KOSOVA ACADEMY OF SCIENCES AND ARTS
ACADEMIA SCIENTIARUM ET ARTIUM KOSOVIENSIS
SECTION OF SOCIAL SCIENCES

ANALYSIS OF THE SHADOW ECONOMY IN KOSOVA

PRISHTINA
2019

Project team:

Academician Isa Mustafa
Correspondent member Justina Shiroka-Pula
Prof. Assoc. Dr. Besnik A. Krasniqi
Prof. Dr. Arnis Sauka
Dr. Gentrit Berisha
Dr. Lekë Pula
MSc. Saranda Lajqi
Dr. Albulena Jaha

Acknowledgments

We are grateful to the Centre for Sustainable Business at SSE Riga for the generous technical support for providing the questionnaire.

FOREWORD

Measuring shadow or hidden economy is critical for policy makers in in every country in the world. Given its large size of the shadow economy the importance of measuring shadow economy in Kosovo is even more important. In Kosovo, in particular, the institutional building started from the scratch, in after math of the war, which in turn affected compliance levels and, hence, the tax revenues that constitute the main source of finance for the government.

This report on the Shadow Economy is based on established indirect methods in measuring shadow economy pioneered by one of the authors of the study and is considered an important indicator and contributor to an informed debate on the size of the respective countries' shadow economies. We are convinced this study will add to existing debate on shadow economy causes and consequences in Kosovo, considering existing disagreements in current literature on measuring shadow economy in Kosovo and elsewhere.

We hope that this study will play an important role in strengthening evidence-based policymaking and thereby hence resulting in design of tailored made policy measures to fight informality.

The research report is written by Kosovo Academy of Sciences and Arts through external support of Center for Sustainable Business at the Stockholm School of Economics in Riga (Latvia).

Prishtina, 2019

Authors

ABBREVIATIONS

BEEPS	Business Environment and Enterprise Performance Survey
EBRD	European Bank for Reconstruction and Development
ECA	Europe and Central Asia
EU	European Commission
GDP	Gross Development Product
GoK	Government of Kosovo
ILO	International Labor Organisation
KAS	Kosovo Agency of Statistics
LFS	Labor Force Survey
LITS	Life in Transition Survey
OECD	Organisation for Economic Cooperation and Development
PCA	Principal Component Analysis
SELDI	Southeast Europe Leadership for Development and Integrity
SNA	System of National Accounts
UNDP	United Nations Development Programme
VAT	Value Added Tax
VIF	Variable Inflated Factor
WB	World Bank

CONTENTS

LIST OF TABLES

LIST OF FIGURES

1. INTRODUCTION

Measuring shadow or hidden economy is critical for policy makers in measuring their success in attempts to reduce its size. Various governments aim to reduce size of the shadow economy by introducing policies, measures and controls. For transition countries, like in Kosovo, informal economy is an especially important subject, given the tremendous institutional change these countries face (FES, 2013). In Kosovo, in particular, the institutional building started from the scratch, in after math of the war, which in turn affect compliance levels and, hence, the tax revenues that constitute the main source of finance for the governments. For example, the International Labor Organisation - ILO (2018) estimates that more than 60 per cent of the world's employed population are in the informal economy, most of them in emerging and developing countries. In terms of tax avoidance, the evidence n suggests that the EU tax gap resulting from largely domestic tax evasion might be €825 billion a year, based on data for 2015 (Murphy, 2018).

Unless such tax avoidance or non-compliance is addressed, therefore, this will not only limit the public finances available to fund public goods and services but there will also be unfair competition for businesses operating formally (Andrews et al., 2011; Krasniqi, 2011; ILO, 2015; OECD, 2012; Williams and Krasniqi, 2017). Moreover, the literature points out that existing methods fail to agree on the size of the shadow economies in different countries, suggesting the need for further evidence. Kosovo is no exception either. Various studies point out different levels of informality, based on different definitions and methods used. For example, World Bank data, although slightly outdated, state that informality in Kosovo is 40 percent of the country's GDP (Riinvest, 2013). More recent studies by Riinvest and the Vienna Institute for International Economic Studies suggest that Kosovo is in the same bracket - 34.4 % (Christie and Holzner, 2004).

In line with this discussion, the aim of this study is to construct and measure the shadow economy index for Kosovo as well as to explore the main factors that influence participation in the shadow economy. We use the term "shadow economy" to refer to all legal production of goods and services produced by registered firms that is deliberately concealed from public authorities. The study is conducted in cooperation with Professor Arnis Sauka from Stockholm School of Economics in Riga, Latvia. Arnis Sauka and Tālis J. Putniņš (2015) have developed the methodology to measure the size of shadow economy based on the survey with company managers. This index and its causes and consequences will provide policy makers with information for making evidence-based policy decisions. Moreover, the study provides evidence on the main determining factors that influence the entrepreneurs, involvement in the shadow economy and provides some policy recommendations. In addition, it will help understand the

entrepreneurship process in Kosovo and compare with other countries who have used this methodology such as Baltic Countries, Moldova, Hungary and Poland among others.

This approach is based on the notion that those most likely to know how much production/income goes unreported are the entrepreneurs that themselves engage in the misreporting and shadow production (see Putniņš and Sauka (2015) for more detailed discussion). The Index combines estimates of misreported business income, unregistered or hidden employees, as well as unreported 'envelope' wages to obtain estimates of the size of the shadow economies as a proportion of GDP. The method used in this report for estimating the size of the shadow economy requires fewer assumptions than most existing methods, in particular compared to methods based on macro indicators.

This research report is organized as follows. The following section gives an overview of the definition of shadow economy. Section 3 presents the research context and provides a summary of the literature on the informal economy in Kosovo. Section 4 describes the method used for measuring the shadow economy. Section 5 presents the Index estimates and analyzes the different forms of shadow activity in Kosovo. Section 6 analyzes the determinants of entrepreneurs' involvement in the shadow sector and their attitudes towards shadow activities. Section 7 contains the empirical analysis. Finally, section 8 discusses the conclusions and gives some policy implications.

2. DEFINITION OF SHADOW ECONOMY

The term shadow economy is defined by many aspects and often is refer to as underground economy, hidden economy, black economy, undeclared economy, informal sector. The agreement of these definitions points out that activities that circumvent government observation, regulation or taxation are considered parts of the shadow economy,

This study uses the term "shadow economy" to refer to all legal production of goods and services produced by registered firms that is deliberately concealed from public authorities. It follows, Putniņš and Sauka (2015) and it corresponds to the to what the Organisation for Economic Co-operation and Development (OECD), in their comprehensive 2002 handbook "Measuring the Non-observed Economy", as well as the System of National Accounts (SNA 1993) refer to as "underground production". It is also consistent with definitions employed by Schneider, Buehn and Montenegro (2010) in a World Bank study of 162 countries. SNA (1993) defines shadow economy based on the several components, including, underground production, illegal activities, informal sector production, household production for own final consumption, and production which is not counted because of insufficient data collection. However, from the list,

underground production and illegal activities are impossible to survey because largely remain unseen (see Tiszberger, 2019).

Schneider (2012, p. 6) adopts more narrow definition of the shadow economy which includes all market-based legal production of goods and services that are deliberately concealed from public authorities for the following reasons:

1. To avoid payment of income, value added or other taxes,
2. To avoid payment of social security contributions,
3. To avoid having to meet certain legal labor market standards, such as minimum wages, maximum working hours, safety standards, etc., and
4. To avoid complying with certain administrative obligations, such as completing statistical questionnaires or other administrative forms.

The Shadow Economy Index has already been estimated in the Baltic countries since 2010 (Putniņš and Sauka (2015), Moldova, Romania (Putniņš, Sauka, and Davidescu, 2018), and more recently for Hungary (Tiszberger, 2019) to provide policymakers with information for making justified policy decisions as well as to foster a deeper understanding of entrepreneurship processes and the structure of the respective economies. this definition does not include illegal underground economic activities or classical crimes like burglary, robbery, drug dealing, etc. It also excludes the informal household economy which consists of all household services and production especially for their final consumption.

3. CONTEXT OF INVESTIGATION: MEASURING SHADOW ECONOMY IN KOSOVO

3.1. Measuring informality in Kosovo

Informal sector also referred to as the undeclared economy or shadow economy is present in every country, yet there is no consensus from the studies on how to define it. The National Strategy of Kosovo for the Prevention of and Fight Against Undeclared Work, Money Laundering, Terrorist Financing and Financial Crimes 2014-2018 (GoK, 2014), defines the *undeclared grey economy* as the sum of activities that are legal but are kept undisclosed from the authorities in attempt to avoid payment of taxes or social security contributions.

Though there is no systematic measurement of the informality in Kosovo, different assessments by various reports and studies using relatively different definitions of the concept indicate a similar level of the informality in Kosovo. According to the National Strategy of Kosovo for the Prevention of and Fight against Undeclared Work, Money Laundering, Terrorist Financing and Financial Crimes 2014-2018, the undeclared economy in Kosovo is estimated to be 26.67% to 34.75% of the GDP. While in monetary value ranging between one million in 2008 and 1.7 billion Euros, in 2012. A different report by Economic Reform

Programme suggests that the level of undeclared economy is about 32% of the country's GDP (GoK, 2018).

Another assessment by an EU funded project, "Further Support to Kosovo" conducted in 2017, estimated that in comparison to 2013, the undeclared economy in Kosovo in 2015 dropped by one percentage point resulting in 31.7% of GDP. The amount of the informal sector also dropped in absolute value from €1,594 million in 2013 to €1,368 million in 2015. This report applied indirect macro methods estimating the extent of the informal sector through the difference between the total household disposable income and the formal (taxed or tax exempted) income. It is worth emphasizing that the undeclared economy measured through this approach is equivalent to the estimating the total tax gap.

Era Dabla-Norris et al, (2008) suggest that when estimating the size of the informal economy it is important to assess the size of the firms since it is highly correlated with the informality. In Kosovo the employees in the large firms are more likely to have employment contracts and a significant share of employees in small firms work without employment contracts. A disadvantage to using the size of firms as an indicator of the size of the informal sector is that many small firms operate formally and employ only formal workers while many large firms use informal employees.

An estimation conducted by the World Bank Enterprise Survey used a survey of 202 non-agricultural formal private enterprises employing five or more employees. This study showed that 94.4% of the firms surveyed were operating in formal sector when they started their operation. However, those that enter the market unregistered, remain so for a 1.5 year, which is much higher compared to the average of the Europe and Central Asia (0.3 years).

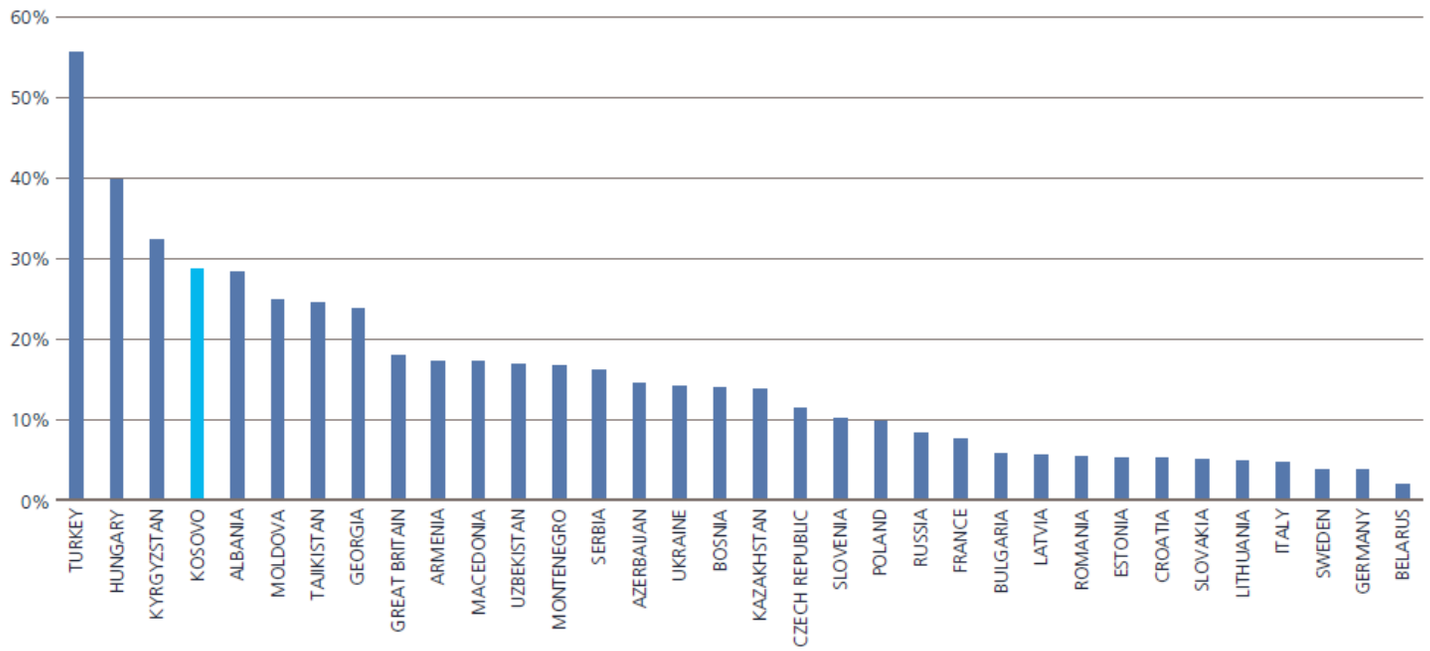
Based on this study, two thirds of the formal firms in Kosovo emphasize that they compete against that firms operating in the informal sector and 58.8% point out that the practices of competitors in the undeclared economy is one of the highest constraints. In comparison to the Europe and Central Asia region in general where these percentages are much higher (World Bank, 2013).

