"There She Is, Your Ideal"
Negative Social Comparisons and Health Behaviors

Christopher S. Carpenter and Brandyn F. Churchill*

Abstract

We provide novel evidence on the role of negative social comparisons in population health behaviors by exploiting variation in Miss America and Miss USA beauty pageant winners. We show that there was more front-page newspaper coverage and more pageant-related internet search behavior following a home-state win. Teen girls and pageant-aged women with home-state winners were more likely to report that they were trying to lose weight, and pregnant women gained less gestational weight. We do not detect meaningful changes for teen boys, young adult men, or older women for whom social comparisons were plausibly less salient.

JEL Codes: I12; J16; L82
Key words: social comparisons; health behaviors; weight; media

1. Introduction

"*That was the first image I had in my brain; I always equated beauty and worth with being skinny.*"
                                                         -- Kirsten Haglund, Miss America 2008

Though economic models often take preferences as given, policymakers and the popular press have increasingly expressed interest in the media's role in shaping these attitudes. Indeed, the United States Congress has held hearings on how the media influences political preferences, violence, and weight-loss behaviors, especially as the time teenagers spend engaged with media has eclipsed their time in the classroom (Kaiser Family Foundation 2010). A wealth of correlational evidence suggests that thin-ideal imagery has adverse effects on mental health (see, for example, Grabe et al. 2008). As a result, some companies have adopted more socially conscious advertising strategies that forgo digital retouching and include more diverse body types (Time 2014; Business Insider 2017). While targeted advertising and potential self-selection has made it difficult to draw strong causal claims, we overcome these challenges by exploiting quasi-random short-run variation in the strength of exposure to beauty norms.

We provide novel evidence on the role of negative social comparisons in shaping health behaviors by using variation from the Miss America and Miss USA beauty pageants. During these pageants, one woman competes on behalf of each state for a total of 51 contestants. Key to our analysis is the fact that winners of each pageant come from a wide range of states, and the likelihood that a pageant winner is from a particular state in any given year – from the perspective of a young woman or girl residing in the state – is plausibly exogenous to determinants of her health behaviors. We conceptualize home-state pageant wins as shocks to the salience of local norms about what constitutes beauty, especially with respect to young women's weight. Thinness is literally on display at these pageants through the swimsuit portion of the competitions where from 1970-1999 over three quarters of the contestants were clinically underweight (Rubinstein and

1

Caballero 2000). Perhaps unsurprisingly, while there have been Black, Latina, Asian, Muslim, and deaf pageant winners, there has never been a winner who was plus-size during the competition.

We use information on front-page news coverage obtained from Newspapers.com and Google Trends search data to show that home-state pageant winners increased local coverage of the pageant and search popularity for pageant-related terms, providing first-stage evidence that home-state pageant performance affects the salience of local beauty norms. While we note that young women and teen girls need not directly view pageant-related media to be affected by a home-stage pageant win, given the possibility that other individuals (e.g., friends, family, etc.) viewing the content may have shifted how they discussed women's bodies, we view these findings as offering key evidence that home-state pageant winners increased local awareness about national beauty pageants.

Next, we examine weight-related behaviors using data from the Behavioral Risk Factor Surveillance System (BRFSS) and the Youth Risk Behavior Surveys (YRBS). These data show that, during the 1990s and early 2000s, high school girls and young women from the pageant winner's home state were significantly more likely to report that they were trying to lose weight, compared to the associated weight-related intentions of otherwise similar girls from other (non-winning) states and compared to the outcomes for girls in the winner's state in other (non-winning) years. This reduced form relationship is unique to girls and young women; there is no similar relationship between pageant winning and weight loss intentions for high school age boys, young adult men, or older women. We then use NCHS Vital Statistics Natality Data to show that pregnant women with home-state pageants winners gained less gestational weight. Taken together, our results provide novel evidence that media-driven social comparisons play an important role in shaping preferences and altering health behaviors.

Our study builds on a literature documenting the relationships between media and economically relevant outcomes, including fertility (La Ferrara et al. 2012; Kearney and Levine 2015), violent behaviors (Dahl and DellaVigna 2009; Card and Dahl 2011; Lindo et al. 2022), educational performance (Kearney and Levine 2019; Riley forthcoming), gender norms (Jensen and Oster 2009), and household purchasing decisions (Principe and Carrieri 2020). There is also an emerging economics literature exploring how social media can drive relative comparisons. Using a quasi-experimental method leveraging the staggered introduction of Facebook across U.S. college campuses, Braghieri et al. (2022) found that Facebook fostered unfavorable social comparisons and reduced mental health. Meanwhile, others studies have shown that experimentally inducing individuals to stop using Facebook improved self-reported happiness (Allcott et al. 2020; Mosquera et al. 2020).

