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Sexual objectification of women in media and the gender wage gap: Does exposure to objectifying pictures lower the reservation wage?

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Abstract
Using an online experiment, we investigate the influence of sexual objectification in media on economic decision making. In the experiment, subjects are asked to evaluate advertisements in women's magazines. In the treatment groups, the ads portray women in sexually objectifying poses, while the poses are neutral in the control group. The main research hypothesis is that sexual objectification tends to make women self-objectify, i.e., they internalize the view of the objectifying images, and as a result, they lower their reservation wage. We find that women in the treatment groups do self-objectify: Women who were exposed to the objectifying images described themselves with words related to body shape or size significantly more often than women in the control group. Adding a warning text about the fact that photoshopped images can create unrealistic body ideals did not mitigate the self-objectification. However, we do not find any effect of the sexual objectification on women's reservation wages. If we take the results at face value, they do suggest that the objectification of women in media, while having important psychological and emotional effects, does not seem to affect women's economic behavior, at least not directly.

JEL-classification: C91, J16.
Keywords: online experiment; sexual objectification; media; economic decision making

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1. Introduction

In media, women are often portrayed as objects. In psychology, research has linked objectification of women to problems such as depression and eating disorders (Fredrickson & Robertson, 1997; Noll and Fredrickson, 1998; Levine and Murnen, 2009; Grabe et al., 2008; Calogero et al., 2011). Objectification has also been linked to increased investments in appearance (Grabe et al., 2008) and increased intentions to have cosmetic surgery (Calogero et al., 2013). The identifying features of sexual objectification are that it "occurs whenever people's bodies, body parts, or sexual functions are separated out from their identity, reduced to the status of mere instruments, or regarded as if they were capable of representing them. In other words, when objectified, individuals are treated as bodies and in particular as bodies that exist for the use and pleasure of others" (Fredrickson and Roberts, 1997).

The psychological explanation for this effect is that objectification of women in, for example, the media makes women evaluate themselves as sexual objects to be evaluated by others with an excessive focus on their appearance (Fredrickson and Roberts, 1997). This internalization, i.e., the process of other people's views of them becoming their own views of self, is known as self-objectification.

If an individual exists in a culture that objectifies her, she is at risk of internalizing this treatment, leading to self-objectification. Internalization of cultural appearance ideals has been identified as playing an important role in predicting body dissatisfaction (Thompson and Stice, 2001; Aubrey et al., 2009; Krawczyk and Thompson, 2015). For example, Aubrey et al. (2009) investigated whether media´s intense focus on body display and images of women´s bodies segmented into body parts increases the objectification of own bodies. They found that exposure to a body-display treatment led women to describe themselves more often and in more negative ways in appearance-related statements. Moreover, Harper and Tiggemann (2008) found in an experiment that subjects who viewed advertisements with a thin woman reported greater self-objectification, more weight-related anxiety, and a more negative mood, and they were less satisfied with their bodies. Previous studies have also shown that this phenomenon in turn leads to an increase in women's sense of shame about their own body (Fredrickson et al.,

1998; Calogero, 2004; Quinn et al., 2006; Harper and Tiggemann, 2008; Calogero et al., 2013). In Fredrickson et al. (1998), self-objectification was manipulated by having participants try on either a swimsuit or a sweater. They found that self-objectification increases body shame, but also that it predicts restrained eating and diminishes math performance, and that women are more likely to self-objectify than men. Body shame is found to be a key component in understanding self-objectification (Krawczyk, 2013).

More generally, meta-analyses of 77 studies (Grabe et al., 2008) found that media exposure is negatively linked to women´s dissatisfaction with their bodies regardless of age. Self-objectification has also been found to be even stronger among single women than non-singles (Sanchez and Broccoli, 2008) and stronger among adolescents than adults (Groesz et al., 2002).

While several studies have demonstrated that sexual objectification and self-objectification affect women's mental health and self-image, few have investigated how sexual objectification affects women's decisions and behavior that are important from an economic perspective, such as the outcome of bargaining situations and willingness to take risks. Previous research on economic decision making and gender has primarily focused on differences between men and women in areas such as risk taking (Croson and Gneezy, 2009; Booth and Nolen, 2012), competitiveness (Gneezy et al., 2003; Niederle and Vesterlund, 2007, Dreber et al., 2014), and career choices (Buser et al., 2014, 2017).[1] However, studies have also shown that rather subtle gender or beauty stereotypes can influence the behavior of men and women (e.g., Andreoni and Petrie, 2008; Boschini et al., 2012).

