Heterogeneity in the Marginal Propensity to Consume Before and During the COVID-19 Pandemic: Evidence from a Lottery and Administrative Data[1]

Christos Kotsogiannis (Exeter) and Plutarchos Sakellaris (AUEB)

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Abstract

We use the quasi-experimental setting of a tax lottery together with administrative and survey data to provide *reported-preference* and *revealed-preference* estimates of the marginal propensity to consumer (MPC). Within a depressed economic environment providing scarce opportunities for consumer credit, we uncover significantly higher MPCs than previous literature. There is significant heterogeneity in MPC, and we link it to observable household characteristics. At the peak of the first wave of the COVID-19 pandemic in 2020, survey responses of the same households indicate an increase in MPC and marginal propensity to save, on average, after the unexpected economic shock. There is significant heterogeneity in the changes of marginal propensities.

Introduction

The importance of consumer response to fiscal policies has attracted significant attention in the literature and no doubt will continue to do so given the unprecedented stimulus packages countries have made available as a response to the COVID-19 pandemic. As most countries are constrained by their debt burden in the amount of fiscal resources they can bring to countering large economic shocks, like the COVID-19 pandemic, now and in the future, it is important to design fiscal policies carefully for optimal results. This paper contributes to this literature. More specifically, the aim of this paper is to understand what drives heterogeneity in households' marginal propensity to consume (MPC). Addressing this issue sheds light on models of household consumption and finance and guides optimal design of fiscal and monetary policies. At the heart of effective design of fiscal transfer policies is accurate knowledge of households' MPC out of transitory income.

Email addresses: Kotsogiannis, c.kotsogiannis@exeter.ac.uk, Sakellaris, plutarch@aueb.gr

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Our innovation in this paper is empirical and rests on three features. First, our sample of 1014 Greek households includes individuals who received a tax-free lottery[2] prize of €1000 in December 2019, complemented with individuals who did not receive such a prize but had matched socio-economic characteristics with the winner sub-sample. This prize is roughly equivalent to two months' salary for inexperienced workers earning the legal minimum. This quasi-experimental design provides identification of effects of the unexpected transitory income shock. Second, we designed and carried out a survey of the same households and collected a wealth of data on consumption, saving, and debt behavior together with expectations on future activity, as well as behavioral characteristics. For a substantial portion of these households the information pertains to two periods: December 2019 to January 2020 (well before there was wide public awareness in Greece about COVID-19) as well as the end of April 2020 (the peak of the first wave of the pandemic in Greece). Third, we have been given access by the Greek revenue authority to an anonymous administrative data set on these households that portray their economic situation accurately stretching back to 2006.

Our analysis involves the same household reporting preference (*ex ante*) in a quantitative way, revealing preference (*ex post*) in administrative data, experiencing random variation due to a lottery win (random assignment). To the best of our knowledge, our paper is the first to achieve this. Using a specification as in Agarwal et al. (2007) and administrative data on total monthly credit and debit card spending by the individuals from January 2017 until July 2020, we estimate the causal effect of winning the lottery to be €536 in the first quarter following the news of the windfall. About half of that effect (€271) is in January 2020, the first full month after the funds were received by the individuals. Moving to *reported-preference* estimates, we employ a survey instrument like that in Christelis et al. (2019) and conducted telephone interviews in December 2019 and January 2020. Following Fuster et al. (2021), we introduce some important differences in our instrument. We fix the size of the treatment at €1,000 GAIN or LOSS for all subjects, and the time horizon of observed behavior is shorter and set at four months.

The average reported MPC for the GAIN scenario is €481, very close to the *revealed-preference* effect we estimated. This provides some assurance of consistency between the two approaches and lends credence to the data from the survey instrument. The treatment effect on non-durables (€347) is greater than that for durables (€134). The MPC estimate from our survey is larger but close to that in the one-month income GAIN scenario in Christelis et al. (2019) (40%). In contrast, Fuster et al. (2021) estimate a much lower MPC of 7% for a $500 GAIN scenario. One possible explanation for the difference with the latter paper could be the stark difference in the state of the economy from which the two samples were drawn. As noted earlier, in 2019 Greek GDP per head was still 20% below its peak in 2008. In contrast, in the US economy that provided the Fuster et al. (2021) sample, GDP per head was 35% higher in 2019 than in 2008. Our paper is the first one to investigate consistency between reported- and revealed-preference estimates in a severely depressed economic environment, such as in Greece. This is important because the only existing study to test such consistency with administrative data on revealed preferences (Parker and Souleles, 2019) studied MPCs in a milder recession in the US and presented some evidence of inconsistency.

Our survey instrument also has a LOSS scenario of €1,000, for which we do not have corresponding revealed-preference estimates. The average reported MPC for the LOSS

[2] A brief description of the tax lottery is given in the appendix.

scenario is €668, split between €414 in non-durables and €254 in durables. This is larger than but close to the corresponding estimate (of 50%) in Christelis et al. (2019). Again, Fuster et al. (2021) find a much lower estimate of 32% for a $500 LOSS scenario. Consistently with the literature, we find that reported responses to losses are much larger and more widespread than to gains. This has been interpreted as evidence for models for precautionary saving or liquidity constraints.

There is considerable heterogeneity in the distributions of MPC in the two scenarios. We find that this heterogeneity is related to certain household characteristics. Income shows no clear relation to the MPC for income GAIN, whereas the MPC in response to income LOSS is lower at low levels of income. Importantly, we uncover an asymmetry when disaggregating to the two components of consumption. Income relates negatively to MPC for non-durables consumption in the GAIN scenario, whereas it relates positively to MPC for durables consumption in the LOSS scenario. It seems that high-income households have a higher margin of response in durables consumption but a lower margin in net saving when facing positive windfalls. The existence of household debt seems to play a significant role in this reluctance to sacrifice net saving compared to low-income households. These results are robust to relating to 2018, or 2017 income instead of 2019 income, and point to persistent heterogeneity.

Examining liquid wealth (LW), we uncover a positive relation to MPC, ceteris paribus. For the LOSS scenario, this relation is primarily driven by adjustments in non-durables consumption, whereas for the GAIN scenario it is primarily driven by adjustments in durable consumption. As was in the case of income, high-LW households are more eager to maintain their debt repayment. The results are robust to measuring liquid wealth in gross or net terms and to relating to 2018, or 2017 levels instead of 2019 ones. Again, they point to persistent heterogeneity.

Our finding of positive relation between MPC and LW is different from much of the literature and requires further scrutiny. Our variable, however, is also different. We take liquid wealth from administrative data from the tax authority and it corresponds to average balances over the year. The typical measure used in the literature is self-reported and refers to balances at a point in time. Another potential explanation for the difference rests on the depressed state of the economy and the long crisis that has led to a high level of household indebtedness.

Our results indicate that it is important to disaggregate the two components of cash-on-hand, income and liquid wealth, when examining their relation to MPC. They also show that the patterns of heterogeneity in MPC differ substantially when considering non-durable or durable consumption.

We examine administrative information on household arrears to the State at the end of 2019. This is an indicator of household financial distress and likely of liquidity constraints. Households with high arrears would reduce consumption relatively more in a LOSS scenario but would increase consumption relatively less in a GAIN scenario. This is a puzzling asymmetry within a model of liquidity constraints. The action in the LOSS scenario comes from durables, whereas in the GAIN scenario from non-durables. High-arrear households would take the opportunity provided by the increased income in a GAIN scenario to pay down their debt at a higher rate than their low-arrear counterparts aided also by relatively lower saving out of the temporary gain. In the LOSS scenario, high-arrear households would not repay debt at significantly different

rates than their low-arrear counterparts. None the less, they would increase saving more in relative terms.

We also examine whether individuals identified *ex ante* as constrained (hand-to-mouth, HtM) report different consumption behavior. A seminal paper by Kaplan and Violante (2014) shows that wealthy hand-to-mouth (WHtM) households, holding the bulk of their wealth in illiquid assets, respond in consumption similarly to poor hand-to-mouth (PHtM) households. We find that the MPC of the WHtM is slightly higher in the LOSS scenario but not significantly so in the GAIN scenario. However, the WHtM would use a higher amount to repay debt in the GAIN scenario than non-HtM households. The poor hand-to-mouth (PHtM) would have a relatively lower propensity to spend in durables in a GAIN scenario and a relatively higher propensity to save. Again, household indebtedness is important in shaping consumption responses.

Beginning in March 2020, Greek households were hit by an unexpected economic shock of magnitude commensurate to a pandemic. Unprecedented government support measures followed aimed to support household consumption. A natural question that arises is to what extent the households' marginal propensities to consume and save changed as a result of the pandemic shock. This is especially interesting as this new shock followed practically ten years of economic depression where aggregate GDP per head was at some point 25 percent below its previous peak. We conducted a follow-up online survey of the households between the 24th of April and 7th of May 2020.

On average, MPC was significantly higher after COVID-19 than before. Reported MPS reflects this differential in reported MPC, with MPS declared significantly higher in the before COVID-19 survey. Households were less willing to save part of any windfall after the pandemic started. None the less, there was considerable heterogeneity in the shifts in the marginal propensities across the two surveys.

Older-age or male heads of household are associated with a higher MPC, following the unexpected pandemic shock, and lower marginal propensity to save (MPS). Respondents who find themselves in the top 5% of the deposits distribution respond to the pandemic shock by increasing their MPC for durable goods by less than those who have zero deposits. A possible explanation is that these highly liquid individuals have attained their desired capital stock of consumer durables, whereas individuals with zero deposits have not and would use part of their windfall gain to attain that.

Respondents who received a pandemic-related government payout increase MPC and MPCD by less, relative to those who were not eligible for a payout. The former were individuals who had been paroled or entrepreneurs who had their businesses ordered shut. The reason for the difference might be that receiving the transfer signaled to the consumers that the pandemic shock was going to be long-lived. This is consistent with precautionary savings and the fact that MPC of prudent individuals falls with household resources and in particular for those that cannot access the market to smooth out consumption.

Expectations matter. Relative to those who report expectations of zero income change after 12 months, survey respondents who think positively about their future income prospects report higher MPC increases for durable goods. Indebtedness (to the public and private sector) impacts the MPS, relative to non-indebtedness and this impact is more significant for more indebted individuals. A possible explanation for this is that

households will use (optimally) part of the unexpected windfall to pay off their debts, rather than increasing spending.

The structure of the paper is as follows. Section 2, reviews the literature and the various methods proposed for estimation of the MPC, while Section 3 describes the data and the survey used to analyze the MPC. Section 4 describes the empirical results focusing on *reported-* and *revealed-preference* MPC estimates derived within a depressed economic environment. It also analyses whether the households' marginal propensities to save and consume changed as a result of the substantial unexpected economic shock due to the COVID-19 pandemic. Section 5 concludes.

2. Literature Review

To be provided.

3. Description of the Data

Our dataset consists of administrative and survey data of 1014 individuals in Greece. It is built around a lottery conducted on November 30th, 2019 that awarded a tax-free prize of €1,000 to 1,000 taxpayers who had used electronic means of payment for their transactions during October 2019. The minimum salary in Greece was in December 2019 €650 gross (€546 net of taxes) having been raised by 11% in February 2019. Thus, this prize is roughly equivalent to two months' salary for inexperienced workers earning the legal minimum. For the vast majority of winners, their prize money was credited in their accounts on December 20th, while a few of them received it in January and February 2020.

With the help of the Independent Authority for Public Revenue (I.A.P.R) who implemented the survey, most of the tax-lottery winners (W) were contacted and 481 of them agreed to participate in the study, release their personal data, and answer the survey questions. The dataset also contains 533 individuals who were not winners (NW). The NW were matched to the winners from the population sample of 5,695,732 individuals who had participated in the lottery in that month. The matching was exact according to gender, region of residence, age, marital status, household size, and bracket of 2018 declared income.

The anonymous administrative data were obtained from I.A.P.R and included monthly non-cash expenditures disaggregated into credit card, debit card, and bank transfers from January 2017 to July 2020. Another important variable is arrears to the State as of end 2019. Finally, access has been given to the complete information contained in individuals' tax returns, real estate holdings, and taxes going back to 2006.

