comes only through an undeclared job(s) or activities.

After providing relevant descriptive statistics, the next step evaluates the determinants of undeclared work by considering relevant influences. We estimate a probability empirical model (Probit) as it fits our data well. This empirical strategy gives us the possibility of testing whether individual influences, household characteristics, institutional environment and post-conflict specifics systematically affect the probability of participation in undeclared work. An explanation of the model specification and the obtained results that are discussed below are available in Annex 2.



Our finding reveals that there is a higher probability of undeclared work and undeclared income generating activities by:

- younger individuals; an increase in age by one year (16-65) reduces the probability by 1%;
- males than females; there is 6% higher probability of male participation;
- less educated individuals; an additional level of education systematically decreases participation in the undeclared economy. For example, there is 21% higher probability of participation in the undeclared economy by individuals who did not complete their primary education in comparison to those with university degrees;
- rural population; there is 4% higher participation in undeclared work by rural respondents in comparison to those from urban or sub-urban areas.

Next, we look at the household background determinants including their economic performance investigated through the net household income and total household welfare, and their size measured by the number of children. We find that:

- Economic performance of households does matter for participation in the undeclared economy and it has the highest effect in the model.
 - We find that as the household income increases, participation in the undeclared economy is less likely. Moreover, as the household welfare is higher (having savings, a house, insurance, car, computer), participation in the undeclared economy is smaller. For example, there is 26% higher probability of participation in the undeclared economy by individuals coming from families who have no regular income and 16% smaller probability from families having an additional welfare component (savings, or a house, or insurance, or car, or computer).
- Number of children has no significant effect on the participation in the undeclared economy; accordingly, the household size does not systematically affect undeclared economy participation.

The next determinants that we look at include the effects of institutional environment influences where we control for the trust in institutions, entity level effects (relevant to be considered in BiH as it has two entities with high institutional power), as well as the lowest administrative units—municipalities. In this way, we control for the systematic influence of institutional environment at all levels, including relevant BiH institutional specifics (Efendic, 2011). Our investigation identifies a higher probability of participation in the undeclared economy by:

- Participants from the Republika Srpska entity in comparison to FBiH entity;
- Individuals who have lower trust into the local governments, while higher levels of government (entity and national) have not come as relevant;
- The municipal effects (127 municipal variables) are included to control for the effect of omitted influences at the municipal level and we do not interpret these results.

In the end, we also control for post-conflict specific characteristics of respondents linked to their migration status. We find that external migrants (those who spent abroad more than three months and returned to BiH) report a higher probability of participation in the



undeclared economy in comparison to non-migrant population. This finding is interesting and deserves more in depth investigation, as we cannot distinguish which type of external migrants dominate in this category (e.g. ex-war returnees, temporary work abroad, informal work abroad, etc).

Overall, the above reported results give us the possibility to identify a few key characteristics of undeclared economy participants. Individuals who are young, not educated, coming from rural areas and from economically weak families have the highest probability of participation in the undeclared economy in BiH. Although this finding can be treated as conventional, it provides a good signal to the policy makers about the category of population in BiH which is the most likely to participate in the undeclared economy, and who should be targeted by for instance awareness raising campaigns.

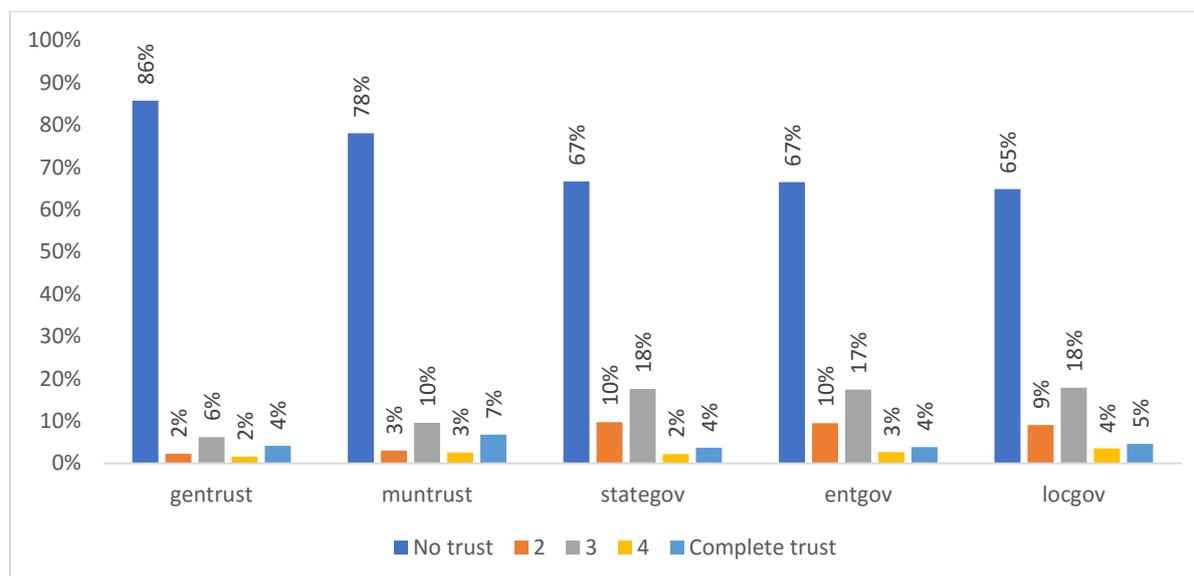
Drivers of the undeclared economy and barriers to formalisation in BiH

As we have seen in the analytical framework section of this report, institutional theory has played a significant role in providing a better understanding of the undeclared economy and undeclared work. It explains the undeclared economy and undeclared work as a consequence of the formal institutional failures (Williams and Horodnic, 2016; Mathias et al., 2015). Webb and Ireland (2015) argue that different types of institutional failings influence different aspects of citizens' and entrepreneurs' decisions to turn to undeclared activities. Thus, formal institutional weaknesses very often force citizens to turn to undeclared arrangements to take advantage of it, to cope with formal institutional deficiencies or even as a strategy to survive in the current socio-economic circumstances. At the same time, these formal institutional inefficiencies, uncertainties and weaknesses decrease the trust of citizens in the functionality of the formal institutional system. When the functionality of the formal institutional environment is questioned, citizens turn to more favourable (informal) rules and norms, as they have a more stable and consistent nature over time. Therefore, undeclared work is expected to rise when the formal institutional arrangements are inefficient, uncertain and weak. These arrangements will cause asymmetry between state morality (laws and regulations) and societal morality (norms, values and beliefs regarding those laws and regulations). As the asymmetry increases, the incentives to turn to an informal institutional setting might further increase.

The asymmetry between formal and informal institutions is hard to measure. However, an indication of it can be captured through the citizens' trust in people (societal morality) and government (state morality)—the higher the citizens' trust in institutions and people, the lower the asymmetry between state and societal morality is, and *vice versa*. Trust in institutions reflects the individuals' confidence that the institutional system works properly, including its all components: formal rules, organizations and enforcement mechanisms (World Bank, 2002). If these institutional pillars are aligned with societal morality, the trust will be high. In addition, generalized trust is understood as individuals' trust in social norms. In other words, it reflects the individuals' expectation that unknown people will engage in socially accepted behaviour (Efendic et al., 2015). Figure 2 reports the levels of trust in people and institutions obtained through the survey explained in the methodological section of this report.



Figure 2. Citizen's trust in general people and different levels of governments in BiH



Source: RRPP, 2015.

In all five cases “1-no trust at all” responses were selected by more than 60% of respondents. The lowest levels of trust are recorded for generalized trust to unknown people, while trust in people from the respondents’ municipalities was not significantly higher. A little higher level of trust is found for institutional trust (state, entity and local governments), while the trust in local governments has the highest level in all five cases observed—it has the lowest percentage of those who do not trust it at all (65%). The general implication is that the respondents have low levels of trust in both people and institutions, which is a fertile ground for the emergence of undeclared work. Low levels of trust are not surprising, as transition economies have been found to be low-trust societies due to their communist past (Estrin and Mickiewicz, 2011). In the case of BiH, a low trust culture has been particularly deepened by the recent conflict which “seriously damaged the rule of law, confidence in formal institutions and perceptions of equality under law and due judicial process” (Efendic et al., 2015, p. 7).

