THE IMPACT OF DEFENSE-RELATED CHARITABLE PLEDGE AND EMOTIONS ON CONSUMERS' WILLINGNESS TO PAY

by

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CHAPTER 1. RESEARCH QUESTION AND MOTIVATION

Since the beginning of the full-scale war in Ukraine the donations contributed to various defense-related causes by Ukrainians have been a unique and powerful phenomenon. Palikot (2023) labels Ukrainians as the "donation nation", pointing out the skyrocketing figures of several fundraising campaigns by, for instance, Serhiy Prytula's fund or the Come Back Alive fund. The more recent survey conducted by Gradus (2024) demonstrates a persisting and even increasing trend of financial donations with 7% increase (from 10% to 17%) in the share of surveyed who donate regularly and the unchanged 44% share of occasional donators in 2024 as compared to 2023. These behaviours, given their significance for Ukrainian war effort and overwhelming widespreadness among Ukrainians, are to be recognised and analysed by policy makers, fundraisers and businesses.

Numerous studies identify the link between the cause-related marketing and consumer behaviours, i.e. the increase in willingness to pay (WTP) for charity-linked products. Therefore, an examination of whether the widespread defense-related donation behaviours pervade the consumer behaviours and increase willingness to pay for products of businesses which pledge to donate a share of their profits to defense-related causes might yield informative results for businesses and policy-makers willing to increase the donation amounts.

Should the first hypothesis on the increased WTP hold true, it might also be beneficial to investigate the underlying mechanism. It has been suggested in prior academic literature that such behaviours might be influenced by the emotional states of consumers – this paper primarily focuses on gratitude (a positive emotion) and survivor guilt (negative emotion).

A survey was conducted to collect demographical data, measure WTP difference between products with no cause-related designation, healthcare charity and defense charity labels.

Self-reported measures of emotions and feelings about the war and healthcare were also collected to test for the hypotheses of emotional states being significant predictors of charitable behaviours.

Therefore, two broad research questions can be formulated:

1. Does the pledge to donate to a defense-related cause impact the willingness to pay for a business's products?
2. Do positive and negative emotions, namely gratitude and survivor guilt, drive these behaviours?

CHAPTER 2. RELATED STUDIES

2.1. Previous studies on charitable donations, emotions, and generosity

Nilsson et al. (2020) examine the psychological drives behind charitable giving and, specifically, Moral Foundations Theory. The Moral Foundations Theory categorises moral values into individualising (care and fairness, focusing on welfare of individuals) and binding (loyalty and purity or sanctity, related to group cohesion and social order). The study concluded that the moral foundations have a strong effect on both propensities to donate and the amount of donations, distinguishing between individualising and binding moral values. A distinction is made between in-group and out-group directed behaviour, where "group" in not limited by small-scale units of society, such as family or friends, but rather encompasses broader communities, which are self-identified on the basis of nationalities, religions, ideologies, etc. The individualising moral values were shown to be a strong predictor of propensity to donate to out-group causes, although individuals with such values are also more likely to be passionate about both out-group and in-group causes. The binding moral foundations were positively correlated with the propensities to donate to in-group causes only. Overall, this makes in-group favourability a universal phenomenon. The authors also conclude that moral values surpass in the magnitude of the effect other predictors of charitable giving, such as political ideologies, religiousness and demographical factors. This means that appealing to subjective preferences and in-group cohesion can be a universal and powerful tool of inducing donating behaviours, which is directly applicable to the case of the war in Ukraine.

A comprehensive paper by Allen (2018) examines various causes of individual generosity, compiles the results of multiple studies on giving and donating and encompasses such factors as empathy and compassion, emotions (including namely the feeling of guilt, which is particularly relevant for this study), personality traits, gender, religiousness, political ideology, social image, anonymity, etc. Some of the aforementioned factors can serve as

the primary factors of interest, while others need to be accounted as control factors distinguished the effects of the variables studied.

One particular emotion to focus on is the survivor guilt. Baumeister, Stillwell, and Heatherton (1994) highlight guilt as a driving factor of social behaviours, which motivates individuals to treat others well, project mutual concern, and redistribute emotional distress within communities. According to Murray, Pethania, and Medin (2021), survivor guilt can be defined as the feeling of guilt experienced by survivors of events in which others have died, or more broadly, the sense of having benefited more than (or at the expense of) others. They report that survivor guilt is often found in those war victims, soldiers, and veterans, and propose that it promotes altruistic, prosocial behaviour. As Oakley (2012) points out, the survivor guilt is a specific form of empathy-based guilt linked to the evaluation of fairness, reverberating with the equity theory. Should a person believe that they benefit more than others or at the expense of others unfairly or should they perceive themselves as cause of other's unfavourable conditions, the compensation mechanisms arise which lead to altruistic behaviours.

Yang and Sun (2022) also discuss various factors that influence charitable giving. They claim that the individuals with both altruistic and egoistic personality traits are responsive to stimuli which induce donating behaviours, which resonates with the aforementioned study – such psychological mechanisms are universal. They also pinpoint the donation motivation as a key determinant of behaviours, highlighting guilt, sympathy and satisfaction. Provided that the charity is seen as credible enough, interventions aimed at stimulating these motivations can result in higher engagement and donation amounts.

Urbonavicius et al. (2019) discuss the influence of experience and existential guilt on donating behaviours and purchase of cause-related products. The existential guilt is characterised by an awareness of the difference in well-being between oneself and others. Since survivor guilt does not necessarily result from one's actions being the factors behind

the unfavourable conditions of others, conceptually both survivor guilt and existential guilt are similar, stemming from perceptions of inequity, and thus it is assumed that these finding are, too, closely related to the Ukrainian nation-wide case. The study links together the charitable giving and purchase of cause-related products, indicating that both types of behaviours are guided by the same psychological phenomena and are conceptually similar. The influence of existential guilt is weaker is case of cause-related purchasing, being an indirect financial help, than in the case of charitable giving – direct financial help but persists to a certain extent in both cases.

Allen (2018) suggests that positive emotions, and gratitude in particular, can be another powerful determinant of the willingness to donate or perform other acts of kindness and altruism. By structuring donation experiences in a way that they result in higher emotional reward, including personal connections and feeling of gratitude, one can potentially increase future donations. He expands on the idea in another paper, "The Science of Gratitude" (2018), in which a link between gratitude and prosocial behaviours is examined and it is concluded that gratitude can be elicited through interventions, inducing the desire to reciprocate, which can take a form of financial donations and charitable giving. Bartlett and DeSteno (2016) make similar inferences, claiming that gratitude induces prosocial helping behaviours through the desire to form social bonds, strengthen relationships and reciprocate kindness. They also emphasize that in this regard gratitude is different from other positive emotions, such as happiness or joy, highlighting the stronger link between gratitude and acting for the benefit of others. It was also concluded that gratitude remains a powerful drive of helping behaviours even when they are hedonically negative, i.e. come at a personal cost.

Tangney, Stuewig, and Mashek (2007) investigate positive and negative moral emotions and their impact on moral behaviour, including guilt, shame, embarrassment, gratitude, and empathy. Although specific emotions result in different behaviour, they generally infer those negative emotions, namely guilt, motivate immediate prosocial behaviours, linking

the underlying mechanisms to equity theory and desire to relieve discomfort. Positive emotions, such as gratitude, on the other hand, while also being powerful motivators, contribute to sustained long-term prosocial behaviours, facilitating social connections and helping reinforce social norms.