Our paper is also broadly related to an economics literature studying how peer social comparisons and role models influence economic outcomes. This literature has shown that relative deprivation – having less income than those in one's surrounding area – is linked to worse self-reported health, risky health behaviors, and increased risk of death (Eibner and Evans 2005; Pham-Kanter 2009; Balsa et al. 2014). Others have shown that observably similar role models (e.g., same sex or same race/ethnicity) can shape educational outcomes (Dee 2005; Carrell et al. 2010; Porter and Serra 2020; Gershenson et al. 2022), occupational choice (Kofoed and McGovney 2017), and entrepreneurship (Bosma et al. 2012). While we do not review here a large literature in public health, psychology, and sociology that documents relationships among societal ideals about beauty and adverse health outcomes for girls and young women, scholars have clearly documented correlations between thin-ideal imagery and negative weight-related behaviors. These issues have received less attention from economists, with a few notable exceptions showing that women with

relatively thinner peers are more likely to engage in disordered eating behaviors (Costa-Font and Jofre-Benet 2013; Arduini et al. 2019) and that relatively heavier adolescents experience greater behavioral problems (Huang et al. 2020).

We build on this prior work in several important ways. First, to our knowledge we are the first to conceptualize home-state beauty pageant performance as shocks to the salience of local norms about weight. Doing so allows us to get closer to identifying causal effects of media-driven negative social comparisons on weight-related behaviors and outcomes that are less susceptible to concerns about endogenous peer group formation or targeted/endogenous advertising. Second, we use multiple datasets to show that home-state pageant performance was related to both pageant-related news coverage and information-seeking behavior. Third, by looking at both females and males, as well as younger and older individuals, we attempt to credibly rule out alternative explanations.

The paper proceeds as follows. Section 2 describes institutional details of the Miss America and Miss USA pageants. Section 3 describes the data and outlines our empirical approach. Section 4 presents the results, and Section 5 offers a discussion and conclusion.

2. Institutional Details

We study the two major beauty pageants in the United States: Miss America and Miss USA. The Miss America pageant began in 1920 in Atlantic City and is open to women aged 17 to 25 who have never been married or parented a child. The Miss America pageant includes 51 contestants; one woman represents each state and the District of Columbia. These women are selected to represent their states via local and state pageant competitions. Over most of our sample period, the pageant was held in the evenings in September or October in Atlantic City and was televised on either NBC or ABC. In 2005, due to low ratings, the pageant was moved from network to cable

television, from September to January, and from Atlantic City to Las Vegas. The pageant included swimsuit, evening gown, interview, and talent competitions over the period we study.[1] A panel of approximately five judges – comprised of well-known celebrities, including actors, professional athletes, television personalities, and socialites – scored each contestant in each category on a scale of 1-10.

The Miss USA pageant has been held since 1952 and is open to women aged 18 to 28 who have never been married or parented a child. Each state and the District of Columbia sends a representative for a total of 51 contestants. It was televised on CBS and NBC over our period and held in the evenings in February, March, or April from 1991 until 2009. The Miss USA pageant contestants compete in swimsuit, evening gown, and interview competitions – there is no talent portion of the competition. The Miss USA winner earns a year-long salary and living expenses. The pageant is judged by approximately six individuals who – like the Miss America pageant – are typically well-known celebrities. Figure 1 shows the geographic distribution of pageant winners over our sample period, and Appendix Tables A1 and A2 provide more detailed lists.

3. Data Description and Empirical Approach

3.1 Exposure Data: Newspaper Coverage & Google Trends

We use two datasets to examine whether home-state pageant performance affected exposure to pageant-related media. While young women and teen girls need not directly view pageant-related media to be affected by a home-stage pageant win, given the possibility that a home-state winner may have influenced how other individuals (e.g., friends, family, etc.) viewed and discussed women's bodies, these two datasets measuring pageant-related media exposure serve as a 'proof

---

[1] During the swimsuit competition, contestants were – in the words of the former Chairwoman of the Miss America Board of Directors – "judg[ed]… on their outward physical appearance" (NPR 2018).

of concept' for testing whether home-state winners increased local awareness about the beauty contests.

