Willpower Depletion: Can it Influence Responses and Attribute Non-Attendance in Choice Experiments?

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Abstract

In the discrete choice experiment literature, "attribute non-attendance" (ANA) is referred to as a salient heuristic in choice behavior where respondents ignore some attribute information when making choice decisions. Several studies show that ANA in CEs can significantly affect WTP and welfare estimates, suggesting that the conventional reliance on assumptions of a fully compensatory choice-making might lead to potential bias formation. For this reason, it is important to examine and pinpoint the behavioral reasoning behind ANA behavior in choice experiments. The aim of the present study is to test for the first time in the literature whether willpower depletion can influence individuals' choice behavior and exacerbate ANA in choice experiments. In cognitive psychology, willpower is the capacity to exert self-control and is a primary factor affecting cognitive capacity**.** We used the Stroop task method to induce willpower depletion. Results suggest that willpower depletion affects ANA responses and WTP estimates, however they do not support our hypothesis that willpower depletion increments ANA behavior.

Introduction

Choice Experiments (CEs) are frequently implemented to elicit consumers' preferences and willingness to pay (WTP) for goods and services. In CEs, respondents are presented with several hypothetical purchasing scenarios (i.e., choice tasks) containing product alternatives which differ in terms of attributes and attribute levels. Generally, in each choice scenario, individuals are asked to make a trade-off between the product alternatives and a no-buy option (or status quo).

Empirical evidence suggests that individuals may employ information processing strategies in decision-making. In the CE literature, "attribute non-attendance" (ANA) is referred to a salient heuristic in choice behavior where respondents ignore (i.e., do not attend to) some attribute information when making choice decisions. Several studies have shown that ANA behavior in CEs can significantly affect WTP estimates and model performance, indicating that the conventional reliance on assumptions of a fully compensatory choice making might lead to potential bias in welfare estimates (Caputo et al. 2013; Hensher et al., 2012; Hensher, et al., 2005; Hensher 2006; Hess and Hensher 2010; Hensher and Rose, 2009; Puckett and Hensher 2008; Hensher and Rose 2009; Scarpa et al. 2009; Scarpa et al., 2009; Scarpa et al., 2010). The general consensus is that respondents do ignore some attribute information and that researchers should take ANA behavior into consideration in CEs to avoid under or overestimation of WTP.

For this reason, a growing number of studies have been focused on exploring the behavioral reasoning for why people ignore attributes in CEs and how this then influences WTP estimates (Heidenreich et al., 2017). One explanation can be related to the fact that people ignore the attributes they value less (Almun et al., 2013; Heidenreich et al., 2017). Scarpa et al. (2010) observed that ANA behavior towards attributes related to Alpine parks varied according to the type of visitor responding to the survey (i.e. hikers, *via ferrata* recreationists, climbers, picnickers, mountain bikers), suggesting that respondents tended to ignore the attributes which were less related to their visiting interests. Almun et al. (2013) explored different individuals' reasons for ANA in CEs, by adding a follow-up question, where respondents were presented with different explanations for not attending the attributes they had stated they ignored. The authors found that between 13% and 84% of respondents who exhibited ANA behavior stated that they ignored the attributes which were not important to them. The degree of importance of the attributes was chosen, with a relatively high frequency, as the reason for ANA behavior, compared to other reasons such as protest behavior or disbelief of selected attributes. However, the most often stated reason for ignoring attributes was that ANA made it easier for respondents to make the choice between the product alternatives in the choice tasks. This result supports the hypothesis that ANA behavior is associated with cognitive effort. In addition, studies have documented that the degree of complexity of and familiarity with the attributes might be a source of additional cognitive effort in choice making (Campbell et al. 2008; Heidenreich et al. 2017; DeShazo and Fermo 2004). Specifically, authors argued that individuals are more likely to ignore unfamiliar attributes, since the attendance to unfamiliar, more complex goods might imply a higher degree of cognitive load (Heidenreich et al. 2017).

However, the nature of the attributes in question might not be the only factor affecting cognitive resources. Cognitive capacity is a limited resource and individuals tend to adopt simplifying choice strategies when responding to complex tasks (Payne and Bettman, 2001; Shah and Oppenheimer 2008). Hence, cognitive effort minimization is commonly considered one of the main reasons that could explain ANA heuristics (Almun et al., 2013, Campbell et al., 2008, DeShazo and Fermo 2004, Heidenreich et al., 2017, Hensher and Rose, 2009). Despite this, to our knowledge, no study has examined how the temporary use of mental resources may affect ANA behavior in CEs.

