The Effects of Information Framing on People's Behavior in Tax Evasion

Submitted to
American University of Armenia
Manoogian Simone College of Business and Economics

In partial fulfillment of the requirements for the degree of BA in Business

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ABSTRACT

This paper aims to study the information framing effect on people's behavior in tax evasion. Data was utilized with the help of an on-line survey experiment with 3 treatment groups: "Positive Information Framing", "Negative Information Framing" and "No Information Framing". Results yielded no significant difference of declared income amounts between treatment groups, so the information about forgone public goods as a result of tax non-compliance and information about public good provision as a result of tax compliance had no significant effect on people's behavior in tax evasion. The reason behind this outcome was people's trust towards Armenian government. As taxes are the main source of governmental revenue, in order to enhance tax compliance government authorities should focus on increasing taxpayers' trust.

Keywords: tax evasion, behavioral economics, laboratory experiment, framing effect

ACKNOWLEDGEMENTS

The research idea was generated during my internship in UNDP in Armenia, Armenia National SDG Lab, where Armenak Antinyan was developing a project on tax evasion and suggested to focus on one of the components of his project. With the help of my research results, already by understanding the information framing effect on people's behavior in Armenia, it will be one step towards a bigger project on a country level. I would like to thank my academic supervisor Vardan Baghdasaryan for always being willing to help with guidance, suggestions, advise and comments. Additionally, I would like to also thank one of our other supervisors, Gayane Barseghyan, who also helped me a lot throughout my thesis writing process.

"*All remaining errors are mine*''.

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Introduction

In classical economic theory, we always state that a person acts exclusively rationally, taking into account all possible risks and maximizing his/her own benefit. A person makes a logically impeccable choice in any situation and has a significant amount of anticipation. However, real life is much more complicated than a simple economic model, and a person often makes decisions based not on logical conclusions, but rather on intuition, under the influence of emotions, moral principles and beliefs (Garrigan, Adlam & Langdon, 2018). We live not only in the world of market relations, but also in the world of social norms, and from time to time there may be inconsistencies and even conflicts between them. And as often it happens, the real behavior of people is determined by the existence of an irrational choice - spiritus animalis, succumbing to an impulse of feelings or simply making a mistake (Dobelli, n.d.).

Behavioral and experimental economics is a relatively new science with an interdisciplinary character, located at the intersection of psychology, sociology and economics. It enables modern economists and psychologists explore the characteristics of people's perception and thinking, how preferences and behavior are connected, and when they can judge their own intentions on actions, even if these intentions themselves are not obvious.

Taxes are an integral part of any country's economy. They were a necessary link in economic relations from the moment of the emergence and development of countries. The use of taxes is a key driver for proper functioning of a country, and that is why all taxpayers are obliged to pay taxes regardless of their will. Even though tax regimes vary from country to country, they are still

an integral part of most governments in industrialized countries. National budget is mainly dependent on taxes, which in its turn is allocated for providing multiple essential public goods (e.g., Education, Health, Defense, Economic Affairs, Environmental Protection, Social Protection, Pensions, etc.). From the first look, it may seem trivial that taxpayers should realize the importance of paying taxes and pay them as assigned by a country's legislation, because taxes are used to finance fundamental public goods, whose beneficiaries are citizens themselves. However, "tax evasion"[1] is detected both in developing as well as developed countries. Tax evasion costs governments worldwide more than $3.1[2] trillion per year, having South America as a continent with the world's largest shadow economy compared to its GDP (20.5%) and is considered to be a social dilemma between individual and collective benefit.

Since economic development of any country can be severely hindered because of tax evasion (Picur and Riahi-Belkaoui, 2006) and additionally it represents an international serious problem for policy makers (Gemmell and Hasseldine, 2012), it is crucial for the countries to identify the determinants of the phenomenon and take steps towards resolving the issue.

In recent years, one of the solutions to this issue became laboratory experiments, which are based on the so-called "public good experiments". In the course of a standard experiment with the public good, individuals put themselves in the situation of choice - to invest in a public good or personal. When investing in the public good, their volume doubles, and they are divided equally among all participants. The maximum benefit for all is achieved only under the condition that everyone invests all their money in public goods (Alm, 2010). Experiments can help in the formation of a sound and rational tax policy, they can be used to test the proposed changes in legislation as they

[1] A term "tax evasion" - generally used to mean illegal arrangements where liability to tax is hidden or ignored, i.e. the taxpayer pays less tax than he/she is legally obligated to pay by hiding income or information from the tax authorities, which result in sufficient loss of potential governmental revenue.
[2] Information obtained from: https://www.nytimes.com/2011/11/26/business/global/26iht-tax26.html

provide number of benefits, such as cost-effectiveness, possibility of influence and control and understanding hidden processes (Libby, Bloomfield & Nelson, 2002).