To supplement the administrative data, we set up a survey instrument that was executed in various stages and with different rates of participation among the whole sample of subjects. We first conducted, again with the help of I.A.P.R, a telephone survey of 1014 individuals between the 2nd and 13th December 2019 (with a limited number of telephone calls also made on the 19th and 20th of December 2019). We asked

participants to consider the current economic condition of their household and divide their (actual or hypothetical) tax-free prize money into saving, repaying debt, consuming non-durables, or consuming durables. The horizon for this decision was set at 4 months (as in Fuster et al., 2021). We call this the GAIN scenario. We also subjected the individuals to a LOSS scenario where the government unexpectedly imposed an additional tax of €1,000 on their income effective immediately.

Our next stage was to subject the same individuals to an online questionnaire (**Stage1-online)**. Even though all individuals had agreed to participate, only 586 completed this questionnaire (consisting of 336 W and 250 NW). The subjects provided information on education attainment, health status, health insurance, country of birth, occupation, father's education and occupation, their current personal finances and income expectations. Some questions focused on personality traits: im-patience, financial planning (Ameriks, Caplin and Leahy, 2003 and Shapiro and Slemrod, 2003), self-control, risk aversion (Guiso and Paiella, 2008), trust (Butler, Giuliano, and Guiso, 2016). The backbone of the questionnaire were questions about changes in spending or saving behavior over the next 4 months, fashioned after Shapiro and Slemrod (2003). In case they indicated changes in spending, we also asked them the magnitude, the composition into 10 different consumption categories and timing.

Most of the responses were given between the 2nd and13th December 2019. There were two limited reminder campaigns targeting NW as they were underrepresented in the initial sample: phone calls were made on the 19th and 20th of December 2019 and SMS and e-mails sent on the 12th of January 2020.

The onset of the COVID-19 pandemic raised the question whether households' marginal propensities to save and consume changed as a result of this economic shock. The third stage of the survey was conducted online (**Stage3-online**) between the 24th of April and 7th of May 2020. This is a period during which Greece was under a strict lockdown following the COVID-19 pandemic. The lockdown started on the 4th of April following the first COVID-19 case that was diagnosed in Greece on February 26th.

On 16 April 2020 the Greek government enacted a series of support. Employees of businesses were entitled to a special-purpose compensation of €800 either because their business had ceased their operations following a government decision or had been substantially affected by the pandemic. This amount was tax-free and covered the period until the 30th of April 2020. We asked participants whether they had their labor contract suspended since the beginning of COVID-19 and, if so, whether they had or expected to receive the €800 transfer.

The questionnaire also asked respondents to report what percent of their expected 4-month household net income (January 2020-April 2020) they lost during these 4 months. They were also presented with a hypothetical question regarding how they would plan on spending an unexpected tax-free €1,000 government transfer over the next 4 months. Other questions included in this stage were related to changes on their expenditure plans with regards to food and medicine and their beliefs on their household economic conditions and the housing market after 12 months. The questionnaire also included questions on their debt prior to the COVID-19 crisis and how easy it was for

them to borrow €1,000 within the next month given their current situation. The resulting sample was 361 subjects (208 W and 153 NW).

4. Empirical Results

Our analysis involves the same household reporting preference (*ex ante*) in a quantitative way, revealing preference (*ex post*) in administrative data, experiencing random variation due to a lottery win (random assignment). To the best of our knowledge, our paper is the first to achieve this. The analysis in Parker and Souleles (2019) differs as it involves *ex post* reporting of behavior through recall. However, most survey instruments involve hypothetical situations (as in, for example, Christelis et al., 2019, or Fuster et al., 2021) and so does ours. Our paper is also the first one to investigate consistency between *reported-* and *revealed-preference* estimates in a severely depressed economic environment, such as in Greece. In 2019, GDP per head was still 20% below its peak in 2008. This is important because the only existing study to test such consistency with administrative data on revealed preferences (Parker and Souleles, 2019) studied MPCs in a milder recession in the US and presented some evidence of inconsistency.

Starting with *revealed-preference* estimates of MPC, we use administrative data on total monthly credit and debit card spending by the individuals from January 2017 until July 2020 as dependent variable. We use a specification as in Agarwal et al. (2007), where β_j are the coefficients on a dummy variable indicating whether the observation corresponds to a winner and the month is December 2019, together with leads and lags. We also control for time, whether individuals were paid an incentive payment in March 2020, whether they missed the lottery prize claim deadline and were not paid, age, household size, and prefecture of residence. The results are contained in Table 1. The causal effect of winning the lottery is €536 in the first quarter following the news of the windfall. About half of that effect (€271) is in January 2020, the first full month after the funds were received by the individuals. There is some evidence of an extra €221 effect in the second quarter, but it is not significant. Almost all winners in our sample (467) were paid on December 20th. The MPC in December 2019 is estimated at €113, about a fifth of the four-month MPC of €586 and it is likely that part of this response came after the news arrived but before the funds arrived in winners' accounts.

[TABLE 1 HERE]

Moving to *reported-preference* estimates, we employed a survey instrument like that in Christelis et al. (2019) and conducted telephone interviews in December 2019 and January 2020. Following Fuster et al. (2021), we introduce some important differences in our instrument. We fix the size of the treatment at €1,000 gain or loss for all subjects, and the time horizon of observed behavior is shorter and set at four months. The final sample contains 1,014 individuals who agreed to participate and have their household administrative data released to us. Tables 2 and 3 contain the results of our analysis for both GAIN and LOSS scenarios.

[TABLE 2 HERE]

[TABLE 3 HERE]

The average reported MPC for the GAIN scenario is €481, very close to the *revealed-preference* effect we estimated (€586). This provides some assurance of consistency

between the two approaches and lends credence to the data from the survey instrument. The treatment effect on non-durables (€347) is greater than that for durables (€134). The MPC estimate from our survey is larger but close to that in the one-month income GAIN scenario in Christelis et al. (2019) (40%). In contrast, Fuster et al. (2021) estimate a much lower MPC of 7% for a $500 GAIN scenario. One possibility for the difference with the latter paper could be the stark difference in the state of the economy from which the two samples were drawn. As noted earlier, in 2019 Greek GDP per head was still 20% below its peak in 2008. In contrast, in the US economy that provided the Fuster et al. (2021) sample, GDP per head was 35% higher in 2019 than in 2008. Another difference is that the treatment of €1,000 in our survey instrument is comparatively higher when translated into average monthly salaries.

Our survey instrument also has a LOSS scenario of €1,000, for which we do not have corresponding *revealed-preference* estimates. The average reported MPC for the LOSS scenario is €668, split between €414 in non-durables and €254 in durables. This is larger but close to the corresponding estimate (of 50%) in Christelis et al. (2019). Again, Fuster et al. (2021) find a much lower estimate of 32% for a $500 LOSS scenario. Consistently with the literature, we find that reported responses to losses are much larger and more widespread than to gains. This has been interpreted as evidence for models for precautionary saving or liquidity constraints.

Figure 1 shows that there is considerable heterogeneity in the distributions of MPC in the two scenarios. It is natural, then, to investigate how this heterogeneity is related to household characteristics. We relate the MPC, total as well as its components, to observable household characteristics from administrative data, always within the *reported-preference* approach. We also do the same for the marginal propensity to save (MPS) and to repay debt (MPRD). We have administrative data on household income, taxes, and holdings of real estate, cars and boats extending back to 2006. We also have 2019 data on bank deposits and outstanding arrears to the extended public sector. Conditioning simultaneously on observable characteristics dated 2019, we find the following results.

[FIGURE 1 HERE]

Income. Considering 2019 income, it shows no clear relation to the MPC for income GAIN, whereas the MPC in response to income LOSS is lower at low levels of income. Importantly, we uncover an asymmetry when disaggregating to the two components of consumption. Income relates negatively to MPC for non-durables consumption in the GAIN scenario, whereas it relates positively to MPC for durables consumption in the LOSS scenario. High-income households state that they would save relatively more of their windfall in GAIN and would decrease saving relatively more in LOSS. In addition, in a LOSS scenario, they would have a relatively lower marginal propensity to repay debt. Thus, it seems that high-income households have a higher margin of response in durables consumption but a lower margin in net saving and when facing windfalls. The existence of household debt seems to play a significant role in this reluctance to sacrifice net saving compared to low-income households. These results are robust to relating to 2018, or 2017 income instead of 2019 income, and point to persistent heterogeneity.

Liquid Wealth. Moving to liquid wealth (LW), we uncover a positive relation to MPC, *ceteris paribus.* Compared to the bottom LW tercile, households in the top tercile would cut consumption €105 more in the LOSS scenario and increase it €74 more in the GAIN

scenario. For the LOSS scenario, this relation is primarily driven by adjustments in non-durables consumption, whereas for the GAIN scenario it is primarily driven by adjustments in durable consumption. As was in the case of income, high-LW households are more eager to maintain their debt repayment. The results are robust to measuring liquid wealth in gross or net terms and to relating to 2018, or 2017 levels instead of 2019 ones. Again, they point to persistent heterogeneity.

Our finding of positive relation between MPC and LW is different from much of the literature and requires further scrutiny. Our variable, however, is also different. We take liquid wealth from administrative data from the tax authority and it is measured as average balances over the year. The typical measure used in the literature is self-reported and refers to balances at a point in time. Another potential explanation for the difference rests on the depressed state of the economy and the long crisis that has led to a high level of household indebtedness.[3] In the regression, we control for the level of arrears to the Public Sector but not for total debt. If the omitted variable of total debt is correlated with income or LW then the estimate of MPC would be biased. For a subsample of 316 individuals we have self-reported levels of total debt on 31st of January 2020. Figure 2 contains average 2019 levels of household income, deposits, illiquid wealth and arrears by debt category. The categories are: 1) Zero Debt, 2) Positive Debt up to €5000, 3) Debt greater than €5000, and 4) Debt information not available. Conditional on having debt, households with higher debt have higher incomes, deposits, illiquid wealth and arrears to the State. If the relation of MPC to Debt is positive, then this would produce an upward bias to the MPC estimates.

[FIGURE 2 HERE]

Our results indicate that it is important to disaggregate the two components of cash-on-hand, income and liquid wealth, when examining their relation to MPC. They also show that the patterns of heterogeneity in MPC differ substantially when considering non-durable or durable consumption.

Illiquid Wealth. Differences in illiquid wealth held in real estate, cars, or boats does not relate significantly to MPC after controlling for other household characteristics.

Arrears. We use administrative information on household arrears to the State. Households with high arrears would reduce consumption relatively more in a LOSS scenario but would increase consumption relatively less in a GAIN scenario. The action in the LOSS scenario comes from durables, whereas in the GAIN scenario from non-durables. Table 2 provides some useful information as to what leads to this asymmetry. High-arrear households would take the opportunity provided by the increased income in a GAIN scenario to pay down their debt by €140 more than their low-arrear counterparts. This would be aided also by relatively lower saving out of the temporary gain by €81. In the LOSS scenario, high-arrear households would not repay debt at significantly different rates than their low-arrear counterparts. None the less, they would increase saving by €80 more in relative terms.

Hand-to-Mouth. The MPC of the wealthy hand-to-mouth (WHtM) is slightly higher in the LOSS scenario (by 0.058) but not significantly so in the GAIN scenario. However, the WHtM would use a higher amount to repay debt in the GAIN scenario (€78) than non-HtM households. The poor hand-to-mouth (PHtM) would have a relatively lower

[3] Currently, private debt of individuals and enterprises amounts to 235 billion € .

propensity to spend in durables in a GAIN scenario (by €70) and a relatively higher propensity to save (by €84).

Shifts in consumer behavior after the COVID-19 pandemic shock

Beginning in March 2020, Greek households were hit by an unexpected economic shock of magnitude commensurate to a pandemic. Unprecedented government support measures followed aimed to support household consumption. A natural question that arises is to what extent the households' marginal propensities to consume and save changed as a result of the pandemic shock. This is especially interesting as this new shock followed practically ten years of economic depression where aggregate GDP per head was at some point 25 percent below its previous peak.

We conducted a follow-up online survey of the households (**Stage3-online**) between the 24th of April and 7th of May 2020. An SMS was sent to all 1014 taxpayers who had been contacted by I.A.P.R and had responded positively during the telephone campaign (the Appendix provides the details of the survey).