In order to fill this void in the literature, we conducted an online CE study using craft beer as the product of interest and took into account ANA behavior at the choice task level (Scarpa et al., 2010). Specifically, we used treatments where different tasks were implemented in order to induce willpower depletion, which is a primary factor affecting cognitive capacity. In psychology, willpower is interpreted as the capacity to exert self-control. It draws upon a limited pool of mental resources, which can be depleted after exertion (Vohs et al., 2014). Pocheptsova et al. (2009) showed that individuals tended to switch to simpler, less effortful decision-making processes when temporary depletion of mental resources was induced. Hence, our hypothesis is that inducing willpower depletion, and therefore cognitive resource depletion, exacerbates ANA behavior, affecting WTP estimates for the product attributes. If results from this study confirm our hypothesis, this might then suggest that researchers may need to take into account respondents' willpower depletion prior to conducting choice experiments. This article is structured as follows: first we give a description of the experimental procedures implemented in our CE, willpower depletion, and ANA behavior. We then describe the econometric approach used to estimate preference and WTP formation, and finally we describe and discuss the results from our experiment.

Experimental Procedures

Choice Experiment Design

This study uses an online CE of craft beer products (six pack, 72 oz, of craft beer). Craft beer has been chosen as the product of interest because of its increasing popularity in the last decade in the U.S. (Malone and Lusk, 2017). Given the growing interest on the origin and method of production of craft beer (Malone and Lusk, 2017), our study focused on attributes related to the brewing location, the production location of hops, and whether it is organic or not (table 1). Price was also included as one of the attributes in our experimental design.

--Insert Table 1—

Each of these attributes was described by different attribute levels (table 1). Specifically, brewing location was described as brewed in “Indiana”, brewed “Within the Great Lakes region, outside of Indiana” and “Within the US, outside of the Great Lakes region”. In addition, four attribute levels were selected for production location of hops: in “Indiana”, “Within the Great Lakes region, outside of Indiana”, “Within the US, outside of the Great Lakes region” and no information. “Production method of ingredients” was specified as “Organic” or no information, and finally price was represented using five levels: $6.99, $9.99, $10.99, $12.99, and $16.99. Price levels were selected based on observed market prices for craft beer in different outlets in Indiana and based on the results of the pre-test survey we conducted where we asked respondents to indicate their reference price for a six pack (72 oz) of craft beer (Bazzani et al., 2017).

Attributes and attribute levels were allocated across 24 choice tasks using a Bayesian efficient experimental design (Bayesian priors were generated using Multinomial Logit Model estimates obtained from the analysis of the pilot data using a D-efficient design with priors equal to zero) (Scarpa et al., 2007). The 24 choice tasks were then divided into three blocks of eight and the respondents were randomly assigned among the three blocks. Each choice task consisted of two product alternatives and a no-buy option. Due to the hypothetical nature of our CE, a cheap talk script was also included. To measure ANA, we asked respondents after each choice task to indicate which attributes they ignored.

Willpower Depletion: the Stroop Task

In order to capture the effect of willpower depletion on consumers' choice behavior, we implemented the Stroop task method (Stroop, 1935). Respondents were randomly assigned to one of three treatments that differed in terms of the degree of cognitive depletion induced by the use of different Stroop tasks. Specifically, the first treatment was the control treatment (CT), which did not include any form of Stroop task. The second treatment was the "Stroop test" treatment (STT), where respondents were presented with a word that represented the name of a color (e.g. blue, red, orange, yellow, green, purple), which was displayed in a font of a mismatched color. For example, the word "red" was printed in yellow. The participants were instructed to select the color of the font the word was printed in, rather than its lexical meaning. Finally, the third treatment was the "non-Stroop test" treatment (NSTT). The NSTT presented the same mismatched color words, however it differed from the STT in that it instructed respondents to select the color corresponding to the lexical meaning of the word. This treatment served as a control to the STT (Pocheptsova et al., 2009). When a color word is written in a different font color, the initial impulse is to read the lexical meaning of the word. Naming the font color instead is a form of self-regulation that induces willpower to be undertaken since it requires one to abrogate the tendency to read the color word. As a consequence, taking part in the STT instead of the NSTT implicates a lower amount of remaining willpower. This then allows us to observe how different degrees of cognitive effort may influence individuals' responses to the choice tasks.