2.2. Charitable giving and willingness to pay

Verteramo Chiu et al. (2016) examine the motivation to pay a premium for the products that have a social responsibility label, "bridging the gap" between charitable donations and purchasing cause-related products. It is highlighted that research on both areas is abundant and the relationship between the willingness to pay and the socially responsible label is well-established, but the motivation behind such behaviours and the link to behaviours concerned with charitable donations has been largely overlooked. They distinguish between the three types of personalities on the altruistic spectrum: first, pure altruists, who are concerned with the well-being of others; second, paternalistic altruists, who as well demonstrate care for the recipients of donations, but would like to exert control over how the money is spent; third, warm-glow givers, who are egotistical and derive utility from the very fact of giving rather than from helping others as such. They focus on the concern for well-being of coffee producers, which was the product of interest of the study, but the implications can be extrapolated to broader dimensions and include social causes not linked to the product directly, such as the ones this paper aims to focus on. It was found that depending on which of the altruistic categories of personality a consumer belongs to, premium for coffee with a socially responsible label can amount up to 52.5%, but some premium is present in payments across all altruistic behaviours groups – 20-23% on average. Additionally, some links were found between the demographic characteristics and the probability of belonging to a certain altruistic behaviours group: for instance, people with high religiousness are more likely to be non-

paternalistic givers, and, therefore, exhibit higher willingness to pay for socially responsible labels.

Elfbein and McManus (2010) in their study of Ebay auctions arrived to similar, although more modest results – consumers were willing to pay 5% premium on charity-linked products when 10% of revenues was dedicated to a charity and 7% with a 100%-pledge, i.e. when revenues were promised to be donated to a charity in full. Resonating with the aforementioned paper, the researchers found significant heterogeneity among the behaviours of bidders and through the analysis of bidding patterns concluded that a significant amount of bidding is driven by purely altruistic inclinations and concern for public welfare rather than warm-flow altruism.

Koschate-Fischer et al. (2012) investigated the willingness to pay, and donation amounts relationship with regard to the profitability of businesses, which is an important aspect of this study. Given that WTP is positively related to the donation amount, it is crucial to balance between increasing WTP and donations to achieve a positive impact on the bottom line. They confirmed that the relationship between advertised donation amount and WTP is positive and concave, i.e. marginal WTP diminishes with each next cent donated by a business.

CHAPTER 3. METHODOLOGY

3.1. Research hypotheses

In line with the previously outlined research questions, two research hypotheses can be formulated:

1). Consumers have higher levels of willingness to pay for products with a defense-related charitable donations pledge, i.e. for products, certain percentage of revenues from selling of which is promised to be donated to a charity.

2). Emotions, such as gratitude and survivor guilt, are an underlying mechanism behind the increased WTP for products with a defense charity donation pledge.

In order to test these hypotheses, a survey with three different experimental conditions was employed as a primary research method. The choice of a survey-based methodology is guided by the need to collect demographic data, which might help detect significant predictors of charitable behaviours to serve as control variables in examining the relationship between the donation pledges, emotions, and WTP. Additionally, a survey is an efficient method of collecting the self-reported measures of emotions and feelings about the war, which are the variables of interest within the scope of the second research hypothesis. An experiment with a, for instance, Becker-DeGroot-Marschak or Vickrey auction is a more commonly employed method of eliciting WTP and has been considered; however, out of considerations of feasibility and due to a more easily understandable nature of simple survey questions, survey-based methodology was chosen.

3.2. Survey

In this section, the design of the survey is outlined, and the choice of questions and their formulations is justified. A pilot survey was conducted prior to the launch of the main

survey and a few insights were drawn from the feedback received. Whenever relevant, these insights and the resulting alterations of the questionnaire are noted.

In order to test whether defense-related pledge impacts WTP levels specifically, a between-subject approach was chosen. Three versions of the same questionnaire corresponding to the three experimental conditions were created, and respondents were assigned one of them on a random basis. In the baseline version respondents were asked about a maximum price one would be willing to pay for a cup of americano with no pledge, in the "Health Charity" treatment they were asked about the same cup with a pledge to donate 10% of the revenues to a health charity and in the "Defense Charity" treatment a defense-related charity was included instead. This will be elaborated on later in this section. Although requiring a larger sample, this approach allows to avoid the carryover effects and some respondent biases. For instance, respondents might feel compelled to provide higher WTP estimates for the defense-related product upon seeing all the three conditions, either due to social desirability bias or trying to infer the purpose of the research and indulging the researchers.

A questionnaire was composed using the Google Forms service and distributed online, using convenience sampling. Specifically, personal networks and posts on social media platforms, namely, in several Telegram channels and Ukrainian communities on Reddit, were used to collect responses. Google Script service was used to ensure the randomisation of distribution of questionnaire versions among the respondents (Appendix A). Upon following the provided link, a respondent was shown a title page, which described the survey and was named "Consumer behaviour study" to keep the respondents as uninformed of the research hypotheses as possible. Respondents were also instructed to give honest and accurate answers as none of their personal information would be recorded and publicised (Appendix B). The questionnaire was expected to be completable within 5 minutes; no incentives were offered for participation and/or completion.

The questionnaire consists of three blocks: block 1 includes questions related to demographics and the donation behaviours; block 2 strives to elicit consumers' willingness to pay; block 3 encompasses questions about emotions and feelings related to the war, as well as some control question to help validate the data.

3.2.1. Block 1

The first block asks about age, sex, income, education level, religiousness (using a 1 to 5 Likert scale), place of residence (Ukraine, occupied territories of Ukraine, or abroad, either in a eurozone country or another country), and whether a respondent or respondent's relatives currently are or have been in army service or combatants since the start of the full-scale war (since February 24th, 2022). Another question concerns the frequency of donations to military causes and, should a respondent indicate making regular donations, they are redirected to a question about their average donation amount. All questions (except for religiousness) have a multiple-choice format and whenever applicable, ranges are provided to choose among (e.g. age, income, etc.). For questions deemed potentially sensitive (income, sex, military service, donations) an opt out option is provided (do not wish to answer). These do not represent variables of interest per se but are important control variables to single out the effects which are within the scope of this study, as they might either influence WTP directly (e.g. income) or through mediation effects. It has been suggested by the results of the pilot survey, for instance, that military service or high donation amounts might mediate feelings of guilt.

3.2.2. Block 2

The second block presented a picture of a take-away coffee cup with no specific brand label, designed to be as easily recognisable and generic as possible and facilitate the accurate estimation of WTP. The picture was the same throughout all questionnaire versions. The question asked to imagine a hypothetical purchase of a cup of americano in

an abstract setting and indicate a maximum price which an individual would be willing to pay for the product. The three versions of this block differed among the questionnaire versions as described above: “No Pledge”, “Health Charity”, “Defense Charity”.

Уявіть, що ви купуєте чашку американо у типовій кав'ярні. Яку максимальну суму у гривнях ви були б готові заплатити за неї? Будь ласка, вкажіть ціле число. *

Short-answer text

Figure 1 Block 2, No Pledge (UAH)

Уявіть, що ви купуєте чашку американо у типовій кав'ярні, 10% від продажів якої будуть перераховані на закупівлю медичного обладнання для критично важливих закладів охорони здоров'я. Ви самі можете обрати підходящий благодійний фонд, що займатиметься закупівлею. Яку максимальну суму у гривнях ви були б готові заплатити за неї? Будь ласка, вкажіть ціле число. *

Figure 2 Block 2, Health Charity (UAH)

Уявіть, що ви купуєте чашку американо у типовій кав'ярні, 10% від продажів якої будуть перераховані на закупівлю військового спорядження та озброєння для ЗСУ. Ви самі можете обрати підходящий благодійний фонд, що займатиметься закупівлею. Яку максимальну суму у гривнях ви були б готові заплатити за неї? Будь ласка, вкажіть ціле число. *

Figure 3 Block 2, Defense Charity (UAH)

The questions read as the following:

No Pledge: "Imagine that you are buying a cup of americano at a typical coffeeshop. What is the maximum amount in hryvnias would you be willing to pay for it? Please indicate a whole number."