The questionnaire asked respondents to report what percent of their expected 4-month household net income (January 2020-April 2020) they lost during these 4 months. They were also presented with a hypothetical question regarding how they would plan on spending an unexpected tax-free €1,000 government transfer over the next 4 months. Other questions included in this stage were related to changes in their expenditure plans with regards to food and medicine and their beliefs on their household economic conditions and the housing market after 12 months. Survey participants were also asked questions on their debt prior to the COVID-19 crisis and how easy it was for them to borrow €1,000 within the next month given their current situation as well as whether they have been unemployed for longer than 12 months. In **Stage1-online** there were 586 individuals [336 W and 250 NW] whereas in **Stage3-online** 361 [208 W and 153 NW] individuals participated. Comparing the two surveys, there are 286 participants in both surveys [with 158 W and 128 NW].

[TABLE 4 HERE]

Table 4 reports summary statistics of the variables used in the empirical estimation. MPC differs across the two surveys with respondents reporting (average) MPC significantly higher after COVID-19 than before. Average MPCD and MPCND also differ across the two surveys being higher in the after COVID-19 survey. Reported MPS reflects this differential in reported MPC, with MPS declared significantly higher in the before COVID-19 survey.[4] Interestingly, 53.8% of the respondents have negative expectations about their income in the next 12 months and about the real estate market. This is not surprising, given the significant downturn in economic activity during the financial crisis (an economic shock which persisted for more than 10 years in Greece) and the presence of the new economic shock following COVID-19 (which being a pandemic it is expected to persist). The history of shocks matter and the average age of

[4] MPS captures net savings. In the before COVID-19 survey individuals have been asked to report if the hypothetical windfall will change their consumption/savings behavior. To deduce amounts, and therefore make this survey comparable to the after COVID-19 survey, we have also utilized information on amounts derived from the telephone survey (for more details see the appendix).

the respondent being 49 indicates that the average respondent has been directly affected by the financial crisis and therefore is likely to be more cautious with their consumption pattern (and savings) following COVID-19. In terms of debt, 72.4% of the respondents report low debt levels (positive debt but less than €10,000). In terms of the special purpose transfer, 17.8% of the respondents at the time of the after-COVID-19-survey had already received it. Out of the total sample, 2.45% of respondents were expecting to receive it. In the sample, 36.4% of participants owned their main residence.

Figure 3 plots the (unconditional) distribution of MPC and MPS differences between **Stage3-online** and **Stage1-online**. The upper-left histogram shows that just over 20% of respondents reported that they would not change their MPC over the next 4 months (relative to the pre COVID-19 survey) if they received an unexpected tax-free €1,000 government transfer. The majority of respondents, however, reported that they would increase MPC. Not surprisingly, the MPC for durable and non-durable goods differs across the two surveys. The bottom-left histogram shows that just over 23% (66 respondents) reported no change in MPCND, whereas just over 45% (129 respondents) reported no change in MPCD (bottom-right histogram). Over 15% of the respondents reported that they will not be saving part of the transfer, whereas just under 13% (37 respondents) responded that their savings would be 50% of their savings before COVID-19. Typically, the '50%' response is often interpreted as indecisiveness, but in the present context, and under the circumstances, it is unlikely for this to be the case.

Table 5 below characterizes the determinants of shifts in the marginal propensities across the two surveys using regression analysis. WP_DEC_2019 is a dummy taking the value of 1 when a winner received the payment in December 2019 (467 from **Stage1-online**, 204 in **Stage3-online**), where WP_FEB_2020 is a dummy indicating that a winner was paid later, in January and in February 2020 (12 from **Stage1-online** and 3 in **Stage3-online**). The base category is the non-winners. Age is controlled with an age dummy, with the base category being the over (or equal to) 65s. DP denotes deposits (expressed in percentiles) with the base category those recorded to have zero deposits. DP is imputed from tax records using declared domestic and foreign taxable interest income in 2019. Illiquid wealth (ILLW, expressed in quartiles) is the sum of the 2019 cadastral value of the property owned (that is, administrative value determined from the data in the real estate cadastre used for tax purposes) and the market value of car and boat owned by respondents.[5] HSIZE is a dummy capturing whether following the pandemic there has been a change in the size of the household, with the base category being zero change. Income expectations (in the next 12 months) is captured by the dummy IncExp. This variable is an aggregate of seven categories (three positive expectations, three negative expectations and one neutral). The base category is the neutral expectation category. Real estate market expectation is captured by REVExp (an aggregation of seven categories of expectations), with the base category being no change is expected in the real estate market. Survey participants were asked also to report their level of debt, and this is captured in the variable Debt, with the base category

[5] We have also run an estimation with an alternative definition for illiquid wealth, and one that captures the market value of the property owned by the survey respondents. The results reported in Table 1 remain unaffected.

being zero debt. Following the support made available to individuals by the government, the dummy variable Received_SPT captures whether survey participants have received a special purpose transfer, whereas Expects_SPT captures whether they are eligible and expect to receive it. The base category includes individuals who were not paroled and were not eligible for a SPT. Net current income (NCI) is reported income less tax paid in 2019, with the base category being the bottom of income distribution. Finally, main-residence ownership is captured by MR, with the base category being no ownership.

Winners who received with a delay the payment of the November lottery prize indicated that they would decrease the MPC and increase the MPS. However, this might also reflect the low number of individuals who received the payment late.

Age is not statistically significant, except for the MPC for durable goods (MPCD), indicating that the elderly (more than 64 years of age, the base category) have a higher MPCD following the unexpected pandemic shock and lower marginal propensity to save (MPS). This finding is in line with the prediction of the standard consumption models that MPC (with respect to transitory shocks) increases with age. The justification that is typically given for this relies on bequest motives, survival risk or risk of large medical expenses (Jappelli and Pistaferri, 2014).

The male coefficient is positive for the MPC_dif and negative for MPS_dif indicating that, all other things equal, male individuals increased MPC (and reduced MPS) more than female ones, following the substantial and unexpected COVID-19 shock.

Respondents who find themselves in the top 5% of the deposits distribution respond to the pandemic shock by increasing their MPC for durable goods by less than those who have zero deposits (the base category). A possible explanation is that these highly liquid individuals have attained their desired capital stock of consumer durables, whereas individuals with zero deposits have not and would use part of their windfall gain to attain that.

Respondents who have already received the special purpose transfer increase MPC and MPCD by less, relative to those who were not eligible. The reason for this might be that receiving the transfer signaled to the consumers that the pandemic shock was there to stay. This is consistent with precautionary savings and the fact that MPC of prudent individuals falls with household resources and in particular for those that cannot access the market to smooth out consumption. These were individuals who had been paroled or entrepreneurs who had their businesses ordered shut.

Surprisingly, illiquid wealth does not matter for how individuals respond to the COVID-19 economic shock, all other things being equal. Expectations, however, do matter. Relative to those who report expectations of zero income change after 12 months, survey respondents who think positively about their future income prospects report higher MPC increases for durable goods. Indebtedness (to the public and private sector) impacts the MPS, relative to non-indebtedness and this impact is more significant for more indebted individuals. A possible explanation for this is that households will use (optimally) part of the unexpected windfall to pay off their debts, rather than increasing spending.

The MR_owned (indicating owners of their main residence home) coefficient is negative for MPCD implying that respondents who own a house report a smaller increase in MPC for durable goods relative to those who do not own a house, all other things being equal. This is also consistent with precautionary savings: In the presence of COVID-19, and with exposure to a (likely) persistent shock, house owners respond by reducing consumption of durable goods.

5. Concluding remarks

To be completed.

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TABLE 1: Revealed preferences from card expenditures

	Spending				
	Marginal Effects			Implied Cumulative Effects	
	(1) Coeff.	(2)	S.E.	(3) Coeff.	(4) S.E.
β_{WIN}	114.080***	37.813			
β_{-2}	241.570**	116.918			
β_{-1}	46.953	42.141			
β_0	113.124**	48.008			
β_1	271.241***	87.072			
β_2	151.732*	90.283		536.096**	225.363
β_3	49.748	68.135		585.845**	293.498
β_4	43.144	41.668			
β_5	127.752	98.881		756.740*	434.048
β_6	-25.061	53.300			
β_7	24.897	46.885			
Const.	172.154	172.259			
Joint Significance					
$\{\beta_2^j\}_0^2$	0.00841				
$\{\beta_5^j\}_0^5$	0.0331				
$\{\beta_7^j\}_0^7$	0.0530				
N	35,515				
R^2	0.052				

*** p<0.01, ** p<0.05, * p<0.1

Notes: The dependent variable is total monthly expenditures on credit and debit cards for 1014 individuals. The data span January 2017 until July 2020. Control variables include month-year dummies, dummy for recipients of incentive payment in March with four leads, dummy for winners that missed deadline and did not get paid with seven leads, age dummies, household size dummies, and prefecture of residence dummies.

Table 2: Reported-preference estimates for MPC, MPCND, MPCD (Gain/Loss Scenarios)

VARIABLES	(1) Total (Loss)	(2) Total (Gain)	(3) Non-Durables (Loss)	(4) Non-Durables (Gain)	(5) Durables (Loss)	(6) Durables (Gain)
Income II	0.058*	0.001	0.008	-0.029	0.049*	0.030
	(0.034)	(0.036)	(0.033)	(0.033)	(0.028)	(0.023)
Income III	0.040	-0.043	-0.000	-0.069*	0.040	0.026
	(0.040)	(0.042)	(0.039)	(0.039)	(0.033)	(0.027)
Liquid Wealth II	0.099***	0.021	0.036	0.036	0.063**	-0.015
	(0.034)	(0.036)	(0.034)	(0.033)	(0.028)	(0.023)
Liquid Wealth III	0.105**	0.074*	0.063	0.053	0.042	0.021
	(0.042)	(0.043)	(0.041)	(0.040)	(0.034)	(0.028)
Illiquid Wealth II	-0.023	-0.037	0.009	-0.043	-0.032	0.006
	(0.035)	(0.036)	(0.034)	(0.033)	(0.028)	(0.023)
Illiquid Wealth III	-0.044	-0.051	-0.028	-0.063*	-0.016	0.012
	(0.038)	(0.040)	(0.037)	(0.037)	(0.031)	(0.026)
Arrears_State II	-0.001	0.034	-0.005	0.030	0.004	0.005
	(0.039)	(0.041)	(0.038)	(0.037)	(0.032)	(0.026)
Arrears_State III	0.047	-0.058*	-0.004	-0.058**	0.051**	-0.000
	(0.029)	(0.031)	(0.029)	(0.028)	(0.024)	(0.020)
WHtM	0.058*	-0.054	0.036	-0.052	0.021	-0.002
	(0.033)	(0.035)	(0.032)	(0.032)	(0.027)	(0.022)
PHtM	0.010	-0.063	0.004	0.008	0.005	-0.070*
	(0.060)	(0.062)	(0.058)	(0.057)	(0.048)	(0.040)
Constant	0.616***	0.501***	0.333***	0.328***	0.283***	0.173***
	(0.066)	(0.069)	(0.064)	(0.063)	(0.053)	(0.044)
N	1,006	1,009	1,006	1,009	1,006	1,009
R^2	0.034	0.043	0.029	0.059	0.036	0.026
Mean	0.668	0.481	0.414	0.347	0.254	0.134
Standard Error	0.0126	0.0131	0.0122	0.0122	0.0102	0.00834
Mean (W)	0.690	0.487	0.435	0.358	0.254	0.129
Standard Error (W)	0.0177	0.0189	0.0176	0.0176	0.0150	0.0120
Mean (NW)	0.649	0.476	0.395	0.336	0.253	0.140
Standard Error (NW)	0.0177	0.0183	0.0168	0.0168	0.0138	0.0117

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

Notes: The dependent variable is total MPC (columns 1 and 2) as well as its components of Non-Durables (columns 3 and 4) and Durables (columns 5 and 6) under two scenarios (LOSS and GAIN). The specification also includes dummies for age, gender, household size, marital status, income growth and income volatility. W refers to lottery winners and NW to non-winners.