When analyzing the employment aspect of the informal sector, using a *broad* definition: the informality it consists of unpaid family workers, self-employed workers in small firms, self-employed workers in unprofessional occupations, and workers in small firms (five or fewer employees). Using this definition, the informal workers in Kosovo, based on the Labor Force Survey data, informality would consist of about one third of total workers in the labor market. The remaining 65 percent are formal employees. However, it is worth noting that these figures might not be accurate considering that even the formally employed

workers might receive "envelope wages"[1] in order to avoid income taxes. This phenomenon is quite widespread in Eastern Europe. When defining informality more narrowly, as the percentage of wage workers who do not have employment contract, it is estimated that about 15% of workers in Kosovo work in the informal sector.

In comparison to other Europe and Central Asia (ECA) countries, based on the estimates from Life in Transition Survey for year 2010, Kosovo has one of the highest informality rates using the narrow definition of the employed workers without contracts. Figure 3.1 shows that the informality might be even higher than that estimated from the LFS above.

Figure 3.1 Informality rates (workers without employment contracts) in ECA countries, 2010

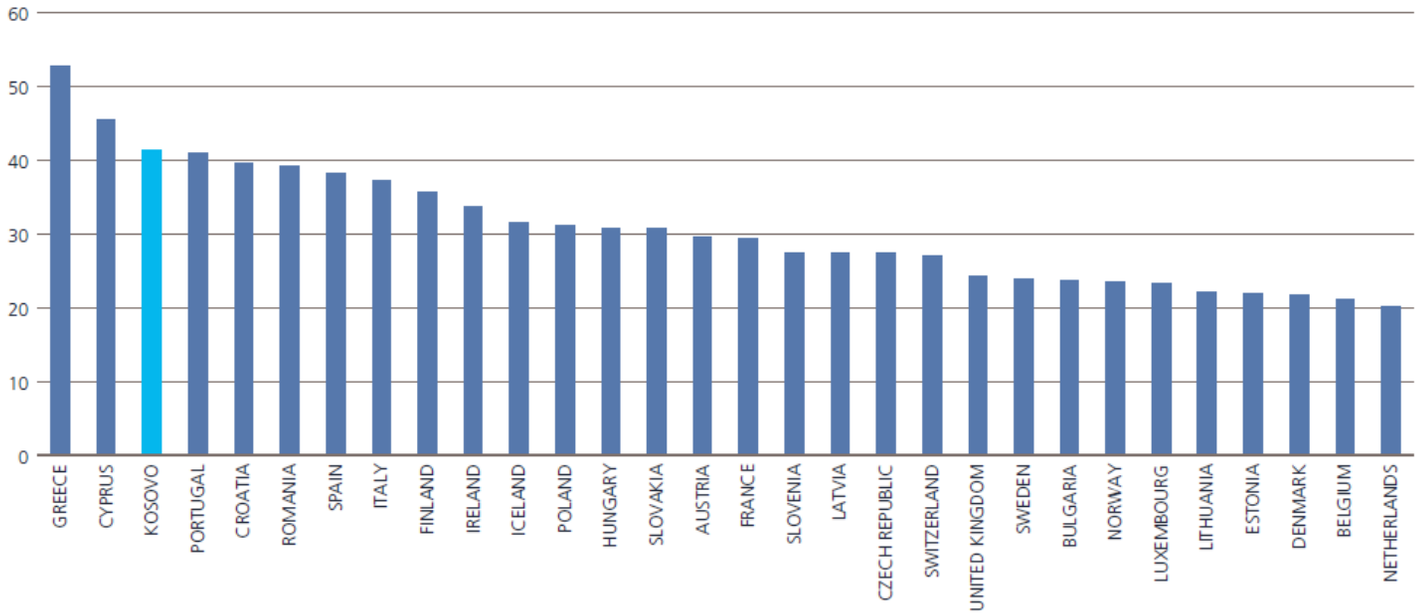


Source: Cojocaru. 2017, World Bank staff calculations using LITS 2010.

While if compared to the European countries, as presented in the figure 3.1, the informality in Kosovo is considerably higher than most of these countries and about as twice as high as that of Belgium and Netherlands. Using the following definition of informality "*employees in units of 10 or fewer, self-employed workers with or without employees in non-professional occupations, and all the unpaid family workers*", figure 3.2 shows that only two countries, Greece and Cyprus, have higher informality rates than Kosovo.

[1] Envelope wages refers to an additional undeclared remuneration received 'under the table' or by 'envelope'.

Figure 3.2 Informality rates in European countries using a broad definition of informality



Source: Cojocaru. 2017, the figure used EU Labor Force Survey Database and Kosovo Labor Force Survey (2012).

Riinvest conducted a survey in 2013 to assess that tax payments of Kosovo's' enterprises, and found that managers and owners of enterprises on average do not declare 37 percent of their employees. The sector mostly involved in informality is agriculture, human health and social work and construction since these sectors mostly employ low-skilled workers and casual labor while in case of agriculture sector it also employs unpaid family workers. The figure of informality in this study, however, might be even higher considering that this study assesses the undeclared employment in registered enterprises and did not capture the employment in un-registered enterprises, hence the informality might be under-estimated. Using the same dataset, the 2012 Human Development Report by UNDP (2013) suggests that the undeclared employees in Kosovo's' labor market is about 30 to 40%.

3.2. Drivers of informality in Kosovo

The failings and the imperfection of formal institutions create an asymmetry of the state morality, comprising of the laws and regulations, and citizen morality, comprising the norms, values and beliefs regarding the laws and regulations. According to Cojocaru (2017), Kosovo ranks lower in political stability and rule of law compared to the neighboring countries. The widespread corruption, unresolved government issues and easily broken rule of law have reduced Kosovars morality which is not in aligned with states' morality. Because of ongoing

political instability and malfunctioning of the government made citizens loose trust in the state institutions.

Government effectiveness seems to be one important determinant of the rise and persistent undeclared economy in Kosovo (Cojocaru, 2017). In comparison to the neighboring countries, Kosovo ranks the lowest in terms of the quality institutions and government effectiveness and rule of law. Worldwide Governance Indicators reported that some dimensions of rule of law and government effectiveness have been improved from 2010 to 2015, there is still a governance gap in comparison to neighboring countries improvements during the years.

In this regard Krasniqi and Williams (2018) reporting data from the firm level survey for Kosovo reveal that underreporting of company sales is significantly higher among smaller and newer firms, and firms owned by men. No significant association is found between formal institutional failings and the under-reporting of sales, but there is a statistically significant correlation between sales under-reporting and the level of vertical and horizontal trust. This means that the government trust as measured by perception of corruption plays a key role on informality.

The institutional failings and imperfections reduce the citizens' morality and reduce their incentive to join the formal sector as opposed to informal sector. The failing in the formal institutions which increases the prevalence of informal operation of enterprises among others are: corruption and quality of governance; lower GDP per capita; lower expenditure on the labor market interventions to help the vulnerable groups; lower level of social expenditure; and social transfer systems that are less effective at reducing the level of inequality and severe material deprivation, which includes improving the efficiency of collection.

4. SHADOW ECONOMY ESTIMATION METHODS

4.1. The survey of entrepreneurs

The Shadow Economy Index is based on the survey with entrepreneurs conducted by Kosovo Academy of Sciences and Arts in 2019, following the method of Putniņš and Sauka (2015). The interviews were conducted by trained enumerators, third year students of Faculty of Economics at University of Prishtina. The interviews were conducted with key decision makers or informants in company, mainly company owners/managers.

The survey was conducted between February and March in 2019 and contain questions about shadow activity during the 2018. The study uses random stratified sampling to construct samples that are representative of the population of firms in Kosovo. The sample is drawn from the business register of Kosovo's companies kept at Agency of Business Registration in Kosovo. In line with Putniņš

and Sauka (2015) we form size groups (using number of employees) and take equal sized random samples from each size group. In total a minimum of 500 face to face interviews are conducted for Kosovo.

The questionnaire form (see Appendix 1) contains four main sections: (i) external influences and satisfaction; (ii) shadow activity; (iii) company and owner characteristics; and (iv) entrepreneurs' attitudes. In line with Putniņš and Sauka (2015) to increase the response rate and truthfulness of responses the questionnaire begins with non-sensitive questions about satisfaction with the government and tax policy, before moving to more sensitive questions about shadow activity and deliberate misreporting. This 'gradual' approach is recommended by methodological studies of survey design in the context of tax evasion and the shadow economy (e.g., Williams and Krasniqi, 2017; Krasniqi and Williams, 2017; Gerxhani, 2007; and Kazemier and van Eck, 1992). Further, the survey is framed as a study of satisfaction with government policy, rather than a study of tax evasion and misreporting (similar to Hanousek and Palda, 2004). We also ensured respondents 100% confidentiality.

In the first survey block, 'external influences', respondents are asked to express their satisfaction with the State Revenue Service, tax policy, business legislation and government support for entrepreneurs in the respective country. The questions use a five-point Likert scale, from "1" ("very unsatisfied") to "5" ("very satisfied"). The first section of the questionnaire also includes two questions related to entrepreneurs' social norms: entrepreneurs' tolerance towards tax evasion and towards bribery. The measures of tolerance serve a second important role as control variables for possible understating of the extent of shadow activity due to the sensitivity of the topic.

The second section of the questionnaire, 'informal business', is constructed based on the concepts of productive, unproductive and destructive entrepreneurship (Baumol, 1990), assessment of 'deviance' or 'departure from norms' within organizations (e.g., Warren, 2003) and empirical studies of tax evasion in various settings (e.g., Fairlie, 2002; Aidis and Van Praag, 2007; Feld and Schneider, 2010; Webb et. al., 2013). We assess the amount of shadow activity by asking entrepreneurs to estimate the degree of underreporting of business income (net profits), underreporting of the number of employees, underreporting of salaries paid to employees and the percentage of revenues that firms pay in bribes.

We employ the 'indirect' approach for questions about informal business, asking entrepreneurs about 'firms in their industry' rather than 'their firm'. In recent years, there has been recognition that because participation in the informal economy is socially legitimate from the viewpoint of informal institutions, even if it is illegal in terms of the formal institutions, respondents will discuss openly with interviewers their participation (Kazemier, 2014; Williams and Krasniqi, 2018).

Therefore, various studies continued to ask the respondents questions indirectly about their engagement in the informal economy (Williams and Schneider, 2013; Putninš and Sauka, 2015). This approach is discussed by Gerxhani (2007) as a method of obtaining more truthful answers, and is used by Hanousek and Palda (2004), for example. Sauka (2008) shows that even if asked indirectly entrepreneurs' answers can be attributed to the particular respondent or company that the respondent represents. Furthermore, experience from Sauka (2008) suggests that phone interviews are an appropriate tool to elicit information about tax evasion. In more recent study, Tiszberger (2019) used face-to-face interviews to implement shadow economy index calculation based on Putniņš and Sauka (2015). However, because of specific context of Kosovo, and based on prior experience with similar surveys this study used face-to-face interview method.

The second section of the questionnaire also elicits entrepreneurs' perceptions of the probability of being caught for various forms of shadow activity and the severity of penalties if caught deliberately misreporting. In addition to measuring the shadow economy involvement of registered businesses, we include a question that measures the amount of unregistered business. We ask owners/managers of registered businesses the following question (see question 12 in Appendix 1):

> *"In some industries, in addition to registered companies such as yours, unregistered enterprises also operate but do not report any of their activity to authorities. In your opinion, what percentage of your industry's total production of goods/ services is carried out by unregistered enterprises …?"*

Even though we ask this question to owners/ managers of registered businesses, we believe that being experts in their industry they are likely to know approximately how many unregistered businesses operate in their industry. Registered companies compete with unregistered ones and therefore should be aware of such companies.

We do not include the production of unregistered businesses in the shadow economy index as their activity does not fit within our definition of the shadow economy. Yet, by including question 12, we are able to provide a more in-depth picture of the unobserved economies in Kosovo as illustrated in Appendix 2, key parts of unobserved economy are:

1. Unreported income of registered producers. This is what we refer to as the 'shadow economy' and measure it with our annual index since 2010.
2. Unreported income of unregistered producers. This component has been measured since 2013 and is not included in the Index.

3. Income from production of illegal goods/services. We do not measure this component of unobserved economy since it requires different methods.

The third section of the questionnaire asks entrepreneurs about the performance of their companies (percentage change in net sales profit, sales turnover and employment during the previous year), company age, industry and region.