Modeling methods are based on the paradigm of a free, rational, and unrestricted choice of the taxpayer. However, under the conditions of influence of social and cultural conditions, the behavior of individuals depends on social norms, considerations of prestige, psychological costs and group effects (Rădulescu & Popescu, 2010). Experimental methods allow us to identify patterns that contradict the concept of homo economicus.

This paper aims to study the information framing effect on people's behavior in tax evasion and for that reason a behavioral experiment was conducted. 255 participants were randomly assigned to one of 3 treatment groups: "Positive Information Framing", "Negative Information Framing" and "No Information framing". From the results of data analyses, which is discussed in details further in the paper, it can be stated that there is no significant difference in tax evasion in-between the framings. The main cause for this issue is people's trust towards Armenian government, as according to 71% (181/255) of participants of the survey, we get back only 0%-40% of the taxes we paid in the form of services delivered by the State.

The rest of the paper is structured as follows. Section 2 is the review of current literature. Section 3 describes the design and procedures of the survey. Section 4 discusses the data description. Section 5 illustrates the methodology and results. And finally, Section 6 concludes the paper.

Literature Review

Throughout many years, many researchers believe that the tax behavior is an area most suitable for experimentation. The literature describes in details main advantages of experimental methods that allow them to be used to study tax behavior: cost-effectiveness, possibility of influence and control and understanding hidden processes (Libby, Bloomfield & Nelson, 2002).

Tax experiments began to be developed since the 1970s. One of the first mentioned in the literature is the experiment of Israeli scientists N. Friedland, S. Maital and A. Rutenberg to study income tax evasion (Friedland, Maital & Rutenberg, 1978), who had to answer the questions: how much tax evasion on income depends on changes in tax rates, and what is a more effective measure of coercion - increased fines or more frequent tax audits. This experiment served as the basis for many similar experiments, called the "standard tax experiment".

Since then, wide variety of tax experimental designs started to be developed and the one that I used in my research is understanding people's behavior in tax evasion with the help of information framing.

During the last century, the evolution of the development and improvement of all kinds of power technologies, as well as social management, has taken place in society. The framing technique has created new opportunities for this, by increasing the influence of information on society through mass communication. Positive Information Framing describes possible gains, while Negative Information Framing emphasizes possible negative consequences (Wheatley & Oshikawa, 1970). This method had been used in various spheres such as:

- sociology (Goffman, 1974),
- economics (Kahneman & Tversy, 1979),
- psychology (Kahneman & Tversy, 1984),
- health (Meyerowitz & Chaiken, 1987; Cesario, Grant, & Higgins, 2004)
- and in the theory of communication (Entman, 1991).

In various medias, information campaigns and advertisement of public services have sometimes been used in order to reach a broad cross-section of the population. The aim of the campaigns was to reach acceptance of political projects in general and tax issues in particular.

Information framing refers to making a decision in situations of being presented with information, which is either presented as a gain or a loss.

Information Framing played a key role in commercial advertisement. Ganzach and Karsahi (1995), who studied strategies to increase credit card usage, by stressing the disadvantages of paying in cash and comparing it to another group presented with advantages of paying by credit card, framed the same message in two different ways, negative and positive.

Information framings are also very frequently used in health promotion contexts. Meyerowitz & Chaiken, (1987) in their study conducted an experiment on breast cancer prevention through self-examination, Rothman, Salovey, Antone, Keough, & Martin used the method in skin cancer prevenation (1993).

Speaking about framing effect in tax behavior context, not much has been done. One of the very few papers in such context is by Hasseldine and Hite (2003), who tried to understand will the positive consequences of compliance or the negative consequences of non-compliance be more effective in tax evasion. According to the prospect theory of framing effect, People tend to avoid risk when a positive frame is presented but seek risks when a negative frame is presented (Kahneman & Tversky, 1979). However in Hasseldine's and Hite's (2003) study, female participants showed higher compliance with the positively framed text, whereas male participants showed higher compliance with the negatively framed text. In their experiment, regulatory focus played a role too, and several studies support that there is a strong correlation between the results and the regulatory focus (Spiegel, Grant- Pillow, & Higgins, 2004).