In both the STT and NSTT, respondents answered 40 Stroop tasks. After each task, respondents were presented with feedback regarding their performance: whether their answer was correct or not and the amount of time they took to respond to the Stroop task. The Stroop task exercise was performed immediately prior to the choice experiment.

Data

A representative sample of Indiana residents of drinking age was selected to participate in an online survey related to craft beer consumption. Due to the use of tasks (Stroop task) involving color identification, colorblind individuals were screened out from participating in the survey. In addition, the survey concluded with a set of six tasks where respondents were asked to indicate in which color a figure was printed. Respondents who did not indicate the color of the figure correctly were excluded from the sample. Moreover, trap questions were used to screen out inattentive respondents. Overall, 600 respondents participated in the experiment and were randomly assigned to three treatments: control treatment (CT), Stroop Test treatment (STT) and Non-Stroop Test treatment (NSTT).

The descriptive statistics of the basic socio-demographic information of the respondents across the treatments are presented in table 2.

--Insert table 2--

Results from the ANOVA test for the age variable and Pearson Chi-Square tests for gender, income and education information show that the hypothesis of equality of socio-demographic characteristics across the three treatments cannot be rejected at the 5% significance level. Hence, we can conclude that the three treatments are balanced in terms of socio-demographic information. In addition, in order to test whether the Stroop task affected ANA behavior, the descriptive statistics of self-reported ANA at choice task level for each attribute across the three treatments were calculated (table 3).

--Insert table 3--

Table 3 shows that attendance to the attributes varies significantly across the three treatments in case of brewing location, hops production location and production method of ingredients. The Pearson Chi-Square results indicate that the frequency at which respondents declared to have ignored the attributes is statistically different, at the 5% significance level, across the treatments for all attributes except for price. An interesting and unexpected result is that respondents in the STT ignored these attributes at a lower frequency compared to the other two treatments. On the other hand, attendance towards the price attribute did not vary significantly across the treatments. This might suggest that the nature of the attribute, such as degree of familiarity, complexity or importance to the individuals, might influence ANA behavior (Campbell et al. 2008; Heidenreich et al. 2017).

Econometric Analysis

In order to estimate respondents' preferences for the craft beer attributes, we implemented discrete choice models. The utility for individual *i* of choosing alternative *j* in the t^{th} choice situation is:

$$U_{ijt} = \beta'_i x_{ijt} + \varepsilon_{ijt} \qquad (1)$$

where x_{ijt} is a vector of the observed variables relating to alternative *j* and individual *i* in choice set *t*; β'_i is a vector of structural taste parameters characterizing choices; ε_{ijt} is the unobserved error term, assumed to be independent of β and x.

Different choice models can be implemented depending on the assumption about the distribution of the unobserved error term and the functional form of the utility. The Multinomial Logit Model (MNL), for instance, assumes that the error terms are independently and identically distributed (IID) with a Gumbel distribution, and implies independence within the alternatives and taste homogeneity across respondents. However, we expect that heterogeneity exists across individuals' choices for craft beer products. Thus, models such as the Random Parameter Logit (RPL), which can account for random taste variation and for the panel structure of the data, should be taken in consideration (Train 2009). In addition, contrary to the MNL models, in RPL models the assumption of independence of the irrelevant alternatives (IIA) is relaxed (Train 2009). Moreover, our experimental design is characterized by two product alternatives and a no-buy option. Hence, in order to capture the higher correlation that the two product alternatives might have in comparison with the no-buy option, we use a Random parameter logit error component (RPL-EC) for the econometric analysis (Caputo, Nayga and Scarpa 2013; Gracia, Barreiro-Hurlé, and Pérez y Pérez 2012, Gracia 2014; Scarpa, Ferrini and Willis 2005). In RPL-EC the two product alternatives share an extra error component with zero mean and is normally distributed, which is associated exclusively with the purchase alternatives and is absent in the utiltity fuction of the no-purchase option (Scarpa, Ferrini and Willis 2005; Scarpa, Thiene and Marangon 2007).