The fourth section of the questionnaire elicits entrepreneurs' opinions and attitudes towards tax evasion. This year we have included additional questions relating to entrepreneurs' tax morale. We draw on Torgler and Schneider (2009) who define tax morale as a moral obligation to pay taxes and "a belief in contributing to society by paying taxes" (Torgler and Schneider 2009: 230). Similar to the approach we take for other questions relating to tax evasion, we phrase the tax morale question indirectly, asking company managers to what extent they would agree or disagree with the statement: "Companies in your industry would think it is always justified to cheat on tax if they have the chance" using scale from 1 ('strongly disagree') to 5 ('strongly agree'). We also include a question on community belonging (Q22c) and question on perceived contribution to the growth of economy and society in general (Q22a), both of which are factors associated with tax morale.

In this year's survey we also include questions from the Business Environment and Enterprise Performance Survey (BEEPS) run by the World Bank/European Bank for Reconstruction and Development (EBRD) to measure environmental influences such as institutions. We ask respondents to what extent factors such as tax administration, tax rates, trade and custom regulation, business licensing and permits, functioning of the judiciary/courts, uncertainty about regulatory policies, corruption, anti-competitive practices of other competitors and political instability affect the current operations of a business (Q23).

4.2. Calculation of the Shadow Economy Index

The Index measures the size of the shadow economy as a percentage of GDP. There are three common methods of measuring GDP: the output, expenditure and income approaches. Our Index is based on the income approach, which calculates GDP as the sum of gross remuneration of employees (gross personal income) and gross operating income of firms (gross corporate income). Computation of the Index proceeds in three steps: (i) estimate the degree of underreporting of employee remuneration and underreporting of firms' operating income using the survey responses; (ii) estimate each firm's shadow production as a weighted average of its underreported employee remuneration and underreported operating income, with the weights reflecting the proportions of employee remuneration and firms' operating income in the composition of GDP;

and (iii) calculate a production-weighted average of shadow production across firms.

In the first step, underreporting of firm i's operating income, $UR_i^{Operatingincome}$, is estimated directly from the corresponding survey question (question 7). Underreporting of employee remuneration, however, consists of two components: (i) underreporting of salaries, or 'envelope wages' (question 11); and (ii) unreported employees (question 9). Combining the two components, firm *i's* total unreported proportion of employee remuneration is:

$$UR_i^{Employeeremuneration} = 1 - (1 - UR_i^{Salaries})(1 - UR_i^{Employees})$$

In the second step, for each firm we construct a weighted average of underreported personal and underreported corporate income, producing an estimate of the unreported (shadow) proportion of the firm's production (income):

$$Shadowproportion_i = \alpha_c UR_i^{Employeeremuneration} + (1 - \alpha_c) UR_i^{Operatingincome}$$

where α_c is the ratio of employees' remuneration (based on the section of national accounts, which is substitute to the missing information for Kosovo in Eurostat item D.1) to the sum of employees' remuneration and gross operating income of firms (based on the Tax administration data to substitute for Eurostat items B.2g and B.3g). As suggested by Putniņš and Sauka (2015) taking a weighted average of the underreporting measures rather than a simple average is important to allow the Shadow Economy Index to be interpreted as a proportion of GDP.

In the third step of the Putniņš and Sauka (2015) methodology, one takes the weighted average of underreported production, $Shadowproportion_i$, across firms in country *c* (in our case is only one country –Kosovo) to arrive at the Shadow Economy Index for that country:

$$INDEX_C^{Shadow\ economy} = \sum_{i=1}^{N_c} w_i\ Shadowproportion_i$$

The weights w_i are the relative contribution of each firm to the country's GDP, which we approximate through the relative amount of wages paid by the firm. Similarly to the second step, the weighting in this final average is important to allow the Shadow Economy Index to reflect the proportion of GDP.

5. SHADOW ECONOMY INDEX FOR KOSOVO FOR 2018

Although question about the tax evasion are generally associate with high non – response rate in our case we achieved the response rate higher than 88 percent for wage under-reporting, underreporting of income and employees. The high response rate adds to validity of our results and increases the estimation precession of shadow economy in Kosovo.

Based on the methodology introduced in Section 3 shadow economy index for Kosovo in 2018 is estimated at 39.5 percent. Based on this estimate the size of the shadow economy is estimated to be 39% percent of GDP. Considering that Kosovo's GDP at current prices in 2018 was 6 725.9 million euros, around 2.66 billion euros per year, which is higher than the state's current annual budget.[2]

Official data on the grey market are missing; however, the World Bank data, although slightly outdated, state that informality in Kosovo is 40 percent of the country's GDP. In monetary value, this is around 2 billion euros. From this number, we see that the state budget loses more than 300 million euros per year (just accounting for VAT) (Riinvest, 2013).

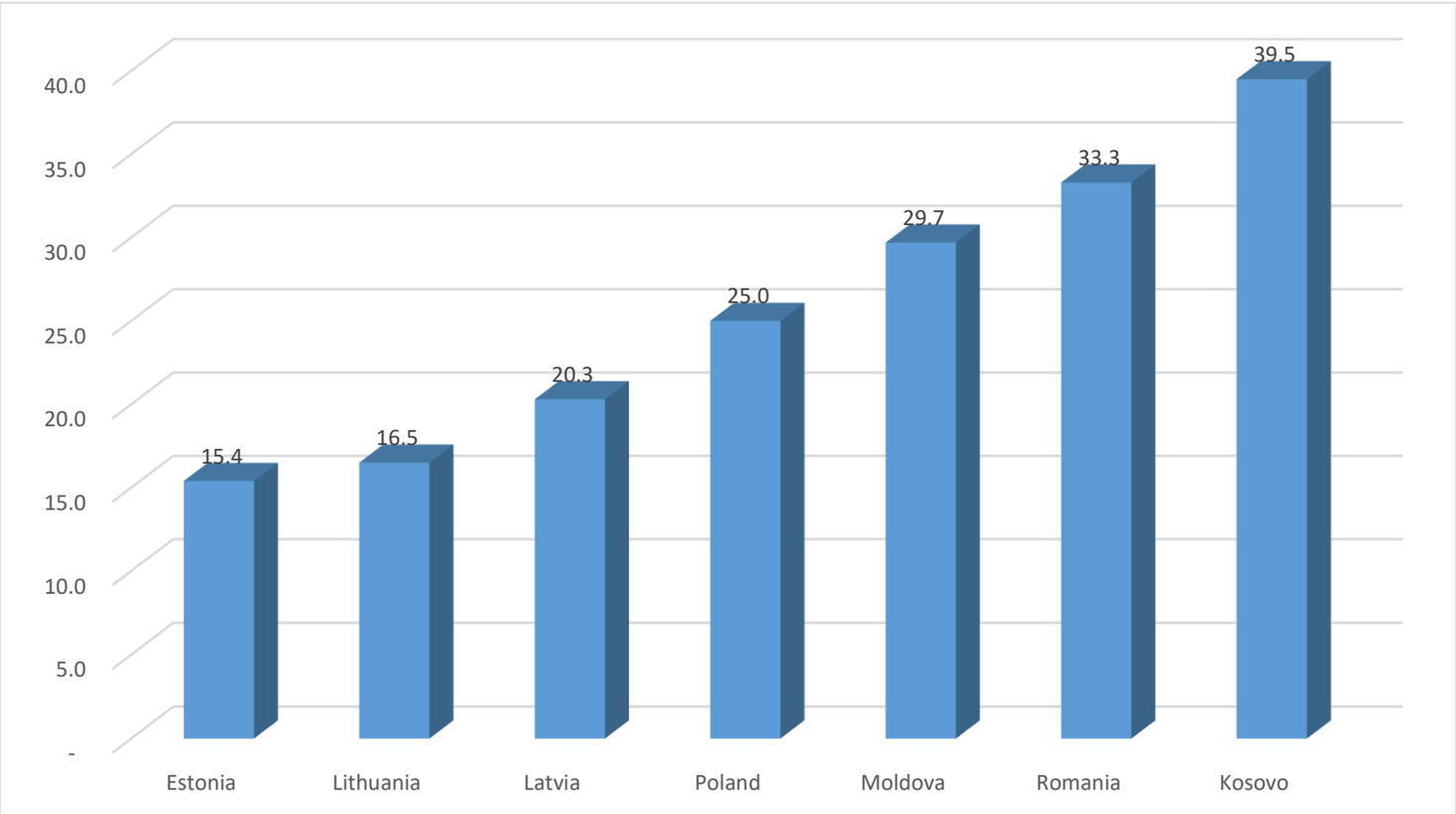
Figure 5.1 illustrates shadow economy indices for selected countries (size of the shadow economies as a proportion of GDP) using the method of Putniņš and Sauka (2015). Based on the data on the aggregate size of the shadow economies Kosovo has highest shadow economy index followed by Romania, Moldova and Poland (25-33%). The Baltic States (Estonia, Latvia, and Lithuania) have lower shadow economy index (accounts for 15-20% of GDP).

To better illustrate the sources of the shadow economy in Kosovo we have estimated the components of the shadow economy. Figure 5.2 illustrates the relative size of the components of the shadow economy in for 2018 in Kosovo.

[2] According to the Kosovo Agency of Statistics (KAS) Kosovo's GDP at current prices in 2018 was 6 725.9 million euros. Real growth in 2018, compared to 2017, was 3.82%, while the GDP per capita for 2018 was 3 746 euros. KAS (2019) reports that real growth in 2018 was in the following economic activities: Financial and insurance activities (17.9%); public administration and defence; compulsory social security (9.5%); construction (9.3%); health and social work activities (8.1%); wholesale and retail trade, repair of motor vehicles and motorcycles (7.6%); information and communication (5.1%); mining industry (4.2%); transport and storage (4.1%); education (3.9%); administrative and support activities (3.9%); processing industry (3.4%); hotels and restaurants (2.9%); real estate business (2.8%); professional, scientific and technical activities (2.7%); art, entertainment and recreation (2.3%); other services (1.4%); and water supply (0.6%). Based on KAS the real growth by key components of GDP with the expenditure approach in 2018 was: Import of services (22.5%); Government final consumption expenditure (8.9%); import of goods (6.5%); gross fixed capital formation (6.1%); export of services (5.5%); final household consumption expenditure (4.8%); final consumption expenditures (4.0%).

The largest components of the shadow economy are unreported business income (47.5%) and unreported number of employees (28.5%), while the last component is envelope wages 24%. Taken together, the underreporting coming from underreporting of number of employees and envelope wages constitute slightly higher than underreporting of business income (52.5%).

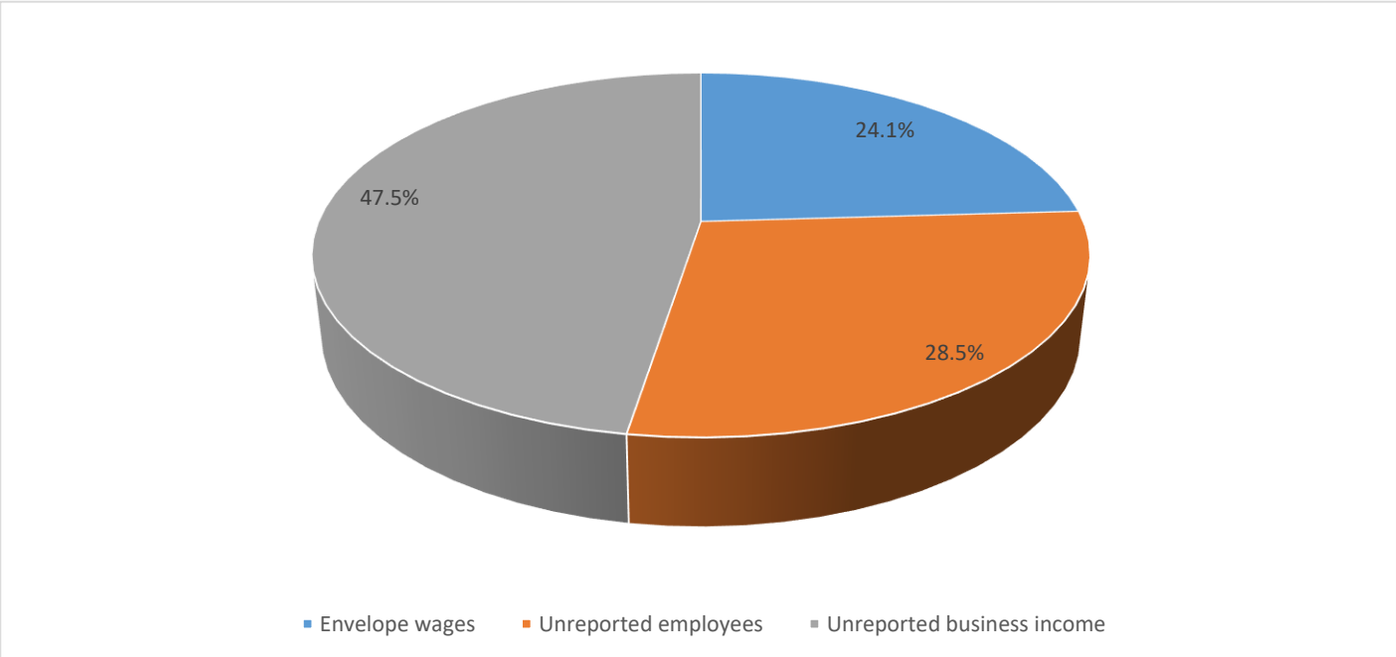
Figure 5.1 Shadow economy index – Kosovo and selected countries



Sources: for Moldova and Romania: Davidescu, 2018; for Estonia, Latvia and Lithuania: Putniņš and Sauka (2017); for Poland: Lechman and Nikulin, 2018;
For Kosovo authors.