As the analysis of modern literature has shown, behavioral experiments occupy a serious place in scientific research. This method has proven its scientific viability and practical benefits. In my opinion, conducting such tax experiments could be significant for the study of taxation in Armenia.

From the point of view of science, conducting such experiments in Armenia would be interesting for a comparative analysis, since most of the described tax experiments belong to countries with a traditionally high level of compliance with the law and tax discipline. It will be quite interesting to compare the results of such experiments in countries with the traditionally low level of compliance with tax laws.

The Survey Experiment

Design

Subjects of the experiment were randomly assigned to one of three information framing conditions – "Positive Information Framing", "Negative Information Framing" and "No Information Framing". For all 3 treatment groups, the first of the survey was identical and included socio-demographic question. In second part, the objective information was again identical in all three conditions. Subjects in all three groups were asked to envision a situation in which they are living in a hypothetical Country X, and they are an owner of a small company with a monthly income equivalent to 7000 USD. All three groups were also provided with information about Country X's tax legislation, which stated that as per the income tax law of Country X, their income is subject to a 20% tax (equivalent to 1400 USD per month). Each month, they need to declare their income to Tax Authorities and pay 1400 USD. Additionally, they were provided with information, highlighting that they have the opportunity of declaring less income than they actually earn, as given scarce administrative resources tax authorities are not able to monitor them in the next 10 years.

In the third part of the survey participants were distributed in-between the treatment groups and were given their respective information framings.

In “Positive Information Framing” group, subjects were given information about public good provision as a result of tax compliance. They were told that if they declare their true income and pay all their taxes, the citizens in country X will enjoy a number of essential public services such as free education and healthcare, armaments for the army, pensions for elderly, city infrastructure, prisons, water supply, street lightning, and the like.

In “Negative Information Framing” group, subjects were given information about forgone public goods as a result of tax non-compliance. They were told that if they do not declare their true income and do not pay all their taxes, the citizens in country X will be deprived from a number of essential public services such as free education and healthcare, armaments for the army, pensions for elderly, city infrastructure, prisons, water supply, street lightning, and the like.

Finally, in “No Information Framing” group, subjects were not given any information neither about public good provision as a result of tax compliance, nor about forgone public goods as a result of tax noncompliance.

The final section of the survey focused on understanding the participants’ willingness to pay taxes depending on the treatment group, so all three groups were subjected to the same set of questions aimed to identify the amount of income the participant was willing to declare and how justified (1=Completely Justified) or unjustified (10=Not Justified at All) it was to evade taxes in Country X whenever possible. Questions about hypothetical country were followed by questions about Armenia, in order to understand the participant’s perception on do people take advantage of an opportunity to evade taxes in Armenia if given any (1=Almost no one evades taxes, 10=Almost everyone evades taxes). And finally, a question about what percentage of the taxes paid did the participant think he/she gets back in form of services delivered by State was asked, in order to identify the trust towards the Armenian government.

Procedures

The online survey experiment took place between April 25 and April 28 2019 and was administered via web-based survey tool Qualtrics (https://www.qualtrics.com). There was no target group for the survey, but after data collection I found out that the subjects of the survey were mainly undergraduate students. There is no evidence to support the belief that the cognitive processes differ between students and other subjects ("real people") (Plott 1987), so it is not a significant issue for the survey result interpretation. The survey was distributed to subjects via a link, which randomly and equally assigned each subject to only one of the three various treatment groups.

Data Description

After four days of data collection, out of 450 responses collected, only 255 subjects fully completed the survey experiment. Out of the total of 255, 85 participated in "Positive Information Framing", 85 in "Negative Information Framing" and 85 in "No Information Framing".

In Table 1 socio – demographic characteristics of the survey experiment sample are presented.

[Table 1 here]

Out of 255 participants of the survey, 65.5% (167 participants) were females and 34.5% (88 participants) were males. The mean age of the participants was 22 years, with the youngest being 18 years old and the oldest – 50 years old. Majority of participant were from middle and high income families and were living in Yerevan. Connected to employment status, the majority of participants had either full-time or part-time jobs. Additionally, the majority of participants had a business background.

Tables 1.1, 1.2 and 1.3 show socio – demographic characteristics of "Positive Information Framing", "Negative Information Framing" and "No Information Framing" treatments respectively.