Specifically, in our experimental design the utility that individual *i* derives in choosing option *j* in choice situation *t* can be specified as follows:

$$U_{ijt} = ASC + \beta_1 PRICE_{ijt} + \beta_2 BREW\_IN_{ijt} + \beta_3 BREW\_GL_{ijt} + \beta_4 HOPS\_IN_{ijt} + \beta_5 HOPS\_GL_{ijt} + \beta_6 HOPS\_US_{ijt} + \beta_7 ORG_{ijt} + \eta_{ijt} + \varepsilon_{njt}$$

ASC is the alternative specific constant of the no-buy option. PRICE is a continuous variable populated with the five price levels in the design; BREW_IN and BREW_GL are dummy variables describing brewing location in Indiana and within the Great Lakes region, respectively; HOPS_IN, HOPS_GL and HOPS_US are the dummy variables related to the location of production of hops; ORG is the dummy variable indicating that the craft beer has been produced with organic hops; all the dummy variables take a value equal to 1 in case the attribute level is present, 0 otherwise; η_{ijt} is the error component distributed normally with zero mean, which inflates the variance of utility for the options different from the no-buy option; ε_{njt} is an unobserved random error term that is i.i.d. distributed and following an extreme value type-I (Gumbel) over alternatives.

Finally, we restricted the coefficients of the attributes that the respondents stated they ignored to zero to account for ANA behavior, which results in the removal of the respective attributes from the choice consideration for individual *i* in choice set *t* (Hensher et al., 2005). For each treatment, we estimated RPL-EC models without accounting for ANA (Model 1, AA) and accounting for (Model 2, ANA) ANA behavior by parameterizing the ignored attributes to zero.

Finally, from estimates of Model 1 (AA) and Model 2 (ANA), we calculated marginal WTP for the craft beer products as the negative ratio of the partial derivative of the utility function, with respect to the non-price attributes, and the derivative of the utility function with respect to the price variable.

Results from the econometric analysis

The estimates from the RPL-EC models for each of the three treatments are reported in table 4. Specifically, for each treatment, we show the estimates both for the full attendance (Model 1, AA) and for the non-attendance (Model 2, ANA) models.

--Insert Table 4—

In all the models, the constant, *ASC*, is negative as expected and statistically significant at the 0.01 level; hence, the utility that consumers derive from choosing neither of the proposed alternative products is lower than the utility from buying one of them. Also, the price coefficient is negative, indicating that an increase of the price variable decreases the associated utility level provided by the choice of the product. In addition, the standard deviation of the error component (η) for the purchase alternatives is statistically significant across all models, supporting the hypothesis of correlation across utilities of the purchase alternatives.

On the other hand, levels of significance of the non-price attributes vary across the treatments. Table 4 indicates that "brewed in Indiana" and "hops from the US" are the attributes which respondents tend to choose with a higher probability, while "organic" attribute is the least preferred attribute. However, we can observe that the level of significance of the attributes' coefficients do not decrease with the application of willpower depletion, contrary to our hypothesis. This result is actually consistent with the reported descriptive statistics of the responses to the ANA questions, which show that respondents ignored the attributes less in the STT treatment than in the other two treatments. While the reason for this result is unclear, it is possible that answering the ANA questions might also require cognitive effort and this could have caused respondents in the STT to have chosen the simpler and less effortful "I did not ignore any attribute" alternative when cognitive resources were depleted. At the same time, differences in attributes coefficients suggest that the implementation of the Stroop task might have affected individuals' responses. In addition, looking at the summary statistics it is possible to observe a decrease in log-likelihood estimates and an increase in AIC and AIC/N statistics from Model 1 to Model 2, suggesting that accounting for ANA decreases the model fit. This result is consistent with findings of previous studies (Hensher, 2005) and indicates that accounting for ANA affects estimated WTP values.

We then calculated the marginal WTPs for the craft beer attributes across the three treatments, which are reported in table 5. Specifically, in the case of model 2 we calculated conditional WTP averages, which are weighted averaged individual WTP values by including the WTP of zero for the individuals stating to have ignored the attribute.

--Insert Table 5--

We conducted t-tests in order to test hypotheses of equality of individuals' marginal WTP between the CT and the STT treatments and between the NSTT and the STT treatments. As expected, results from the t-tests show that marginal WTP for the craft beer attributes are statistically different across the treatments at the 5% level. Hence, this result indicates that inducing willpower depletion does affect respondents' WTP formation, both when accounting and not accounting for ANA.

