

Illegitimate Economic Practices in FYR Macedonia

Findings from a representative survey of 2,014 citizens

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Executive Summary

This report presents the findings of a survey on illegitimate economic practices in FYR Macedonia conducted between August and October 2015. This representative survey of 2,014 citizens focused on their experiences with undeclared work, envelope wages and the practice of 'pulling strings', as well as on their opinion about these types of non-compliant behaviour.

According to the respondents, non-compliant practices are strongly ingrained in Macedonian society. Some 35% use personal connections in order to circumvent rules and procedures, 17.7% purchase undeclared goods and services, 6.1% work in the undeclared economy and 13% of employees receive envelope wages from their employer. However, these should all be treated as lower-bound estimates, given that surveys tend to under-report participation when sensitive issues are being investigated.

Analysing involvement in undeclared work, nevertheless, the findings reveal that tax morale and personal views on the extent to which others participate are key determinants. The lower one's tax morale (i.e., level of 'vertical trust'), the higher the propensity to participate in the undeclared economy (and this applies to both the demand and supply sides). Likewise, the higher is the perceived number engaged in such activity (i.e., the level of 'horizontal trust'), the more likely is a citizen to engage in illegitimate economic practices.

To tackle illegitimate practices, therefore, citizens do not believe that increasing the penalties and risks of detection would be an effective approach. Instead, the prevalent opinion is that undeclared work can only be reduced by improving the social contract

between the authorities and citizens, and this should be done first and foremost by changing formal institutions. Citizens widely believe that there is a need for a change in the way in which enforcement agencies treat citizens, namely more collaboration and less coercion on the part of the inspectors, as well as the provision of equal treatment across all groups of citizens, and a sense of fair treatment by public and government institutions.

1. Introduction

Across South-East Europe and more widely, there is a growing interest in understanding the causes and character of the economic activities by companies and individuals that are 'hidden' from the government authorities (Sauka et al., 2016; Williams, 2016a,b, 2017; Williams and Franic, 2016a,b; Williams and Horodnic, 2015a, 2016b,c; Williams and Schneider, 2016). This has been particularly acute since the onset of the economic downturn in 2009, which resulted in falls in public budget revenues (Andrews et al., 2011; CSD, 2011; Dekker et al., 2010; Eurofound, 2013; Williams, 2014a,b,c, 2015a,b,c; Williams and Schneider, 2016). Large fiscal deficits have provided a catalyst for governments to pursue more efficient policy measures to stem tax non-compliance (Dekker et al., 2010; Eurofound, 2013; Williams and Nadin, 2012a,b; Williams et al. 2013), with mutual learning between member states by the European Commission via the establishment of the European Platform Tackling Undeclared Work in May 2016 (European Commission, 2016). Moreover, the Commission has supported an array of research projects on this phenomenon across Europe.

This report presents findings from one such project which has focused on three South-East European countries where there is a high social embeddedness of non-compliant behaviour. The IAPP project titled ' GREY - Out of the shadows: developing capacities and capabilities for tackling undeclared work in Bulgaria, Croatia and FYR Macedonia' aims at providing evidence-based recommendations to policy-makers in these three countries so as to enable illegitimate economic practices to be more efficiently tackled (European Commission, 2013).

Apart from structural causes, which are primarily reflected through inefficient state apparatus, weak rule of law and prevalent corruption in the public sector, the roots of tax evasion in these three countries can be found in pervasive unemployment (Bejaković, 2012; CSD, 2011; Dzhekova and Williams, 2014; Dzhekova et al., 2015; Eurostat, 2016b; Transparency International, 2015; Williams et al., 2014; World Bank, 2015). According to estimates, one third of the official GDP in FYR Maceonida remains hidden from the authorities (Schneider et al., 2010), whilst illegitimate economic activities account for 27.1% and 30.2% of the GDP in Croatia and Bulgaria respectively (Schneider, 2016).

To gather rigorous evidence on hidden economic activities in these countries, two separate questionnaire surveys were conducted in each country. The first surveyed individuals and their activities, while the second explored unregistered economic practices by companies. This report provides an insight into individual-level aspects of the phenomenon in FYR Macedonia by reporting the first survey, which was based on a representative survey of 2,014 households conducted between August and October 2015¹. The main aim of this particular survey, whose detailed description is given later in this chapter, was to determine which demographic and socio-economic groups in FYR Macedonia are more likely to carry out illegitimate economic activities, as well to understand their rationales for doing so. In addition, the idea was to evaluate the attitudes of citizens towards various types of noncompliant behaviour and their

¹ This is just one of several different reports prepared in this respect. Other reports can be found at: <http://www.grey-project.group.shef.ac.uk/>.

reasoning as policy-takers regarding the most effective strategies to reduce disobedience with labour and tax legislation.

At the outset, it is important to state that our inquiry into hidden economic practices analysed two groups of activities. The first group of activities, commonly referred to as 'undeclared work' , refers to "any paid activities that are lawful as regards their nature but not declared to the public authorities, taking into account differences in the regulatory system of Member States" (European Commission, 1998, p. 4). Undeclared work therefore includes all paid activities that are deliberately concealed in order to evade taxes and/or social security contributions or to circumvent labour legislation, but are legitimate in all other respects. As such, criminal activities (such as human trafficking, drug smuggling and prostitution) are not included, and neither are unpaid activities (e.g., self-provisioning, volunteering, unpaid community work).

Besides undeclared work, the second group of activity analysed can be defined "the use of personal networks for obtaining goods and services in short supply, or for circumventing formal procedures" (Ledeneva, 2013, p. 273). This is known under various names in the literature: in post-soviet countries it is denoted as 'blat' , while in the Arab world it is called 'wasta' (Onoshchenko & Williams, 2013). In China, meanwhile, it is referred to as 'guanxi' (Eng. Connections), while in Brazil this practice is termed 'jeitinho' (Eng. Little way out). Leaving aside minor differences between these terms, throughout this report we will denote this phenomenon as 'pulling strings' , which is the most common name for this practice in the English-spoken world. In the context of the report, 'pulling strings' denotes the practice of relying on personal connections (i.e., help from relatives, friends, colleagues or acquaintances) to

obtain goods and services outside formal means of conduct in different spheres of life, regardless of the reward/compensation that accompanies the arrangement. Thus, we do not distinguish between paid favours and those that do not entail monetary transaction, given that the primary emphasis is on understanding motivations of people to engage in this practice, not on the exact nature of the agreement between the stakeholders involved.

In this report, therefore, and to evaluate illegitimate economic practices in FYR Macedonia, we commence with an elaboration on citizens' perceptions of this endeavour, primarily regarding the prevalence of undeclared work, the role of pulling strings in everyday life, the effectiveness of repressive endeavours by the authorities and tolerance towards various types of misbehaviour. Chapter 3 provides an overview of the demand side of undeclared work in FYR Macedonia, while discussion about envelope wage practices in this South-East European country is given in Chapter 4. The insight into undeclared work is completed in Chapter 5, which reports the most important findings on the supply side of this phenomenon. Chapter 6 then elaborates on the causes and nature of pulling strings practices, both from the demand and supply side. The report ends with the overview of citizens' opinions regarding the most effective policy strategies to combat noncompliant behaviour in FYR Macedonia.

2. Illegitimate economic practices from the perspective of Macedonian citizens

This chapter examine the attitudes and perceptions of Macedonian citizens about undeclared work. Section 2.1 reports their views on the prevalence of undeclared work as well as the role of a deterrence policy approach. Section 2.2 examines the level of tolerance towards various violating behaviours, while section 2.3 analyzes the views of Macedonian citizens on the use of personal connections.

2.1. Citizens' opinions about undeclared work

This section analyzes citizens' opinions about undeclared work in FYR Macedonia. Before asking respondents about undeclared work, it was explained to each respondent what was meant by the term undeclared work. In this survey, undeclared work implies carrying out activities which avoid partly or entirely declaration of the income to the tax authorities, but which are otherwise legal. The first question analyzes the prevalence of the population involved in undeclared work:

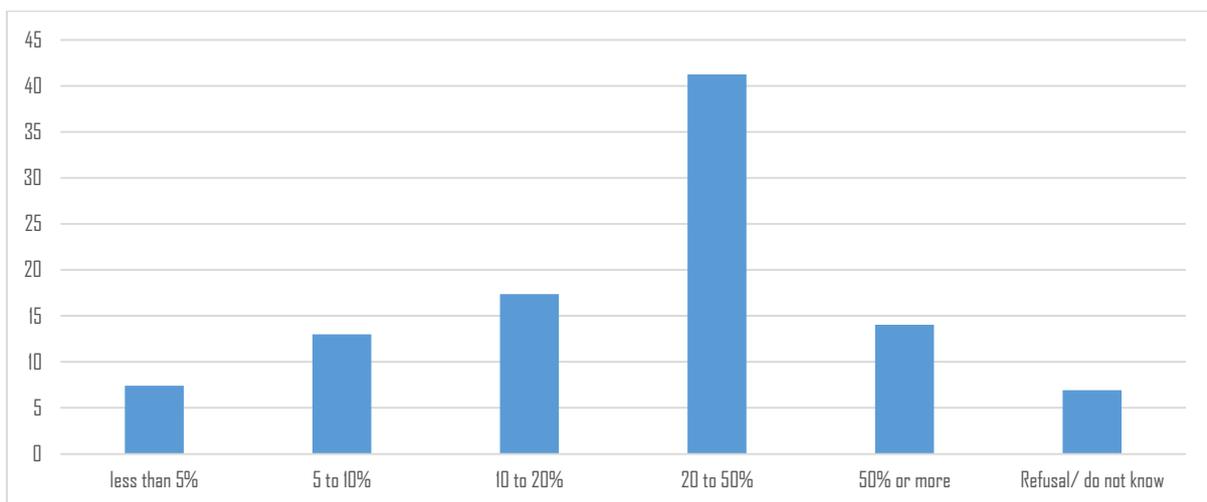
What would you estimate as the share of population in FYR Macedonia which works without declaring the income or part of the income to tax or social security institutions?

Figure 1 illustrates that 41% of populations think that between 20% and 50% of the active population works without declaring income or part of their income to tax or social security institutions. Furthermore, 14% of respondents reported that more than

50% were engaged in unregistered work, while 17% of individuals estimated that the share of population engaging in undeclared activity was from 10 to 20%.

On the other side, about a fifth of respondents stated that the prevalence of undeclared work is less than 10%. More specifically, 13% of respondents indicated that the prevalence was between 5 and 10%, while 7% of individuals said that the prevalence was less than 5%.

Figure 1. Estimated share of population engaged in undeclared work, % of surveyed individuals



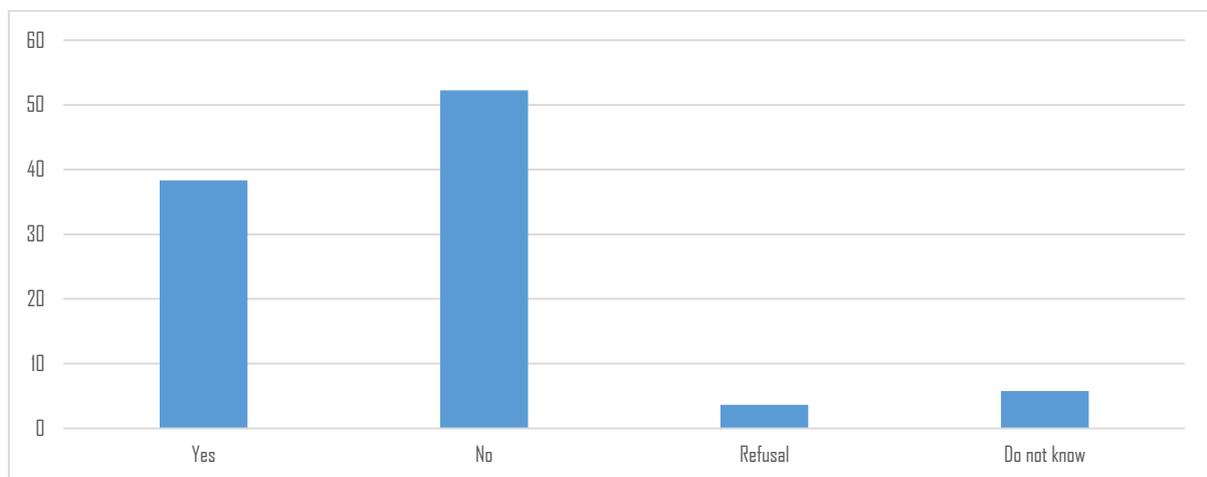
Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

These results suggest that citizens estimate that undeclared work is a widespread phenomenon in FYR Macedonia. The next question further examines the distribution of undeclared work in the Macedonian society:

Do you personally know any people who work without declaring their income or part of their income to tax or social security institutions?

Figure 2 shows that almost 40% of the population stated that they know at least one person involved in undeclared work. On the other side, about 52% of respondents answered negatively to this question, while one in ten citizens either refused to answer or did not know the exact answer.

Figure 2. The share of people who personally know any people who work on undeclared basis, % of surveyed individuals



Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

After the previous two questions, the citizens' opinion of the prevalence of the occupational structure of undeclared workers is examined:

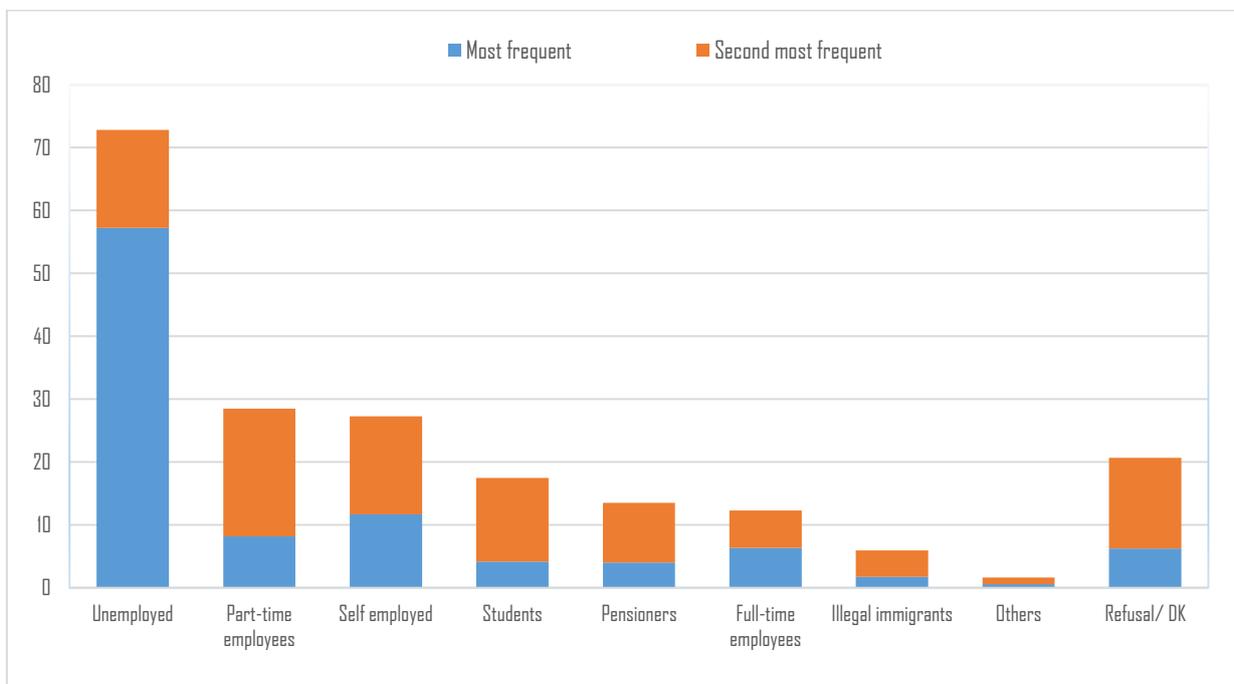
Which TWO of the following groups are in your opinion most likely to carry out undeclared work in FYR Macedonia?

Every respondent could choose two groups of people who were most involved in undeclared work considering their economic status. Figure 3 shows that Macedonian citizens estimate that unemployed people are most involved in undeclared work. To be

more exact, about 57% of respondents indicated that the unemployed people are most likely to participate in undeclared work, while 16% identified them as the second most frequent group to carry out undeclared activities. This means that a total of 73% of respondents identified unemployed people as the first or second group of people who most often performed undeclared activities.

Part time employees and the self employed are the next most popular groups thought to be involved in undeclared work. In total, about 28% of respondents indicated these groups as the first or second choice. They are followed by students, pensioners and full-time employed persons, which are identified as one of the two most frequent groups carrying out undeclared activities by 17%, 13% and 12% of respondents respectively.

Figure 3. Occupational structure of undeclared workers, % of surveyed individuals



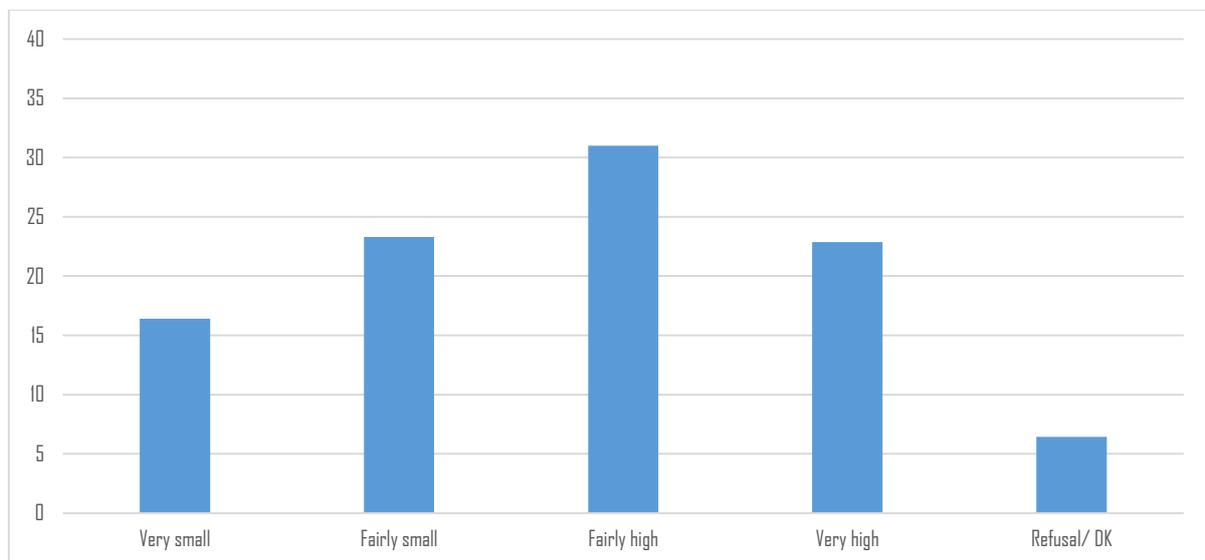
Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

After questions about how widespread is undeclared work in FYR Macedonia, two questions about the role of deterrence are asked. The first question is:

People who work without declaring the income risk that tax or social security institutions find out and issue supplementary tax bills and perhaps fines. How would you describe the risk of being detected in FYR Macedonia?

Figure 4 illustrates that about 31% of Macedonian citizens stated that perceived detection risk is fairly high, while 23% of them estimated that the detection risk is very high. On the other hand, approximately 23% of respondents believed that the risk of being detected by the authorities is fairly small, while 17% of them estimated that the risk is very small.

Figure 4. Perceived detection risk in FYR Macedonia, % of surveyed individuals



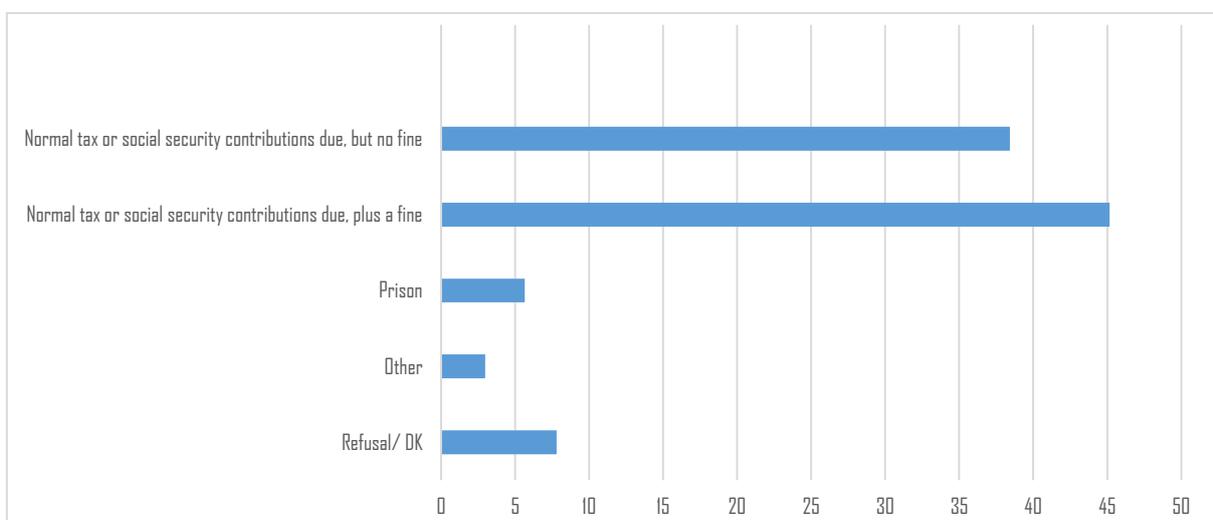
Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

The next question examines perceptions of the penalties if the authorities find out that someone is involved in undeclared work:

In your opinion, what sanction is to be expected if the authorities find out that someone has had an income from work of 250 Euros per month which was not declared to tax or social security authorities?

Figure 5 reveals that about 38% of respondents expected that the sanction for participation in undeclared work will be normal tax or social security contributions due, but no fine. On the other hand, about 45% of individuals believed that there would also be fine in addition to paid tax or social security contributions due. On the other hand, about 45% of individuals believed that there would also be a fine in addition to paid tax or social security contributions. Only 6% of individuals expected prison as a punishment for engagement in undeclared work.