Table 3: Reported Preferences estimates for MPS, MPRD (Gain/Loss Scenarios)

VARIABLES	(1) Saving (Loss)	(2) Saving (Gain)	(3) Repay Debt (Loss)	(4) Repay Debt (Gain)
Income II	0.018	0.035	-0.075***	-0.036
	(0.025)	(0.027)	(0.029)	(0.034)
Income III	0.061**	0.108***	-0.101***	-0.065
	(0.030)	(0.032)	(0.034)	(0.041)
Liquid Wealth II	-0.042	0.016	-0.057**	-0.037
	(0.026)	(0.027)	(0.029)	(0.035)
Liquid Wealth III	0.015	0.052	-0.120***	-0.126***
	(0.031)	(0.033)	(0.035)	(0.042)
Illiquid Wealth II	-0.000	-0.016	0.023	0.054
	(0.026)	(0.028)	(0.029)	(0.035)
Illiquid Wealth III	0.040	0.017	0.004	0.034
	(0.029)	(0.030)	(0.032)	(0.039)
Arrears_State II	-0.018	-0.047	0.019	0.012
	(0.029)	(0.031)	(0.033)	(0.039)
Arrears_State III	-0.080***	-0.081***	0.032	0.140***
	(0.022)	(0.023)	(0.025)	(0.030)
	(0.029)	(0.031)	(0.033)	(0.039)
WHtM	-0.032	-0.024	-0.025	0.078**
	(0.025)	(0.026)	(0.028)	(0.034)
PHtM	0.062	0.084*	-0.071	-0.022
	(0.044)	(0.047)	(0.050)	(0.060)
Constant	0.154***	0.179***	0.230***	0.320***
	(0.049)	(0.052)	(0.055)	(0.066)
N	1,006	1,009	1,006	1,009
R^2	0.048	0.083	0.060	0.092
Mean	0.149	0.170	0.183	0.349
Standard Error	0.00942	0.0102	0.0106	0.0130
Mean (W)	0.152	0.179	0.158	0.334
Standard Error (W)	0.0138	0.0149	0.0143	0.0184
Mean (NW)	0.146	0.163	0.205	0.362
Standard Error (NW)	0.0129	0.0140	0.0155	0.0184

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

Notes: The dependent variable is total MPS (columns 1 and 2) and MPRD (columns 3 and 4) under two scenarios (LOSS and GAIN). The specification also includes dummies for age, gender, household size, marital status, income growth and income volatility. W refers to lottery winners and NW to non-winners.

Table 4: Descriptive statistics

	Mean	Std. Dev.	min	max
S3 MPCND	.278	.268	0	1
S3 MPCD	.139	.192	0	1
S3 MPC	.417	.309	0	1
S3 MPS	.337	.311	0	1
S1 MPCND	.198	.3	0	1
S1 MPCD	.065	.179	0	1
S1 MPC	.263	.344	0	1
S1 MPS	.737	.344	0	1
MPCND_dif	.079	.379	-1	1
MPCD_dif	.074	.244	-1	1
MPC_dif	.154	.421	-1	1
MPS_dif	-.4	.47	-1	1
WP DEC 2019	.545	.499	0	1
WP FEB 2020	.007	.083	0	1
Age	48.843	11.224	27	81
Male	.608	.489	0	1
HSIZE	2.657	1.29	1	7
HSIZE Increase	.066	.249	0	1
HSIZE Decrease	.028	.165	0	1
NCI 2019	23,473.264	23,838.216	-3,530.96	237,926.19
DP 2019	62,539.421	391,319.69	0	5,393,564.5
ILLW 2019	160,484.71	225,643.23	0	1,768,106.9
IncExp Pos.	.182	.386	0	1
IncExp Neg.	.538	.499	0	1
REVExp Pos.	.217	.413	0	1
REVExp Neg.	.538	.499	0	1
Debt Low	.724	.448	0	1
Debt Medium	.101	.302	0	1
Debt High	.066	.249	0	1
Debt NA	.098	.298	0	1
Received SPT	.178	.383	0	1
Expects SPT	.024	.155	0	1
MR Owned	.364	.482	0	1

Table 5: Changes during the pandemic in reported MPC, MPCND, MPCD, and MPS

VARIABLES	(1) MPC_dif	(2) MPCND_dif	(3) MPCD_dif	(4) MPS_dif
WP_DEC_2019	-0.020	-0.037	0.017	-0.004
	(0.052)	(0.046)	(0.030)	(0.057)
WP_FEB_2020	-1.130***	-1.059***	-0.071	1.166***
	(0.327)	(0.291)	(0.189)	(0.359)
age_35	-0.163	-0.209*	0.046	0.247*
	(0.121)	(0.108)	(0.070)	(0.133)
age_35_50	-0.007	0.005	-0.012	0.070
	(0.095)	(0.084)	(0.055)	(0.104)
age_50_65	0.032	0.006	0.027	0.053
	(0.095)	(0.084)	(0.055)	(0.104)
male	0.099*	0.076	0.023	-0.130**
	(0.055)	(0.049)	(0.032)	(0.060)
DP_50	-0.029	-0.029	-0.001	0.029
	(0.082)	(0.073)	(0.047)	(0.090)
DP_50_80	-0.077	-0.030	-0.047	0.116
	(0.083)	(0.074)	(0.048)	(0.091)
DP_80_95	0.061	0.091	-0.031	0.120
	(0.097)	(0.086)	(0.056)	(0.106)
DP_95	-0.038	0.093	-0.131*	0.191
	(0.133)	(0.118)	(0.077)	(0.145)
ILLW_Q2	0.065	0.077	-0.012	-0.130
	(0.086)	(0.077)	(0.050)	(0.095)
ILLW_Q3	-0.017	0.042	-0.058	-0.027
	(0.086)	(0.077)	(0.050)	(0.095)
ILLW_Q4	-0.044	-0.050	0.007	-0.022
	(0.093)	(0.083)	(0.054)	(0.102)
HSIZE_Increase	0.079	0.092	-0.012	-0.125
	(0.104)	(0.092)	(0.060)	(0.114)
HSIZE_Decrease	-0.049	-0.094	0.045	0.001
	(0.157)	(0.140)	(0.091)	(0.172)
IncExp_Positive	0.098	-0.021	0.119***	-0.121
	(0.078)	(0.069)	(0.045)	(0.085)
IncExp_Negative	0.050	0.001	0.049	-0.105
	(0.060)	(0.053)	(0.035)	(0.066)
REVExp_Positive	-0.029	-0.011	-0.018	0.020
	(0.076)	(0.067)	(0.044)	(0.083)
REVExp_Negative	0.089	0.078	0.011	-0.014
	(0.062)	(0.056)	(0.036)	(0.068)
Debt_Low	0.152	0.141	0.012	-0.435
	(0.248)	(0.221)	(0.144)	(0.272)
Debt_Medium	0.108	0.112	-0.004	-0.537*
	(0.261)	(0.232)	(0.151)	(0.286)
Debt_High	0.173	0.193	-0.020	-0.693**
	(0.269)	(0.240)	(0.156)	(0.295)
Debt_NA	0.183	0.263	-0.080	-0.467
	(0.263)	(0.234)	(0.152)	(0.288)
Received_SPT	-0.135*	0.020	-0.155***	0.044
	(0.070)	(0.063)	(0.041)	(0.077)
Expects_SPT	-0.176	-0.084	-0.091	0.026
	(0.177)	(0.157)	(0.102)	(0.194)
NCI_QNT2	0.043	0.040	0.003	-0.127
	(0.095)	(0.085)	(0.055)	(0.105)
NCI_QNT3	-0.080	-0.106	0.026	0.152
	(0.096)	(0.085)	(0.055)	(0.105)
NCI_QNT4	0.021	-0.023	0.044	0.013
	(0.098)	(0.087)	(0.057)	(0.108)
NCI_QNT5	-0.014	-0.060	0.045	0.065
	(0.100)	(0.089)	(0.058)	(0.109)
MR_Owned	0.012	0.088	-0.076**	0.001

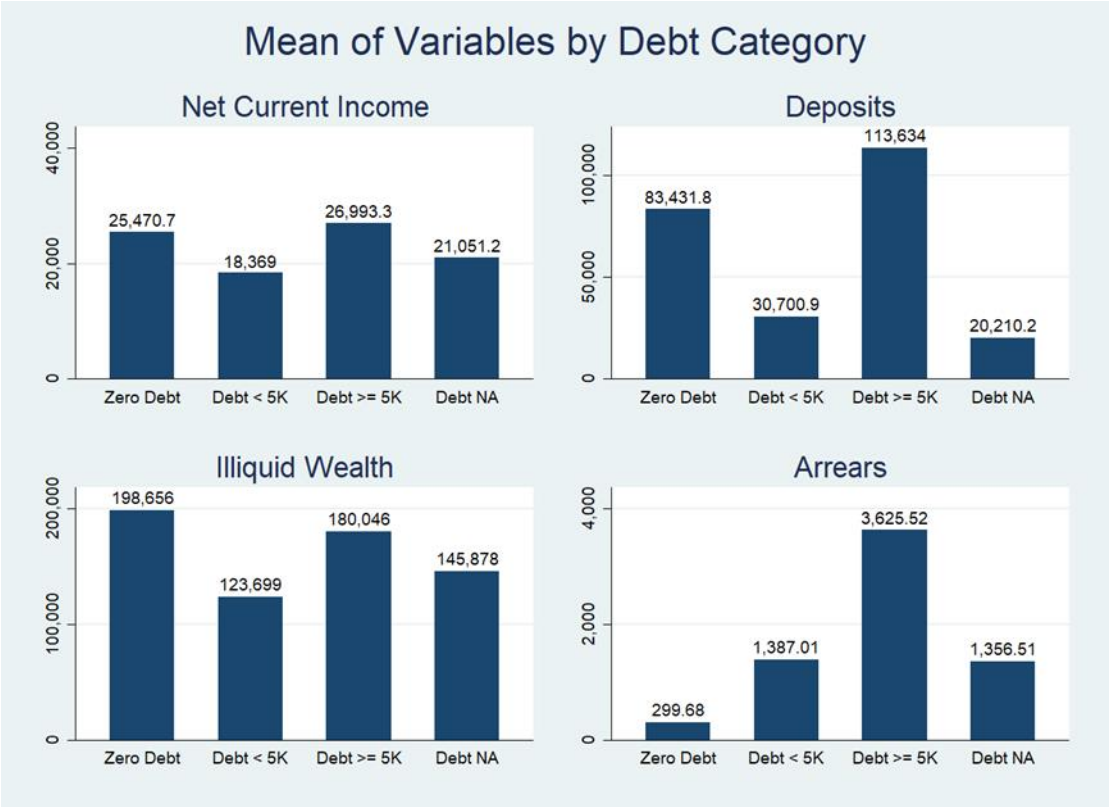
	(0.063)	(0.056)	(0.036)	(0.069)
Constant	-0.061	-0.130	0.070	0.076
	(0.285)	(0.254)	(0.165)	(0.313)
Observations	286	286	286	286
R-squared	0.134	0.152	0.137	0.163
ymean	0.154	0.0794	0.0744	-0.400
yse	0.0249	0.0224	0.0144	0.0278

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

Figure 1. Distributions of MPC, MPS, and MPRD

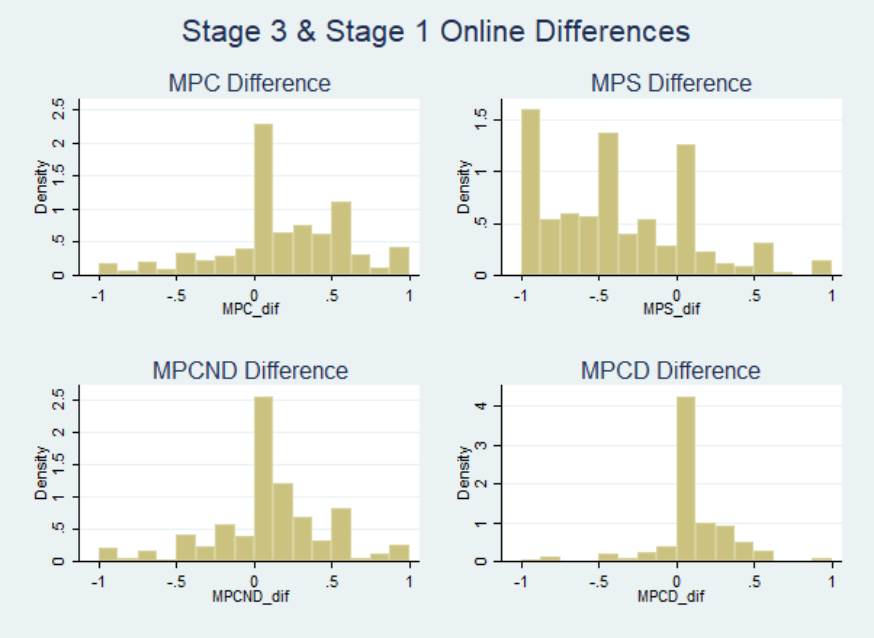
Notes: The Figure contains the distributions of responses to the telephone survey on marginal propensities (as percent) to consume, save, or repay debt out €1,000 unexpected tax-free transfer (GAIN) or tax on income (LOSS). N=1014.