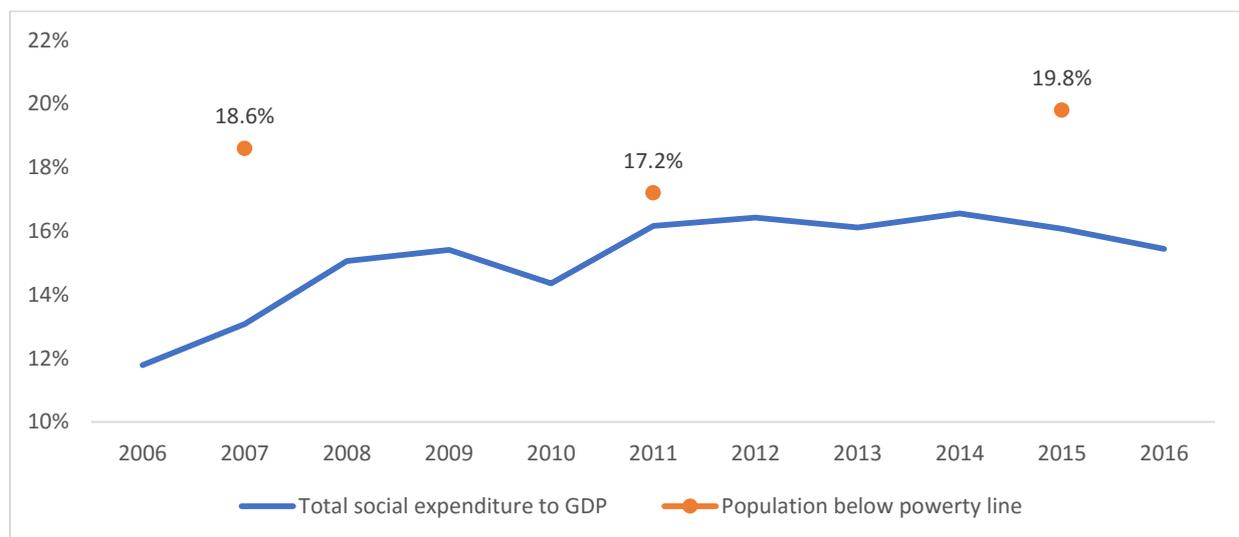
Undeclared work might be affected by the country’s inadequate tax policy. BiH is one of the countries with quite high tax rates in Europe, with the tax wedge of around 40%. This means that around 40% of each worker’s gross salary (regardless of social category and number of dependants) serves to pay for various taxes and contributions, while the remaining 60% is paid to the employee. These high taxes can be one of the reasons for the high share of undeclared economy and undeclared work in the country, as entrepreneurs from the SME sector are often loud about these burdens to their businesses. However, several authors find that there is little, if any, evidence that higher tax rates are significantly correlated with higher levels of undeclared work (Friedmann et al., 2000; Ihrig and Moe, 2000; Kuehn, 2007; Schneider, 2002; Williams, 2014a,b,c,d, 2015a,b, 2016; Williams and Martinez-Perez, 2014; Williams and Horodnic, 2016). This makes the relationship between taxes and undeclared work more complex, including the relevant implications for BiH. Taxes can be high while the undeclared economy low, as it is in Scandinavian societies. Accordingly, the level of tax rates themselves are not necessarily the key cause of undeclared work—it is more often the



belief of citizens about how taxes are used by the governments. If the taxes are used to improve infrastructure, build hospitals and schools, provide high quality public goods and services—paying taxes should be in everyone’s best interest and more acceptable.

An individuals’ perception that the tax money is not spent on high quality public goods and services increases incentives to participate in undeclared work and engage in for example tax non-compliance. To investigate this possibility for BiH, we analyse several related indicators. First, we look at the total social expenditure compared to GDP, as higher expenditure on social welfare should work as a prevention for undeclared work practices. Then we discuss tax morality of respondents in BiH, where we explore citizens’ intrinsic beliefs about paying taxes and compare individuals from two sectors: household and business. Finally, one of the good indicators if tax money is not being spent appropriately is the presence of corruption in the country, which basically tells us whether people perceive that the public resources are spent for private gains.

Figure 3. Social expenditure in BiH as % of GDP and % of population under poverty line



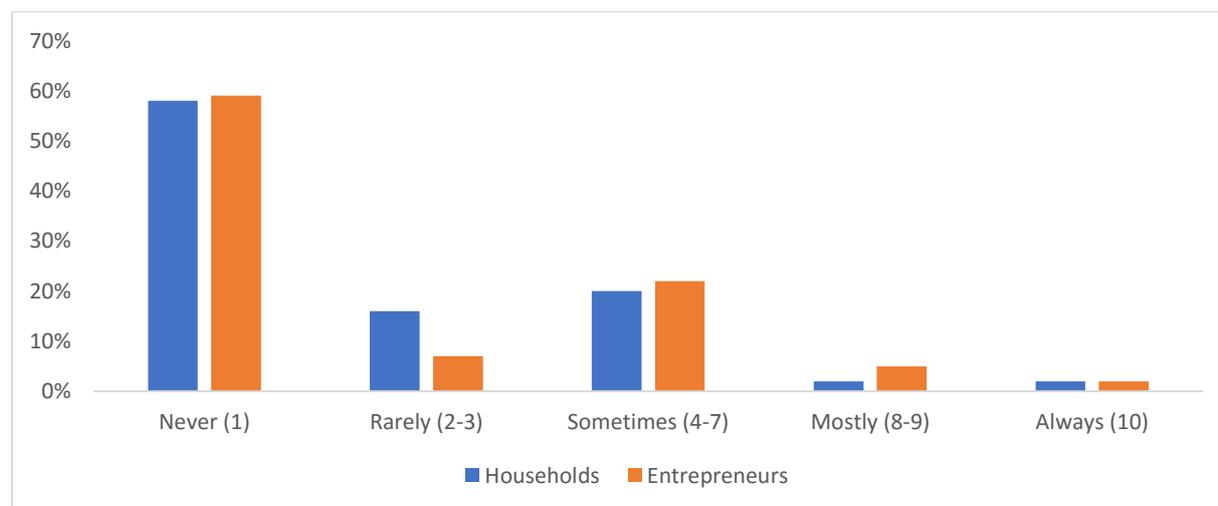
Source: Central Bank of BiH (2018) and authors’ calculation

The figure above displays that total social expenditure was rising until the global economic crisis that hit BiH in 2009. There was a slight decrease over the period 2009-2010. The later trend was a slight increase and stability later on, and the level of social expenditures in the latest year observed (2016) is around 15% of GDP. To get some comparison; the EU average for social expenditure is around 30% of GDP, which compares to a decrease in poverty by 36% (EC, 2015). If the undeclared work is to be tackled properly, social expenditure should be structured in such a way to cover the most vulnerable groups and those with the highest probability of engaging in such employment. In other words, it should work as a barrier to undeclared work. With the limited data for BiH, little more can be asserted in this issue.

The basic model used to explain tax compliance relies on economics-of-crime logic: if risk of detection is high as well as the fines for evading taxes, compliance will be high as well (Allingham and Sandmo, 1972). However, multiple studies show that tax evasion was

generally lower in comparison to what the above model predicted, as there are many ethical individuals who pay their taxes despite low risks of detection and low fines (Alm and Torgler, 2011). Thus, tax morale, the individual's intrinsic motivation to pay taxes, has an important role in the ethics approach. Tax morale can be understood as individual's perception whether taxes enforced by state comply with societal morality. The INFORM (2017) report presents survey findings on "whether tax evasion can be justified" for the Western Balkans region.

