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**Promoting tax responsibility through
taxpayers' behavior insights: Property tax in selected pilot
municipalities in North Macedonia - phase one**



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Center for Economic Analyses



Promoting tax responsibility through taxpayers' behavior insights

Case: Property tax in selected pilot municipalities in North Macedonia - phase one

CENTER FOR ECONOMIC ANALYSES (CEA)

Tax responsibility Project – Towards civic responsibility and responsible tax

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Key conclusions

- ***The highest impact on the taxpayers' behavior for those non-compliant tax payers with cumulated unpaid property tax liabilities of several years is observed with the 'deterrence' message. While the messages for the social norm and public good have lower impact:***
 - 11.6% of the taxpayers fully settled their debt for property tax, after receiving a letter with a deterrence message,
 - 10.0% of the taxpayers fully settled their debt for property tax after receiving a message with an impact on their social values,
 - 8.8% of the taxpayers fully settled their debt for property tax after receiving a message to responsibility towards the public good.
- ***The average value of the owed overdue tax amount for property tax after the treatment with the behavioral messages to encourage the tax responsibility decreased by 636 denars.***
 - The average value of the owed overdue tax amount for property tax per non-compliant taxpayer before being treated was 10,558 denars, while after sending the letters and action by the taxpayers, it decreased by an average of 636 denars. The largest average decrease was recorded among the taxpayers treated with a deterrence message, where the average liability decreased by 804 denars.
- ***Different types of messages affected female and male differently***
 - In average, 7.8% of females and 10.5% of male who received either one of the messages fully settled their property tax debt owed to the municipality.
 - 10.4% of females, as well as 10% of men who received a letter with a message for a social norm fully paid their obligations. Encouraging behavior for better responsibility and value of the public good had almost no effect on female taxpayers, as only 4% paid the debt compared to men out of which 9.6% responded by fully settling their debt.
 - The deterrence message has an effect on both genders, but to a lesser extent over females as compared to male.
- ***Different types of messages also affected differently taxpayers of different ages***
 - Cumulatively, on average 11.3% of the age group between 35 and 55 years, of treated taxpayers, settled the property tax debt. At the same time 5.6% of the taxpayers from the youngest age group (under 35 years old) paid the owed property tax and 8.3% of the oldest age group of taxpayers (over 55 years).
- ***All of the three designed messages exert reaction of the tax payers for collection of property tax among the non-compliant taxpayers in the pilot municipalities.***
 - The messages that influence the behavior of the taxpayers can encourage the settlement of owed property tax, it can also be used to encourage timely and regular payment of taxes and fees. Improved communication with the taxpayers can encourage timely and comprehensive information to the taxpayers about the work of the municipality and gradually influence improvement of the tax morale. It is a relatively inexpensive method for the tax authorities for more effective collection of their revenues without the need for changes in the regulations.
 - ***Implementation of the approach among all municipalities in RNM could potentially increase the municipal's own source revenues by additional 1.4%, and the total revenues by 0.5%.*** Hence, the fiscal autonomy of the municipalities with such an intervention (*ceteris paribus*), would increase by 0.5 percentage points.
- ***The local specificities of the taxpayers are an information that should be examined by each municipality, which will enable them to influence the tax morale of the taxpayers.***
 - The results of the PROBIT regression show a statistical significance of communication by influencing the behavior through different messages. The differences in the effects in each municipality confirms that each LSG has taxpayers with diverse profiles and characteristics which may be used to create a model of alternative and flexible communication.

Introduction

This document has been prepared within the auspices of the Tax responsibility Project, which, among other things, conducts pilot testing on the impact of the taxpayers' behavior for voluntary payment of the tax liabilities – tax compliance. The tests are conducted through various messages that can encourage the tax responsibility, and payment of tax liabilities through a behavioral approach as a tool for increasing the local taxes' collection, i.e. property tax implemented in several municipalities in North Macedonia.

Many developing countries face a number of revenue growth challenges, including challenges such as a limited tax base, a significant informal sector, poor tax management, poor administrative capacity, low per capita income, low levels of domestic savings and investments, and tax evasion. Increasing fiscal revenues requires the establishment of an efficient and effective tax system, but also implementation of measures that can improve the level of voluntary settlement of taxpayers' liabilities and their tax morale as well as improving the level of training and capacity of the tax administration.

North Macedonia is ranked sixth in the category of the poorest countries in Europe¹ and belongs to the group of middle-income countries. On average, it collects about 17% of GDP in tax revenues, compared to EU countries where this ratio is in the range of 25-50% of GDP². To pursue a good tax policy, the following categories should be considered at least: equality and equity, security, effective tax administration, information security, tax neutrality, economic growth and efficiency, transparency and visibility, minimum tax gap, and accountability to taxpayers, rule of law. But, another dimension also deserves to be explored, and that is the tax responsibility and the tax morale.

On a local level, in 2019 the tax revenues³ participate with 24.9% in the total revenues of the local self-government units. The municipalities in RNM in 2019 cumulatively generated a total of 8.935 billion denars from local taxes. A total of 3.26 billion denars from property taxes have been collected, of which 1.46 billion denars from property tax revenues.

The behavioristic approach as an alternative way of communication between the municipality and the taxpayers tests the communication that is different from the "classic" communication that is usually practiced in RNM, by issuing a Property Tax Bills, (and possibly) issuing a Warning for execution, by quoting an article of the Law on Property Taxes, and in rare cases, a procedure of forced collection, i.e. execution of the unpaid debt.

Traditional views using such strategies to voluntarily compliance with tax arrears prevailed in the last century, when the work of the tax administration was seen only as detecting tax evaders in order to punish such behavior. This approach for stimulating the effectiveness of the work of tax administrations is considered "outdated" and not innovative.

The outdated approach for communication combined with the low level of citizen participation in decision-making process in spending the collected public revenues, as well as the low level of

¹ <https://worldpopulationreview.com/country-rankings/poorest-countries-in-europe>

² Tax morale analysis- Center for economic analyses <https://cea.org.mk/wp-content/uploads/2020/06/0.-Analiza-na-danocen-moral-DETERMINANTI-CEA-28052020-so-CIP-2.pdf>

³ 71 Tax revenues of LSGUs are tax revenues according to economic classification in group 71

accountability of local self-government in RNM, leads to relatively low tax morale among taxpayers - a reflection of behavior driven by institutional factors.

