edssi

User Satisfaction Survey Results

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1. Introduction

In the context of the EDSSI project a support system is set up for the HEI community that needs to implement digital management of their student mobility using the EDSSI's core infrastructure. This core infrastructure consolidates and integrates a range of ongoing digital initiatives – the so-called building blocks. Each block plays a key role in building the overall infrastructure, contributing with specific and well-established services.

The helpdesk infrastructure exists of a self-service knowledge base and a service desk where users can create helpdesk tickets. User feedback about the different components of the support infrastructure is needed for the further improvement of this service.

Via the integration of users satisfaction surveys the quality of the EDSSI helpdesk infrastructure and solutions will be gathered in order to improve the overall support service. The overall goal in this research project is to assess user satisfaction about the EDSSI helpdesk infrastructure.

2. Method

2.1 Research model

Our research model is derived, in part, from related work by Pal and Vanijja (2020), where perceived usefulness and SUS was used to test overall experience of Microsoft Teams during the COVID-19 pandemic. Below we also discuss our items, recruitment and survey structure.

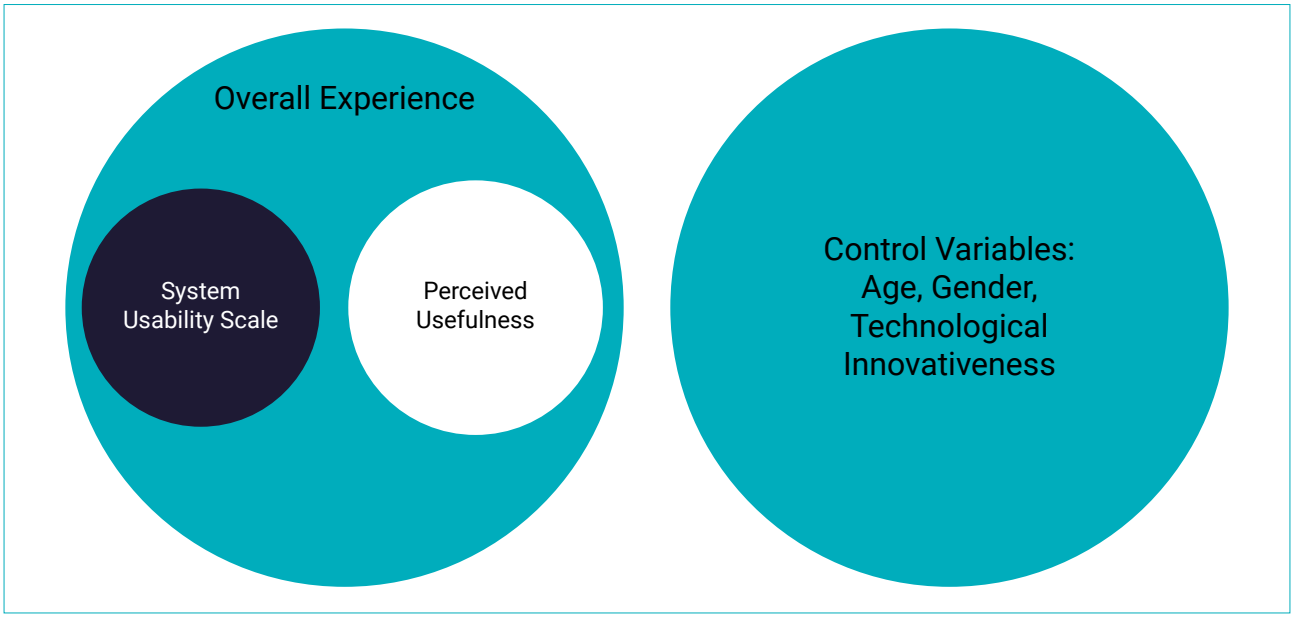


Figure 1: Research Model

2.2 Overview of the items

As shown in our research model, participants were questioned about the system usability through the System Usability Scale (SUS). This is a well-established 10 item scale that measures the usability of a product. SUS is calculated first adding all odd questions (SUS1, SUS3, etc.) and

subtracting 5. Subsequently, all even numbered questions are added (SUS2, SUS4, etc.) and subtracting this value from 25. The resulting score for both even and odd questions is added and finally multiplied by 2.5, which results in a maximum score of 100 and minimum of 0.