Figure 4. Justifiability of evading taxes in BiH

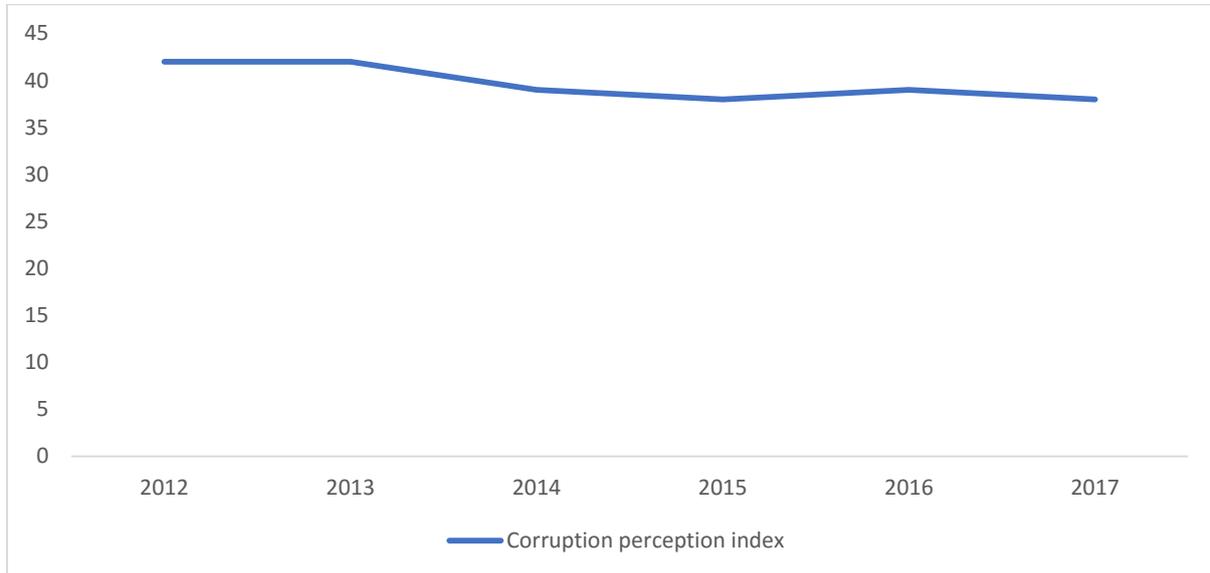


Source: INFORM (2017)

In BiH, there is less than 60% of respondents who find tax evasion as never justified, whereas around 20% accept it as sometimes justified. A similar survey in the EU (Eurobarometer, 2013) reported that at least 67% of respondents believe that tax evasion should never be justified, whereas in some cases this percentage is above 90%. Such comparison implies that the tax morality is lower in BiH compared to the EU, and that BiH citizens have lower intrinsic motivations to pay taxes. This is particularly evident for entrepreneurs who justify tax evasion even more than ordinary citizens.

One of the important reasons for low tax morality could be the presence of corruption in a society. Although corruption might bring some "benefits" to a few people, it is harmful for the society overall. Below, we present the Corruption Perception Index from 2012 to 2017.

Figure 5. Corruption Perception Index, BiH, 2012-2017

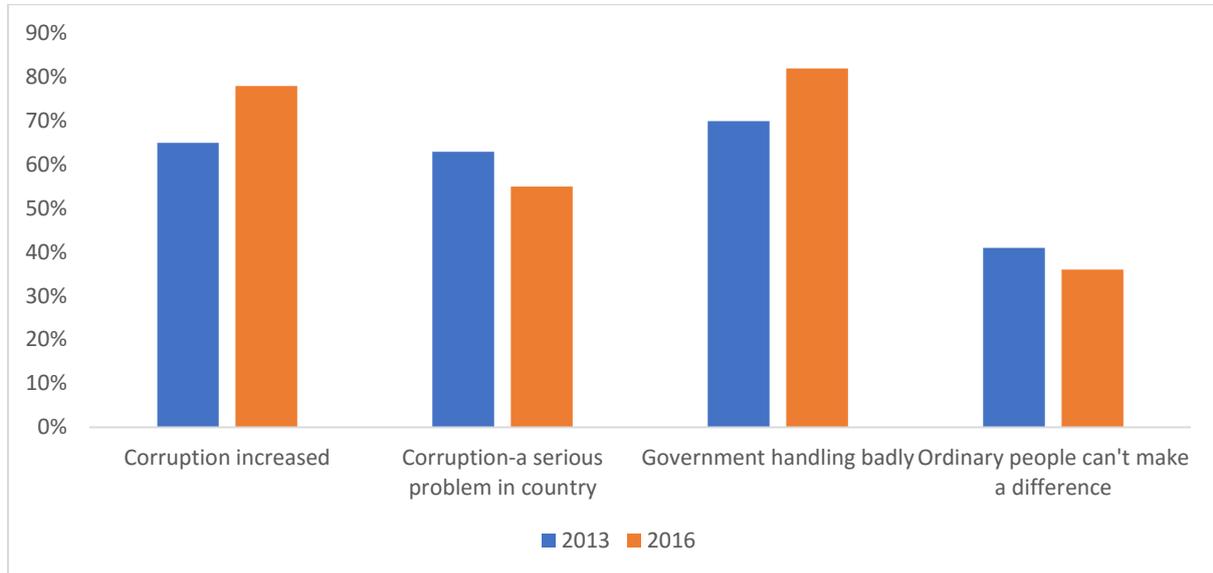


Source: Transparency International, 2017.

https://www.transparency.org/news/feature/corruption_perceptions_index_2017 [Accessed: May, 2018)

The Corruption Perceptions Index ranks countries by their perceived level of corruption, based on opinion surveys. Corruption is defined as a misuse of public power for private benefits (Transparency International, 2017). The Index has values between 0 (highly corrupt) and 100 (very clean from corruption). Therefore, the higher is the index the lower is the corruption. The figure above shows that the perceived misuse of power for private benefits is worse since 2012. Such behaviour of this index might be taken as an indication that the corruption has probably increased. At least, this might be one of the reasons for the low tax morality in BiH that we identified, although we do not investigate potential causal relationships in this context.

Figure 6. Global Corruption Barometer, BiH



Source: Transparency International, 2013, 2016.

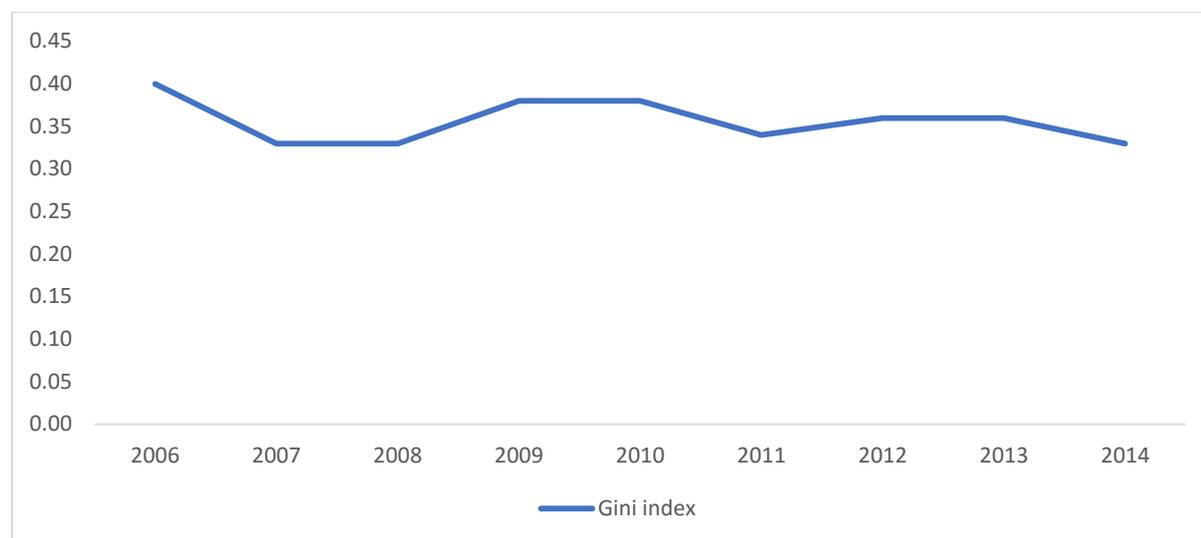
Figure 6 contains four questions about corruption from the Global Corruption Barometer that are most interesting for the purpose of this study: (i) perception about increase or decrease in the level of corruption during the last year; (ii) perception that corruption is a serious problem in the country; (iii) perception about government's measures used to tackle corruption; and (iv) perception if ordinary people can make a difference. Over the last three years observed, there is more than 10% of respondents more who believe that the corruption in BiH has increased. In 2016, 55% of respondents reported that the corruption is a serious problem in the country, 8% less than in 2013. So, despite the perception that corruption has increased, the corruption has dropped in the position marked as the serious problem in the country. 82% of respondents believe that the government is tackling the issue of corruption badly compared to 70% in 2013. The feeling that the ordinary people cannot make a difference has dropped from 41% in 2013 to 36% in 2016.

