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# Effect of Media on Aspirations: Gender Heterogeneity

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## Abstract

I investigate how media images, particularly advertisements, shape audiences' aspirations. Utilizing the natural experiment in East Germany, I demonstrate that exposure to Western TV during the formative years of childhood and adolescence increases the income aspirations of males. Additionally, through an online experiment, I highlight that advertisements not only elevate income aspirations but also diminish the desire to have children among male adolescents. The latter particularly holds when the advertisements portray equal sharing of childcare responsibilities within couples. Notably, the effects of media exposure vary depending on their mothers' labor market status. These findings underscore the pivotal role of media in perpetuating and reinforcing stereotypical gender roles.

JEL Codes: J16, J22, L82, M3

Keywords: media, advertisements, gender, aspirations, choice scenarios, beliefs

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# 1 Introduction

Despite increasing opportunities for women in the labor market, the gender gap in labor market earnings appears to be persistent. It has been well documented that the gap in earnings often takes root even before individuals join the labor market. Males aspire to higher earnings starting early, and their major and occupation choices are usually responsive to potential earnings levels and growth. On the other hand, women tend to choose majors and occupations that can be aligned with family responsibilities at the expense of higher earnings potential in the future (Wiswall and Zafar, 2018). Despite these different roles and choices, the average life satisfaction of women is not significantly different from that of men, even in societies with a high level of cultural and/or institutional sexism (Polachek, 1981; Adda et al., 2017; Bertrand, 2020).

The institutional settings and gender discrimination in the labor market partly explain the gender disparities in the labor market choices and earnings. However, the evidence of gender equality in life satisfaction suggests that males and females aspire to distinct accomplishments in life and have utility from their gender-congruent choices. In this study, I investigate whether media impacts adolescents' aspirations, especially for males, for higher earnings and having a family and whether it contributes to the gender differences in aspirations for higher earnings. I give an affirmative and causal answer to both questions.

First, I exploit a natural experiment in East Germany and complement the findings with an online experiment focusing on TV advertisements. Starting with the natural experiment in East Germany, I leverage the differential access to Western TV broadcasts in East Germany from the 1950s until East and West Germany reunification in 1989. While most of East Germany could receive the signals for Western TV channels, the southeast and northeast corners of the country could not reach them due to the mountains surrounding the regions.

TV broadcast content on West German televisions was distinct from East German TV content. While East Germany utilized television for regime propaganda, TV programs in West German TV offered entertaining content and was showcasing the Western lifestyle. I define having access to Western TV as the treatment in the natural experiment. East Germans residing in regions without access to West German TV constitute the control group in this study. Particularly, I investigate whether exposure to Western TV for more than 30 years increased East Germans' income aspirations compared to those who did not watch Western TV until the unification in 1989. I utilize the wave of the German Socioeconomic

Panel (SOEP) that was collected in 1990, right after the reunification. I choose the outcome variable as the answer to the question in the life-goals section: “How important is income for your well-being and satisfaction?”. This answer proxies individuals’ earnings aspirations.

I analyze the effect of treatment on two generations: (i) those who were born between 1936 and 1955 (older generation) and (ii) those who were born between 1956 and 1973 (young generation). The division based on age is motivated by the fact that Western TV is introduced to these two groups at different ages in their life, and by acknowledging that the impact of media and role models on different age groups are potentially heterogeneous. While the older generation, on average, got to know Western TV in their late teens, the young generation watched Western TV throughout their whole life, including childhood and adolescence. Since beliefs and worldviews are relatively more malleable in childhood and adolescence, the effect of media is expected to be more sizable in that age group.

The results of the natural experiment confirm the heterogeneous impact of Western media on different cohorts and different genders. I document that the importance of income is 0.2 standard deviations lower for males in the young generation compared to females in the same generation in the absence of the treatments. For the same generation, while the treatment does not significantly change the importance of income for females, it increases the importance of income by 0.18 standard deviations (sd) for males. Turning to the older generation, there is no significant relation between gender and the stated importance of income. Additionally, the treatment does not have an influence on the income aspirations of males and females in this generation. The results suggest that males in the young generation are affected by previous Western TV broadcasts. According to their answers to the survey, income is significantly more important for them than for males in the control region without access to Western TV.

Next, I design an online experiment to complement the findings from the natural experiment in East Germany. The SOEP dataset does not include variables to measure which TV programs caused the observed treatment effect. In the online experiment, I focus on TV advertisements, which clearly aim to increase materialistic aspirations, often by presenting role models. As Akerlof and Kranton (2000) put it, the basic principle of advertisements is creating “ideal” public images of satisfied and happy people, complemented with the products at issue. The behaviors of ideals have the potential to reproduce or affect the behavioral prescriptions and the role models that individuals aspire to. These images also have the potential to set an example for large audiences of what is important for happiness and life

satisfaction.<sup>1</sup>

I conducted the online experiment in 2022 via several market research companies in Germany. Among the panel members of the companies, 495 adolescents aged 14-17 years old participated in the experiment. They are randomly assigned to watch one of three distinct videos during the experiment. The control group views a snippet from a nature documentary. The treatment groups see the same clip, but the video is interrupted by three advertisements. Advertisements selected in both treatment groups feature characters with high socioeconomic status, valuable products, and prosperous lives, drawing attention to the comfort provided by the products. The key difference between the advertisements in the two treatment groups lies in the gender roles portrayed. The first one features “nontraditional” gender roles, while the second one adheres to the “traditional” and stereotypical roles. This enables me to analyze whether gender roles trigger gender-congruent aspirations, i.e., males aspiring higher earnings and females placing importance on family and children.

After having been exposed to the videos, participants are asked to choose among two life options several times from the presented life scenarios at age 30 (Maestas et al., 2018), designed to reveal their preferences for higher earnings, workplace conditions (as means for income), and family life. In particular, these choices reflect how participants make trade-offs between several dimensions of the labor market and family life: wage earnings, spousal wage earnings, working hours, workplace flexibility, and having a child. I analyze whether the treatments induce significant shifts in male and female adolescents’ preferences for different dimensions of the scenarios.

The results from the online experiment can be summarized as follows. In the absence of any treatments, all dimensions regarding career and family within the scenarios significantly influence male adolescents’ hypothetical life choices. For females in the same group, all aspects, except having a child, are significant factors for their life choices. Turning to the treatment effects, the experimental results are in line with the findings from the natural experiment in East Germany: the treatment has a positive effect only on males’ preferences for higher income. Male adolescents in the treatment groups, irrespective of exposure to the “nontraditional” or “traditional” advertisements, place more importance on their own earnings during their decision-making compared to those in the control group. Moreover, the treatment involving ads with nontraditional gender roles nullifies the positive effect of having

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<sup>1</sup>The advertising industry is quite sizable, for example, amounting to 2% of GDP in the USA (Greenwood et al., 2021).

a child on the likelihood of choosing that life option, rendering this dimension irrelevant for males. As opposed to males, neither treatment influences females' preferences. With the online experiment, I further investigate the heterogeneous impact of advertisements on male adolescents by their mothers' employment status. I show that for males with mothers having limited or no employment history, the effect on their earnings aspirations comes from traditional advertisements. On the other hand, for males with mothers who have a continuous employment history, the effect comes from nontraditional advertisements.

This study makes three main contributions. First, I show that media content, notably materialistic advertisements created to amplify materialistic aspirations, heightens the significance of earnings exclusively for males if they are exposed to these in their childhood or adolescence. Second, to the best of my knowledge, this study is the first one documenting the gender disparities in the effect of media on income and earnings aspirations. Third, I provide empirical evidence that audiences are more susceptible to cues that share familiarity with their own gender and background. Particularly, I show that only males, whose stereotypical roles are primarily being the breadwinners in households, are inspired by media images boosting materialistic aspirations. Note that women also watch working women in the advertisements, but that their aspirations are not affected. Besides, males are inspired by different roles depending on their background. Subjects with employed mothers are particularly susceptible to media portrayals featuring working women. Conversely, those whose mothers lack consistent employment histories are affected by images portraying traditional gender roles.

This evidence underscores the impact of media images on individuals' aspirations, as it molds their perceptions of what contributes to life satisfaction and happiness. Exposure during childhood and adolescence in particular emerges as critical for shaping these aspirations. While the media content might not necessarily cultivate novel values and beliefs, it has the potential to reinforce existing notions rooted in one's background or social roles, including gender norms. The findings have two implications. First, they suggest that media might have a considerable influence, capable of shaping individuals' crucial life decisions, such as their career choices and family planning, by affecting their aspirations. Second, in the realm of policy-making, efforts to challenge the prevailing status quo, such as narrowing gender-based earnings disparities, may face limitations if the media continues to perpetuate gender role stereotypes. In other words, the effectiveness of such policies could be hampered if they do not address or counteract the reinforcing influence of media content on entrenched societal norms and expectations.

The rest of the paper is organized as follows. The next section, Section 2, summarizes the literature relevant to this study. Section 3 introduces the setting of the natural experiment in East Germany, describes the data set, and presents the results. Section 4 explains the design of the online experiment, describes the collected data, and presents the experiment's results. Section 5 concludes.

## 2 Literature

The current study is related to several strands of literature. First and foremost, I contribute to the literature documenting the impact of media on individuals' aspirations and decisions in various domains. DellaVigna and La Ferrara (2015) provides a comprehensive literature review. La Ferrara (2016) shows that commercial television and radio might be used to reach developmental goals and fight poverty in developing countries. It has been shown that entertaining and educating (edutainment) media content can also reduce domestic violence (Banerjee et al., 2019). Among the studies in developed countries, several studies show that TV watching increases material aspirations and the importance of being rich for individuals' life satisfaction (Hyll and Schneider, 2013; Frey et al., 2007). In a similar study, Bruni and Stanca (2008) shows that watching TV increases the time investment for income-generating activities. Jensen and Oster (2009) proposes a channel for the effect of media and documents that movies and television series offer comparisons with new and wealthier reference groups. Turning to the studies focusing on advertisements, Bursztyn and Cantoni (2016) exploits the same natural experiment in my study and highlights that previous exposure to advertisements affects the composition of the consumption bundle of East Germans. Davies et al. (2002) documents that advertisements are mostly gender stereotypical and have the potential to evoke stereotype threat. Jennings-Walstedt et al. (1980) demonstrates that stereotypical advertisements deteriorate women's independent judgment and self-confidence. My study makes a unique contribution to this literature by documenting the impact of media, particularly advertisements, on individuals' aspirations for higher earnings. Notably, I find that male adolescents are particularly susceptible to these effects. Furthermore, my work reveals that while the observed influence of media content remains consistent across different demographic groups of males, the specific cues received and responsible for these effects are contingent on individuals' backgrounds, such as their mothers' labor market status.