First, we collected information on front-page pageant coverage between 1990 and 2000 from Newspapers.com. The site – an affiliate of Ancestry.com – bills itself as the 'largest online newspaper archive.' For each state, we determined the largest state-specific newspaper (in contrast to national newspapers like *The New York Times* or *The Wall Street Journal*) available in the database. We then determined whether the paper had front-page coverage of the beauty pageant during the two days following each competition. For example, Figure 2 shows that *The Daily Oklahoman* had extensive front-page coverage of Miss America 1996, which was won by Miss Oklahoma.[2]

While the newspaper data can tell us whether home-state pageant winners generated greater pageant-related coverage, they cannot tell us whether readers internalized the messaging. To explore that possibility, we use 2004-2010 Google Trends data to measure internet searches for the terms 'Miss America' and 'Miss USA.' For each month of the sample period, Google randomly samples all searches performed within each state and constructs an index by dividing the number of searches for a specific term by the total number of searches. The month when each state's search rate is maximized is indexed to 100, and the values for the remaining periods are determined by taking the ratio of that month's search rate relative to the maximum search rate. We explore the relationship between pageant performance and media exposure with the following specification:

$$Y_{st} = \alpha + \beta \cdot \text{Home-State Winner}_{st} + B'_{st}\pi + S_s + T_t + S_s \times \text{TREND}_+ \varepsilon_{st} \tag{1}$$

where the dependent variable, Y_{st}, is either an indicator for whether the state had front-page coverage of the pageant or the Google Trends index for the terms 'Miss America' or 'Miss USA.'

---

[2] Appendix Table A3 lists the newspapers.

The newspaper data are measured at the state-year level, while the Google Trends data are available at the state-year-month level.

The vector B'_{st} controls for the share of non-white women in the state, the share of women in poverty, and the share of women comprised of pageant-aged contestants (18-28).[3] The vector also controls for policies affecting weight-related outcomes, including the real value of cigarette taxes (Chou et al. 2004; Gruber and Frakes 2006), and an indicator for whether the state had adopted a Commonsense Consumption Act (Wilking and Daynard 2013; Carpenter and Tello-Trillo 2015), as well as the unemployment rate and the natural log of real state product per capita (Ruhm 2000; Ruhm 2015). We include a vector of time-invariant state fixed effects, S_s, and a vector of location-invariant time fixed effects, T_t. For the newspaper data, T_t is a vector of year fixed effects, while for the Google Trends data T_t includes both month and year fixed effects. Finally, we augment our specification with state-specific linear time trends. Standard errors are clustered at the state level (Bertrand et al. 2004).[4]

The coefficient of interest, β, measures how home-state pageant performance was related to the subsequent coverage and interest in the pageant. In the presence of the covariates, the identifying assumption is that the media coverage of the pageants in winning states would have evolved similarly to that in non-winning states if not for the home-state win. We assess the validity of this assumption using the following event-study specification:

$$Y_{st} = \alpha + \sum_{j=-6,\ j\neq-1,j\neq-7}^{4} \beta^j \, I^j + \eta_{Pre} + \eta_{Post} + B'_{st}\pi + S_s + T_t + S_s \times TREND + \varepsilon_{st} \tag{2}$$

---

[3] These demographic characteristics were obtained from the Current Population Survey's Annual Social and Economic Supplement (ASEC), extracted from the IPUMS database (Flood et al. 2018).

[4] We also estimated p-values using a wild bootstrap procedure (Cameron et al. 2008; Cameron and Miller 2015). These are available upon request and supported the main findings that girls and young women with home-state pageant wins were significantly more likely to report trying to lose weight.

where our independent variables of interest are now indicators for a state being *j* periods away from winning the pageant. This specification allows us to test whether news coverage and Google searches were differentially trending in states which eventually won the beauty pageants and to test whether any treatment effects varied over time. This model requires us to omit two periods so that the state-specific trends are identified (Lindo 2019; Borusyak et al. 2021). To assure that the trend is identified off pre-period data and to maximize efficiency, we omit periods -7 and -1. As such, we have 7 pre-period coefficients and 5 post-period coefficients for a total of 12 periods (or a whole year when using monthly data). However, we show in the appendix that the results are robust to excluding these trends from the analysis. Observations more than 7 periods prior to the air date are captured in the η_{Pre} indicator, while η_{Post} captures observations 5 or more periods after the pageant date.