Figure 5. Expected sanctions when authorities find out someone in undeclared work, % of surveyed individuals



Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

2.2. Attitudes towards undeclared economic activities in FYR Macedonia

In order to examine citizens' views on the acceptability of undeclared work, the respondents were asked a range of questions about the acceptability of different types of undeclared work:

- 1) Someone receives welfare payments without entitlement.
- 2) A private person is hired by a private household for work and he\ she does not report the payment received in return to tax or social security institutions although it should be reported.
- 3) A firm is hired by a private household for work and it does not report the payment received in return to tax or social security institutions.
- 4) A firm is hired by another firm for work and it does not report its activity to tax or social security institutions.
- 5) A firm hires a private person and all or a part of the salary paid to him\ her is not officially registered.
- 6) Someone evades taxes by not or only partially declaring income.

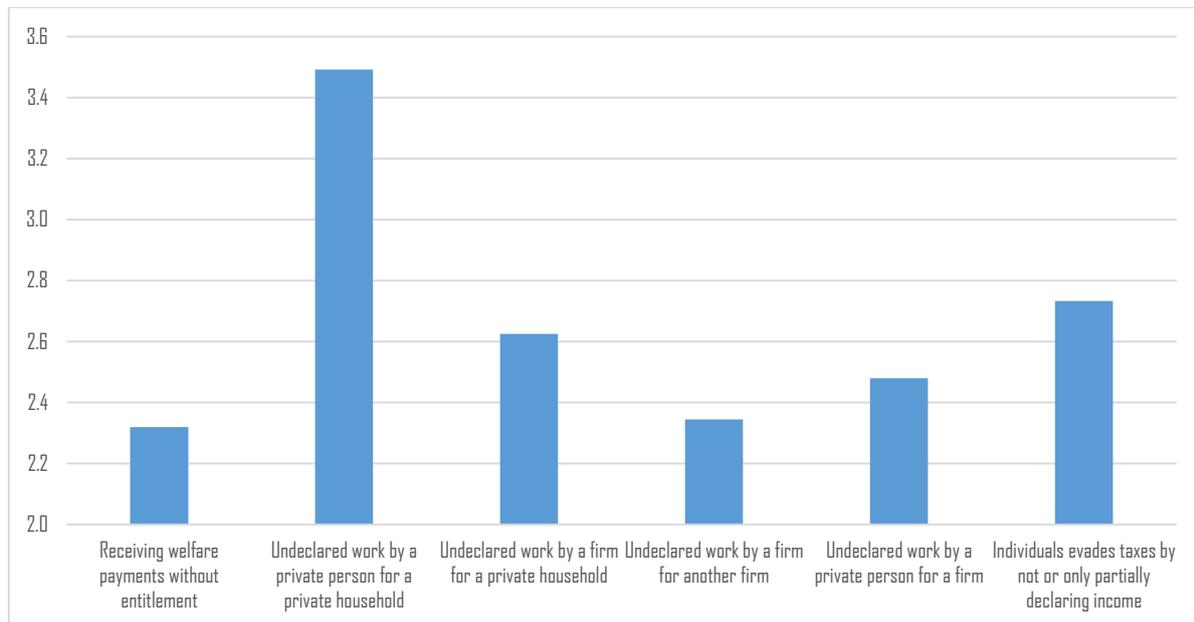
The participants were then asked to express their attitudes towards the acceptability of undeclared work based on a 10-point Likert scale, where higher values indicate greater tolerance. The exact question was structured as follows:

Now I would like to know how you assess various behaviours. For each of them, please tell me to what extent you find it acceptable or not. Please use the following scale: '1' means that you find it "absolutely unacceptable" and '10' means that you find it "absolutely acceptable" .

Figure 6 illustrates the differences between the acceptability of the six types of undeclared work. Undeclared work by a private person for a private household has the highest average score (3.49), which means that people are most tolerant towards this form of noncompliant behavior. The second most acceptable non-compliant behavior is partial or complete concealment of income by private persons, with an average tolerance of 2.73. It is followed by „undeclared work by a firm for a private household“ and “undeclared work by a private person for a firm ”, with the average amounting to 2.62 and 2.48, respectively.

On the other hand, receiving welfare payments without entitlement is the least acceptable noncompliant behavior, with an average tolerance of 2.32. It is followed by undeclared work by a firm for another firm, which is the second least acceptable noncompliant behavior (2.34).

Figure 6. Average scores of toleration of various types of undeclared economic activities



Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

In order to assess whether there is a difference between these six types of non-compliant behaviour, Table 1 gives the matrix of bivariate correlations for each pair. Macedonian citizens have different criteria towards receiving welfare payments without entitlement compared with the remaining five types of misbehaviour. The accompanying correlation coefficients range from 0.33 to 0.46, which confirms that these associations are quite weak. Macedonian citizens also apply different criteria towards undeclared work by a private person for a private household compared with the remaining five types of misbehaviour, the associated correlation coefficients range from 0.33 to 0.48. On the other hand, the bivariate correlation coefficients for the remaining four types of undeclared work range from 0.58 to 0.74, which means that Macedonians apply similar criteria towards these four types of misbehaviour.

Table 1. Citizens' attitudes towards various types of undeclared activities, correlation matrix

	Receiving welfare payments without entitlement	Undeclared work by a private person for a private household	Undeclared work by a firm for a private household	Undeclared work by a firm for another firm	Undeclared work by a private person for a firm	Individuals evades taxes by not or only partially declaring income
Receiving welfare payments without entitlement	1.00	0.33	0.45	0.46	0.43	0.45
Undeclared work by a private person for a private household	0.33	1.00	0.48	0.35	0.42	0.41
Undeclared work by a firm for a private household	0.45	0.48	1.00	0.74	0.66	0.58
Undeclared work by a firm for another firm	0.46	0.35	0.74	1.00	0.72	0.60
Undeclared work by a private person for a firm	0.43	0.42	0.66	0.72	1.00	0.67
Individuals evades taxes by not or only partially declaring income	0.45	0.41	0.58	0.60	0.67	1.00

Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

The results from Table 2 confirm the findings obtained on the basis of Table 1, which illustrated that Macedonian citizens apply different criteria when assessing receiving

welfare payments without entitlement and, undeclared work by a private person for a private household. The conclusion is made on the basis of item-rest correlation measure which gives a correlation between a variable and the sum of the remaining five variables, and on the basis of average inter-item correlation when an individual variable is excluded. Average inter-item correlation tells us that exclusion of the first two variables would increase the average inter-item correlation. The values of Cronbach' s alpha also confirm the previous findings. In the case when all six variables are included the value of Cronbach' s alpha is 0.86, but omitting the first two variables increases this value.

Table 2. Inter-item correlations and Cronbach' s alpha

	Item-rest correlation	Average inter-item correlation when the variable is excluded	Cronbach' s alpha when variable is excluded
Receiving welfare payments without entitlement	0.52	0.56	0.87
Undeclared work by a private person for a private household	0.49	0.57	0.87
Undeclared work by a firm for a private household	0.76	0.48	0.82
Undeclared work by a firm for another firm	0.74	0.49	0.83
Undeclared work by a private person for a firm	0.75	0.49	0.83
Individuals evades taxes by not or only partially declaring income	0.69	0.50	0.83
Test scale		0.52	0.86

Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

Finally, factor analysis is applied (Raykov and Marcoulides, 2008). This analysis also confirmed that there is more than one latent construct. Attitudes towards the last four statements were influenced by one single factor, while different reasoning mechanisms lie behind attitudes towards the first two misbehaviours. Therefore, the extracted values of the most dominant factor which was constructed based on the answers on the last four questions will be used as a tax morale index in further analyses.

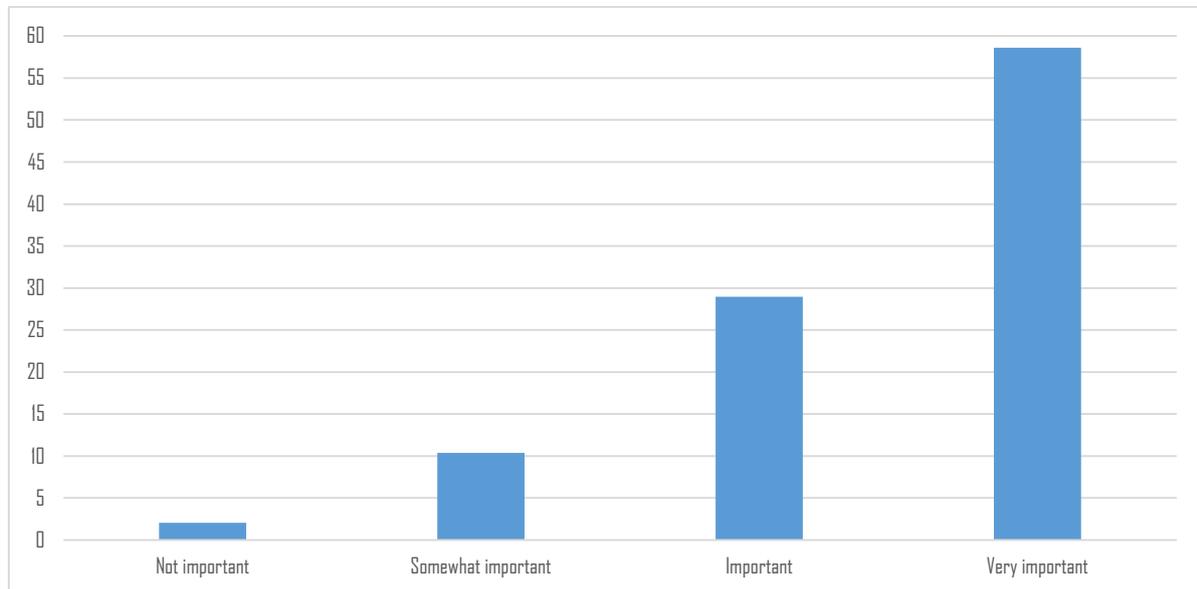
2.3. The views of Macedonian citizens on the use of personal connections

In order to examine citizens' opinions about the importance of using personal connections, the following question was asked:

In your opinion, how important are connections to achieve certain goals in FYR Macedonia?

Figure 7 illustrates that just 2% of respondents held the view that the use of personal connections was not important in order to get things done. Some 10% asserted that it is somewhat important. On the other hand, about 29% stated that the use of personal connections is important, while 59% believed that it is very important. So, almost nine out of ten citizens think that personal connections are important or very important for achieving certain goals, which indicate that the use of personal connections to circumvent formal procedures is a very widespread illegitimate activity.

Figure 7. The importance of personal connections to achieve certain goals, % of surveyed individuals



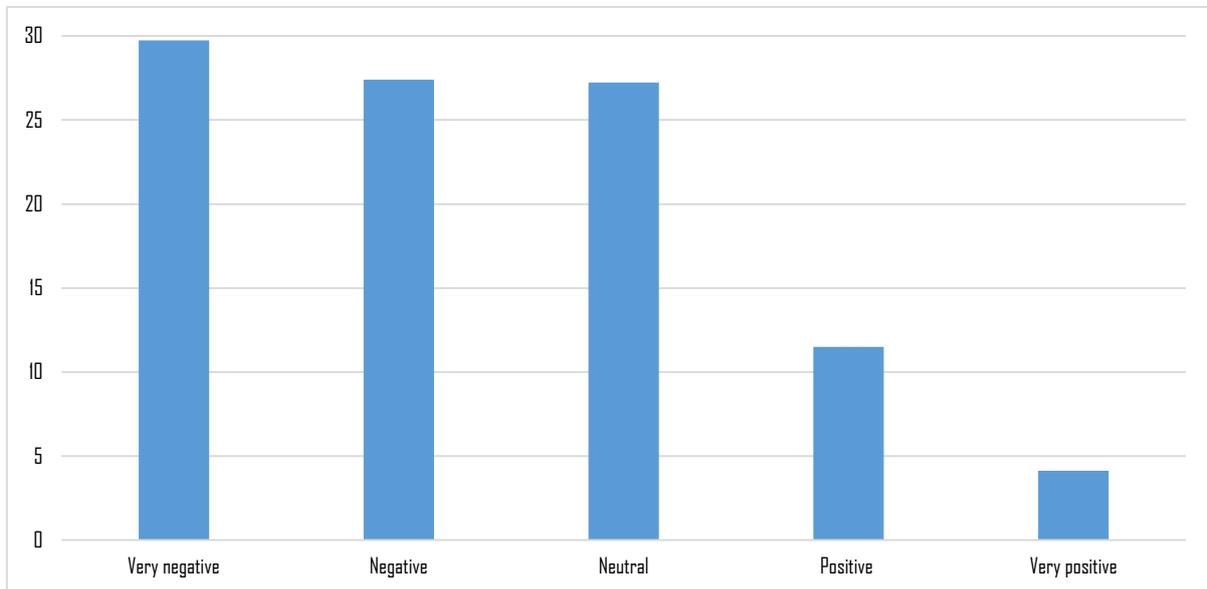
Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

The next question examines citizens' attitudes towards the using personal connections to bypass formal procedures:

What is your attitude towards having things done by pulling strings/ using connections?

As regards the views of citizens on using connections, Figure 8 reveals that the majority (57 per cent) were overall negative about its usage, while 27% adopted a neutral stance. On the other hand, just 16 per cent adopted a positive view of using connections to get things done.

Figure 8. Attitudes towards having things done by using connections, % of surveyed individuals



Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

So, although a large number of citizens (about 88%) think personal connections are important or very important in achieving personal goals, about 57% of citizens have a negative attitude about its usage.

3. The demand side of undeclared work in FYR Macedonia

After analyzing the opinions and attitudes of respondents about undeclared work in FYR Macedonia, this section examines the direct involvement of respondents in undeclared work. More precisely, the demand side of undeclared work is examined, i.e. the involvement of respondents in the purchase of services and goods on the undeclared market.

In section 3.1, a descriptive statistical analysis according to demographic, socio-economic, spatial and policy characteristics is conducted. Furthermore, in section 3.2, we use a logit model to examine the statistical relationship between individual variables and the demand for undeclared goods and services. Finally, section 3.3 analyzes which goods and services were purchased on the undeclared market, from whom were they bought and why were they bought on an undeclared basis rather than on the regular market.

3.1. A descriptive statistical overview of the purchase on undeclared market

In the survey, the demand for undeclared goods and services is examined using the following two questions:

Q1) *Have you in the last twelve months acquired any SERVICES of which you had a good reason to assume that they involved undeclared work, i.e. that the income was not completely reported to tax or social security institutions (e.g., because there was no invoice or VAT receipt or they offered you a 'price for cash')?*

Q2) *And have you in the last twelve months acquired any GOODS of which you had a good reason to assume that they embodied undeclared work, i.e. that the income was not completely reported to tax or social security institutions?*

For the purpose of statistical analysis of the demand for undeclared goods and services, a new variable based on above two questions is constructed. This variable is constructed as follows: value 1 if an observed individual purchase either goods or services, or both; value 0 otherwise. Descriptive statistical analysis of newly constructed variable is presented in Table 3.

Overall, 17.7% of respondents had purchased goods or services on the undeclared market, while 12.9% refused to answer this question. The findings reveals that men are more likely to participate in undeclared purchase than women, 21.3% compared with 14.1%.

When it comes to age, the oldest age group (individuals over the age of 65) was the least involved in buying on an informal market (11.6%). This share slightly increases as age decreases and is about 22.4% for individuals between 25-39 years. For the youngest age group between 15 and 24 years, this share again slightly falls to 18.1%. On the other side, there is no difference between those of Albanian and Macedonian ethnicity; their share in undeclared purchase is both about 18%.

Turning to employment status, 30.8% of self-employed persons participated in the undeclared economy from the demand side, while employed and unemployed persons are less likely to do so, 20.9% and 18.4% respectively. About 12% of students, inactive and retired persons participated in the purchase of goods and services in the informal market.

Looking at the variable which describes their financial situation, it can be seen that participation in the purchase of goods and services does not depend on the financial situation within the family. Namely, the share of participation in undeclared purchase for all categories of financial status ranges between 16.6% and 18.1%, which is a very small range. The largest share in the undeclared economy had respondents who declared their financial status as "struggling" or "maintaining", 17.9% and 18.1% respectively, and the smallest share had those who declared their status as "just comfortable".

It seems that the attitudes and opinions of the respondents about the distribution of undeclared work in the society have an impact on the decision of individuals to purchase goods and services in the undeclared economy. Thus, individuals who estimate that the share of the population involved in undeclared work is less than 5% have lower involvement in purchasing goods on the undeclared market (10.4%), while 24.4% of individuals who estimate that more than a half of the population are involved in undeclared work participated in undeclared purchase.

It also seems that geographic position plays a significant role in participation in undeclared purchases. The largest share of undeclared purchases are among citizens living in the Southeastern region, about 26%, followed by those living in the Pelagoni

and Southwestern region, around 24 and 23%, in turn. The smallest share (5.6%) is among citizens living in the Northeastern region. Turning to the type of locality, the largest share in undeclared purchase is among people who live in a rural area or village (20.3%), while the smallest share is among those who live in large cities (15%).

Table 3. Undeclared demand for goods and services, % of surveyed individuals

	Yes	No	Refusal/ do not know
Gender			
Male	21.3	66.0	12.8
Female	14.1	72.9	13.1
Age groups			
15-24	18.1	65.7	16.2
25-39	22.4	67.1	10.5
40-54	17.7	68.3	14.0
55-64	14.2	73.8	12.0
65+	11.6	75.6	12.7
Nationality			
Macedoni	17.5	70.8	11.7
Albanian	18.1	65.3	16.5
Employment status			
Employed	20.9	67.7	11.4
Self-employed	30.8	56.5	12.8
Unemployed	18.4	72.4	9.1
Retired	12.0	74.7	13.3
Student and inactive	11.9	67.2	20.9
Financial situation			
Struggling	17.9	69.6	12.6
Maintaining	18.1	71.1	10.8
Just comfortable	16.6	71.0	12.4
No money problems	17.5	67.9	14.7
Estimated share			
less than 5%	10.4	79.3	10.4
5 to 10%	11.3	75.5	13.2
10 to 20%	16.1	68.1	15.8
20 to 50%	21.2	68.0	10.8
50% or more	24.4	63.0	12.7
Type of locality			

Rural area or village	20.3	65.7	14.0
Small or middle sized town	18.4	71.0	10.7
Large town	15.0	72.5	12.4
Region			
Vardar	13.3	80.4	6.3
Eastern	13.9	69.5	16.6
Southwestern	23.0	64.5	12.5
Southeastern	26.2	71.7	2.1
Pelagoni	24.0	68.6	7.5
Polog	21.2	63.9	14.9
Northeastern	5.6	65.0	29.3
Skopje	14.6	72.3	13.1
Detection risk			
Very small	23.7	67.2	9.1
Fairly small	20.3	62.7	17.0
Fairly high	16.2	72.4	11.5
Very high	16.4	76.6	7.2
Expected sanctions			
Normal tax or social security contributions due, but no fine	18.1	72.6	9.3
Normal tax or social security contributions due, plus a fine	18.9	71.1	10.1
Prison	15.3	65.2	19.5
Tax morale			
<2	17.1	69.8	13.1
2 do 4	16.4	70.7	12.9
4 do 6	17.7	69.7	12.7
6 do 8	28.5	61.1	10.4
8 do 10	28.6	56.4	15.0
Total	17.7	69.4	12.9

Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

Examining the association between undeclared purchases and the perceptions of the risk of detection, individuals who estimate that the risk of detection is very small or fairly small most often participate in purchase on the undeclared market, 23.7% and 20.3%, respectively. On the other side, about 16% of individuals who estimate that the risk of detection is fairly high or very high participate in undeclared purchases. Expected

sanctions for participation in undeclared work have a quite limited influence on purchasing goods or services on the undeclared market. Thus, between 18% and 19% of individuals who expect that the punishment for undeclared work will be "normal tax or social security contributions due, but no fine " or "normal tax or social security contributions due plus a fine" participate in undeclared purchases, while the share of those who expect prison as a punishment is around 15%.

Tax morale plays a significant role in people's decision to participate in undeclared purchases. So individuals whose tax morale is lower (those who have higher values of the tax morale index) participate much more in undeclared purchases. Some 28.5% of respondents whose tax morale index ranges between 6 and 10 participate in undeclared purchases, while the share of those participating in undeclared purchases falls to about 17% if their tax morale index is lower than 6.

3.2. Determinants of the undeclared demand for goods and services in FYR Macedonia

After performing the descriptive statistical analysis in the last section, this section establishes the existence of a statistical association between the purchase of undeclared goods or services and demographic, socio-economic, geographic and policy characteristics. To evaluate whether a statistically significant association exists, a logit regression analysis is here conducted. The data contained faulty answers (i.e. refusal and 'don' t know'), but these missing values are estimated by applying multiple imputation technique (Royston, 2004; Rubin, 1987; Schafer and Graham, 2002). For each missing answer, 25 imputations were simulated using a system of chained equations.

Table 4 reports the results of a logit regression analysis. A sequential model building strategy was applied (i.e., variables were added one at a time). Model 1 only contains socio-demographic variables, and in each of the following models, socio-economic, spatial and policy variables are added, in turn. In that way we can see if the signs and significance changes as we add in other groups of variables. Model 4 includes all available variables, and as such it is the most interesting for the analysis.