Figure 2. Household Characteristics by Debt Holdings



Notes: N=286.

Figure 3: Stage3-online and Stage1-online differences



Appendix

The tax lottery in Greece.

Each month, starting in 2017, the Independent Authority for Public Revenue (I.A.P.R) of the Hellenic Republic conducts a monthly lottery where 1,000 winners each receive €1,000. This prize is tax-free, and it is not considered income nor can it be confiscated in the case the individual has tax debts in arrears and is not under a payment arrangement with the Revenue Authority. All consumers with a Tax Identification Number who had executed at least one electronic transaction in the previous month are included in the monthly draw performed by the Revenue Authority. Electronic transactions are purchases with credit or debit cards, and bank transfers, towards purchases of goods or services. Consumers below the age of 18 cannot take part in the tax lottery, even if they are registered with the Revenue Authority and submit a tax return.

For winners of the lottery, the prize is credited in their account provided that the consumer has provided the Revenue Authority with a valid International Bank Account Number. The number of lottery tickets given to each person is a step function of the amount of total transactions in Euros with the number of lottery tickets per Euro spent decreasing in the value of spending. There is maximum eligible spending of €50,000. The probability of winning, therefore, is not constant across consumers but it depends on the amount of purchases made. Each participant can win up to two (2) times in the same calendar year. In case a participant wins more than two times, the amount corresponding to the prize is paid to the 1st, 2nd, and so on from a reserve list drawn. Taxpayers who have won in the lottery and have not declared a payment account are given three months from the date of the draw to declare the payment account to which they wish the prize money to be credited. The amount corresponding to the cash prize is credited interest-free. If a winner does not provide a bank account within the specified deadline, the amount corresponding to the prize is paid to the 1st, 2nd, and so on from a reserve list.

The following table provides some information on the number of e-transactions, lottery tickets, age of participants, household size, and declared household income (as of 2019) for the participants in the November 2019 lottery.

Table A.1: Descriptive statistics of the November 2019 tax lottery

Variable	Count	Proportion	Mean	Std.Dev.	Sum	p1	p25	p50	p75	p99
Lottery Tickets	5,695,732	100.00%	298.07	343.21	1,697,720,572	5	120	257	396	1200
E-Transactions (€)	5,695,732	100.00%	626.31	3,129.24	3,567,312,705	4,3	119.11	312.42	635.535	5,092.46
Age	5,695,732	100.00%	49.59	17.27	282,446,223.7	20	36	48	62	89
Household Size	5,480,822	96.23%	2.12	1.19	11,620,208.61	1	1	2	3	5
Household Income 2019 (Declared)	5,480,822	96.23%	17,651.13	38,341.43	96,742,701,629	0	5,977.84	13,262.2	23,165,.5	83,774.7

Sample construction

The sample is based on the tax lottery that took place on 28 November 2019. The lottery pool included 5,695,732 individuals who had made transactions in October 2019 and had a Tax Identification Number (TIN). A TIN is required in order to open a Greek bank account or obtain a Greek-bank-issued credit card. The Independent Authority for Public Revenue (I.A.P.R) of the Hellenic Republic notified the 1,000 winners by email and SMS the following day. The €1,000 prize was credited in the winners' bank account on 20 December 2019, except for a few cases where this was done on 17 January 2020 and 21 February 2020. This delay occurred because some of the winners provided their bank account details in the system late. Two winners failed to provide their bank account details to I.A.P.R until the 28th of February 2020 and thus were disqualified from receiving the prize. An important aspect is that lottery prizes are paid 20 days after the announcement of the winners.

The objective was to contact all lottery winners (1,000), except those who had never filed a tax return (16) or were listed as dependent members of a household (35), or had filed a separate tax return from their spouse/partner (7). This left 942 winners in the pool to be contacted. For each of the 942 winners, we picked up to 10 exactly matched non-winners from the population of lottery participants. The matching was performed according to the following procedure. For each winner, we generated a set that is based on exact matching on Gender, Region of Residence, Age, Marital Status, and Household Size. If this exact matching procedure selected too few matches of non-winners, we would then relax the Household Size criterion by allowing the matching to be performed even when the non-winner's household had one more/less member than the winner's household. The next step was to select from this set only those who belonged to the same "Declared Household Income for 2018" category as the winner. To do so, we separated the 2018 income distribution of the November 2019 lottery participants into 12 groups delineated by the following percentiles: minimum, 5%, 10%, 20%,…,80%, 90%, 95%, and maximum. If this procedure selected more than 10 matches among non-winners, the algorithm prioritized for contact those matches that had the closest absolute distance to the number of lottery tickets of the corresponding winner. Given the size of the population pool, matching was performed without replacement. This procedure created a Contact Sample that consisted of 5,977 individuals.

The first stage of our survey commenced on Monday, 2 December 2019. A team of 15 highly specialized employees from the Customer Support Centre (CSC) of the I.A.P.R was designated to work on the study. CSC is responsible for providing information to taxpayers regarding tax matters. All team members from CSC had been appropriately briefed so there would be a common response, should subjects wanted additional clarifications. A Q&A document was prepared by the CSC and the research team and was shared with all CSC team members. At first, through telephone contact, lottery winners were informed they had won in the 34th tax lottery conducted on 28 November 2019 and were also told to expect a bank deposit of their prize in about 20 days. Subject to their approval (see scripted texts below), subjects were asked initial questions on the phone about their household status and how they were planning on using the lottery prize.

Winners were asked how they would dispose of their €1,000 prize. Non-winners were presented a hypothetical scenario of income windfall equivalent to Euros 1,000 and asking them how they would react. Both winners and non-winners were asked a final hypothetical question, in which they had to answer how they would react in case of an unexpected reduction of €1,000 in their net income. A total of 1,014 taxpayers responded positively to the SCS team answering the telephone questions and did not request for their data to be deleted. Of these, 481 were winners and 533 were non-winners.

Subjects were assured that full confidentiality will be maintained throughout this whole process and that they have the right to opt out of the online survey at any time without consequences, with their data being deleted should they wish this. This option was provided to them during the telephone contact and it was also available in the online survey described below. 35 subjects asked for their data to be deleted.

After answering this first set of questions, the taxpayers were asked to follow a link to a website and answer anonymously a questionnaire. This link was forwarded to them via SMS and email immediately after the telephone contact. The main idea of the online questionnaire was to find out how subjects plan on distributing the amount they will receive shortly (in about 20 days) between consumption, savings, debt repayment, and financial aid to others, within the next 4 months from receiving it. As noted above, for the non-winners, the question regarding spending the additional income was asked hypothetically.

With regards to their reported change in their consumption levels, survey respondents were asked what type of goods and services they would spend the prize on (durable/non-durable/personal care/vacation, etc.) and when during the 4 months horizon. They were also asked about their education level, labour activity, weekly working hours and if they would choose to work more/less and by how much, as well as their current family status and household income (and their beliefs about their family status and income for the next 12 months), their beliefs for the housing market and unemployment in Greece. Other questions included in this stage are related to their time preference, whether they plan and keep track of their expenses, how often they regret their purchases, how willing they are to take risks, whether they believe people are ill-intentioned, whether they practice reciprocity, whether they give to charity, whether they consider themselves to be vengeful and how they would react to unexpected expenses. There were also questions about themselves regarding their health insurance, health status, whether they would participate in a lottery (likelihood of winning a prize), income uncertainty, and lottery (income uncertainty and risk aversion). Additionally, the questionnaire includes questions about their father (his birth year, education, labour activity) and their household composition (the relation they have with other household members, their birth year, education, labour activity, etc.).

During the first stage, reminders were sent frequently to taxpayers who had agreed to participate in the online survey but had not engaged yet in the website questionnaire. This first stage of the online survey was conducted in two phases. The first stage was conducted from 2 December 2019 to 13 December 2019 (with a limited number of phone calls also made on 19 and 20 December 2019). The approach was to attempt to

contact by phone all 942 winners and as many as possible of the non-winners in the Contact Sample. Contact with non-winners was attempted repeatedly, giving up after at least three tries. For non-winners, the strategy was to go through the list of matches for each winner proceeding to the next person on the list after each failed attempt to reach a candidate non-winner. During a second phase, we intensified our efforts for participation by non-winners and focused on getting responses from non-winners that were matched to the subset of winners that had successfully completed parts of the online questionnaire. At the end of the first phase, 253 winners had completed parts of the online questionnaire but had no non-winner match who had successfully completed parts of the online questionnaire. During the second phase, we targeted telephone contact with non-winner matches for these 253 winners. This phase lasted from the 8th to the 10th January 2020. This yielded an additional 134 matched non-winners who agreed to participate, whereas 227 contacted subjects refused to participate. Eventually, 586 participants engaged with the online survey and completed at least a part of it, with 398 fully completing the questionnaire.

The last stage of the survey commenced on the 24th of April 2020 and ended on the 7th of May 2020 and was conducted purely online. This is a period during which Greece was under a strict lockdown following the COVID-19 pandemic. The first lockdown in Greece came into effect on the 23rd of March 2020. On the 4th of April 2020, these restrictions were extended until the 27th of April 2020 and on the 23rd of April 2020, they were extended until the 4th of May 2020. Starting on the 4th of May 2020, after a 42-days of lockdown, Greece began to gradually lift restrictions on movement and restart business activity.

On the 16th of April 2020, the Greek government announced a series of measures to support the economy, businesses, and employees. Employees of businesses were entitled to a special purpose compensation of €800 paid by the government, either because their business had ceased their operation with a government decision (detailing the business activity code) or had been substantially affected by the pandemic. This amount was tax-free and covered the period until the 30th of April 2020.

This questionnaire focused on asking survey respondents whether they had maintained their labour activity or had their labour contract suspended expecting to receive an €800 compensation from the government, announced part of the policy measures to support households and businesses. Participants were asked if they had their labour contract suspended since the beginning of COVID-19 and if so when they were expecting to receive the €800 financial aid announced by the Greek government. The questionnaire also asked survey respondents to report what percent of their expected 4-month household net income (January 2020-April 2020) they lost during these 4 months. They were also presented with a hypothetical question regarding how they would plan on spending an unexpected tax-free €1,000 government transfer within the next4 months. Other questions included, in this stage, related to changes in their expenditure plan with regards to food and medicine and their beliefs on their household economic conditions and the housing market after 12 months. The questionnaire also included questions on their debt prior to the COVID-19 crisis and how easy it is for them to borrow €1,000 within the next month given their current state.

E-mails and SMSs were sent to the 1014 taxpayers who had been contacted by I.A.P.R and had responded positively during the telephone campaign of the first stage. On the 27th of April 2020, 176 participants had completed at least the first three questions of this new questionnaire. A reminder SMS and e-mail were sent on the 27th of April 2020 to the rest 838 taxpayers who had either not engaged with the website or had only reached the third question of the questionnaire. This yielded an additional 186 participants, aggregating to 361 participants who make up the sample of the final survey. Of them, 208 were winners and 153 were non-winners.

Administrative data

The I.A.P.R provided us with administrative data on the 1,014 individuals who agreed to participate and have their data disclosed. The data of interest were mainly drawn from the annual *Income Tax* Return (form E1) and the property statement (form E9). The related variables used in the regressions of this paper are:

Electronic Transactions: Data on monthly electronic transactions are employed when we estimate the MPCs based on revealed preferences. I.A.P.R has provided us with monthly (anonymous) data for the amount of credit and debit card transactions of the 1,014 taxpayers, starting from January 2017 until July 2020. We define spending for 2019 as the sum of credit and debit card transactions for the 12 months.

Arrears: The amount of participants' tax arrears is not available in the tax returns. However, I.A.P.R provided us with anonymous data regarding the exact amount of tax arrears for each of the 1,014 taxpayers at the end of 2019.