Second, this study relates to the vast literature on gender disparities in education and la-

labor market choices and their subsequent outcomes. In her seminal work, Goldin (2014) illustrates that disproportional rewards for long working hours and particular hours substantially contribute to the gender pay gap in the labor market. Fertility accounts for the long-lasting and large decrease in females' labor market earnings (Lundborg et al., 2017). Wiswall and Zafar (2021) reveals that females often make family-oriented educational and career choices even before entering the labor force, underlining the early emergence of gender-related disparities. Another strand within this literature emphasizes the influence of slow-changing gender norms in explaining the persistent gender wage gap (Bertrand et al., 2015). In a study that closely relates to my own, Fortin (2008) shows that the gender gap in the importance of money/income versus people/family accounts for a significant part of the gender wage gap. With the current study, I suggest that media content could contribute to the gender wage gap by affecting individuals' perception of the importance of earnings, potentially affecting their labor market and career decisions of individuals.

Finally, the study relates to the literature on aspirations. La Ferrara (2019) provides a detailed definition of aspirations. The study presents cross-country disparities in education and job-related aspirations of adolescents, proposing that raising aspirations might lift people out of the poverty trap. Carlana et al. (2022) shows that aspirations of immigrant students for a more demanding education track can be increased by targeted interventions. Genicot and Ray (2020) documents that aspirations are determined by people's social environment. Stutzer (2004) focuses on income aspirations and shows that it plays a significant role in individual happiness. I focus on gender disparities in aspirations and contribute to this literature by showing that aspirations are shaped by media and the effect of media on males and females is heterogeneous.

## **3 The Natural Experiment**

### **3.1 Television in East and West Germany**

In the years following World War II, two public TV networks emerged on either side of the German border, reflecting the ideological divide between East and West. The ARD network commenced broadcasting in West Germany in 1950, with backing from the Western Allies – the United States, United Kingdom, and France. Conversely, the DFF network began transmitting in East Germany in 1952, under the control of the Soviet Union. This



dichotomy significantly shaped the content of TV broadcasts in the two regions.

ARD in West Germany provided a platform for entertainment, showcasing the Western lifestyle with the abundance of goods and materials in the country. Movies and series emphasize material values and the role of wealth in subjective well-being and life satisfaction. In TV series and programs, it was common to watch characters living in a dream world of luxury and wealth (Weiderer and Faltenbacher, 1994; Hyll and Schneider, 2013). On the other hand, the GDR (East Germany) exercised strict control over TV content through heavy regulation, utilizing the DFF network to propagate the communist regime’s ideologies. East German TV did not intend to raise material aspirations. Rather, they were reflected negatively (Schültzke, 2005; Hyll and Schneider, 2013). Because of the fancy world depicted in Western TV and the rigid control over TV content in East Germany, many East Germans prefer West German TV as a source of information and entertainment (Kern and Hainmueller, 2009). The stark contrast between the Western lifestyle depicted on TV shows and the Eastern lifestyle led to East Germans drawing comparisons between the austere conditions of East Germany and the prosperity portrayed in West Germany (Rustow, 1989).

Commercials were introduced on ARD in 1956, initially airing for a few minutes in the evenings (Germany History Museum, 2016a). Later, they were expanded to daytime slots, and their total duration on TV increased. In the case of DFF, commercials emerged in 1959, but their focus was distinct from their West German counterparts. While advertisements in the West played a role in intensifying competition between brands, East German advertising primarily revolved around listing available products and their prices, reflecting the controlled and centralized nature of the economy (Germany History Museum, 2016b).

### **3.2 Analysis**

In my analysis, I leverage the variations in individuals’ exposure to Western TV across different points in their lifespans. Particularly, I investigate the impact of exposure to Western TV on the perception of income importance of two distinct generations of East Germany’s residents: those born (i) between 1936 and 1955 and (ii) between 1956 and 1973. Since Western TV broadcasts commenced in the 1950s, the first generation mentioned started watching Western TV, on average, during their late adolescence, while the second cohort was born into households in which Western TV was already a part.

There are reasons to anticipate varying effects of TV on the life goals of individuals from

different generations. Childhood and puberty are periods when individuals are more curious about the outside world (Horne, 2004). During these stages, they keenly observe others, remain receptive to the influences of role models, and are inclined to emulate them, a contrast particularly notable when compared to older individuals (Wolbrecht and Campbell, 2007). It is also known that childhood and puberty are critical times for forming belief systems and values, which subsequently serve as foundations for establishing life goals (McAdams and Manczak, 2015). Thus, it is reasonable to posit that those who encounter the Western lifestyle in their twenties or later stages of life would not experience an impact as intense as those who were born into households where Western TV was a fixture. Considering these dynamics, the influence of TV on individuals belonging to the second age group (those born between 1956 and 1973) holds a distinct significance within the scope of this study.

In order to analyze the impact of Western TV on the life goals of two generations in East Germany, I run the following regression separately for the two age groups:

$$Y_i = \alpha + \beta_1 * Male_i + \beta_2 * Treatment_i + \beta_3 * Male_i * Treatment_i + \gamma * Controls_i + \epsilon_i \quad (1)$$

In this equation,  $Y_i$  is the importance placed on income, family, and work by participant  $i$ . I standardized the variable to have a mean of zero and a standard deviation of one.  $Male_i$  is a dummy variable that takes the value of 1 for male participants. Similarly,  $Treatment_i$  is a dummy variable indicating whether participant  $i$  lives in the treated region.  $Controls_i$  is a vector of characteristics of participant  $i$ , which might affect the outcome variable. It includes age, education degree, household income, having a partner, and number of children under age 6 in the household.

I estimated the parameters  $\beta_1$ ,  $\beta_2$ , and  $\beta_3$  with linear regression estimation. The parameter of interest is  $\beta_3$  for each generation, estimating the differential influence of the treatment on males within a generation.

My analysis assumes that the difference in life goals between older and younger generations within the treatment and control groups would be similar across regions without treatment. Explicitly, the intergenerational differences in life goals in both the control and treatment regions are admitted. However, it is assumed that the difference in a region would be similar to that in another region if there was no treatment. It is noted that I do not impose any assumption on the similarity of life goals of a generation across treatment and control regions.

The assumption implies that there is not any factor that could affect only one region, making an impact on the intergenerational differences in life goals. The viability of this assumption is particularly relevant to East Germany due to its constrained interactions, both within the country and with external nations. Particularly, East Germany’s citizens were typically restricted from crossing the East-West border or Berlin Wall to access Western regions, except under rare circumstances with special permission. Mobility within the country was also low due to the centrally planned economy and housing shortage (Kern and Hainmueller, 2009; Grünert, 1996; Bursztyń and Cantoni, 2016). Bursztyń and Cantoni (2016) presents additional evidence that the selective migration from control and treatment regions of East Germany to West Germany after the reunification in 1989 is not a concern either.

### 3.3 Treatment Definition and Data

I use the German Socio-Economic Panel (SOEP) data set curated by DIW Berlin. SOEP is a collection of longitudinal household surveys targeting individuals 17 years old or older.<sup>2</sup> The dataset includes households from West Germany starting from 1984. However, households residing under the communist regime in East Germany were only incorporated into the survey in 1990, after the fall of the wall but before the reunification. I specifically use this wave, which is the earliest possible inclusion of East Germans in the dataset. Given the recentness of the reunification, it is arguable to be premature for Western values to have a significant influence on East German households.

The panel includes participants’ detailed demographic information about the participants, their life goals and the regions they were residing during the survey. Life goals can be characterized as “relatively long-term, value-laden life objectives” (Meier and Bell, 1959), which influence an individual’s future outlook considerably. They play a pivotal role in shaping the trajectory of one’s life and guide one’s attempts to shape the progression and development of life journey. Chang et al. (2006) shows the profound impact of life goals on adolescents’ decision-making processes about their education, occupation, and family-related choices. The SOEP life goals questionnaire elicits the importance of major material and non-material facets of life. My particular interest in this study is the assessment of the importance individuals attribute to income and family. The questions ask: How important are (i) income and (ii) family for your well-being and satisfaction? Respondents rate their

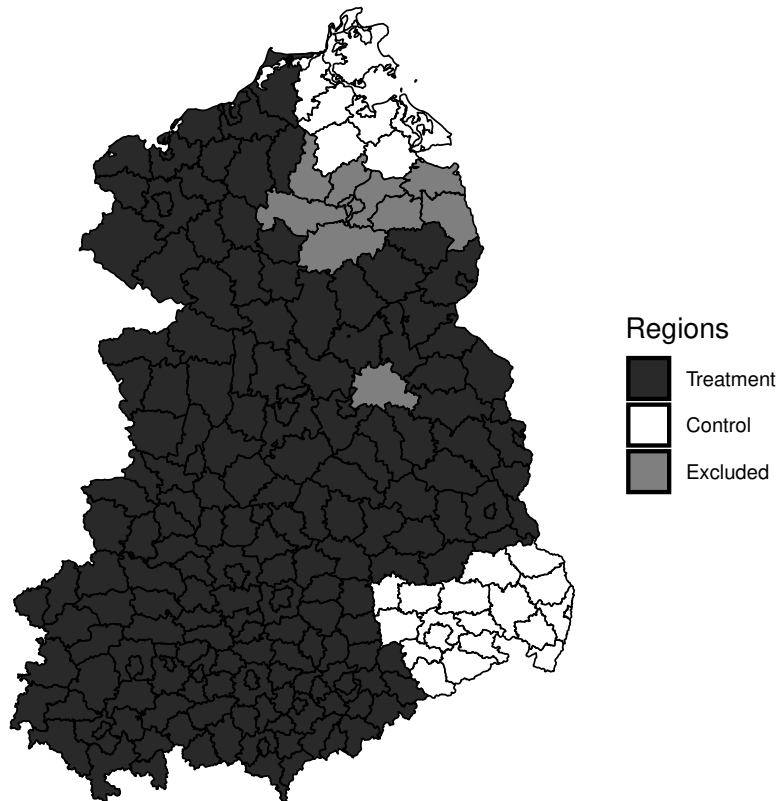
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<sup>2</sup>The recent waves include surveys with younger children as well.

answers on a 4-item Likert scale.

The unit of regions in SOEP in which participants resided are called *Raumordnungsregion* (ROR), defined by *Federal Institute for Research on Building, Urban Affairs and Spatial Development* for the purpose of spatial planning. The ROR in which

**Figure 1:** Treatment Regions in East Germany



Note: Black regions receive the signal. White regions do not receive the signals. Districts are *Raumordnungsregionen* before 2008.

the participant resides determines whether this participant is in the treatment or in the control group. The treatment group definition in this study is based on the definition in Bursztyn and Cantoni (2016). In the study, they calculate the availability of Western TV signal in GDR using a signal propagation model. The regions with signal availability below a certain threshold fall to the control group. Figure 1 shows the control and treatment RORs.<sup>3</sup>

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<sup>3</sup>I excluded Neubrandenburg from the analysis since almost half of it lay on the control region and the other half lay on the treatment region. I also exclude Berlin since the demographics of East Berlin is considerably different from the rest of East Germany.

I conducted the analysis on a final sample consisting of 3,537 observations. Of these, 569 are in the control group, while 2,968 are in the treatment group. I evaluate the balance between control and treatment regions for each generation regarding the observables included in equation (3.1). Table 1 presents the results. There are no significant disparities in observables across the two groups in both generations.