3.2 Health Data: BRFSS, YRBS, and Vital Statistics

We obtain information on weight-related health behaviors from the 1991-2010 Behavioral Risk Factor Surveillance System (BRFSS), the 1991-2009 Youth Risk Behavior Surveys (YRBS), and the 1990-2002 National Center for Health Statistics (NCHS) Natality Data. The BRFSS and YRBS are surveys conducted by the Centers for Disease Control and Prevention, while the NCHS Natality Data are obtained from birth certificates filed in vital statistics offices in each state and the District of Columbia.[5]

The BRFSS is a state representative phone survey occurring throughout the calendar year. In addition to questions about health, the survey includes standard demographic questions such as

---

[5] Google Trends data are available beginning in 2004. Because our data on pageant-aged women ends in 2010 – due to a BRFSS survey redesign – we examine Google Trends from 2004-2010. We hand coded data on front-page newspaper coverage from 1990-2000 to have an exposure measure during the earlier period. The YRBS data are available starting in 1991, so we use 1991-2009 for comparability with our data on adult women. Finally, we use the 1990-2002 NCHS Natality Data because these files capture our period of interest and are publicly available with state identifiers.

age, race/ethnicity, education, and marital status. We focus on women aged 18-28 who are not pregnant to best match the pageant criteria, though we also analyze similarly aged men and older women as falsification tests. Because we observe interview dates, we can precisely identify the reigning Miss America and Miss USA at the time of the interview. The YRBS is a school-based survey of high school age youths' preventive and risky behaviors. The survey is fielded in odd numbered years, though we do not know the exact date. Because most of the surveys are done in the spring semester and the competitions occur between October and April, we match high school teens to the reigning Miss America and Miss USA as of June 1st of the survey year. The NCHS Natality Data contain detailed demographic and health information on the universe of births occurring within the United States. Over our sample period, there were over 20 million births to teen girls and pageant-aged women. By using information on the mother's state of residence, the month and year of birth, and the gestation length in weeks, we assign treatment status based on whether the mother was exposed to a home-state pageant win during pregnancy.

We consider a range of weight-related outcomes in these data. For adults in the BRFSS and teens in the YRBS, we observe self-reported height and weight and various weight-management activities.[6] In the NCHS Natality Data, we consider mother's weight gain during pregnancy and infant birth weight among teen and pageant-aged mothers. Using these data, we study the effect of pageant-generated social comparisons on health behaviors and outcomes by estimating modified versions of equations (1) and (2) where observations are now at the individual

---

[6] Note that there are two versions of the YRBS. The National YRBS, which we use throughout this paper, are administered by the CDC are collected to monitor national trends. While not intended to be state representative, these data have been widely used in health economics to evaluate state-level policies (Chatterji et al. 2004; Carpenter and Stehr 2008; Anderson 2010; Sabia et al. 2019). There are also State YRBS data administered by state health and education agencies. While 44 states have allowed the CDC to harmonize their data into a combined file, these data do not contain information on clinically relevant behaviors, such as whether teens have dieted, fasted, taken diet pills, or vomited/used laxatives to lose weight. These measures are available in the National YRBS.

level. The dependent variable, Y_{ist}, is the weight-related outcome for person i in state s during time t.

In addition to including the state policy and characteristic controls from the prior specification, we include individual-level demographic controls. In the BRFSS data these include indicators for age, race/ethnicity (Asian, Hispanic, Black, and other), marital status (divorced, widowed, separated, never married, and a member of an unmarried couple) and education level (less than high school, high school, and some college). When analyzing the YRBS these include indicators for age, race/ethnicity, and grade level. In the NCHS Natality Data, we include indicators for age, race/ethnicity, whether the woman was married, and education level. In all these datasets, we also control for whether the respondent was the same race/ethnicity as the pageant winner. Finally, in the BRFSS we include interview year and interview month fixed effects, in the YRBS interview year fixed effects (because month is unknown), and in the NCHS Natality Data conception year and conception month fixed effects.[7] We cluster standard errors at the state level.

4. Results

4.1 Effects on Pageant Exposure: Newspaper Coverage & Google Search Popularity

We begin in Table 1 by exploring whether home state pageant performance affected exposure to and consumption of thin-ideal imagery. Each column reports the coefficient of interest from a separate regression estimated from equation (1). The dependent variable in column 1 is an indicator for whether the state's newspaper had front-page coverage related to Miss America in the two days following the pageant, and the dependent variable in column 2 shows the same for Miss USA. Meanwhile, the dependent variable in column 3 is the Google Trends index capturing the relative

---

[7] We utilize conception month fixed effects to account for the possibility the treatment may affect the length of gestation (Buckles and Hungerman 2013; Persson and Rossin-Slater 2018; Currie et al. 2022). We show that our estimates are robust to utilizing birth month and birth year fixed effects.

search popularity for the term 'Miss America,' while the dependent variable in column 4 is the Google Trends index for 'Miss USA.'