On the other hand, the challenges of the local self-government units (LSGUs) in the field of financing and the process of tax collection, including property tax, are also factors that are reflected in the efficiency and effectiveness of the local tax management system.

The property taxes are a group of tax revenues that are part of municipal own revenue sources that can grow by increasing the tax effort and/or changing tax rates.

The municipalities in RNM relatively easy administer the property tax, and the data show that the LSGUs of North Macedonia are increasing the tax effort and the collection of property tax revenues in the past period. The consequences of the current Covid-19 pandemic certainly had a general negative effect on property tax collection. In 2020, the collected property tax revenues for all municipalities decreased by 8%, or less of 259.8 million denars compared to the previous 2019.

The property tax rate in RNM ranges from 0.1% to 0.2% of the market value of the property and most of the LSGUs have set the lowest tax rate. Rarely there are LSGUs that have decided to set a higher tax rate, primarily due to the political sensitivity of the introduction of a policy of higher property taxation, not so much because of the inability of citizens to pay more tax, but more because of the low level of transparency and accountability and trust in institutions⁴.

This document aims to note the results of the effects of the conducted socio-economic research through the application of an experiment in the field of behavioral economics or behavioral incentives, in the case of property taxpayers, individuals who have not settled their liabilities in years, in three pilot municipalities in RN Macedonia.

The findings in this report refer to the findings of a process conducted during 2020, in order to determine whether the impact on taxpayers' behavior has an effect on encouraging payment of overdue tax liability by submitting various letters with messages, then, whether there is a significant difference in effects depending on the type of message and whether certain socio-demographic characteristics influence the response to such stimuli.

Through the previously identified determinants of tax responsibility of Macedonian citizens as well as the identification of certain characteristics according to socio-demographic characteristics, specific messages were created for taxpayers who have arrears of property tax.⁵

The property tax was taken as the basis for observation as the most appropriate for local application due to the characteristics of the tax, such as full administration at the local level, its recurrence, and inelasticity of the property tax. On the other hand, one of the challenges of the municipalities is the uncollected claims for local taxes, including the property tax (the scope and significance of the uncollected claims are different in different LSGUs in RN Macedonia).⁶

⁴ During 2021, possible amendments to the law on property taxes are discussed, where it is possible to change the tax rates as well.

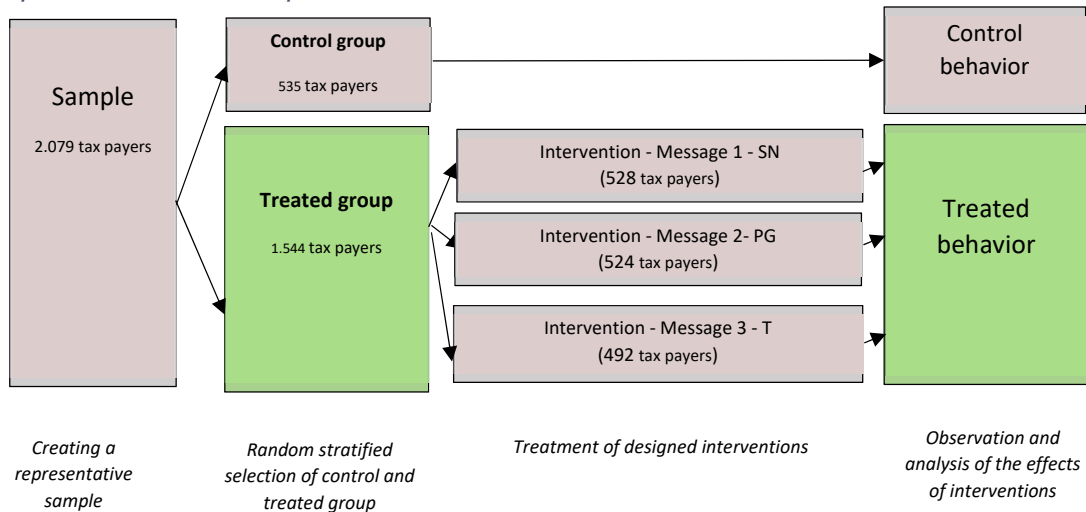
⁵ See more in CEAs publications: <https://cea.org.mk/analiza-na-faktorite-na-danochniot-moral/> и <https://cea.org.mk/wp-content/uploads/2020/06/0.-Tax-payer-profile-socio-demo-economic-analysis-FINAL-CIP-08062020.pdf>

⁶ See more for local tax challenges here: : <https://cea.org.mk/predizvitsi-vo-sistemot-za-lokalni-danotsi-kaj-opshtinite-vo-severna-makedonija-fokus-na-danokot-na-imot/>

Methodology and approach

The approach and methodology used for the so-called Behavioral nudges in tax behavior are based on a randomized controlled trial approach organized in several stages: 1) preparation of methodology and design, 2) implementation of the intervention 3) analysis of results.

Graph 1 Phases in the implementation of the intervention



In the period of June 2020, in three municipalities in North Macedonia, the tax claims from property tax only from individuals (physical entity) in selected municipalities amounted to a total of 50,482,488 denars. The absolute number of taxpayers with the listed characteristics is 17,762 taxpayers.

From these taxpayers (total 17,762) a representative sample was selected, divided by random stratified selection (by gender and age groups⁷) into four groups:

- 1) Taxpayers who received a letter with a message with a social norm
- 2) Taxpayers who received a letter with a message for public good
- 3) Taxpayers who received a letter with a deterrence message
- 4) Control group - taxpayers who would not receive a letter with a message, i.e. treated as usual⁸.

The letters with the messages were submitted together with the property tax bill for 2020 in the period between July and September, depending on the municipality. Due to the Covid-19 pandemic conditions, the delivery was delayed and / or extended, unlike the usual delivery period which usually takes place after the end of March for the current year. For the same reasons, the records for cut off date for the effects of the collection were extended until the end of the year. Hence, the effects are made by a single measurement without the possibility of seeing time intervals of the effects if they were present.