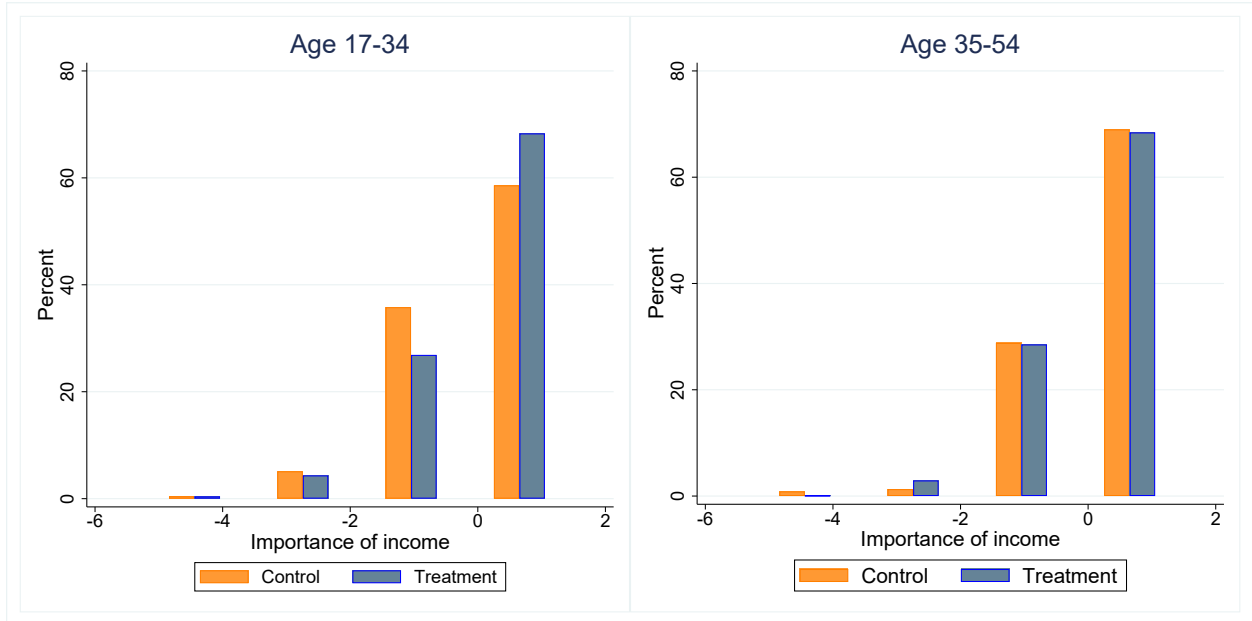
**Table 1:** Balance Check

|                           | Control |        | Treatment |        | P-value |
|---------------------------|---------|--------|-----------|--------|---------|
|                           | Mean    | SD     | Mean      | SD     |         |
| <b>Panel A: Age 17-34</b> |         |        |           |        |         |
| Gender                    | 0.57    | (0.50) | 0.51      | (0.50) | 0.07    |
| Age                       | 26.87   | (5.09) | 26.23     | (5.16) | 0.10    |
| Have a partner            | 0.66    | (0.47) | 0.64      | (0.48) | 0.54    |
| Number of kids            | 0.82    | (0.98) | 0.78      | (0.96) | 0.58    |
| School Degree             | 0.91    | (0.29) | 0.86      | (0.34) | 0.09    |
| Household Income          | 6.87    | (0.34) | 6.84      | (0.36) | 0.30    |
| Education/In Labor Market | 0.98    | (0.15) | 0.98      | (0.15) | 0.89    |
| <b>Panel B: Age 35-54</b> |         |        |           |        |         |
| Gender                    | 0.49    | (0.50) | 0.50      | (0.50) | 0.95    |
| Age                       | 43.79   | (6.02) | 44.21     | (5.91) | 0.33    |
| Have a partner            | 0.94    | (0.23) | 0.92      | (0.27) | 0.23    |
| Number of kids            | 1.02    | (1.16) | 1.00      | (1.15) | 0.85    |
| School Degree             | 0.59    | (0.49) | 0.54      | (0.50) | 0.14    |
| Household Income          | 6.94    | (0.33) | 6.90      | (0.34) | 0.10    |
| Education/In Labor Market | 0.98    | (0.15) | 0.96      | (0.19) | 0.25    |

School degree is a dummy variable that takes the value of 1 if participants attended 10th grade, and 0 otherwise. Panel A is the age cohort born between 1936 and 1955. Panel B is the age cohort born between 1956 and 1973. Education/In Labor Market is a dummy variable that takes the value of 1 if the participant is either employed or in education, and 0 otherwise. Have a partner is a dummy variable that takes the value of 1 if the participant lives together with a life partner regardless of being legally married.

Regarding the answers to the life-goals question, Figure 2 shows the distributions of the answers to life goals questions in the control and treatment regions for two age cohorts. Most of the sample expresses that income and family are important or very important for them.

**Figure 2:** Distribution of importance of income (Unconditional)



The left panel is the age cohort born between 1936 and 1955. The right panel is the age cohort born between 1956 and 1973.

### 3.4 Results

Table 2 demonstrates the findings of the analysis. Throughout all columns, the reference group is untreated females who lack access to Western TV. Column 1 presents the full sample analysis before segmenting the data by age groups. In the full sample, treatment, gender, and their interaction are not associated with varying levels of stated importance of income.

Column 2 in Table 2 shows the results for the subsample, encompassing those born between 1956 and 1973, i.e., those who were 17-34 years old in 1990. In this age group, income is 0.21 sd less important for males in the control region than females in the same region. In contrast to the findings in the control region, young males attribute higher importance to income in the treated region. Particularly, the treatment increases the importance of income by 0.18 sd for males while it does not impact females. In sum, while young males in the control region express less importance towards income compared to young females, the treatment enhances the significance of income for males, effectively making it notably more important for males in the treated region compared to females in the treatment region.

**Table 2:** Treatment effects: Natural Experiment

|                | All               | Age 17-34            | Age 35-54         |
|----------------|-------------------|----------------------|-------------------|
| Male           | -0.0332<br>(0.03) | -0.2086***<br>(0.03) | 0.0813<br>(0.05)  |
| Treatment      | 0.0149<br>(0.13)  | 0.0578<br>(0.08)     | -0.0336<br>(0.21) |
| Male*Treatment | 0.0663<br>(0.05)  | 0.1778**<br>(0.06)   | 0.0042<br>(0.06)  |
| N              | 2781              | 1364                 | 1417              |
| R-Squared      | 0.087             | 0.089                | 0.098             |

The table presents the estimates from OLS regressions. The first column includes the full sample. *Age 17-34* is the age cohort born between 1936 and 1955. *Age 35-54* is the age cohort born between 1956 and 1973. The dependent variable is (standardized) stated importance of income. The regressions control for a dummy variable for having a life partner, number of children in the household, school degree, age in the year 1990, household income, and a dummy variable for being either employed or in education. Standard errors are reported in parentheses. Asterisks indicate that coefficient is statistically significant at the 1% \*\*\*, 5% \*\*, and 10% \* levels.

Column 3 in table 2 presents the analysis outcomes for the age group born between 1936 and 1955, consisting of individuals aged 35 - 54 years old during the survey year 1990. In this cohort, neither gender nor treatment is associated with the stated level of importance attributed to income.

The findings reveal that males express less importance regarding income compared to females in the control region. It's important to note that the control region operates under a communist regime, with limited exposure to Western values, an emphasis on prudent consumption, and a supportive narrative for women in professional spheres.

The analysis outcomes for the treatment region in East Germany demonstrate similarity to findings more commonly observed in Western societies. This includes a lower level of income aspirations among women. These results suggest that Western TV primarily affects the income aspirations of males who are exposed to it starting from their childhood while not significantly impacting the income aspirations of females in similar age cohorts. This disparity in the treatment effect contributes to the emergence of a gender gap in income aspirations.

The analysis is subject to certain limitations. Firstly, the lack of precise house location data prevents the perfect assignment of treatment and control regions within the analysis.

This might introduce some level of noise in the analysis. The second one is that there is no variable measuring the TV hours of participants. That is, I can only measure the intended treatment effect. The third limitation is that I cannot measure which TV programs caused the effect observed since there is no variable measuring which type of TV programs individuals watch. Particularly, it is not possible to disentangle the effects of advertisements from that of other TV shows in the analysis. In order to address these limitations and mitigate the concerns about their potential implications on the analysis results, I run a controlled randomized experiment.

## 4 Online Experiment

### 4.1 Experimental Design

I conducted the online experiment in April 2022 via two professional survey companies that maintain online panels in Germany comprising individuals over 18. Among the panel members, those with a child between 14-17 years old were sent a consent request, seeking permission for their child's participation in the experiment. As per German law, individuals below 18 cannot be included in their panels, prompting the survey companies to approach parents (or legal guardians) of adolescents aged 14 to 17. Adolescents whose parents gave the necessary consent participated in the experiment using their PCs, tablets, or mobile phones. Inattentive respondents failing the attention check, placed after a few initial questions, were excluded from the analysis.

I designed the experiment to have four sections. The first section gathers information on demographics, family background, and education. Additionally, this section elicits time and risk preferences as well as participants' life satisfaction and happiness. At the end of the first section, participants are informed that they will be shown a video in the upcoming section. The video in the second section is the treatment of the study. It contains advertisements for the treatment groups, while the control group is shown no advertisements. The third section is tailored to assess the impact of the treatment. It presents hypothetical choice scenarios and life goal-related questions. In the final section, participants are asked about their media usage patterns and are given questions about the videos to evaluate their attentiveness. Also, I collect their ideas about the possible aim of the experiment.



## 4.2 Treatment Design

To examine the impacts of watching advertisements on the importance that adolescents place on income, work, and family, I generated three video versions: one for the control group, one for the first treatment group, and one for the second treatment group. From this point on, I will call the first treatment the “nontraditional treatment” and the second treatment the “traditional treatment”. I will explain the reason in the next paragraphs. The version for the control group is a cut from a nature documentary without any advertisements. For the versions for the treatment groups, I composed videos that resemble popular online platforms where creators generate income through advertisements. These treatment videos featured the same nature documentary shown to the control group, interrupted by two advertisement blocks.

The total time spent watching ads for the two treatment groups is 59 seconds and 63 seconds, respectively. For the control group, the total video length is 1 minute and 55 seconds. Together with the documentary and the advertisements, the nontraditional treatment group’s video lasts 2 minutes and 55 seconds, while the traditional treatment group’s video lasts 3 minutes. Both treatment videos follow a similar pattern in terms of advertisement placement. The first advertisement block, comprising one advertisement, is shown before the start of the documentary. The second block, containing two advertisements, is presented 1 minute and 8 seconds after the start of the documentary. This moment aligns with a natural break in the documentary, marking the end of one section and the start of a new section.