The first two columns demonstrate that home-state pageant wins significantly increased the likelihood of front-page pageant-related newspaper coverage in the days following the pageant. Column 1 shows that wining states were 27.3 percentage points more likely to have a front-page story related to Miss America, and column 2 shows that winning states were 37.1 percentage points more likely to have front-page coverage of Miss USA, increases which are notably large relative to the sample means.[8] Appendix Figure B1 shows that during our sample period an average of 11 states had front-page coverage of Miss America and 2.5 states front-page coverage of Miss USA.

Although the patterns in the first two columns of Table 1 indicate that home-state pageant winners increased local reporting of the competitions, they do not tell us whether readers absorbed the coverage. Columns 3 and 4 of Table 1 confirm that home-state pageant wins significantly increased Google search popularity for the pageants. After winning a national beauty pageant, we estimate that winning states experienced a 4.10 (2.69) point increase – or a 23.4 (17.7) percent increase relative to the sample mean – in searches for Miss America (Miss USA). It is worth noting that home-state pageant winners may have affected how young women and teen girls viewed their bodies, regardless of whether they viewed the pageant-related media content. For one, the increased pageant-related media coverage may have influenced how others, such as friends and family members, discussed women's bodies. Despite these other potential mechanisms, we view Table 1 as offering key evidence that home-state pageant winners increased local awareness about

---

[8] Appendix Table B1 shows that the increased newspaper coverage was more pronounced for front-page stories which contained pictures of the pageant winner. Appendix Table B2 shows that the relationship was unique to pageant winners: we do not detect any changes attributable to second or third place finishers. Appendix Table B2 also shows that the relationship was not driven by cross-pageant spillovers: the Miss America coverage was driven by a home-state Miss America pageant winner and Miss USA coverage was driven by a home-state Miss USA pageant winner.

national beauty pageants. We also used the Google Trends data to explore potential changes in searches for weight-related terms, including 'exercise,' 'diet,' 'fat,' 'obese,' and 'skinny.' The results were inconclusive but are reported in Appendix Table B3 for completeness.

After accounting for the covariates and fixed effects, our identification assumption is that pageant-related media exposure in winning states would have evolved similarly to exposure in non-winning states in absence of the home-state win. We test the validity of this assumption by estimating the dynamic specification shown in equation (2). Figure 3 shows no evidence that winning states were more likely to coverage the pageants prior to the home-state win; the point estimates are near zero and statistically insignificant. Yet the probability of pageant-related front-page newspaper coverage increased by over 40 percentage points concurrent with the home-state win. Similarly, Figure 4 shows that the increase in pageant-related internet search activity occurred only in the month of the home-state win. We show in Appendix Figure B2 that these patterns remain in models excluding the state-specific linear time trends.

4.2 Effects on Pageant-Aged Women: BRFSS

The prior section showed that home-state pageant winners increased media coverage and interest in national beauty pageants. Because these pageants emphasized thin-ideal imagery, we now use the BRFSS data to explore whether home-state pageant wins affected weight-related behaviors. The dependent variable in Table 2 is an indicator for whether the respondent reported that she was trying to lose weight. Because the BRFSS includes the exact interview date, we can precisely match respondents to the reigning Miss America and Miss USA. Each column reports the coefficient from estimating a modified version of equation (1) augmented with demographic controls on the three different samples shown in the column header: pageant-aged women, pageant-aged men, and older women.

Table 2 indicates that home-state pageant performance significantly increased weight loss intentions only among the group most comparable to the pageant contestants – young women. Column 1 shows that pageant-aged women from winning states were 2.2 percentage points more likely to report that they were trying to lose weight – a 4.9 percent increase relative to the sample mean. In contrast, columns 2 and 3 show that the estimates for similarly aged men and older women are negative and statistically insignificant, suggesting that the relationship between pageant-performance and young women's weight loss intentions was not driven by local trends. We show in Appendix Table C1 that the relationship is robust to alternative specifications, and Appendix Figure C1 shows that our conclusion is robust to using randomization inference of either coefficients (Buchmueller et al. 2011; Cunningham and Shah 2018) or test statistics (MacKinnon and Webb 2020).[9]