As far as we know, only one study has looked at the effect of exposure to

[1] There is also a strand of related literature that looks at the inclination for negotiation and behavior in negotiations. Several studies have found that women ask for less in various negotiation contexts such as experimental wage negotiations (Dittrich et al., 2014), salary requests, starting salaries (Säve-Söderbergh, 2019), and high-stake TV shows (Hernandez-Arenaz and Irberri, 2018). There are also studies that find no difference in behavior and outcomes between men and women, for example when it comes to negotiations of property prices (Andersen et al., 2020) and requests for promotions and raises (Artz et al., 2018). Other studies have found that men face higher final prices and rejection rates than women when negotiating in a taxi market (Castillo et al., 2013), while Sutter et al. (2009) found that the competition and retaliation is stronger when bargaining partners have the same gender.

objectifying pictures on women's economic decision making: Bonnier et al. (2019). In this study, both women and men were exposed to either pictures of women in their underwear, pictures of fully dressed women, or pictures not displaying any women. The authors investigated whether these different types of exposures affected risk taking, willingness to compete, and math performance. They found no treatment effects for women. They note, however, that there might be a difference between exposure to half-dressed images like in their study and exposure to objectification of women in advertising and popular culture where women are portrayed as passive sexualized objects without control and agency over their own lives. A study that uses stronger stimuli with sexual objectified images could therefore be of importance to complement the findings of their study.

In this paper, the focus is on women's economic decision making and to what extent objectifying pictures affect reservation wages. More specifically, we are interested in the relationship between objectification, self-objectification, and women's reservation wage. Will they internalize the sexual objectification and in turn reduce their reservation wages?

We do this in a setting where women are asked to state their minimum acceptable compensation for participating in an additional study. In the treatment groups, the subjects are shown advertisements that portray women in sexually objectifying poses, while the women are portrayed in a more neutral way in the control group. We hypothesize that women who were exposed to the pictures with sexually objectified women will suffer from self-objectification and demand lower compensation in order to participate in another, non-objectifying, follow-up study than women in the control group. The alternative hypothesis is that women will not lower the compensation requirement to participate in an additional study.

Apart from the main treatment (treatment 1), in treatment 2 we add a warning label. The purpose of this warning label is to make the subjects aware of what they are experiencing, and as a result of this make them less likely to objectify themselves and less likely to be affected when making the economic decision. Warning labels could to some extent mitigate the negative effects of objectifying images on individuals (Tiggeman et al., 2013). However, the experimental evidence

for any substantial effects of warning labels is weak at best (Tiggemann et al., 2013; McComb and Mills, 2020; Veldhuis et al., 2014).

As discussed above, there is evidence that women who are sexually objectified will also objectify themselves. This self-objectification is hypothesized to result in body shame and to consume attentional resources (Fredrickson et al., 2008). Exposure to objectifying pictures could also activate norms or stereotypes that in turn could affect economic decisions. Previous studies have for example found that highlighting gender stereotypes affect math performance (Spencer et al., 1999) and risk taking (Carr and Steel, 2010).

There are at least three important differences between our study and the study by Bonnier et al. (2019). First, the pictures of women that we use are intentionally sexually objectifying; women are not necessarily half-dressed, but they clearly have a sexual look and body language. Second, we investigate whether women are affected by the exposure in terms of their emotions, self-image, and self-objectification. Third, we investigate this in a setting where they are asked to state their required salary. As stated in Bonnier et al. (2019), it is likely that people are already exposed to images of half-dressed women through media, advertising, and popular culture throughout most of their lives. Thus, even if such images do have effects on outcomes of interest, the marginal impact of the images in the treatment could be negligible. An advantage of our study is that by including both psychological and economic outcome variables, we can validate whether the treatment effects on psychological outcomes are strong enough before we turn to potential spillover effects on economic decision making.

We find that women who participated in either of the two treatments were more likely to make statements about body shape and size compared with women in the control group. This supports the hypothesis that women do internalize the view of the objectifying images in their own views of self. There is, however, no evidence that a warning label would significantly decrease this self-objectifying behavior. On the other hand, we do not find that this sexual objectification affects women`s reservation wages, as there is no statistically significant difference in reservation wages between the treatment groups and the control group.

The rest of the paper is organized as follows. In Section 2, we present the experimental design and procedure. In Section 3, results are presented. Section 4 contains a discussion about the implications of our results.