After completing the first section, each subject is randomly assigned one of the three video versions. The video begins playing once participants click the “Play” button on the screen. Importantly, they are not allowed to skip the video fully or partially, nor can they pause or replay it. Furthermore, there is no provision to skip the advertisements within the video. Once the video concludes, the experiment’s interface automatically progresses to the next page. This setup ensures a standardized and consistent viewing experience for all participants, facilitating unbiased data collection and analysis.

The selection of the documentary and advertisements was meticulously crafted, taking into account the study’s objectives. The nature documentary showcases footage from a national park in Germany, highlighting its diverse wildlife and plant life. It is a “neutral” video in the sense that it does not display any material possessions, messages, or content that might influence viewers’ perspectives on aspects like higher income, ambitious careers, or

happy family life — topics central to the study. Moreover, I give special attention to avoiding human images or other cues that would prime individuals on gender. The documentary features solely a male narrator, who provides information about the history and current state of the national park. By carefully curating the content, the study aims to maintain a neutral and unbiased environment during the video-viewing experience, ensuring that external factors do not influence participants' responses.

I carefully select the advertisements from those aired on German TV channels in April 2022 or aired shortly before that time. Unlike the documentary's neutrality, these advertisements emphasize the importance of material possessions for happiness and well-being. I specifically choose advertisements featuring human actors/actresses to convey the message to the audiences more effectively.

The depicted actors and families in the chosen advertisements appear to have a high socioeconomic status and lead prosperous lives. Their happy and satisfied images are accompanied by the advertised and the non-advertised products, conveying the message that goods and services ensure a charmed existence. For example, the actors live happily with their families in well-furnished houses with their good-looking outfits, although the advertised product may not be furniture or clothes.

To ensure comparability between the treatment groups, I carefully organized the advertisements into three pairs. Each pair consists of two advertisements, one assigned to the nontraditional treatment group and the other to the traditional treatment group. The ads within each pair share a common feature of promoting similar products. However, there are differences in the gender of the primary characters and the gender roles portrayed in each pair.

More specifically, one advertisement in each pair displays nontraditional gender roles (Advertisement 1), while the other advertisement displays traditional gender roles (Advertisement 2). Advertisement 1 is inserted in the nontraditional treatment video, while Advertisement 2 is featured in the traditional treatment video.

The advertised products belong to three distinct categories: financial services in *Pair 1*, child care in *Pair 2*, and home production in *Pair 3*. Specifically, Pair 1 comprises products related to financial services, including a car insurance company and an alternative payment method to cash and conventional deposit cards. In Pair 2, the products revolve around child care, featuring baby food and an online website specializing in goods for babies and

toddlers. Lastly, Pair 3 is centered on home production and involves the promotion of a vacuum cleaner in both advertisements.

The gender of the main character in the advertisements varies depending on the product category and the intended treatment arm. In the nontraditional treatment arm, the ads portray gender images in a “neutral” way. This means that both men and women are presented as users of the products, regardless of the traditional gender roles associated with these products. For example, while financial products are typically associated with male users, the nontraditional treatment ads depict both males and females as users. Similarly, home production and child care are stereotypically considered female tasks, but the advertisements in the nontraditional treatment show both males and females as users of these products.

Importantly, the ads in the nontraditional treatment represent both genders as professionals, income earners, and caregivers responsible for house and baby care. It is essential to highlight that the gender roles in the chosen advertisements are not simply reversed in the chosen advertisements. Instead, each nontraditional treatment ad features both male and female characters in stereotypical and nonstereotypical gender roles. This approach pictures a more “equal” allocation of roles in both professional and family life. Additionally, this approach enables the study to assess the influence of advertisements on income, work, and family aspirations if advertisements did not utilize any cues for stereotypical gender roles.

In the traditional treatment arm, I selected advertisements featuring primary characters of the corresponding gender for each product category, in line with the stereotypical users. For instance, the financial products are advertised by male primary characters, while female primary characters advertise the home production and child care products. These ads portray actors performing traditional gender roles, where males are depicted as the income earners and involved in financial decision-making, while females are portrayed as mothers, caregivers, and often engaged in household chores, with limited involvement in financial matters. With this traditional treatment approach, the study aims to explore how exposure to advertisements reinforcing conventional gender roles might influence participants’ aspirations for income, work, and family.

I conducted a short survey with an independent sample of German adolescents to gauge whether the advertisements effectively convey the intended gender roles. In this survey, I provided respondents with clear definitions of both traditional and non-traditional gender roles. *Traditional* is that men and women take over different roles in family and society. Women are expected to take care of children and housework and men are expected to earn

income and provide for their family. *Nontraditional* is that the difference between men and women regarding their roles disappears. Both men and women work, earn income, provide for the family, and share responsibilities for childcare and household tasks.

Based on these definitions, the participants are asked to evaluate the advertisements and indicate to what extent the advertisements embody traditional and nontraditional gender roles. Using a five-point scale, where 1 represents nontraditional and 5 represents very traditional, respondents rated the advertisements accordingly. Table 3 presents the results. On average, the respondents perceived the advertisements in the traditional treatment arm to be more traditional, based on the provided definitions, compared to those in the nontraditional treatment arm. Furthermore, the mean differences between the two treatment groups were statistically significant for each advertisement pair.

**Table 3:** Traditionality of Advertisements

|        | Advertisement1 |      | Advertisement2 |      | P-value |
|--------|----------------|------|----------------|------|---------|
|        | Mean           | SD   | Mean           | SD   |         |
| Pair 1 | 1.77           | 1.1  | 3.7            | 1.17 | 0.00    |
| Pair 2 | 2.32           | 1.21 | 3.96           | 1.24 | 0.00    |
| Pair 3 | 2.64           | 1.32 | 4.02           | 1.03 | 0.00    |

The table presents the average score reported to the question: “How traditional the gender roles in advertisements”. Traditionality takes the value between 1 and 5. 1 means “not traditional”, and 5 means “very traditional”.

These survey findings provide valuable insights into how participants interpret the gender roles depicted in the advertisements, confirming that the intended traditional and nontraditional portrayals were effectively conveyed in the respective treatment groups.

As visual stimuli are a complex manipulation, I take care to measure and compare the affective states aroused by the advertisements. “Affects” are feelings, mood, and emotional states that impact economic preferences and decision-making (Ifcher and Zarghamee, 2011; Lerner et al., 2004; Werner et al., 2009). Many approaches exist to classify and measure affects. Among them, I choose the hedonic tone items in Schimmack and Grob (2000). Based on this measurement, three positive (good, positive, pleasant) and three negative (bad, negative, unpleasant) affects are elicited after the respondents watch the video. Appendix table A1 presents the mean aroused affects for each advertisement.

The use of both nontraditional and traditional treatments serves distinct purposes in understanding the effects of advertisements. The traditional treatment aims to link gender

with implied gender roles directly, allowing investigation into whether ads reinforce stereotypical gender roles associating family with females and work and money with males. On the other hand, the nontraditional treatment has dual objectives.

The first and more obvious objective is that the nontraditional treatment explores whether adolescents' choices differ when exposed to nonstereotypical gender roles. This is significant because the adolescents' control state, i.e., absence of any stimuli, involves implicit coding of gender with stereotypical roles due to prolonged exposure through media, family, and schools.

The second reason for including the nontraditional treatment is to check whether the "priming effect" exists. In this study, this effect is said to arise when participants recall traditional gender roles and perform stereotype-consistent behaviors after viewing male and female images in family or professional settings, even without explicit traditional gender images (See Wheeler and Petty (2001) for a literature review on priming effect.). Therefore, both treatments could potentially trigger the priming effect. Sole reliance on the traditional treatment would make it difficult to ascertain if any observed effects stem from evoked traditional gender roles due to the priming effect following exposure to family or career images.

Incorporating the nontraditional treatment helps discern between the direct impact of traditional gender associations and the influence of priming, leading to a more comprehensive understanding of the advertisement effects.

### 4.3 Hypothetical Choice Scenarios

To investigate the potential impact of advertisements on life choices, I employ the hypothetical stated choice methodology, an extensively used method in previous research.<sup>4</sup> Utilizing realized choice data for decision analysis is unreliable due to the presence of omitted variables bias. However, introducing exogenous variation in attributes can liberate parameter estimates from the influence of employers' or partners' preferences and account for unobserved life attributes, thereby resolving the endogeneity issue (Wiswall and Zafar, 2018).

Some critics have raised concerns about these methods' external validity and ability

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<sup>4</sup>See Kosar et al. (2022) for moving decision, Delavande and Manski (2015) for voting behavior and preferences for political candidates, Maestas et al. (2018) for job choice decisions, Wiswall and Zafar (2018) for preferences for workplace characteristics.

to fully replicate real-life decision-making processes (Louviere et al., 2000; Diamond and Hausman, 1994; Hausman, 2012). However, Hainmueller et al. (2015) demonstrate that the relative importance of attributes revealed through hypothetical choice scenarios aligns with the relative importance of attributes in real-life decisions, providing evidence supporting the method’s validity.

For the current study, I gather data on hypothetical life choices by presenting 15 life scenarios to adolescents. Each scenario presents two distinct life options, each characterized by five attributes. Participants are then asked to select the option they would prefer when they reach 30 years of age.<sup>5</sup> The questions are introduced in the following way:

*We would like to understand what you value in your life. Therefore, we ask you to choose which life situation you would prefer in the following 15 situations, assuming you are 30 years old and have a steady partner.*

*Each time, you will see two life situations among which you will decide. The situations have 5 different aspects. Two of the dimensions are the same across life situations, while three of the dimensions are different. Of course, life has many more aspects, such as where you live, whether you have close friends nearby, etc. We ask you to assume that all aspects that are not mentioned are the same for both options.*

*Now imagine that you are 30 years old and have a steady partner. Please indicate which of the two options you would prefer in these life situations.*

*There is no wrong or correct answer. We would like to understand what you value in your life.*

Table 4 presents an example scenario introduced to participants in the experiment. In all presented scenarios, each life is characterized by five key aspects. The first one is respondents’ income, which directly measures their aspirations for higher earnings and significantly influences their education and job choices (Arcidiacono et al., 2012; Wiswall and Zafar, 2015; Arcidiacono et al., 2020). The other aspects characterize career and family life, namely

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<sup>5</sup>To elicit the preferences, I preferred stated binary choices instead of the stated choice probabilities (Blass et al., 2010; Manski et al., 1999). Although using probabilities can offer the advantage of expressing uncertainty in participants’ choices, it may not be suitable for every sample due to its mental demands. To assess its suitability for my targeted age group, I conducted a pilot study. The results indicated that when combined with the moderately long experiment duration, participants experienced cognitive overload during the process, leading to a high drop-out rate. Consequently, I opted to conduct the experiment using the binary choice methodology instead.

spousal earnings, working hours, workplace flexibility, and having a child.