Again, our identification assumption is that the weight loss intentions of young women in states winning national beauty pageants would have evolved similarly to their counterparts in non-winning states in absence of the title. We assess the validity of this assumption by plotting the event study coefficients estimated using a modified version of equation (2) augmented with demographic controls. Figure 5 shows that the likelihood of trying to lose weight was not differentially trending in states which eventually won the pageant prior to the air date. However, immediately after the competition, young women in the winning states were more likely to report that they were trying to lose weight. Consistent with the event studies showing that home-state

---

[9] Appendix Table C1 reports the robustness of the relationship to employing year-by-month fixed effects, accounting for additional pageant performance, distinguishing pageants, and limiting the sample to states ever winning a national beauty pageant. Meanwhile, Appendix Table C2 shows that the effects were most pronounced for non-white pageant-aged women following a non-white home-state pageant win, and Appendix Table C3 shows suggestive evidence that the effects were more pronounced for women residing in southern and midwestern states. Appendix Table C4 indicates that the increase was driven by heavier women whose body type was most different than that of the home-state winner, though the estimate is imprecisely estimated (p=0.118). Appendix Table C5 does not reveal any subsequent change in BMI.

pageant performance generated a short-lived increase in pageant-related media exposure, we find that the increase in the likelihood that women reported that they were trying to lose weight faded over the subsequent months. As such, Figure 5 indicates that the short-lived shock to the salience of local beauty norms generated by the home-state pageant win was associated with a short-lived change in weight-related behaviors. We show in Appendix Figure C2 that this pattern is present when using a model excluding the state-specific linear time trends.[10]

4.3 Effects on High School Girls: YRBS

We now explore whether the thin-ideal imagery conveyed by home-state pageant winners affected how adolescents viewed their bodies using the YRBS data. The dependent variables in Table 3 are indicators for whether teens held 'too lenient,' 'accurate,' or 'too harsh' views of their bodies compared to their underlying BMIs (Jiang et al. 2014). For example, a teen with a BMI in the recommended region who described herself as overweight would be classified as having 'too harsh' a view, while an overweight teen who described herself as overweight would be classified as having an 'accurate' view. All columns are estimated using a modified version of equation (1) augmented with demographic controls. Panel A reports estimates for teen girls and Panel B reports estimates for teen boys. Table 3 provides suggestive evidence that home-state pageant winners distorted teen girls' self-image. Teen girls with home-state pageant winners were 2.7 percentage points less likely to accurately describe their bodies (Panel A column 2) and 2.0 percentage points more likely to describe themselves as heavier than their BMI (Panel A column 3).[11]

---

[10] Given increased interest in how media-driven thin-ideal imagery might affect mental health (Stice et al. 1994; Field et al. 2008; Tiggemann and Slater 2013), Appendix Table C6 explores the relationship between home-state pageant performance and self-reported mental health. The dependent variable is the inverse hyperbolic sine of the number of poor mental health days during the prior 30 days. Overall, Appendix Table C6 suggests that home-state performance resulted in a short-term reduction in self-reported mental health for pageant-aged women.

[11] Appendix Table D1 shows that home-state pageant performance was not statistically related to teen girls' BMIs.

In Table 4, we further probe which girls were began describing themselves as heavier than their BMIs following a home-state pageant win. The dependent variables – shown in the column headers – are indicators for whether the teen girl described herself as underweight (column 1), 'normal' weight (column 2), or overweight (column 3). Panel A examines non-overweight or obese teen girls, while the sample in Panel B includes overweight or obese teen girls. We find that home-state pageant winners reduced the likelihood that non-overweight or obese teen girls described themselves as 'normal' weight and increased the likelihood that they described themselves as overweight by approximately 4 percentage points. Thus, non-overweight teen girls were over 7 percent less likely to describe their bodies as 'normal' following a home-state pageant win relative to the sample mean. Meanwhile, the point estimates for overweight or obese girls are inconsistently signed, smaller in magnitude, and statistically insignificant. Overall, Table 4 indicates that home-state pageant winners led non-overweight teen girls to incorrectly describe themselves as being overweight.

In Table 5 we explore whether home-state pageant performance affected adolescents' weight-related behaviors. The dependent variables, shown in the column headers, are indicators for whether the teens reported engaging in the activity for weight management, including exercising to lose weight (column 1), dieting (column 2), taking diet pills (column 3), vomiting or taking laxatives (column 4), and fasting (column 5). The dependent variable in column 6 is an indicator for whether the teen engaged in *any* calorie-limiting weight-loss behavior from columns 2-5.[12] Panel A examines adolescent girls and Panel B examines adolescent boys. All columns include the full set of controls from equation (1) augmented with demographic controls.