Table 4. Determinants of undeclared demand for goods and services, logit model

	Model 1	Model 2	Model 3	Model 4
	Coef.(S.E.)	Coef.(S.E.)	Coef.(S.E.)	Coef.(S.E.)
Female	-0.480 (0.124)***	-0.377 (0.127)***	-0.381 (0.128)***	-0.376 (0.128)***
Age	-0.014 (0.004)***	-0.019 (0.005)***	-0.018 (0.005)***	-0.017 (0.005)***
Nationality (RC: Macedoni)				
Albanian	-0.068 (0.152)	0.007 (0.165)	-0.067 (0.189)	-0.120 (0.19)
Employment status (RC: Unemployed)				
Employed		0.201 (0.171)	0.308 (0.178)*	0.287 (0.177)
Self-employed		0.735 (0.266)***	0.670 (0.275)**	0.676 (0.277)**
Retired		0.143 (0.248)	0.256 (0.254)	0.230 (0.255)
Student and inactive		-0.437 (0.236)*	-0.359 (0.236)	-0.365 (0.235)
Financial situation (RC: Struggling)				
Maintaining		-0.062 (0.16)	-0.100 (0.163)	-0.101 (0.164)
Just comfortable		-0.155 (0.179)	-0.167 (0.183)	-0.133 (0.183)
No money problems		0.007 (0.474)	0.057 (0.478)	0.129 (0.484)
Estimated share (RC: 50% or more)				
less than 5%		-1.041 (0.315)***	-0.935 (0.330)***	-0.870 (0.332)***
5 to 10%		-0.933 (0.255)***	-0.875 (0.263)***	-0.864 (0.265)***
10 to 20%		-0.489 (0.212)**	-0.406 (0.219)*	-0.425 (0.225)*
20 to 50%		-0.224 (0.169)	-0.191 (0.174)	-0.205 (0.176)
Type of locality (RC: Rural area or village)				
Small or middle sized town			0.138 (0.246)	0.112 (0.251)
Large town			-0.332 (0.151)**	-0.343 (0.151)**
Region (RC: Vardar)				
Eastern			0.278 (0.355)	0.230 (0.367)
Southwestern			0.677 (0.346)**	0.656 (0.359)*
Southeastern			0.631 (0.333)*	0.584 (0.346)*
Pelagoni			0.898 (0.343)***	0.919 (0.353)***

Polog			0.633 (0.344)*	0.560 (0.349)
Northeastern			-0.432 (0.481)	-0.425 (0.482)
Skopje			0.482 (0.317)	0.446 (0.327)
Detection risk (RC: Very small)				
Fairly small				0.105 (0.196)
Fairly high				-0.213 (0.199)
Very high				-0.193 (0.213)
Expected sanctions (RC: Normal tax or social security contributions due, but no fine)				
Normal tax or social security contributions due, plus a fine				0.014 (0.144)
Prison				-0.021 (0.308)
Tax morale				0.053 (0.032)*
Const	-0.543 (0.191)***	-0.051 (0.301)	-0.504 (0.422)	-0.542 (0.484)
Number of observations	2,014	2,014	2,014	2,014
Number of imputations	25	25	25	25
Prob > F	0.000	0.000	0.000	0.000
Pseudo R2	0.020	0.047	0.064	0.069
Area under ROC	0.603	0.655	0.681	0.684

Significance: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

Table 4 reports that gender and age have a significant impact on the decision to participate in the purchase of goods and services from the undeclared economy. Younger individuals are significantly more likely to participate in undeclared purchases than older age groups and men are more likely to buy undeclared than women. The applied logit model confirms the results of a descriptive analysis which shows that nationality does not have a significant impact on the demand for undeclared goods and services.

Turning to employment status, the analysis confirms that only self-employed people are more likely to acquire goods and services on an undeclared basis than other people. Between employed, unemployed, retired, student and inactive people, there is no difference in the demand for undeclared goods and services. As for the self-assessed

financial situation, it is shown that difficulties in the financial situation does not have a significant impact on the demand for undeclared goods and services. Furthermore, individuals who perceive less than 20 per cent of the population to be engaged in undeclared work are significantly less likely to participate in undeclared purchase than groups believing that high proportions of the population are engaged in the informal economy.

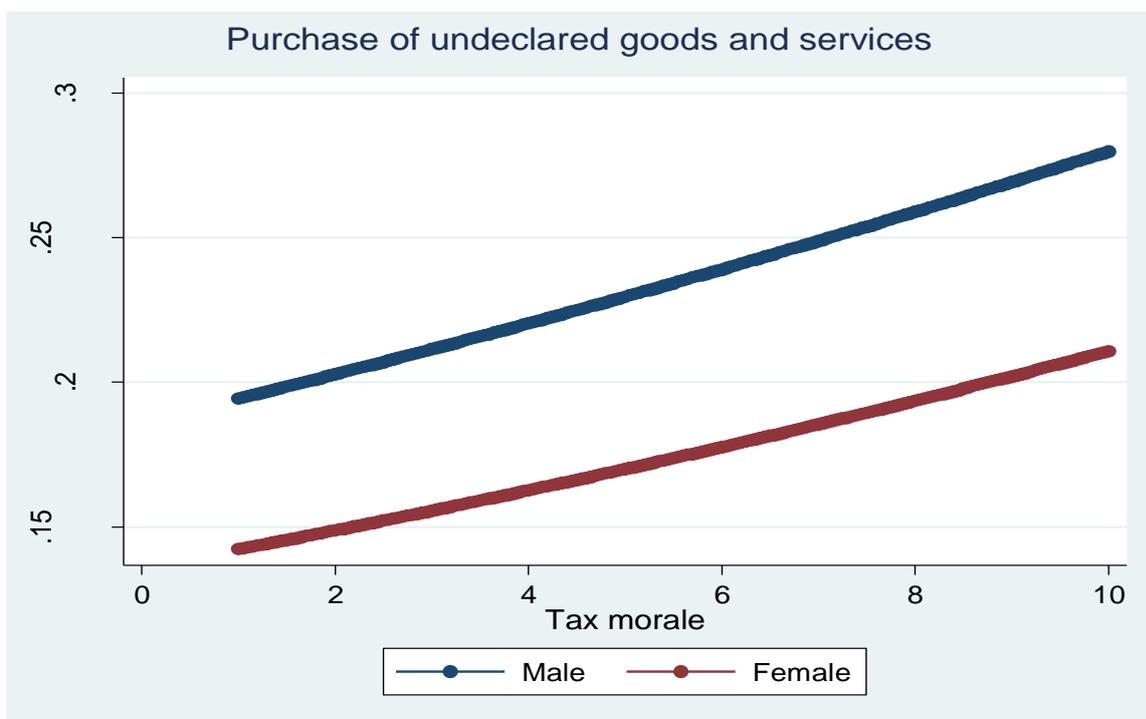
Turning to spatial characteristics, the findings on the type of locality illustrates that people living in large town are more likely to participate in purchase on an informal market than those who live in other areas. Furthermore, people living in the Pelagoni, Southwestern and Southeastern Region are more likely to participate in purchase on an informal market than those living in other regions.

Turning to policy approaches, the findings reveal that there is no statistically significant relationship between undeclared purchases and either the risk of detection or the level of penalties. Thus, it does not confirm that the existence of a high risk of detection for participation in the undeclared economy and the existence of high penalties (e.g. imprisonment) leads to a reduction in demand for undeclared goods and services. On the other side, tax morale is a significant predictor of the propensity to purchase on the undeclared market. The higher the tax morale, the lower is the likelihood of purchasing undeclared goods and services.

To further portray the effects of these explanatory variables on the likelihood of participation in undeclared purchases, Figure 9 outlines the predicted probabilities based on model 4 of a 'representative' citizen engaging in undeclared purchases, according to their gender and level of tax morale. This 'representative' consumer is

defined using the mean and modal values of the remaining predictors. That is to say, the representative citizen is an employed Macedoni aged 47 who is maintaining a comfortable financial situation and living in a large town, in the Skopje region, who perceives the probability of being detected by the authorities as fairly high and expects to pay taxes and social security contributions due plus a fine if caught. This reveals that the predicted probability of participation in purchasing goods and services on undeclared basis increases as tax morale worsens. The predicted probability for individuals with the highest tax morale index amounts to 19% and 14% for men and women respectively. For men with the lowest tax morale index, the predicted probability is about 28%, while for women this probability is around 22%.

Figure 9. Predicted probability of participation in the purchase of undeclared goods and services of a 'representative' Macedonian citizen: by tax morale and gender



Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

3.3. A deeper overview of the characteristics of consumers buying on the undeclared market

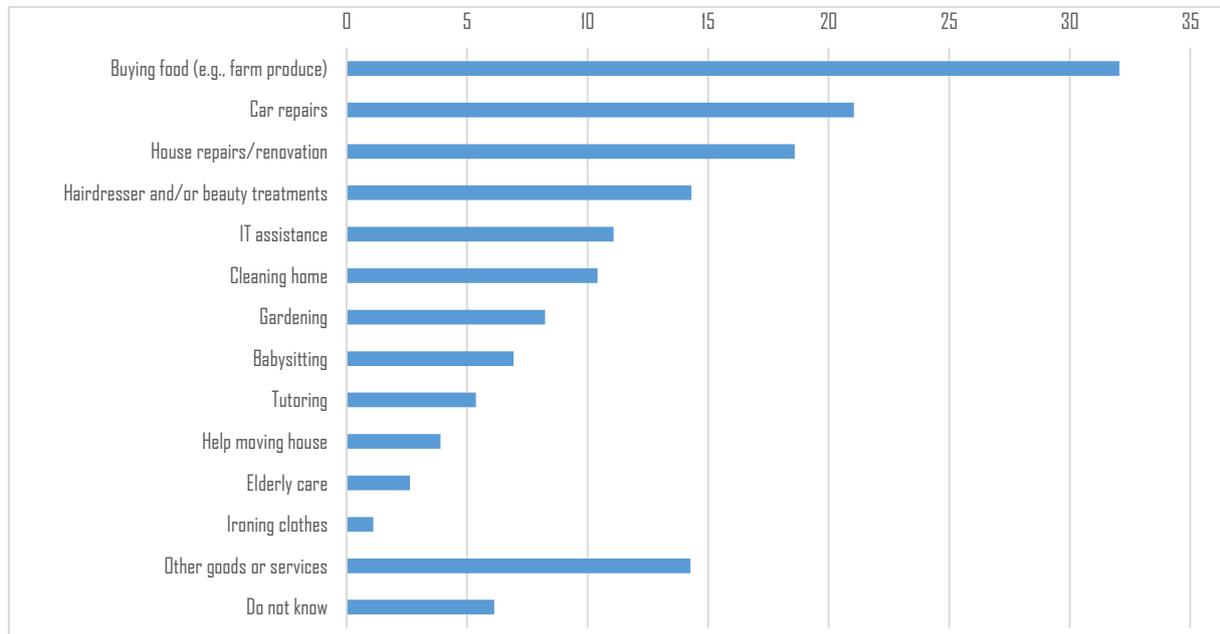
For every individual who admitted the purchase of undeclared goods and services, an analysis can be conducted of which products such individuals bought on an undeclared basis and from whom did they most often buy such undeclared goods and services. Furthermore, the reasons for purchasing on an undeclared basis will be also analyzed.

To find out which goods and services are most often purchased on the undeclared market, the following question was used:

Which of the following goods or services have you paid for during the last 12 months, where you had good reason to believe that they involved undeclared work (i.e., the income was not completely reported to the tax authorities)?

Respondents could choose more than one good or service they purchase with the offered list, but if they did not buy any, they could also respond with "other goods and services". Figure 10 illustrates that on the undeclared market in FYR Macedonia, the most common undeclared purchase was food (e.g. farm produce) that was bought by about one third of respondents who admitted participation in the undeclared market. This means that the agriculture sector is most involved in activities in the undeclared market. This is followed by car repairs and house repairs / renovations which was used by about one fifth of the respondents. Among other services used on the undeclared market, we can allocate hairdressing or beauty treatments, IT assistance and cleaning home services which was used by 14, 11 and 10.5% of respondents, in turn.

Figure 10. Goods and services purchased on the informal market, % of respondents buying on informal market



Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

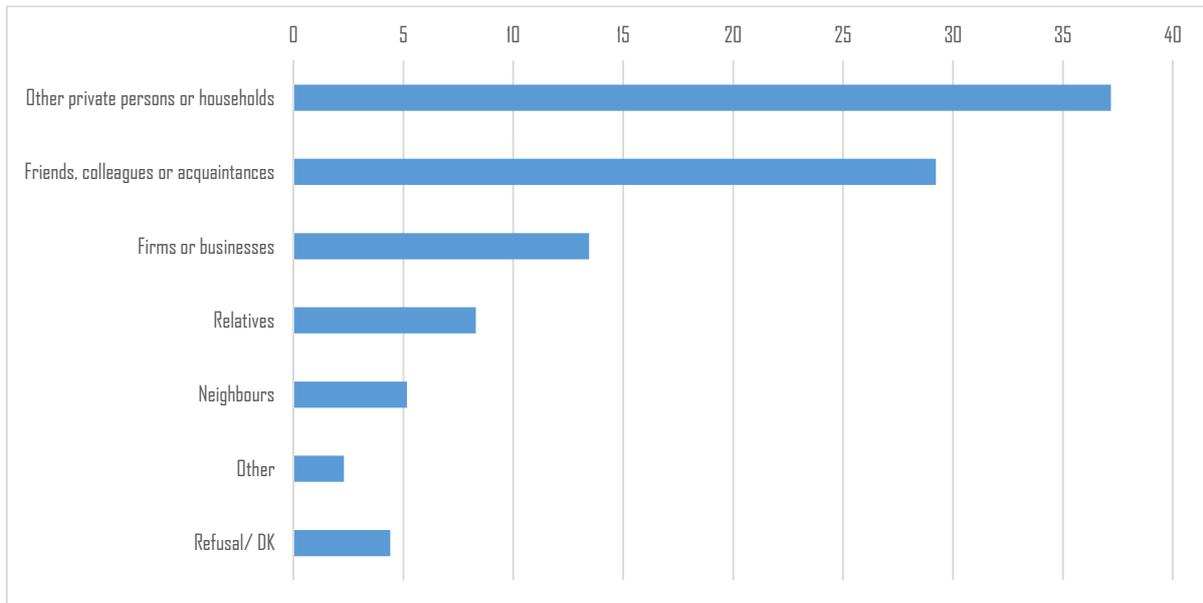
After deciding about purchased goods and services on the undeclared market, respondents who did so were asked:

Among the following, could you please indicate from whom did you buy this good or service?

According to Figure 11, 37% of respondents in FYR Macedonia purchased goods and services on an undeclared basis from self-employed people who are not close social relations. Furthermore, about 13.5% of respondents purchased undeclared goods and services from firms and businesses. Regarding unregistered purchases by close individuals, the most frequent is to purchase from friends, colleagues and

acquaintances (about 29%), while the purchase from relatives and neighbors admitted about 8% and 5% in turn.

Figure 11. Suppliers of undeclared goods and services in FYR Macedonia, % of respondents buying on undeclared market



Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

In order to get an insight into the reasons and motives for buying goods and services on an informal market, the following question was asked:

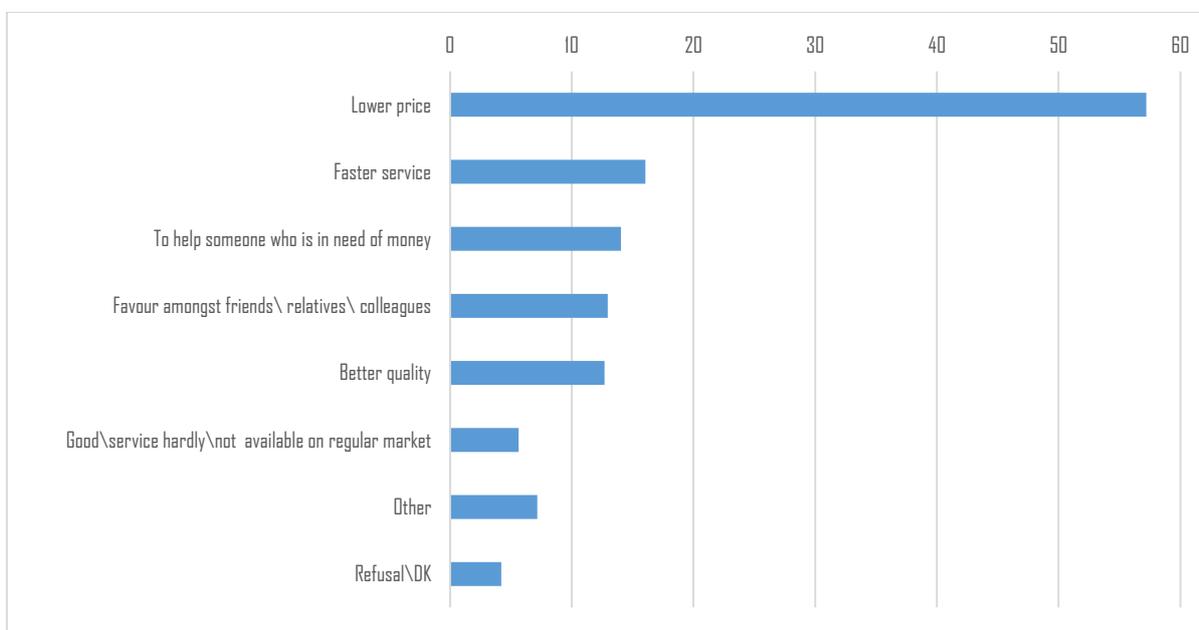
From the following, what made you buy it undeclared instead of buying it on the regular market?

As before, this question refers to the most important goods or services that were purchased undeclared. Respondents could also choose more than one answer from the offered list.

Figure 12 shows that the most important reason for purchasing on an undeclared basis was the lower price. This was stated by 57% of respondents. Turning to formal economy failures, about 16% of the respondents reported faster services as a reason for their purchase on undeclared market, while about 13% of the respondents as a reason stated a better quality on informal market. Furthermore, about 5.5% of respondents bought on undeclared market because of lack of availability on regular market.

As far as social motives are concerned for buying on undeclared market, 14% of respondents bought on an informal market to help someone who is need of money, while 13% of respondents stated that it was a favor amongst friends, relatives or colleagues.

Figure 12. Reasons for buying goods or services on informal basis, % of respondents buying on informal market



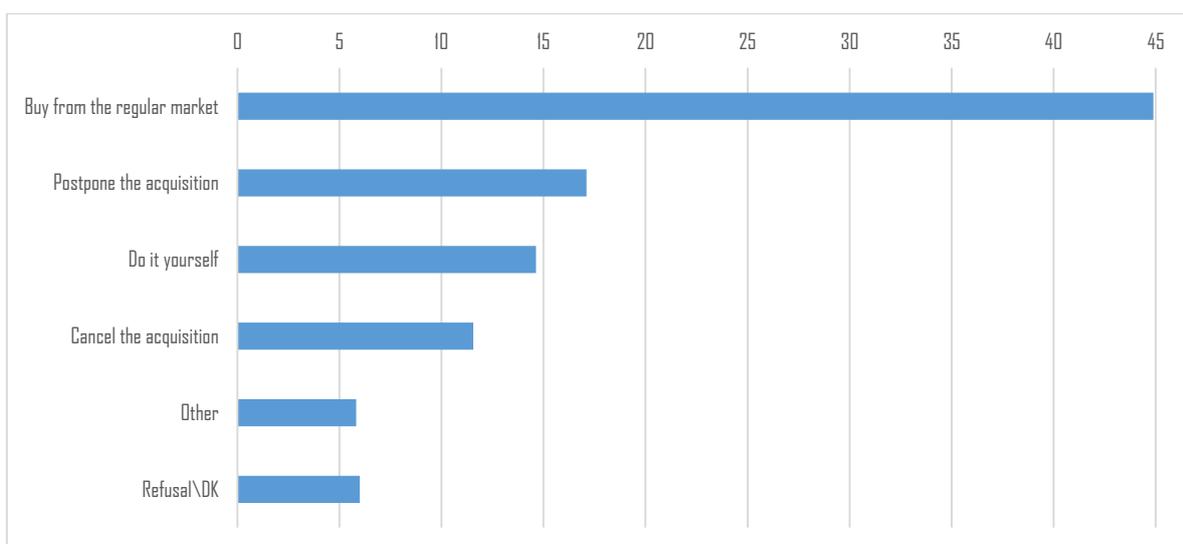
Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

A further question then examined whether undeclared purchases were substituting for goods and services in the declared economy. The question was asked:

From the following, what would you have done if this good or service had only been available on the regular market?

Figure 13 shows that 45% of purchasers of goods and services on the informal market would decide to buy on a regular market if required good or service had only been available on the regular market, which points to the problem of large supply of goods and services on the informal market in FYR Macedonia. Additionally, about 17% of respondents would postpone the purchase of required goods and services, while 14.5% would decide do it yourself. About 11.5% of respondents would postpone the purchase of the required goods or services, if they could not buy it on a formal market.

Figure 13. Action taken if the good/service was only available on the regular market, % of respondents buying on informal market



Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

4. Under-reported wages in FYR Macedonia

Under-reported (envelope) wages refer to the illegitimate wage practice where employees receive from their employers an undeclared (envelope) wage in addition to their formal salary (Williams, 2014d; Williams and Horodnic, 2015a,b,c, 2016, 2017; Williams et al., 2015a,b, 2016). So this is the practice in which the employer pays the salary in two parts. The first part is reported to the state tax authorities, while the second part of the salary is paid undeclared without being notified to the state tax authorities.

For the purpose of research on “envelope wages”, only full or part time employed individuals are observed. In section 4.1, a descriptive statistical analysis according to demographic, socio-economic, spatial and policy characteristics is conducted. Then, using logit regression analysis, it is examined which individual characteristics affect the probability of receiving under-reported wages. Finally, section 4.3 analyzes more thoroughly some characteristics of such type of employment

4.1. Structure of the population receiving under-reported wages – a descriptive overview

In order to examine the prevalence and structure of the population receiving under-reported wages in FYR Macedonia, the following question was asked:

Sometimes employers prefer to pay all or part of the regular salary or the remuneration for extra work or overtime hours cash-in-hand and without declaring it to tax or social security authorities. Did your employer pay you all or part of your income in the last 12 months this way?

To the above question answered 643 individuals who declared himself as formally employed. In total, 13.1% of respondents admitted receiving under-reported wages, 81.4% of respondents stated that they did not receive any additional undeclared amounts on formal wage, while 5.4% of them either refused to answer, or did not know. As for gender differences, male employees are far more likely to receive under-reported wages than female employees, 15.1% compared with 10.1%. It is also noticeable that the proportion of employees receiving an under-reported wage declines with age, and that a greater proportion of Albanian ethnicity employees are likely to receive envelope wages. Wage under-reporting is also heavily concentrated among those who are part-time employed on their formal contracts. The prevalence of wage under-reporting, moreover, significantly varies across sectors, being most frequent in the construction sector, followed by agriculture, and hotels, restaurants and cafes. As for the financial situation, envelope wages are the most prevalent for people who stated they have no financial problems, but they were paid in the envelopes mostly for overtime/extra work conducted. On the other side, among those struggling financially, wage under-reporting is less common but more often paid for their regular employment rather than overtime. The prevalence of wage under-reporting is the largest for employees estimating that more than 50% of the population works without declaring the income or part of the income to tax or social security institutions (about 17%), while it is the smallest for those who estimate that this share is less than 5%. As for the place of residence, envelope wages are the most prevalent in rural areas or villages (17.2%), followed by large towns (12.4%), Skopje (10.3%) and small or middle sized towns (8.7%).