Health Charity: ""Imagine you are buying a cup of Americano at a typical coffee shop, 10% of sales of which will be donated to the purchase of medical equipment for critical healthcare facilities. You can choose a suitable charity that will handle the procurement. What is the maximum amount in hryvnias you would be willing to pay for it? Please indicate a whole number."

Defense Charity: "Imagine you are buying a cup of Americano at a typical coffee shop, 10% of sales of which will be donated for the purchase of military equipment and weaponry for the Armed Forces of Ukraine. You can choose a suitable charity that will handle the procurement. What is the maximum amount in hryvnias you would be willing to pay for it? Please indicate a whole number."

Depending on what the respondent identified as a place of residence in the first block, they were asked to provide the price as a whole number in hryvnias, euros, or dollars to ensure comfortable questionnaire environment and as accurate answers as possible. The short answer format was chosen as opposed to a slider or multiple choice with ranges to avoid any anchoring effects. The answers were converted to hryvnias for the data analysis, but the two groups (Ukrainian residents and those living abroad) were also analysed separately.

The choice of americano as a product at the centre of methodology was made for the following reasons: firstly, it is a product with a universal recipe across Ukraine and abroad, which only contains black coffee and water, mitigating the impact of other inputs (milk, sugar, syrups etc.) on the price and ensuring sufficient degree of product homogeneity. Secondly, it is the product which vast majority of population either consume or are at least exposed to daily, facilitating an informed WTP indication. Thirdly, it is purchased in a coffeeshop environment, which allows for cause-related marketing (e.g. putting information in the menu, setting a poster, having cashiers or baristas mention the pledge etc.), making the potential findings more practically applicable.

The "No Charity" serves as a control group, and "Health Charity" and "Defense Charity" are treatment groups, the questions in questionnaires of which specified that 10% of the revenues of a hypothetical coffeeshop would be directed to a charity fund of a respondent's choice for a specific purpose – either purchasing medical equipment and medication for critically important medical establishments ("Health Charity") or purchasing military equipment and weaponry for the Armed Forces of Ukraine ("Defense Charity"). The 10% pledge falls within the range of pledges present in the existing literature and was chosen arbitrarily as a number designed to be perceived as significant yet practically possible since the focus of the research is on the presence of the effect per se rather than its magnitude. In a pilot survey, particular charities were used to provide respondents with a clearer picture; however, an issue of credibility arose since

most popular defense charities (Come Back Alive Foundation, Serhiy Prytula's Fund etc.) are perceived as far more credible than most health-related charities, such as the Ukrainian Red Cross Society (Perun, 2023). By clearly stating that the funds would be allocated to a charity of a respondent's choice, I strived to eliminate the varying degrees of perceived credibility and thus additional noise in WTP answers.

3.2.3. Block 3

The third block aimed to collect self-reported measures of emotions of interest (gratitude and guilt), while also including some control questions, such as the degree of necessity of donating to health or war charities and the coffee consumption.

The questions on guilt and gratitude presented Likert scales 1 to 10, asking to identify the levels of guilt and gratitude with respect to the Armed Forces of Ukraine, and, separately, with respect to medical workers and establishments, with 1 indicating no feeling of guilt or gratitude whatsoever and 10 indicating extreme levels of guilt or gratitude. The questions were accompanied with short explanations to assist the respondents' understanding. This was aimed at eliciting a response that is specifically within the focus of this study and direct the respondents in the desired domain.

Defense-related survivor guilt: "Rate your sense of guilt (specifically for not participating in combat or not doing enough for victory) from 1 to 10, where 1 means 'I do not feel guilty at all' and 10 means 'I feel very guilty.'"

Healthcare-related survivor guilt: "Rate your sense of guilt (specifically for not donating blood or not supporting charitable foundations focused on healthcare) from 1 to 10, where 1 means 'I do not feel guilty at all' and 10 means 'I feel very guilty.'"

The question on coffee consumption asked about the favourite coffee drink and provided an option "do not drink coffee". This was used to filtrate the responses of individuals who might struggle with providing an informed price in block 2 and potentially bias the results.

Should a respondent have chosen any other option, they were redirected to a question asking about the frequency of purchasing coffee in coffeeshops, with an option "I do not buy coffee in coffeeshops". Responses of those who do not purchase coffee in coffeeshops were also omitted for the aforementioned reasons.

3.3. Data analysis and models

As described above and deriving from the research hypotheses, WTP is the primary variable of interest, which is a dependent variable in our models. Variables denoting belonging to either of the non-control groups, as well as variables of guilt and gratitude are primary independent variables of interest for the two hypotheses respectively. However, inclusion of other control variables and understanding of their effects on the variables of interest is be necessary to identify the specific effects within the scope of the research.

Since questions on some of the potentially relevant economic variables, namely income and donation behaviour (frequency and average amount of donations) are multiple choice questions with options with ranges, several new variables were created for the data analysis purposes. Midpoints of the ranges were calculated to serve as numerical proxies for income and donation amount responses. For the responses with an opt-out option chosen for either income or donation amount, imputation of mean was chosen as a method of dealing with NA values out of concerns about sample size. Donation-income ratio was calculated as a way to measure a percentage of income donated within an average donation to account for relative significance of a donation rather than absolute values.

To perform the exploratory data analysis for numerical variables and draw inferences about the relationships between variables for estimation, correlation tables were used. Since WTP as a primary variable of interest was assumed to differ between different groups, the correlation tables were constructed for each group separately. As the residents of countries other than Ukraine were asked to provide WTP in either euros and dollars and the WTP responses were all converted to hryvnias for analysis purposes, the

correlation tables also distinguished between residence statuses to account for a significant difference in price levels. The numerical variables, most notably, are income midpoint, donation amount midpoint and donation-income ratio, which were theorised to have a significant impact on WTP to be controlled for. For the purposes of correlation tables, emotions variables were treated as numerical as well to include them in the analysis.

Contingency tables were also used to assess the distribution of defense-related emotions across various categorical variables to discover potential effects relevant for the second hypothesis. Both gratitude and guilt were categorised into low (1-3 on a Likert scale), medium (4-7), or high (8-10) for easier visualisation and interpretation and then contingency tables with categorical demographic variables were constructed.

To test the first hypothesis of significance of the presence and type of pledge, a multiple linear regression model was employed with "No pledge" being a default state and "Health Charity" and "Defense Charity" serving as dummy variables, while also controlling for other variables identified to be significant. Residence was also included as a control variable to account for differences in price levels across Ukrainian residents and residents of eurozone and other countries.

$$WTP_i = \beta_0 + \beta_1 (Health\,Charity) + \beta_2 (Defense\,Charity) + \\ + \beta_3 (Residence) + \beta_4 (Other\,Control\,Variables) + \epsilon \quad (1)$$

To test the second hypothesis of the impact of emotions on WTP, the "Health Charity" and "Defense Charity" groups were tested separately, again, including residence and any other significant control variables and accounting for discovered mediation and interaction effects.

$$WTP_{HC} = \beta_0 + \beta_1 (GratitudeHealth) + \beta_2 (GuiltHealth) + \\ + \beta_3 (Residence) + \beta_4 (OtherControl\,Variables) + \epsilon \quad (2)$$

$$WTP_{DC} = \beta_0 + \beta_1 (GratitudeWar) + \beta_2 (GuiltDefense) + \\ + \beta_3 (Residence) + \beta_4 (OtherControl Variables) + \epsilon \quad (3)$$

CHAPTER 4. DATA

In the result of the conducted survey, 255 responses were obtained, 73 of which are in the “No Charity” group, 78 are in the “Health Charity” group and 102 are in the "Defense Charity” group. The difference in numbers is due to the complete randomisation process assisted by the Google Script.