Income: Total tax and total income are officially reported in the tax returns. We deduct total taxes from total income to obtain net annual income. Then we categorize net income into three groups based on terciles. Finally, we generate the three respective dummy variables.

Liquid Wealth: Tax returns contain information regarding the annual interest earned by deposits. However, in our analysis, we need an estimation of the annual deposits to calculate the variables included in our regressions. As a result, we employ the effective average interest rate on deposits provided by the Central Bank of Greece and we estimate the average annual deposits. Deposits play a crucial role in creating a series of variables employed in our analysis.

To begin with, we generate the variable "liquid wealth" using the total amount of bank deposits from the tax return plus a proxy for cash. Cash is estimated based on the following methodology. Firstly, we assume that households hold cash balances equal to 5% of their annual deposits. Additionally, we assume that each member of the household holds at least 10 euros in cash at any moment. Finally, we set an upper limit for cash at 150.000 euros.

Illiquid Wealth: Our measure of illiquid wealth consists of variables we took from the tax returns and the property statements of the participants. More specifically, the variable "illiquid wealth" represents the sum of the real property value, car value, and boat value. Regarding the value of the real property of each household, the I.A.P.R has provided us with anonymous information about each household's property value used for tax purposes (called "objective value"). Moreover, tax returns contain information

regarding the characteristics of cars and boats the taxpayer may own, which is used as presumptive criteria for taxable income. Since we do not know the exact market value of cars and boats, we make estimations based on the details reported in tax returns about the engine size (cars), length (boats), and age (both cars and boats). Our estimates are based on the prices of cars and boats that match the above characteristics in the most notable online sales platform in Greece through the online platform car.gr .

Hand-to-Mouth: Two ratios are important in the HtM calculations. First, we divide net liquid wealth with net current income (NLW/NCI). To calculate net liquid wealth, we subtract liquid debt from liquid wealth. Regarding liquid debt, we divide annual debt service payments (from tax returns) with 24 to convert them to half-month quantities multiply with 6.7, which is the average liquid debt to debt services ratio reported to us from a large Greek systemic bank. Net current income (NCI) refers to the whole household.

For the second ratio, we divide net worth with net current income (NW/NCI). We define net worth as the total wealth minus total debt, where total wealth is the sum of liquid and illiquid wealth, and total debt is the sum of debt service and arrears (debt to the State).

For the identification of hand-to-mouth individuals, we follow the criteria defined in Kaplan-Violante-Weidner (KVW, 2014). The first criterion is to define the observations at the zero kink, where the ratio should be greater or equal to zero and less than 0.021 ($0 \leq NLW/NCI < 0.021$). Notice that 0.021 is calculated as 1/(4*12) since HtM are those that are having net liquid wealth less than half of their pay check, where pay period is every half month (1/24 of yearly income). The second criterion is to identify those that are at the credit limit. NLW/NCI should be less than or equal to -0.0625 ($NLW/NCI \leq -0.0625$). The limit of -0.0625 derives from the definition that HtM are those having negative net liquid wealth and when adding to it the full credit limit they are still below their full paycheck for the pay period. We assume that the credit limit is one month's income, and the paycheck is one-half-month's income. Hand-to-mouth (HtM) status is given to individuals that satisfy both criteria.

Zeldes (1989) considered an individual constrained " if their net worth was less than two months of labor earnings. In this case, we use the NW/NCI ratio. The criterion is that the ratio should be less or equal to 0.167 ($NW/NCI \leq 2/12 \sim 0.167$). Of course, this definition will include more individuals than the one before (KVW).

For the definitions of WHtM and PHtM we need to combine the criteria, from KVW (2014) and Zeldes (1989):

- Poor HtM (PHtM) are those individuals that have the hand-to-mouth status based on KVW (zero kink/credit limit) and at the same time satisfy the Zeldes criterion mentioned above.
- Wealthy HtM (WHtM) are those individuals that have the hand-to-mouth status based on KVW (zero kink/credit limit), but at the same time fail to satisfy the Zeldes criterion mentioned abo

Demographics: Since tax returns contain information regarding the sex, age, marital status, household size, and place of residence of the taxpayers, we were able to collect this kind of data as well and include them in regression analysis as controls. All the demographic variables are categorized and used in regressions as dummies. Firstly, we control for male/female differences. Also, participants are categorized into four groups based on their age. We have the younger than 35, the 35 to 50, the 50 to 65, and the older than 65 years old groups. Additionally, we 5 dummies related to the household size. We split households into 5 groups: these with 1, these with 2, these with 3, these with 4, and these with more than 5 members. For the marital status, we have the unmarried, married, divorced, separated, and widower categories. Finally, we create dummies for the Prefectures of Greece. Greece has a total of 54 prefectures; however, our sample of participants is distributed across 51 Prefectures for 2019. Thus 50 dummies for Prefecture are constructed.

Construction of Marginal Propensities for Stage-1-Online Survey

For the Stage 1 online part of the survey, 586 individuals provided answers (336 W and 250 NW). The key question is whether they would change their spending or saving behavior upon receiving the unexpected €1000 windfall. Participants can reply positively, negatively or not provide any answer. The table below shows the number of individuals for each answer.

Table: Stage 1 Online – Answers for behavior change question

Behavior Change	Population	Winners	Non-Winners
Yes	380	209	171
No	160	90	70
No Answer (NA)	46	37	9

Individuals who reply positively (380) continue with the next key question where they are asked about the change (same, more, less) of their expenses, savings, and debt repayment. The question is formulated properly for the case of winners and non-winners. Only participants who would change their expenses (more/less) also report amounts. Specifically, they report amounts for total expenses and subcategories: food, clothing, other overheads (transportation, travel, entertainment, etc.), durables, donation, and other amount. For the remaining behavior change categories no amount is reported by the participants.

We follow an indirect approach to calculate MPC, MPCND, MPCD and MPS. Note that MPS here reflects net saving as a result of increasing savings and repaying debt. First, we segment into four groups individuals who would change spending or saving behavior. The first group (A) contains individuals who would change behavior, but their expenses would remain the same. For this category, no amounts are reported by the participants. For this reason, for group A we extract information for the amounts based on their telephone survey answers.

In the second group (B), we include participants who would increase their expenses and report amounts for total expenses and their subcategories. With the total expense amount, we can calculate MPC and with their subcategories we can calculate MPCND

and MPCD. For MPCND, we compute the total amount of non-durables as the sum of food, clothing, other overheads, donation, and other amounts. For MPCD the calculation is simpler because we need to use only the subcategory of durables. Furthermore, in group B the net saving amount is calculated based on the total expense amount. We subtract the total declared expenses from the total windfall of 1,000 euros to compute MPS.

In the next group (C), we have individuals who would decrease their expenses and, as with group B, report amounts for total expenses and their subcategories. MPC, MPCND and MPCD can be calculated from the reported amounts. MPS is calculated by adding the total expenses amount to the windfall of 1,000 euros.

Finally, group D is a special category that contains individuals who have blanks in their behavior change answers. One participant who reports only blanks is excluded from the analysis. Two participants have blanks in the category of debt repayment change, but they provide answers for expenses change (more expenses). These two participants who would increase their expenses, report expenses amount and their treatment is similar to group B. Moreover, we have a participant in this group who reports same expenses (no amount is reported). This case is treated as in group A by drawing data from the telephone survey.

Table : Stage 1 Online – Population by expenses change status

Group	**Count**
SameExpenses (A)	165
More Expenses (B)	160
Less Expenses (C)	51
Answers with blanks (D)	4
Total	**380**

Participants who say they would not change their spending or saving behavior (160 individuals) are assumed to allocate all the unexpected amount into debt repayment. This is equivalent to MPS equal to 1. As noted above, MPS refers to **net** saving. Finally, there are 46 participants who do not provide a specific answer about behavior change and are excluded.

TRANSCRIPTS OF THE SURVEY

1. The telephone survey (December 2019)

Good morning. Is this Mr./Mrs. (insert Full Name) with the following Tax Identification Number (insert Greek Tax ID Number)?

IF WE DO NOT FIND THE AFOREMENTIONED PERSON:

We are calling you from the I.A.P.R. We would like to talk with Mr./Mrs. (insert Full Name) with regard to his/her participation in the 34th Tax Lottery. Can you provide us with a phone number so that we can reach out to him/her? What hours will he/she be available?

IF WE FIND THE AFOREMENTIONED PERSON:

We are calling you from the I.A.P.R. We would like to inform you that you are one of the lucky winners in the 34th Tax Lottery which was conducted on the 28th of November 2019 with regards to the electronic transactions you carried out in October 2019. The lottery prize is €1,000 and is tax-free.

Next, we would like to ask you whether you would be interested in participating in a scientific research conducted for a better understanding of household consumption behavior, which might assist in better economic and tax policy design. This call is being recorded.

Do you provide your consent so that we can continue with this call?

IF THE SUBJECT SAYS NO:

As you wish. Thank you and please check your inbox messages on TAXISnet to confirm that you are a winner and provide your bank account details by the 28th of February 2020. This will be the bank account to which the prize will be credited.

Have a nice day.

IF THE SUBJECT SAYS YES:

First, we would like to thank you for helping the government in mitigating tax noncompliance and promoting tax morale by using electronic means of payment in your transactions.

The survey in which you are currently participating is undertaken by the Tax Administration Research Centre (TARC) of the University of Exeter in the U.K and is being supported by I.A.P.R.

The survey consists of two stages: We will ask you to answer a series of questions for the next 5 minutes. The answers you give, along with other information coming from your Tax Return Records (e.g. your birth year, gender, family status, reported asset, and tax information) will be forwarded anonymously to the Research Team of TARC. Confidentiality will be maintained throughout this whole process.

Next, we will send you a link to your mobile phone and an e-mail that will direct you to an online questionnaire which we kindly ask you to complete. The completion of the

questionnaire will take approximately 15 minutes, and it is very important that you answer the questions, since they will be used to draw important policy conclusions.

The questionnaire is available on the Research Centre's website www.tarc.exeter.ac.uk and the answers will be collected anonymously by the researchers. You will be able to access the website with a 5-digit code that will be sent to you. You can opt out from the survey at any time without any consequences.

Shall we start with the questions?

Text for the lottery winners

1. Please provide us with your e-mail and your mobile phone number/confirm your e-mail and your mobile phone number so that we can later send you the questionnaire link and your 5-digit password.

2. How many people live in your household?

3. Are you listed as the Head, the Spouse, or a dependent member in your tax return?

4. Based on the current economic condition of your household, we would like you to tell us how you plan on using the tax-free prize of €1,000, which you will receive in about twenty (20) days from today. Consider a horizon of 4 months. Distribute the €1,000 into the following 4 possible uses:

A. Will you save so that you can spend after 4 months have passed? [0, 1000]

B. Will you repay your debts? [0, 1000]

C. Will you purchase durable goods and services within the next 4 months (e.g. car, motorcycle, jewelry, furniture, electronic devices, house equipment, house repairs or improvements, etc.) that you would not have initially bought or would have bought after 4 months have passed? [0, 1000]

D. Will you purchase non-durable goods and services within the next 4 months (e.g. food, beverages, eat at restaurants, tobacco, clothes, shoes, traveling, vacation, etc.)? [0, 1000]

5. Suppose that the government unexpectedly imposes an additional tax of 1,000€ on your income today. We want you to tell us how you would react to this unexpected reduction in your net income. Think in the depth of 4 months. What actions would you take? Distribute the 1,000€ into the following 4 possible uses referring to the next 4 months:

A. Will you save less? [0, 1000]

B. Will you borrow more or repay less of your debt? [0, 1000]

C. Will you postpone or cancel purchases of durable goods and services that you had planned within the next 4 months (e.g. car, motorcycle, jewelry, furniture, electronic devices, house equipment, house repairs or improvements, etc.)? [0, 1000]

D. Will you reduce your expenses for non-durable goods and services within the next 4 months (e.g. food, beverages, eat at restaurants, tobacco, clothes, shoes, traveling, vacation, etc.)? [0, 1000]

Text for the non-winners

1. Please provide us with your e-mail and your mobile phone number / confirm your e-mail and your mobile phone number so that we can later send you the questionnaire link and your 5-digit password.