**Table 4:** Sample scenario

|                         | <b>Option 1</b>                                       | <b>Option 2</b>                         |
|-------------------------|---|---|
| <b>Your income</b>      | 1600 Euro per month                                   | 1400 Euro per month                     |
| <b>Partner’s income</b> | 1000 Euro per month                                   | 1100 Euro per month                     |
| <b>Working hours</b>    | 42 hours per week                                     | 42 hours per week                       |
| <b>Flexibility</b>      | Beginning and end of your work hours are well defined | You can choose your work hours flexibly |
| <b>Having a child</b>   | You have a child                                      | You have a child                        |

The findings from previous literature demonstrate that these aspects play critical roles in shaping various important life decisions. The literature on assortative mating reveals that the earnings level of prospective partners affects partner choice (Chiappori et al., 2017; Greenwood et al., 2014). Additionally, recent findings point out that these earning prospects particularly affect the education and career decisions of young females (Wiswall and Zafar, 2021). Moreover, the relative income among couples affects marital satisfaction and divorce rates, with couples where the female earns more than the male being more prone to divorce (Bertrand et al., 2015).

Working hours and flexibility are associated with career and job choices (Cortes and Pan, 2017). As defined in Wiswall and Zafar (2018), flexibility refers to employees’ control over their working time intervals within a day while meeting the total working hours requirement. There is a gender difference in preferences for longer working hours and less flexible jobs, contributing to the gender gap in earnings (Goldin, 2014). The decision on fertility has been shown to affect and be affected by economic well-being, career choices, and working conditions (Adda et al., 2017). Recent research by Wiswall and Zafar (2021) reveals that females, even at early ages, tend to consider their future motherhood when making career choices. Consequently, they often choose “family-friendly” career paths and majors that allow them reduced working hours and increased flexibility, albeit at the expense of potentially higher earnings.

To ensure that options involving single parenting were not considered, participants were explicitly instructed to imagine themselves as being in a relationship with a steady partner in all the scenarios presented. Consequently, marital status was intentionally excluded as one of the varying aspects in the study. This decision was made to avoid any potential dependence between marital status and the decision to have a child. If marital status depended on

having a child, it could result in a lack of independent variation between marriage and fertility decisions. Consequently, this dependency would complicate the identification of preference parameters in the linear model without incorporating additional assumptions.

There is a substantial amount of studies on the optimal number of attributes and the optimal variation in attributes for stated choice experiments (See Carlsson and Martinsson (2003); Kuhfeld et al. (1994) for the literature review.). These algorithms, so-called *D-efficient* or *D-optimal* algorithms, are based on the assumption that the econometric model is correctly specified. Besides, the outcomes of these algorithms are sensitive to the prior information on parameter values. Due to this sensitivity, I opted not to use any of these algorithms to generate the scenarios.

Instead, I draw the options from the marginal distribution of actual life situations in the German Socioeconomic Panel (SOEP) 2018.<sup>6</sup> SOEP is a nationally representative and longitudinal household survey in Germany, which provides a rich set of demographics and earnings information from its panel members. For my analysis, I focused on a subsample of individuals aged 25-45 with a partner living in the same household. To construct a pool of possible options, I draw the following variables from SOEP, which are in my designed scenarios: net monthly earnings of individuals and their partners, weekly working hours, work hour flexibility, and whether they have at least one kid. For the purpose of constructing the scenarios, the net monthly incomes are rounded to the nearest 10 units. By drawing from real-life data in this manner, I attempt to capture realistic and diverse life situations, enhancing the relevance and validity of the study's findings.

I carefully curate and pair the options so that the variations between the options within each given scenario are not too large. This approach ensures that the options are comparable and one option does not clearly dominate the other one due to large differences in attributes of the two options. At the same time, variations across different scenarios are adequately dispersed to cover the whole distribution observed in the SOEP. A scenario that includes an option that is clearly dominant or dominated by other options in the scenario is excluded. It is to be noted that the attribute of having a child is ignored when determining the dominant option, as it can not be assumed that having a child yields positive utility for all individuals. In other words, having a child might lead to disutility for some individuals. Hence, determining the dominant option was based on the remaining attributes.

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<sup>6</sup>I generated a distribution of combinations for income levels rounded to the nearest 10, age, working hours, work hour flexibility, and parental status. I then draw scenarios from this distribution.



Three attributes vary across options in each scenario. Among these attributes, individuals' own earnings vary in all scenarios, as it serves as a means to monetize the value of the other aspects under consideration. In addition to income, two other aspects vary in each scenario. Varying more than three attributes at once could enable one to elicit more precise parameters with a smaller sample. However, it might also increase the cognitive burden and overwhelm the respondents.

The hypothetical scenarios in the experiment comprise six blocks, each containing three scenarios, making a total of 18 scenarios. The blocks are distinguished by the specific set of varying attributes they contain. For instance, Block 1 features scenarios with varying individuals' own earnings, spousal earnings, and working hours, while Block 2 includes scenarios with varying individuals' own earnings, working hours, and work hour flexibility. Each participant was randomly assigned five blocks out of the six available, resulting in a total of 15 scenarios per participant.

#### 4.4 Theoretical Framework

Individuals are denoted by the index  $i$ , and different life options are denoted by the index  $j$ . Each life option is characterized by a vector of five attributes, denoted as  $X_j = [X_{j1}, \dots, X_{j5}]$ . These attributes consist of the logarithm of individuals' own income, the logarithm of the partner's income, working hours, job flexibility, and whether they have a child. The expected utility of individual  $i$  from life option  $j$  is denoted as  $U_{ij}$  and is given by the function:

$$U_{ij} = u_i(X_j) + \epsilon_{ij}, \quad (2)$$

where  $\epsilon_{ij}$  represents all the remaining attributes of life option  $X$  other than the five attributes characterized by the vector  $X_j$ . Having observed the attributes of two life options  $j$  and  $j'$ , individual  $i$  chooses the option  $j$  over  $j'$  if the expected utility of  $j$  is greater than the expected utility of  $j'$ , i.e.,  $U_{ij} > U_{ij'}$ . The probability of individual  $i$  choosing life option  $j$  over life option  $j'$  is:

$$P_i(\text{choosing job } j) = \int \mathbf{1}\{U_{ij} > U_{ij'}\} dH_i(\epsilon_i), \quad (3)$$

where  $dH_i(\epsilon_i)$  represents individual  $i$ 's beliefs about the distribution of  $\epsilon_i$ .<sup>7</sup> Assuming that utilities are additively separable, the probability that individual  $i$  chooses life option  $j$  over  $j'$  is expressed as follows:

$$P_i(\text{choosing job } j) = \sum_{j,j'=1}^5 (X_j - X_{j'})\beta + \nu_{ij}, \quad (4)$$

where  $\beta$  is a vector of preference parameters over attributes vector  $X_j$ , and  $\nu_{ij} = \epsilon_{ij} - \epsilon_{ij'}$ .

#### 4.5 Analysis

Based on the theoretical framework outlined in Section 4.4, I estimate the following equation conditioning on a set of covariates to estimate the treatment effects on the vector of preference parameters  $\beta$ :

$$Y_i = \sum_{jk,j'k=1}^5 (X_{jk} - X_{j'k})\beta_0 + \sum_{jk,j'k=1}^5 (X_{jk} - X_{j'k})T_{i1}\beta_1 + \sum_{jk,j'k=1}^5 (X_{jk} - X_{j'k})T_{i2}\beta_2 + \lambda Z_i + \nu_{ij}, \quad (5)$$

In this equation,  $Y_i$  takes a value of 1 if individual  $i$  chooses option  $j$ , and 0 otherwise. The variable  $T_{i1}$  takes a value of 1 if individual  $i$  is assigned to the nontraditional treatment, and 0 otherwise. Similarly,  $T_{i2}$  takes a value of 1 if individual  $i$  is assigned to the traditional treatment, and 0 otherwise.  $Z_i$  is a vector of observables for individual  $i$  that could potentially influence their choices.

I estimate the equation using a linear probability model. Since I collect responses from the same individuals across 15 scenarios, I account for potential correlations in their responses by clustering the standard errors at the individual level.

Additionally, I analyze the impact of treatments on individuals' stated importance of their own income, family situation, and relative income within the household utilizing the following linear regression model:

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<sup>7</sup>This model has been successfully implemented in prior research, as seen in Wiswall and Zafar (2018).

$$M_i = \gamma_1 T_{i1} + \gamma_2 T_{i2} + \theta Z_i + \eta_i, \quad (6)$$

where  $M_i$  is individual  $i$ 's response to the question about importance, which is standardized to have a mean of 0 and the standard deviation of 1,  $T_{i1}$ , and  $T_{i2}$ , and  $Z_i$  remain the same as in equation (3.5), denoting the treatment group assignment and the vector of observables for individual  $i$ .

## 4.6 Data

In the final sample, I have a total of 495 adolescents, consisting of 190 males and 305 females. Among these participants, 174 were assigned to the control group, 147 to the nontraditional treatment group, and 174 to the traditional group. The median duration of the experiment was 16.2 minutes.

The data set comprises a rich set of participants' characteristics that can influence adolescents' life choices. They include demographic and socioeconomic variables such as gender, age, school type, grade, academic performance, and information about their parents' education and employment status. I ask participants about the state that they are currently residing in and generate a dummy variable for residence in the states taking place in the borders of East Germany. As widely known (e.g., Boelmann et al. (2021)), East Germany propagated different narratives than West Germany about the females' roles, supporting females' presence in the labor force. Thus, female labor force participation is historically higher in East Germany than in West Germany.

Moreover, I elicit the participants' time and risk preferences using the method described in Falk et al. (2018) and ask about measures of life satisfaction and happiness, using a 5-points-scale (1: not satisfied/happy at all, 5: very satisfied/happy). In order to account for the impact of media exposure, I specifically ask the adolescents about their weekly time spent watching TV and using social media. This allows me to control the amount of their regular media use and exposure to advertisements and other content. See Appendix A.2 for the questions.