Table 5. Distribution of under-reported wages in FYR Macedonia, % of surveyed dependent employees

	Yes	No	Refusal/ do not know
Gender			
Male	15.1	79.1	5.8
Female	10.1	84.9	5.0
Age groups			
15-24	20.1	73.6	6.3
25-39	16.5	80.1	3.4
40-54	10.1	83.0	6.9
55-64	6.9	86.1	7.0
65+	0.0	100.0	0.0
Nationality			
Macedoni	10.9	84.7	4.5
Albanian	21.8	69.1	9.2
Employment status			
Full-time employed	11.9	82.4	5.7
Part-time employed	25.9	71.3	2.9
Sectors of activity			
Construction	27.6	66.3	6.1
Industry	11.2	87.1	1.7
Household services (incl. gardening, child and elderly care)	11.7	88.3	0.0
Transport	15.0	80.1	4.8
Personal services	3.2	92.3	4.5
Retail	12.0	83.0	5.1
Repair services	3.9	91.3	4.9
Hotel, restaurant, cafes	22.3	73.1	4.6
Agriculture	22.5	77.5	0.0
Other	9.8	86.3	3.9
Financial situation			
Struggling	16.1	77.0	6.9
Maintaining	13.9	82.5	3.5
Just comfortable	9.3	85.2	5.5
No money problems	22.0	73.2	4.8
Estimated share			
less than 5%	2.8	94.7	2.5
5 to 10%	12.1	82.7	5.3
10 to 20%	15.1	75.1	9.8
20 to 50%	13.9	82.1	4.0
50% or more	16.6	80.1	3.3
Type of locality			

Rural area or village	17.2	79.5	3.3
Small or middle sized town	8.7	91.3	0.0
Large town	12.4	76.2	11.4
Skopje	10.3	86.6	3.0
Detection risk			
Very small	13.7	85.4	0.9
Fairly small	16.2	78.3	5.6
Fairly high	12.5	81.8	5.6
Very high	11.9	83.8	4.2
Expected sanctions			
Normal tax or social security contributions due, but no fine	14.0	82.3	3.8
Normal tax or social security contributions due, plus a fine	11.4	84.3	4.3
Prison	20.2	76.4	3.4
Tax morale			
<2	8.9	86.5	4.7
2 do 4	18.9	73.4	7.7
4 do 6	19.1	77.2	3.7
6 do 8	19.0	68.2	12.9
8 do 10	39.7	60.3	0.0
Total	13.1	81.4	5.4

Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

Turning to the policy measures, no noticeable association seems to exist between detection risk and wage under-reporting. A similar lack of association is noticeable regarding the expected sanctions. However, there does appear to be an association between tax morale and the propensity to receive under-reported wages. While only 8.9% of employees expressing the highest tax morale stated that they received under-reported wages from their formal employer, this share gradually increases up to 39.7% for employees with very low tax morale.

4.2. Determinants of wage under-reporting in FYR Macedonia

To evaluate whether a statistically significant association between wage under-reporting and certain demographic, socio-economic, spatial and political variables

exists, logit regression analysis is conducted. As in the previous section, multiple imputation was used to predict missing values and inconclusive answers (i.e., refusal and 'don't know'). This is done using a system of chained equations for each variable with missing values, with twenty five imputations simulated for each missing value. As in the previous section, a sequential model building strategy was applied (i.e., variables were added one at a time).

Table 6 reports the results of a logit regression analysis. The analysis shows that gender is not significantly associated with wage under-reporting. Although this might seem surprising at first glance due to the descriptive findings, there is a plausible explanation. A sequential model building strategy was applied, which allowed the effect of each individual predictor to be monitored after adding subsequent covariates. Gender was significant until sector was included in the model. Once introduced, the significance of gender disappeared. This is largely because the majority of construction workers in the survey were men, while women dominate in other sectors, such as retailing and the service sector. Indeed, although there was a moderate correlation between gender and sector, it was inside required limits and therefore both predictors were retained in the model. As the results display, firms from sectors in which women are the majority workforce are less likely to under-report wages. More precisely, the findings are that workers in the construction industry are significantly more likely to under-report wages than workers in all other sectors, and this is significantly the case with regard to manufacturing industry, personal services, the retail sector and other services. On the other hand, no statistically significant differences in propensity to under-report wages was found between individuals working in agriculture and construction workers, and

the same applies for workers in household services, hotels, restaurants and cafes, and transport. It also reveals that younger individuals are significantly more likely to receive under-reported wages than older age groups. No statistically significant differences were found however, by whether a person was full- or part-time employed. Neither was any strong statistically significant likelihood of participation identified according to their financial situation, or by whether they inhabited a rural or urban area.

Table 6. Logit regressions of the propensity to receive under-reported wages

	Model 1 Coef.(S.E.)	Model 2 Coef.(S.E.)	Model 3 Coef.(S.E.)	Model 4 Coef.(S.E.)
Female	-0.446 (0.261)*	-0.183 (0.293)	-0.181 (0.294)	-0.230 (0.303)
Age	-0.031 (0.010)***	-0.037 (0.012)***	-0.036 (0.012)***	-0.038 (0.012)***
Nationality (RC: Macedoni)				
Albanian	0.705 (0.273)***	0.735 (0.315)**	0.732 (0.352)**	0.484 (0.365)
Employment status (RC: Full-time employed)				
Part-time employed		0.594 (0.405)	0.612 (0.408)	0.554 (0.413)
Sectors of activity (RC: Construction)				
Industry		-1.143 (0.464)**	-1.197 (0.485)**	-1.125 (0.493)**
Household services (incl. gardening, child and elderly care)		-1.070 (1.190)	-1.047 (1.191)	-1.022 (1.278)
Transport		-0.799 (0.555)	-0.813 (0.555)	-0.822 (0.560)
Personal services		-2.892 (1.202)**	-2.888 (1.198)**	-2.932 (1.217)**
Retail		-1.326 (0.621)**	-1.405 (0.617)**	-1.474 (0.638)**
Repair services		-2.478 (1.234)**	-2.437 (1.235)**	-2.308 (1.210)*
Hotel, restaurant, cafes		-0.756 (0.591)	-0.747 (0.596)	-0.646 (0.592)
Agriculture		-0.492 (0.907)	-0.447 (0.903)	-0.655 (0.915)
Other		-1.412 (0.451)***	-1.424 (0.456)***	-1.421 (0.459)***
Financial situation (RC: Struggling)				
Maintaining		-0.367 (0.337)	-0.365 (0.342)	-0.386 (0.353)
Just comfortable		-0.625 (0.369)*	-0.677 (0.384)*	-0.729 (0.391)*
No money problems		0.318 (0.661)	0.259 (0.678)	0.123 (0.684)
Estimated share (RC: 50% or more)				
less than 5%		-2.517 (1.232)**	-2.528 (1.308)*	-2.306 (1.286)*
5 to 10%		-0.228 (0.487)	-0.200 (0.493)	-0.058 (0.510)
10 to 20%		0.046 (0.451)	0.064 (0.459)	0.100 (0.477)
20 to 50%		-0.147 (0.382)	-0.144 (0.386)	-0.018 (0.395)
Type of locality (RC: Rural area or village)				

Small or middle sized town	-0.210 (0.555)	-0.282 (0.561)		
Large town	0.244 (0.358)	0.289 (0.368)		
Skopje	-0.062 (0.412)	-0.083 (0.412)		
Detection risk (RC: Very small)				
Fairly small		0.458 (0.418)		
Fairly high		0.114 (0.415)		
Very high		0.200 (0.455)		
Expected sanctions (RC: Normal tax or social security contributions due, but no fine)				
Normal tax or social security contributions due, plus a fine		-0.082 (0.282)		
Prison		0.514 (0.582)		
Tax morale		0.150 (0.059)**		
Const	-0.633 (0.448)	1.026 (0.789)	0.984 (0.821)	0.434 (0.903)
Number of observations	643	643	643	643
Number of imputations	25	25	25	25
Prob > F	0.000	0.000	0.001	0.000
Pseudo R2	0.054	0.129	0.133	0.151
Area under ROC	0.674	0.751	0.753	0.765

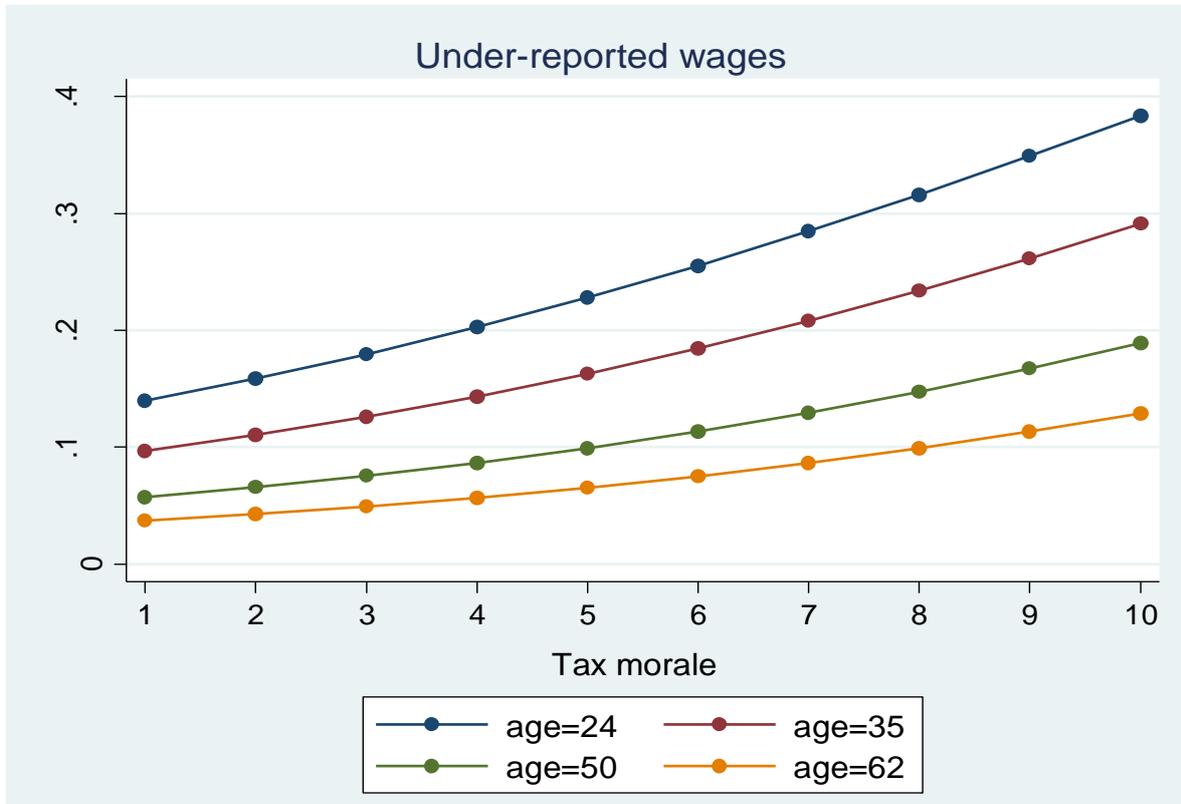
Significance: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

As for policy measures, the analysis reveals that there is no statistically significant relationship between wage under-reporting and either the risk of detection or the level of penalties. However, tax morale is a significant predictor of the propensity to receive under-reported wages. The higher the tax morale, the lower is the likelihood of receiving under-reported wages. Individuals of Albanian ethnicity are significantly more likely to receive under-reported wages than those of Macedoni ethnicity. However, nationality was significant until tax morale was included in the model. This is largely because the majority of individuals of Albanian ethnicity in the survey had lower tax morale index. Here also exists a moderate correlation between nationality and tax morale, but it was inside required limits and therefore both predictors were retained in the model.

To further portray the effects of these explanatory variables on the prevalence of wage under-reporting, Figure 14 outlines the predicted probabilities based on model 4 of a 'representative' employee engaging in wage under-reporting, according to their age and level of tax morale. This 'representative' worker is defined using mean and modal values of the remaining six predictors. That is to say, the representative citizen is a Macedoni male in full-time employment working in manufacturing industry who is maintaining a comfortable financial situation and living in a village, who perceives the probability of being detected by the authorities as fairly high and expects to pay taxes and social security contributions due plus a fine if caught. For simplicity, only the figures for representative workers aged 24, 35, 50 and 62 are shown. This reveals that the probability of receiving under-reported wages ranges from slightly above zero to almost 40 per cent, depending on the age and level of tax morale of the representative employee. For instance, while only four out of 100 workers who are 62 years old and with the highest tax morale (and with all other characteristics as defined above) are expected to receive under-reported wages, it increases to 13 out of 100 for those who find tax evasion absolutely acceptable. For employees aged 24, three in 20 expressing zero-tolerance towards tax evasion are expected to receive under-reported wages, but this rises to some 38 out of 100 for those with a completely permissive attitude towards disobedience with tax legislation.

Figure 14. Predicted probability of receiving under-reported wages for a 'representative' Macedonian citizen: by tax morale and age



Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

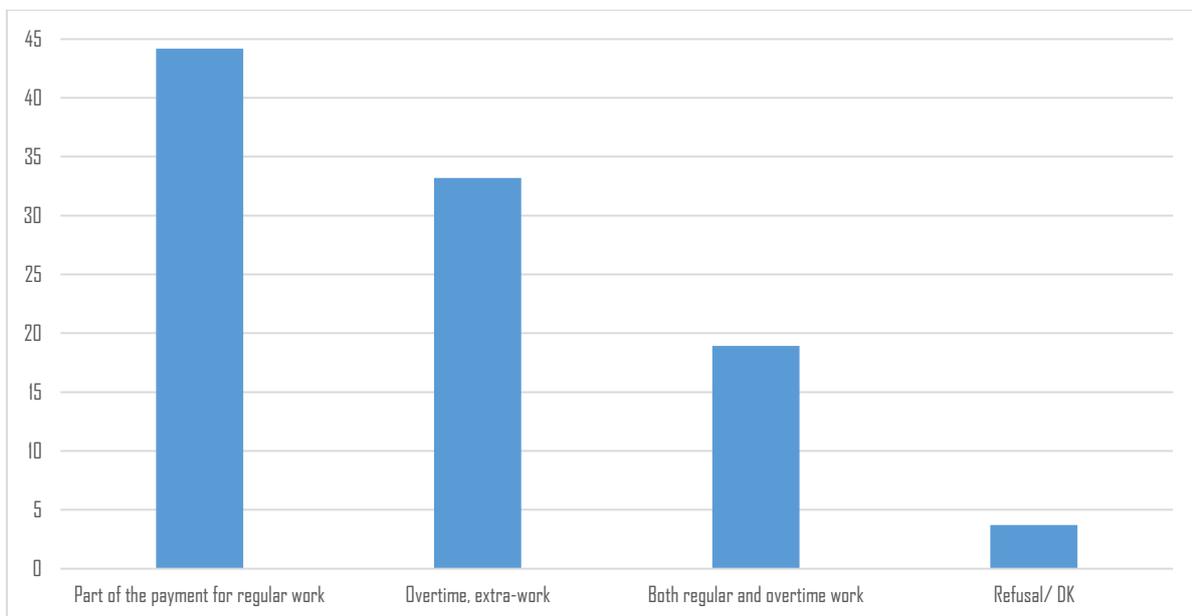
4.3. A deeper insight into the characteristics of quasi-formal employment in FYR Macedonia

This section will provide a deeper insight into the characteristics of quasi-formal employment in FYR Macedonia. Every quasi-formal worker was asked a set of additional questions. The following question was firstly asked:

Was this income part of the remuneration for your regular work, was it payment for overtime hours or was it both?

Figure 15 reveals that 44% of quasi-formal workers received under-reported wage for their regular work, while in 33% of cases they receive under-reported wage for overtime/extra work conducted. In about 19% of cases under-reported wage was paid for both their regular and over time work, while in 4% of cases the answer was “refusal or do not know” . Therefore, in 63% of cases, employers paid the envelope wage for regular work, which represents one successful tax evasion strategy.

Figure 15. The purpose of under-reported wages, % of quasi-formal workers



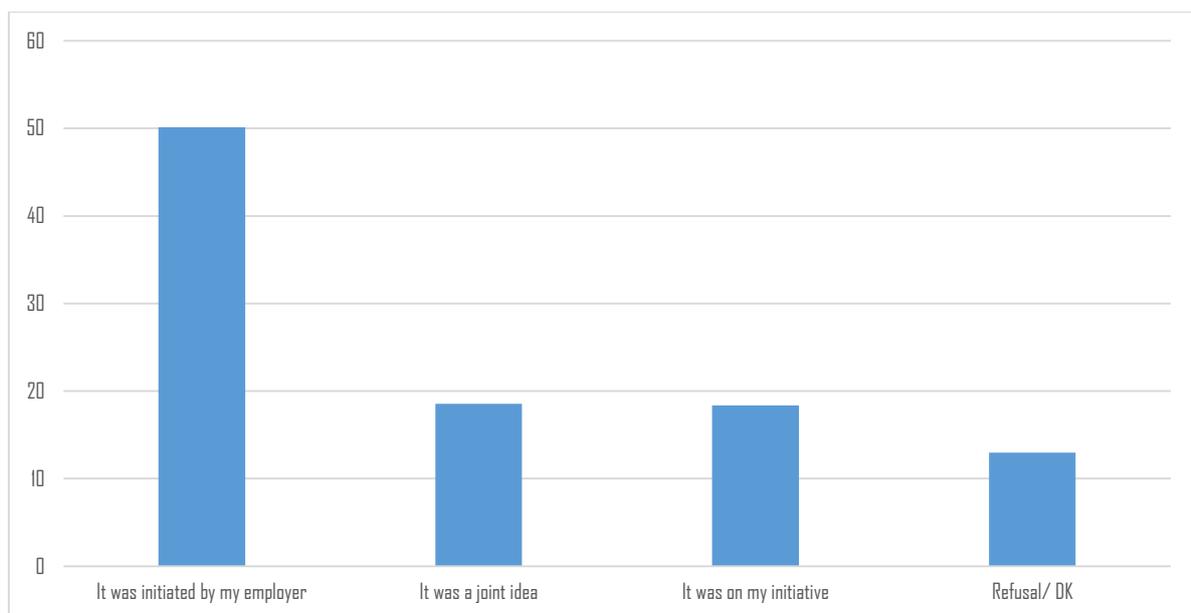
Source: Authors’ own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

In order to find out who are the envelope wages initiators, the next question was asked:

Who suggested paying this additional salary which would not be declared to the authorities?

As Figure 16 reveals, 50 per cent of quasi-formal workers asserted that under-reporting their wages was suggested by their employer. On the other side, 19% of quasi-formal workers stated that it was a joint idea and 18% that they as an employee had suggested this arrangement. In 37% of all cases, therefore, the employee had an active role in deciding to under-report their wages, contrary to the widespread assumption in the literature that this is always employer-instigated (e.g., Sedlenieks, 2003; Williams, 2007; Woolfson, 2007).

Figure 16. The initiators of under-reporting wages, % of quasi-formal workers



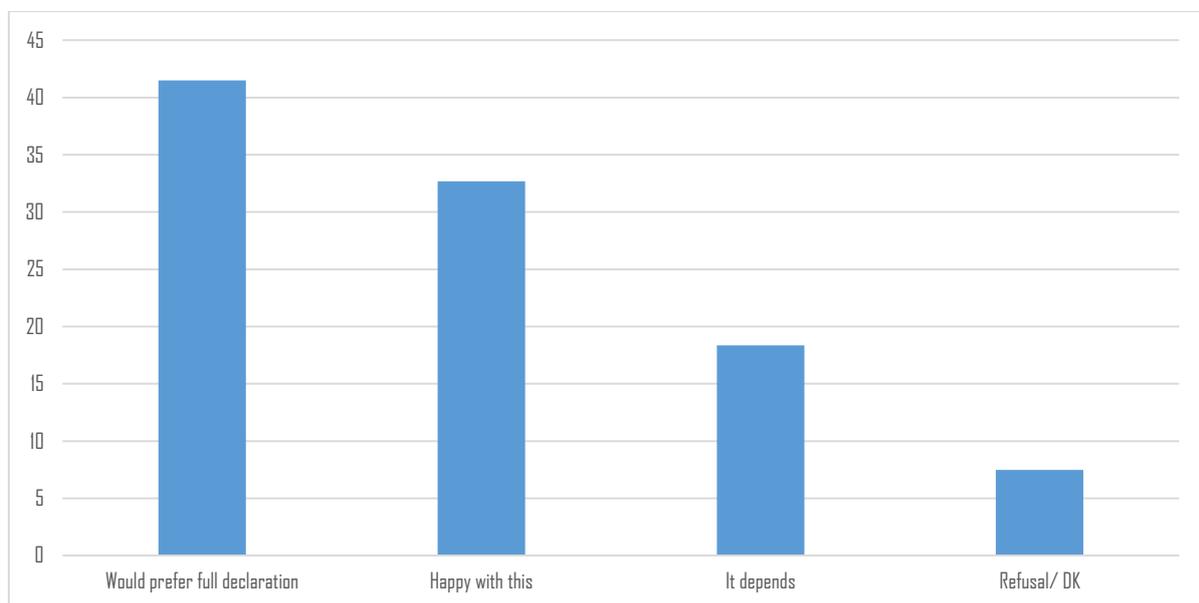
Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

The attitudes of quasi-formal workers about receiving envelope wages have been examined with the following question:

Were you happy getting part of your salary without having it declared to the tax or social security authorities or would you have preferred to have had your total gross salary declared?

As Figure 17 displays, the outcome is that 33% of quasi-formal workers were happy with this arrangement of under-reporting their wage (which was particularly the case among those who had suggested this arrangement), 18% neutral, and just 42% would prefer their wage to be fully declared. Some 7% either refused to answer, or did not know.