2. How many people live in your household?

3. Are you listed as the Head, the Spouse, or a dependent member in your tax return?

4. Suppose that today you receive an unexpected tax-free transfer of 1000€ from the government. We would like you to tell us how you would use the money coming from this unexpected transfer. Consider a horizon of 4 months. Distribute the 1000€ into the following 4 possible uses:

A. Will you save so that you can spend after the 4 months have passed? [0, 1000]

B. Will you repay your debt? [0, 1000]

C. Will you purchase durable goods and services within the next 4 months (e.g. car, motorcycle, jewellery, furniture, electronic devices, house equipment, house repairs or improvements, etc.) that you would not have initially bought or would have bought after 4 months? [0, 1000]

D. Will you purchase non-durable goods and services within the next 4 months (e.g. food, beverages, eat at restaurants, tobacco, clothes, shoes, traveling, vacation, etc.)? [0, 1000]

5. Suppose that the government unexpectedly imposes an additional tax of 1,000€ on your income today. We want you to tell us how you would react to this unexpected reduction in your net income. Consider a horizon of 4 months. What actions would you take? Distribute the 1000 euros into the following 4 possible uses referring to the next 4 months:

A. Will you save less? [0, 1000]

B. Will you borrow more or repay less of your debt? [0, 1000]

C. Will you postpone or cancel purchases of durable goods and services that you had planned within the next 4 months (e.g. car, motorcycle, jewelry, furniture, electronic devices, house equipment, house repairs or improvements, etc.)? [0, 1000]

D. Will you reduce your expenses for non-durable goods and services within the next 4 months (e.g. food, beverages, eat at restaurants, tobacco, clothes, shoes, traveling, vacation, etc.)? [0, 1000]

2. The Online survey (December 2019 and January 2020)

Slide 1:
Please connect by entering twice the pin that was provided to you
** Enter pin **
** Enter pin **

Slide 2:
Instructions
Following our telephone communication, we would like to thank you for your contribution to a research project that will help in understanding the consumer behavior of households and will lead to better planning of economic and tax policies. The research is conducted by the Tax Administration Research Centre of the University of Exeter in the United Kingdom and is supported by AADE.

We kindly remind you that based on your permission, the answers you provided during your telephone communication with AADE, together with the data included in your tax reports (for instance, age of birth, sex, marital status, property, and tax data) are available **anonymously** only to research professors of the aforementioned research centre, while the answers that you will give in the questionnaire of the website are anonymously collected directly from the research centre. Full confidentiality will be retained.

Finally, you have the right to opt out of the survey by closing the window of the questionnaire on your PC. In case you opt out, the data collected up to that point is contained in the archives of the research centre. If you wish to opt out and the research centre to delete the collected data, please select the box "Return to Home Page" and follow the instructions.

If you agree with the above, please select "continue" to move to the questionnaire.

Slide 3:
How many persons are included in your household? Please include yourself. **[Answer]**
[Next]
[Please do not return to previous questions.]
[Return to home page]

Slide 4:
You included **X** people. Please confirm. **[Answer]**
[Next]
[Please do not return to previous questions.]
[Return to home page]

Slide 5:
We would like you to tell us some things about you
Main economic activity. **[Answer]**
[Next]
[Please do not return to previous questions.]
[Return to home page]

Slide 6:
We would like you to tell us some things about you
Education
Level I attended. **[Answer]**
[Next]
[Please do not return to previous questions.]
[Return to home page]

Slide 7 (hypothetical):
Imagine you unexpectedly receive today a (tax-free) reward of 1.000 euros. We want you to tell us if you would change something regarding your expenses or your savings. Think over a four-month horizon.
Based on the current economic situation of your household, would the tax-free reward of the 1,000 euros make you change your expenses or savings during the next 4 months?

- Yes
- No
- I do not know / I do not answer

[Next]
[Please do not return to previous questions.]
[Return to home page]

Slide 8 (If the participant is a winner of the lottery):
Based on the current economic situation of your household, the tax-free reward of 1,000 euros, which you will receive twenty (20) days from now, will make you change your expenses or your savings during the next 4 months.

- Yes
- No
- I do not know / I do not answer

[Next]
[Please do not return to previous questions.]
[Return to home page]

Slide 9 (hypothetical):
Please select one of the options below:

- During the next 4 months, my expenses would be the same as if I had not received the 1,000 euros reward
- During the next 4 months, my expenses would be more than these in case I had not received the 1,000 euros reward
- During the next 4 months, my expense would be less than these in case I had not received the 1,000 euros reward

[Next]
[Please do not return to previous questions.]
[Return to home page]

Slide 10 (If the participant is a winner of the lottery):
Please describe to us these changes in your expenses, savings, and/or debt repayment
Specifically, during the next 4 months your expenses will be:

- the same as if you had not received the 1000 euros reward
- more than the case you had not received the 1000 euros reward

- less than the case you had not received the 1000 euros reward

[Next]
[Please do not return to previous questions.]
[Return to home page]

Slide 11 (hypothetical):
Please select one of the options below:
- During the next 4 months, I would save the same as if I did not receive the 1,000 euros reward.
- During the next 4 months, I would save more than in case I did not receive the 1,000 euros reward
- During the next 4 months, I would save less than in case I did not receive the 1,000 euros reward

[Next]
[Please do not return to previous questions.]
[Return to home page]

Slide 12 (If the participant is a winner of the lottery):
Please describe to us these changes in your expenses, savings, and/or debt repayment
Specifically, during the next 4 months, **you will save**:
- the same as if you did not receive the 1,000 euros reward
- more than the case you did not receive the 1,000 euros reward
- less than the case you did not receive the 1,000 euros reward

[Next]
[Please do not return to previous questions.]
[Return to home page]

Slide 13 (hypothetical):
Please select one of the options below:
- During the next 4 months, I would repay the same share of my debt as if I did not receive the 1,000 euros reward.
- During the next 4 months, I would repay a larger share of my debt than in case I did not receive the 1,000 euros reward
- During the next 4 months, I would repay a smaller share of my debt than in case I did not receive the 1,000 euros reward

[Next]
[Please do not return to previous questions.]
[Return to home page]

Slide 14 (If the participant is a winner of the lottery):
Please describe to us these changes in your expenses, savings, and/or debt repayment
Specifically, during the next 4 months, **you will repay**:
- the same share of your debt as if you did not receive the 1,000 euros reward
- a larger share of your debt than the case you did not receive the 1,000 euros reward
- a smaller share of your debt than the case you did not receive the 1,000 euros reward

[Next]
[Please do not return to previous questions.]
[Return to home page]

Slides in the category of 15 (hypothetical, specific amount of changes):
You stated that you will **increase/decrease** your **expenses/savings/debt repayment** during the next 4 months in response to the payment of the 1,000 euros you **hypothetically** receive today
How much **more/less** would you **spend (or donate to someone)/save/repay** in comparison with the case you did not receive the amount of 1000 euros **[Answer]**
[Next]
[Please do not return to previous questions.]
[Return to home page]

Slides in the category 16 (winners, specific amount of changes):
You stated that you will **increase/decrease** your **expenses/savings/debt repayment** during the next 4 months in response to the payment of the 1,000 euros you will receive twenty (20) days from now
How much **more/less** will you **spend (or donate to someone)/save/repay** in comparison with the case you did not receive the amount of 1,000 euros **[Answer]**
[Next]
[Please do not return to previous questions.]
[Return to home page]

Slides in the category 17 (expense changes related to specific categories of goods):
What amount of the **X** euros you stated you will spend **more/less** is **going to / coming from** each of the above:

- Food/Alcohol/Restaurants **[Amount]**
- Clothing/Shoes/Expenses related to education, healthcare, insurance **[Amount]**
- Other general living expenses (tobacco, utilities, transportation, telecommunications, personal care, traveling, pleasure) **[Amount]**
- Purchase of durable goods (electric devices furniture, house equipment, cars, motorcycles, etc.) or house renovation **[Amount]**
- Donation/Pocket money **[Amount]**
- Other **[Amount]**

[Next]
[Please do not return to previous questions.]
[Return to home page]

Slides in the category of 19 (Hypothetical distribution of the expenses during the next 4 months)
You stated you would **increase/(decrease??)** your expenses by **X** euros during the next 4 months, as a response to the payment of 1000 euros you hypothetically receive today. How will your expenses change over time. I would **increase/(decrease??)** my expenses over the next 4 months as follows:

- During the first month **[Amount]**
- During the second month **[Amount]**
- During the third month **[Amount]**
- During the fourth month **[Amount]**

[Next]
[Please do not return to previous questions.]
[Return to home page]

Slides in the category of 20 (Hypothetical distribution of the expenses during the next 4 months)

You stated you will **increase/(decrease??)** your expenses/donations during the next 4 months, and more precisely by **X** euros, as a response to the payment of 1000 euros you will receive twenty (20) days from now. How will your expenses change over time.

- During the next month, even before receiving the reward of 1000 euros, I will **increase/(decrease??)** my expenses by **[Amount]**
- In the second month, I will **increase/(decrease??)** my expenses by **[Amount]**
- In the third month, I will **increase/(decrease??)** my expenses by **[Amount]**
- In the fourth month, I will **increase/(decrease??)** my expenses by **[Amount]**

[Next]
[Please do not return to previous questions.]
[Return to home page]

From now on all slides are common

21. Would you say that you (and your family) are in better or worse economic condition now than 12 ago

- much better
- better
- slightly better
- same
- slightly worse
- worse
- much worse

[Next]
[Please do not return to previous questions.]
[Return to home page]

22. You expect that in 12 months from now, your family's economic condition will be better, worse, or the same in comparison to the current one

- much better
- better
- slightly better
- same
- slightly worse
- worse
- much worse

[Next]
[Please do not return to previous questions.]
[Return to home page]

23. Lately, in a typical week, how many hours do you work per week
[Answer] hours
[Next]
[Please do not return to previous questions.]
[Return to home page]

24. During the next months, do you plan to increase or decrease your working hours per week? If yes, how much?

- No, I do not plan to change my working hours per week
- I plan to work more hours
- I plan to work fewer hours

[Next]
[Please do not return to previous questions.]
[Return to home page]

25. At what percentage (%) do you expect your family income to increase or decrease during the next 12 months in comparison to the previous 12 months? If you expect it to decrease, provide a negative number
[Answer]%
[Next]
[Please do not return to previous questions.]
[Return to home page]

26. Do you believe that the value of your real estate will remain the same, increase, or decrease 12 months from now

- It will increase very much
- It will increase much
- It will increase slightly
- It will remain the same
- It will decrease slightly
- It will decrease much
- It will decrease very much

[Next]
[Please do not return to previous questions.]
[Return to home page]

27. How do you believe unemployment will evolve in Greece during the next 12 months? The unemployment will:

- increase a lot
- increase slightly
- remain the same
- decrease slightly
- decrease a lot

[Next]
[Please do not return to previous questions.]
[Return to home page]

28. In general, are you a person who prefers to spend your money and enjoy the present or save for the future?
Where would you place yourself (from "Spend now" (0) to "Save for the future" (10))
[Answer]
[Next]
[Please do not return to previous questions.]
[Return to home page]

29. During the last year, have you gathered the household's financial data, examined it in detail, and created a financial plan for the long-term.

- Yes

- No
- I do not know
- I do not answer

[Next]
[Please do not return to previous questions.]
[Return to home page]

30. Many people sometimes purchase things which they regret they bought. How often do you make purchases which you regret afterward

- Often
- Sometimes
- Rarely
- Never

[Next]
[Please do not return to previous questions.]
[Return to home page]

31. We would like you to tell us how willing you are, or are not, to take risks.
Use the scale from 0 to 10, where 0 means "I am not willing to take a risk at all", and 10 means "I am very willing to take a risk"
[Answer]
[Next]
[Please do not return to previous questions.]
[Return to home page]

32. "I assume that people have only the best intentions". How accurately does this expression describe you?
Use the scale from 0 to 10, where 0 means "It does not describe me at all", and 10 means "It totally describes me"
[Answer]
[Next]
[Please do not return to previous questions.]
[Return to home page]

33. "When somebody makes me a favor, I want to reciprocate it". How accurately does this expression describe you?
Use the scale from 0 to 10, where 0 means "It does not describe me at all", and 10 means "It totally describes me"
[Answer]
[Next]
[Please do not return to previous questions.]
[Return to home page]

34. How willing are you to donate for charity reasons without getting any reward?
Use the scale from 0 to 10, where 0 means "I am not willing to donate at all ", and 10 means "I am very willing to donate"
[Answer]
[Next]
[Please do not return to previous questions.]
[Return to home page]

35. "If somebody wrongs me, I will take revenge at the first opportunity, even if it will affect me". How accurately does this expression describe you?
Use the scale from 0 to 10, where 0 means "It does not describe me at all", and 10 means "It totally describes me"
[Answer]
[Next]
[Please do not return to previous questions.]
[Return to home page]
36. If you or your family had an unexpected expense, like a car repair, would pay for it with money from your savings account, decrease your expenses to save the required amount, or use borrowing or credit?