Conclusions

A considerable number of studies have documented that ANA behavior impacts WTP estimates in CE. ANA can be defined as heuristics, which individuals use to simplify choices among different product alternatives (Almun et al., 2013, Campbell et al., 2008, DeShazo and Fermo 2004, Heidenreich et al., 2017, Hensher and Rose, 2009). Given the fact that cognitive capacity is a limited resource, in this study we investigated whether cognitive depletion exacerbates ANA behavior. We used the Stroop task method (Stroop, 1935) which is a validated procedure implemented in psychology to induce willpower depletion. Findings from this study support the hypothesis that cognitive capacity affects attribute processing in CEs.

Indeed, our results show that individuals attended the various attributes on craft beer products differently depending on whether they had or had not completed the cognitive depletion task before answering the choice questions. However, our results do not support our hypothesis that cognitive depletion increases ANA behavior given that individuals who took part in the Stroop task treatment stated to have ignored the experimental attributes with lower frequency than respondents from the other two treatments. The descriptive statistics also support these results from the models. However, we call for the need of the implementation of econometric analysis, which can assess whether self-assessed ANA responses reflect individuals' choice behavior. One possible explanation of this result is that answering the stated ANA questions could have also been a source of further cognitive effort to respondents, which might have caused respondents who had been given the Stroop tasks to choose the simpler and less effortful "I did not ignore any attribute" alternative in the ANA question. However, this is obviously just our conjecture and more research is needed to definitively examine the reason behind our results.

Moreover, our results support that the nature of the attribute in question might be an important factor in explaining ANA behavior. For example, we observed significant differences in ANA behavior for the non-price attributes, such as brewing location or hops production location, across the different treatments. The price attribute, on the other hand, was equally attended to across the different treatments. It is possible that price may be perceived as a more familiar or more valued attribute than the other non-price attributes (Campbell et al., 2008, DeShazo and Fermo 2004, Heidenreich et al., 2017).

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Tables

Table 1: Attributes and Attribute Levels

Attributes	Attribute Levels
Brewing Location	- Indiana - Within the Great Lakes region, outside of Indiana - Within the US, outside of the Great Lakes region (baseline)
Production location of hops	- Indiana - Within the Great Lakes region, outside of Indiana - Within the US, outside of the Great Lakes region - No information (baseline)
Production method of ingredients	-Organic -No information (baseline)
Price	-$6.99 -$9.99 -$10.99 -$12.99 -$16.99

Table 2: Socio-demographic information of the sample

	CT (N=231)	STT (N=192)	NSTT (N=177)
Age	45	45	45
Anova			
p-value= 0.98			
Gender (%)			
Female	50.22	51.04	50.28
Pearson Chi-Square(2)=0.03			
p-value=0.98			
Income (%)			
Less than $25.000	13.42	10.94	14.12
$25.000-74.900	54.11	53.65	54.24
>$75.000	31.60	32.81	31.07
I prefer not to answer	0.87	2.60	0.56
Pearson Chi-Square (6) = 4.42			
p-value=0.62			
Education (%)			
Less than high school	1.73	1.56	1.13
High school	53.68	53.65	54.80
University Degree	44.59	44.79	44.07
Pearson Chi-Square (4) = 0.29			
p-value=0.99			

Table 3: Attributes ignored by the respondents across treatments (%)

	CT (N=1848)	STT (N=1536)	NSTT (N=1416)
Brewing Location *Pearson Chi-Square(2)=21.49* *p-value=0.000*	17.75	16.49	19.92
Production Hops Location *Pearson Chi-Square(2)=60.66* *p-value=0.000*	27.33	21.29	22.10
Production method of ingredients *Pearson Chi-Square (2) = 7.03* *p-value=0.030*	29.06	26.69	28.18
Price *Pearson Chi-Square (2) = 4.34* *p-value=0.114*	15.85	15.95	17.30
None *Pearson Chi-Square (2) = 4.34* *p-value=0.114*	41.40	47.79	47.25