However, we are using an adapted version of the SUS with the removal of one item deemed inappropriate for inclusion (*I needed to learn a lot of things before I could get going with the helpdesk support*). As a result, we first divide the sum of our even numbered items (i.e.: negative questions) by 4, followed by multiplication by 5:

((SUS1 + SUS3 + SUS5 + SUS7 + SUS9) -5) + (25- ((SUS2 + SUS4 + SUS6 + SUS8) /4) *5) *2.5

The results can be interpreted as *good* if the scores are 70 or higher, while best imaginable scores are 90+ (Bangor et al., 2009).

Another relevant scale is the perceived usefulness scale, used as part of the Technology Acceptance Model (Davis, 1989), and gauges how useful participants rate tool, feature, or technology. We additionally also choose to control for self-perceived technological innovativeness (TI), given it's possible impact on how satisfied persons might be with the results. For example, persons with high TI scores might arguably rate the overall experience higher. We have also included socio-demographic control variables which are age and gender. Construct reliability (measured as Cronbach's Alpha) for both Perceived Usefulness and Technological Innovativeness was satisfactory.
Overall experience was measured by asking the following question: *Considering everything, how would you rate your overall experience with the helpdesk support?* This item was derived from Pal and Vanijja (2020).

Table 1: Scales, items and construct validity

Items and constructs		Cronbach's Alpha	Source
System Usability Scale		**n/a**	(Lewis, 2019)
SUS 1	I think that I would like to use the helpdesk support frequently.		
SUS 2	I found the helpdesk support unnecessarily complex.		
SUS 3	I thought the helpdesk support was easy to use.		
SUS 4	I think that I would need the support of a technical person to be able to use the helpdesk support.		
SUS 5	I found the various functions in the helpdesk support were well integrated.		
SUS 6	I thought there was too much inconsistency in the helpdesk support.		
SUS 7	I would imagine that most people would learn how to use the helpdesk support quickly.		
SUS 8	I found the helpdesk support inconvenient to use.		
SUS 9	I felt very confident using the helpdesk support.		
Perceived Usefulness		**.97**	(Davis, 1989)
PU 1	Using the helpdesk support in my job/studies would enable me to accomplish tasks more quickly		
PU 2	Using the helpdesk support would improve my job/study performance		
PU 3	Using the helpdesk support in my job/study would increase my productivity		
PU 4	Using the helpdesk support would enhance my effectiveness on the job/study		
PU 5	Using the helpdesk support would make it easier to do my job/study		
PU 6	I would find the helpdesk support useful in my job/study		
Technological Innovativeness		**.89**	(Parasuraman & Colby, 2015)
TI 1	Other people come to me for advice on new technologies		
TI 2	In general, I am among the first in my circle of friends to acquire new technology when it appears		
TI 3	I can usually figure out new high-tech products and services without help from others.		
TI 4	I keep up with the latest technological developments in my areas of interest.		

2.3 Missing values

The survey was designed with the deliberate intention of being as short as possible and with the assumption that there will a lot of dropout as the survey proceeds. As a result, the most important question, Overall Experience, was asked first, to ensure the highest response. The results of this dropout can be seen in Table 2.

Table 2: Missing values and missing percentage per question asked

Item	Missing	Missing %
Overall Experience	75	30.86
Channel	76	31.28
Perceived Usefulness	133	54.73
Technological Innovativeness	137	56.38
Age	140	57.61
Gender	140	57.61
System Usability Score	161	66.26

3. Results

3.1 Descriptive statistics

The mean age of our sample is 42.45, with an overrepresentation of women (73%) when compared to men. We have one participant who indicated “other”. The survey was also accessed mostly through the Erasmus Dashboard, followed by the support desk and email. Only 15% of our sample access the survey through email.