⁷ The stratification was based on the ratio of male to female in the total population for the survey, ie taxpayers with arrears of property tax, and the age structure in three age groups of 18-35, 36-55, and over 56.

⁸ For the form of the submitted letters, see the attachment

Sample and stratification

The total sample size (selected taxpayers with overdue property tax to whom a letter with one of the three messages was sent) for the selected municipalities in total amounted to 2,079 taxpayers, of which 1,544 taxpayers are treated with a message and the remaining 535 taxpayers are part of the control group. From the total population of taxpayers who have unpaid tax liability for a longer period, which has an absolute number of 17,762 taxpayers, the sample is 11.7% of the target population.

Such representativeness shows a susceptibility to statistical error of +/- 2% with an acceptable confidence level of 95%. The sample is stratified in the ratio of the population by gender and age, hence, the ratio of the sample by gender is 86% male versus 14% female, and by age, the ratio is persons aged 19-35 years is 2%, between 36- 55 years is 23%, and over 55 is 75%.

The reaction of the treated group is analyzed in total for the whole sample, by type of treatment compared to the control group, by age groups and by gender.

Table 1 Stratification of the sample by gender

Sample	Total	female	male
Taxpayers treated with letter 1- social norm	528	67	461
Taxpayers treated with letter 2- public good	524	75	449
Taxpayers treated with letter 1- deterrence	492	76	416
Taxpayers – control group	535	80	455
Total	2.079	298	1.781

Table 2 Stratification of the sample by age

Sample	Total	Age 18-35	Age 36-55	Age 56+
Taxpayers treated with letter 1- social norm	528	9	112	407
Taxpayers treated with letter 2- public good	524	10	121	393
Taxpayers treated with letter 1- deterrence	492	10	122	360
Taxpayers – control group	535	7	123	405
Total	2.079	9	112	407

Revenue structure cumulatively of the pilot municipalities

In the last five years (in the period for 2015 to 2019), the own revenues of the municipalities on average participate with 23.5% in the total revenues of the municipalities (cumulatively for the pilot municipalities).

The share of own in total revenues cumulatively for the three municipalities is relatively stable in the last five years, with a decline in 2017 and 2018 when the share is 22% and 20% respectively, as a result of higher total revenues and lower own revenues. In 2019, the share of own revenues in the total revenues is 23.5% while transfers from the central government participate with 73.9%⁹.

⁹ According to the economic classification of revenues, cumulatively for the three municipalities

Graph 2 Total and own revenues in three pilot municipalities (2015-2019)



Source: calculations of the author, data from the Treasury of RNM, Ministry of Finance

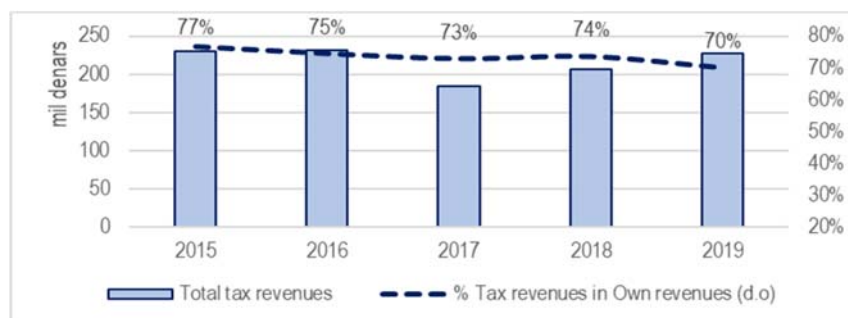
Tax revenues

Municipal tax revenues include: personal income tax (shared tax), profit tax, and capital gains; property taxes; taxes on specific services and usage fees or licenses to operate.

In the last five years, the total tax revenues of the municipalities (three pilots) have not increased. From 230 million denars in 2015, in 2019 they amount to 226 million denars, while a larger decline is observed in 2017.

Tax revenues in the period from 2015 to 2019 on average participate with 18% in total taxes. The share of tax revenues in the own revenues of the municipalities on average for the three municipalities for the given period is 74% and is constantly decreasing, from a maximum of 77% in 2015 to 70% in 2019. While in absolute value there is a noticeable change in the trend of tax revenues and it significantly follows the movement of national economic activity.

Graph 3 Tax revenues and participation in Own Revenues (2015-2019)



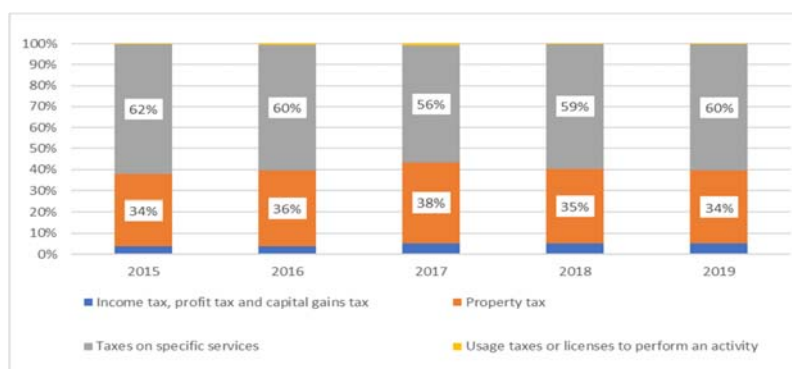
Source: calculations of the author, data from the Treasury of RNM, Ministry of Finance

The total tax revenues of the municipalities on average participate with 18% in the total revenues of the local government in the last five years, and their share shows a decreasing trend, from a share of 19% in 2015 to 20% in 2017, then a decrease of 13% and 16% in 2018 and 2019.

Structure of tax revenues

The largest share in the tax revenues of the pilot municipalities has the Taxes of specific services including fees for land construction, which on average take 60% in the structure of tax revenues, while the remaining share of about 35% is from property taxes. Revenues from property taxes in the total revenues of the municipalities participate with about 6-7%.

Graph 4: Structure of tax revenues (2015-2019)



Source: calculations of the author, data from the Treasury of RNM, Ministry of Finance

Structure of property tax revenues

Property tax revenues consists of property tax revenues from individuals, legal entities, inheritance and gift tax, sales and real estate tax and interest for late payment of property tax.