[Table 1.1 here]

[Table 1.2 here]

[Table 1.3 here]

From data we can see that overall randomization worked, with barely any imbalances across the three treatment groups. Even though the majority of participants were females, there was an equal distribution of two genders in-between the groups. The same statement can be made for age distribution too.

Methodology and Results

For analyzing the data, OLS Robust Regression was used, in order to avoid heteroskedasticity issue. The model was consisted of 9 variables.

$$Y = \beta_0 + \beta_1 Gender + \beta_2 Age + \beta_3 Region + \beta_4 EmploymentStatus + \beta_5 BusinessBackground + \beta_6 Justified + \beta_7 Op.Evade + \beta_8 StateServices + \beta_9 Income + \varepsilon$$

Y = Declared Amount of the Income (equivalent to USD)

[Table 2 here]

With having a H_0 = no effect of information framing, from the Table 2, we can see that I failed to reject the null hypothesis, which means that I accept it, and neither Positive, nor Negative information framings have any significant influence on the declared amount of income by participants. Also, from the table we can see that the first variable, which has significant influence on the declared income amount (when $p<0.05$) is the business background of the participant. From

the coefficient we can see that while regressing the data with having business background = 1 and not having business background = 0, the participants with business background on average declared 515.2 USD less than the participants with no business background. There was no literature to support this statement.

Next variable with a significant influence (when $p<0.01$) on the declared income amount is the justification of evading whenever given the opportunity. From the analyses we can see that on a scale from 1 = Completely Justified to 10 = Not Justified at All, by having an increase of 1 point in justification, we have an increase of 324.9 USD in the amount of income declared.

And finally, the third variable group with a significant effect on the declared income amount is the group of percentage ranges of taxes paid that Armenian society gets back in the form of services delivered by the State. A trend of an increasing declared income amount can be spotted up to range 4 (61%-80%), which is logical to have higher declared amount in case of having an opinion that you are getting the services by the state. But from the data analyses we can also see that in range 5 (81%-100%) we have a decrease in comparison to previous trend of increases. This can be explained by small sample of participants who actually think that we get 81-100 %.

Conclusion

In this research paper, results of a survey experiment aimed to answer a question "Will framing of information provided to taxpayer enhance taxpayer compliance and tax satisfaction?" were reported. The data yielded results inconsistent with the current literature, stating that subjects are more inclined to under-report income in case of tax being framed as a "loss" and more likely to respond honestly in case of tax being framed as a "gain" (Schepanski and Kelsey 1990,). There was no framing effect on people's behavior because of information framing. According to McGee (2000), "There is widespread agreement that there is no moral duty to pay taxes, as Armenia is a

very corrupted country". Additionally, data also showed participants' perception about the percentage of taxes getting back in a form of services provided by the government.

[Table 4 here]

And these two statements can be combined into conclusion that Armenian people do not trust the government, and accordingly, do not trust any information in any framing. Kirchler's "slippery slope" framework (2007) suggests that authorities should aim at increasing trust of taxpayers, which in turn would result in voluntary compliance.

[Table 5 here]

In addition, from Table 5 we can see people's perception about Armenians evading whenever having the opportunity to, and this can also trigger others to evade, as the taxpayer's decision on tax evasion largely depends on the nature of the behavior of taxpayers and the attitude of society to such behavior.

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Appendix

Information Framing

Hypothetical Scenario	
The taxes you are paying are the main source of revenue of Country X's Government. If you declare your true income and pay all your taxes, the citizens in country X will enjoy a number of essential public services such as free education and healthcare, armaments for the army, pensions for elderly, city infrastructure, prisons, water supply, street lightning, and the like.	
Positive Framing	**Negative Framing**
The taxes you are paying are the main source of revenue of Country X's Government. If you declare your true income and pay all your taxes, the citizens in country X will enjoy a number of essential public services such as free education and healthcare, armaments for the army, pensions for elderly, city infrastructure, prisons, water supply, street lightning, and the like.	The taxes you are paying are the main source of revenue of Country X's Government. If you do not declare your true income and do not pay all your taxes, the citizens in country X will be deprived from a number of essential public services such as free education and healthcare, armaments for the army, pensions for elderly, city infrastructure, prisons, water supply, street lightning, and the like.