2. Experimental design

2.1 The experiment

In this study, we investigate the role of sexual objectification.[2] In the experiment, we had one control group with neutral advertisements and two treatment groups where women were portrayed in explicitly sexually objectified poses.[3] In all groups, subjects were asked to look at a few advertisements from women's magazines. For each advertisement, we asked the subjects to rank, on a Likert scale from one to five, how effectively they felt the picture caught their attention. The answer to this question was not of interest for our research question but was instead merely used to make the subjects focus on the images. All the ads showed the same models and brand names. Two of the five models also wore the same clothes in all treatments. Treatment 2 differed from treatment 1 in that the advertisement contained an additional warning label saying that "photoshopped images can create unrealistic body ideals."

For copyright reasons we cannot include the actual pictures in the paper. Instead, we provide a description of each picture and a link to the webpage where the picture was displayed. Unfortunately, a few of the pictures are no longer available on the original webpage. The advantage using pictures from advertisements instead of using other sources of images is that provides authenticity to the priming that we use in our study.

[2] The experimental design and analysis plan were formally registered with the American Economic Association's registry for randomized controlled trials (AEARCTR- 0006562), and formally approved in October 5, 2020. The registration was modified in December 2020 to adjust the trial start and end dates.

[3] Using pilot studies with students we carefully validated that the images used in the treatments are perceived as sexual objectifying.

Table 1. Description of pictures used in the experiment

Picture	Control	Objectified
1	The woman is standing smiling, with one hand in her hair. Wearing a red dress.	The woman is lying on a bed with only underwear. One hand on her underwear, and the other hand on her mouth.
	https://tinyurl.com/mr3j7dv7	https://tinyurl.com/yfxdskap [The October 28th post, picture number 6]
2	The woman is wearing a white jumper, one hand in her hair. Looking slightly neutral to the left.	The woman is wearing underwear Both hands on her hips, looking straight in the camera.
	https://tinyurl.com/y5yudf2j [First picture]	https://tinyurl.com/y5yudf2j [Third picture]
3	The woman is wearing a dress, walking in a garden. Looks into the camera with a closed mouth	The woman is wearing the same dress but is sitting on a desk with her legs slightly spread. Both her hands are behind her head, looks straight into the camera with an open mouth.
	[Not available online anymore]	[Not available online anymore]
4	The woman is wearing a black dress, a picture of buildings in the background. One hand on her leg.	The woman is wearing underwear, both hands on her hips.
	[Not available online anymore]	https://tinyurl.com/fsz84sf8
5	The woman is wearing a white summer dress, one hand in the pocket of the dress. Her head is leaning to the left and she looks straight into the camera, her mouth is clsoed.	The woman is wearing small panties, and a top. She is twisting the top with both her hands. She is leaning towards the camera with her upper body, with closed eyes and an open mouth.
	https://tinyurl.com/nb9dxehy	https://tinyurl.com/2ftpmd27
6	The woman is wearing a dress with the text "Parental Advisory Explicit Content", with short trousers. She looks straight in the camera with a neutral look.	The woman is wearing the same dress, but sitting in a bathroom sink, with her legs spread, and her back leaning back.
	https://tinyurl.com/39b78dkx [Not an identical picture, but same dress and in a neutral pose]	https://tinyurl.com/3tzcu9as

Thus, all pictures show the same model, often wearing the same outfit. In the objectifying treatment, the model poses in a way that can be interpreted as sexual, while in the other picture the model's pose is more neutral. Thus, the models do not need to show a lot of bare skin to be sexually objectifying. Instead, they could be fully dressed but pose in a more sexually objectifying way.

After the subjects had looked at six images, we asked a set of follow-up questions aimed at measuring their emotional response and degree of sexual self-objectification. We followed *Investigations into the Self Concept* by Bugental and

Zelen (1950) by asking them to complete the sentence “I am…” to describe themselves. They could make up to 20 statements. Following Frederickson et al. (1998) and Aubrey et al. (2009), our main interest is to investigate how often participants write statements that involve their body and/or body size. This is the main measure of whether subjects self-objectify. Second, we asked them nine questions about their feelings when they saw the pictures; they were asked to respond on a scale from 1 to 7, where 1=“absolutely not” and 7=“absolutely yes.” The feelings were: anger, beautiful, ashamed, happy, exhilarated, bored, content, envious, successful, and sad. As already mentioned, previous studies have shown that self-objectification leads to an increase in women's sense of shame about their own body (Fredrickson et al., 1998; Calogero, 2004; Quinn et al., 2006; Harper and Tiggemann, 2008; Calogero et al., 2013).