The collected revenues from real estate sales tax compared to the collected revenues from property tax is cumulatively several times higher in the pilot municipalities (however, this statement varies from municipality to municipality and depends on socio-economic determinants). Sales tax revenues participates on average with 64% in total property tax revenues.

Graph 5: Property tax revenues (2015-2019)



Source: calculations of the author, data from the Treasury of RNM, Ministry of Finance

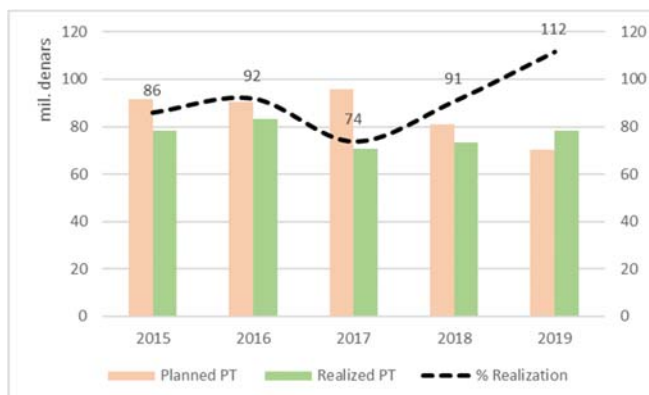
The property tax revenues from individuals for all three municipalities on average participate with 24% in total property taxes. The property tax revenues from legal entities cumulatively participates with about 7% in the total property taxes, while the inheritance tax with about 5%.

Execution rate of planned property tax revenues

The rate of execution of property tax revenues cumulatively of the three municipalities compared to the planned revenues in the period from 2015 to 2019 ranges from the lowest 74% in 2017 to 112% in 2019. In 2017, significantly higher revenues from property taxes are planned in the

budgets of LSGUs compared to the previous period, while in 2019, significantly lower revenues from property taxes are planned in the budgets of LSGUs, compared to the previous period.

Graph 1 Execution rate of planned property tax revenues in the pilot municipalities (2015-2019)



Source: calculations of the author, data from the Treasury of RNM, Budget Final Account, Ministry of Finance

The rate of execution of property taxes is close to "full" execution in the last two years, as a result partly due to the improved process of revenue planning in the municipalities and the set restrictions¹⁰.

¹⁰ The Law on Financing of the Units of Local Self-Government, own revenues of the basic budget of the municipality (tax revenues, non-tax revenues, capital revenues and transfers without value added tax) can be planned with an increase of up to 10% of the average realized revenues in the last three years, according to the data from the treasury records, from the change in the Official Gazette of RNM 209/2018, and then in Article 22 paragraph 2, from the Official Gazette of RNM 244/2019 increases to 30%

1. Results from piloting the observation of taxpayer' behavior

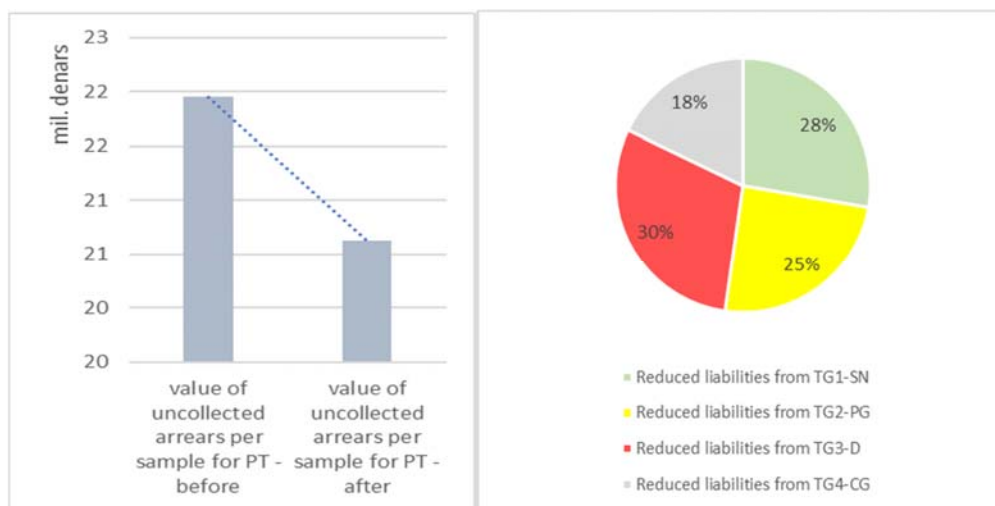
1.1. The effect on increasing the revenues of the municipalities - cumulatively

Less than half of the total value of the municipal receivable for property tax from individuals, are liabilities of individuals for the period of the last five years. The rest of the value of the municipal receivables is older than five years.

The total arrears from property tax from the sample of 2,079 taxpayers before treatment, amount to 21.95 million denars. For the same sample after the treatment/intervention and for the same period (not taking into account the liabilities arising from the property tax for 2020) is 20.6 million denars. In absolute value, the claims, i.e. the debt of the taxpayers was reduced by 1.32 million denars or, 6% of the claims were collected during the intervention.

The cumulative effect of the intervention by collecting funds from the liabilities (excluding the collection from the so-called control group) for the municipality is a reduction of 5% of the claims of the sample.

Graph 7 Unpaid property tax - effects on sample



Source: author's calculations, research-based data, effects from the experiment

The effect of the taxpayer experiment to which one of the three letters/messages was sent through: Letter of Social Norm, Letter of Public Good and Letter of deterrence, is positive, indicating to the need and effectiveness of communication with taxpayers and their values that can encourage greater tax responsibility and the promotion of tax morale.¹¹

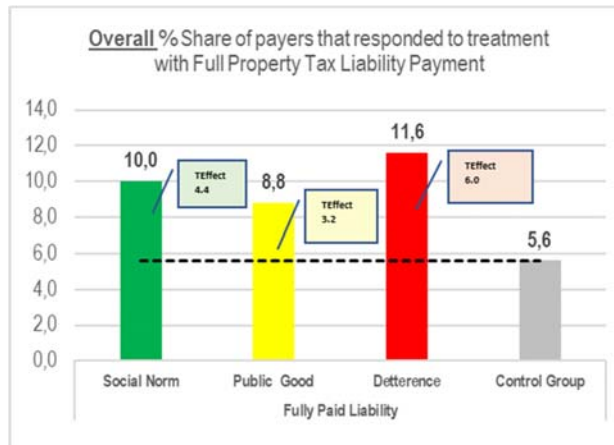
¹¹ See more at: <https://cea.org.mk/predizvitsi-vo-sistemot-za-lokalni-danotsi-kaj-opshtinite-vo-severna-makedonija-fokus-na-danokot-na-imot/>

1.2. The effect of different types of messages on the behavior of taxpayers

According to the message intended to influence the behavior of taxpayers to encourage the collection of property tax liabilities that have been accumulated over a long period, the highest rate of reaction with full payment of the debt is recorded on the taxpayers to whom a "deterrence" message was sent.