---

[12] We note that while some people might not view 'dieting' as a risky weight-loss strategy, psychiatrists, pediatricians, and dieticians have found that 'most dieting is unjustified on the grounds of appropriate weight control and appears to reflect a widespread striving of teenage girls towards body shapes at the lower end of age-adjusted norms' (Patton et

Table 5 provides evidence that adolescent girls with home-state pageant winners were more likely to engage in weight management. Column 1 shows that girls with home-state pageant winners were 3.4 percentage points more likely to report that they were exercising to lose or maintain weight (Panel A).[13] In contrast, the estimate for boys is much smaller in magnitude and not statistically significant (Panel B). Columns 2 and 3 provide suggestive evidence that teen girls with home-state pageant winners were 1.6 percentage points (3.2 percent) more likely to report dieting and 1.3 percentage points (16.5 percent) more likely to report taking diet pills (Panel A), though these estimates are not statistically significant. Yet if we combine these non-exercise weight-loss strategies into a single 'calorie-limiting weight-loss' variable, we find suggestive evidence that teens with home-state pageant winners were 3.6 percentage points (6.2 percent) more likely to report utilizing some type of calorie-limiting weight-loss strategy. Appendix Table D4 shows that the relationship is robust to controlling for additional pageant performance, excluding the state-specific linear time trends, and replacing these trends with Census region-by-year and Census division-by-year fixed effects.[14,15]

---

al. 1997). A clinical report from the American Academy of Pediatrics states that adolescent dieting is 'counterproductive' to weight-management can predispose teens to eating disorders (Golden et al. 2016).

[13] Appendix Figure D1 shows that statistical significance is robust to employing randomization inference with coefficients ($p_\beta = 0.132$) and cluster robust t-statistics ($p_t = 0.040$). Consistent with the prior evidence that it was non-overweight or obese teen girls who held harsher views of their bodies following a home-state pageant win, Appendix Table D2 shows that it was non-overweight or obese teen girls who were more likely to report exercising to lose weight (column 1). The point estimate for overweight or obese girls is negative, smaller in magnitude, and statistically insignificant (column 2). Appendix Table D3 shows non-white teen girls were more responsive to non-white home-state pageant winners (column 2), though we also find some evidence that white teen girls with non-white home-state pageant winners were more likely to report exercising to lose weight (column 1).

[14] Because states enter and exit the YRBS – as shown in Appendix Table D5 – we cannot credibly estimate event studies with meaningful pre-periods because the relative-time coefficients would be identified from both the treatment effect and the change sample of states contributing to identification. Yet we show in Appendix Table D4 that the estimates on home-state pageant performance leads and lags are smaller in magnitude, inconsistently signed, and statistically insignificant.

[15] Appendix Table D6 indicates that that increase in weight-management behavior was driven by adolescent girls who described their bodies as being heavier than their BMIs. Appendix Table D7 shows no evidence that home-state pageant performance was related to suicide ideation or attempts among adolescent girls.

4.4 Effects of Home-State Pageant Wins on Pregnant Women: NCHS Natality Data

Our prior estimates show that home-state pageant winners increased the likelihood that teen girls and young pageant-aged women reported that they were trying to lose weight. We next explore whether pageant-generated shocks to the salience of local beauty norms might have affected gestational weight gain among pregnant women using the NCHS Natality Data. While pregnant women are barred from competing in Miss America and Miss USA, several papers in the medical and public health literatures have shown that pregnant women are often particularly concerned about weight gain, especially early in gestation before being 'visibly' pregnant and immediately after having the child (Nash 2012; Hodgkinson et al. 2014). Indeed, women who reported feeling 'fat' early in pregnancy and expressed concerns about returning to their pre-pregnancy bodies gained less weight during pregnancy (Waston et al. 2016; Andrew et al. 2018).

The dependent variables are shown in the column headers of Table 6, and the data are obtained from birth certificates where the mother was at most 28-years-old (i.e., pageant-aged). Column 1 shows that pregnant women with home-state pageant winners were nearly 0.4 percentage points more likely to have had inadequate weight gain during pregnancy – over a 1 percent increase relative to the sample mean.[16,17] Similarly, column 2 indicates that home-state pageant winners reduced gestational weight gain by approximately a tenth of a pound.[18] We do

---

[16] At the time, the Institute of Medicine recommended most women gain 25-35 pounds and that all women gain at least 15 pounds. These recommendations were updated in 2009 in response to increased pre-pregnancy BMIs (Rasmussen et al. 2009).