**Table 5:** Mean comparison of control variables

|                    | Control           | Tr. 1             | Tr. 2             | Control - Tr. 1 | Control - Tr. 2 | Tr. 1 - Tr. 2   |
|--------------------|-------------------|-------------------|-------------------|-----------------|-----------------|-----------------|
|                    | Mean              | Mean              | Mean              | Difference      | Difference      | Difference      |
|                    | (SD)              | (SD)              | (SD)              | (p-value)       | (p-value)       | (p-value)       |
| Gender (Female=1)  | 0.59<br>(0.49)    | 0.59<br>(0.49)    | 0.67<br>(0.47)    | 0.00<br>(0.90)  | -0.08<br>(0.15) | -0.08<br>(0.13) |
| Age in months      | 194.99<br>(12.91) | 195.81<br>(13.13) | 195.56<br>(13.67) | -0.82<br>(0.57) | -0.57<br>(0.69) | 0.25<br>(0.87)  |
| School type        | 3.05<br>(0.76)    | 3.05<br>(0.83)    | 3.1<br>(0.90)     | 0.00<br>(0.92)  | -0.05<br>(0.56) | -0.05<br>(0.66) |
| Grade              | 4.10<br>(1.47)    | 3.84<br>(1.34)    | 3.83<br>(1.23)    | 0.26<br>(0.09)  | 0.27<br>(0.06)  | 0.01<br>(0.95)  |
| German grade       | 2.30<br>(0.91)    | 2.38<br>(0.96)    | 2.40<br>(0.92)    | -0.08<br>(0.43) | -0.10<br>(0.29) | -0.02<br>(0.84) |
| Math grade         | 2.51<br>(1.20)    | 2.47<br>(1.35)    | 2.47<br>(1.12)    | 0.04<br>(0.77)  | 0.04<br>(0.71)  | 0.00<br>(0.98)  |
| Mother educ        | 10.02<br>(1.15)   | 10.05<br>(1.34)   | 10.12<br>(1.22)   | -0.03<br>(0.83) | -0.10<br>(0.42) | -0.07<br>(0.61) |
| Father educ        | 4.14<br>(1.53)    | 4.09<br>(1.45)    | 3.81<br>(1.41)    | 0.05<br>(0.77)  | 0.33<br>(0.04)  | 0.28<br>(0.08)  |
| Mother works       | 0.8<br>(0.40)     | 0.88<br>(0.32)    | 0.84<br>(0.36)    | -0.08<br>(0.04) | -0.04<br>(0.26) | 0.04<br>(0.31)  |
| Father works       | 0.93<br>(0.25)    | 0.95<br>(0.23)    | 0.9<br>(0.3)      | -0.02<br>(0.59) | 0.03<br>(0.33)  | 0.05<br>(0.15)  |
| Life satisfaction  | 3.54<br>(0.95)    | 3.43<br>(1.00)    | 3.59<br>(0.95)    | 0.11<br>(0.31)  | -0.05<br>(0.65) | -0.16<br>(0.15) |
| Happiness          | 3.52<br>(0.82)    | 3.50<br>(0.92)    | 3.71<br>(0.78)    | 0.02<br>(0.79)  | -0.19<br>(0.03) | -0.21<br>(0.02) |
| East Germany       | 0.23<br>(0.50)    | 0.24<br>(0.52)    | 0.33<br>(0.60)    | -0.01<br>(0.79) | -0.10<br>(0.10) | -0.09<br>(0.19) |
| Number of siblings | 1.47<br>(1.10)    | 1.29<br>(1.11)    | 1.53<br>(1.17)    | 0.18<br>(0.15)  | -0.06<br>(0.64) | -0.24<br>(0.07) |
| Time preference    | 6.24<br>(2.15)    | 6.39<br>(2.26)    | 6.14<br>(2.02)    | -0.15<br>(0.53) | 0.10<br>(0.66)  | 0.25<br>(0.29)  |
| Risk preference    | 5.75<br>(1.97)    | 5.76<br>(2.20)    | 5.60<br>(2.27)    | -0.01<br>(0.99) | 0.15<br>(0.50)  | 0.16<br>(0.53)  |
| Hours TV           | 1.22<br>(0.96)    | 1.33<br>(1.07)    | 1.25<br>(0.96)    | -0.11<br>(0.37) | -0.03<br>(0.78) | 0.08<br>(0.52)  |
| Hours social media | 1.81<br>(0.98)    | 1.94<br>(1.04)    | 1.83<br>(1.02)    | -0.13<br>(0.26) | -0.02<br>(0.87) | 0.11<br>(0.33)  |

The table presents the pairwise mean comparisons of variables across the control and the two treatment groups. East Germany is a dummy variable that takes the value of 1 if the participant resides in the borders of former East Germany.

I assess the balance between the control and the treatment groups as well as across the treatment groups. Table 5 summarizes the results. I found no significant differences across

the groups for most of the variables. For most of the variables, no difference is observed across the groups. I control for these variables in estimating the treatment effect to enhance the precision of the estimation results and to account for potential imbalances.

#### 4.7 Results of the Experiment

Before analyzing the treatment effects, I estimated equation (3.4) separately for males and females in the control group and in each treatment group, using linear probability models. The outcomes of these estimations are then depicted in Figure 3, illustrating how the treatments shift the coefficient estimates for males and females. Additionally, Appendix table A2 provides all the coefficient estimates and standard errors.

Starting with evaluating the results for the control group, a 1 percent higher individual's own earnings in a particular scenario increases the chance that it is chosen by a male respondent by 0.30 percentage points (pp). Notably, the impact of income on life scenario choices is more pronounced for females than males, where the likelihood of choosing that option increases by 0.64 pp. However, this pattern changes in the treatment groups. In the nontraditional treatment group, a 1 percent increase in earnings leads to a 0.73 pp increase in the likelihood of males choosing a life option, while females experience a smaller effect of 0.54 pp. Similarly, in the traditional treatment group, the effects are 0.69 pp for males and 0.69 pp for females. This indicates that the treatments considerably influence the importance of income for life choices among males.

As is evident from the figure, another attribute that is significantly affected by the treatments is "having a child." In the control group, having a child increases the likelihood of males choosing a life option by 9 percentage points, while it does not significantly impact females in the same group. However, in the nontraditional treatment group, having a kid is not a significant attribute affecting life choices for both males and females. The same holds true for males in the traditional treatment group. Nevertheless, for females in the traditional treatment group, having a child increases the likelihood of choosing a life option by 6 percent. However, the effect of the traditional treatment on females is not statistically significant, as discussed below.

**Figure 3:** Coefficients from separate regression by treatment and gender



I report the estimated parameters of attributes from OLS estimation, separately for the control and the two treatment groups. The dependent variable is a dummy variable that takes the value of 1 if the participants choose the life option, and 0 otherwise. The regressions control for age in months, school type attended, grade, mother's and father's education, the number of siblings, life satisfaction, happiness, German and math grade, a dummy variable for residing in the borders of former East Germany, dummy variables for employed mother and father, time and risk preferences, hours spend for watching TV and on the social media. Asterisks indicate that coefficient is statistically significant at the 1% \*\*\*, 5% \*\*, and 10% \* levels.

Table 6 summarizes the regression estimates of the linear model in (3.6), allowing for a clear assessment of the treatment effects. Similar to the coefficients in Figure 3, a 1 percent increase in earnings leads to a 0.31 percentage point rise in the likelihood of choosing a life option for males in the control group, and a larger increase of 0.62 percentage points for females in the same group. For males, both the nontraditional and the traditional treatments have significant effects ( $p < 0.05$ ), further increasing this effect by 0.42 and 0.38 percentage points, respectively. In contrast, neither treatment has a statistically significant impact on the relationship between females' own income and their life choices. The findings emphasize the differential treatment effects on males and females regarding the influence of one's own earnings on life choices.

If a life option involves one additional working hour, both males and females are 2 percent less likely to choose this option. Neither the nontraditional nor the traditional treatment has any discernible impact on the effect of working hours on life choices for both gender groups. As expected, job flexibility positively influences the likelihood of choosing a life option. It increases the likelihood by 8.5 percent for males, while it leads to an 11 percent increase for females. However, the treatments applied in this study do not change these impacts.

Regarding spousal earning levels, a 1 percent increase in spousal earnings leads to a 2.8 pp increase in the likelihood of choosing a life option for males and a larger increase of 3.8 percentage points for females. The treatments do not result in any changes to these effects. The ratio between the coefficients of one's own earnings and that of spousal earnings is approximately 1 for males in the control group, whereas the ratio is around 1.5 for females in the same group. While the treatments do not lead to a change in this ratio for females, the ratio for males is affected by the treatments. Since both treatments increase the effect of males' own earnings, the ratio of coefficients between one's own earnings and spousal earnings become 2.6 and 2.4, for the nontraditional and the traditional treatment. Hence, both treatments increase the relative importance of one's own earnings versus spousal earnings for males, while this ratio appears stable for females across the treatment groups.

If a life option involves having at least one child, males in the control group are 9 percentage points more likely to choose this option compared to an option in which they do not have a kid. The nontraditional treatment counteracts the effect of having a kid for males. Particularly, the coefficient on the interaction term of the dummy variables for having a child and the nontraditional treatment is -0.13, implying that the nontraditional treatment decreases the likelihood of males choosing a life option with a child by 13 pp. Thereby, the

**Table 6:** Treatment effects: Online experiment

|                                     | Males                 | Females               |
|-------------------------------------|-----------------------|-----------------------|
| Earnings (log)                      | 0.3060**<br>(0.125)   | 0.6216***<br>(0.110)  |
| Earnings (log) x Treatment 1        | 0.4196**<br>(0.167)   | -0.0840<br>(0.155)    |
| Earnings (log) x Treatment 2        | 0.3843**<br>(0.192)   | -0.0039<br>(0.145)    |
| Working hours                       | -0.0233***<br>(0.003) | -0.0227***<br>(0.003) |
| Working hours x Treatment 1         | -0.0043<br>(0.005)    | 0.0021<br>(0.005)     |
| Working hours x Treatment 2         | -0.0082<br>(0.006)    | 0.0016<br>(0.004)     |
| Flexibility                         | 0.0851**<br>(0.038)   | 0.1130***<br>(0.030)  |
| Flexibility x Treatment 1           | 0.0334<br>(0.053)     | -0.0049<br>(0.040)    |
| Flexibility x Treatment 2           | 0.1041*<br>(0.058)    | 0.0048<br>(0.039)     |
| Spouse earnings (log)               | 0.2789***<br>(0.053)  | 0.3839***<br>(0.048)  |
| Spouse earnings (log) x Treatment 1 | 0.1205<br>(0.076)     | 0.0086<br>(0.069)     |
| Spouse earnings (log) x Treatment 2 | 0.1256<br>(0.089)     | -0.0022<br>(0.065)    |
| Have a child                        | 0.0962**<br>(0.045)   | 0.0377<br>(0.038)     |
| Have a child x Treatment 1          | -0.1318**<br>(0.063)  | -0.0294<br>(0.056)    |
| Have a child x Treatment 2          | -0.0521<br>(0.062)    | 0.0348<br>(0.050)     |
| Obs                                 | 2820                  | 4527                  |
| Subject                             | 190                   | 305                   |
| R-Squared                           | .089                  | .055                  |

The figure reports the estimated parameters from OLS models, estimated, separately for males and females. The dependent variables are (standardized) stated importance of income, family, and relative income within households for life satisfaction and happiness. The regressions control for age in months, school type attended, grade, mother's and father's education, the number of siblings, life satisfaction, happiness, German and math grade, a dummy variable for residing in the borders of former East Germany, dummy variables for employed mother and father, time and risk preferences, hours spend for watching TV and on the social media. Treatment 1: Nontraditional Treatment. Treatment 2: Traditional Treatment. Standard errors are clustered at individual levels and reported in parentheses. Asterisks indicate that coefficient is statistically significant at the 1% \*\*\*, 5% \*\*, and 10% \* levels.



nontraditional treatment nullifies the positive effect of having a child. The traditional treatment does not significantly affect the coefficient of having a child. On the other hand, females in the control group do not place significant weight on having a kid in their choices. Neither treatments have any impact on the absence of an effect.

The null effect of having a child on choosing life options deviates from previous studies that emphasize the effect of fertility decisions on the career and education choices of females (Wiswall and Zafar, 2021). An intriguing finding in the study is that the nontraditional treatment leads to a decrease in the willingness to have a child among male adolescents, while no such effect is observed among females. As identifying the underlying reasons behind this effect is beyond the scope of this study, I can only speculate about potential channels.