Figure 2: Age of sample

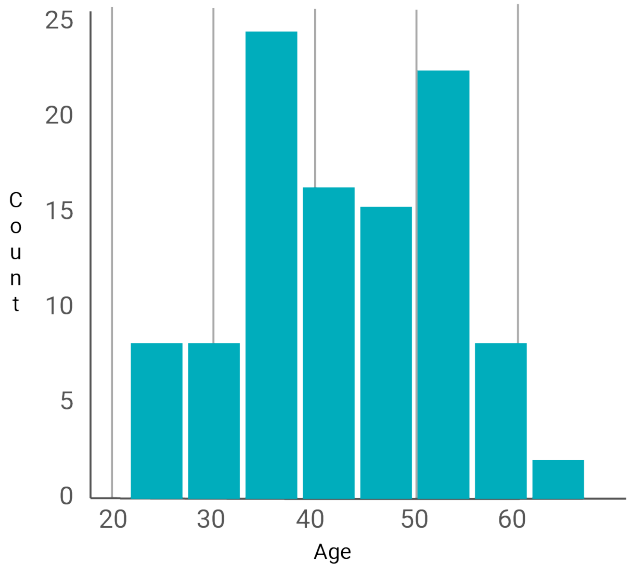
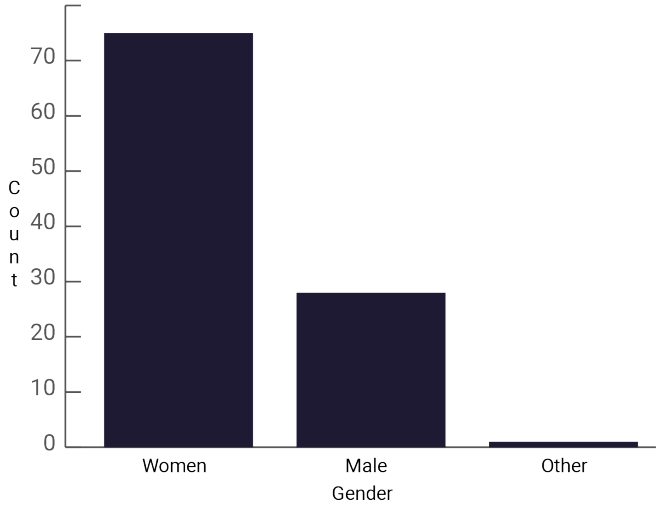


Figure 3: Gender distribution of sample



Overall system usability is **low**, with a score of **51.50**. This is mirrored in the **overall experience score**, with an average of **4.78**. Our participants overall **self-rated technological innovativeness** is **3.24**, while **perceived usefulness** of the system scored **3.30**.

Table 3: Descriptive summary of our sample

Characteristic	Mean (SD)	Share of Sample	Min	Max
Age	42.45 (10.11)		21	67
Missing	140			
Gender				
Men		27 (26%)		
Women		74 (73%)		
Unknown		1 (1.0%)		
Missing	140			
Channel				
Support Desk		49 (29%)		
Knowledge Base		15 (9.0%)		
Via Erasmus Dashboard		57 (34%)		
Email		46 (28%)		
Missing	76			
Overall Experience	4.78 (2.61)		1	10
Missing	75			
System Usability Scale	51.50 (18.69)		0	95
Missing	161			
Technological Innovativeness	3.24 (0.91)		1	5
Missing	137			
Perceived Usefulness	3.30 (1.16)		1	5
Missing	133			