Following sections report findings from the survey on underreporting of the business income and the number of employees in Kosovo. Moreover, it places Kosovo in comparative context with countries which undergone similar experiences their path towards building market economy. The use of same research instrument in the previous studies makes unique opportunity for this caparison.

Figure 5.2. Components of the Shadow Economy in Kosovo (2018)



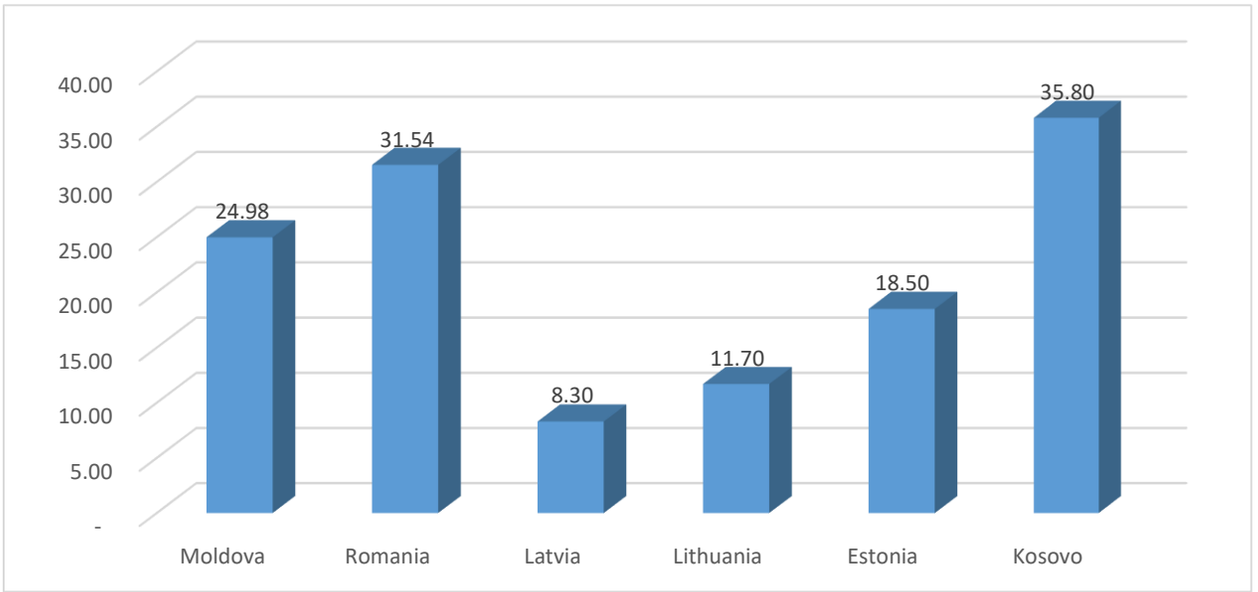
Source: ASHAK Survey, 2019: authors

5.1. Underreporting of business income

Figure 5.3 illustrate the proportion of underreporting of business income (profits) that are intentionally concealed from authorities in Kosovo in 2018 in comparison with other countries in 2016. In Kosovo, 35.8 percent of the business income is underreported. Krasniqi and Williams (2018) reporting data from a 2013 survey in Kosovo involving 500 face-to-face interviews with owners of small and medium-sized enterprises, 35.7 percent of sales are estimated to be unreported, which is very close to our estimates, reconfirming the reliability of this study. This is very high compared to Moldova, Rumania, Estonia, Lithuania and Latvia. The Rumania with 31.5 percent of underreporting business income is close but still much lower than Kosovo.

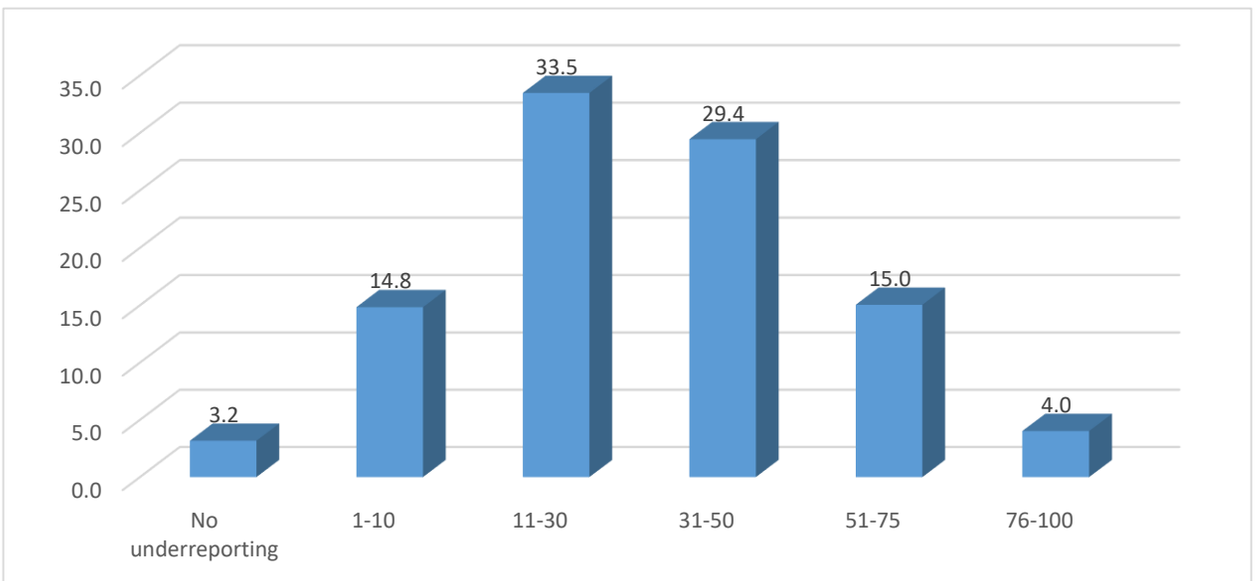
For policy purposes, it is interesting to analyses the percentage of respondents underreporting within the range give from 1-100%. The data illustrated in Figure 5.4 show that only 3.2 percent of respondents state that 100% of actual profits were reported to authorities which is extremely low compared to other countries (see Table 5.1).

Figure 5.3 Underreporting of business income (percentage of actual profits) in Kosovo for 2018 – Comparison with selected countries for 2016



Source: For Moldova and Romania: Davidescu, 2018;
for Estonia, Latvia and Lithuania: Putniņš and Sauka (2017);
for Kosovo authors of this study.

Figure 5.4. Underreporting of business income (percentage of actual profits) in Kosovo (The vertical axis measures the percentage of respondents underreporting within the range given on the horizontal axis)



Source: For Moldova and Romania: Davidescu, 2018;
for Estonia, Latvia and Lithuania: Putniņš and Sauka (2017);
for Kosovo authors of this study.

In Moldova for example, approximately 29% of respondents stated that underreporting 'in the industry' in 2016 was 0%, i.e., that companies reported 100% of their actual profits while in Romani only 13.8%, or as high as 42 in Estonia. The majority of respondents in Kosovo, around 35 percent declared that 11%-30%, and 30 percent of respondents declared that the 31-50% of actual income were concealed from authorities. This highest compared to all countries in Table 5.1, However, in terms of underreporting between 76-100% range Kosovo scores better than Moldova and Rumania but has higher underreporting compered to Baltic countries.

Table 5.1 : Underreporting of income (percentage of actual profits) in Kosovo and selected transition economies (Measures as percentage of each country's respondents underreporting within the range given on the first column)

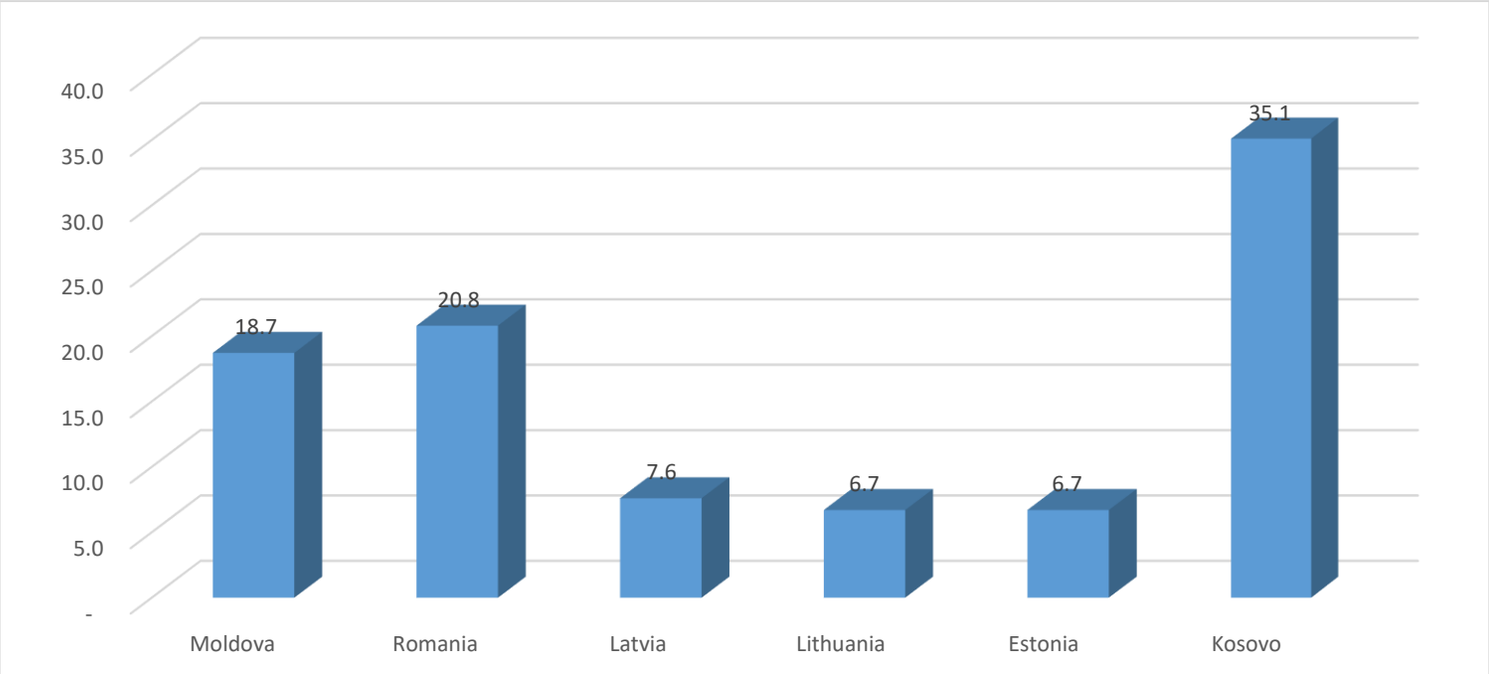
Range of underreporting business income (in %)	Moldova	Rumania	Estonia	Lithuania	Latvia	Kosovo
No underreporting all	28.8	13.8	42.5	12.5	21.0	3.2
1-10	12.5	20.7	22.8	48.0	27.5	14.8
11-30	16.7	16.2	24.8	31.5	33.6	33.5
31-50	15.9	15.2	7.1	7.0	12.9	29.4
51-75	4.2	6.7	1.2	0.4	3.1	15.0
76-100	6.4	10.5	1.6	0.7	2.0	4.0

Source: For Moldova and Romania: Davidescu, 2018;
for Estonia, Latvia and Lithuania: Putniņš and Sauka (2017);
for Kosovo authors of this study.

5.2. Underreporting of employees and their salaries

Figure 5.5 illustrates that the level of underreporting of the number of employees is 35.1 percent. This figure is much higher compared to Moldova (18.7) and Romania (20.8). Baltic countries have much lower levels of underreporting of number of employees – all of them lower than 7 percent of underreporting.

Figure 5.5. Underreporting of the number of employees (percentage of the actual number of employees) – Kosovo and selected countries



Source: For Moldova and Romania: Davidescu, 2018;
for Estonia, Latvia and Lithuania: Putniņš and Sauka (2017);
for Kosovo authors of this study.

In comparative context, Kosovo has the highest level of underreporting in each range cohort. IN particular, the differences can be noted in terms of zero underreporting. All countries in Table 5.2, range between 23 to almost 4) percent of respondents stating zero underreporting compared to Kosovo only 7 percent. This urges the need for policy measures to tackle widespread informality.