The letter with a message of encouragement of values and a social norm for settling tax liabilities have a lesser effect, and the least effect is observed on taxpayers to whom has been sent a message of awareness of the contribution of local taxes to the public good.

Graph 8 Effects of treatment with different types of messages on taxpayers



Source: author's calculations, research-based data, effects from the experiment

Although the degrees of effectiveness are varying, measured by the degree of response of debt payment after the message intervention, all messages with the intention of influencing the values and taxpayers' behavior in the pilot municipalities have a positive effect on tax collection (full and partial), compared to the control group, i.e. persons who are not treated with any message (as they are usually treated).

- 10% of taxpayers who had arrears based on property tax for a long period, fully settled their obligation after receiving a message with the intention of influencing their social values that they are one of the minority taxpayers in the municipality who do not have paid their obligation unlike other taxpayers in their community.
- 8.8% of the taxpayers who had unpaid property tax liability, fully settled their obligation after receiving a message for influencing their values that the collected local taxes are for the benefit of the public good and that the collected property taxes, as well as other local taxes, are used exclusively for their local needs.
- 11.6% of the taxpayers have fully settled the arrears of property tax, after receiving a message calling for unfair treatment of others in the community and that the municipality is determined to collect taxes through an enforcement procedure, the so-called deterrence message.

Of the other untreated users (so-called control group) 5.6% settled their arrears in full.

Comparing the effect of the messages for influencing and examining the values of the taxpayers who have not settled their arrears for a long time, there is a higher collection of those who received the so-called deterrence message which emphasizes the unfair attitude of the taxpayer to others and the municipality's determination to apply the legal measures for initiating a procedure for execution of enforced collection, and it has the greatest effect on the taxpayers cumulatively, which is not the case, separately in the municipalities.

There is a significant effect from the message with the influence of the so-called message of social norm, that taxpayers do not want to be different from their community and that there is a social norm in the community for tax responsibility.

Less effective is the message of influencing the sense of contribution to the public good, i.e. that the taxes collected are exclusively for the needs of the community, which may be an aspect on which the municipality should work more actively with citizens to promote trust and accountability in order to change the behavior of citizens in the direction of improved tax liability.

Table 3 Effects of treatment with different types of messages on taxpayers with a reaction to full payment of the obligation

<i>% of taxpayers who responded with full payment of the obligation (measured in number of persons)</i>	<i>% of change</i>	<i>Reduced for the effect in CG</i>
Total	10,10	4,5
Taxpayers treated with letter 1- social norm	10,0	4,4
Taxpayers treated with letter 2- public good	8,8	3,2
Taxpayers treated with letter 1- deterrence	11,6	6,0
Taxpayers – control group	5,6	

Source: author's calculations, research-based data, effects from the experiment

Some of the taxpayers who have unsettled tax liability, also partially settled their debt, after sending the messages. Namely, 4.6% to 6.9% of the taxpayers settled part of their liability, but still this percentage is not higher or different from that of the control group. Hence, we cannot conclude that the partial collection is caused by the messages sent to the taxpayers with arrears from property tax

Table 4 Effects of treatment with different types of messages on taxpayers with reaction with a partial payment of the obligation

<i>% of taxpayers who responded with partial payment of the obligation (measured in number of persons)</i>	<i>% of change</i>
Total	6,1
Taxpayers treated with letter 1- social norm	6,6
Taxpayers treated with letter 2- public good	4,6
Taxpayers treated with letter 1- deterrence	6,9
Taxpayers – control group	6,9

Source: author's calculations, research-based data, effects from the experiment

The average value of the debt per taxpayer in the municipality, which did not settle the obligation, from the sample, before being treated was an average of 10,558 denars. After sending the letters and debt collection, it decreased by an average of 636 denars.

The largest decrease is recorded at the taxpayers that have the greatest effect, and that is the deterrence message, i.e. there is an average decrease in the liability by 804 denars.

Table 5 Effects of treatment with different types of messages on taxpayers on the value of arrears

<i>In MKD</i>	<i>Average per person before treatment</i>	<i>Average per person after treatment</i>	<i>Difference Average per person</i>
Unpaid arrears for TR - value in denars	10.558	9.922	636
Taxpayers treated with letter 1- social norm	9.796	9.102	694
Taxpayers treated with letter 2- public good	11.456	10.838	619
Taxpayers treated with letter 1- deterrence	9.119	8.315	804
Taxpayers – control group	11.755	11.315	440

Source: author's calculations, research-based data, effects from the experiment

In order to determine the statistical significance of the individual messages, OLS regression was conducted at the municipal level. The results show different degrees of statistical significance of different letters in different municipalities. While in one of the three municipalities the effect of the deterrence message is statistically significant, in the other two municipalities the effect of the message on the social norm is statistically significant, but not in the other two messages.

1.3. The effect of different types of messages on the behavior of taxpayers by gender

Different messages have a different effect on the taxpayers' behavior by gender. The CEA survey on the level of tax morale and gender differences across the country indicated a higher level of tax morale among female compared to male¹².

The local effect by gender structure of the different messages in the sample in the municipalities shows that among those taxpayers who have been treated with letters, and have fully paid the liability, there is a difference in gender structure as well.