Figure 4: Overall experience

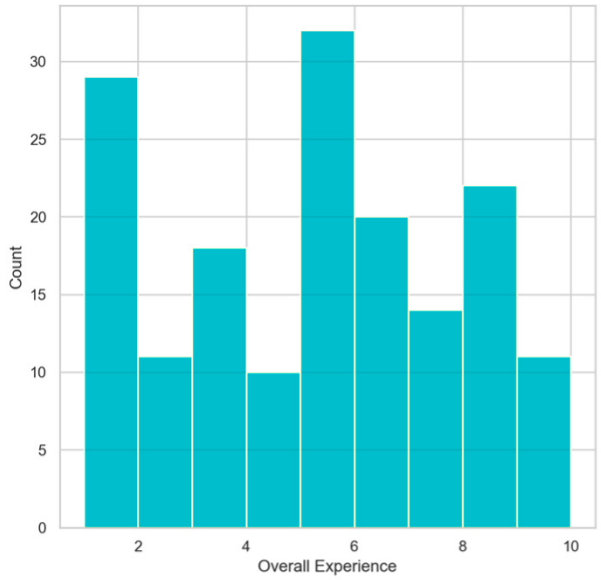


Figure 5: System Usability Score

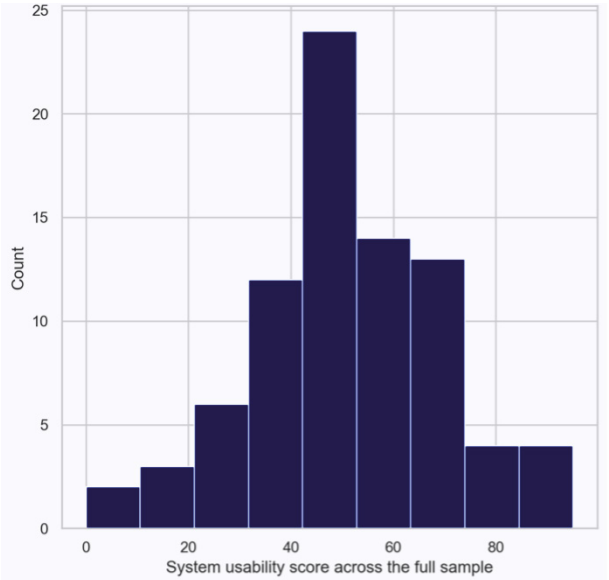


Figure 6: Perceived usefullness

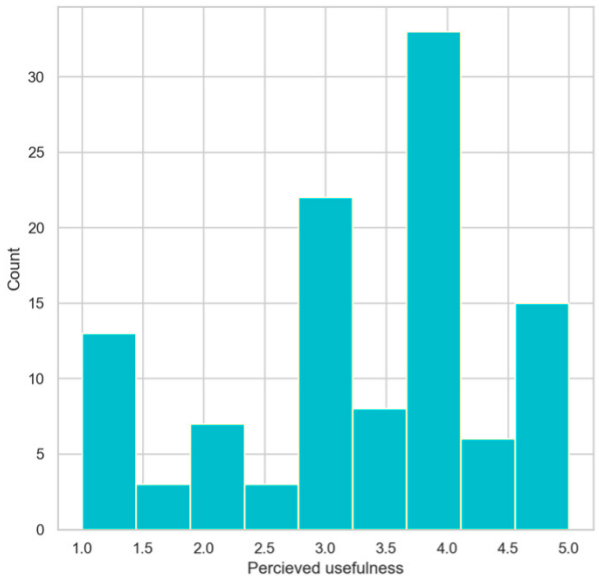


Figure 7: Technological innovativeness

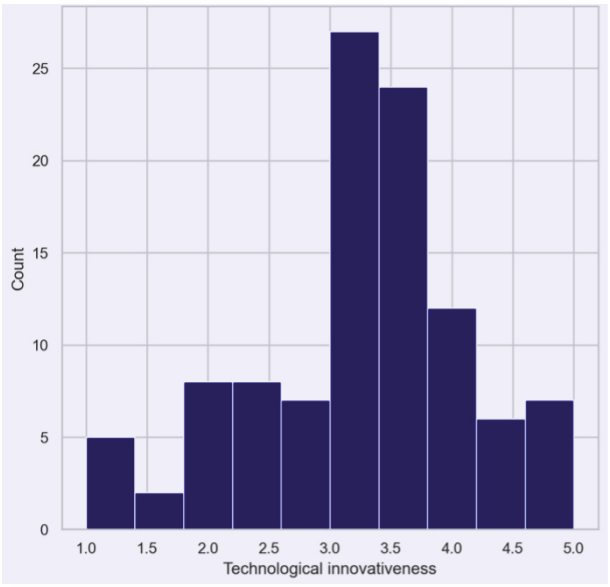


Figure 8: Channels used to access the survey

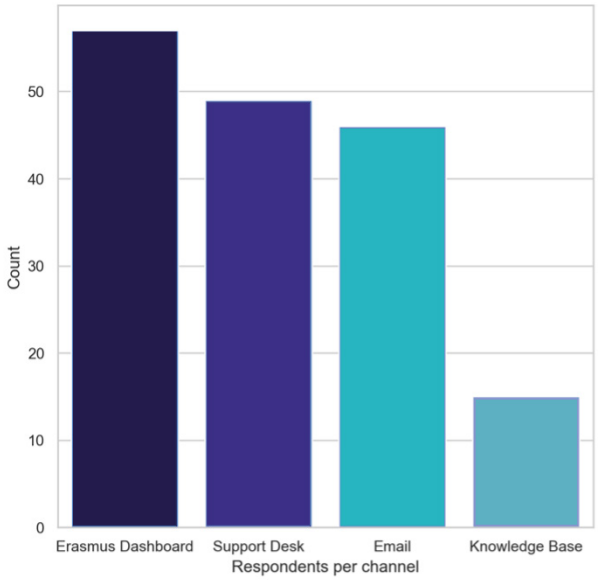


*Table 4: Pearson correlation table, p<0.01 = ***

	Overall Experience	SUS	PU	TI
Overall Experience	1			
SUS	0.49**	1		
PU	0.31**	0.12	1	
TI	0.07	0.27**	0.04	1

We find **strong correlations** between system usability and overall experience, while perceived usefulness is also correlated with overall experience. Technological innovativeness and system usability also have a **positive correlation**, while **no correlation** can be found between overall experience and technological innovativeness.