Finally, we informed subjects that they could participate in another study after the current one. We told them that the additional study would be more demanding, would focus on decision making, would require cognitive effort, would take about 30 minutes to complete, and that there were a chance that they would get a payment. The selection into the other study would be based on their required minimum compensation for participating. The compensation was elicited in an incentive compatible way using a Becker-Marschack-DeGroot mechanism (Becker et al., 1964). They could of course choose not to participate, and we asked subjects who made that choice a follow-up question concerning their main reason for not wanting to participate.

The procedure and instructions for selecting participants were explained as follows:

> 1. You state the minimum compensation we must pay you to participate in this more demanding study.
> 2. You click on the "compensation" link, where the actual compensation we can offer for your participation is randomly drawn between 0 and 200 SEK.
> 3. If the randomly generated actual compensation is lower than the minimum compensation you stated, you will not be allowed to participate in the survey.

> 4. If the randomly generated actual compensation is equal to or higher than the minimum compensation you stated, you will be eligible to become one of 150 people participating in the second survey. Because you want to participate in the survey for the compensation we can offer, we call your group "WANT TO PARTICIPATE."
> 5. From the group "WANT TO PARTICIPATE," we will randomly draw 150 participants. After participation, all 150 participants will receive compensation according to the actual compensation randomly generated for participant. The compensation will be paid out within a month through bank transfer."[4]

The self-objectification can make women internalize the view of them as foremost sexual objects, where they downplay their skills. The research hypothesis is therefore that subjects in treatment group 1, i.e., those who are exposed to objectifying advertisements, will require a lower minimum compensation to participate in a 30-minute follow-up experiment compared with women in the control group. However, it is of course also possible that the objectification may *increase* women´s compensation requirements, if the objectifying images trigger anger and act as a reminder of equal rights in an unequal world. We will therefore in our regressions control for anger and for shame.

A second research hypothesis is that the required minimum compensation is lower in treatment group 1 than in treatment group 2, as the warning labels will mitigate the self-objectification in treatment group 2. In addition to these hypotheses, we will investigate whether the objectifying pictures lead to self-objectification, i.e., that the women who were exposed to the objectifying images are more likely than women in the control group to describe themselves with words related to body shape or size.

[4] After participating in our study, we sent an e-mail to the subjects explaining the purpose of our study in more detail. This since we expected that some of the subjects might have experienced the pictures as offensive. We also gave them a telephone number to student healthcare services at the University of Gothenburg in case the pictures had made them feel uncomfortable.

2.2 Experimental procedure

The experiment was conducted online in January 2021. Before the experiment started, the survey was reviewed and approved by the Swedish Ethical Review Authority 11th of March, 2020 (Dnr. 2019-05655). All subjects were undergraduate or master's students at the University of Gothenburg. Invitations were sent out to a large number of students at the University of Gothenburg using e-mail lists associated with the main major programs at the university. These lists contain the student-university e-mail addresses for all registered students.[5] In total, we sent out invitations to participate to almost 29,000 e-mail addresses. Participation was voluntary, and subjects were informed that they gave their consent by participating the survey, but also that they could at any time withdraw from the survey. In total 1,665 students clicked on the link to the invitation to participate.

In order not to reveal anything about the aim of the study, we allowed both male and female students to participate in the study. Out of those who clicked the link and started the survey, 1,180 were female, 464 were male, and 21 did not identify themselves as female or male.[6] A sizeable fraction of the subjects did not complete the whole experiment. Restricting the main analysis to those who took part in the whole experiment and responded to the question about required compensation to participate in the subsequent experiment leaves us with a sample size of 843 female subjects in the main analysis.[7]

[5] These e-mail addresses are given to all students that register as students. Clearly, many students have other e-mail addresses as well, but this e-mail address is the one used for communication from the university. At the same time, these lists contain addresses to student who are no longer at the university, and we know that not all students check this e-mail account regularly.

[6] The share of female students at the University of Gothenburg is around 65–70%, thus the share of women responding to the invitation to participate corresponds to the proportion of women studying at the University. We do not have information about the gender composition of the students among the e-mail addresses we sent the invitation to.

[7] The reduction in the number of subjects is around 31% for T1 and the control group, and 24% for T2.