One possible explanation for the observed effect is that, when presented with the idea of equal responsibilities for child-rearing, having a child may become less appealing to males. Advertisements, indeed any image in the media, that depict males as caregiving fathers are relatively rare. In most cases, males are depicted as the family’s breadwinners and professionals in work settings. On the other hand, females are already inundated with these stereotypical representations of female roles featured in the traditional treatment, which are within a family and home setting with caring roles.<sup>8</sup> In other words, the role depictions in the treatments are not unfamiliar to females, while the male roles in the nontraditional treatment are novel for males. Therefore, the effect of nontraditional advertisements on the willingness to have a child might be a novelty effect for males.

This study documents the potential impact of alternative representations of males, showcasing them as caregivers with equal involvement in childcare roles within the family. The results underscore the potential power of alternative depictions of gender roles in shaping male adolescents’ attitudes toward family and child-rearing responsibilities. Further research in this area could provide deeper insights into the influence of media representations on gender attitudes and aspirations.

In addition to the analysis above, I further investigate the effect of the treatments on the stated importance of income, family, and relative income within households, with a more

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<sup>8</sup>For example, RTL which is the largest private TV channel in Germany, airs 120 distinct ads in prime time on Friday and Saturday. Ads for cleaning, child-care, and retail products (e.g., diapers, baby food, and supermarkets) primarily feature female characters or children with only mothers in 50% of cases. Conversely, male characters or children with only fathers appear as the main focus in a mere 28% of these ads. Across all categories featuring child actors, females are portrayed as the primary caregivers in 53% of cases, while males take on the primary caregiver role in only 15% of instances.

**Table 7:** Treatment effects: Life goals

|                                 | Males               | Females            |
|---------------------------------|---------------------|--------------------|
| <b>Panel A: Income</b>          |                     |                    |
| Treatment 1                     | 0.1655<br>(0.166)   | -0.1119<br>(0.151) |
| Treatment 2                     | 0.4408**<br>(0.173) | -0.0559<br>(0.142) |
| Obs                             | 190                 | 305                |
| R-Squared                       | 0.2                 | 0.076              |
| <b>Panel B: Family</b>          |                     |                    |
| Treatment 1                     | 0.060<br>(0.166)    | 0.059<br>(0.149)   |
| Treatment 2                     | 0.140<br>(0.173)    | 0.161<br>(0.140)   |
| Obs                             | 190                 | 305                |
| R-Squared                       | 0.127               | 0.146              |
| <b>Panel C: Relative Income</b> |                     |                    |
| Treatment 1                     | -0.100<br>(0.180)   | -0.087<br>(0.147)  |
| Treatment 2                     | -0.149<br>(0.188)   | -0.001<br>(0.138)  |
| Obs                             | 190                 | 305                |
| R-Squared                       | 0.146               | 0.053              |

I report the estimated parameters from OLS estimation, separately for males and females. The dependent variables are (standardized) stated importance of income, family, and relative income compared to partners within households. The regressions control for age in months, school type attended, grade, mother's and father's education, the number of siblings, life satisfaction, happiness, German and math grade, a dummy variable for residing in the borders of former East Germany, dummy variables for employed mother and father, time and risk preferences, hours spend for watching TV and on the social media. Standard errors are reported in parenthesis. Treatment 1: Nontraditional Treatment. Treatment 2: Traditional Treatment. Asterisks indicate that coefficient is statistically significant at the 1% \*\*\*, 5% \*\*, and 10% \* levels.

direct revelation of this importance for individuals. I conduct a linear regression analysis using the model in equation (3.6). The results are presented in Table 7. Panel A of that table indicates that income is significantly more important for males in the traditional treatment group than those in the control group. Particularly, the stated importance of income is, on average, 0.42 standard deviations higher for males in the traditional treatment group than for

those in the control group while there is no effect for females. This is consistent with the above findings. However, we do not observe a statistically significant impact of the nontraditional treatment on the stated importance of income for males or females. Additionally, neither treatment has any significant impact on the stated importance of family and relative earnings within households for males and females.

My results show that advertisements increase aspirations to earn higher income among male adolescents, regardless of the gender roles portrayed. The effect of traditional advertisements is also observed when adolescents explicitly state the importance of income for their life satisfaction and happiness. The pattern aligns with previous research documenting how advertisements can amplify the desire for material possessions and higher earnings as means of higher consumption (Baker and George, 2010). Indeed, this finding is unsurprising, given that advertisements often aim to boost consumption and create aspirations for goods and services. Particularly, images of affluence and contentment might influence participants' perceptions and attitudes toward income, prompting them to seek a higher earning potential.

Results for the pooled treatment effect, i.e., the effect of being treated by any of the treatments, are shown in Appendix Table A3.

#### **4.8 Heterogeneity by Mother's Labor Market Attitudes**

To assess whether the treatment effect varies based on the labor market status of participants' mothers, I divide the sample into two groups. The first group comprises individuals whose mothers have maintained continuous employment for more than 10 years without any breaks longer than 1 year. The second group consists of the remaining participants, whose mothers were either unemployed during the survey, had been employed for less than 10 years, or had periods of employment with breaks longer than 1 year. In other words, the first group has a working female role model while adolescents in the second subsample have been exposed to a female role model who was not actively working for a significant length of time.

I divide the sample based on their mother labor market participation since female labor force participation is a significant component of culture regarding gender role beliefs (Fernández and Fogli, 2009). Exposing to working female role models at an early age shapes individual gender role beliefs in a progressive way (Fernández et al., 2004).

I conducted a separate analysis of the treatment effects for each subsample to better understand how the intervention influenced the respective groups. The outcomes are presented

in Table 8.

For male adolescents in the control group, whose mothers are not employed or have a limited employment history, earnings do not impact their life choices. However, the traditional treatment significantly enhances the effect of one's own earnings on their life choices. They are 0.66 pp more likely to choose a life option if their own earnings increase by 1 percent. The nontraditional treatment does not have an effect on the relationship between earnings and life choices for males.

In comparison, income is (marginally) statistically significant for male adolescents whose mothers had a long and continuous employment history. Unlike the other subsample, the nontraditional treatment significantly increases the effect of own earnings on one's life choices. Particularly, if a life option involves 1 percent higher earnings, males with working mothers are 0.33 pp more likely to choose this option in the control group. While the nontraditional treatment profoundly increases this effect by 0.48 pp more, the traditional treatment does not impact the relationship between own earnings and male adolescents' life choices.

It is to be expected that male adolescents whose mothers have a long employment history are more likely to hold nontraditional gender role beliefs compared to those whose mothers are not employed or have a limited employment history. This expectation is consistent with the previous studies documenting the relationship between a mother's employment background and the gender role attitudes of their offspring (Fernández et al., 2004). In light of this, my results suggest that the effects of advertisements on adolescents' preferences interact with their already existing gender role beliefs. That is, advertisements reinforce the already existing gender role beliefs rather than building new beliefs. This finding might also explain the production of different advertisements in different countries for similar products (See Usunier et al. (2005) for heterogeneity of advertisements contents across different cultures.).

I also investigate the heterogeneity of treatment effects on the stated importance of income. The treatments do not demonstrate heterogeneity across the subsamples. Appendix Table A4 shows the results.

**Table 8:** Treatment effects: By mother’s labor market attitudes

|                                     | Males                 |                       | Females               |                       |
|-------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
|                                     | Mother didn’t work    | Mother worked         | Mother didn’t work    | Mother worked         |
| Earnings (log)                      | 0.2305<br>(0.166)     | 0.3310*<br>(0.187)    | 0.6586***<br>(0.164)  | 0.5685***<br>(0.151)  |
| Earnings (log) x Treatment 1        | 0.3714<br>(0.230)     | 0.4842**<br>(0.238)   | -0.1891<br>(0.227)    | 0.0453<br>(0.209)     |
| Earnings (log) x Treatment 2        | 0.6648**<br>(0.301)   | 0.2592<br>(0.258)     | -0.0746<br>(0.209)    | 0.0677<br>(0.202)     |
| Working hours                       | -0.0211***<br>(0.005) | -0.0244***<br>(0.004) | -0.0275***<br>(0.005) | -0.0184***<br>(0.004) |
| Working hours x Treatment 1         | -0.0079<br>(0.008)    | -0.0022<br>(0.007)    | 0.0049<br>(0.007)     | -0.0009<br>(0.006)    |
| Working hours x Treatment 2         | -0.0197**<br>(0.010)  | -0.0025<br>(0.007)    | 0.0044<br>(0.007)     | -0.0012<br>(0.006)    |
| Flexibility                         | -0.0030<br>(0.063)    | 0.1193**<br>(0.046)   | 0.1431***<br>(0.044)  | 0.0730*<br>(0.041)    |
| Flexibility x Treatment 1           | 0.1203<br>(0.081)     | 0.0051<br>(0.070)     | -0.0303<br>(0.055)    | 0.0447<br>(0.057)     |
| Flexibility x Treatment 2           | 0.2978***<br>(0.092)  | 0.0422<br>(0.071)     | -0.0783<br>(0.057)    | 0.0851<br>(0.053)     |
| Spouse earnings (log)               | 0.3251***<br>(0.063)  | 0.2379***<br>(0.084)  | 0.3744***<br>(0.064)  | 0.3847***<br>(0.069)  |
| Spouse earnings (log) x Treatment 1 | 0.0740<br>(0.083)     | 0.1586<br>(0.119)     | 0.0102<br>(0.095)     | 0.0248<br>(0.099)     |
| Spouse earnings (log) x Treatment 2 | 0.1163<br>(0.155)     | 0.1449<br>(0.117)     | 0.0456<br>(0.088)     | -0.0317<br>(0.092)    |
| Have a child                        | 0.0789<br>(0.065)     | 0.1020<br>(0.063)     | -0.0162<br>(0.058)    | 0.0754<br>(0.050)     |
| Have a child x Treatment 1          | -0.1819*<br>(0.099)   | -0.0830<br>(0.081)    | 0.0501<br>(0.085)     | -0.0863<br>(0.073)    |
| Have a child x Treatment 2          | -0.0685<br>(0.095)    | -0.0344<br>(0.084)    | 0.0733<br>(0.077)     | 0.0074<br>(0.064)     |
| Obs                                 | 1160                  | 1660                  | 1941                  | 2586                  |
| Subject                             | 78                    | 112                   | 131                   | 174                   |
| R-Squared                           | .12                   | .086                  | .074                  | .061                  |

I report the estimated parameters from OLS estimation, separately for males and females, and by mothers’ labor market history. *Mother didn’t work* if the mother was either never employed or employed less than 10 years or had periods of employment with breaks longer than 1 year. *Mother worked* if the mother had a continuous employment history. The dependent variables are (standardized) stated importance of income, family, and relative income within households for life satisfaction and happiness. The regressions control for age in months, school type attended, grade, mother’s and father’s education, the number of siblings, life satisfaction, happiness, German and math grade, a dummy variable for residing in the borders of former East Germany, dummy variables for employed mother and father, time and risk preferences, hours spend for watching TV and on the social media. Treatment 1: Nontraditional Treatment. Treatment 2: Traditional Treatment. Standard errors are clustered at individual levels and reported in parentheses. Asterisks indicate that coefficient is statistically significant at the 1% \*\*\*, 5% \*\*, and 10% \* levels.