3.2 Exploratory Analysis

It is possible that the channel through which participants arrived at the survey has an impact

on their score. For example, participants arriving via the Support Desk might be motivated to perform the survey because they could not find a function, while those accessing it from the Erasmus Dashboard may not have had a negative experience, resulting in different scores for reach channel.

To assess this, we perform two analysis of variance assessments, for both system usability and overall experience. Our results show that the source of a participant has **no significant impact** on how they evaluate both their overall experience and the System Usability.

Figure 6: Perceived usefullness

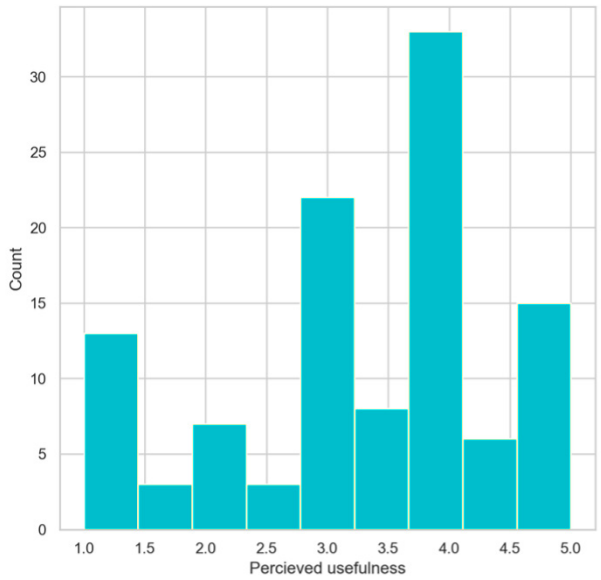
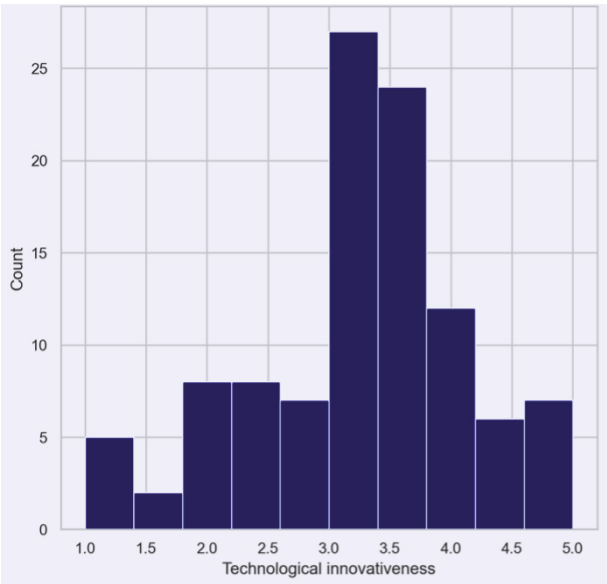


Figure 7: Technological innovativeness



While the inclusion of one person with who indicated "other" precludes a variance analysis for **gender** and overall experience and or system usability, the removal of this one participant allows us to compare the averages for these two groups. Overall experience scores do **not differ significantly** (t=0.63, p=0.53), with men on average giving a core of 4.89, while women gave a score of 4.48. By contrast, System Usability scores differ for men and women (t=2.29, p=0.029, with men giving an average score of 59.80, while women give a score of 49.39.

3.3 Model results

Table 6 presents our full model as proposed in Figure 1. We see that b**oth age and gender do not have any impact on overall experience**. Our third control variable, **technological innovativeness is also not predicative** of overall experience. By contrast, system usability is positively associated, while perceived usefulness fails to reach statistical significance. These results are in line with our correlations.