The previously discussed indicators are very likely to be indirectly connected. Formal institutional failings lead to low trust in institutions and creates a gap between state and societal morality. This is also evident through the social components of the state institutions' budget category—despite reasonably high social expenditure, population below the poverty line is not decreasing, which raises a question of suitability of these expenditures, but also about the targeted groups and goals. Some existing concerns about effectiveness and efficiency of social expenditures lowers the trust in institutions in charge, as failings to achieve their objectives creates asymmetry between state (what the laws prescribe) and societal morality (what the society believes should be). Perceptions of corruption has increased, while tax morality cannot be marked as satisfactory. This implies that people might continue challenging their decisions whether to pay taxes.

Inequality has also been shown to be connected to undeclared work: the greater the income inequality the greater is the prevalence of undeclared work (Williams, 2014; Williams and

Martinez-Perez, 2014, Williams and Horodnic, 2016). The following figure presents the GINI index for BiH.

Figure 7. GINI index from 2006 to 2014



Source: Hadziomerovic-Vajnberger, 2018

Scandinavian economies have the lowest income inequality in the world measured by the GINI index (approximately 0.2), while the most unequal economies, like South Africa, have a GINI index around 0.6 (Hadziomerovic-Vajnberger, 2018). Bosnia and Herzegovina is between these two extremes, with GINI ranging between 0.3 and 0.45 in the nine years presented in Figure 7. These levels of GINI imply high income inequality, and as has been shown in some studies (e.g. EC, 2014), higher income inequality goes together with higher undeclared work. If this is correlation or causation deserves much more research and attention than has so far been the case in this society.

Tackling undeclared work in BiH: institutional framework

Complexity of BiH institutional environment

Bosnia and Herzegovina experienced a complex transition from the socialist to market economy in the beginning of 1990s. This process was heavily affected by the war 1992-1995, which invited foreign influence and shaped the current institutional setup through the Dayton Peace Agreement (DPA). The war stopped in 1995, the transition process restarted, but more than two decades after the DPA, BiH still has a formal institutional environment characterized by its complexity, unclear division of responsibilities and overlapping jurisdictions, government ineffectiveness, and time-consuming procedures (EBRD, 2016; Heritage Foundation, 2016; World Bank, 2017). Simply put, the efficiency of BiH institutions in many fields remains unsatisfactory (Efendic and Pugh, 2018).



BiH is a country with around 3.5 million people but with over 150 different governments or administrative units: this includes the state level, two entities, one district, 10 cantons and 141 municipalities. The core jurisdictions and institutional powers are located at the entities level, while the Ministry of Civil Affairs of BiH is responsible to coordinate activities related to the labour, employment, social protection and pensions at the state level. This is further complicated in Federation of BiH (FBiH), one of the entities, where some jurisdictions are transferred down to ten cantons with their ministries, tax administrations, inspectorates, etc. Consequently, labour market institutions, including all those that are responsible for undeclared work, are significantly fragmented, whereas many responsibilities are overlapping and often without appropriate coordination between the two entities and the District Brcko of BiH. Also, it is not a rare situation to identify two different modus operandi between the two entities, FBiH and the Republika Srpska (RS). This is especially evident for institutions responsible for implementing active labour market and employment policies. At the state (national) level, there is a Labour and Employment Agency of BiH⁵, although its responsibility has been assigned primarily to cooperation with international organizations, signing international agreements or monitoring the implementation of ILO conventions. Other relevant responsibilities and policies from the labour and employment sphere have been decentralized down to the Employment Bureau of RS and the Federal Employment Bureau in FBiH entity. The FBiH has 10 cantonal employment bureaus alongside 79 municipal ones, while the Employment Bureau of RS has six regional branches and 59 municipal employment bureaus. The Brcko District of BiH has one employment bureau. This illustrates the complexity of the institutional structure of this small open economy, and how it increases ambiguity and makes the system less efficient in providing services and implementing relevant policies.

In the context of EU integration—which is one of the country’s strategic goals (European Commission, 2015)—formal institutions in BiH are usually described as “being at an early stage” and having “some level of preparation” for the EU integration. The latest EU reports inform us that economic criteria are slightly better rated than political criteria, with BiH “being at an early stage” both in developing a functioning market economy and in its capacity to cope with competitive pressure. Key remaining challenges for this country are a weak rule of law, a still poor business environment, fragmented and inefficient public administration and labour market imbalances, which is also linked to a low performing education system, weak institutional capacities, and an unsupportive investment environment (EC, 2018, p. 3). All of this might support an increase of the undeclared economy. Consequently, the high level of undeclared economy requires tax rates to be probably higher than necessary—which is a fiscal burden that further makes formal economy growth challenging (EC, 2018).

Lower institutional performance in the country is largely associated with a number of indirect institutional costs – including time spent on different procedures, lack of enforcement of laws, inappropriate services of institutions, and general lack of efficiency of these institutions – which might increase costs of living by up to 20 per cent (Efendic et al., 2011). Furthermore, Doing Business (2017) ranked BiH the lowest country in Europe when it comes to required procedures and costs of establishing a business, dealing with permits and

⁵<http://arz.gov.ba/files/akti/zakoni/LAW%20ON%20LABOUR%20AND%20EMPLOYMENT%20AGENCY%20OF%20BOSNIA%20AND%20HERZEGOVINA.pdf>



enforcing contracts. There is, for example, a requirement to go through 12 different procedures when establishing a new business in BiH, which takes up to 65 days and costs the equivalent of 13.5% of per capita income (World Bank, 2017). Efendic et al. (2011) find that lengthy and costly formal procedures relevant for the household sector reduce confidence in formal institutions and encourage substitutive reliance on informal institutions in BiH. Apparently, the current formal institutional environment is very likely a cause of different informalities occurring in the country, including the informal employment.

Tackling undeclared work by public institutions

Conceptual framework for tackling the undeclared work by the state institutions is categorized by Dekker et al. (2010) into three types of organizational approaches.

The integrated approach assumes that the strategy, targets, operations and data matching are shared between institutions included in the tackling, while one agency/department is coordinating the supporting resources. This model is applied both on strategic level (the whole undeclared economy) and operational level (undeclared work).

Cross-departmental cooperation approach implies that different institutions included in the fight against undeclared economy at different government levels have both shared and separate strategies, targets, operations and data matching, but with absence of a single coordinating unit/institution. The shared strategies, targets, operations and data matching are implemented through cross-government departmental cooperation on a strategic level, while each department/institution engaged in the fight against undeclared economy retains responsibility for their own segment and jurisdiction where they have separate tasks and targets to achieve (operational level).

Departmental “silos” assumes completely fragmented government departments/institutions approach towards undeclared economy in terms of strategies, targets, operations and data matching.

We do not recognize any one of these approaches as dominant in BiH, but rather there is a hybrid approach where “departmental silos” is mildly coloured by “cross-departmental cooperation” properties. This BiH specific approach in many instances implies ambiguity in shifting jurisdictions between different institutions. Our in-depth interviews find that the cooperation between relevant departments is often limited, while the strategic goals and targets remain vaguely understood between different departments. This is very likely a consequence of the vertical complexity of the current institutional setting in BiH, where apart from different institutions existing horizontally, there are different vertical government levels and often with separate jurisdictions. Institutions, agencies and departments involved in tackling the undeclared economy, rather engage separately, with each institution having its segment of responsibility. Here we provide some examples of these institutions at different institutional levels:

- At the entity levels: Ministry of Labour and Social Policy in FBiH and Ministry of Labour, War Veterans and Disabled Persons' Protection in RS are responsible for stipulating the labour law and social policy regulations;



- At the entity levels: the Federal Department for Inspection Affairs in FBiH and the the Republika Srpska Inspectorate are responsible for labour law violations;
- At the state level: BiH Ministry of Finance and Treasury are responsible for establishing the principles of tax policy;
- At the entity level: the Federal Ministry of Finance in FBiH and the RS Ministry of Finance are responsible for implementing tax policy following the guidelines and principles established at the state level;
- At the entity level: Tax administrations of FBiH and RS are responsible for the social security frauds.