Table 1: Descriptive Statistics of the Sample

Variable	Obs	Mean	Std. Dev.	Min	Max
Gender	255	.654902	.4763351	0	1
Age	255	22.46667	4.646337	18	50
Age Square	255	526.2549	273.7656	324	2500
Region	255	.891176	.3082921	0	1
Working	255	.627451	.4844343	0	1
Not Working	255	.2901961	.4547453	0	1
Have Own Business	255	.0823529	.2754423	0	1
Business Background	255	.7215685	.4491084	0	1
Highest Income	255	.4784314	.5005169	0	1

Middle-High Income	255	.2470588	.4321494	0	1
Middle Income	255	.227451	.4200105	0	1
Low Income	255	.0470588	.2121812	0	1

Note: Low Income (omitted) - 0-106.000 AMD, Middle Income - 106.001-380.000 AMD, Middle-High Income - 380.001 - 600.000 AMD, Highest Income - More than 600.000 AMD

Table 1.1: Descriptive Statistics of Positive Framing group

Variable	Obs	Mean	Std. Dev.	Min	Max
Gender	85	.6588235	.4769182	0	1
Age	85	23.27059	6.10696	18	50
Age Square	85	578.3765	373.9293	324	2500
Region	85	.8352941	.3731162	0	1
Working	85	.6235294	.4873756	0	1
Not Working	85	.3176471	.4783244	0	1
Have Own Business	85	.0588235	.2366905	0	1
Business Background	85	.7058824	.4583492	0	1
Highest Income	85	.38058824	.4635148	0	1
Middle-High Income	85	.3058824	.4635148	0	1
Middle Income	85	.2823529	.4528157	0	1
Low Income	85	.0235294	.1524772	0	1

Note: Low Income (omitted) - 0-106.000 AMD, Middle Income - 106.001-380.000 AMD, Middle-High Income - 380.001 - 600.000 AMD, Highest Income - More than 600.000 AMD

Table 1.2: Descriptive Statistics of Negative Framing group

Variable	Obs	Mean	Std. Dev.	Min	Max
Gender	85	.6941176	.4635148	0	1
Age	85	21.77647	3.009416	18	50
Age Square	85	483.1647	147.2915	324	2500
Region	85	.9294118	.2576559	0	1
Working	85	.6941176	.4635148	0	1
Not Working	85	.1882353	.3932198	0	1
Have Own Business	85	.1176471	.3241019	0	1
Business Background	85	.7411765	.4405878	0	1
Highest Income	85	.5764706	.4970501	0	1
Middle-High Income	85	.1764706	.3834825	0	1
Middle Income	85	.1764706	.3834825	0	1
Low Income	85	0.705882	.2576559	0	1

Note: Low Income (omitted) - 0-106.000 AMD, Middle Income - 106.001-380.000 AMD, Middle-High Income - 380.001 - 600.000 AMD, Highest Income - More than 600.000 AMD

Table 1.3: Descriptive Statistics of No Framing group

Variable	Obs	Mean	Std. Dev.	Min	Max
Gender	85	.6117674	.4902409	0	1
Age	85	22.35294	4.216481	18	50
Age Square	85	517.2235	245.7621	324	2500
Region	85	.9176471	.2765332	0	1
Working	85	.5647059	.4987379	0	1
Not Working	85	.3647059	.4842043	0	1
Have Own Business	85	.0705882	.2576559	0	1
Business Background	85	.7176471	.4528157	0	1
Highest Income	85	.4705882	.5020964	0	1
Middle-High Income	85	.2588235	.4405878	0	1
Middle Income	85	.2235294	.4190826	0	1
Low Income	85	.0470588	.2130215	0	1

Note: Low Income (omitted) - 0-106.000 AMD, Middle Income - 106.001-380.000 AMD, Middle-High Income - 380.001 - 600.000 AMD, Highest Income - More than 600.000 AMD

Table 2: Robust Regression

Variables	(1) Declare
Gender	-401.1
	(268.6)
Age	256.8
	(164.5)
AgeSquare	-3.787
	(2.589)
Region	676.0
	(425.8)
Working	-114.7
	(290.0)
HaveOwnBusiness	-116.6
	(479.8)
BusinessBackground	-515.2**
	(259.1)
Justified	324.9***
	(48.81)
Opevade	-13.72
	(47.33)
RangeOne	990.3
	(744.1)
RangeTwo	1,352*
	(743.3)

RangeThree	2,204***
	(754.0)
RangeFour	2,388***
	(818.8)
RangeFive	1,593*
	(915.2)
HighestIncome	-386.0
	(429.4)
MiddleHighIncome	-244.8
	(464.1)
MiddleIncome	-744.0
	(477.9)
Positive	216.7
	(268.4)
Negative	115.2
	(296.1)
Constant	-1,609
	(2,616)
Observations	255
R-squared	0.325