3. Results

3.1 Descriptive statistics

In total 843 women completed the experiment. Descriptive statistics for the whole sample and the three different groups are presented in Table 2.

Table 2. Descriptive statistics by treatment, and the whole sample.

	T1 (objectifying)	T2 (objectifying with warning)	Control	Whole sample
Age in years	27.4	27.4	26.9	27.3
Academic program				
- Business, economics & law	0.10	0.09	0.09	0.10
- Social sciences	0.27	0.26	0.24	0.25
- Teacher education	0.16	0.15	0.18	0.16
- Medicine	0.21	0.21	0.18	0.20
- Humanities	0.03	0.05	0.04	0.04
- Science	0.11	0.10	0.12	0.11
- Other	0.17	0.20	0.22	0.20
Observations	278	315	250	843

The subject pool is balanced across the three groups. The mean age is about 27 years in all three groups and the shares of students from the different disciplines are very similar. [8]

3.2 Emotional responses

First, objectifying advertisements (T1) were rated as more effective in catching the attention than the pictures in the control group in four out of six cases (t-tests, p-values between 0.000 and 0.035).

Secondly, Table 3 reports mean and standard deviations for the ten questions that followed immediately after the subjects had rated the advertisements in terms of how they felt when viewing the pictures. Again, the subjects responded to the questions on a 1–7 scale, where 1 = "absolutely not" and 10 = "absolutely yes." We

[8] We can also classify the academic programs that we sent out invitations to. This results in the following shares: Business & Law (11%), Social Sciences (21%), Teachers (20%), Medicine (21%), Humanities (0.6%), Science (14%), Other (11%). Thus, the overall response rate is higher among students in social sciences and lower among students in humanities.

compare the responses between T1 (objectifying pictures) and the control group and between T2 (objectifying picture with warning label) and T1.

Table 3. Emotional responses in treatment and control groups.[a]

	T1 (objectifying)		T2 (objectifying with warning)		Control	
	Mean	St. dev.	Mean	St. dev.	Mean	St. dev.
Angry	4.38***	2.16	4.12***	2.16	2.30	1.69
Beautiful	3.21	1.96	3.32	1.89	3.49	1.82
Ashamed	3.05***	1.99	2.72***	1.83	1.84	1.40
Happy	2.22***	1.49	2.09***	1.37	3.02	1.58
Exhilarated	1.94	1.46	1.73	1.26	1.75	1.14
Bored	4.59*	1.81	4.55**	1.83	5.05	1.68
Content	2.57***	1.71	2.63***	1.77	3.44	1.74
Envious	2.89	1.90	3.00	1.85	2.58	1.72
Successful	2.97	1.89	3.03	1.88	2.95	1.74
Sad	3.72***	2.07§	3.73***	2.02	2.23	1.58

[a] Test of difference in mean response between treatment groups and the control group
*** p<0.01, ** p<0.05, * p<0.1, all p-values are corrected using the Bonferroni adjustment, using 20 comparisons.

There are sizeable differences between T1 and the control group with respect to reactions to the pictures. Subjects in the treatment group with objectifying pictures on average became angrier, more ashamed, less happy and content, and sadder than the subjects in the control group. The difference in emotional response is largest for anger, where the mean for T1 is almost twice the value for the control group. This result is in line with findings by Krawczyk (2013). Importantly, also in line with other studies of self-objectification, women were more ashamed in the treatment where they were exposed to objectifying advertisements. Clearly, objectification triggers different emotions, and the behavioral response is far from obvious. Also note that the differences between the objectifying groups with and without the warning label are very small, and there are no statistically significant differences in emotional responses between them.

Next, we classify the responses to the open-ended questions where the respondents were asked to complete the sentence "I am…." Following Fredrickson et al. (1998) and Aubrey et al. (2009), respondents were asked to complete up to 20 statements about themselves, and the average number of statements was 10.[9] In

[9] There is no statistically significant difference in the number of statements between the three groups.