## 5 Discussion and Concluding Remarks

This study sheds light on the influence of media on individuals' material aspirations. The findings reveal that materialistic imagery, predominantly found in advertisements, elevates income aspirations among viewers, very likely to acquire the showcased goods and services. Additionally, the findings indicate that an equal responsibility for childcare among mothers and fathers decreases the willingness of male adolescents to have a child in the future. It is noteworthy that this effect is primarily observed in males, and it is most potent when individuals are exposed to such imagery during their formative years in childhood or adolescence. Females do not exhibit a similar influence, regardless of whether females are pictured as income earners or child-rearing mothers.

The gender disparity in media influence suggests that media messages can alter aspirations only when the messages align with the audience's gender identity, such as reinforcing the notion of males as primary breadwinners in households. In other words, these images seem to serve as reminders to males of their traditional role as providers for their families. This observation implies that media has the potential to perpetuate existing gender roles. This notion gains further support through additional analysis, which indicates that males with working mothers are influenced by advertisements featuring working women, while males with mothers who lack consistent employment histories are more affected by ads portraying caregiving and maternal figures.

The findings are consistent with the identity framework in Akerlof and Kranton (2000): men and women obtain utilities from performing gender-congruent behavioral prescriptions. The current study, additionally, shows that media images and role models might even intensify the effect of gender-congruent roles on individuals' aspirations and ideals for satisfying life. Therefore, any policy or institutional reform to close the gender pay gap would be limited if gender disparity in aspirations for higher earnings is not considered.

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# A Appendix

## A.1 Tables

**Table A1:** Affects aroused by advertisements

|                            | Advertisement1 |      | Advertisement2 |      | P-value |
|----------------------------|----------------|------|----------------|------|---------|
|                            | Mean           | SD   | Mean           | SD   |         |
| <b>Panel A: Good</b>       |                |      |                |      |         |
| Pair 1                     | 3.83           | .85  | 3.13           | .98  | .0001   |
| Pair 2                     | 3.6            | 1.03 | 3.43           | .99  | .2607   |
| Pair 3                     | 3.3            | 1.12 | 3.26           | .98  | .8255   |
| <b>Panel B: Positive</b>   |                |      |                |      |         |
| Pair 1                     | 4              | .92  | 3.21           | 1.03 | 0.0000  |
| Pair 2                     | 3.64           | 1.09 | 3.4            | 1.03 | .0571   |
| Pair 3                     | 3.36           | 1.21 | 3.43           | 1.03 | .684    |
| <b>Panel C: Pleasant</b>   |                |      |                |      |         |
| Pair 1                     | 3.74           | 1.08 | 3.26           | 1.06 | .0162   |
| Pair 2                     | 3.62           | 1.16 | 3.36           | 1.04 | .1137   |
| Pair 3                     | 3.17           | 1.16 | 3.47           | 1.14 | .1593   |
| <b>Panel D: Bad</b>        |                |      |                |      |         |
| Pair 1                     | 1.6            | .86  | 2.15           | 1.18 | .0027   |
| Pair 2                     | 1.87           | 1.02 | 2.04           | 1.16 | .2756   |
| Pair 3                     | 2.11           | 1.12 | 2.02           | 1.17 | .5202   |
| <b>Panel E: Negative</b>   |                |      |                |      |         |
| Pair 1                     | 1.57           | .8   | 2.06           | 1.26 | .0102   |
| Pair 2                     | 1.92           | 1.16 | 2.09           | 1.2  | .2014   |
| Pair 3                     | 2.08           | 1.16 | 1.96           | 1.19 | .4965   |
| <b>Panel F: Unpleasant</b> |                |      |                |      |         |
| Pair 1                     | 1.57           | .77  | 2.21           | 1.28 | .0007   |
| Pair 2                     | 1.81           | 1.11 | 2.08           | 1.16 | .0994   |
| Pair 3                     | 2.38           | 1.39 | 2.08           | 1.25 | .1354   |

Note: The table presents the average affects reported by online experiment participants. 0 means the advertisement did not arouse the affect at all, 10 means the advertisement aroused the affect very much.

**Table A2:** Estimates from separate regressions by gender and treatment

|                       | Males                 |                         |                       | Females               |                         |                       |
|-----------------------|-----------------------|-------------------------|-----------------------|-----------------------|-------------------------|-----------------------|
|                       | T=0<br>(Control)      | T=1<br>(Nontraditional) | T=2<br>(Taditional)   | T=0<br>(Control)      | T=1<br>(Nontraditional) | T=2<br>(Taditional)   |
| Earnings (log)        | 0.3042**<br>(0.128)   | 0.7349***<br>(0.115)    | 0.6878***<br>(0.144)  | 0.6366***<br>(0.111)  | 0.5429***<br>(0.109)    | 0.6006***<br>(0.096)  |
| Spouse earnings (log) | 0.2780***<br>(0.054)  | 0.3983***<br>(0.055)    | 0.4055***<br>(0.073)  | 0.3822***<br>(0.048)  | 0.3929***<br>(0.051)    | 0.3819***<br>(0.044)  |
| Working hours         | -0.0232***<br>(0.003) | -0.0278***<br>(0.004)   | -0.0315***<br>(0.005) | -0.0228***<br>(0.003) | -0.0207***<br>(0.003)   | -0.0208***<br>(0.003) |
| Flexibility           | 0.0817*<br>(0.042)    | 0.1336**<br>(0.051)     | 0.1800***<br>(0.043)  | 0.1443***<br>(0.032)  | 0.1128***<br>(0.035)    | 0.0923**<br>(0.037)   |
| Have a child          | 0.0946**<br>(0.046)   | -0.0342<br>(0.045)      | 0.0437<br>(0.044)     | 0.0451<br>(0.039)     | 0.0107<br>(0.042)       | 0.0650**<br>(0.032)   |
| Obs                   | 1056                  | 903                     | 861                   | 1525                  | 1280                    | 1722                  |
| Subject               | 71                    | 61                      | 58                    | 103                   | 86                      | 116                   |
| R-Squared             | .096                  | .1                      | .095                  | .07                   | .072                    | .059                  |

Note: I report the estimated parameters of attributes from OLS estimation, separately for the control and the two treatment groups. The dependent variable is a dummy variable that takes the value of 1 if the participants choose the life option, and 0 otherwise. The regressions control for age in months, school type attended, grade, mother's and father's education, the number of siblings, life satisfaction, happiness, German and math grade, a dummy variable for residing in the borders of former East Germany, dummy variables for employed mother and father, time and risk preferences, hours spend for watching TV and on the social media. Asterisks indicate that coefficient is statistically significant at the 1% \*\*\*, 5% \*\*, and 10% \* levels.

**Table A3:** (Pooled) Treatment effect

|                                   | Males                 | Females               |
|-----------------------------------|-----------------------|-----------------------|
| Earnings (log)                    | 0.3065**<br>(0.125)   | 0.6217***<br>(0.110)  |
| Earnings (log) x Treatment        | 0.3983**<br>(0.154)   | -0.0393<br>(0.131)    |
| Working hours                     | -0.0233***<br>(0.003) | -0.0227***<br>(0.003) |
| Working hours x Treatment         | -0.0060<br>(0.005)    | 0.0019<br>(0.004)     |
| Flexibility                       | 0.0857**<br>(0.038)   | 0.1135***<br>(0.030)  |
| Flexibility x Treatment           | 0.0666<br>(0.046)     | 0.0004<br>(0.034)     |
| Spouse earnings (log)             | 0.2787***<br>(0.053)  | 0.3839***<br>(0.048)  |
| Spouse earnings (log) x Treatment | 0.1235*<br>(0.070)    | 0.0013<br>(0.058)     |
| Have a child                      | 0.0965**<br>(0.045)   | 0.0378<br>(0.038)     |
| Have a child x Treatment          | -0.0933*<br>(0.054)   | 0.0073<br>(0.046)     |
| Obs                               | 2820                  | 4527                  |
| Subject                           | 190                   | 305                   |
| R-Squared                         | .084                  | .054                  |

Note: I report the estimated parameters of attributes from OLS estimation, separately for males and females. Treatment is a dummy variable that takes the value of 1 if the participant is in one of the two treatment groups. The dependent variable is a dummy variable that takes the value of 1 if the participants choose the life option, and 0 otherwise. The regressions control for age in months, school type attended, grade, mother's and father's education, the number of siblings, life satisfaction, happiness, German and math grade, a dummy variable for residing in the borders of former East Germany, dummy variables for employed mother and father, time and risk preferences, hours spend for watching TV and on the social media. Asterisks indicate that coefficient is statistically significant at the 1% \*\*\*, 5% \*\*, and 10% \* levels.

**Table A4:** Treatment effects by mother’s labor market attitudes: Income goals

|             | Males              |                    | Females            |                    |
|-------------|--------------------|--------------------|--------------------|--------------------|
|             | Mother didn’t work | Mother worked      | Mother didn’t work | Mother worked      |
| Treatment 1 | 0.1328<br>(0.311)  | 0.2425<br>(0.204)  | -0.2935<br>(0.217) | 0.0029<br>(0.208)  |
| Treatment 2 | 0.4911<br>(0.369)  | 0.3665*<br>(0.208) | -0.2655<br>(0.210) | -0.0602<br>(0.188) |
| Obs         | 78                 | 112                | 131                | 174                |
| R-Squared   | .3                 | .25                | .19                | .18                |

Note: I report the estimated parameters from OLS estimation, separately for males and females, by their mothers’ labor market history. *Mother didn’t work* if the mother was either never employed or employed less than 10 years or had periods of employment with breaks longer than 1 year. *Mother worked* if the mother had a continuous employment history. The dependent variable is (standardized) stated importance of income. The regressions control for age in months, school type attended, grade, mother’s and father’s education, the number of siblings, life satisfaction, happiness, German and math grade, a dummy variable for residing in the borders of former East Germany, dummy variables for employed mother and father, time and risk preferences, hours spend for watching TV and on the social media. Standard errors are reported in parenthesis. Treatment 1: Nontraditional Treatment. Treatment 2: Traditional Treatment. Asterisks indicate that coefficient is statistically significant at the 1% \*\*\*, 5% \*\*, and 10% \* levels.

## A.2 Questions for Media Use and Exposure to Advertisements

**Question.** How many hours do you watch TV per week?

- Less than 1 hour
- 1-5 hours
- 5-10 hours
- 10-15 hours
- More than 15 hours

**Question.** How many hours do you spend on social media per week, including platforms like YouTube, Twitter, Instagram, Facebook, etc.?

- Less than 1 hour
- 1-5 hours
- 5-10 hours



10-15 hours

More than 15 hours