It is worth mentioning that the Reform agenda (Government BiH, 2015), has mobilised to some extent the governments, relevant ministries and institutions in raising awareness about the undeclared economy. In April 2015, the BiH Council of Ministers has adopted the conclusions reached at the “Conference on combatting shadow economy”, which demanded preventive measures and preventing the spread of undeclared economy (Council of Ministers of BiH, 2015). Several expert debates and round tables have also been held, which involved both the staff working in these institutions and those working in the academia (EC, 2017). For example, a round table titled “Together against undeclared economy!”, was held at the School of Economics and Business (SEBS), University of Sarajevo, in 2017. This even gathered representatives from ministries, governments, tax administrations, Indirect Taxation Authority, academia and private sector. A message was sent that there is a need to tackle the undeclared economy and that a wider effort of all relevant actors is needed. During this round table, a draft of the Action Plan to tackle the undeclared economy⁶ was presented. These efforts were linked also the visit of a world-famous professor, Arthur Laffer, a founder of the Supply Side Economics school, at SEBS in 2017. The guest lecture was titled “Undeclared economy in BiH and its implications”. Although we might not cover all initiatives and examples, we have an impression that the actual activities undertaken to tackle undeclared economy and undeclared employment are implemented rather sporadically by relevant institutions, but without a visible coordinated, systematic and joined-up approaches involving all relevant actors.

State (national) level: Tax policy principles

BiH Ministry of Finance and Treasury is responsible for establishing principles of tax policy, and preparing draft regulations on the tax related issues. Its core responsibility is linked to collecting public revenues, and hence tax compliance. Therefore, concerning the undeclared work, it has a more strategic role through establishing principles of tax policy and dealing with tax non-compliance. Other responsibilities include state budget implementation, financing of institutions and monitoring activities around it, drafting agreements with international and domestic finance institutions and other countries, and establishing the accounting principles in the country. All other operating activities are delegated down to entity ministries and it is not rare that there are two different modus operandi in the entities. For example, even though the BiH Ministry of Finance and Treasury sets the principles of tax

⁶ The Plan has not yet been adopted.

policy in both entities, we have two different systems of calculating the employees' salaries and accompanying taxes and contributions in these two entities.

The entity level: Labour law and social policy regulations

The Ministry of Labour and Social Policy in FBiH and the Ministry of Labour, War Veterans and Disabled Persons' Protection in RS are responsible for labour law violations in the two entities. The perception of undeclared work in BiH is still probably affected by its communist-history and perspective, where social security and protection of workers is put in the primary focus. In line with this caveat in mind, these two ministries are seen as the key players in tackling the undeclared work phenomenon. These ministries take responsibility for establishing and implementing employment policies, ensuring social security, and appropriate working conditions, focusing primarily on workers' protection. They also coordinate the work of departments responsible for labour law inspections in the *Federal Department for Inspection Affairs (FBiH)* and *Inspectorate of RS (RS)*.

Federal Department for Inspection Affairs in FBiH was established in 2005 through the FBiH Law on Inspections, while the *Inspectorate of RS* was established under the RS Law on Inspections in the same year. The inspection operations are more complicated in FBiH than in RS, as apart from the entity FBiH level, there are also *Cantonal departments for inspection affairs* (10 cantons), which operate under guidance of the FBiH one. The latest labour law changed the jurisdiction of labour inspections from the FBiH to the Cantonal level. The role of these inspection authorities is to encourage and increase discipline in following the laws and other regulations based on inspections, administrative procedures, and other duties. Their organization follows functional form, with inspection bodies for different segments as operating units, which report to administrative and coordination bodies. These segments include market, work, health, urbanism and ecology, transportation, forestry, waters, mining and electro-energy, veterinary and food inspectorates. Apart from inspections, administrative and coordination bodies, a number of regional centres are located across important cities in FBiH and RS respectively, as well as border inspections. They report to their respective Governments through the above-mentioned ministries, and they are responsible for ensuring that the laws are followed appropriately. In both entities, the Labour inspectorates sectors are primarily responsible for:

- i) labour regulations compliance—signing employment contracts and respecting working hours and vacations, proper termination of employment, working conditions and unions, health and safety requirements, etc.;
- ii) investigation of companies for illegal, uninsured and undeclared labour; and,
- iii) provision of information and making recommendations regarding effective application of labour legislation.

These inspectorates in both entities have the right (the Law on inspections) to undertake inspections and enter any workplace in the private and public sector without prior notice, at any time of the day or night. They carry out necessary examinations and investigations with the aim to ensure proper implementation of the labour legislation. The inspectors are often very skilled in their duties, they are rather independent in their decisions, but within the boundaries prescribed by the law. They can opt for a variety of actions when they detect a

misconduct from issuing a warning to issuing a high-amount fine, and even selling the premises. Their plan of inspections is based on risk analysis, where risk factors are observed, and inspections carried out in risky areas and/or companies. However, they also perform inspections on anonymous reporting basis.

Entity level: Tax policy and social security contributions

The Federal Ministry of Finance in FBiH and *The Ministry of Finance* in RS have a broader range of responsibilities compared to the state ministry. These span from responsibility over tax system and tax policy, over monitoring the implementation of these policies, to the control of the banking system, system of financial trade, accounting, drafting and budget implementation, planning and entering public debt agreements and repayment of loans, etc. Tax administrations and financial police also operate within these ministries; hence, their independence is limited, which is unusual practice and something that can affect the efficiency of these institutions in the very end.

In recent years, a considerable effort in BiH has been made to improve tax compliance, while the undeclared economy was recognized as one of the economic resources in the country (Government of BiH, 2015). An important step forward has been made in the recent past when it comes to increasing public awareness about the undeclared economy and enforcing stricter restrictions on those engaging in the undeclared sector. Unfortunately, the institutional environment still remains rather complex and often rigid for the business development. Having this in mind, several reforms is needed to tackle the undeclared work (and economy) more efficiently. At the strategic level, the institutions involved into the undeclared economy should adopt a holistic strategic approach that is also preventative, forward looking, systematic, instead of the current approach that is mainly based on restrictive policies. This would include more efforts to increase tax morality of citizens and entrepreneurs, which should be supported by adequate improvements in provision of public goods and services. However, the tax administrations have the crucial role in this process; they should be supported to increase their efficiency through improving relevant legislation (primarily through harmonization and improving clarity) and making them also more autonomous and independent of political influence in their work, at the strategic level.

The tax administrations in both FBiH and in RS are important institutional units when it comes to tackling undeclared work. Tax administration in RS was established in 2001 through the Law on Tax Administration, and since then it is under a supervision of the Ministry of Finance in RS. It is responsible for ensuring proper implementation of laws concerning taxes. The principle it pursues is based on taxpayer's self-reporting. This implies that every taxpayer is obliged by the Law to submit their tax payables following instructions and within deadlines set by the Tax administration, which considers every tax return as correct until proven otherwise. This approach dictated the organization of the Tax administration in RS—there are several departments with different responsibilities which include:

- providing education, information and help to taxpayers;
- control of big taxpayers (primarily from administration's offices);
- crime control unit for investigations and reporting;



- (enforced) collection of tax liabilities;
- tax appeals committee with members from both Ministry of Finance and Tax Administration—all of which are selected exclusively by Minister of Finance,
- internal controls.

The tax administration in FBiH entity is also under the jurisdiction of the Federal Ministry of Finance, and it is responsible for implementing activities related to all kinds of entity FBiH, cantonal, city and municipal taxes and contributions, fees and special fees, memberships, etc. It was established in 2002 with the Law on Tax administration. It consists of 10 cantonal tax administrations with total of 73 offices (one in each municipality). Recently (2016), a major change in the responsibilities and authority of this institution was introduced by delegating number of responsibilities in favour of cantonal administrations. Thus, the cantonal administrations are also responsible for implementing inspections, enforcing collection of due taxes, educating inspectors and taxpayers, registration of taxpayers, and executing control over the municipal tax offices. Therefore, the central unit is left mostly with administrative duties and responsibilities, including monitoring, analysis, planning and coordination of joint inspections and issuing expert opinions.

IMF (2015) reports that the main challenge for the both tax administrations in the future is to become autonomous in their management and operations, which will make them less prone to political influences. Therefore, the jurisdiction over these institutions could shift from entity ministries to entity parliaments. Furthermore, since these two institutions provide most of the finances for public institutions, they should be staffed properly, including supplementary and tailored staff education and training.

Role of other institutions

The employment bureaus in FBiH and RS are responsible for maintaining records on employed and unemployed people, setting up and implementing active labour market policies and working on improving the labour market efficiency, while keeping informed all the interested parties. Both bureaus are dealing with high number of registered unemployed people, which is hard to cover properly with active labour market policies. The policies implemented by the bureaus include some of the vulnerable categories, like people with disabilities, youth and those without work experience. The active labour policies are mostly implemented for the period up to six months, even though there are some which cover longer periods.