Table 4 we report the number of subjects who made a comment about body shape or size, and the average number of sentences per person that referred to body shape and size.[10]

Table 4. Classification of responses to open-ended question about oneself

	T1	T2	Control
Share of subjects who mentioned body shape and size	0.59	0.57	0.47
Number of times body shape and size was mentioned among those that mentioned it	1.8	1.5	1.4
Number of observations	270	305	242

Using a proportion test we can reject the hypothesis of equal proportions of subjects mentioning body shape and size between T1 and the control group (p-value = 0.008), but not between T1 and T2 (p-value = 0.599). Among those who mentioned body shape or size, it was mentioned on average 1.8 times in T1 and 1.4 times in the control; using a t-test we can reject the hypothesis of equal number of times in the control group and T1 as well (p-value = 0.013). Furthermore, the difference between T1 and T2 is much smaller and not statistically significant. Thus, the warning label below the sexually objectifying pictures does not seem to influence the number of comments about own body shape and size. In summary, our results support the occurrence of self-objectification among the subjects, while we do not find a mitigating effect of warning labels. In Table A2 in the appendix, we report results from a negative binominal regression model as well, and even when controlling for the age of the respondent and the education profile, the difference between the treatment groups and the control group persists.[11] The results also show that the number of times a woman mentions body shape and size decreases with age.

[10] In Table A1 in the appendix, we report the same results for all women who made at least one statement, irrespective of whether they participated in the whole experiment or not. The results and comparisons between the treatments and the control are the same when including these additional observations. Thus, our results are not driven by a treatment effect on the selection of students that finishes the whole experiment.

[11] We use a negative binomial model because the outcome variable can only take non-negative integer values and exhibits overdispersion (conditional variance greater than conditional mean).

3.3 Economic behavior

Our main interest lies in the response to the question regarding minimum acceptable compensation for participating in another experiment. Table 5 presents a summary of the responses.[12]

Table 5. Summary results, reservation wage in SEK.

	T1 (objectifying)		T2 (objectifying with label)		Control	
	Mean	St. dev.	Mean	St. dev.	Mean	St. dev.
Reservation wage	96.2	63.5	89.4	59.7	90.6	63.8
Opt out	0.16		0.20		0.18	

The proportion of subjects who did not want to participate at all in an additional experiment (opt out) varies between 16% and 20%. Using a proportion test, we cannot reject the hypothesis of equal proportions between T1 and the control group (p-value = 0.447) or between T1 and T2 (p-value = 0.141). Notably the opt-out rate is higher in the control treatment compared with T1. In Table A3 in the appendix, we report the main reason for not wanting to participate. The most common reason in the control group was that they had other plans, while in the two treatment groups the most common reason was that they did not feel like participating. Perhaps most importantly, we do not observe a large portion of subjects not wanting to participate because they were offended by the first experiment. Using a chi-square test, we cannot reject the hypothesis of equal distributions of the reasons not to participate in the second experiment among the groups (p-value =0.250 for T1 vs. T3 and p-value=0.851 for T1 vs. T2). Hence, based on these results, we can proceed to analyze the reservation wage.

The reservation wages vary between 89 SEK and 96 SEK.[13] Histograms of the reservation wages for the three groups are reported in Figure A1 in the appendix. Using a Wilcoxon rank-sum test, we cannot reject the hypothesis of equal distributions between T1 and the control group (p-value = 0.376) or between T1

[12] Since we also have a sample of men, we can compare the behavior of men and women in the control group. Although the mean reservation wage is lower for women than for men, we cannot reject the hypothesis of equal mean reservation wage using a two-limit Tobit model (p-value = 0.444). Results are available upon request.

[13] At the time of the experiment, 1 USD = 8.3 SEK

and T2 (p-value = 0.395). Hence, we do not find support for our first research hypothesis that exposure to pictures of objectifying women leads to lower reservation wages among women. In fact, if we compare the mean reservation wage, it is higher in T1 than in the control group, but the difference is not statistically significant. Hence, both the statistical and substantive significance of our results go against the research hypothesis that exposure to pictures of objectifying women lowers women's wages.

We also estimate regression models with and without additional control variables. Results are reported in Table 6. For the reservation wage we estimate tobit models with upper and lower censoring, and for the probability of opting out from the second experiment we estimate probit models. The first model is with treatment dummies only, whereas the second also includes a set of individual characteristics. In the third model, we include two main emotional responses to the pictures: shame and anger. Several studies have found that exposure to sexual objectification made women feel more shame about their own bodies (Fredrickson et al., 1998; Calogero, 2004; Quinn et al., 2006; Harper and Tiggemann, 2008; Calogero et al., 2013). Furthermore, as discussed in the introduction, it is also possible that objectifying images can trigger anger, which in turn may affect women's´ compensation requirements. In addition, we interact these responses with the treatment dummy variables.