The data were cleaned for the further analysis. Firstly, outliers were removed using the interquartile range method separately for all residence groups, accounting for the different price levels in different countries and thus varying distributions of WTP. Secondly, the responses indicating not drinking coffee or not purchasing coffee in coffeeshops were removed. Although significantly decreasing the sample size with 176 responses left, which is lower than the targeted number of about 200 responses, this improves the overall data reliability. This section describes the main features and tendencies in the data collected.

4.1. Demographics

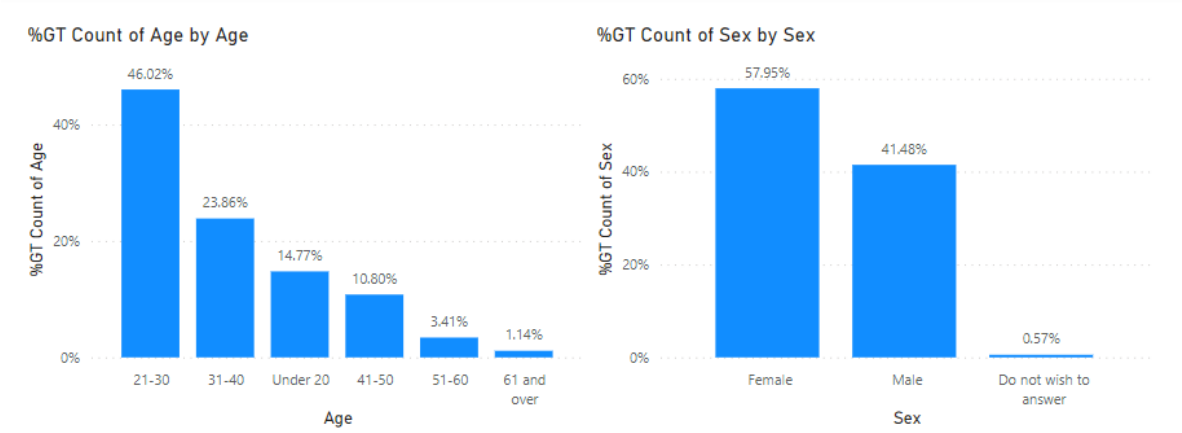

Figure 4 Sex and age data

Given the convenience sampling employed, the age distribution is as expected with almost half of the respondents (46%) falling within 21-30 range. Almost 15% of the respondents are under 20 years old and only less than 5% are over 50 years old.

Females constitute the majority of the sample, accounting for almost 58% of the cleaned data.

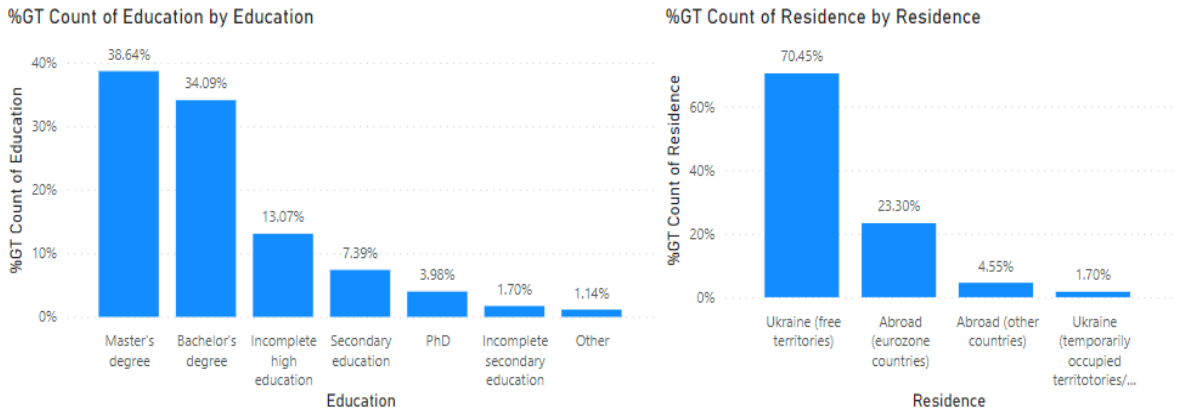

Figure 5 Education and residence data

The majority of respondents (almost 73%) have either a master's or a bachelor's degree and 4% have a doctorate level education. Almost 20% of the respondents have incomplete high education or a lower level, largely representing the younger part of the sample. Although it would be meaningful to explore both Ukrainians currently living in Ukraine and the ones living or having relocated abroad, the latter only constitute less than 30% of the sample, making the Ukrainian residents a primary research object.

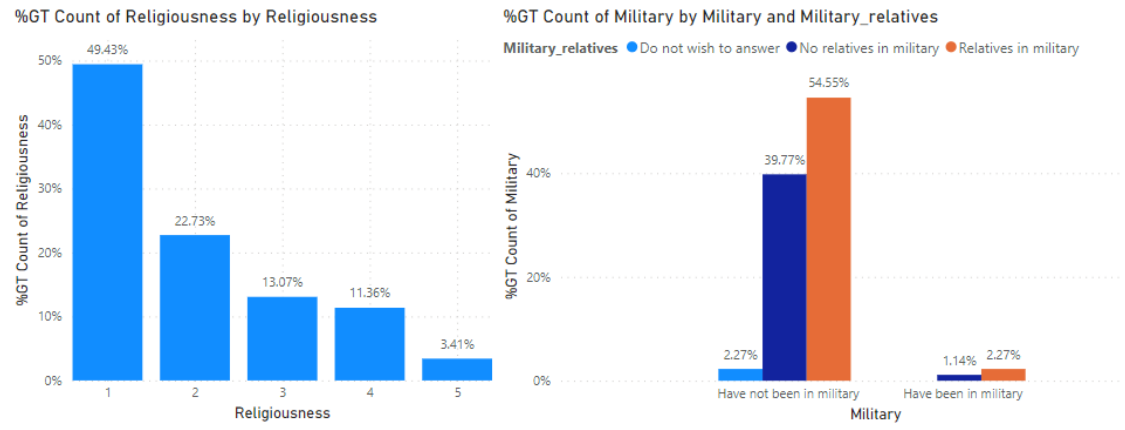

Figure 6 Religiousness and military service data

The religiousness data which was collected using a 5-point Likert scale shows a clear peak at 1, indicating being not religious at all (almost 50%), and only 3.4% of the respondents reported very high religiousness. Only a small part of sample (3.4%) are or have been in the military service since the start of a full-scale invasion, but the majority of respondents have relatives or close ones in military, which was hypothesised to be a potentially significant variable influencing defense-related emotions and thus WTP for products with a defense charity pledge.