Figure 17. The level of agreement with receiving under-reported wages, % of quasi-formal workers



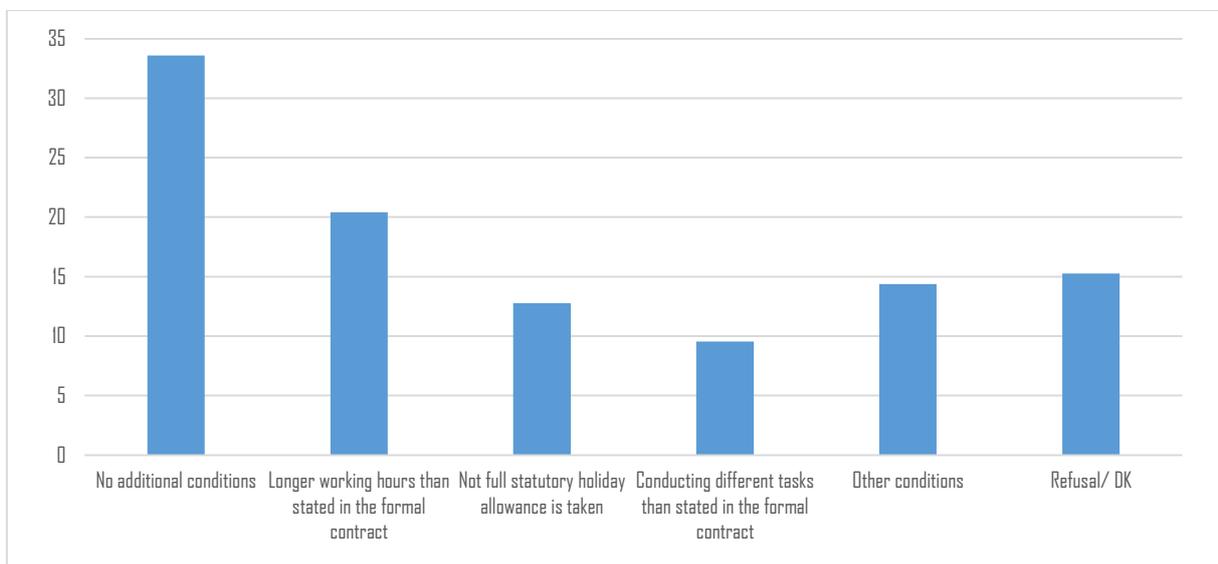
Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

The next question examines whether there is a hidden agreement between the employee and the employer:

Did you verbally agree with your employer to any of the following conditions in return for receiving this additional cash-in-hand payment?

The results summarised in Figure 18 reveals that additional conditions prevailed in 34% of all reported cases of wage under-reporting. Some 20% of quasi-formal workers receiving an additional undeclared (envelope) wage had verbally agreed to work longer hours, 13% had agreed not to take their full statutory holiday entitlements, and 10% had agreed to conduct tasks, or take on responsibilities, not stated in their written contract.

Figure 18. An overview of extra conditions that accompanied under-declaration of wages, % of quasi-formal workers



Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

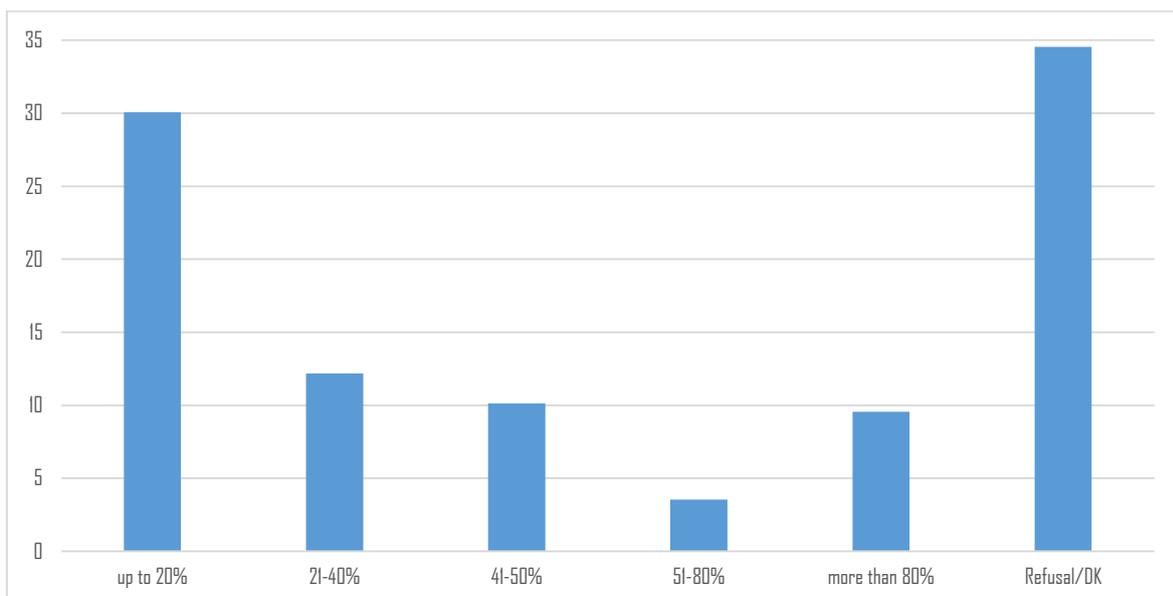
The next question relates to the amount paid as an envelope wage:

Approximately what percentage share of your net monthly income from this job did you get this way?

As Figure 19 illustrates, about 30% of quasi-formal workers indicated that up to 20% of their net monthly income was paid in cash as envelope wage. Furthermore, 12% of quasi-formal workers stated that between 21 and 40% of their take-home pay was given in cash as envelope wages, while 10% of them admitted that this amount was between 41 and 50% of their net monthly income.

On the other hand, it is showed that in 13% of cases more than 50% of the net monthly income was paid in an illegal way. Even 35% of respondents refused to answer this question or did not know the answer.

Figure 19. The percentage share of net monthly income paid as envelope wage, % of quasi-formal workers



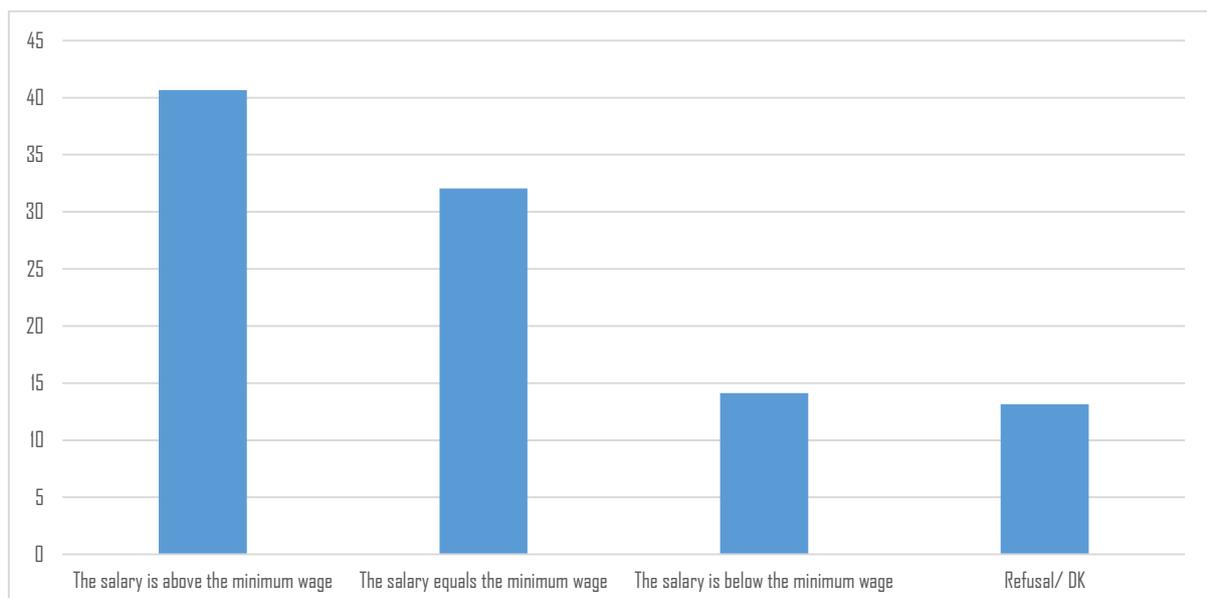
Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

The next question relates to the relationship between under-reported wages and officially declared minimum gross wage.

Which of the following best describes your officially gross declared salary for this job?

As Figure 20 displays, about 41% of quasi-formal workers received a declared wage which is higher than the minimum gross wage defined by law, while 32% of them recognised that their declared wage was exactly equal to the gross minimum wage in FYR Macedonia. A further 14% of quasi-formal workers stated that the amount of their declared wage was below the official minimum gross wage, while 13% of quasi-formal workers either refused to answer, or did not know.

Figure 20. The relationship between under-reported wages and officially declared minimum gross wage, % of quasi-formal workers



Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

5. The supply side of undeclared work in FYR Macedonia

Reflecting the consensus in the literature, undeclared work here refers to paid work which is legal in all respects other than it is not declared to the authorities for tax, social security or labour law purposes (Aliyev, 2015; European Commission, 2007; Hodosi, 2015; OECD, 2012; Williams, 2014a). Firstly, respondents were asked whether they had been conducting any paid activity without reporting income to the authorities. If so, they were then asked a set of supplementary questions which will provide insight into certain characteristics of undeclared workers.

The structure of this section is the same as in the previous two sections. A descriptive statistical analysis according to demographic, socio-economic, spatial and political variables is firstly conducted. Subsequently, to determine which of these variables has a significant impact on the decision to engage in undeclared work, a logit regression analysis is here conducted. Finally, section 5.3 analyzes goods and services provided on an informal market, as well as benefits from conducting these activities and motives for undeclared work.

5.1. A descriptive statistical overview of undeclared work

To assess workers involvement in the undeclared economy in FYR Macedonia, the following question was asked:

Did you yourself carry out any undeclared paid activities in the last 12 months? Here we mean again activities which you were paid for which were not or not fully reported to the tax authorities?

Table 7 reports that 6.1% of the surveyed individuals admitted participation in undeclared work in the last 12 months, while 5.5% of them responded that they did not know the answer to that question or refused to give an answer. Finally, 88.4% of the individuals denied participation in undeclared work.

The findings reveal that men are more likely to participate in undeclared work than women, 8.1% compared with 4.1%. It is also the case that those aged 25-39 are more likely to engage in undeclared work (9.4%) and that the proportion participating then decreases as age increases. Similarly, those of Albanian ethnicity are far more likely to participate in undeclared work than Macedoni, 10.6% compared with 4.5%. Turning to employment status, 14.4% of the self-employed engage in undeclared work and 8.6% of the unemployed. Other groups such as employees, the retired and students are less likely to do so. There is also a slight tendency for those struggling to cope financially to be more likely to participate in undeclared work. Those who perceive the rest of the population to be more likely to engage in undeclared work are themselves more likely to do so, reflecting that where 'horizontal trust' is low (i.e., trust in other citizens to operate legitimately), undeclared work is more likely. Undeclared work also appears to be more prevalent in rural areas and villages than in more urban areas, and much more prevalent in some regions, i.e., the Southwestern (12.4%) and Polog regions (12.0%), than the rest of the country.

Table 7. Participation in undeclared work in FYR Macedonia, % of surveyed individuals

	Yes	No	Refusal/ do not know
Total	6.1	88.4	5.5
Gender			
Male	8.1	85.9	6.0
Female	4.1	90.9	5.0
Age			
15-24	5.1	87.8	7.0
25-39	9.4	84.8	5.9
40-54	5.8	88.6	5.6
55-64	5.1	92.5	2.5
65+	2.5	91.6	5.9
Nationality			
Macedoni	4.5	91.8	3.7
Albanian	10.6	78.7	10.8
Employment status			
Employed	5.6	89.6	4.8
Self-employed	14.4	80.7	4.9
Unemployed	8.6	86.8	4.6
Retired	2.4	91.6	5.9
Student and inactive	4.8	87.3	7.9
Financial situation			
Struggling	5.6	89.6	4.7
Maintaining	6.7	90.0	3.4
Just comfortable	4.9	90.0	5.1
No money problems	4.4	86.5	9.1
Estimated share			
less than 5%	4.4	93.0	2.7
5 to 10%	2.5	93.4	4.2
10 to 20%	5.0	90.8	4.3
20 to 50%	7.2	87.2	5.6
50% or more	11.4	81.7	7.0
Type of locality			
Rural area or village	7.5	86.5	6.0
Small or middle sized town	5.3	93.7	1.0
Large town	5.0	89.0	6.0
Region			
Vardar	3.9	96.1	0.0
Eastern	2.7	92.7	4.6
Southwestern	12.4	82.3	5.3

Southeastern	3.0	97.0	0.0
Pelagoni	4.5	95.1	0.4
Polog	12.0	80.4	7.6
Northeastern	0.8	80.5	18.7
Skopje	5.5	88.8	5.7
Detection risk			
Very small	7.8	90.2	2.0
Fairly small	5.8	88.3	5.9
Fairly high	7.5	87.4	5.2
Very high	4.8	92.1	3.1
Expected sanctions			
Normal tax or social security contributions due, but no fine	7.7	89.5	2.8
Normal tax or social security contributions due, plus a fine	5.1	90.1	4.8
Prison	6.9	89.0	4.0
Tax morale			
<2	4.1	90.8	5.1
2 do 4	8.4	84.8	6.8
4 do 6	10.1	84.5	5.4
6 do 8	9.4	86.0	4.7
8 do 10	15.3	76.4	8.3

Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

Examining the association of participation in undeclared work with the perceptions of the risk of detection, no discernible trend appears to be apparent and so far as sanctions are concerned, there appears to be a slightly greater likelihood that those who perceive the sanctions as lower are more likely to engage in undeclared work. There does, however, appear to be a clear relationship between participation in undeclared work and tax morale. The higher is the level of tax morale, the lower is the likelihood of participating in undeclared work.

5.2. Determinants of participation in undeclared work in FYR Macedonia

To evaluate whether there is a statistically significant association between participation in undeclared work and certain demographic, socio-economic, spatial and political characteristics, a logit regression analysis is here conducted. As in the previous chapter, multiple imputation was used to predict missing values and inconclusive answers (i.e., refusal and 'don't know'). This is done using a system of chained equations for each variable with missing values, with twenty five imputations simulated for each missing value. As in sections 3.2 and 4.2, a sequential model building strategy was applied. In model 1, the socio-demographic variables are analysed, in model 2 socio-economic characteristics are added, in model 3 spatial variables are further added before model 4 adds the variables evaluating the policy approaches, namely the perceived penalties and detection risks, and tax morale.

Table 8 reports the results of a logit regression analysis. The finding in model 1 is that gender is strongly statistically significant; men are significantly more likely than women to participate in undeclared work. So too is ethnicity statistically significant with those of Albanian ethnicity more likely than Macedoni to participate in undeclared work. Age, however, is not found to be associated with participation in undeclared work. When socio-economic variables are added in model 2, the signs and significances of these socio-demographic variables remain the same. The additional finding is that the unemployed are significantly more likely to participate in undeclared work than the employed, retired, and students and economically inactive. So too are those who perceive more than 50 per cent of the population to be engaged in undeclared work significantly more likely to participate in undeclared work than groups believing that

small proportions of the population engaged in the undeclared economy. 'Horizontal trust', therefore, appears to play a significant role in determining participation in undeclared work. There is no statistically significant relationship, however, between participation in undeclared work and their financial situation.

Table 8. Logit regression analysis of the likelihood of participation in undeclared work in FYR Macedonia

	Model 1 Coef.(S.E.)	Model 2 Coef.(S.E.)	Model 3 Coef.(S.E.)	Model 4 Coef.(S.E.)
Female	-0.711 (0.202)***	-0.658 (0.215)***	-0.668 (0.216)***	-0.692 (0.217)***
Age	-0.009 (0.005)	-0.006 (0.008)	-0.005 (0.008)	-0.004 (0.008)
Nationality (RC: Macedoni)				
Albanian	0.883 (0.207)***	0.896 (0.220)***	0.418 (0.280)	0.250 (0.283)
Employment status (RC: Unemployed)				
Employed		-0.511 (0.267)*	-0.545 (0.277)**	-0.527 (0.276)*
Self-employed		0.353 (0.354)	0.430 (0.380)	0.415 (0.384)
Retired		-0.943 (0.427)**	-0.984 (0.432)**	-0.996 (0.435)**
Student and inactive		-0.837 (0.325)***	-0.738 (0.323)**	-0.690 (0.326)**
Financial situation (RC: Struggling)				
Maintaining		0.127 (0.251)	0.073 (0.256)	0.113 (0.259)
Just comfortable		-0.102 (0.305)	-0.162 (0.304)	-0.021 (0.311)
No money problems		-0.378 (0.826)	-0.168 (0.865)	-0.221 (0.931)
Estimated share (RC: 50% or more)				
less than 5%		-0.906 (0.473)*	-0.906 (0.486)*	-0.863 (0.499)*
5 to 10%		-1.493 (0.444)***	-1.531 (0.450)***	-1.539 (0.454)***
10 to 20%		-0.639 (0.328)*	-0.535 (0.342)	-0.572 (0.345)*
20 to 50%		-0.373 (0.245)	-0.357 (0.246)	-0.409 (0.250)
Type of locality (RC: Rural area or village)				
Small or middle sized town			0.508 (0.425)	0.454 (0.450)
Large town			-0.015 (0.244)	0.020 (0.246)
Region (RC: Vardar)				
Eastern			-0.264 (0.670)	-0.313 (0.710)
Southwestern			1.032 (0.543)*	1.065 (0.582)*
Southeastern			-0.589 (0.657)	-0.670 (0.674)
Pelagoni			0.152 (0.609)	0.169 (0.664)
Polog			0.950 (0.580)	0.854 (0.617)
Northeastern			-1.354 (1.096)	-1.430 (1.112)

Skopje			0.629 (0.542)	0.503 (0.583)
Detection risk (RC: Very small)				
Fairly small				-0.202 (0.315)
Fairly high				0.135 (0.298)
Very high				-0.454 (0.337)
Expected sanctions (RC: Normal tax or social security contributions due, but no fine)				
Normal tax or social security contributions due, plus a fine				-0.365 (0.228)
Prison				0.011 (0.399)
Tax morale				0.122 (0.047)***
Const	-2.286 (0.304)***	-1.573 (0.463)***	-1.958 (0.682)***	-1.984 (0.769)***
Number of observations	2,014	2,014	2,014	2,014
Number of imputations	25	25	25	25
Prob > F	0.000	0.000	0.000	0.000
Pseudo R2	0.052	0.089	0.116	0.133
Area under ROC	0.681	0.728	0.756	0.765

Significance: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

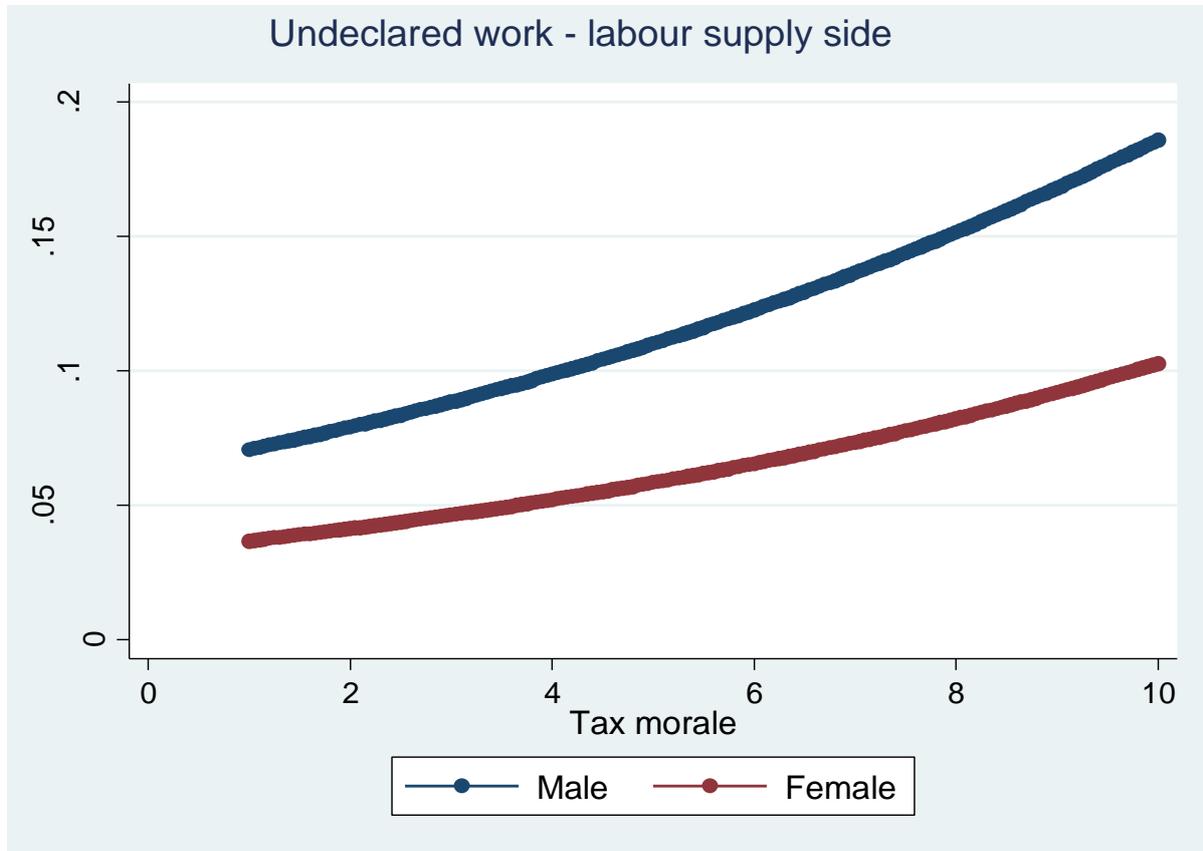
When the spatial variables are added in model 3, the signs and significances remain the same for the socio-demographic and socio-economic variables, with the exception of ethnicity. Once spatial variables are introduced, the significance of ethnicity disappears, largely because of the spatial concentration of these ethnic groups. Indeed, although there was a moderate correlation between ethnicity and the spatial variables, they were inside required limits and therefore both predictors were retained in the model. Interestingly, however, there are no statistically significant correlations between participation in undeclared work and urban/rural or regional location.

In model 4, the same socio-demographic, socio-economic and spatial signs and significances persist as in model 3. However, the important finding is that there is no statistically significant relationship between participation in undeclared work and either the level of penalties or the risk of detection. However, tax morale is a strong significant

predictor of the propensity to participate in undeclared work. The higher the tax morale, the lower is the likelihood of participation in undeclared work.

To further portray the effects of these explanatory variables on the likelihood of participation in undeclared work, Figure 21 outlines the predicted probabilities based on model 4 of a 'representative' citizen engaging in undeclared work, according to their gender and level of tax morale. This 'representative' worker is defined using mean and modal values of the remaining predictors. That is to say, the representative citizen is an employed Macedoni aged 47 who is maintaining a comfortable financial situation and living in a large town, in the Skopje region, who perceives the probability of being detected by the authorities as fairly high and expects to pay taxes and social security contributions due plus a fine if caught. This reveals that the probability of the representative man engaging in undeclared work is higher than for a woman at all levels of tax morale, and that as tax morale worsens, the probability of participating in undeclared work increases for both men and women. For men, for example, the probability of engaging in undeclared work ranges from seven in a 100 for those with the highest tax morale to 18 in a 100 for those with the lowest tax morale, and for women from four in a 100 to 10 in a 100 respectively.