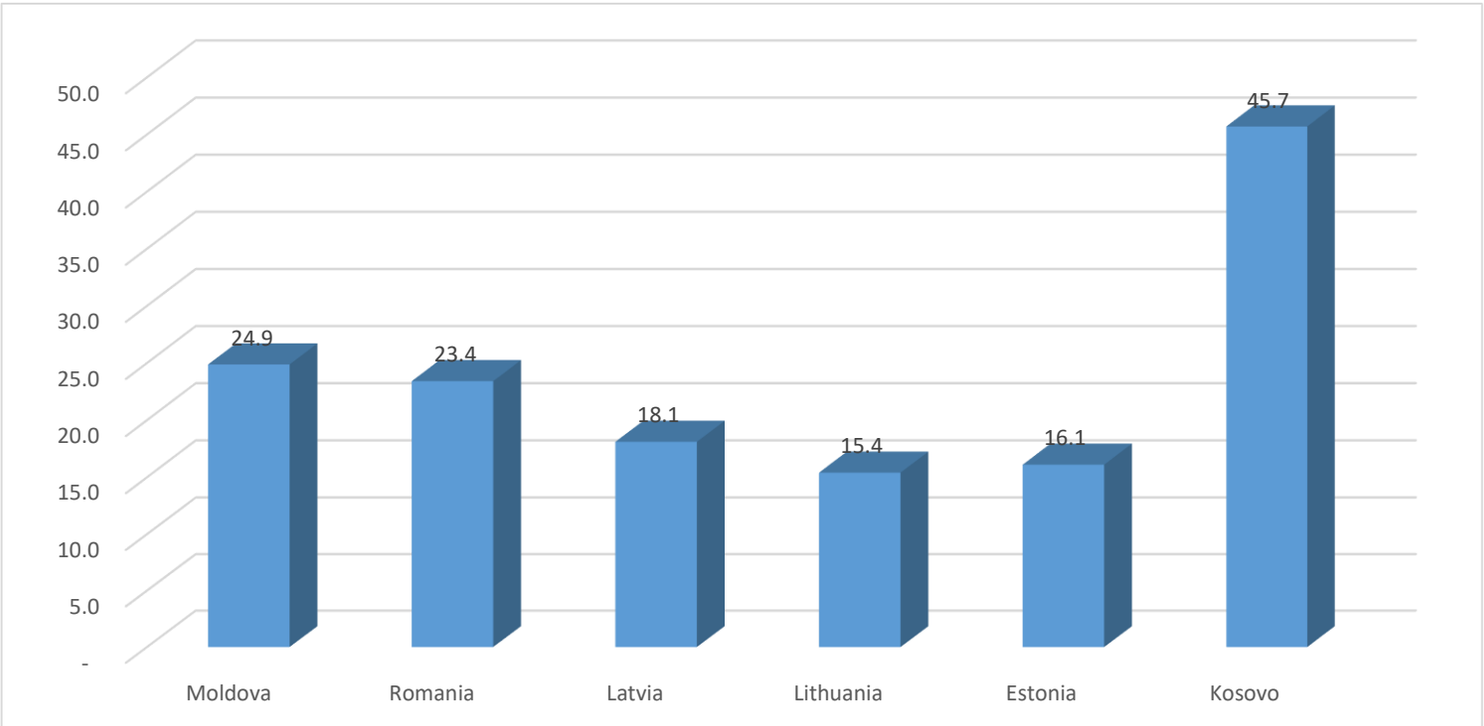
Table 5.2. Underreporting of the number of employees (percentage of total number of employees) in Kosovo and selected transition economies (Measures as percentage of each country's respondents underreporting within the range given on the first column)

Range of underreporting of the number of employees (in %)	Moldova	Rumania	Estonia	Lithuania	Latvia	Kosovo
No underreporting all	39.6	23.3	45.2	34.3	42.0	7.1
1-10	14.7	20.2	33.9	48.9	4.2	15.6
11-30	13.9	18.8	15.4	13.3	15.7	29.2
31-50	12.3	10.5	4.8	3.2	6.6	30.9
51-75	3.4	2.9	0.3	0.3	0.3	13.2
76-100	4.4	4.3	0.3	0.0	1.3	4.1

Source: For Moldova and Romania: Davidescu, 2018;
for Estonia, Latvia and Lithuania: Putniņš and Sauka (2017);
for Kosovo authors of this study.

Figures 5.6 and Table 5.3 report estimates of underreporting of salaries or so called 'envelope wages' as a proportion of the actual wage. Envelope wages occur when an employee receives an official declared salary based on a formal written contract and an additional undeclared ("envelope") wage. This envelope wage is based on an unwritten verbal contract, which supersedes the formal written contract (see Horodnic, 2016). Based on this definition, our survey suggests that envelope wages account for as high as 45.7 percent of actual wage in Kosovo. This is more than double of Moldova and Romania. In Baltic countries, envelope wages in 2016 in all three Baltic countries were at a lower level (in the range of 15.4%-18.1% of wages).

Figure 5.6. Underreporting of salaries (percentage of actual salaries) – Kosovo and selected countries



Source: For Moldova and Romania: Davidescu, 2018;
for Estonia, Latvia and Lithuania: Putniņš and Sauka (2017);
for Kosovo authors of this study.

Table 5.3 shows that respondents reported that most often underreport 31%-51% of actual salaries, which is very high compared to other countries. In Kosovo, again the no underreporting is very low (approximately 5% of actual wages), suggesting that the widespread informality in terms of wages. The no underreporting at all, higher in Moldova (36.6%) and followed by Estonia (27.2%) and Latvia (21.9%). In Baltic countries, companies in all three Baltic countries most often underreport 11%-30% of actual salaries.

Table 5.3. Underreporting of salaries (percentage of actual salaries) in Kosovo and selected countries

Range of underreporting of the number of employees (in %	Moldova	Rumania	Estonia	Lithuania	Latvia	Kosovo
No underreporting	36.60	19.00	27.20	18.60	21.90	5.10
1-10	5.60	16.70	24.50	29.20	17.30	3.77
11-30	14.70	27.10	37.40	43.00	37.90	19.29
31-50	17.90	13.30	9.20	8.60	19.00	49.67
51-75	6.60	3.80	1.70	0.70	2.90	18.18
76-100	4.80	3.80	0.00	0.00	1.00	3.99

Source: For Moldova and Romania: Davidescu, 2018;
for Estonia, Latvia and Lithuania: Putniņš and Sauka (2017);
for Kosovo authors of this study.

In summary, the findings reported in this section lead to the conclusion that the levels of envelope wages and unreported employees are very high in Kosovo and the main reason for the larger shadow economy in Kosovo is primarily underreporting of salaries. This is an area in which policy makers should continue to focus their attention in developing and implementing strategies to decrease the size of the shadow economy in Kosovo.

6. DETERMINANTS OF THE SHADOW ACTIVITY: SURVEY RESULTS

In this section we examine the factors that influence firms' decisions to participate in the shadow economy. We start by exploring entrepreneurs' tax morale, perceived probability of being caught and potential consequences, entrepreneurs' satisfaction with the government and tax authority, social identity, as well as strength of institutional environment in Kosovo. Whenever possible we make comparisons with other counties based on other studies how used the same research instrument.

6.1. Company characteristics and shadow economy

To examine how the size of the shadow economy varies by sector and company size we calculate average levels of shadow economy in several categories. This is crucial to obtain a sufficient number of observations in each category to ensure that the shadow economy estimates within categories are relatively reliable and not overly affected by outliers (see Putniņš & Sauka, 2015; 2018).

Figure 6.1 summarizes how the size of the shadow economy varies by sector. The retail sector has the lowest shadow economy index (38.7%) and construction has the highest (43.4%). The shadow economy index for construction sector in Kosovo is similar to Latvia which particularly stands out as a significant contributor to the shadow economy (around 40%).

Figure 6.1. Size of the shadow economy (% of GDP) by sector in Kosovo

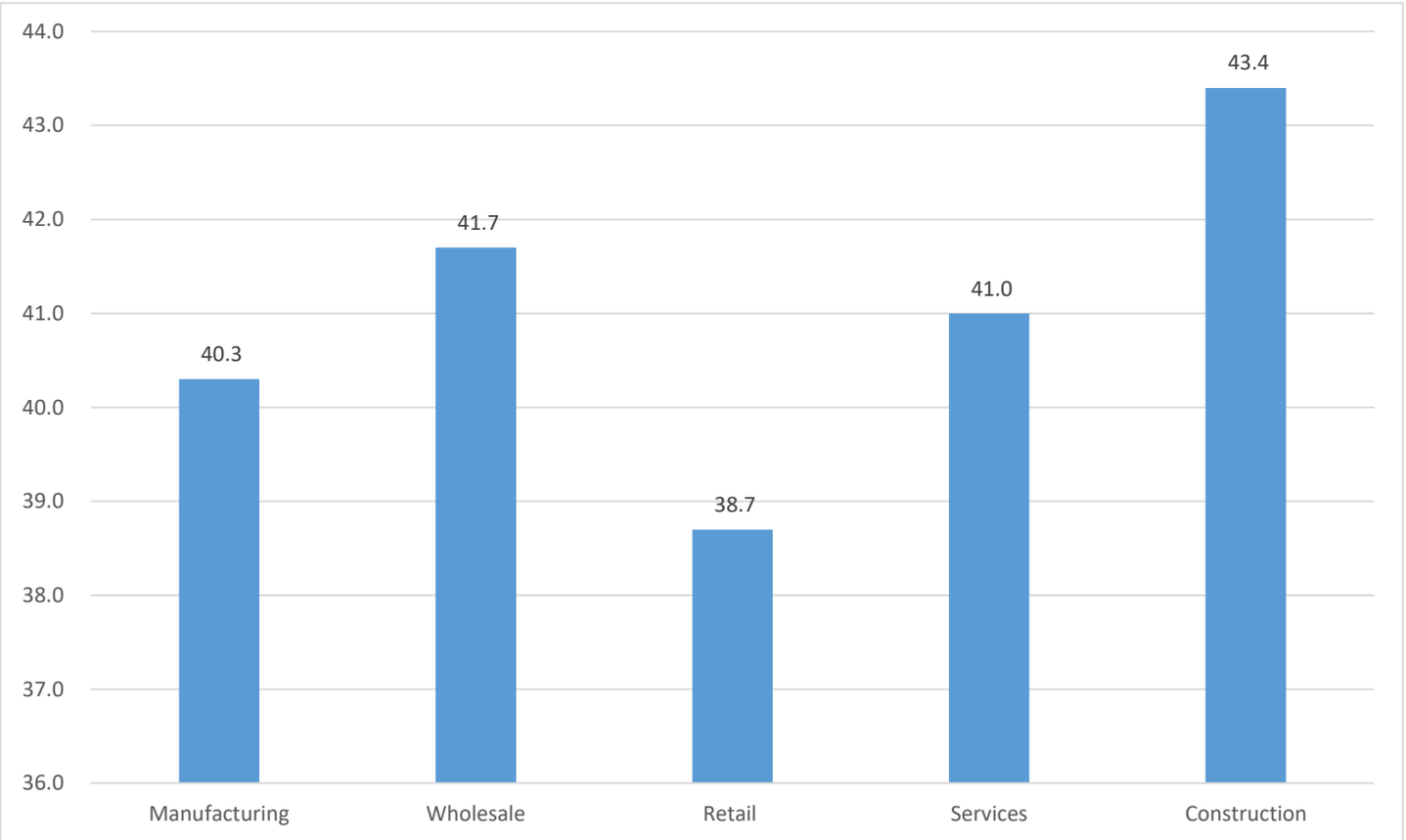
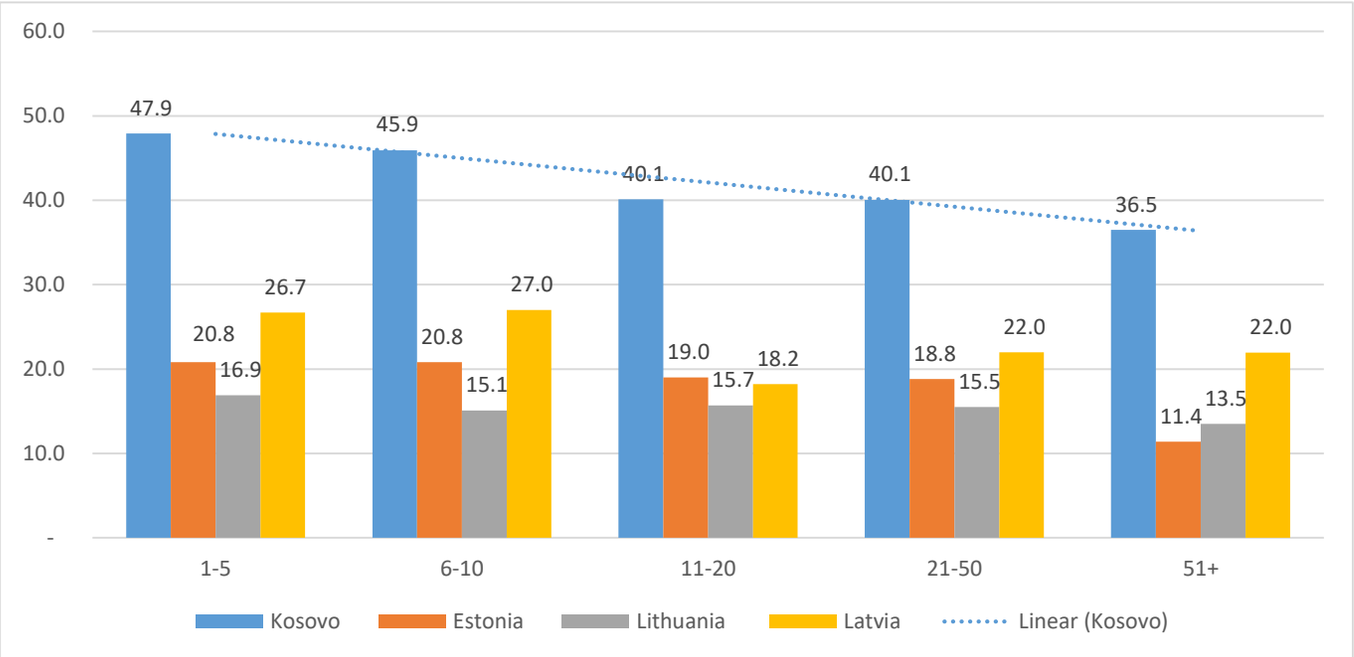