The Health Insurance and Reinsurance Institute in FBiH and *The Health Insurance Fund* in RS are two institutions responsible for ensuring terms for health insurance, for health care programs, and to provide most critical forms of health insurance from certain specialist activities. These institutions also cover the health insurance for the unemployed persons, who need to provide evidence of being registered at the Employment bureau. The health insurance funds have no access to the employment bureaus databases. It is common that informally employed people are registered in the Employment bureaus primarily to obtain health insurance, which they normally do not possess as informal workers.

The role of social partners



There are two main workers representative confederations (third level unions): *Independent trade unions alliance of BiH* and *Trade union of RS*. These represent the public but also the private sector workers. The unions are primarily working on ensuring the collective agreements between the government and different economy branches, but are also indirectly involved in the undeclared work issues. They played important parts during the process of drafting and adopting the Labour law. Both unions are affiliated at the international level.

Employers' Association of BiH is a state-level non-profit organisation, which stands for employers in BiH in tripartite Economic and Social Council, alongside Government and Trade Unions. The Economic and Social Council is a recognized body where the highest social dialogue must take place prior to adopting new and changing the existing laws on matters concerning economic and employment matters. The body has played an important role in 2016 changes of the Labour law. It has the authority to bring certain issues to focus—i.e. undeclared work, to initiate the discussion and propose solutions. The employers are further represented at the entity level through the Employers' Association of FBiH and the Union of Employers' Associations in RS.

Towards a joined-up strategic approach

The previous analysis of the institutional environment in BiH implies that there is no a coordinated strategy nor systematic approaches to tackling undeclared work in this country. There is an evident recognition of the importance of this issue for BiH economy by policy makers, some initial initiatives at the strategic level can be identified, but much more should be done to systematically tackle these issues. Our investigation identified that a departmental 'silos' approach is dominantly used in BiH, where each relevant ministry and institution engage rather separately, while there is a lack of joined-up strategic approaches. We also find lack of aligned cross-cutting targets or goals, while the data sharing between the institutions involved in tackling undeclared works is not systematically organized. Thus, it is quite evident that a more joined-up strategic approach is needed, that can probably involve an institutional coordinating body at the country or state level, and which will be responsible for tackling undeclared work (given its importance nationally). Whether this body is implemented or not, there is a need for more joined-up government approaches, where common shared targets are set at the level of strategy and operations. There is also a need to consider how governance is joined-up, such as the extent to which employer federations, trade unions, private and voluntary sector organizations, as well as local governments, are involved as partners at every level in this joined-up governance. Especially, the responsibilities over different dimensions of undeclared work should be reconsidered and reorganized between the institutions, which must include shared monitoring, data gathering, analysis and strategy.

Current policy approaches and measures

This section presents the current policy approaches in BiH adopted by relevant institutions, which are identified to be responsible in tackling the undeclared employment⁷. The table also

⁷ The table has been taken from Williams, C., Demetriades, S., and Patra, E.: "Diagnostic report on undeclared work in Greece", ILO and EC report from August 2016, and modified to represent BiH current policy approach



provides a comparison with the policy measures that the European Economic Area (EEA) countries are implementing, as well as the EEA stakeholders' attitudes towards efficiency of these measures.

Table 4. Policy measures used in BiH and European countries to tackle the undeclared work

Policy	Used in BiH	% of EEA nations	% of EEA stakeholders stating measure is:		
			Effective	Neutral	Ineffective
DIRECT CONTROLS					
Deterrence					
<i>Penalties:</i>		93	50	45	5
Administrative sanctions for purchasers/companies	✓	87	46	49	6
Administrative sanctions for suppliers/employees	✓	83	41	59	0
Penal sanctions for purchasers/companies	✓	74	59	33	8
Penal sanctions for suppliers/employees	✓	52	53	42	5
<i>Measures to improve detection:</i>		100	64	34	2
Data matching and sharing	✓*	83	72	25	2
Workplace inspections	✓	100	75	17	8
Registration of workers prior to starting work or on first day of work	✓	74	74	23	3
Coordinating strategy across government		57	56	44	0
Certification of business, certifying payments of social contribution and taxes	✓	65	62	33	5
Use of peer-to-peer surveillance (e.g. telephone hotlines)	✓	39	20	80	0
Coordination of operations across government		61	64	36	0
Coordination of data sharing across government		65	82	19	0
Mandatory ID in the workplace	✓	65	70	30	0
Enabling compliance:					
<i>Preventative measures:</i>		90	45	43	12
Reduce regulations		48	56	38	6
Simplify compliance procedures		87	62	38	0
Technological innovations (e.g. certified cash registers)	✓	43	73	27	0
New categories of work (e.g., for small or mini-jobs)		35	59	33	8
Direct tax incentives (e.g., exemptions, deductions)		61	57	33	10
Social security incentives	✓	35	62	15	23
Ease transition from unemployment into self-employment		65	29	63	8
Ease transition from employment into self-employment		44	15	77	8
Changing minimum wage upwards		48	24	59	18
Changing minimum wage downwards		9	0	50	50
Training & support to business start-ups	✓*	61	50	46	4
Micro-finance to business start-ups	✓*	52	48	52	0
Advice on how to formalise		61	33	67	0
Connecting pension schemes to formal labour	✓	61	47	41	12
Introducing supply chain responsibility		17	78	0	22
Restricting free movement of (foreign) workers		43	29	53	18
<i>Curative measures:</i>		64	61	35	4

towards undeclared work. Please, note, it is sometimes difficult to draw a clear conclusion whether some of the policies should be marked to be used or not, as they might be found on the ground, but with a little scope.



<i>Stimulate purchasers to buy declared:</i>					
Service vouchers		26	58	42	0
Targeted direct tax incentives		61	65	29	6
Targeted indirect taxes		17	63	25	13
<i>Stimulate suppliers to formalise:</i>					
Society-wide amnesties		9	10	0	0
Individual-level amnesties for voluntary disclosure		17	75	25	0
Formalisation advice to business		30	44	56	0
Formalisation support services to businesses		30	57	29	14
Targeted VAT reductions		17	43	43	14
Free record-keeping software to businesses		13	50	50	0
Fact sheets on record-keeping		22	57	43	0
Free advice/training on record-keeping		22	57	43	0
Gradual formalisation schemes		13	67	33	0
INDIRECT CONTROLS:		69	44	52	4
Change values, norms & beliefs					
Campaigns to inform undeclared workers of risks and costs of working undeclared		61	64	36	0
Campaigns to inform undeclared workers of benefits of formalising their work		57	43	47	10
Campaigns to inform users of undeclared work of the risks and costs		61	50	40	10
Campaigns to inform users of undeclared work of the benefits of declared work		52	35	59	6
Use of normative appeals to people to declare their activities	✓*	52	33	67	0
Measures to improve tax/social security/labour law knowledge		65	50	50	0
Campaigns to encourage a culture of commitment to declaration	✓	39	29	64	7
Reform formal institutions					
Measures to change perceived fairness of the system		26	25	75	0
Measures to improve procedural justice of the system (i.e., degree to which people believe government has treated them in a respectful, impartial and responsible manner)		17	60	40	0
Adoption of commitment rather than compliance approach (e.g., 'responsive regulation')		30	50	40	10
*We identify examples of this measure, but usually they are used sporadically or partly, but not systematically					

Direct controls

Policy measures regarded as direct controls are aimed to tackle undeclared economy causes and consequences directly. They have two broad goals: (1) to increase the risk and fear of detection by those in the undeclared sector, to increase fines, and overall deter people from engaging in the undeclared sector, and (2) to motivate people to stick to declared sector through improving regulation, cutting the red tape, and directly providing various tax incentives for operating in declared sector. In BiH, the focus has been primarily on deterrence measures, with less reliance on different incentives.

Deterrence measures

Previous legal remedies implied that the workers needed to be registered with the Tax administration within eight days of starting work. This rule implied ambiguity, as the workers with lower negotiating power were sometimes pushed to sign a new employment contract with the employer (e.g. every 7 days), thereby postponing the registering of their contracts with the tax administrations. This even created a grey zone of a special kind of undeclared



employment—the employees with working contracts but that are not registered as employed with the appropriate institutions. The new Labour law was adopted in 2016, and the employers are now obligated to register their workers with the tax administration (in order to be registered, one has to submit a certificate of leaving the unemployment register) one day prior to starting their employment. This way, every employee that is found at the premises of a company, and who is not registered as an employee, is violating the law.