Figure 21. Predicted probability of participation in undeclared work of a 'representative' Macedonian citizen: by tax morale and gender



Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

5.3. A deeper insight into the labour supply side of undeclared work in FYR Macedonia

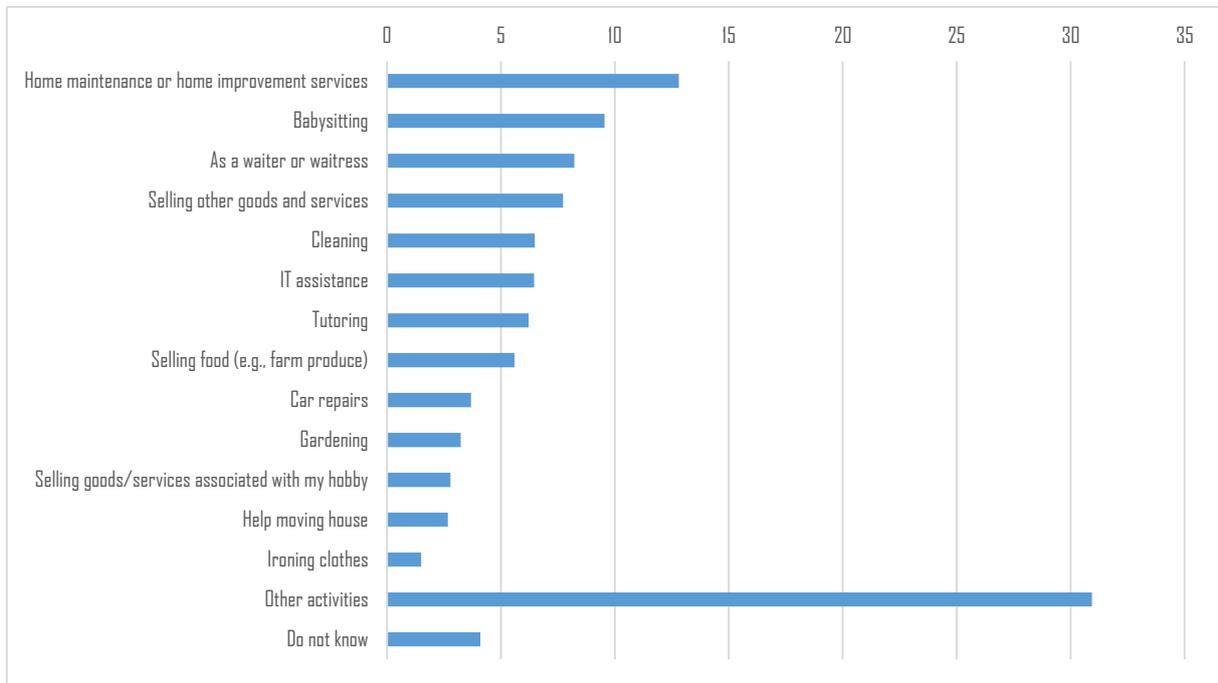
In order to examine in detail the characteristics of undeclared work in FYR Macedonia, undeclared workers were asked several supplementary questions. Firstly, we analyze activities which suppliers have carried out undeclared in the last 12 months. The question was as follows:

Which of the following activities have you carried out undeclared in the last 12 months?

A list of activities was offered to assist respondents in answering the question, but each individual could add an activities that was not on the list. Additionally, multiple answers were possible.

Figure 22 illustrates that 13% of undeclared workers had provided home maintenance and improvement services, 10% baby-sitting, 8% had worked as a waiter or waitress, 8% had sold other goods or services, 7% had engaged in domestic cleaning, 6% IT assistance, 6% tutoring, 6% had sold food produce, 4% car repairs, 3% gardening services, 3% had sold goods or services associated with their hobby, 3% had undertaken home removal, and 2% ironing clothes.

Figure 22. Type of activities carried out on an undeclared basis, % of undeclared workers



Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

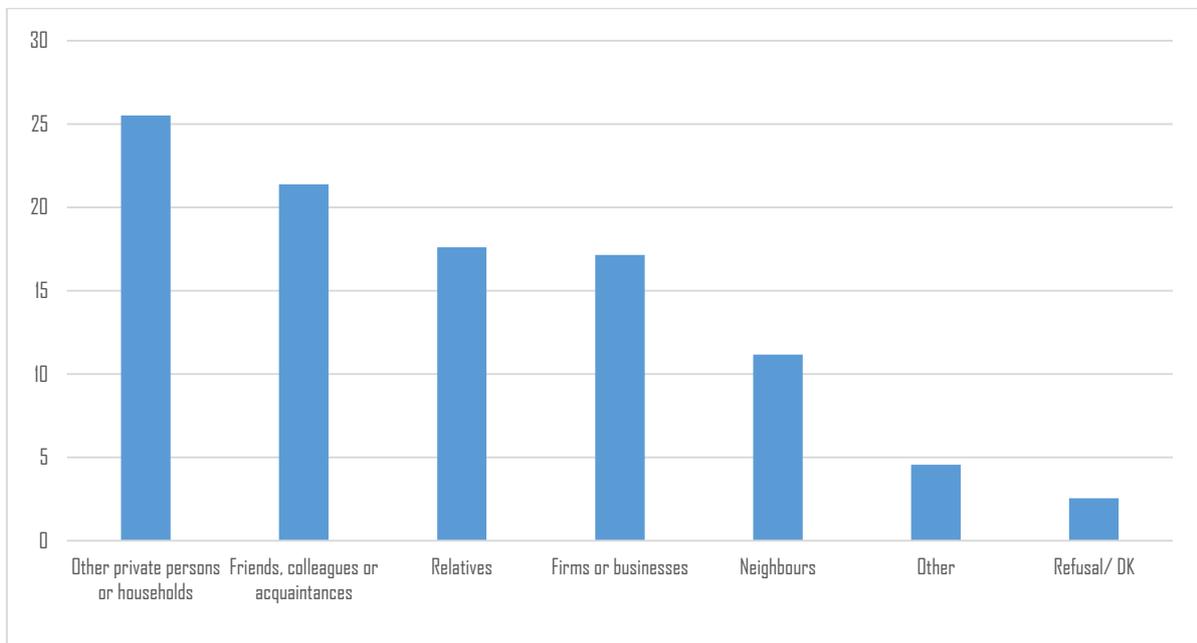
After this question, every individual was instructed to focus on the most important activity they conducted on an undeclared basis. The next question analyzes for whom unregistered workers most often sell goods or services:

Among the following, would you please indicate for whom did you carry out this activity?

Figure 23 reveals that only 17 per cent of this undeclared work was conducted as waged employment for businesses. The remaining 83 per cent was conducted on a self-employed basis, with 21 per cent conducted for friends, colleagues or acquaintances, 18 per cent for relatives, 11 per cent for neighbours, and the remaining 26 per cent on

a self-employed basis for people previously unknown to them. Some 7 per cent either refused to answer, or did not know. The important finding, therefore, is that one half of all undeclared work in FYR Macedonia is conducted for close social relations. This is a similar proportion to the finding in previous studies in the EU28 as a whole (Williams, 2014a).

Figure 23. The structure of the buyers of undeclared goods and services in FYR Macedonia, % of undeclared workers



Source: Authors' own calculations based on the representative survey of 2,014 individuals in Macedonia

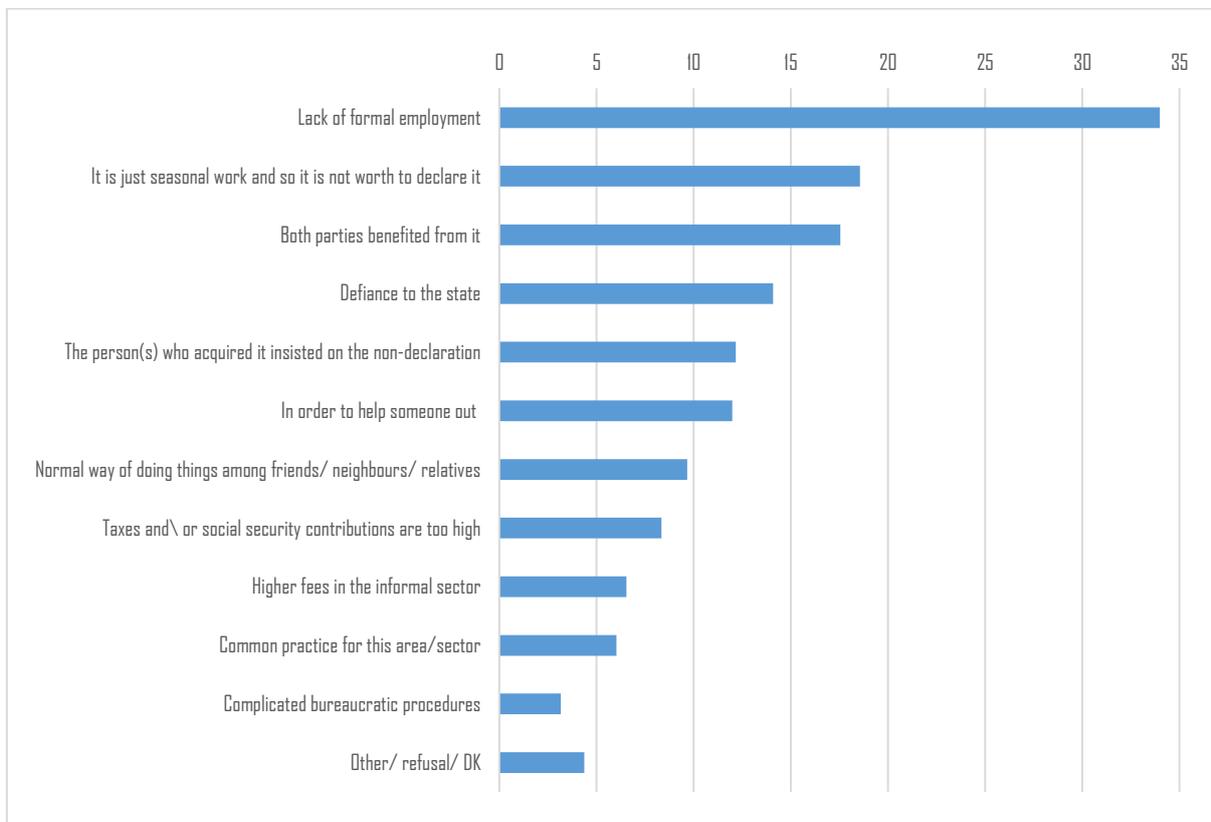
To further explore the key factors behind undeclared work in FYR Macedonia, every undeclared worker was asked about their reasons for participating in undeclared work:

Among the following, what were the reasons for doing this activity undeclared?

Respondents could choose more than one response from the list. Furthermore, they could also offer their new reason. Figure 24 illustrates that even 34% of respondents could not find a regular job, 12% of them stated that the person(s) who acquired an activity insisted on the non-declaration and 6% admitted that working undeclared is common practice in their region\ sector of activity so there is no real alternative. For the above three reasons it can be concluded that undeclared workers did not have a real alternative, i.e. they are not involved in informal actions with their will.

On the other side, the remaining reasons can be characterized as voluntary choice. About 19% of informal workers stated that it is just seasonal work and so it is not worth to declare it, 18% that both parties benefited from it, 14% that the State does not do anything for you, so why pay taxes, 8% that taxes and\ or social security contributions are too high, 7% that they were able to ask for a higher fee for their work and 3% that bureaucracy\ red tape to carry out a regular economic activity is too complicated. As for social reasons, 12% of undeclared workers stated that they did undeclared activity in order to help someone out and 10% that this is the normal way how this is done among friends, neighbours or relatives.

Figure 24. Motives for participating in undeclared work, % of undeclared workers



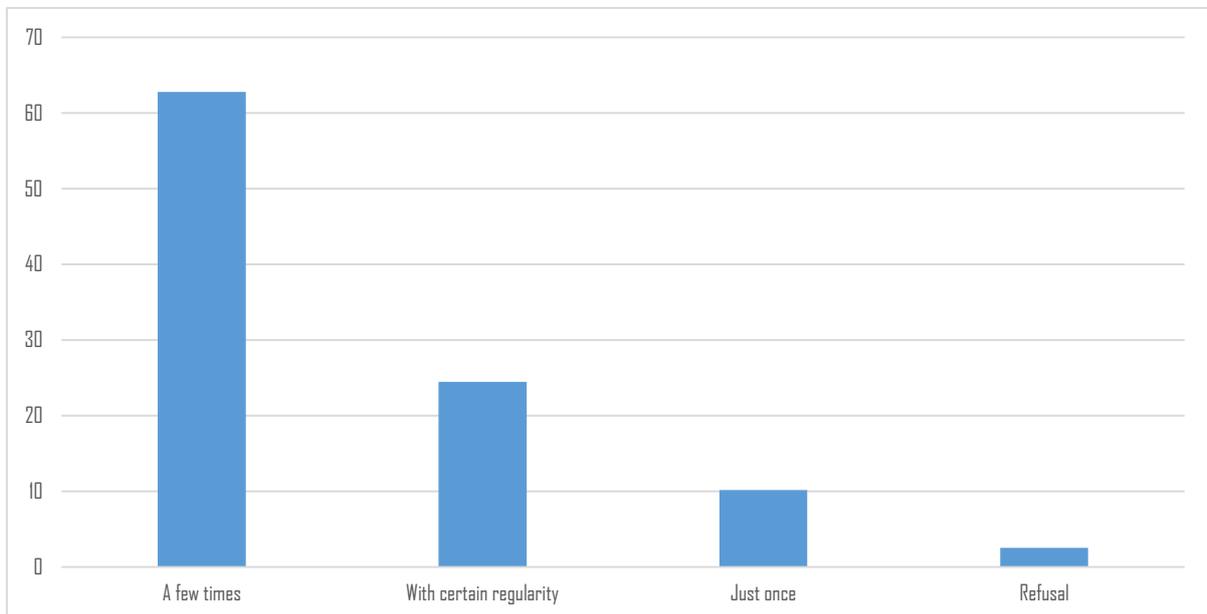
Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

The next question examines the frequency of the most important activity which was carried out on an undeclared basis:

Thinking about the most significant undeclared work you just mentioned, did you carry out this activity only once or a few times or do you carry it out with certain regularity?

As Figure 25 reveals, 63% of undeclared workers admitted that they carried out this activity a few times during the year and 24% with certain regularity. Only 10% of them stated that they conducted the activity just once.

Figure 25. Frequency of the most important undeclared activity, % of undeclared workers



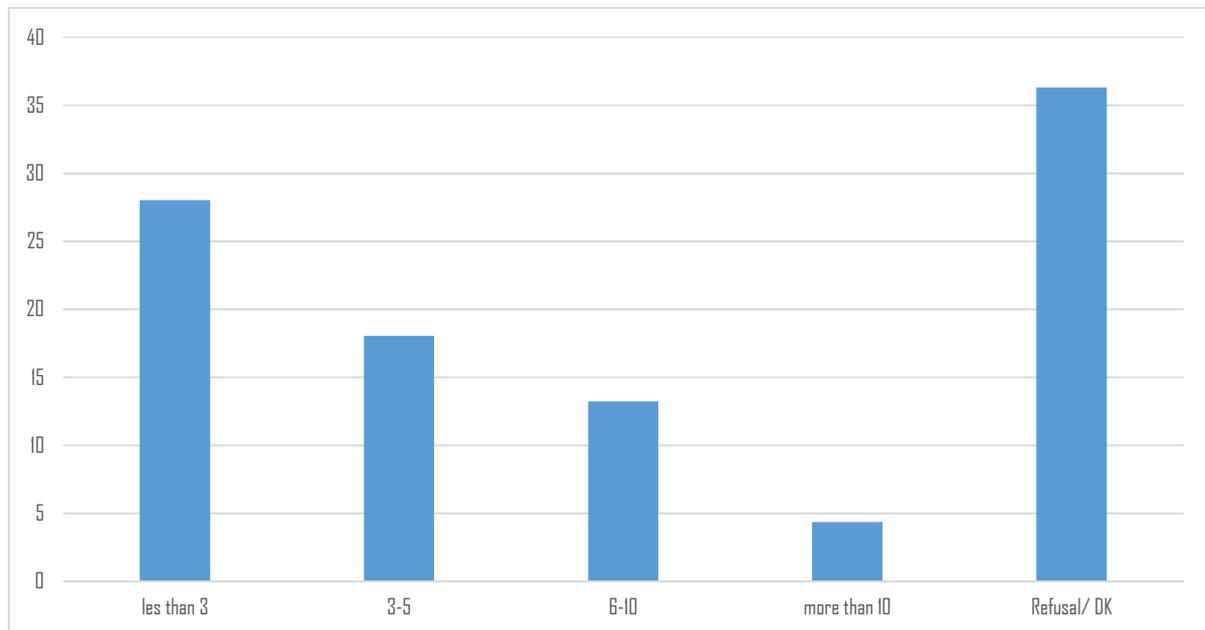
Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

The next question relates to the received financial compensation for carrying out the most important undeclared activity:

APPROXIMATELY, how much did you get per hour on average for this activity?

As Figure 26 shows, about 28% of informal workers earned less than EUR 3 per hour for the most important undeclared activity, 18% of them got between EUR 3 and EUR 5 per hour. Some 13% of undeclared workers received between EUR 6 and EUR 10, while for 4% of them their income was above EUR 10 per hour. Even 36% of undeclared workers either refused to answer, or did not know the answer.

Figure 26. Price per hour (in EUR) for the most important undeclared activity, % of undeclared workers



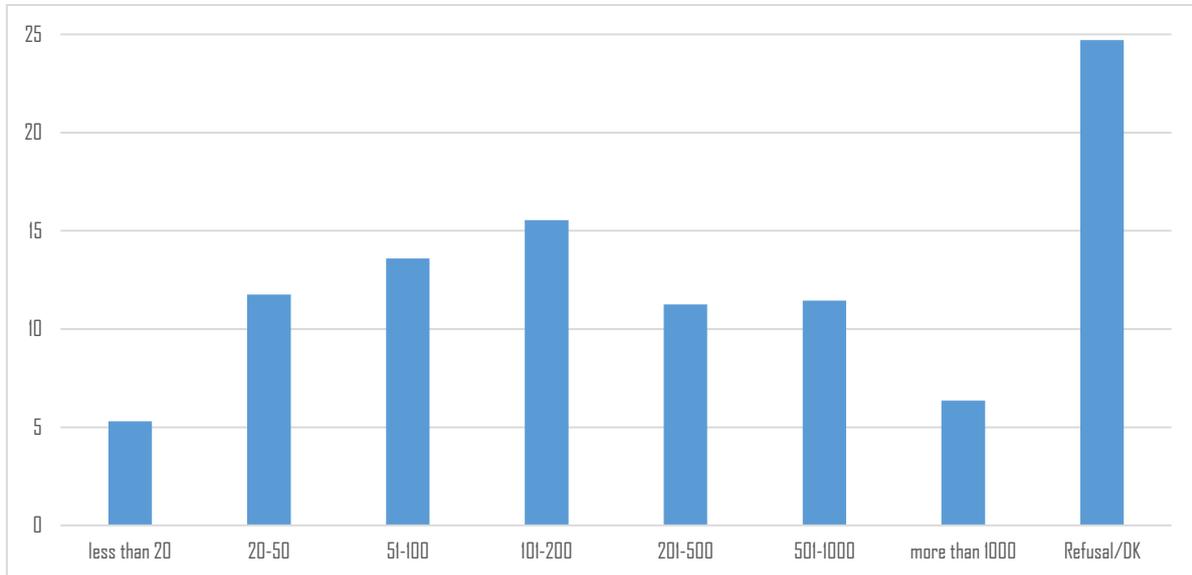
Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

The last question analyzes the total income that was received form undeclared work:

APPROXIMATELY, how much did you get in total from these undeclared activities in the last 12 months?

Figure 27 reveals that approximately one third of informal workers admitted to having earned below EUR 100 from undeclared work during the previous 12 months, while about a quarter of respondents received between EUR 101 and EUR 500. Some 11% earned between EUR 501 and 1000 and 6% earned more than EUR 1000. A quarter of undeclared workers either refused to answer, or did not know the answer.

Figure 27. Total net income (EUR) from undeclared work in the last 12 months, % of undeclared workers



Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

6. Personal connections and their role in circumventing formal procedures in FYR Macedonia

Receiving and providing personal favours in order to circumvent formal procedures prevails in all countries and regions of the world to varying degrees. In this chapter, the aim is to evaluate the extent to which personal connections are used to circumvent formal procedures, and who engages in such practices in FYR Macedonia.

6.1. The use of personal connections to get things done

To examine the use of personal connections in circumventing formal procedures, each individual was asked to state whether he/she used personal connections to achieve personal goals in 13 different spheres of life. Respondents could add any other situations in which they used personal connections to get things done. The following question was asked first:

Have you in the last twelve months asked anyone for a favour/help using connections?

In total, 35% of all respondents admitted the use of personal connections to get things done in at least one of offered spheres. Table 9 reports that 18.2 per cent of all participants surveyed had used personal connections to gain access to medical services (e.g., jumping the queue, getting a better examination), 9.3 per cent to find a job, 8 per cent to get repairs (e.g., to their home or car), 7 per cent to solve problems with the law enforcement authorities such as the traffic police or customs, 6.8 per cent to speed

up bureaucratic procedures with the public administration, and 6.5 per cent to gain access to everyday services such as hairdressers and bank services.

When it is recognised that not all respondents needed to obtain these services in the past 12 months (e.g., medical services, finding a job, solving problems with the law enforcement authorities), personal connections appears to be commonly used to get things done. Although we do not know whether respondents had engaged with these realms in the past, it can be tentatively concluded that personal connections seems to be very commonly used when gaining access to medical services, finding a job, dealing with legal services and the courts, and accessing education, which are activities that only a relatively small proportion would have accessed in the year prior to the survey, and less commonly used when acquiring foodstuffs and consumer goods, which are activities that most would have engaged in during the year prior to the survey.