In total, on average for all the three treated groups, regardless of the message, 7.8% of females fully fully paid the liability, while 10.5% of male - taxpayers fully paid the liability. The size of the effect per message shows a different picture:

- 10.4% of all females treated with a letter with a message for a social norm fully paid their arrears, the same as 10% of males treated with the same message.
- 4% of females treated with a message for the public good as value, paid their arrears in full, compared to 9.6% of males.
- The deterrence message also has an effect on females, but to a lesser extent compared to males. Of the treated sample of females, 9.2% responded positively to a deterrence letter, and 12% of male taxpayers.

The general conclusion in cumulative for all three municipalities is that females with partially lower intensity are affected by communication messages regardless of the message, mainly due to the lower intensity of the message for the public good. However, it should be noted that the number of females in the sample, based on the actual distribution of property ownership by gender, is significantly lower, and much fewer female taxpayers have arrears. In the sample of taxpayers, 14% are female and 86% are male.

Table 6 Effects of treatment with different types of messages on taxpayers by gender

Fully paid, % per group	Total	% females (in their own group, total females)	
		%	% males
All 4 groups TOTAL	8,9	7,4	9,2
Taxpayers treated with letter 1- social norm	10,0	10,4	10,0
Taxpayers treated with letter 2- public good	8,8	4,0	9,6
Taxpayers treated with letter 1- deterrence	11,6	9,2	12,0
Taxpayers – control group	5,6	6,3	5,5

Source: author's calculations, research-based data, effects from the experiment

To assess the causal effects of messages on taxpayers, we use the PROBIT model to examine the impact of gender on taxpayer behavior on settling property tax arrears. The results indicate that gender is a significant variable among taxpayers in one of the three municipalities. In the same municipality, males are more likely to voluntarily pay their taxes compared to females.

¹²<https://cea.org.mk/wp-content/uploads/2020/06/0.-Tax-payer-profile-socio-demo-economic-analysis-FINAL-CIP-08062020.pdf>

1.4. The effect of different types of messages on the behavior of taxpayers by age

Different messages also have different effects on the different age structure of taxpayers. In the CEA survey on the level of tax morale, the elder people at the national level indicated a higher level of tax morale.¹³

The local effect by age structure, the different messages in the municipalities, and those taxpayers who have fully paid their liability, show that there is a difference in terms of age category: people aged 18-35, 36-55, and over 55.

- In total, on average 8.3% of the third and eldest group of taxpayers (over 55 years) settled their property tax debt, compared to those in the middle group (from 35 to 55 years), where on average 11.3 % of the taxpayers paid the arrears and 5.6% of the youngest age group (up to 35 years).

Table 7 Effects of treatment with different types of messages on taxpayers by age

Fully paid, % per group	Total	18-35	36-55	55+
All 4 groups TOTAL	8,9	5,6	11,3	8,3
Taxpayers treated with letter 1- social norm	10,0	0,0	13,4	9,3
Taxpayers treated with letter 2- public good	8,8	10,0	10,7	8,1
Taxpayers treated with letter 1- deterrence	11,6	0,0	13,9	11,1
Taxpayers – control group	5,6	14,3	7,3	4,9

Source: author's calculations, research-based data, effects from the experiment

- 13.9% of all treated persons in the middle age category between 36 and 55 years, treated with a letter with a deterrence message, settled their debt. It is also the largest percentage of the age group combined with the type of message that has the greatest effect. However, the effect of the social norm is important for this group of citizens, and the message of public good is less important. All persons in this age group have greater reaction compared to the control group and compared to other age groups.
- In the eldest group of people, over 55, the letter with a deterrence message also has the greatest effect, followed by the message of social norm, then the message with public good. The control group in this age group with the least intensity paid their liability.
- It is pointed out that in the sample of the youngest population under 35 years only the message for public good had an effect but less than the control group with these characteristics, so for these people it may be that none of the messages initiated the payment of tax liability.

¹³ See more at <https://cea.org.mk/wp-content/uploads/2020/06/0.-Tax-payer-profile-socio-demo-economic-analysis-FINAL-CIP-08062020.pdf>

Again, it should be noted that most of the population of persons who own property are elder people, hence people with more unpaid liability.

To assess the causal effects of messages on taxpayers, we use the PROBIT model to examine the impact of taxpayer age on settling property tax arrears. The results indicate that age is a significant variable only for taxpayers in one of the three municipalities. In that municipality, age is statistically significant and the elder the taxpayer, the lower the level of voluntary tax payment.

The results of PROBIT regression show the statistical significance of communication with taxpayers by influencing messaging behavior.

Differences in the effects of different municipalities confirm that each municipality has taxpayers with different profiles and characteristics.

Characteristics of taxpayers are important information that should be analyzed by each municipality, based on which it can affect the morale of taxpayers.

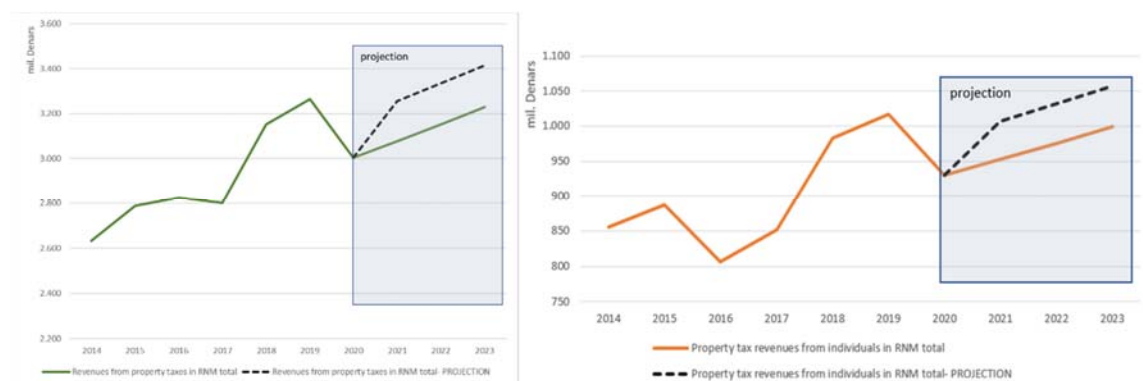
The model of alternative communication with taxpayers through different messages is flexible and simple, and makes it possible.