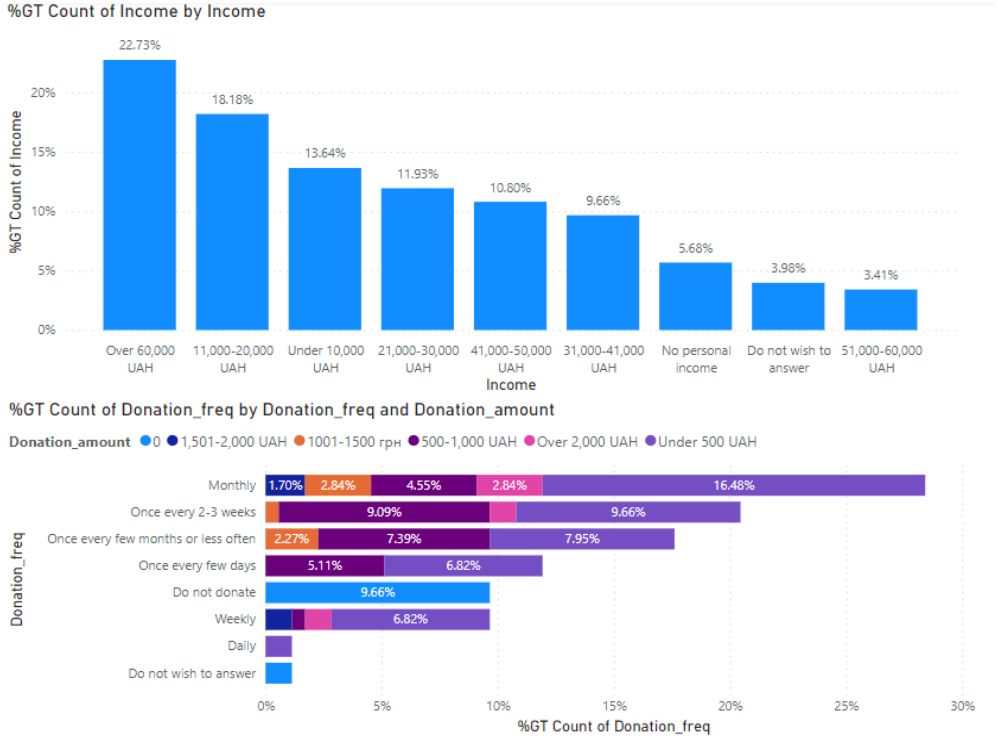

Figure 7 Income and donation behaviour

Donation amount midpoint		Donation-income ratio	
Mean	640.1274	Mean	0.025571
Standard Error	42.12967	Standard Error	0.001898
Median	640.1274	Median	0.016667
Mode	250	Mode	0.016667

Standard Deviation	558.9132	Standard Deviation	0.025177
Sample Variance	312384	Sample Variance	0.000634
Kurtosis	4.13867	Kurtosis	12.14507
Skewness	2.051242	Skewness	3.112902
Range	2250	Range	0.146429
Minimum	250	Minimum	0.003571
Maximum	2500	Maximum	0.15
Count	176	Count	176

Table 1 Calculated donation behaviour variables statistics

The dominant income group is high-earning individuals with monthly income over 60,000 hryvnias, yet almost as many (19.3%) have no personal income at all or earn less than 10,000 hryvnias. The donation behaviour data shows an overwhelming 90.3% of donators with most making regular donations of amounts up to 1,000 hryvnias. The calculated variables based on the ranges midpoints indicate that the average donation is about 640 hryvnias, and the average proportion of income donated to defense causes monthly is around 2.6%, going to as high as 15% of the income.

4.3 WTP

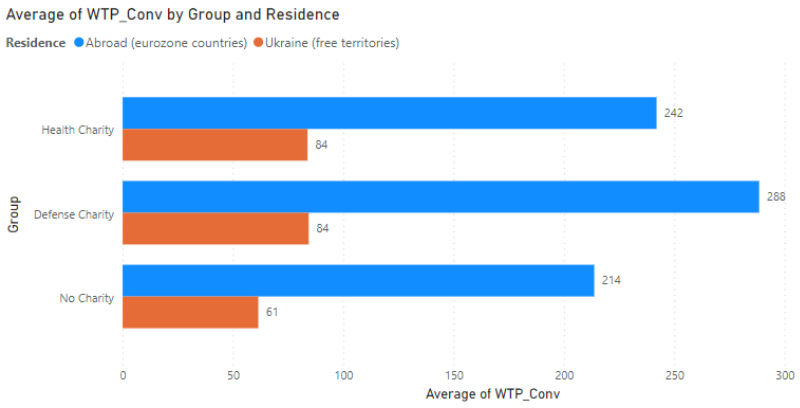

Figure 8 Average WTP across the survey groups and main places of residence

As identified with the t-test for means, the average WTP for defense charity pledge coffee is higher than for coffee with no pledge at 10% significance level for the abroad residents and at 1% for Ukrainian residents. The average health-related charity pledge WTP, however, is only significantly higher for the Ukrainian residents, and the differences in means between Health Charity group and Defense Charity group are not statistically significant for both types of residence.

4.3 Defense-related emotions and feelings

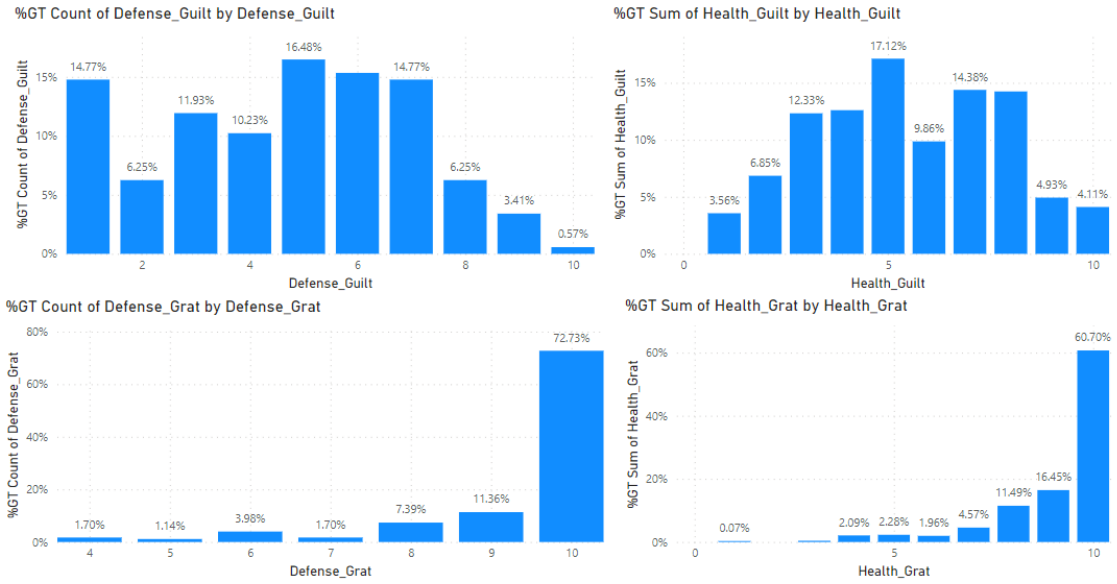

Figure 9 Distribution of self-reported measurements of defense-related guilt and gratitude

Most prominently, the data demonstrates an overwhelming feeling of gratitude towards the Ukrainian Armed Forces, with 72.7% of respondents placing themselves on the highest gratitude level. The distribution of guilt is far more nuanced with most respondents indicating moderate levels of guilt and 14.7% indicating no feelings of guilt.

The gratitude reports distribution with respect to the healthcare workers and establishments follows the same pattern, although being less skewed, with 60.7%

indicating 10-point gratitude. The self-reported measures on healthcare-related guilt show a less polarised pattern compared to guilt, with less than 20% placing themselves on either of the extremes within the range.

The tendencies are repeated for the necessity variable, which assesses the perceives necessity of donating to either defense or healthcare purposes. While 10-point (highest necessity) is a peak for both, it accounts for 62% of responses for defense-related necessity and only 21% for healthcare, while the majority are scattered across medium values.