Table 9. The use of personal connections to get things done in FYR Macedonia: by sphere, % of surveyed respondents

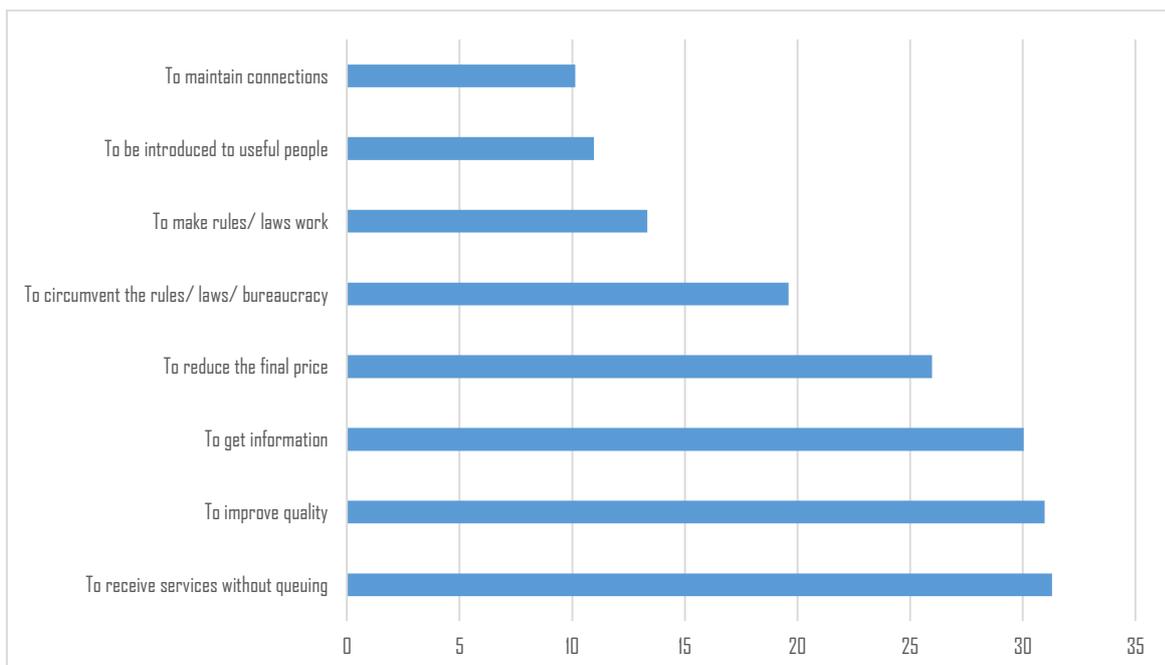
Sphere	Yes	No	Refusal /DK
Medical services: skipping queue, getting better examination, surgery	18.2	77.4	4.5
Finding a job	9.3	86.3	4.4
Repairs (housing, garages, car)	8.0	88.7	3.3
Solving problems with the law enforcing authorities: traffic police, customs	7.0	88.1	4.9
Speeding up bureaucratic procedures (e.g. at the municipal hall)	6.8	89.8	3.4
Everyday services at better quality or better price (bank services, hairdressers...)	6.5	89.7	3.9
Legal services and courts	4.5	91.3	4.2
Education: places in higher education/ obtaining degree/diploma etc.	4.4	92.1	3.6
Foodstuffs	4.0	92.8	3.3
Hobbies and entertainment, resorts, travelling tickets	3.8	93.3	2.9
Tickets for events, theatre, concerts	3.5	92.8	3.7

Consumer goods excl. foodstuffs	2.8	94.3	2.9
Communicating with local authorities in your business matters (e.g. delaying tax payment)	2.6	94.0	3.4
Other	1.3	98.7	0.1

Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

Additionally, each individual who admitted pulling strings was asked for the reasons of circumvention the rules. Figure 28 reveals that 31% of such individuals stated that they used personal connections to receive services without queuing and to improve quality, 30% to get information, and 26% to reduce the final price. One out of five individuals who admitted pulling strings used personal connections to circumvent the rules/ laws/ bureaucracy, 13% to make rules/ laws work, 11% to be introduced to useful people, while 10% of them used personal connections only to maintain connections.

Figure 28. Motives for using personal connections in FYR Macedonia, % of individuals who admitted pulling strings



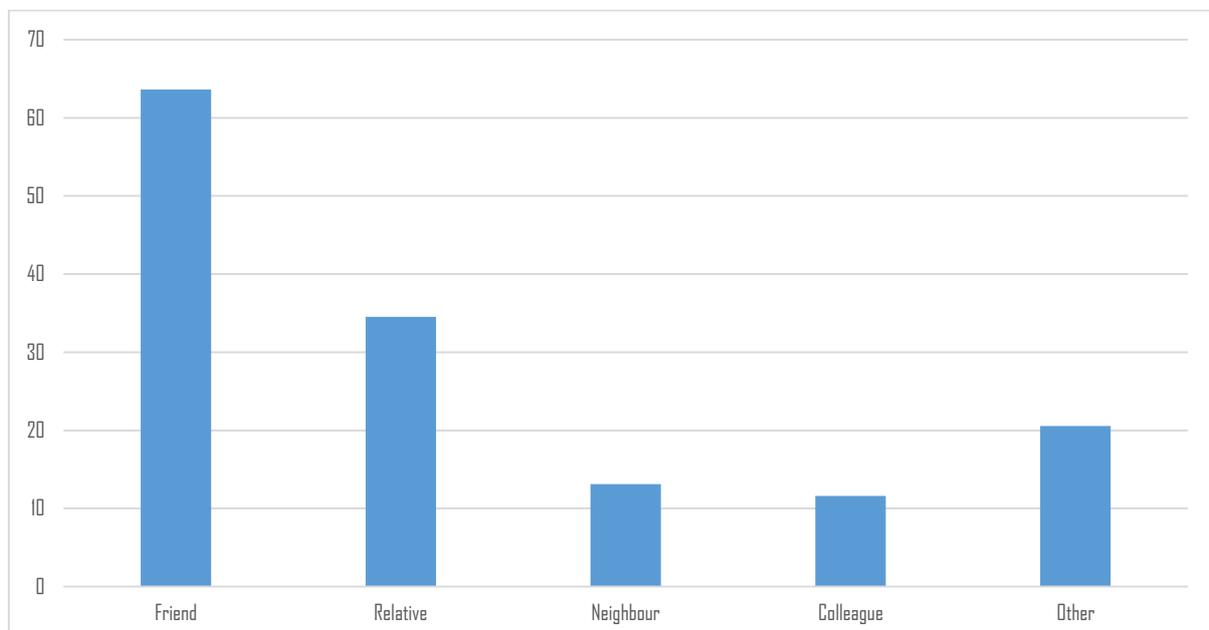
Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

To further investigate the use of personal connections the respondents who admitted pulling strings were asked the following question:

Who was the person who helped you/did you a favour?

When answering the questionnaire, a list with concrete answers was offered to respondents. Figure 29 displays that 64% of individuals stated that friend helped to get things done, while in 36% of cases a relative was asked for a favour. Neighbour provided favours in 13% of cases, while colleague provided in 12% of cases. One out of five individuals admitted that they asked other people for a favour.

Figure 29. The persons who helped/ did a favour, % of individuals who admitted pulling strings



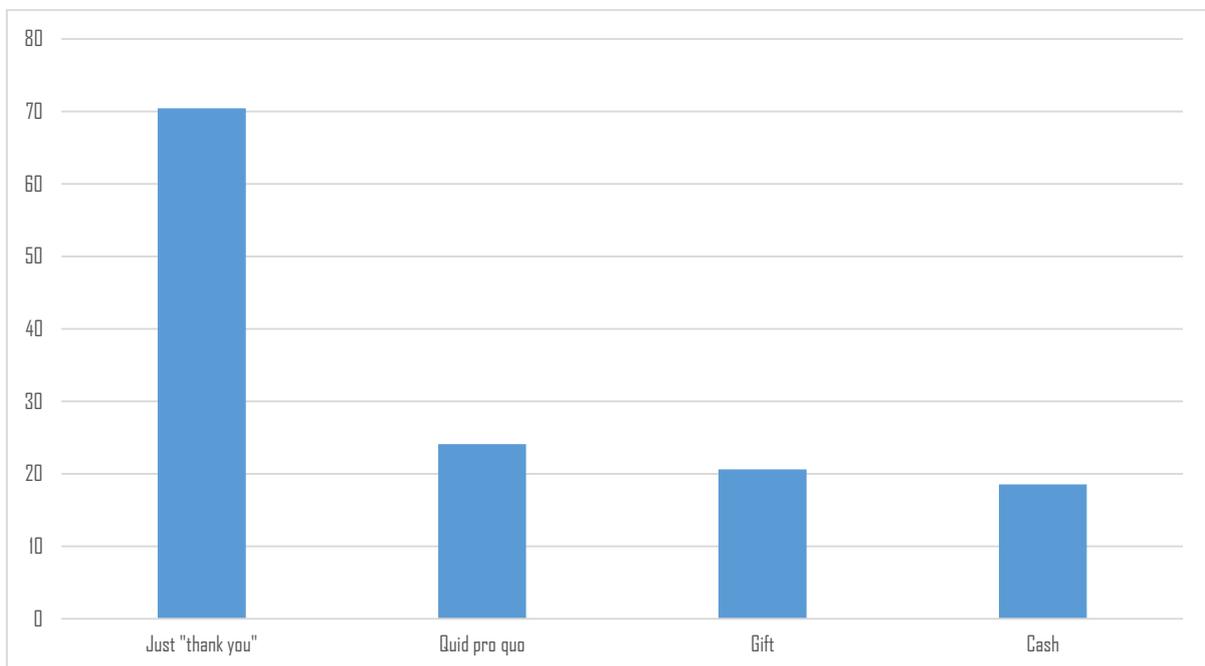
Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

Finally, every identified user of personal connections was asked the following question:

How did you reward/compensate your connection for the favour/ help received?

Figure 30 illustrates that seven out of ten individuals said just "thank you" for the received favours, while 24% of respondents offered the return of favour. Material awards are given in 40% of cases. In 21% of cases it was a gift and in 19% of cases cash was given as a reward.

Figure 30. The given compensation for the favour/ help received, % of individuals who admitted pulling strings



Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

6.2. The prevalence of personal connections from the supply side in FYR Macedonia

This section analyzes the use of personal connections from the supply side. In other words, the prevalence and reasons of giving favours in 13 different spheres of life are analyzed. The next question was firstly asked:

Have you in the last twelve months helped anyone? Did someone a favour?

Table 10 reveals the prevalence of providing favours in each of the offered spheres of life. Some 8.2 per cent of participants had made arrangements for somebody they knew to gain access to medical services either due to their direct control over these assets or more usually by acting as a third party to help them establish contact with a relevant person. Similarly, 7.7 percent had helped somebody find a job, 5.4 per cent to gain access to somebody who could do repairs (e.g., car or home repairs). The reason for the lower supply-side figure is that participants are likely to be able to provide favours in a limited range of spheres (mostly the areas in which he/she works or those areas in which s/he knows somebody and can act as a third party in gaining access), but can receive favours in almost any sphere depending on the breadth of his/her connections. The frequency of providing favours in other spheres is less than 4%.

Table 10. Providing favours to circumvent formal procedures in FYR Macedonia: by sphere, % of surveyed respondents

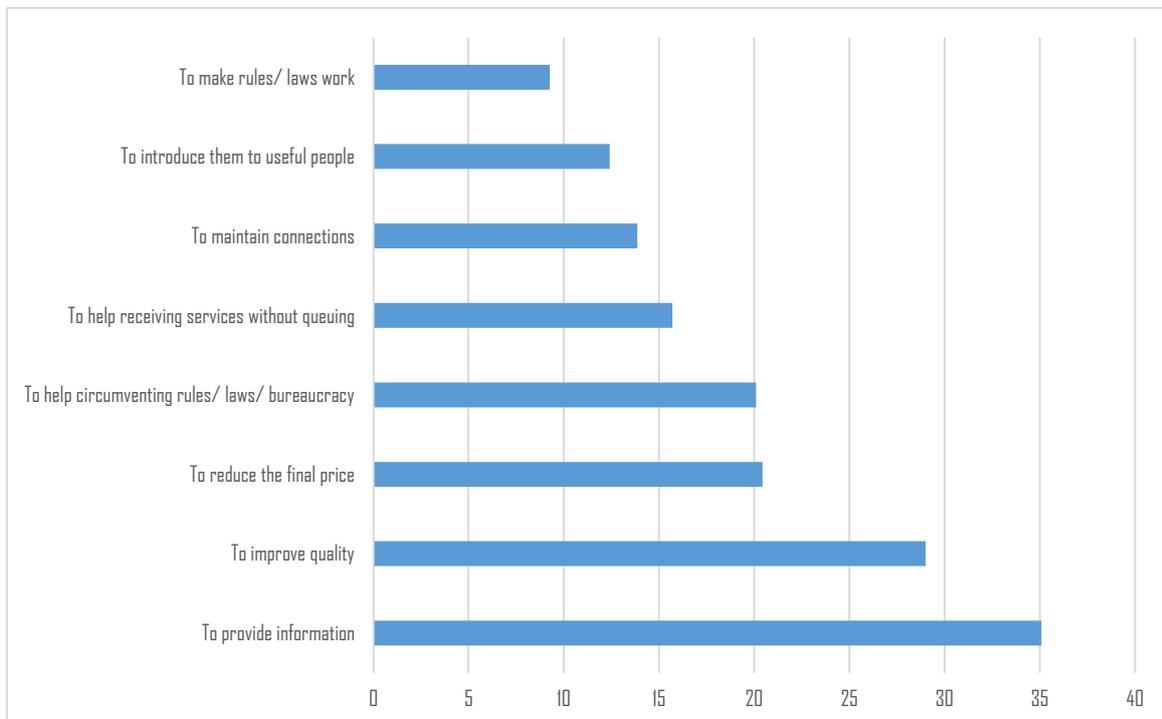
Sphere	Yes	No	Refusal /DK
Medical services: skipping queue, getting better examination, surgery	8.2	88.6	3.1
Finding a job	7.7	88.6	3.8
Repairs (housing, garages, car)	5.4	91.7	2.9

Everyday services at better quality or better price (bank services, hairdressers...)	4.0	92.9	3.2
Solving problems with the law enforcing authorities: traffic police, customs	3.4	92.1	4.5
Tickets for events, theatre, concerts	3.1	94.1	2.8
Foodstuffs	3.0	94.2	2.9
Education: places in higher education/ obtaining degree/diploma etc.	2.9	93.3	3.7
Hobbies and entertainment, resorts, travelling tickets	2.9	94.5	2.6
Speeding up bureaucratic procedures (e.g. at the municipal hall)	2.8	93.9	3.3
Legal services and courts	2.7	93.9	3.4
Consumer goods excl. foodstuffs	2.7	94.7	2.6
Communicating with local authorities in your business matters (e.g. delaying tax payment)	1.6	95.7	2.7
Other	0.9	98.9	0.2

Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

Additionally, each individuals who admitted doing favours were asked for the reasons of circumvention the rules. Figure 31 illustrates that providing information was the most important reasons for doing favours. About 35% of individuals who admitted doing favours stated such a reason in at least one of the occasions. Second reason for providing favours was improving the quality, which was reported in 29% of cases. One out of five individuals admitted that the reason was reduction of the final price or circumvention of rules/laws/bureaucracy. In 16% of cases favour was done in order to help people receiving services without queuing, while in 14 % cases favour was done just to maintain connections.

Figure 31. Reasons for providing favours in FYR Macedonia, % of individuals who admitted doing favours



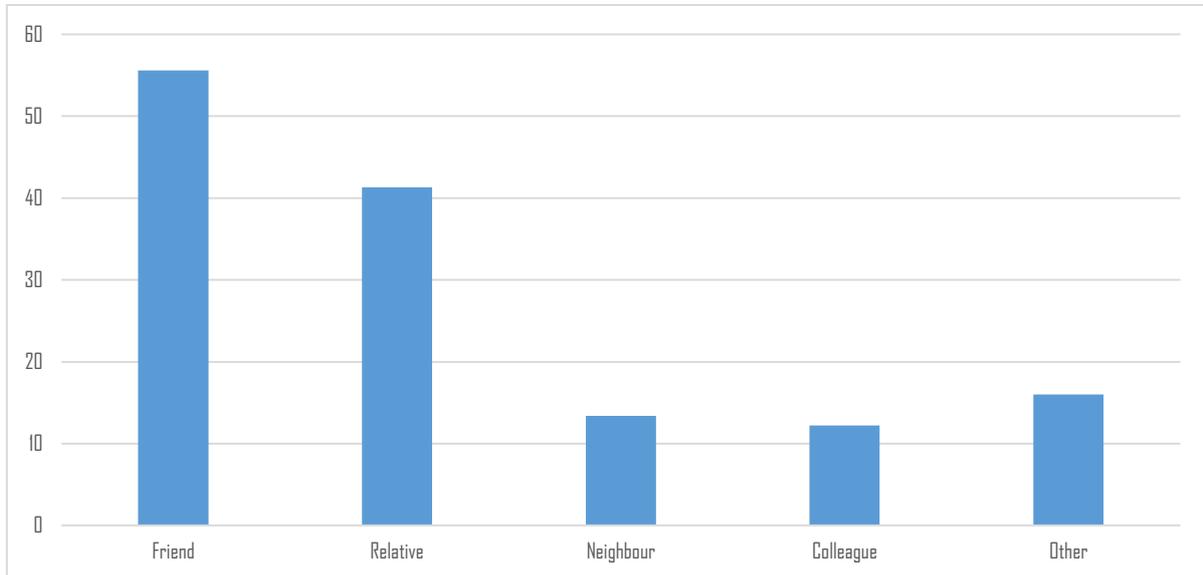
Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

The following question analyzes who the most frequently helped people to bypass formal rules:

Who did you help? Who did you do the favour for?

Figure 32 reveals that friends were the most frequent group of people who were helped by providers of illegitimate assistance (56%), while relatives were mentioned at least once in 41% of cases. The remaining groups were mentioned much less than the previous two groups, neighbours were helped at least once in 13% of cases, colleagues in 12% and other people in 16% of cases.

Figure 32. The persons for whom the favours was done, % of individuals who admitted doing favours



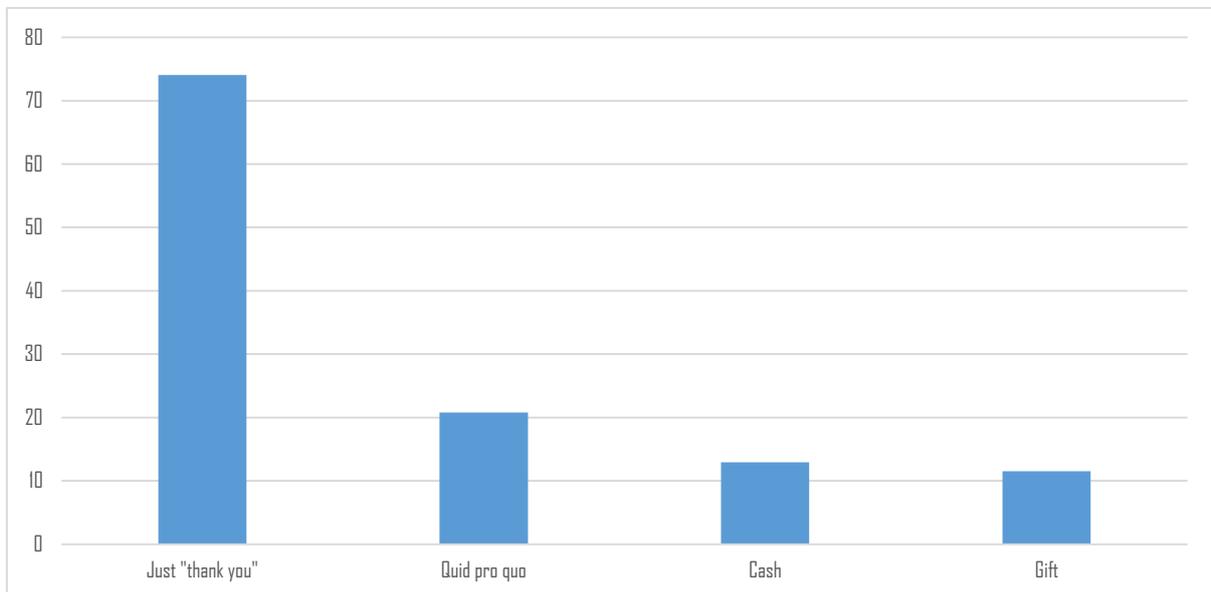
Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

The next question analyzes a reward/compensation which was received for the favour provided:

What did you get as a reward/compensation from the person you helped/ did the favour for?

Figure 33 displays that three out of four individuals who did a favour to somebody did not received any significant reward, e.g. they received only verbal gratitude. One out of five individuals who helped someone expects to receive some of the favours back. As for the material rewards or compensations, about 13% of providers the favours at least once received a cash as a reward, while 12% received a gift.

Figure 33. The received compensation for the favour/ help provided, % of individuals who admitted doing favours



Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

6.3. Determinants of the use of personal connections to circumvent formal procedures in FYR Macedonia

This section reveals who uses personal connections in order to get things done and who does favours for others. To evaluate this, a logit regression analysis is applied. Given that there were a large number of missing values and inconclusive answers (i.e., refusal and 'don't know') across the dependent and independent variables, multiple imputation was used to predict the values. This is done using a system of chained equations for each variable with missing values, with 25 imputations simulated for each missing value. Furthermore, population weights are applied based on age and gender to correct for under- and over-representation in the sample.

Table 11 reports the results of a logit regression analysis which investigates whether individual socio-demographic, socio-economic and spatial variables are significantly

associated with engagement when other variables are taken into account and held constant. Starting with who receives favours in order to bypass formal procedures, model 1 examines the socio-demographic variables. This reveals that there are no significant gender variations in the use of personal connections. Neither are there any significant variations according to household size in terms of the number of adults. However, age does have a significant influence on its usage; younger age groups are more likely to use personal connections than older age groups.

When socio-economic variables are included in model 2, the findings regarding the socio-demographic variables remain the same. The additional finding is that the higher is the personal formal net income of a respondent, the more likely they are to use personal connections to get things done. Those receiving favours to bypass formal procedures, therefore, are significantly more likely to be the affluent rather than poor. So too is there a strong significant correlation between receiving help due to personal connections and participation in the undeclared economy. Those receiving help due to personal connections are significantly more likely to also purchase undeclared goods and services and to supply undeclared work.

Model 3 adds in spatial variables. The finding is that signs and significances of the socio-demographic and socio-economic variables remain the same. The additional finding is that use of personal connections is also significantly higher in rural areas and villages than in more urban areas, and there also significant regional variations in its usage. Those in the Eastern, Southeastern and Pelagoni regions are less likely to do so than those in the Vardar region.