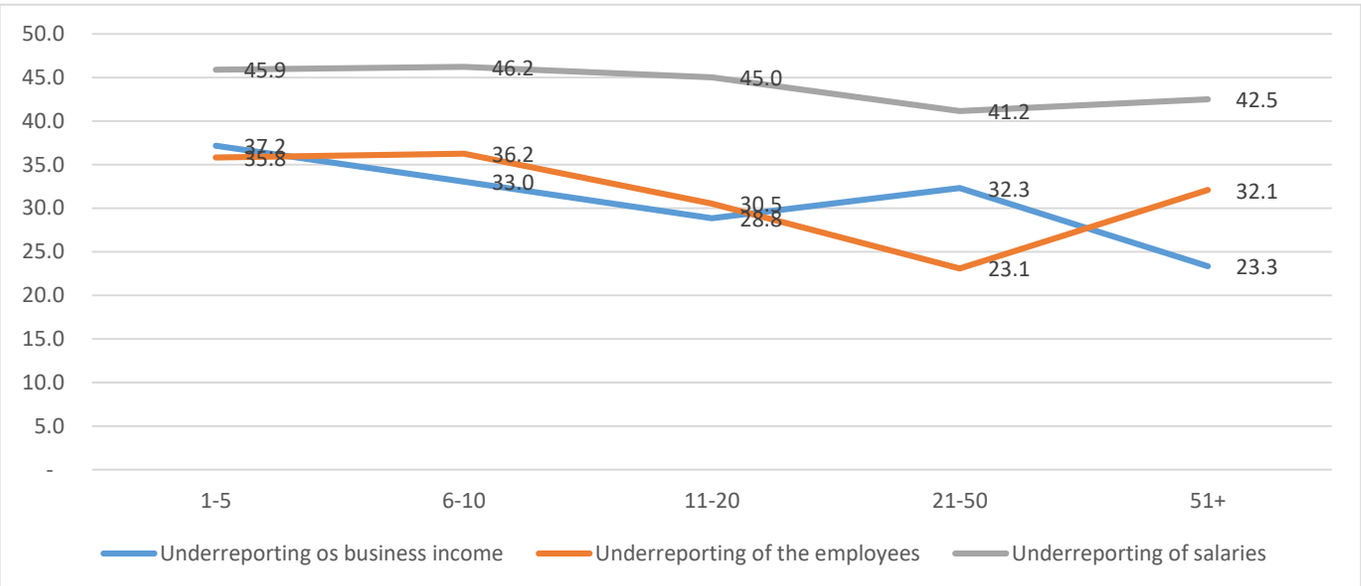
Figure 6.2 shows that although there is a tendency for the level of shadow activity to be higher in smaller companies. However, the shadow activity is not a phenomenon that can only be observed in relatively small companies. In all three Baltic countries a relatively high level of shadow activity occurs in companies that employ 51- 200 employees. Kosovo has much higher shadow economy activity compared to all three Baltic countries in all firm size categories measured by employment numbers.

Figure 6.2. Size of the shadow economy (% of GDP) by firm size (number of employees).



Source: For Moldova and Romania: Davidescu, 2018;
for Estonia, Latvia and Lithuania: Putniņš and Sauka (2017);
for Kosovo authors of this study.

Figure 6.3. Underreporting of business income, number of employees and salaries by company size class



Source: For Moldova and Romania: Davidescu, 2018;
for Estonia, Latvia and Lithuania: Putniņš and Sauka (2017);
for Kosovo authors of this study.

To better understand the relationship between company size and three components of the shadow economy, Figure 6.3 illustrates underreporting of business income, number of employees and salaries by company size class. This figure shows the general trend that smaller companies tend to underreport more compared to larger companies.

6.2. Probability of being caught and potential consequences

The tax evasion literature suggest that the decision to evade taxes and participate in the shadow economy is influenced by various factor such as by the detection rates, the size and type of penalties, tax morale, firms' attitudes towards risk-taking, strength of the institutional framework, and so on. This survey included questions to measure these factors in the survey. Table 6.1 reports perceived probabilities of being caught for underreporting of the business income, number of employees, salaries and making informal payments to 'get things done". The results suggest that entrepreneurs in Kosovo perceive the risk of being caught when underreporting income, salaries and employees is relatively low. Only around 10-15 percent of respondents report that the probability of being caught for underreporting profits is 76-100%.

Compared to Baltic countries this is very low. For example entrepreneurs in all three Baltic countries perceive the risk of being caught when underreporting income, salaries and employees relatively very high (46.5% of respondents in Lithuania; 44.1% of respondents in Latvia report that the probability of being caught for underreporting profits is 76-100%) (See, Putniņš, Sauka, & Davidescu, 2018). The average perceived probability of being caught which is in the range of around 40-45% shows too that the entrepreneurs see relatively low risk. Although it is not the only factor in explaining shadow economy, the low perceived risk of entrepreneurs in terms of underreporting in Kosovo, may suggest the higher level of shadow economy compared to the other countries such as Baltics.

Table 6.1. Probability of being caught for underreporting of the business income, number of employees, salaries and making informal payments to 'get things done"

Probability of being caught for :	Underreporting of business income	Underreporting number of employees	Underreporting salaries	Making payments to 'get things done'
0 Probability of being caught	3.7	5.3	5.4	6.5
1-10	11.60	10.44	11.56	18.23
11-30	20.35	26.22	24.94	19.53
31-50	32.39	35.56	35.15	29.43
51-75	17.51	11.11	12.93	15.63
76-100	14.44	11.33	9.98	10.68
Average probability	45.64	42.04	41.36	40.26

7. EMPIRICAL ANALYSIS

In this section we estimate the factors influencing the firm's involvement in shadow economy, we use econometric analysis based on series of linear regression models, given that the dependent variable is a continuous variable that reports the percentage of firm's involvement in shadow economy. Before we begin with model estimation, we briefly explain the variable and principal component analysis used to identify cluster of variables related to institutional and business trust.

7.1. Dependent variable

To estimate the factors influencing the firm's involvement in shadow economy, we use the dependent variable *shadow economy index* discussed in previous section. The dependent variable is a continuous variable that reports the percentage of firm's involvement in shadow economy.

7.2. Independent variables

To analyze the hypotheses regarding the levels of shadow economy across firms in Kosovo the following variables are analyzed to test hypotheses:

- *Firm age (natural logarithm)*: firms' number of years in operation.
- *Firm size (natural logarithm)*: natural logarithm of the number of employees at the beginning of the year of the survey.
- *Gender*: a dummy variable with value 1 for male entrepreneur and 0 otherwise.
- *Sector dummies for* wholesale, retail, services and construction with value of 1 and 0 for manufacturing and other sectors as a reference category.
- *Age of the entrepreneur*: a continuous variable for the age.
- *Education*: a categorical variable for the educational level with value of 1 university education, and zero for secondary and primary education as a reference base category.
- *Tax morale*: a Likert scale variable from 1-completely agree to 5-completely disagree in question 'Tax *avoidance is tolerated behavior'.* The lower value means that *entrepreneurs do not tolerate involvement in tax avoidance and the higher value of variable means that entrepreneurs highly tolerate involvement in tax avoidance).*
- *Penalty*: a Likert scale variable with value of 1 to 5 (1-Nothing serious; A small fine, 3-A serious fine that would affect the competitiveness of the company, 4- A serious fine that would put the company at risk of insolvency, and 5-The company would be forced to cease operations.
- *Government Support for Entrepreneurs*: a Likert scale variable with value of 1 very unsatisfied to 5-very satisfied in a question: '*Please evaluate your satisfaction with the government's support to entrepreneurs'.*
- *Detection Probability*: measure the firm's perception of the probability of being caught for shadow activity and the severity of penalties conditional on being caught (in percentage).

7.3. Principal component analysis (PCA)

To analyze hypotheses related to the institutional quality on firms' participation in the shadow economy, we examine the trust on government institutions tax and customs authority, municipalities, and courts, related variables deemed important in each explanation. In addition, we have asked entrepreneurs about the trust on their customers, suppliers, and staff. To better analyze the large group of institutional and business trust we have conducted principle component analysis discussed in the next section.

One reason for using PCA is that usually, the institutional trust variables are highly correlated with each other, which violates the assumption of linear independence of independent variables. In addition, the PCA is important tool to investigate whether the data form real world confirms the relationships between constructs as predicted by theories (Krasniqi and Desai, 2016; Lajqi and Krasniqi, 2017). The score of each element was based on factors weights of 7 variables to uncover the common variance of quality institutional variables across all firms in the sample. We conducted an exploratory factor analysis using Varimax-rotation with Kaiser Normalization. The rotated matrix generated three-factor solution with acceptable level results (Kaiser-Meyer-Olkin Measure of Sampling Adequacy=0.789, p<0.00).

Table 7.1 reveals that the central government trust has the highest loading on the first factor, explains most of the institutional quality. The 'local government' ranks as the second highest, while courts ranks as third and "customs and tax administration" as fourth in terms of loading on the first factor. We name this factor as institutional trust. The second factor groups variables ranging from highest such as 'costumers', 'suppliers', and 'company staff'. We refer to this factor as business trust. Factor analysis scores from PCA are saved and used as independent variables in regression analysis.

Table 7.1. Rotated Component Matrix

Variables	Component	
	Trust on institutions (factor 1)	Trust on business partners (Factor 2)
Central government	.815	
Local government	.821	
Courts	.770	
Customs and tax administration	.530	
Costumers		.743
Suppliers		.751
Company staff		.676

Note: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations. Kaiser-Meyer-Olkin Measure of Sampling Adequacy 0.789, Bartlett's Test p<0.000. Cumulative explained variance: 75.60%

7.4. Econometric model

To estimate the factors influencing the firm's involvement in shadow economy, we use econometric analysis based on series of linear regression models, given

that the dependent variable is a continuous variable that reports the percentage of firm's involvement in shadow economy.

The first model specification includes firm level variables; the second specification includes variables related entrepreneur such age, gender and education, the third specification includes tax morale, penalties and probability of detection, the fourth model includes institutional and business trust variables extracted from the factor analysis to capture the effect of both horizontal and vertical trust – trust on government and tac authority and trust on business partners and employees. All these models improve significantly the explanatory power of models. The final econometric model the following form:

$$ShadowEconomyParticipation = \beta_0 + \beta_1 X_i + \cdots . \beta_n n + \varepsilon_i$$

Where, β_0 is the intercept, X_i represents the vector of independent variables and ε_i is the error term. X_i consists of three groups of factors influencing the firms' growth – as discussed earlier.

7.5. Results

Before moving to the discussion of econometric results we present statistical diagnostic testing. The diagnostics show the presence of heteroscedasticity. To deal with this problem we used the "robust standard error" technique based on Huber-White sandwich. According to Hamilton (2006, p. 239) Huber-White sandwich estimates option does not assume identically distributed error terms.[3] In addition to this, we tested for multicollinearity using Variable Inflated Factor (VIF) in STATA which suggested that multicollinearity was not a problem in our estimations. The VIF Mean VIF=2.78 which lower than threshold of 10. In addition, the correlation matrix, confirms this as the correlations between individual variables are generally very low (<0.49).

The explanatory power, as indicated by R-squared ranges from 4.3 percent (Basic model) to 17.3 percent (full model), which explains more than 17 percent of variation in dependent variable which is usual in this type of cross-section data in transition economies (Table 7.2).

Examining whether there is a significant association between individual and entrepreneur's variables and firms' participation in the shadow economy we found that both firm size and age have statistically significant and negative

[3] Hamilton (2006, p. 239) suggest that this is a common procedure when facing minor problems arising from heteroscedasticity or non-normality or from large residuals in observations because the OLS regression tends to fit outliers at the expenses of the rest of the sample. The main advantage of using the robust standard error option is that while estimates of the coefficients are exactly the same as those in ordinary OLS, the standard errors take account of heterogeneity and the lack of normality

relationship with shadow economy. In technical terms, for each one –percent increase in the age, firms' involvement in the shadow economy decreases by 3.85 points (Model 1) and 3.72 (Model 3). On average one percent increase in size of the company decreases the shadow economy on average by 2.7 points (model 1) and 1.36 points (Model 8).

From sector dummy variables we found that only services exhibit more shadow economy activity compared to manufacturing as a reference base, most likely because firms in this sector are more likely to hide and operate informally. However, this finding is statistically significant only in Model 8 and shows that firms in the service sector on average have 6.16 points more shadow activities compared to their counterparts in manufacturing sector.