Table 5: Linear regression results

	Overall Experience
Age	-0.01 (0.02)
Gender (1)	-0.56 (0.62)
Technological Innovativeness	0.08 (0.30)
System Usability Scale	0.07*** (0.01)
Perceived Usefulness	0.36 (0.22)
Constant	0.33 (1.57)

Observations	72
R^2	0.347
Adjusted R^2	0.297
Residual Std. Error	2.049 (df = 66)
F Statistic	7.001*** (df = 5; 66)

Notes:
(1) Men as reference category
*p**p***p<0.01

The appendix contains full model, with variables added stepwise, allowing effects for each variable to be seen in isolation. Results show that sociodemographic variables offer little explanation for overall experience.

3.4 Qualitative results

Beyond the quantitative analysis, our survey included an open question, where respondents had the opportunity to offer some suggestions for the EDDSI Helpdesk support. These answers offer some valuable insight into low scores provided by respondents.

It turns out this was a necessary question because there was quite some response. Analysing the answers, there were **three main problems** that occurred. The first problem is the total **lack of support of the helpdesk** and not being able to provide solutions for the problems of the user. Most of the respondents claim that they often have to wait a very long time before they receive a reply or sometimes never got answered. If the question was answered, it often failed helping the user. Since almost every suggestion is about the lack of responses from the helpdesk, this problem seems very urgent. Right now, the helpdesk infrastructure is failing his main purpose namely, helping and guiding the user.

"The main problem with the helpdesk is not about technical proficiency of the user but that there has been no response to any questions. And if there has been response, the response have not addressed or managed to answer the question."

"I would strongly recommend to receive prompt, quick, efficient and clear answers / feedbacks to the questions raised in order to solve problems using Erasmus Dashboard."

The second problem is the **complexity of the platform**. Users state it's not intuitive, clear nor user-friendly. The overload of unnecessary details, lack of filtering or a proper information guide makes it hard for the user to complete a task. This causes a lot of frustration and misapprehension. Possible solutions would be to work more with visuals, like infographics, a step-by-step guide or video with instructions.

"We need a clear information guide to be able to use the systems"

"Structure the information so it is easy to find. Have step-by-step guides. Provide documentation on use of technical platforms."

This leads us to the next problem, namely the **language barrier**. A lot of international students are users of the helpdesk. It would be useful if some information would be available in other languages than English, like French, German or Spanish. Solutions for the second problem can be applicable for this problem. Visual instructions can be useful to overcome the language barrier.

"It should be available in French, Spanish, German, Portuguese and other languages."

"Make it simpler and less complex. More instructional webinars, infographics etc. Some functions and processes of ED are hard to understand."

3.5 Sample bias

A key concern when interpreting the results is the impact of sample bias. It is possible that participants who were satisfied with the results were not compelled to complete the survey. While generally not problematic when attempting to discern relationships between variables (i.e.: gender and overall experience), this approach may lead to inflated negative opinions. This in-turn might partly explain the low SUS and Overall Experience scores.

4. Conclusions

We can conclude that the platform needs a drastic change. Right now, the purpose of the helpdesk does not meet the needs of the user. Many respondents state that the lack of help and interaction with helpdesk is the problem, rather than the technical proficiency. The feedback of the user satisfaction survey and its implementation is essential for the success of the helpdesk.

The main problem, lack of response, is a structural problem. If the involving parties take action regarding this issue, the majority of the users would be more satisfied towards the helpdesk.

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APPENDIX I

	Overal Experience			
	Model 1	Model 2	Model 3	Model 4
Age	0.02 (0.03)			-0.01 (0.02)
Gender	-1.27* (0.70)			-0.56 (0.62)
Technological Innovativeness		0.46 (0.34)		0.08 (0.30)
System Usability Scale			0.07*** (0.01)	0.07*** (0.01)
Percieved Usefulness			0.31 (0.21)	0.36 (0.22)
Constant	4.83*** (1.25)	2.95** (1.17)	-0.34 (0.97)	0.33 (1.57)
Observations	72	72	72	72
R2	0.05	0.03	0.33	0.35
Adjusted R2	0.02	0.01	0.31	0.30
Residual Std. Error	2.42 (df = 69)	2.43 (df = 70)	2.02 (df = 69)	2.05 (df = 66)
F Statistic	1.70 (df = 2; 69)	1.85 (df = 1; 70)	17.25*** (df = 2; 69)	7.00*** (df = 5; 66)

Notes:
(1) Men as reference category
*p**p***p<0.01

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