Our analysis of penalties and sanctions for undeclared work has identified also some ambiguity. The complicated horizontal and vertical institutional structure is making the work of inspectors challenging and demanding, especially in FBiH. Undeclared work is under the responsibility of tax administrations in both entities, while collaborative engagement is expected by both entities' inspectorates. Therefore, inspectors from both institutions are engaged in deterring undeclared work through on-site inspections and issuing penalties and administrative sanctions, even though they (inspectors from the Labour inspectorates and Tax administration) might be looking at the undeclared work from different angles.

The labour law violations are the responsibility of the Labour inspectorate, a department located in the entities' Inspectorate institutions. However, they control for the law violations linked to health, safety, and working contract issues—they do not directly control for undeclared workers, but are allowed to penalize offenders on the basis of non-existent working contracts in which case the penalty can be between 500 and 2,000 BAM (around 250 – 1000 Euro) for the employer and between 100 and 300 BAM for the employee (around 50 – 150 Euro). However, they should also alarm the entities' Tax authorities if they identify them. At the same time, the Labour inspectorate issues penalties and fines from 2,000 BAM (around 1,000 Euro) and more for health and safety violations, while non-harmonized contracts with the Labour law (e.g. lack of time-sheets) is penalized 3,000 BAM (around 1,500 Euro) and even more. Therefore, having undeclared workers is a smaller violation for the companies in comparison to the offence for the lack of adjustment between an employment contract and the Labour law. For example, in FBiH, for the first offence against the law one can be penalized with 500 BAM by the Labour Inspectors, while for the second offence one can be penalized with 3,000 BAM by the same inspectors.

The tax authorities, on the other hand, control for tax compliance and undeclared work, which is penalized as tax non-compliance. Since the undeclared work involves breaching two components of the law: 1) criminal charges for having undeclared workers; 2) penalties for tax non-compliance; the current legal system can penalize employers/companies for having undeclared workers on either of these two bases, but not on the both. In practice, the most often it is the penalty, option 2), and if the deed is regarded as criminal activity, the Tax administration forwards the documentation to the prosecuting authority.

Another example of ambiguity is in the penalties for undeclared work the Tax administration issues. If an undeclared worker is found in the premises of a law violating company, a tax inspector can issue a penalty based on two laws: The Law on Tax Administration, which prescribes a penalty between 600-2,300 BAM for craftsmanship and between 3,500-7,000 BAM for companies; or the Law on Single System for Registration, Control and Collection of Contributions, which prescribes a minimum penalty of 8,000 BAM. The above stated penalties include sanctions for both the company and person(s) in charge of it—it's director/owner (i.e. the latter penalty of 8,000 BAM includes 5,000 BAM fine for the



company and 3,000 BAM for its CEO). This situation gives inspectors a lot of space for discretion in a sense that they can judge which penalty, i.e. which law, to use as relevant for their decision. At the same time, this asymmetry opens up space for discretion related consequences (i.e. corruption).

One of the issues our interviewees in these institutions pointed to is the much-needed harmonization of legislation that needs to happen in this field. This harmonization ought to both clarify the responsibilities of different institutions when it comes to undeclared work, so this phenomenon could be tackled more effectively and efficiently, and the penalties prescribed by the legislation for the undeclared work. Furthermore, our interviewees stressed that when it comes to issuing penalties and fines, the rules oblige them to write minimum sentences—i.e. if a sentence is between 500 and 2,000 BAM they are allowed to issue a sentence of 500 BAM. These penalties are then subject to court procedure if the offender appeals against them, and the court has the responsibility to determine the appropriate level of the sanction which spans from 500 to 2,000 BAM. However, one is unlikely to appeal against a sentence which is already issued at a minimum level unless if he/she has reasonable expectations that the sentence will be overruled completely. There are examples when the court lowers or even overrules the sentence completely if some “mitigating circumstances” are presented to the court. Therefore, the inspectors we interviewed feel that the court proceedings are unnecessary in the cases of undeclared work—the Law should be made clear when it comes to breaching it in terms of undeclared work and prescribe adequate and precise sentences for each worker employed on undeclared basis.

From the conducted interviews we have also concluded that data management has a lot of space for improvement. The inspectors claim of not having easy access to the data available in different institutions (other than the tax administration), at least not without an official request. This procedure makes the work of inspectors demanding and time consuming, especially having in mind the clustered jurisdictions of different inspectorates. Therefore, effectiveness and efficiency in tackling undeclared work is impeded through both inefficient planning of work-site inspections, but especially through a better insight into what is happening. If the quality data is available and examined by skilled analysts, it is very likely that overall efficiency would increase. For example, in Finland, the Tax administration sends normative appeals to the companies with lower salaries than their industry average, which in turn increased tax discipline and revenues as 46% of the companies that received the appeals increased (declared) salaries to their employees. Similar measures should be used more frequently in BiH, but this approach needs a comprehensive data and user-friendly approach for staff working with them.

Enabling compliance

In a country with fairly high non-compliance, incentives and enabling compliance measures were rather limited in favour of forcing compliance measures. Therefore, it is no surprise that BiH is regionally still at the end of the list of countries in ease of doing business (the rank is 174; WB, 2017). Linked to this challenge, one of the priorities of the Reform agenda (2015) was to establish a single agency for registering businesses. Financial-Informatic Agency was selected to bear this responsibility in 2015, but this is still unfinished project. According to our interviews, the establishment of one-stop-shops for registering businesses at a single point and with a reduced time needed to register is under challenge as there is a need to



amend number of different legislations (around 20 are envisaged) and at different institutional levels. Therefore, from these types of measures we will mention a few that are implemented in BiH. Firstly, pensions schemes are connected to the formal labour—a solution inherited mainly from the country's socialist past. Then, the IT solutions were introduced through certified cash registers to help in recording formal transactions (*fiskalne kase*). These registers are directly connected to the Indirect Taxation Authority (UIO), and each time an invoice is issued it is recorded in UIO database. This practice has decreased cash operations in practice and, consequently, stimulating formal economy. In addition, another enabling compliance measure was introduced recently—social security incentives are given to companies for registering their employees. The incentives are envisaged more as an active labour market policy rather than a tool to tackle undeclared work, which is sometimes difficult to separate—the applicant employer is reimbursed up to 12 months of the amount that approximately corresponds to taxes and social security contributions to minimum wages for keeping the employee at least 24 months at his/her company. What are the outcomes of these measures is hard to guess, as a deeper investigation is needed.

Indirect controls

Similar to the enabling compliance measures, the indirect controls were less used in favour of deterrence measures. Building a compliance culture was not supported enough as a option/tool for tackling the undeclared economy, although recently this seems to change. As the Reform agenda (2015) prioritized the phenomenon of undeclared economy, some positive developments are identified. Linked to this, there were two massive awareness raising campaigns in which celebrity support was used to raise public awareness about undeclared economy and undeclared work. One of the campaigns was strictly focused on the undeclared work in which inspectors were promising a more definitive stand against undeclared work. The RS Tax administration has the latest campaign focusing on requesting invoices for paid goods and services.

Apart from the awareness raising campaigns, we have found that the Tax administrations sometimes use normative appeals to companies to increase tax discipline. In addition, on the tax administration websites, appeals can be found in which the taxpayers are called to declare their income, pay their taxes, submit their tax returns, etc. Apart from these appeals, the tax administrations have even reached for sending warnings/notions on inspections giving the taxpayers several days to bring their tax liabilities into order and pay outstanding debts. According to our interviews, these warnings have played a relevant role in the public revenues increase, which is collected by the tax administrations.