CHAPTER 5. RESULTS

5.1 Correlation analysis

The WTP measurements were converted to a single currency (UAH) using the exchange rate at the time of writing (45.55 UAH per Euro and 41.02 UAH per USD). In order to explore the relationships between WTP and other numeric variables, which were expected to exhibit most significance, including the created income and donation midpoints variables and donation to income ratio, correlation tables were used. The data were analysed separately for each group within the Ukrainian residents subsample due to the lack of data on abroad residents.

Defense Charity Pledge - Ukraine									
	WTP Conv	Income midpoint	Donation amount midpoint	Defense Gratitude	Health Gratitude	Defense Guilt	Health Guilt	Health Necessity	Defense Necessity
WTP Conv	1.00	0.20	-0.08	0.04	0.01	-0.06	-0.08	-0.14	0.17
Income midpoint	0.20	1.00	0.39	-0.11	-0.22	-0.25	-0.33	-0.29	-0.11
Donation amount midpoint	-0.08	0.39	1.00	-0.03	-0.03	-0.26	0.14	-0.02	0.11
Defense Gratitude	0.04	-0.11	-0.03	1.00	0.62	-0.09	0.36	0.40	0.62
Health Gratitude	0.01	-0.22	-0.03	0.62	1.00	-0.16	0.32	0.41	0.66
Defense Guilt	-0.06	-0.25	-0.26	-0.09	-0.16	1.00	0.52	0.14	0.00
Health Guilt	-0.08	-0.33	0.14	0.36	0.32	0.52	1.00	0.42	0.34
Health Necessity	-0.14	-0.29	-0.02	0.40	0.41	0.14	0.42	1.00	0.49
Defense Necessity	0.17	-0.11	0.11	0.62	0.66	0.00	0.34	0.49	1.00

Table 2 Correlation table for numeric variables

In all subsamples income is positively associated with the amount of an average donation with correlation coefficient reaching as high as 0.52 in the No Charity group. However, income has weak or no correlation with WTP in all of the subsamples, and is some shows a negative correlation, contrary to expectations. This could be explained by the nature of a product in question, as coffee might exhibit weak income elasticity or even be seen as an inferior good (Vochozka, 2022). Donation amounts have weak association with WTP in all of the subsamples as well.

The tables show no significant positive correlation between WTP and either of the emotions measurements or necessity. In fact, both guilt measurements demonstrate moderate negative correlation with WTP (around 0.4) in Health Charity and No Charity groups.

Notably, income and donation amounts are negatively associated with guilt and perceived necessity of donating to healthcare causes across all groups. The relationship between the latter and financial variables is most vivid, with the highest absolute value of correlation of about 0.6 in Health Charity in No Charity groups, which suggests that individuals who earn and donate more tend to view supporting healthcare via donations as less significant compared to lower income individuals.

The gratitude variables exhibit positive relationship with each other; however, these should be interpreted with caution due to the extremely skewed nature of gratitude variables distribution, as was shown in the previous section. The guilt variables demonstrate moderate to strong positive association with each other as well, being the most prominent relationship in the Health Group with a correlation coefficient of 0.71. The inter-emotions relationships are more nuanced, however. Although healthcare-related guilt shows weak to moderate positive correlations with gratitude variables, defense-related guilt is negatively correlated with gratitude, although the relationship is predominantly weak. Please refer to Appendix C for the other two correlation tables.

5.2 Contingency tables

To investigate the distribution of defense-related emotions with respect to categorical variables, contingency tables were employed. Guilt and gratitude were categorised into low (1-3), medium (4-7) or high (8-10) to facilitate analysis.

Defense-related guilt							
	Low	Medium	High		Low	Medium	High
Income				**Education level**			
No personal income	50.00	50.00	0.00	Incomplete secondary education	33.33	66.67	0.00
Up to 10,000 UAH	16.67	45.83	37.50	Secondary education	53.85	38.46	7.69
11,000 to 20,000 UAH	37.50	53.13	9.38	Incomplete higher education	30.43	43.48	26.09
21,000 to 30,000 UAH	33.33	57.14	9.52	Bachelor's degree	38.33	53.33	8.33
31,000 to 40,000 UAH	41.18	52.94	5.88	Master's degree	22.06	69.12	8.82
41,000 to 50,000 UAH	10.53	84.21	5.26	PhD	42.86	57.14	0.00
51,000 to 60,000 UAH	0.00	100.00	0.00				
Over 60,000 UAH	42.50	55.00	2.50				

Table 3 Contingency table of defense-related guilt and income and education

The distributions of defense-related guilt with respect to categories in sex, age, relatives in military service, religiousness, and residence do not differ significantly, which suggests little interaction between the variables.

The relationship between income and defense-related guilt seems consistent with the overall pattern for most categories, except spikes in guilt among those who earn up to 10,000 hryvnias and those in income ranges from 40,000 to 60,000 hryvnias. The former is also the only income category which has a significant portion of respondents indicating high guilt.

	Defense-related guilt						
	Low	Medium	High		Low	Medium	High
Donation frequency				**Average amount of a donation**			
Do not donate	58.82	29.41	11.76	Up to 500	30.23	56.98	12.79
Daily	0.00	100.00	0.00	501 to 1,000 UAH	21.28	72.34	6.38
Every few days	19.05	71.43	9.52	1,001 to 1,500 UAH	50.00	50.00	0.00
Weekly	23.53	70.59	5.88	1,501 to 2,000 UAH	40.00	60.00	0.00
Once every 2-3 weeks	25.00	66.67	8.33	Over 2,000 UAH	44.44	44.44	11.11
Monthly	36.00	54.00	10.00				
Once every few months or less often	38.71	48.39	12.90				

Table 4 Contingency table of defense-related guilt and donation variables

As the contingency table exhibits, the donation frequency and guilt seem to have a somewhat linear relationship. More than 58% of respondents who do not donate

indicated low levels of guilt, and as the frequency of donations increases, the moderate guilt category becomes more and more populated. All of those respondents who donate daily reported medium guilt levels, although the figure should be scrutinised accounting for the number of observations. The relationship differs with regard to the amount of an average donation with those donating the least experiencing on average higher levels of guilt compared to more plenteous donators.

As emphasised above, the distribution of gratitude related to the defense is extremely skewed, and thus the overwhelming majority of responses fall within the high gratitude category, which significantly hinders the analysis. One of the few noteworthy findings which echoes the contingency table for guilt is the relationship between defense-related gratitude and donation frequency. While high gratitude encompasses more than 85% of responses for other variables, only 53% of those who do not donate at all reported high gratitude, with the rest placing themselves in a medium gratitude category, which suggests a potential relationship between gratitude and donation behaviour. The other donation frequency categories, however, do not seem to differ from other variables.

5.3 Regression analysis

To test the extent to which health charity pledge and defense charity pledge affect the WTP, a multiple linear regression was used. "Health Charity" and "Defense Charity" were included as binary variables taking values of 1 if a respondent is in a corresponding group and 0 otherwise. To control for a difference in price levels between Ukraine and other countries and allow using the converted WTP measurement, residence was included as an independent variable in all models.

Other variables were eliminated from the model one-by-one after ensuring their omission does not diminish a model's explanatory power. Several interaction terms were tested,

namely the interactions between charity pledge types and other variables, however, none of them have proved to be significant and add any explanatory power to the model.

Sex was determined to be significant on the initial estimation stages at 10% significance level; however, after running the Breusch-Pagan test for heteroskedasticity and applying the robust standard errors the variable has become insignificant and was omitted without any losses in the model's explanatory power.