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: No Range (omitted) - 0%,
Range One - 10%-20%, Range Two - 21%-40%, Range Three - 41%-60%, Range Four - 61%-80%, Range Five - 81%-100%

Low Income (omitted) - 0-106.000 AMD,
Middle Income - 106.001-380.000 AMD, Middle-High Income - 380.001 - 600.000 AMD, Highest Income - More than 600.000 AMD

No Framing group (omitted)

Table 3: t-test

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval
0	85	5123.529	252.2873	2325.974	4621.828	5625.23
1	85	5166.294	245.0891	2259.609	4667.908	5642.681
combined	170	5139.412	175.3507	2286.293	4793.252	5485.572
diff		-31.76471	351.735		-726.1547	662.6253

diff = mean (0) – mean (1) t = -0.0903
Ho: diff = 0 degrees of freedom = 168

Ha: diff < 0 Ha: diff ! = 0 Ha: diff > 0
Pr (T < t) = 0.4641 Pr (|T| > |t|) = 0.9281 Pr (T > t) = 0.5359

Table 4

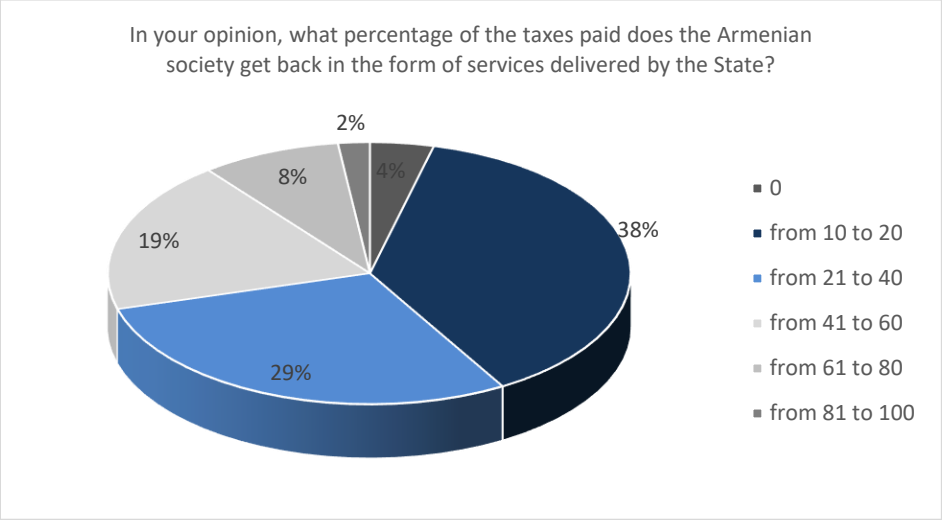
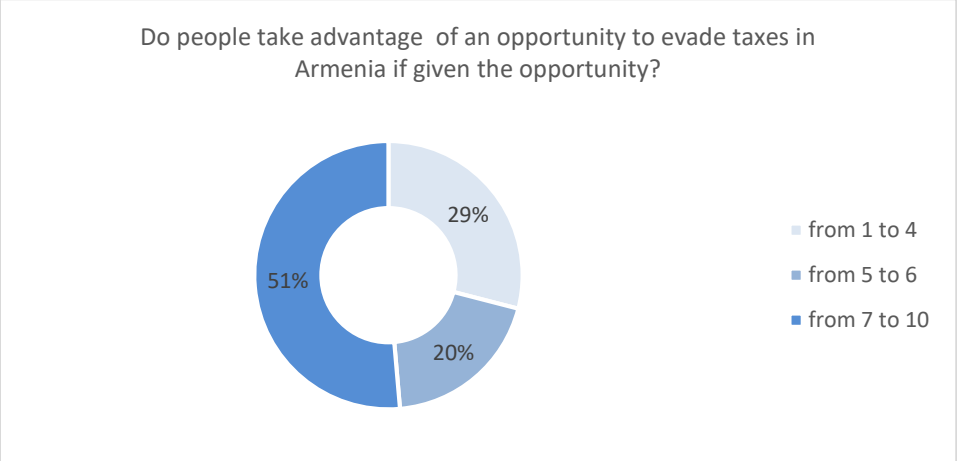


Table 5



Note: 1 = Almost No One Evades Taxes, 10 = Almost Everyone Evades Taxes