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ANNEXES

Annex 1

Table A 1. Descriptive statistics of the variables used for empirical modelling

Variable	Explanation of variables	No. of observations	Mean	Std. Dev.	Don't knows
The dependent variable					
<i>undeclwork</i>	Undeclared work: 1=yes; 0=no	5,996	0.262	0.440	0.5%
Individual determinants					
<i>age</i>	Age of respondents: from 16 to 65	6,021	47.158	14.892	0.0%
<i>male</i>	Gender of respondents: 1=male; 0=female	6,021	0.452	0.498	0.0%
<i>noeducat</i>	Education: 1=no education; 0=other	6,021	0.055	0.229	0.0%
<i>primary_ed</i>	Education: 1=primary education; 0=other	6,021	0.233	0.422	0.0%
<i>second_ed</i>	Education: 1=secondary education; 0=other	6,021	0.543	0.498	0.0%
<i>high_ed</i>	Education: 1=higher education; 0=other	6,021	0.165	0.371	0.0%
<i>dontknow_ed</i>	Education: 1=don't know; 0=other	6,021	0.005	0.068	0.0%
<i>rural</i>	Survey area: 1=rural; 0=other	6,021	0.484	0.500	0.0%
<i>forminc</i>	Formal job: 1=yes; 0=no	6,004	0.272	0.445	0.3%
<i>infinc</i>	Informal job(s) or activities: 1=yes; 0=no	5,992	0.335	0.472	0.5%
Household background determinants					
<i>nochild</i>	Number of children: from 0 to 11	5,989	1.679	1.311	0.5%
<i>noincome</i>	Household income: 1=no income; 0=other	6,021	0.070	0.256	0.0%
<i>inc_300</i>	Household income: 1=up to 300 BAM; 0=other	6,021	0.110	0.313	0.0%
<i>inc_700</i>	Household income: 1=301-700 BAM; 0=other	6,021	0.306	0.461	0.0%
<i>inc_1000</i>	Household income: 1=701-1000 BAM; 0=other	6,021	0.124	0.329	0.0%
<i>inc_1500</i>	Household income: 1=1001-1500; 0=other	6,021	0.088	0.284	0.0%
<i>over1500</i>	Household income: 1=1500+ BAM; 0=other	6,021	0.064	0.245	0.0%
<i>inc_dknw</i>	Household income: 1=don't know; 0=other	6,021	0.237	0.425	0.0%
<i>welfare</i>	Constructed variable: (savings + house + insurance + car + computer)/5	5,700	0.462	0.242	5.3%
Institutional environment					
<i>fbih</i>	Region: 1=Federation BiH; 0=other	6,021	0.573	0.495	0.0%
<i>rsbih</i>	Region: 1=Republika Srpska BiH; 0=other	6,021	0.420	0.494	0.0%
<i>dbbih</i>	Region: 1=Brcko District BiH; 0=other	6,021	0.008	0.087	0.0%
<i>mnpc</i>	Municipality code: from 1 to 143	6,021	73.259	41.409	0.0%
<i>gentrust</i>	Generally speaking, would you say that most people can be trusted or that you cannot be too careful with people? Min 1 to Max 5	5,853	1.360	0.974	2.8%
<i>muntrust</i>	In this municipality, would you say that	5,807	1.570	1.185	3.6%



	most people can be trusted or that you cannot be too careful with them? Min 1 to Max 5				
<i>stategov</i>	Could you please tell me how much confidence you have in State government? Min 1 to Max 5	5,335	1.665	1.075	11.4%
<i>entgov</i>	Could you please tell me how much confidence you have in Entity government? Min 1 to Max 5	5,305	1.677	1.090	11.9%
<i>locgov</i>	Could you please tell me how much confidence you have in Local authorities? Min 1 to Max 5	5,316	1.739	1.147	11.7%
Post-conflict BiH specific data					
<i>extmigrant</i>	Migration status: 1=external migrant; 0=other	5,954	0.090	0.286	1.1%
<i>intmigrant</i>	Migration status: 1=internal migrant; 0=other	5,954	0.261	0.439	1.1%
<i>nonmigrant</i>	Migration status: 1=non-migrant; 0=other	5,944	0.648	0.478	1.3%

The dataset that we use for empirical modelling does not have standard missing values (i.e. unfilled responses), while “Do not know” or “Refuse to answer” responses are very rare and in some questions account for around 3% of the responses on average. However, we believe that these percentages should not lead to substantial bias in the estimated models and we omit these observations.



Annex 2. Model specification and marginal effects for interpretation

Our model can be written in form of the following equation:

$$\begin{aligned}
 P(\text{UNDECLWORK} = 1 \text{ if } \text{LABFORCE} = 1) & \\
 &= \Lambda(\beta_0 + \hat{\beta}_1 \cdot \text{AGE} + \hat{\beta}_2 \cdot \text{MALE} + \hat{\beta}_3 \cdot \text{NOEDUCAT} + \hat{\beta}_4 \cdot \text{PRIMARY_ED} + \hat{\beta}_5 \\
 &\cdot \text{SECOND_ED} + \hat{\beta}_6 \cdot \text{RURAL} + \hat{\beta}_7 \cdot \text{NOCHILD} + \hat{\beta}_8 \cdot \text{NOINCOME} + \hat{\beta}_9 \cdot \text{INC_300} + \hat{\beta}_{10} \\
 &\cdot \text{INC_700} + \hat{\beta}_{11} \cdot \text{WELFARE} + \hat{\beta}_{12} \cdot \text{FBiH} + \hat{\beta}_{13} \cdot \text{STATEGOV} + \hat{\beta}_{14} \cdot \text{ENTGOV} + \hat{\beta}_{15} \\
 &\cdot \text{LOGGOV} + \hat{\beta}_{16} \cdot \text{EXTMIGRANT} + \hat{\beta}_{17} \cdot \text{INTMIGRANT} + \hat{\beta}_{18-161} \\
 &\cdot \text{Mncp_2toMncp_143}) + \hat{\varepsilon}
 \end{aligned}$$

(Equation 1)

The variables are explained in Table A 1. P refers to Probit estimation, Λ signifies a function of independent variables, $\hat{\beta}_{0-161}$ are coefficients to be estimated and $\hat{\varepsilon}$ is the model error term. A prevalent problem in survey data, missing values and ‘don’t knows’ are on average less than 1% in our data. Simple omission in this case is unlikely to cause substantial bias in our estimations. We do not report the Probit-estimated coefficients as they do not provide directly useful quantification of the estimated relationships. In the context of probability modelling, the most relevant information for interpretation we obtain by looking at the marginal effects, which are reported in Table A 2.

Table A 2. Marginal effects from the baseline model

The dependant variable is <i>undeclwork</i> =1 (1 – solely undeclared income bearing job/s or activities; 0 – other) and the sample is limited to labourforce participants only			
Variable	Explanation of the variables	dy/dx	P > Z
Individual determinants			
<i>age</i>	Age of respondents: from 16 to 65	-0.01	0.000
<i>male</i>	Gender of respondents: 1=male; 0=female	0.06	0.001
<i>noeducat*</i>	Education: 1=no education; 0=other	0.21	0.033
<i>primary_ed*</i>	Education: 1=primary education; 0=other	0.10	0.003
<i>second_ed*</i>	Education: 1=secondary education; 0=other	0.07	0.000
<i>rural</i>	Survey area: 1=rural; 0=other	0.04	0.061
Household background determinants			
<i>nochild</i>	Number of children: from 0 to 11	0.01	0.832
<i>noincome*</i>	Household income: 1=no income; 0=other	0.26	0.000
<i>inc_300</i>	Household income: 1=up to 300 BAM; 0=other	0.17	0.000
<i>inc_700</i>	Household income: 1=301-700 BAM; 0=other	0.07	0.001
<i>welfare</i>	Constructed variable: (savings + house + insurance + car + computer)/5	-0.16	0.000
Institutional environment and BiH specific data			
<i>fbih</i>	Region: 1=Federation BiH; 0=other	-0.09	0.000
<i>stategov</i>	Trust in state government: 1=very little, 2, 3, 4, 5=very much	0.03	0.171
<i>entgov</i>	Trust in entity government: 1=very little, 2, 3, 4, 5=very much	0.01	0.929
<i>locgov</i>	Trust in local government: 1=very little, 2, 3, 4, 5=very much	-0.04	0.033
Post-conflict BiH specific data			
<i>extmigrant*</i>	Migration status: 1=external migrant; 0=other	0.08	0.009
<i>intmigrant*</i>	Migration status: 1=internal migrant; 0=other	-0.01	0.495
Number of observations		2,359	
Municipal			Yes



dummies included	
Predicted probability	0,17
Hosmer-Lemeshov chi2(8)	9.69
Prob > chi2	0.287

Note: dy/dx is for discrete change of dummy variable from 0 to 1.

*The omitted categories:

- for education is the higher education (*higher_ed*);
- for survey area is the rural (*rural*);
- for household income are categories of income greater than 700 BAM (*inc_300*, *inc_700*, *inc_1000*, *inc_1500*, *over1500*, *inc_dknw*⁸).
- for migration status are those that have not migrated (*nonmigrant*)

Source: Author's calculations using STATA 14 (STATA 14, StataCorp, Texas, USA).

⁸ While *inc_dknw* variable (which represents respondents who on income scale question answered with 'Don't know') was omitted category from the estimated model, the 'don't know' answers were included in all three income variables estimated in the model.