In terms of the Tax moral and penalties we found that lower tax morale (measured as accepted norm to avoid taxes) is statistically significant and has positive effect on shadow activities of firm, while higher perceived penalties by entrepreneur's negative relationship with the shadow economy. The regression coefficients indicate that the effect of perceived penalties on the tendency for firms to engage in deliberate misreporting is consistent with the predictions of rational choice models, i.e., the higher the perceived the penalties, the lower the amount of tax evasion and misreporting. The effect of penalty in particular stands out as being a particularly strong deterrent of shadow activity. On average, a unit change in the perception of the higher penalty in Likert scale form 1-5, decreases the shadow economy of firms by 6.1 points. This evidence suggests a possible policy tool for reducing the size of the shadow economies, namely increasing the penalties for misreporting. As Putniņš et al. (2018) suggests this could be done via an increased number of tax audits, whistle-blower schemes that provide incentives to report information to authorities about non-compliant companies, and investment in tax evasion detection technology.

Table 7.2 Regression results: Determinants of firms' involvement in shadow activity

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 10	Model 11
Firm-level variables								
Firm age (natural log)	-3.855***	-3.636**	-3.195*	-3.347*	-3.478**	-3.286*	-3.059*	-3.720**
	(1.460)	(1.439)	(1.727)	(1.746)	(1.748)	(1.736)	(1.752)	(1.791)
Firm size (natural log)	-2.668***	-2.771**	-2.575*	-2.253*	-2.098	-1.970	-2.325*	-1.346
	(1.019)	(1.088)	(1.312)	(1.318)	(1.312)	(1.327)	(1.362)	(1.489)
Wholesale		-2.995	-5.615	-5.398	-5.293	-4.321	-4.236	-2.904
		(3.851)	(4.112)	(4.069)	(4.089)	(4.065)	(4.142)	(4.134)
Retail		-0.390	-1.031	-0.365	-0.141	-0.618	-0.588	1.925
		(3.095)	(3.559)	(3.532)	(3.506)	(3.493)	(3.519)	(3.306)
Services		4.213	3.486	3.805	4.036	4.326	4.260	6.166*
		(3.062)	(3.395)	(3.417)	(3.372)	(3.318)	(3.289)	(3.298)
Construction		3.009	2.086	2.725	2.711	3.823	3.982	6.823
		(4.688)	(5.039)	(5.142)	(5.168)	(5.372)	(5.366)	(5.516)
Entrepreneur-related variables								
University education			-1.137	-0.951	-0.499	-1.267	-1.005	-1.458
			(2.312)	(2.345)	(2.495)	(2.346)	(2.346)	(2.467)
Entrepreneur's age			-0.0564	-0.0222	-0.0178	0.00693	0.0123	0.0489
			(0.104)	(0.104)	(0.104)	(0.103)	(0.102)	(0.105)
Gender			-1.975	-1.702	-1.802	-2.197	-2.923	-3.720
			(3.124)	(3.140)	(3.153)	(3.282)	(3.293)	(3.435)
Tax moral and penalties								
Tax Morale				1.515*	1.493*	1.333*	1.144	1.053
				(0.781)	(0.781)	(0.780)	(0.783)	(0.860)
Penalty						-6.035***	-6.434***	-5.766**
						(2.142)	(2.169)	(2.339)
Government Support for Entrepreneurs					-0.917			
					(1.306)			
Detection Probability							0.0516	
							(0.0530)	
Institutional and business trust variables								
Institutional distrust								3.367***
								(1.125)
Business distrust								2.669***
								(1.029)
								0.0455
								(0.0577)
Constant	58.34***	56.64***	60.18***	53.72***	55.34***	56.17***	55.18***	53.26***
	(3.482)	(4.386)	(6.140)	(6.612)	(7.293)	(6.955)	(7.262)	(7.670)
N	389	389	327	322	322	315	310	276
R-squared	0.043	0.062	0.064	0.073	0.075	0.098	0.105	0.173

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Finally, the institutional trust variables are found to be statistically significant. The higher the institutional distrust the higher firms' involvement in shadow economy activity. Literature suggest that even entrepreneurs lack trust in formal institutions, manifested in a perception that public sector corruption acts as a barrier to their business the level of shadow economy or under-reporting is significantly higher (Krasniqi and Williams, 2018). This has been propounded by second-wave institutionalist thought, a lack of which refers to this as vertical trust (i.e., an asymmetry between formal and informal institutions. None of the entrepreneur-related variables (university education, entrepreneur's age and gender) are statistically significant.

8. CONCLUSIONS AND POLICY IMPLICATIONS

This study presents the estimates of the size of the shadow economy as proportion of GDP in Kosovo in 2018 (39.5 percent). To place Kosovo in wider comparative context we report data from secondary reports and papers which use the same methodology in measuring shadow economy. The study reports also survey findings about underreported of the business income, unregistered or hidden employees, and unreported 'envelope' wages.

The method applied in this study has been used in the Baltic by one of authors of this report and also by other scholars in transition countries to measure the size of the shadow economies annually since 2010. The Shadow Economy Index used in this study combines estimates of misreported business income, unregistered or hidden employees, as well as unreported 'envelope' wages to obtain estimates of the shadow economies as a proportion of GDP. This methodology has been used also by policymakers and economists to monitor trends in the shadow economies and guide various policy interventions aimed at reducing shadow economy in respective countries. When comparing the results of this report with other sources, the reader of this report should take into considerations different methodological approaches used by different studies.

The findings reveal that Kosovo's size of the shadow economy is larger compared to Baltic countries, Poland, Moldova and Rumania. Romania. Estimates of this study indicate that the size of the shadow economy in Kosovo is 39.5 percent of the GDP. The major component of the shadow economy is the underreporting of the business income (around 47.5 percent). Thus, policymakers might pay particular attention to this component given its magnitude. The level of underreporting of salaries (payment of "envelope wages") and number of employees contribute to another 52.5 percent of the shadow economy index. In Kosovo, 35.8 percent of the actual business income is underreported. The level of underreporting of the number of employees is 35.1 percent and the level of underreporting salaries is 45.7 percent. In terms of company characteristics, the study finds that construction sector is key contributor to the shadow economy.

On the importance of size, we find a negative correlation between shadow economy activities and size of the company, suggesting that smaller companies tend to have more shadow activities.

To identify the critical influencing factors of the firms' involvement in the shadow economy activity we used regression analysis. Findings suggest that newer and smaller companies how higher shadow economy activity. We find also that, entrepreneurs with higher tax morale show lower shadow economy activity. Although we found that higher perceived penalty is found to have negative relationship with shadow economy, on the other hand the level of institutional trust is found to be significant too. These results should be used as a guide for policy makers by using combination of "sticks" and "carrots" to combat informality. This is very critical, considering that the way this has been pursued is by either using disincentives ("sticks") to prevent informal entrepreneurship or incentives ("carrots") to encourage firms to formalize their business activities. (Mathias et al., 2014). In addition to conventional tools such as use of disincentives to ensure the cost of being caught and punished is greater than the pay-off from participating in the informal economy (Allingham and Sandmo, 1972) there is some evidence incentives are starting to be used to "bribe" entrepreneurs to operate in the formal economy (Williams and Puts, 2017). Our results suggest both policy tools to influence formalization of entrepreneurship activities. Building institution trust should remain focus of our government to change perception of entrepreneurs and in doing so increase their incentives to formalize. This is because, firm's satisfaction with the tax system and the government build trust on institutions which is negatively associated with the firm's involvement in the shadow economy.

REFERENCES

Aidis, R., & Van Praag, M. (2007). Illegal entrepreneurship experience: Does it make a difference for business performance and motivation? *Journal of Business Venturing*, *22*(2), 283-310.

Allingham, M. G., & Sandmo, A. (1972). Income tax evasion: A theoretical analysis. *Journal of public economics*, *1*(3-4), 323-338.

Andrews, D., Sánchez, A. C., & Johansson, Å. (2011). Towards a better understanding of the informal economy.

Christie, E., & Holzner, M. (2004). *Household tax compliance and the shadow economy in Central and Southeastern Europe* (No. 38). The Vienna Institute for International Economic Studies, wiiw.

Cojocaru, A. 2017. "Kosovo Jobs Diagnostic." World Bank, Washington, DC. License: Creative Commons Attribution CC BY 3.0 IGO.

Dabla-Norris, E., Gradstein, M., & Inchauste, G. (2008). What causes firms to hide output? The determinants of informality. *Journal of development economics*, *85*(1-2), 1-27.

Fairlie, R. W. (2002). Drug dealing and legitimate self-employment. *Journal of Labor Economics*, *20*(3), 538-537.

Feld, L. P., & Schneider, F. (2010). Survey on the shadow economy and undeclared earnings in OECD countries. *German Economic Review*, *11*(2), 109-149.

FES, 2013. To Pay or Not to Pay. A Business Perspective of Informality in Kosovo. Friedrich Ebert Foundation, Kosovo.

Fries, S, T Lysenko and S Polanec (2003). The 2002 Business Environment and Enterprise Performance survey: Results from a survey of 6,100 firms. EBRD Working Paper No. 84. [www. ebrd.com/pubs/find/index.html].

Gërxhani, K. (2007). "Did you pay your taxes?" How (not) to conduct tax evasion surveys in transition countries. *Social Indicators Research*, *80*(3), 555-581.

GoK (2014). National Strategy of Kosovo for the Prevention of and Fight Against Informal Economy, Money Laundering, Terrorist Financing and Financial Crimes 2014-2018: https://mf.rks-gov.net/desk/inc/media/B2227717-B018-430E-9498-5DA32C104DD9.pdf

GoK (2018). Economic Reform Programme (ERP) 2018-2020: https://mf.rks-gov.net/desk/inc/media/575DDCA8-52DD-451F-AFE8-F5DBBC247F7A.pdf

Hamilton, L (2006). Statistics with Stata. Belmont, CA: Thomson Brooks.

Hanousek, J., & Palda, F. (2004). Quality of government services and the civic duty to pay taxes in the Czech and Slovak Republics, and other transition countries. *Kyklos*, *57*(2), 237-252.

Horodnic, I. A. (2016). Cash wage payments in transition economies: consequences of envelope wages. *IZA World of Labor*.

ILO (2018). Women and men in the informal economy: a statistical picture (third edition) / International Labor Office – Geneva: ILO, 2018.

Kazemier, B., & Van Eck, R. (1992). Survey investigations of the hidden economy: Some methodological results. *Journal of Economic Psychology*, *13*(4), 569-587.

Krasniqi, B. A. (2011). *Entrepreneurship and small business development in Kosova*. New York: Nova Science Publishers.

Krasniqi, B. A., & Desai, S. (2016). Institutional drivers of high-growth firms: country-level evidence from 26 transition economies. *Small Business Economics*, *47*(4), 1075-1094.

Krasniqi, B. A., & Williams, C. C. (2017). Explaining individual-and country-level variations in unregistered employment using a multi-level model: evidence from 35 Eurasian countries. *South East European Journal of Economics and Business*, *12*(2), 61-72.

Lajqi, S., & Krasniqi, B. A. (2017). Entrepreneurial growth aspirations in challenging environment: The role of institutional quality, human and social capital. *Strategic Change*, *26*(4), 385-401.

Lechman, E., & D. Nikulin, 2018. Calculation of the shadow economy in Poland. Unpublished paper.

Mathias, BD, S Lux, TR Crook, C Autry and R Zaretzki (2014). Competing against the unknown: The impact of enabling and constraining institutions on the informal economy. *Journal of Business Ethics*, 127(2), 251–64.

Murphy, R. (2018). *The European Tax Gap*, London: Tax Research UK.

OECD, G. E. Future Studies (2002) Measuring the Non-Observed Economy: A Handbook. *Complete Edition*.

Putniņš, T. J., & Sauka, A. (2015). Measuring the shadow economy using company managers. *Journal of Comparative Economics*, *43*(2), 471-490.

Putniņš, T. J., Sauka, A., & Davidescu, A. A. (2018). Shadow economy index for Moldova and Romania 2015-2016. *Available at SSRN 3171741*.

Riinvest (2013). To Pay or Not to Pay: A Business Perspective of Informality in Kosovo. Prishtine, Kosove.

Sauka, A. (2008). *Productive, unproductive and destructive entrepreneurship: A theoretical and empirical exploration* (Vol. 3). Peter Lang.

Schneider, F. (2012). The shadow economy and work in the shadow: What do we (not) know? IZA Discussion Papers 6423. *Institute for the Study of Labor (IZA)*.

Schneider, F., Buehn, A., & Montenegro, C. E. (2010). New estimates for the shadow economies all over the world. *International Economic Journal*, *24*(4), 443-461.

SELDI (Southeast Europe Leadership for Development and Integrity) (2016). Hidden economy and Good Governance in South East Europe: Regional Assessment report: file:///C:/Users/ag/Documents/RCC/Informality/Reports/HIDDEN_ECONOMY_06.pdf).

SNA (1993). Inter-Secretariat Working Group on National Accounts, & Commission of the European Communities. (1993). *System of national accounts 1993* (Vol. 2). INTERNATIONAL MONETARY FUND.

Tiszberger, M. G. (2019). Shadow Economy Index–Lessons from Hungary. *Societal Entrepreneurship and Competitiveness, Emerald Publishing Limited*, 137-153.

Torgler, B., & Schneider, F. (2009). The impact of tax morale and institutional quality on the shadow economy. *Journal of Economic Psychology*, *30*(2), 228-245.

Warren, D. E. (2003). Constructive and destructive deviance to organizations. *Academy of management Review*, *28*(4), 622-632.