	Dependent variable:
	Willingness to Pay (WTP)
Health Charity	27.105**
	(12.369)
Defense Charity	37.177***
	(12.285)
Age 31-40	14.695
	(11.202)
Age 41-50	-2.622
	(12.784)
Age 51-60	2.128
	(11.706)
Age 61 and over	26.757***
	(9.521)
Age Under 20	34.574*
	(18.528)
Residence Eurozone countries	136.602***
	(26.006)
Residence Other countries	169.887***
	(19.983)
Constant	45.743***
	(9.344)

Note:	*p<0.1; **p<0.05; ***p<0.01 R-squared: 0.5637645 Adjusted R-squared: 0.5373259 F-statistic: 21.3236 with p-value: 4.314519e-25

Table 5 First model estimation results

The final model includes the binary variables denoting the group, age, and residence. The constant represents the average WTP of a person living in Ukraine and purchasing a cup of americano with no charitable donation pledge, equalling 45.7 hryvnias. Both residence variables are highly significant and largely capture the differences in price and income levels. The "61 and over" and "Under 20" age categories are significant at 10% and 1% significance level respectively and indicate an average increase in WTP should a person belong to either of them. The primary variables of interest – Health Charity and Defense Charity – are also highly significant, producing an increase in WTP by 27 and 37 hryvnias on average accordingly, which suggests that consumers are willing to pay up to 81% premium for products with a defense-related charitable pledge. Despite the insignificant differences in means discovered in the exploratory data analysis, the Defense Charity coefficient suggests that defense-related pledges on average induce a higher WTP compared to healthcare-related pledges.

The model is statistically significant overall, and the adjusted R square indicates that it explains 53.7% in the variation of WTP. The post-estimation tests detected no multicollinearity, autocorrelation of residuals or inappropriateness of the functional form.

To test the impact of emotions on WTP, a multiple linear regression was employed with WTP within a specific group serving as a dependent variable and corresponding emotions (gratitude and guilt) serving as primary independent variables, as well as necessity, residence, and age variables to control for non-emotion related effects. However, neither guilt, nor gratitude as well as various interaction terms, including the interaction of

emotions with residence, have proved to be significant even at 10% significance level. The potential reasons and conclusions are discussed in the next section.

	Dependent variable:	
	WTP_D	WTP_H
	(1)	(2)
Defense_Grat	1.988	
	(7.379)	
Defense_Guilt	0.692	
	(5.020)	
Defense_Necessity	6.933	
	(7.885)	
Health_Grat		0.531
		(7.860)
Health_Guilt		-1.017
		(5.340)
Health_Necessity		5.453
		(6.878)
Age 31-40	43.279	-3.329
	(30.054)	(28.020)
Age 41-50	-21.140	-13.027
	(44.196)	(35.710)
Age 51-60	2.342	-5.592
	(59.096)	(45.115)
Age Under 20	42.010	60.916
	(27.838)	(37.123)
Residence Abroad (other countries)	177.710***	
	(38.273)	
Residence Abroad (eurozone countries)	198.918***	143.419***
	(26.838)	(26.984)
	(59.434)	(84.793)
Constant	-10.706	42.017

		(71.628)	(78.862)
R-squared (Defense Charity)		0.597	
Adjusted R-squared (Defense Charity)		0.523	
F-statistic (Defense Charity)		8.014	
R-squared (Health Charity)		0.515	
Adjusted R-squared (Health Charity)		0.426	
F-statistic (Health Charity)		5.786	
Observations		65	59
R^2		0.597	0.515
Adjusted R^2		0.523	0.426
Note:	$^{*}p$ $^{**}p$ $^{***}p<0.01$		

Table 6 Second model estimation results

CHAPTER 6. CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

This study has strived to test two main hypotheses. The first one stated that a charitable donation pledge increases WTP levels for a business' products with a specific focus on pledges to donate to purposes related to the defense of Ukraine. In line with the expectations drawn from the literature and the findings from exploratory data analysis, both healthcare-related and defense-related pledges have been found to cause higher WTP levels provided the credibility of the charity in question, with defense-related pledge manifesting a higher and more statistically significant impact compared to the health-related counterpart.

The second hypothesis assumed that a relationship exists between the increased WTP levels and positive and negative emotions, namely gratitude and guilt, related to the ongoing war in Ukraine. However, no evidence of statistically significant impact of these emotions has been found within the data.

Apart from the main hypotheses, the exploratory data analysis has unveiled some promising relationships between the variables. Defense-related guilt seems to differ in nature from the healthcare-related guilt and, although weakly, is negatively correlated with measures of gratitude, unlike healthcare-related guilt and contrary to expectations. Income and donation behaviour have not been proved to influence WTP for coffee with a charitable pledge, but manifest a relationship with defense-related guilt, with donation frequency having a prominent inverse relationship.

6.2 Limitations and recommendations

The convenience sampling data collection method which was employed could have resulted in a sample not fully representative of the population of interest. Although Murphy

et al. (2005) claim that hypothetical estimations of WTP are positively correlated with the actual ones, the overestimation bias is often present. Additionally, the response rate was extremely low, which not only exposes the study to the self-selection bias risk, but also resulted in a limited sample, the analysis of which was not comprehensive in some instances. Although I believe the choice of americano as a research object was reasonable, it is worth noting that the results might not be fully applicable to other types of products. The self-reported measurements of emotions were collected after the questions asking to identify WTP, which presents a possibility that the WTP answers might have affected the subsequent ones. Finally, the choice of emotions guided by the literature does not present an exhaustive list of potentially relevant variables.

Therefore, it is recommended that future researchers continue investigating the impact of charitable donation pledges employing random sampling techniques and focusing not only on the presence of a donation pledge, but also investigating the effects of its magnitude. I also believe it would be beneficial to expand the list of emotions and traits to be included in the analysis, potentially collecting data with more profound emotion elicitation techniques. While not being the focus of this study, the relationships noted, such as the one between defense-related guilt and donation frequency, might present another promising research dimension.

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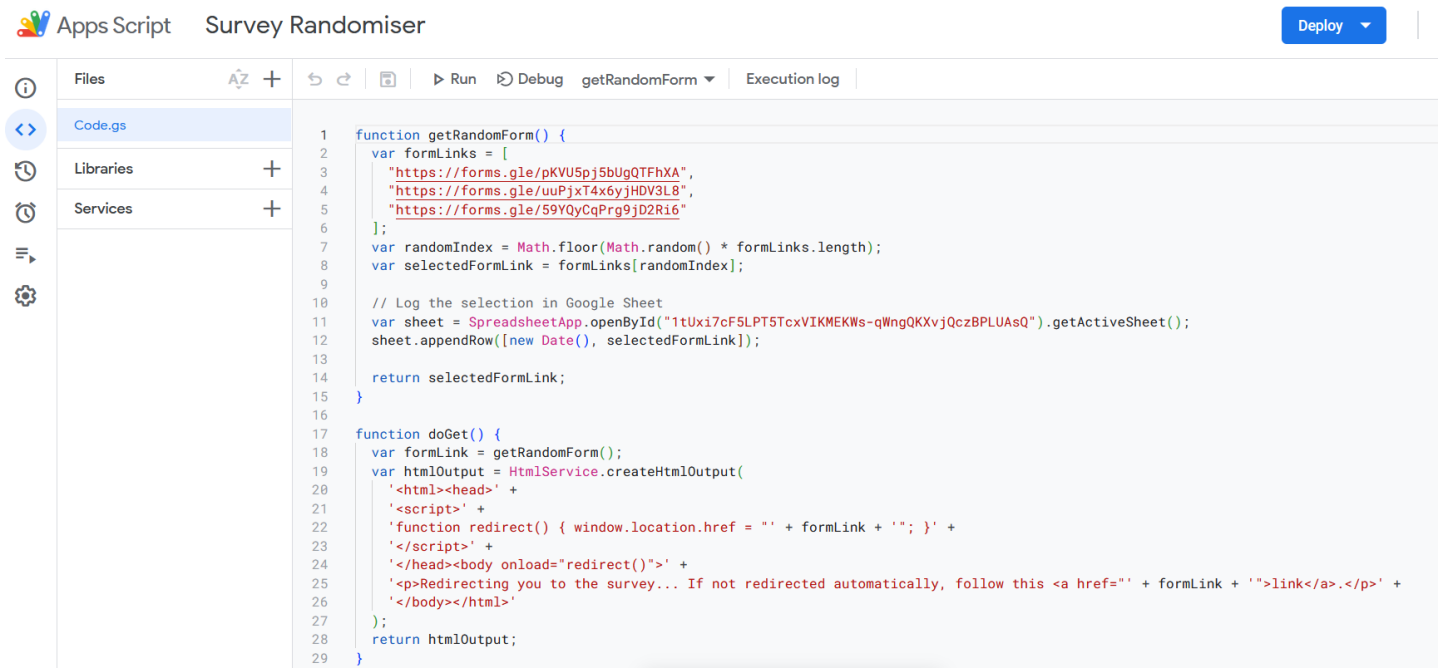
APPENDICES