2. Opportunities to increase revenue by influencing behavior

Experience shows that the so-called incentives for taxpayers' behavior have an effect on payment of overdue liability. However, except for behavioral correction, this process can also be used as a form of prevention, using the same procedures, but with the intention of reminding taxpayers in advance of the approach (for example) of a deadline for a particular tax liability.

The projection on the potential behavior of taxpayers can hardly be generalized, especially if the success in collecting liabilities for one type of tax does not mean the same potential for replication of results. However, if we replicate the results at the national level (*ceteris paribus*) we can get an idea of the potential effects on local budgets through such innovative interventions.

Graph 9 Property tax revenues from individuals and property taxes - assumption of national level



* The data for 2014-2020 are revenues collected, the data for 2020 are taken from the quarterly execution of the LSGU budgets, the data for 2021 -2023 are assumed revenues with a growth rate of the average change of the period 2014-2020, and additional 5.8% from effects through communication with taxpayers.

- The additionally collected revenues through the intervention cumulatively on the treated sample, are 1.3 million denars out of 6% of the taxpayers who have settled their tax liabilities
- The additionally collected value, the revenues of the municipalities, represents 5.8% of the total collected revenues from property tax from individuals compared to 2019.
- If we apply this rate at the level of RNM in all LSGUs, *ceteris paribus*, we can assume that through a single intervention can be collected additional 0.9 million euros in property tax from individuals, or between 2.5-3 million euro revenues from total property taxes.
- Such an intervention at the level of all municipalities of RNM would increase the Own Revenues of the LSGU by an additional 1.4%, and the Total Revenues would increase by 0.5%.
- The fiscal autonomy of the municipalities through such an intervention, *ceteris paribus*, would increase by 0.5 percentage points.

3. Conclusions

- *All letters with behavioral messages for encouraging the taxpayers' behavior to pay the overdue liabilities have a positive effect on the collection of the municipal revenues.* This result indicates the need and effectiveness of communication with taxpayers in accordance with their values that can encourage greater tax responsibility and improve tax morale. 10% of all taxpayers in the sample (cumulatively for the three pilot municipalities) who had received one of the three designed messages, fully paid the owed overdue liability for property tax, compared to 5.6% of the control group.
- *Opportunity for increased collection by influencing the behavior of at least 4.5% of taxpayers only through non-conventional communication.* The total accumulated value of overdue property tax liabilities from individuals after sending the messages decreased by 6%. Excluding the funds collected from the settled liabilities in the control group, the receivables of the municipality from the sample decreased by 5% through the full collection of the multi-year property tax debt. Expressed as a share of the collected property tax income from individuals for one year (for example compared to 2019) it represents 4.7% of the total property tax revenues from individuals in the three municipalities, or 1.4% of total property tax revenues in that year (for all three municipalities).
- *On average, the "deterrence" message has had the greatest impact on the taxpayers from the pilot municipalities with cumulated liabilities for property tax, and the message with the social norm has had the least impact.* 11.6% of the taxpayers fully paid the amount owed after receiving a letter with a deterrence message, which calls for unfair treatment of the rest of the community and that the municipality is determined to collect taxes through an enforcement procedure; This effect reduced by the effect of the control group is 6%; 10% of taxpayers have fully settled their debt after being sent a message influencing their social values indicating that they belong to a group of taxpayers who have not fulfilled their obligation unlike with others in their community (or an effect of 4.4% compared to the control group), and 8.8% of taxpayers fully paid their liability after being sent a message influencing the value for contributing to the public good that the collected property taxes are exclusively for their local needs (or an effect of 3.2% if reduced for the effect of the control group).
- *The average value of the amount owed by the taxpayers with liability for property tax after the delivery of the message decreased by 636 denars.* The average value of the debt per taxpayer from the sample before being treated was 10,558 denars, while after sending the letters it decreased by an average of 636 denars. The largest average decrease in absolute value was recorded among the taxpayers who received the deterrence message with an average reduction of the liability of MKD 804.
- *A local effect was also identified in the gender structure of the various messages to the taxpayers.* On average, 7.8% of females and 10.5% of males have fully paid the overdue property tax. The effect per message is different, as follows: 10.4% of all females treated with a letter with a social norm fully paid their debt, as opposed to 10% of males treated with the same message; 4% of women treated with a letter for public benefit versus 9.6% of males paid the owed amount in full, and 9.2% of females versus 12% of males who received a letter with a deterrence message paid the debt in full. These results show, to some extent, a greater impact

on social values among females, while the public good as a value had no impact on females and almost the entire effect of this message is from the reaction of male taxpayers. The deterrence message also has an effect on females, but to a lesser extent compared to males.

- *Local effect by age structure and different messages in the targeted municipalities have been identified.* On average, 11.3% of the second age group of taxpayers paid the owed amount after treatment, as opposed to those in the oldest group where on average 8.3% paid the debt and 5.6% of the youngest age group. 13.9% of taxpayers treated with a letter with a deterrence message, and are in the middle age group, have settled their debt, which is also the largest percentage of the age category with a message that has the greatest effect. However, with almost the same impact on this group of citizens is the effect of the message of the social norm, and with less importance the message of the public good. However, they all have a significantly higher percentage than the control group. Among the youngest age group, between 18 and 35, the letter with the public good has the greatest effect, while the others have had no effect. In the eldest group, over 55, the deterrence message has the greatest effect, followed by the social norm and the public good.
- *All three designed communication messages produce positive implications for the rate of collection of property tax.* Messages that influence the taxpayers' behavior encourage taxpayers to pay their debt, but can also be used to encourage timely payment of all tax liabilities and local taxes (preventive approach). Improved communication can encourage timely and clear information of taxpayers about the work of the municipality and gradually influence the improvement of tax morale in a relatively cheap and fast way that is expected to have positive changes in collecting planned revenues without changing the regulation. We note that 65% of the citizens of RSM, i.e. at the national level stated that if they had more information about the way and purpose where the tax revenues are spent, they would pay their taxes on time and in full (see more in CEA, 2020¹⁴).
- *The fiscal autonomy of the municipalities in RSM through a behavioral intervention would increase by 0.5 percentage points.* The collected revenues through the intervention cumulatively amounted to 1.3 million denars from 6% of the taxpayers, who settled their tax liabilities. The collected value represents 5.8% of the total collected revenues from property tax from individuals in 2019. If we apply this rate at the level of RNM in all LSGUs, ceteris paribus, we can assume that through a one-time intervention an additional 0.9 million euros in property tax can be collected from individuals, or between 2.5-3 million euros in revenues from property taxes. Such an intervention at the level of all municipalities of RNM would increase the own revenues of the LSGU by an additional 1.4%, and the total revenues would increase by 0.5%.
- *The results of PROBIT regression show the statistical significance of communication with taxpayers.* However, there are differences in the effects in different municipalities, which confirms that each municipality has taxpayers with different profiles and characteristics. Characteristics of taxpayers are important information that should be analyzed by each municipality, based on which it can have an impact on the morale of taxpayers. The model of alternative and flexible communication with taxpayers makes this possible.