Webb, J. W., Bruton, G. D., Tihanyi, L., & Ireland, R. D. (2013). Research on entrepreneurship in the informal economy: Framing a research agenda. *Journal of Business Venturing*, *28*(5), 598-614.

Williams, C. C., & Krasniqi, B. (2017). Evaluating the individual-and country-level variations in tax morale: evidence from 35 Eurasian countries. *Journal of Economic Studies*, *44*(5), 816-832.

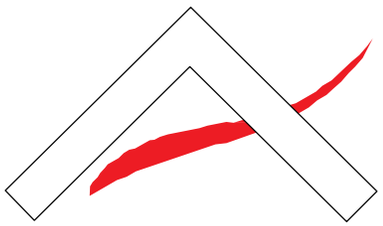
Williams, C. C., & Krasniqi, B. (2018). Explaining Informal Sector Entrepreneurship in Kosovo: An Institutionalist Perspective. *Journal of Developmental Entrepreneurship*, *23*(02), 1850011.

Williams, C. C., & Puts, E. (2017). Platform Survey Report: organizational characteristics of enforcement bodies, measures adopted to tackle undeclared work, and the use of databases and digital tools. *Brussels: European Commission*.

Williams, C. C., & Schneider, F. (2013). The shadow economy. *London: Institute for Economic Affairs*.

World Bank Enterprise Survey, 2013: http://www.enterprisesurveys.org/data/exploreeconomies/2013/Kosovo.

APPENDIX 1: QUESTIONNAIRE



QUESTIONNAIRE

Dear entrepreneurs,

The Kosovo Academy of Sciences and Arts is implementing a project on business performance analysis in Kosovo to understand the difficulties and barriers that Kosovo businesses face today, as well as measuring informality. As part of this project, the Kosovo Academy of Sciences and Arts is conducting field research (enterprise survey) to collect data throughout Kosovo. The results of the survey will be used to analyze the situation of the private sector and to develop policies for its development. We hope to encounter your understanding and that you may find time to answer the questions posed in this questionnaire. The questionnaire remains anonymous for the public, i.e. your **name** or **company name** and **data** contained in the survey will in no case be disclosed or presented to the public. You have been randomly selected as be one of the respondents (similarly to how the numbers were drawn in the lottery). Your opinion will not be communicated to anyone and will only be used for statistical purposes.

Thank you in advance for your readiness,

February 2019

GENERAL INFORMATION							
P1	Location: _____ _____					Urban □	Rural □
P2	Please indicate the following details:	Gender		Age	Education		
	Owner	M □	F □		Primary □	Secondary □	Tertiary □
P3	What is the legal status of your business?						
	Individual business	Joint venture		Corporation		Other: ___	

1. Please indicate how satisfied you are with the management of the Kosovo State Budget in 2018.

1	2	3	4	5
Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very satisfied

2. Please indicate how satisfied you are with the tax policies of the government of Kosovo in 2018.

1	2	3	4	5
Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very satisfied

3. Please indicate how satisfied you are with the quality of business legislation in Kosovo in 2018.

1	2	3	4	5
Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very satisfied

4. Please indicate how satisfied you are with the government support for entrepreneurs in Kosovo in 2018.

1	2	3	4	5
Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very satisfied

5. Tax evasion is a tolerated behavior in Kosovo.

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree
(Entrepreneurs do not tolerate involvement in tax evasion)				(Entrepreneurs tolerate involvement in tax evasion)

6. Corruption is a tolerated behavior in Kosovo.

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

Informal business

7. Please estimate the approximate rate of business income under-reported by companies in your industry in 2018:

Companies have under-reported revenues of approximately ____% in 2018.

8. Please estimate the approximate rate of business income under-reported by companies in your industry in the previous year (2017):

Companies have under-reported revenues of approximately ____% in 2017.

9. Please estimate the approximate rate of the number of under-reported employees in companies in your industry in 2018:

Companies have under-reported approximately ____% of the current number of employees in 2018.

10. Please estimate the approximate rate of the number of under-reported employees in companies in your industry in the previous year (2017).

Companies have under-reported approximately ____% of the current number of employees in 2017.

11. Please estimate the rate of employees' salaries under-reported by companies in your industry in 2018 (for example, if in reality an employee receives 400 euros but the reported salary is 100 euros, the underreporting is 75%; If it is 400 and 200 euros, the under-reporting is 50%):

Companies have under-reported current salaries for about ____% in 2018.

12. Please estimate the approximate rate of the salaries of employees under-reported by companies in your industry in 2017.

Companies have under-reported current salaries for about ____% in 2017.

13. What is the average percentage of revenue (turnover) that companies in your industry pay as informal payments to "get the job done" in 2018?

In 2018 companies paid about ____% of their revenues to get the job done.

14. What is the average percentage of revenue (turnover) that companies in your industry pay as informal payments to "get the job done" in 2017?

In 2017 companies paid about ____% of their revenues to get the job done.

15. When other companies in your industry do business with the government, what estimated value of the contract do they offer as informal payments to secure the contract? (Year 2018)

_____%

16. In some industries, in addition to registered companies such as yours, unregistered companies also operate, but do not report any of their activities to the authorities. In your opinion, what percentage of your industry's total production of goods/services is done by unregistered companies in 2018? _____ in 2017?

17. What is the size of the average unregistered company in your industry compared to your company (e.g., if the average unregistered company is half as a large, put 50%, if twice as large, put 200%)? _____%

18. For a typical company in your industry, what do you think is the approximate probability (0-100%) of capture if the company will:

(i) underreport its business income? _____%
(ii) underreport the number of employees? _____%
(iii) underreport the amount paid to employees in salaries? _____%
(iv) make informal payments to "get the job done"? _____%

19. If a company in your industry is caught for deliberate abuse, what would be the common consequences for that company?

Nothing serious	A small fine	A serious fine that would damage the company's competitive ability	A serious fine that will put the company at risk of bankruptcy	The company would be forced to cease its operations
1	2	3	4	5

Company

20. What is the approximate difference in the percentage of your net sales profit, sales turnover and total employment in 2018 compared to 2017?

	1. Net sales profit	2. Sales turnover	3. Total employment
Difference (increase or decrease in%) compared to 2017. For example: + 20%, -15%, 0 (no difference			

21. In which year did your company start operating?

Year_____

22. What is the main activity (e.g sector) in which your company is engaged?

□ Manufacturing

□ Wholesale

□ Retail

□ Services (please specify _____)

□ Construction

□ Other (please specify _____)?

23. What was your company's operating profit in 2018?

EUR _____

24. How many employees are currently employed in your company (full time equivalent, including yourself)?

_____ employees

25. What is the approximate average salary reported in your company in 2018?

____ EUR / month

Your attitudes

26. Do you agree that (1 strongly agree, 7 strongly disagree):

(A) It is justifiable to evade taxes if one has the chance.	1	2	3	4	5	6	7
(B) The performance of companies in your industry is heavily influenced by their choice to pay or evade taxes: by avoiding taxes, companies in your industry significantly increase their profits.	1	2	3	4	5	6	7
(C) It is difficult to compete with tax avoiding companies.	1	2	3	4	5	6	7

27. Did you make any investments during 2018?

a) YES	b) NO

28. What was the value of the investments you made in 2018?

_____Euro

29. Can you tell us where has your company invested in 2018?

a) Buildings	b) Machinery and equipment	c) Training, Consultancy, Support
d) Advertising and marketing	Other (specify)	

30. How were the investments secured? (The total must be 100%)

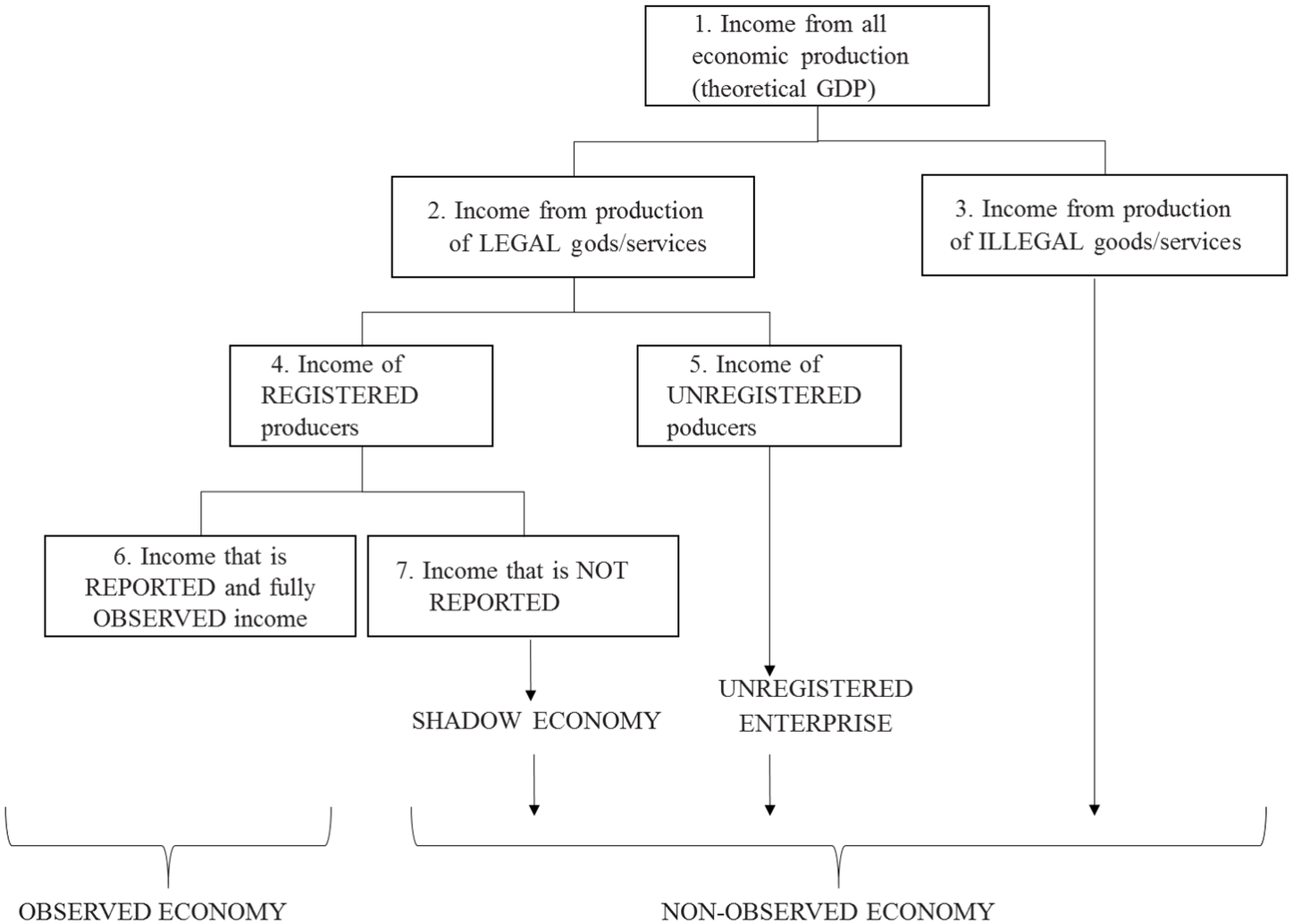
a) Own capital ____%	b) Bank loans _____%	c)	d) Foreign bank loans _____%
e) feaDonations from donor organizations _____%	f) Loans from families or friends _____%	g)	h) Through foreign direct investment ____%
i) Remittances _____%	j) Other (specify) _____%		Total: 100 %

31. In the next 5 years, your plan for the number of employees in your company is to:

1	Grow	□	_____ % growth
2	Drop	□	_____% drop
3	Remain unchanged	□	

32. How much do you trust the following institutions/bodies		Very much	Somew hat	Neutral	Not so much	Not at all	No answer
1	Central government	1	2	3	4	5	9
2	Municipality	1	2	3	4	5	9
3	Courts	1	2	3	4	5	9
4	Buyers	1	2	3	4	5	9
5	Suppliers	1	2	3	4	5	9
6	Tax Administration, Customs	1	2	3	4	5	9
7	Your staff	1	2	3	4	5	9
8	Other (Write) ……	1	2	3	4	5	9

APPENDIX 2: OBSERVED AND NON-OBSERVED COMPONENTS OF GDP



Sources: Adopted from Putniņš, T. J., & Sauka, A. (2015)

Notes on some of the components 1-7 follow. Income refers to both business income and employee income. Illegal production (3) includes production of goods/services that are illegal regardless of who produces them (e.g., narcotics, prostitution) and production of goods that themselves are legal but the production is illegal because it is carried out by an unauthorized producer (e.g., unlicensed surgeons, unlicensed production of alcohol). Goods/services that are produced legally (2) can still involve breaches of the law at the registration or reporting stage (e.g., intentional underreporting of profit to evade taxes). Most of the income generated from producing legal goods is reported by registered firms and therefore fully captured in official GDP (6). However, some proportion of income is intentionally hidden from authorities either by not registering the enterprise (5) or by misreporting wages or company earnings (7). Following other studies, we refer to the latter (7) as the 'shadow economy' and use the term 'non-observed' economy in a broader sense referring to illegal goods/services, activities of unregistered enterprises and the shadow economy.