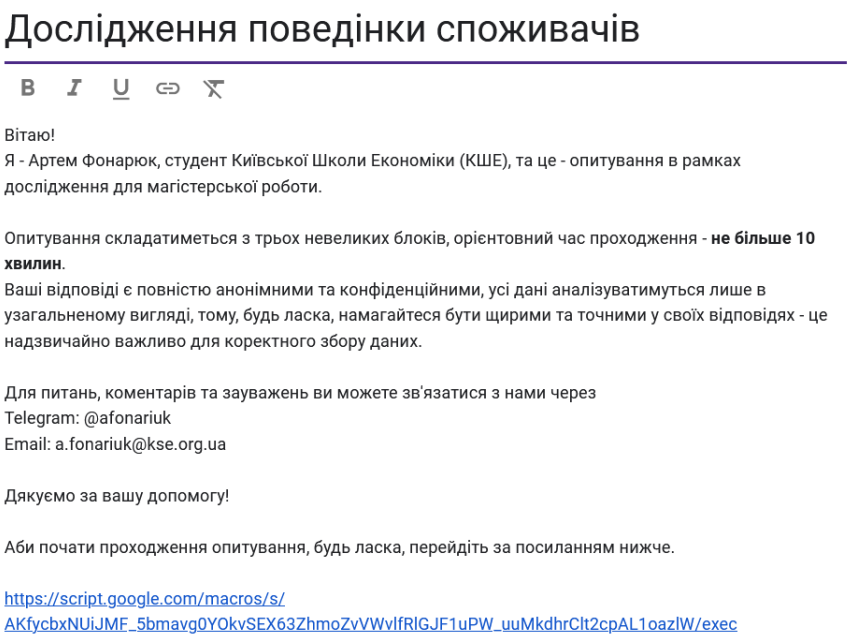
Appendix A.

The Google Apps Survey Randomisation Script



Appendix B

The Master Google Form outlay with an embedded link to a random survey version



Дослідження поведінки споживачів

Вітаю!
Я - Артем Фонарюк, студент Київської Школи Економіки (КШЕ), та це - опитування в рамках дослідження для магістерської роботи.

Опитування складатиметься з трьох невеликих блоків, орієнтовний час проходження - **не більше 10 хвилин**.
Ваші відповіді є повністю анонімними та конфіденційними, усі дані аналізуватимуться лише в узагальненому вигляді, тому, будь ласка, намагайтеся бути щирими та точними у своїх відповідях - це надзвичайно важливо для коректного збору даних.

Для питань, коментарів та зауважень ви можете зв'язатися з нами через
Telegram: @afonariuk
Email: a.fonariuk@kse.org.ua

Дякуємо за вашу допомогу!

Аби почати проходження опитування, будь ласка, перейдіть за посиланням нижче.

https://script.google.com/macros/s/AKfycbxNUiJMF_5bmavg0YOkvSEX63ZhmoZvVWvlfRlGJF1uPW_uuMkdhrClt2cpAL1oazlW/exec

Translation:

Consumer behaviour study

Hello!

I am Artem Fonariuk, a student at the Kyiv School of Economics (KSE), and this is a survey conducted as part of research for my master's thesis.

The survey will consist of three short sections, with an estimated completion time of no more than 5 minutes. Your responses are completely anonymous and confidential; all data will be analysed in aggregate form only. Therefore, please try to be honest and accurate in your responses, as this is extremely important for proper data collection.

For questions, comments, or feedback, you can contact me via: Telegram: @afonariuk Email: a.fonariuk@kse.org.ua

Thank you for your help!

To begin the survey, please follow the link below:

https://script.google.com/macros/s/AKfycbxNUiJMF_5bmavg0YOkvSEX63ZhmoZvVWvlfRlGJF1uPW_uuMkdhrClt2cpAL1oazlW/exec

Appendix C

Health Charity and No Pledge correlation tables (Ukrainian residents)

Health_Charity - Ukraine									
	WTP Conv	Income midpoint	Donation amount midpoint	Defense Grat	Health Grat	Defense Guilt	Health Guilt	Health Necessity	Defense Necessity
WTP Conv	1.00	-0.03	-0.15	-0.08	0.01	-0.44	-0.39	-0.03	0.23
Income midpoint	-0.03	1.00	0.50	-0.34	-0.39	-0.17	-0.31	-0.63	-0.12
Donation amount midpoint	-0.15	0.50	1.00	-0.32	-0.52	-0.10	-0.33	-0.59	0.03
Defense Grat	-0.08	-0.34	-0.32	1.00	0.76	0.12	0.30	0.15	0.14
Health Grat	0.01	-0.39	-0.52	0.76	1.00	0.01	0.28	0.31	-0.01
Defense Guilt	-0.44	-0.17	-0.10	0.12	0.01	1.00	0.71	0.26	0.25
Health Guilt	-0.39	-0.31	-0.33	0.30	0.28	0.71	1.00	0.52	0.19
Health Necessity	-0.03	-0.63	-0.59	0.15	0.31	0.26	0.52	1.00	0.30
Defense Necessity	0.23	-0.12	0.03	0.14	-0.01	0.25	0.19	0.30	1.00

No_Pledge - Ukraine									
	WTP Conv	Income midpoint	Donation amount midpoint	Defense Grat	Health Grat	Defense Guilt	Health Guilt	Health Necessity	Defense Necessity
WTP Conv	1.00	0.32	0.33	0.08	-0.22	-0.39	-0.42	-0.12	-0.06
Income midpoint	0.32	1.00	0.52	0.06	-0.29	-0.19	-0.17	-0.50	0.09
Donation amount midpoint	0.33	0.52	1.00	-0.07	-0.14	-0.28	-0.22	-0.62	0.13
Defense Grat	0.08	0.06	-0.07	1.00	0.54	-0.11	0.03	0.26	0.18
Health Grat	-0.22	-0.29	-0.14	0.54	1.00	0.00	0.30	0.41	-0.05
Defense Guilt	-0.39	-0.19	-0.28	-0.11	0.00	1.00	0.56	0.09	0.28
Health Guilt	-0.42	-0.17	-0.22	0.03	0.30	0.56	1.00	0.03	0.27
Health Necessity	-0.12	-0.50	-0.62	0.26	0.41	0.09	0.03	1.00	0.17
Defense Necessity	-0.06	0.09	0.13	0.18	-0.05	0.28	0.27	0.17	1.00