Table 6. Regression models on reservation wage (Tobit with lower censoring at 0 and upper censoring at 200) and opt out (Probit)

	Reservation wage			Opt out		
	(1)	(2)	(3)	(4)	(5)	(6)
T1: Objectification	7.91	6.60	-2.61	-0.10	-0.13	0.54*
	(7.92)	(7.94)	(17.72)	(0.13)	(0.13)	(0.30)
T2: Objectification with warning	-2.98	-4.15	14.23	0.07	0.07	0.43
	(7.78)	(7.80)	(17.15)	(0.12)	(0.12)	(0.28)
Age		0.18	0.23		0.02***	0.02***
		(0.56)	(0.56)		(0.01)	(0.01)
Business, econ & law		7.23	8.54		-0.10	-0.08
		(11.92)	(11.98)		(0.21)	(0.21)
Social sciences		6.81	5.92		-0.19	-0.18
		(9.01)	(9.04)		(0.15)	(0.16)
Teacher program		1.58	2.48		0.10	0.08
		(10.29)	(10.35)		(0.16)	(0.16)
Medicine		21.93**	22.34**		0.08	0.10
		(9.56)	(9.61)		(0.15)	(0.15)
Humanities		19.66	18.89		0.26	0.27
		(17.33)	(17.32)		(0.24)	(0.25)
Science		-1.68	-0.85		0.29*	0.27
		(11.27)	(11.26)		(0.17)	(0.17)
Angry			1.72			0.07
			(3.73)			(0.06)
Ashamed			3.60			0.04
			(4.22)			(0.07)
Angry x T1			1.88			-0.13*
			(4.57)			(0.07)
Angry x T2			-4.49			-0.06
			(4.48)			(0.07)
Ashamed x T1			-2.63			-0.10
			(5.09)			(0.09)
Ashamed x T2			-2.29			-0.09
			(5.10)			(0.08)
Constant	89.07***	77.62***	65.76***	-0.92***	-1.58***	-1.82***
	(5.79)	(17.56)	(20.31)	(0.09)	(0.25)	(0.31)
Observations	692	690	686	843	840	835

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

There are no statistically significant differences between the treatments and the control group in models 1 and 4. Medicine students have a much higher reservation wage, and older subjects and technology students are more likely to opt out of the second experiment. Interestingly, we do not find any correlation between the emotional reactions and reservation wage – neither anger nor shame correlates with the reservation wage. However, there is a correlation between anger and the likelihood to opt out of the second experiment, where those who reacted with anger in T1 were more likely to opt out compared with the control group.

4. Discussion

In our experiment, we find that women in the treatment groups are more likely to internalize the objectifying treatment. Thus, women who are exposed to pictures of women who are portrayed as sexual and passive objects describe themselves as

objects more often. This finding has been confirmed in several previous studies as well (Aubrey et al., 2009; Tiggeman et al., 2013). Our result that warning labels do not mitigate sexual objectification and do not take away the negative impact on women's perception of their appearance and body is also in line with previous studies (McComb and Mills, 2020). Our contribution consists of testing whether this self-objectification also transfers to economic behavior. Interestingly, it does not, at least not directly. Women in the treatment groups do not state a lower required compensation to participate in an additional and more demanding experimental study. This result is in line with the only other study on economic behavior and objectification of women that we are aware of (Bonnier et al., 2019). Both the statistical and substantive significance of our results go against the research hypothesis that objectification lowers women's wages.

If we take the results at face value, they do suggest that objectification of women in media, while having important psychological and emotional effects, does not seem to affect women's economic behavior. While this might be reassuring, we do need to be careful not to draw too strong conclusions from two single studies. Moreover, both our study and the one by Bonnier et al. (2019) are based on experiments with very little interaction between subjects. In our case, there is really no interaction at all. It might be the case that the sexual objectification plays a role for economic decisions involving direct interaction between subjects, in particular between male and female subjects (see, e.g., Castillo et al., 2020; Sutter et al., 2009).