Table 4: RPLEC model estimates across the experimental treatments

	CT				STT				NSTT			
	Model 1 (AA)		Model 2 (ANA)		Model 1 (AA)		Model 2 (ANA)		Model 1 (AA)		Model 2 (ANA)	
	Mean	**St. Dev**	**Mean**	**St. Dev**	**Mean**	**St. Dev**	**Mean**	**St. Dev**	**Mean**	**St. Dev**	**Mean**	**St. Dev**
ASC	-6.140***		-5.069***		-6.202***		-3.847***		-5.66***		-3.681***	
	(0.043)		(0.373)		(0.448)		(0.292)		(0.033)		(0.023)	
Price	-0.409***		-0.321***		-0.521***		-0.320***		-0.476***		-0.296***	
	(0.029)		(0.023)		(0.035)		(0.021)		(0 .453)		(0.349)	
BREW_IN	1.383***	1.449***	1.031***	1.467***	1.152***	1.017***	0.846***	1.134***	1.067***	1.390***	0.754***	1.211***
	(0.182)	(0.234)	(0.185)	(0.241)	(0.178)	(0.261)	(0.167)	(0.235)	(0.190)	(0.247)	(0.178)	(0.249
BREW_GL	0.350**	0.343*	0.246*	0.336*	0.229	0.237	0.151	0.414**	0.436***	0.430**	0.276***	0.394*
	(0.142)	(0.183)	(0 .136)	(0.202)	(0.160)	(0.209)	(0.143)	(0.200)	(0.158)	(0.198)	(0.150)	(0.204)
HOPS_IN	.230	2.152***	0.174	1.916***	1.036***	2.048***	0.610***	1.272***	1.128***	1.967***	0.818*	1.845***
	(0.243)	(0.265)	(0.223)	(0. 268)	(0.263)	(0.267)	(0.196)	(0.292)	(0.263)	(0.346)	(0.237)	(0.279)
HOPS_GL	0.021	1.555***	-0.280	1.992***	0.451*	2.015***	0.091***	1.587***	0.739***	1.529***	0.593***	1.535***
	(0.205)	(0.411)	(0.235)	(0.271)	(0.251)	(0.289)	(0.221)	(0.427)	(0.231)	(0.271)	(0.213)	(0.275)
HOPS_US	0.503***	0.527*	0.609**	0.913***	0.791***	0.940***	0.912***	0.637***	0.773***	0.231	0.836***	0.398*
	(0.139)	(0.296)		(0. 302)	(0.176)	(**0.**260)	(0.151)	(0.214)	(0.156)	(0.216)	(0.152)	(0.231)
ORG	-0.154	2.090***	0.158	1.969***	-0.249	2.147***	-0.425**	1.627***	0.052	2.004***	-0.261	1.877***
	(0.205)	(0.264)	(0.184)	(0.188)	(0.204)	(0 .315)	(0.171)	(0.360)	(0.194)	(0.318)	(0.194)	(0.397)
η		2.379***		2.606***		2.324***		1.617***		2.109***		2.170***
		(0.283)		(0.799)		(0.294)		(0.429)		(0.696)		(0.466)
N	1848		1848		1536		1536		1416		1416	
LL	-1368.876		-1444.303		-1147.092		-1259.154		-1100.835		-1212.752	
AIC	2809.8		2960.6		2366.2		2590.3		2273.7		2497.5	
AIC/N	1.520		1.602		1.540		1.686		1.606		1.764	

Notes: Numbers in parenthesis are standard errors; ***, **, * indicate significance at 10%, 5% and 1% level

Table 5: WTP estimates across treatments

	Model 1 (AA)	Model 2 (ANA)
BREW_IN		
STT	2.211	2.208
CT	3.464	2.974
P-value	*0.005*	*0.000*
STT	2.211	2.208
NSTT	2.242	2.073
P-value	*0.221*	*0.000*
BREW_GL		
STT	0.294	0.423
CT	0.919	0.639
P-value	*0.000*	*0.015*
STT	0.294	0.423
NSTT	0.917	0.814
P-value	*0.000*	*0.003*
HOPS_IN		
STT	1.989	0.719
CT	0.544	0.594
P-value	*0.057*	*0.008*
STT	1.989	0.719
NSTT	2.369	2.307
P-value	*0.047*	*0.001*
HOPS_GL		
STT	0.867	0.230
CT	0.056	-0.527
P-value	*0.028*	*0.034*
STT	0.867	0.230
NSTT	1.551	0.719
P-value	*0.000*	*0.001*
HOPS_US		
STT	1.519	2.327
CT	1.175	1.479
P-value	*0.000*	*0.000*
STT	1.519	2.327
NSTT	1.624	1.733
P-value	*0.565*	*0.032*
ORG		
STT	-0.478	-0.296
CT	-0.381	-0.219
P-value	*0.093*	*0.529*
STT	-0.478	-0.296
NSTT	-0.109	-0.712
P-value	*0.003*	*0.000*