- Using money from saving accounts
- Decreasing expenses
- Using borrowing or credit
- I do not know
- I do not answer

[Next]
[Please do not return to previous questions.]
[Return to home page]

37. We would like you to tell us some things about your father

- Year of birth **[Answer]**
- Level of education he completed **[Answer]**
- Which of the following describes his occupation in a better way while he was working or if he still works? Select one **[Answer]**

[Next]
[Please do not return to previous questions.]
[Return to home page]

38. We would like you to tell us some things about you
Do you have healthcare insurance? Select one of the following **[Answer]**
[Next]
[Please do not return to previous questions.]
[Return to home page]

39. How would you describe your health status? Would you describe it **[Answer]**
[Next]
[Please do not return to previous questions.]
[Return to home page]
40. In the next question, we will ask you to think of the probability of an event to occur. Your answers can range from 0 percent [absolutely unlikely] to 100 percent (absolutely sure). For instance:

- 2% can mean "almost impossible"
- 18% can mean "very unlikely"
- 47% or 52% probability can mean "almost equal probability to happen or not happen"
- 83% probability can mean "very likely"
- 95% or 98% probability can mean "almost surely"

[Next]

[Please do not return to previous questions.]
[Return to home page]

41. More specifically, thinking of your family income 12 months from now, what probability do you give your income to be:
(Attention: there are ten scenarios and the probabilities should sum to 100 percent (%))

- Higher by 12% or more **[Answer]%**
- Higher by 8% to 12% **[Answer]%**
- Higher by 4% to 8% **[Answer]%**
- Higher by 2% to 4% **[Answer]%**
- Higher by 0% to 2% **[Answer]%**
- Lower by o% to 2% **[Answer]%**
- Lower by 2% to 4% **[Answer]%**
- Lower by 4% to 8% **[Answer]%**
- Lower by 8% to 12% **[Answer]%**
- Lower by 12% or more **[Answer]%**

[Next]
[Please do not return to previous questions.]
[Return to home page]

42. We will ask you a hypothetical question and we would like you to answer as if it really happened. Lets say you are offered the possibility to pay an amount and participate in a lottery. This lottery will pay you 5000 euros with 50% probability of success. The amount will be paid to you immediately. The probability to lose the amount you paid is 50%. What is the highest amount you are willing to pay to participate in this lottery.

- The highest amount I am willing to pay is **[Answer?]**
- I do not know
- I do not answer

[Next]
[Please do not return to previous questions.]
[Return to home page]

43. Thank you very much for your valuable time. We have one last question and please answer this one as well.
[Next]
[Please do not return to previous questions.]
[Return to home page]

44. Household composition
You told us that **X** persons are accommodated in your household except you. Please fill some of the boxes regarding persons.

- Relationship to the household's responsible person **[Answer]**
- Accommodation status **[Answer]**
- Sex **[Answer]**
- Year of birth **[Answer]**
- Main economic activity **[Answer]**
- Education **[Answer]**

[Next]
[Please do not return to previous questions.]

[Return to home page]

45. We reached the end of the questionnaire.
Thank you very much for your time!
Now you can close the window. Good luck!

3. The follow-up online survey during the COVID-19 pandemic (April 2020)

Slide 1 – Login:

Please connect by entering twice the pin that was provided to you.

** Enter pin **

** Enter pin **

Slide 2 – Instructions:

Following the recent survey you participated in, and due to the circumstances related to COVID-19, we would like to ask you for some additional information about your household. Please note that the household includes all members of your family who live with you but not roommates or tenants.

We remind you that your answers will help understand the consumer behaviour of the households and thus in better planning economic and tax policy. The research is conducted by the Tax Administration Research Center of the University of Exeter in the United Kingdom and is supported by I.A.P.R. Your answers will be available only to the researchers of the Research Centre.

Thank you for your time.

[Next]

[Please do not return to previous questions]

Question 1 (allocation of the 1000 euros reward):

Imagine that you unexpectedly receive today a (tax-free) payment of 1,000 euros by the government. We would like you to tell us how you would use this unexpected transfer. Think over a 4-month period. Distribute the 1,000 euros payment over the 4 possible uses that follow:

1. You will **save** to be able to spend **after** the next 4 months. **[0, 1000]**

2. You will **repay debt. [0, 1000]**

3. You will **purchase durable goods and services** during the next 4 months (i.e., car, motorcycle, jewellery, furniture, electric devices, home equipment, house repair or improvement, etc.) that you would not purchase or would purchase after the next 4 months. **[0, 1000]**

4. You will **purchase non-durable goods or services** during the next 4 months (i.e., food, drinks, restaurants, tobacco, clothing, shoes, travelling, vacation, etc.). **[0, 1000]**

[Next]

[Please do not return to previous questions]

Question 2 (Household size change)

After **23 March 2020**, the traffic ban and other restrictive protection measures for the now coronavirus apply. If you compare the situation of your household on **February 5, 2020**, then **today** your family members living at home **increased, decreased, or remained the same**?

A. **Remained the same**

B. **Increased** by __ [1,2,… more than 5]

C. **Decreased** by __ [1,2,… more than 5]

[Next]

[Please do not return to previous questions]

Question 3 (Employment during 3-8 February 2020)

Which of the following describes best **your employment relationship** during the week **3-8 February 2020**?

- Employee in the **public** sector
- Employee in the **private** sector – **full**-time
- Employee in the **private** sector – **part**-time
- Self-employed **- freelance**
- Self-employed **- entrepreneur**
- Unemployed
- Retired
- Student
- Not active in the labor market/spouse
- Other [description]

[Next]

[Please do not return to previous questions]

Category A (Employees in the private and public sectors)

Q3.A.1

Has your employment contract been suspended or terminated from March 1, 2020, until today?

- Yes
- No

[Next]

[Please do not return to previous questions]

Q3.A.2 (if Q3.A.1=Yes)

A. When was your employment contract suspended?
[Answer]

B. Have you submitted a statement/application to the Ministry of Labor for the special purpose compensation of 800 euros?

- Yes
- No, but I am going to
- No, and I am not going to

[Next]

[Please do not return to previous questions]

Q3.A.3 (if Q3.A.2=Yes)

When did you receive the compensation of 800 euros in your bank account?

[Answer]

[Next]

[Please do not return to previous questions]

Q3.A.4 (if Q3.A.2=No, but I am going to)

When will you submit the statement/application to the digital platform?

[Answer]

[Next]

[Please do not return to previous questions]

Category B (Self-employed)

Q3.B.1

Have you submitted a statement/application to the Ministry of Labor for the special purpose compensation of 800 euros?

- Yes
- No, but I am going to
- No, and I am not going to

[Next]

[Please do not return to previous questions]

Q3.B.2.A (if Q3.B.1 = Yes)

When did you receive the compensation of 800 euros in your bank account?

[Answer]

[Next]

[Please do not return to previous questions]

Q3.B.2.B (if Q3.B.1=No, but I am going to)

When will you submit the statement/application to the digital platform?

[Answer]

[Next]

[Please do not return to previous questions]

Category C (Unemployed, Retired, Inactive)

Q3.C.1

Has your employment contract been suspended or terminated from March 1, 2020, until today?

- Yes
- No

[Next]

[Please do not return to previous questions]

Q3.C.2.A/B (if Q3.C.1=Yes)

A.When was your employment contract suspended?

[Answer]

B. Have you submitted a statement/application to the Ministry of Labor for the special purpose compensation of 800 euros?

- Yes
- No, but I am going to
- No, and I am not going to

[Next]

[Please do not return to previous questions]

Q3.C.2.C [if Occupation=Unemployed]

Are you a long-term unemployed person who on April 16, 2020, exceeded 12 months of continuously registered unemployment (from 1st of April 2019 to 16th of April 2020) and you have not still received the long-term unemployment benefit?

- Yes
- No
- I do not know

[Next]

[Please do not return to previous questions]

Q3.C.3.A (if Q3.C.2.B=Yes)

When did you receive the compensation of 800 euros in your bank account?

[Answer]

[Next]

[Please do not return to previous questions]

Q3.C.3.B (if Q3.C.2.B=No, but I am going to)

When will you submit the statement/application to the digital platform?

[Answer]

[Next]

[Please do not return to previous questions]

Q3.C.3.C (probably if Occupation = Inactive??)

Do you know you are entitled to a special economic support benefit of 400 euros if you declare your bank account by Sunday, May 3rd?

- o Yes
- o No

[Next]

[Please do not return to previous questions]

Question 4

Is the **total net income** of your household **for the four (4) months period** from the beginning of 2020 until the end of April 2020 the **same, lower, or higher** than what you expected it to be?

(Net income includes income from all sources, net of taxes, and levies. It also includes the special purpose allowance of € 800 if one or more members of your household have received it by the end of April 2020).

- o The same
- o Lower
- o Higher

[Next]

[Please do not return to previous questions]

Question 4.1 (if Q4=Lower)

At what percent (%) lower was your household net income for the 4 months from the beginning of 2020 to the end of April 2020 than you expected it to be?

[Answer]%

Accept answers between 0% and 100%. No decimals.

[Next]

[Please do not return to previous questions]

Question 4.1 (if Q4=Higher)

At what percent (%) lower was your household net income for the 4 months from the beginning of 2020 to the end of April 2020 than you expected it to be?

[Answer]%

Accept answers between 0% and 100%. No decimals.

[Next]

[Please do not return to previous questions]

Question 5

Do you believe that the real estate value will remain the same, increase or decrease 12 months from today?

- o It will increase very much
- o It will increase much
- o It will increase slightly
- o It will remain the same
- o It will decrease slightly
- o It will decrease much
- o It will decrease very much

[Next]

[Please do not return to previous questions]

Question 6

In 12 months from today, do you expect your family's financial situation to be better, worse, or the same compared to your financial situation today?

- o Much better
- o Better
- o Slightly better
- o The same
- o Slightly worse
- o Worse
- o Much worse

[Next]

[Please do not return to previous questions]

Question 7

Please fill in your household expenses for the week from Monday 20th of April until Sunday 26th of April. You may need to refer to your notes/accounts to remember accurately. Fill in whole amounts (without decimals).

- Food and alcohol drinks : **[Answer]**
- Food services (restaurants, coffee shops, fast-food, deliveries): **[Answer]**
- Drugs, healthcare services: **[Answer]**

[Next]

[Please do not return to previous questions]

Question about food specifically

Since the beginning of **March 2020** when the restrictive protection measures against the new coronavirus apply, have you made more purchases than you would normally do for food?

- Yes
- No

[Next]

[Please do not return to previous questions]

Question about drugs specifically

Since the beginning of **March 2020** when the restrictive protection measures against the new coronavirus apply, have you made more purchases than you would normally do for drugs?

- Yes
- No

[Next]

[Please do not return to previous questions]

Question 8

What was the **total value of your household debt** to individuals and the public on **January 31, 2020** (before the current coronavirus crisis)?

- €0
- €1 - €499
- €500 – €999
- €1.000 – €4.999
- €5.000 - €9.999
- €10.000 - €24.999
- €25.000 - €49.999
- €50.000 - €99.999
- €100.000 - €199.999

- €200.000 - €499.000
- €500.000 and above
- I do not answer

[Next]

[Please do not return to previous questions]

Question 9

How difficult would it be for your household to borrow 1,000 euros within the next month?

- Very difficult
- Slightly difficult
- Neither easy nor difficult
- Slightly easy
- Very easy
- I do not know/I do not answer

[Next]

[Please do not return to previous questions]

Ending Slide

You reached the end of the questionnaire.

Thank you very much for your time.

Now you can close the window. Have a good day.