¹⁴ <https://cea.org.mk/proekt-za-danochna-odgovornost-kon-graganska-odgovornost-i-odgovorni-danotsi/>

- *The system of logistic organization and physical delivery of tax bills, together with the letters with messages can have an effect on the potential of the approach.* In the above analysis, the results from all sub-groups are calculated and presented but it could be the least (minimum) expected effect because the system of control over the delivery of letters, for those who were supposed to receive the letters by message, is outside of our control as and the lack of feedback on the actual rate of messages delivered to the persons for whom it was intended. It is probable that for various reasons some of the taxpayers who should have received the letters did not receive them at all, due to incorrect or outdated mailing addresses, ignoring the letters, or deficiencies in the delivery system. Therefore, the effects of the intervention can be examined on the basis of those who should have received the letters (intent of treatment) rather than those who actually received the letters. Hence, it can be assumed, that with a more effective system of delivering solutions, greater effectiveness could have been achieved (message and lesson learned for future activities).

- *Covid-19 effect over which we have no control could have an effect on the results. Additionally, what is challenging but can have implications for the results are the effects of Covid-19.* Namely, the process was delayed and slower than originally planned. In addition, the possible negative financial effects that it may have on the population in terms of reduced income may also have negative implications.

Review of the analysis

The fiscal autonomy of local governments is largely defined by the scope of their own sources of revenue that limit the dependence of municipalities on intergovernmental transfers and the revenues they receive from the state budget.

Local taxes, fees, and charges should enable municipalities to develop and implement their own policy measures through the use of these revenue sources.

Between various fees, charges, and tax revenues, the property tax has become an important source of funding for local expenditures. With its transfer to the local level in 2005, it was assumed that the interest of the municipalities in the Republic of Northern Macedonia for its collection would increase, and on the other hand, it was expected to raise the awareness of the citizens about the connection of these revenues with public services offered by the local government.

However, even after 15 years from the start of the decentralization process, the collection of local taxes, especially the property tax, is a challenge for most of the LSGUs in the Republic of North Macedonia, primarily due to the lack of municipal capacities, as well as socio-economic and demographic characteristics of taxpayers.

The Center for Economic Analyses (CEA) as a research center goes a step further within the Tax Responsibility – Towards Civic Responsibility and Responsible Taxes (a project supported by the European Union) through testing conducted in three pilot municipalities indicates the need to supplement the classical methods applied by the LSGU in the collection of property taxes, especially in the area of property tax from individuals, as well as building an alternative way of communication with taxpayers by using a behavioral approach, and in order to overcome the problems in revenue collection.

The Center for Economic Analyses and in pandemic conditions of Covid-19 with the help of the above pilot municipalities successfully implements this part of the Tax Responsibility Project by collecting and analyzing data collected on taxpayer behavior by using tools such as sending letters to messages to taxpayers as a reminder of the motives for paying taxes; encouraging taxpayers to participate by settling their debt in order to create public good that will serve exclusively to meet the needs within their municipality.

Through the research conducted in these three pilot municipalities, the Center for Economic Analyses indicates a positive effect of the application of the behavioral approach in order to encourage more people to pay their debt, but also indicates the possibility of using this approach and this type of tools (messages, letters with certain content) by the LSGU in order to encourage timely payment of current tax liabilities by taxpayers. The research indicates that this approach of building two-way communication between municipalities and citizens as taxpayers can encourage timely, transparent information about the work of the municipality, especially in terms of spending funds collected by taxpayers and gradually affect the improvement of tax morale among taxpayers.

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Annex: Letters with a behavioral message to the taxpayers

Letter 1: Message Social Norm

***Ве молиме платете го вашиот
заостанат долг за данок на имот!***

Почитувани,

Според евиденцијата на општината имате
заостанат долг за данок на имот.

*Според нашите податоци, најголем дел
од граѓаните на општина [REDACTED] го
платиле данокот на имот.*

*Вие сте дел од оние кое сè уште не ја
подмириле својата обврска.*

Ве молиме платете ја целосната ваша
обврска.

Доколку имате прашања Ве молиме |

Letter 2: Message Public Good

Ве молиме платете го вашиот заостанат долг за данок на имот.

Почитувани,

Според евиденцијата на општината имате заостанат долг за данок на имот.

Дали знаете дека, 100% од данокот на имот кој го собира општината се троши за намените на граѓаните на општината?

Од прибраните средства општината го финансира претшколското образование, основното образование, локалните патиштата и за добробит на сите граѓани како за Вас така и за вашите најблиски.

Не бидете дел од даночно неодговорните граѓани во нашата општина и платете го вашиот долг за данок на имот.

Ве молиме платете ја целосната ваша обврска.

Доколку имате прашања Ве молиме

Letter 3: Deterrence message

*Ве молиме платете го вашиот
заостанат долг за данок на имот.*

Почитувани,

Според евиденцијата на општината имате
заостанат долг за данок на имот.

*Неплаќањето на даноците креира
нефер товар врз останатите даночни
обврзници кои чесно ја исполнуваат
својата даночна обврска. Затоа како
Општина сме одлучни да ги собереме
даноците од оние кои избегнуваат да
ги платат.*

*Општината може да покрене
постапка за извршување со што ќе
бидете изложени на дополнителни
трошоци.*

Доколку не ја подмиристе вашата обврска
ќе бидете предмет на извршна постапка.

Ве молиме платете ја целосната ваша
обврска.

Доколку имате прашања Ве молиме