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Appendix A. Additional tables and figures

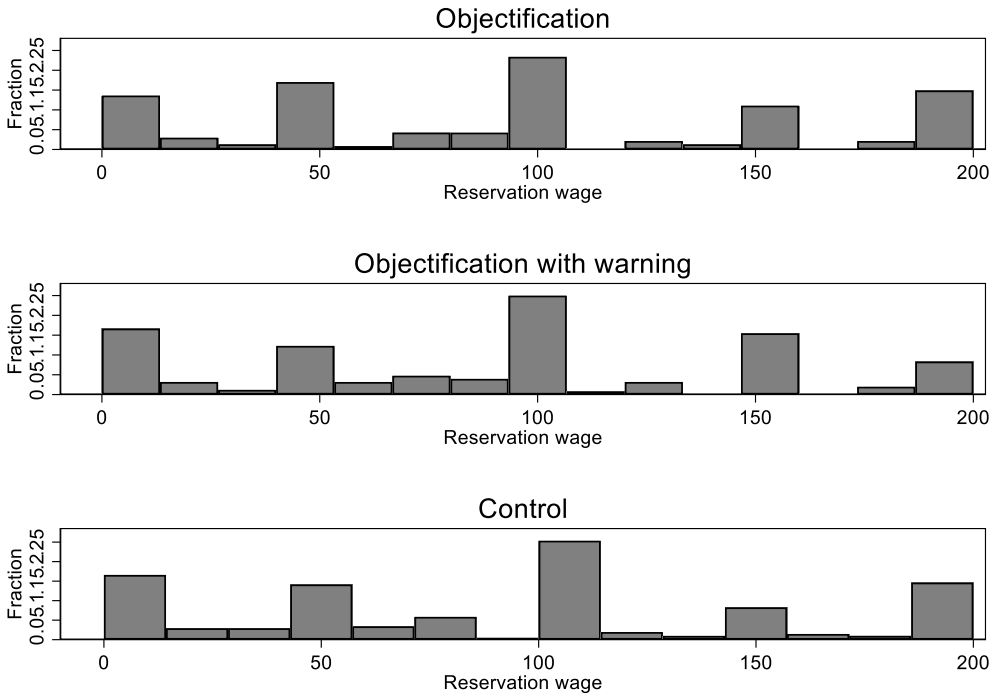

Figure A1. Distribution of reservation wages

Table A1. Classification of responses to open-ended question about oneself, all women

	T1	T2	Control
Mentioned body shape and size	0.58	0.57	0.46
Number of times body shape and size was mentioned	1.7	1.5	1.4
Number of observations	296	337	279

Table A2. Negative binomial regression model, dependent variable is number of statements about shape and size of own body (self-objectification)

	(1)	(2)
T1: Objectification	0.463***	0.473***
	(0.112)	(0.112)
T2: Objectification with warning	0.293***	0.304***
	(0.112)	(0.112)
Age		-0.022***
		(0.007)
Business, econ. & law		-0.084
		(0.169)
Social sciences		0.086
		(0.124)
Teacher education		0.110
		(0.136)
Medicine		0.156
		(0.128)
Humanities		0.563***
		(0.190)
Science		-0.123
		(0.155)
Satisfied with appearance		
Constant	-0.426***	0.067
	(0.088)	(0.234)
Observations	817	814

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

Table A3. Main reason for not wanting to participate in the second study

	T1	T2	Control
Other plans	26%	25%	42%
Too tired	7%	11%	16%
Don't feel like it	33%	30%	13%
Low chance to be able to participate	2%	3%	2%
I don't think I can do a good job	10%	3%	9%
I'm offended by the content of the first study	2%	3%	0%
Other reason	19%	24%	18%

Online appendix.

Survey questions on reactions to the pictures

Media ads can affect people's views of themselves. In the next 20 lines, we want you to describe yourself by completing the sentences that begin with "I am ..."

Before you start, feel free to think about whether and how the images from the ads you saw make you feel about yourself and your identity. Fill in the statements as if you are describing yourself to yourself, not to anyone else. Just write them down, do not bother to rank them. Write as many as you can think of.

I am …….

I am …….

I am …….

I am …….

I am …….

I am …….

I am …….

I am …….

I am …….

I am …….

I am …….

I am …….

I am …….

I am …….

I am …….

I am …….

I am …….

I am …….

I am …….

I am …….

I am …….

We will now ask questions about how you felt when you saw the pictures from the ads. For each line, we indicate a feeling and you should rate on a scale from 1 to 7 whether you felt that way, where 1 means "absolutely not", and 7 is "absolutely yes".

[Randomize order]

Angry	1	2	3	4	5	6	7
Beautiful	1	2	3	4	5	6	7
Ashamed	1	2	3	4	5	6	7
Happy	1	2	3	4	5	6	7
Exhilarated	1	2	3	4	5	6	7
Bored	1	2	3	4	5	6	7
Content	1	2	3	4	5	6	7
Envious	1	2	3	4	5	6	7
Successful	1	2	3	4	5	6	7
Sad	1	2	3	4	5	6	7