Table 11. Logit regression analysis of the use of personal connections to bypass formal procedures in FYR Macedonia

	Model 1 Coef.(S.E.)	Model 2 Coef.(S.E.)	Model 3 Coef.(S.E.)
Female	-0.163 (0.099)*	-0.003 (0.103)	0.018 (0.106)
Age	-0.012 (0.003)***	-0.012 (0.003)***	-0.009 (0.004)***
Household size (RC: one person)			
Two persons	-0.063 (0.194)	-0.093 (0.198)	-0.100 (0.200)
Three persons	0.103 (0.205)	0.154 (0.210)	0.146 (0.213)
Four and more	0.013 (0.191)	-0.001 (0.196)	-0.026 (0.198)
Net income for formal work (RC: Less than 350 EUR)			
350-700 EUR		0.114 (0.139)	0.125 (0.143)
700-1000 EUR		0.430 (0.148)***	0.381 (0.154)**
More than 1000 EUR		0.474 (0.160)***	0.395 (0.169)**
Supply undeclared work		1.140 (0.236)***	1.028 (0.241)***
Purchase undeclared goods and services		0.794 (0.138)***	0.911 (0.146)***
Type of locality (RC: Rural area or village)			
Small or middle sized town			-0.779 (0.212)***
Large town			-0.055 (0.121)
Region (RC: Vardar)			
Eastern			-0.561 (0.267)**
Southwestern			0.137 (0.244)
Southeastern			-0.643 (0.262)**
Pelagoni			-0.683 (0.258)***
Polog			0.149 (0.240)
Northeastern			0.313 (0.291)
Skopje			-0.222 (0.223)
Constant	0.120 (0.265)	-0.412 (0.280)	-0.260 (0.349)
Number of observations	2,014	2,014	2,014
Number of imputations	25	25	25
Prob > F	0.000	0.000	0.000
Pseudo R2	0.013	0.057	0.083
Area under ROC	0.579	0.652	0.692

Significance: *p<0.1, **p<0.05, ***p<0.01

Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

Turning to who does favours for others, the finding in Table 12 is that very similar patterns are identified as when who uses personal connections to bypass formal procedures. The finding in model 1 is again that gender and household size are not significantly associated with the giving of favours but younger people are significantly more likely to do so than older generations. As model 2 reveals, so too are higher income earners significantly more likely to do favours for others, as are those who supply and purchase undeclared work, perhaps reflecting that those not abiding by the laws and regulations of the state with regard to paying taxes, social contributions and abiding by labour laws, is similarly the case when it comes to bypassing formal procedures by receiving and doing favours for personal connections. Model 3, moreover, reveals that similar spatial variations exist regarding who is more likely to do favours for others. It is again those living in rural areas and villages rather than those in more urban areas, and regional variations again exist. However, here it is only those in the Southeastern region who are less likely to provide favours to others than those in the Vardar region, indicating that the provision of favours to others is more evenly distributed regionally than the receipt of favours.

Table 12. Logit regression analysis of the giving of personal connections to bypass formal procedures in FYR Macedonia

	Model 1 Coef.(S.E.)	Model 2 Coef.(S.E.)	Model 3 Coef.(S.E.)
Female	-0.184 (0.112)	-0.037 (0.116)	-0.037 (0.119)
Age	-0.010 (0.004)***	-0.011 (0.004)***	-0.007 (0.004)*
Household size (RC: one person)			
Two persons	-0.075 (0.229)	-0.115 (0.230)	-0.151 (0.232)
Three persons	0.242 (0.243)	0.265 (0.242)	0.229 (0.248)
Four and more	0.048 (0.229)	0.020 (0.227)	-0.005 (0.233)

Net income for formal work (RC: Less than 350 EUR)			
350-700 EUR		0.150 (0.164)	0.144 (0.169)
700-1000 EUR		0.427 (0.170)**	0.366 (0.177)**
More than 1000 EUR		0.657 (0.174)***	0.599 (0.184)***
Supply undeclared work			
		0.839 (0.220)***	0.686 (0.230)***
Purchase undeclared goods and services			
		0.594 (0.146)***	0.655 (0.152)***
Type of locality (RC: Rural area or village)			
Small or middle sized town			-0.547 (0.250)**
Large town			-0.163 (0.128)
Region (RC: Vardar)			
Eastern			-0.235 (0.295)
Southwestern			-0.100 (0.287)
Southeastern			-0.971 (0.331)***
Pelagoni			-0.382 (0.302)
Polog			0.282 (0.272)
Northeastern			-0.319 (0.347)
Skopje			0.006 (0.263)
Constant		-0.691 (0.316)**	-1.170 (0.329)***
Number of observations	2,014	2,014	2,014
Number of imputations	25	25	25
Prob > F	0.001	0.000	0.000
Pseudo R2	0.011	0.045	0.063
Area under ROC	0.572	0.644	0.677

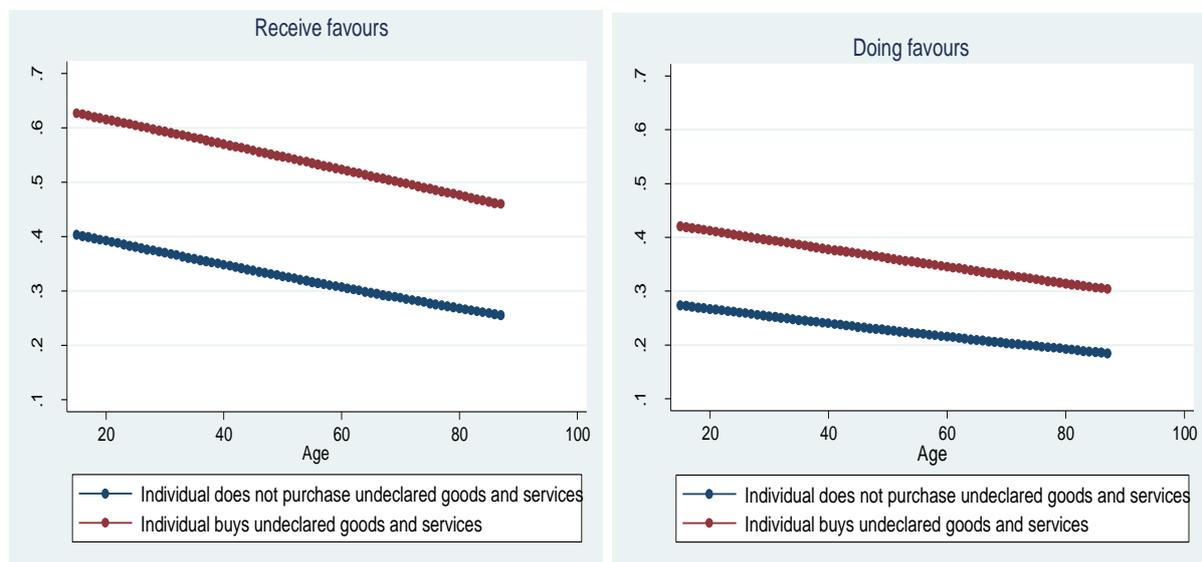
Significance: *p<0.1, **p<0.05, ***p<0.01

Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

To provide a more graphical portrait of these findings regarding who is more likely to receive and give favours in order to bypass formal procedures, Figure 34 present the predicted probabilities of a representative Macedonian citizen receiving and giving favours to circumvent formal procedures, according to their age and whether they purchase and supply undeclared work. This 'representative' worker is defined using mean and modal values of the remaining predictors. That is to say, the representative citizen is a woman living in a household with three persons, with a net income between

€350-699 per month, living in a large town and the Skopje region. This reveals that the probability of the representative citizen who purchases and supplies undeclared work is greater than that they give and receive favours than for the representative citizen who does not purchase or supply undeclared work. For those receiving favours, for example, the probability of doing so ranges from 25 in a 100 for the oldest citizens who do not purchase undeclared goods and services to 62 in a 100 for the youngest citizens who also supply undeclared work. Similarly, when doing favours for others, the probability ranges from 18 in a 100 for the oldest citizens who do not purchase undeclared goods and services to 42 in a 100 for the youngest citizens who also supply undeclared work.

Figure 34. Predicted probability of the use of personal connections for a representative' Macedonian citizen: by age and participation in the undeclared economy



Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

7. Citizens' attitudes towards various strategies for tackling illegitimate economic activities in FYR Macedonia

This chapter examines citizens' views on the effectiveness of certain measures to tackle illegitimate economic activities. First section (7.1) examines measures related to undeclared and under-declared work, while the second section (7.2) presents citizens' views on certain measures to suppress the use of personal connections to circumvent formal procedures.

7.1. Citizens' attitudes towards various strategies for tackling undeclared and under-declared work

In order to examine citizens' attitudes towards tackling undeclared and under-declared work, each respondent received a set of statements. Each statement represents one particular policy measure with its potential effect. Citizens expressed their level of agreement with those statements on a Likert scale, with values ranging from '1' (strongly disagree) to '5' (strongly agree), where value 3 represents neutral attitudes. The following question was asked:

Now I would like to know your level of agreement with the following statements. For each of them please tell me to what extent you agree or disagree with the statement: '1' means "strongly disagree" and '5' means "strongly agree" .

Table 13 reveals that most of the survey respondents strongly agree with the majority of statements. About 32% of individuals strongly agree with the statement that people

would be more willing to pay taxes, if they were better informed on how government is spending public money. Additionally, 14% of people agree to a certain extent with this idea (answer 4), while 28.3% of them strongly disagree or disagree to a certain extent. A large number of people, 55.1% of them, strongly agree (34.0%) or agree to a certain extent (21.1%) with statement that ensuring a sense of fairness in how people are treated by the tax authorities would reduce evasion of taxes and social contributions. So establishing cooperation between tax administration and taxpayers is very important.

Building trust between government and tax payers is also very important. About 51% of people strongly agree (33.7%) or agree to a certain extent (17.4%) with statement that people would be more willing to pay their taxes, if they had greater trust in government. Only 9.9% of respondents strongly disagree with the statement.

Providing support and advice to undeclared workers who are thinking moving to formal work may also be a very important factor in tackling the undeclared economy. A quarter of the respondents strongly agree that specialised support and advice for those who are considering moving from undeclared to formal work would reduce undeclared work, while 21.6% of them agree to a certain extent with this statement. On the other hand, only 8.8% of respondents strongly disagree with this statement. Furthermore, about half of respondents strongly agree (26.2%) or agree to a certain extent (24.3%) that making it easier to legitimately do small or occasional jobs would reduce undeclared work.

Facilitating the tax payment system is very important in counteracting tax evasion. A quarter of respondents agree and 20.3% of them agree to a certain extent with the

statement that tax evasion would be reduced if the tax authorities make it easier for people to pay their taxes, e.g. through providing pre-filled tax returns. Approximately, a quarter of respondents strongly disagree or disagree to a certain extent with this statement.

A large number of people, 44.9% of them, strongly agree that more inspections are required at employers' premises to tackle the problem with undeclared work. Additionally, one fifth of the respondents agree to a certain extent with this statement, while only 5.8% of them strongly disagree. On the other hand, 40.6% of people strongly disagree (23.3%) or disagree to a certain extent (17.3%) that increasing penalties up to imprisonment for people caught doing undeclared work is likely to reduce its prevalence, while only a fifth of people strongly agree with the statement.

Table 13. Citizens' attitudes towards various strategies for tackling undeclared and under-declared work in FYR Macedonia, % of survey respondents

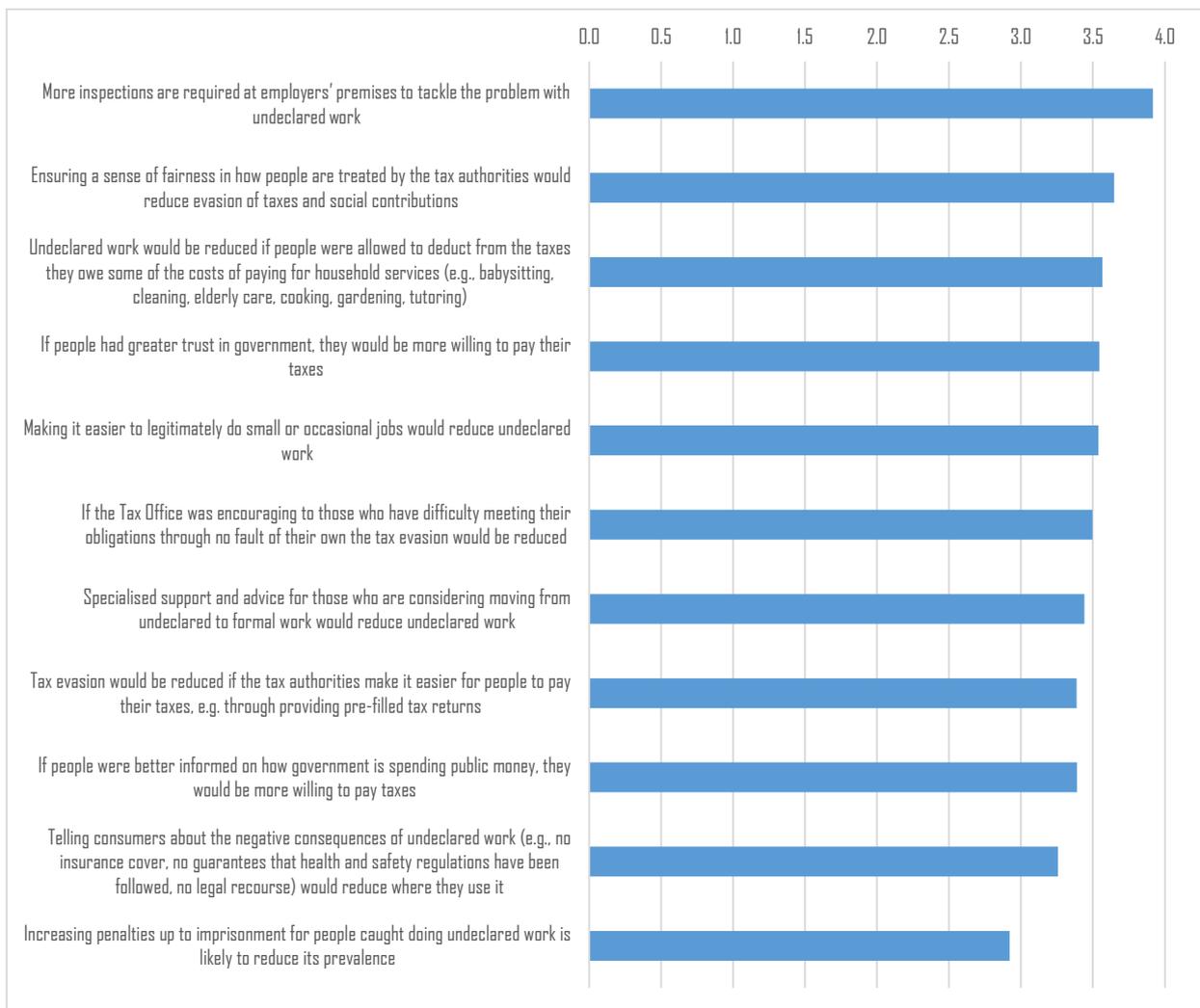
		1 strongly disagree	2	3	4	5 strongly agree	Refusal	Do not know
1	If people were better informed on how government is spending public money, they would be more willing to pay taxes	12.9	15.4	20.8	14.6	32.0	0.7	3.6
2	Ensuring a sense of fairness in how people are treated by the tax authorities would reduce evasion of taxes and social contributions	7.8	12.3	19.5	21.1	34.0	1.0	4.3
3	If people had greater trust in government, they would be more willing to pay their taxes	9.9	13.4	20.6	17.4	33.7	1.0	3.9
4	Telling consumers about the negative consequences of undeclared work (e.g., no	11.5	15.6	24.3	18.7	21.8	1.4	6.7

	insurance cover, no guarantees that health and safety regulations have been followed, no legal recourse) would reduce where they use it							
5	Specialised support and advice for those who are considering moving from undeclared to formal work would reduce undeclared work	8.8	13.2	24.0	21.6	25.0	1.4	6.2
6	Tax evasion would be reduced if the tax authorities make it easier for people to pay their taxes, e.g. through providing pre-filled tax returns	9.3	16.1	22.2	20.3	25.1	1.1	6.0
7	Making it easier to legitimately do small or occasional jobs would reduce undeclared work	7.9	12.0	20.9	24.3	26.2	1.3	7.5
8	Undeclared work would be reduced if people were allowed to deduct from the taxes they owe some of the costs of paying for household services (e.g., babysitting, cleaning, elderly care, cooking, gardening, tutoring)	7.1	11.1	23.1	21.7	27.3	1.1	8.7
9	More inspections are required at employers' premises to tackle the problem with undeclared work	5.8	9.4	16.7	19.1	44.9	1.1	3.0
10	Increasing penalties up to imprisonment for people caught doing undeclared work is likely to reduce its prevalence	23.3	17.3	18.6	14.8	20.8	1.2	4.0
11	If the Tax Office was encouraging to those who have difficulty meeting their obligations through no fault of their own the tax evasion would be reduced	6.3	12.4	25.8	22.6	23.8	1.3	7.8

Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

In order to show the previous results in a simpler way, Figure 35 reveals average ratings for previous eleven statements. The statement that more inspections are required at employers’ premises to tackle the problem with undeclared work has the highest mean score of 3.9, while the strategy of increased penalties has the lowest score among the offered policy measures (2.9). Average support for all remaining statements ranges between 3.3 and 3.6.

Figure 35. Average support towards various strategies for tackling undeclared work in FYR Macedonia



Source: Authors’ own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

7.2. Citizens' attitudes towards various strategies for tackling the use of personal connections to get things done

In this section an identical approach will be implemented in the case of pulling strings to get things done. Citizens expressed their level of agreement with offered three statements on a Likert scale, with values ranging from '1' (strongly disagree) to '5' (strongly agree), where value 3 represents neutral attitudes. The following question was asked:

Now I would like to know your level of agreement with the following statements. For each of them please tell me to what extent do you agree or disagree with the statement: '1' means strongly disagree and '5' means strongly agree.

Table 14 illustrates that most of the survey respondents strongly agree with all three statements. About 39% of participants strongly agree with statement that ensuring the sense of fair treatment in public and government institutions would reduce the use of connections. Additionally, 18.4 % of people agree to a certain extent with this statement, while only 6% strongly disagree. Therefore the fair treatment in public and government institutions towards citizens has an important role in reducing the reliance on the use of personal connections.

It seems that complicated bureaucratic procedures are also a major incentive to use personal connections to circumvent formal procedures. Every third participant strongly agreed with the statement that complicated bureaucratic procedures are one of the main reasons for resorting to the use of connections. Furthermore, 16.5% of

respondents agree to a certain extent with this statement, while every fifth participant strongly disagree (8.4%) or disagree to a certain extent (11.9%).

Finally, lack of information on the required procedures also encourages the use of personal connections. More precisely, 31.6% of respondents strongly agree and 19% of them agree to a certain extent with the statement that people would not resort to the use of connections to achieve certain things, if they were better informed of the procedures in place. On the other hand, only 9.1% of people strongly disagree with this statement.

Table 14. Citizens' attitudes towards various strategies for tackling the use of personal connections to get things done in FYR Macedonia, % of survey respondents

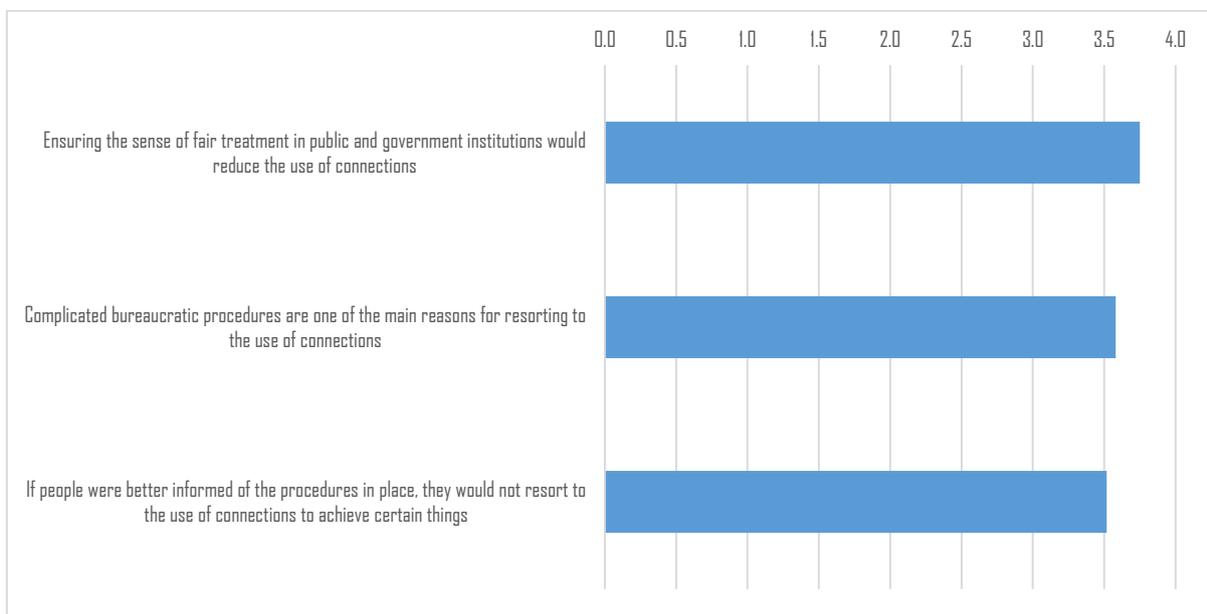
		1 strongly disagree	2	3	4	5 strongly agree	Refusal	Do not know
1	Complicated bureaucratic procedures are one of the main reasons for resorting to the use of connections	8.4	11.9	24.2	16.5	33.6	1.0	4.4
2	Ensuring the sense of fair treatment in public and government institutions would reduce the use of connections	6.0	12.2	20.0	18.4	38.7	0.9	3.9
3	If people were better informed of the procedures in place, they would not resort to the use of connections to achieve certain things	9.1	14.7	20.9	19.0	31.6	1.3	3.4

Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

When it comes to observing the average support towards various strategies for tackling the use of personal connections, Figure 36 reveals that the statement that the use of

personal connections would be efficiently reduced ensuring the sense of fair treatment in public and government institutions, received the greatest average rating of 3.8. Simplification of bureaucratic procedures received an average rating of 3.6, while providing information on the required procedures has the average rating of 3.5.

Figure 36. Average support towards various strategies for tackling the use of personal connections to get things done



Source: Authors' own calculations based on the representative survey of 2,014 individuals in FYR Macedonia

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