[17] Appendix Figure E1 plots the event study coefficients from equation (2). There was no relationship between home-state pageant winners and gestational weight gain prior to the pageant air date. However, mothers with infants in-utero during the pageant were more likely to have inadequate weight gain.

[18] Appendix Table E1 shows that our result is robust to controlling for home-state first and second runner-up finishers, replacing the conception month and year fixed effects with birth month and year fixed effects (Persson and Rossin-Slater 2018), and excluding the state-specific linear time trends. We also show that the pattern is strongest for home-state pageant winners at conception and at the start of the second trimester prior to when women would be gaining weight without necessarily being visibly pregnant – prior research has documented that weight-related concerns are especially salient during this period (Nash 2012; Hodgkinson et al. 2014; Waston et al. 2016; Andrew et al. 2018). Appendix Table E1 also shows that the relationship is also robust to replacing the dependent variable with the inverse

not detect any significant relationship between home-state pageant winners and infant birth outcomes in columns 3 or 4. While modest in size, the estimates in Table 6 provide further evidence that the shock to the salience of local beauty norms induced by home-state pageant winners helped shape the expectations and preferences of teen girls and young women.

5. Discussion and Conclusion

We provide novel evidence that home-state beauty pageant wins heightened exposure to thin-ideal imagery. Our estimates imply that states with home-state pageant winners were 27 to 37 percentage points more likely to have front-page pageant-related coverage in the two days after the competition aired. We also find that the popularity of pageant-related Google searches increased by 21 to 24 percent, confirming a broad increased awareness about the home-state winner. Our event study estimates show that these changes were not attributable to differential pre-trends and were limited to the period following the pageant.

We also provide the first quasi-experimental evidence that pageant-induced shocks to the salience of local beauty norms generated negative social comparisons that adversely affected young women's and teen girls' weight-related behaviors. Using the BRFSS data, we find that pageant-aged women were nearly 5 percent more likely to report that they were trying to lose weight. In the YRBS data, we show that teen girls were 4 percent less likely to hold accurate views of their body types. Instead, they described themselves as heavier than indicated by their BMIs. We also show that teen girls were 5 percent more likely to report exercising to lose or maintain their weight and 6 percent more likely to report calorie-limiting behaviors. Finally, using the NCHS Natality Data, we find that pregnant women were 1 percent less likely to have adequate weight gain. Throughout all these data sets and sample periods, we do not detect any changes

---

hyperbolic sine of pregnancy weight gain or instead using an indicator for gaining less than 15 pounds during pregnancy.

attributable to lower performing pageant contestants who did not generate increased media coverage. Nor do we identify similar changes for older women, pageant-aged men, or adolescent boys.

Our study is subject to some limitations. While our exposure results show clear increases in front-page newspaper coverage and internet searches for 'Miss America' and 'Miss USA,' we are unable to know who viewed the headlines and performed those searches. Nor are we able to directly link the increased pageant-related media exposure to subsequent changes in health behaviors, and we did not detect consistent or meaningful changes in Google searches for various weight-related terms, such as 'exercise,' 'diet,' or fat.' Additionally, while our YRBS analysis explores the relationship between home-state pageant winners and a variety of weight loss strategies – including dieting, vomiting, and fasting – these are admittedly coarse measures of important clinical outcomes, such as the incidence of anorexia and bulimia nervosa. Finally, our estimates indicate large *temporary* shocks to the salience of local beauty norms, so we cannot directly speak to the consequences of *prolonged* and *repeated* exposure to thin-ideal imagery. Yet by showing that even short-lived shocks to the salience of local beauty norms can influence how teen girls and young women view themselves and their weight-related behaviors, one can speculate that a near-constant exposure to similar imagery might be even more harmful. Because policymakers are increasingly interested in how this type of exposure via social media and targeted advertising affects self-image and mental health, understanding the effects of repeated exposure remains an important area for future research.

Despite these limitations, our results provide novel evidence that pageant-induced negative social comparisons affected weight-related perceptions, satisfaction, and behavior. In an era of

unprecedented media consumption, our results imply meaningful latitude for policymakers with

respect to which behaviors and people are represented in the media.

6. References

Allcott, Hunt, Luca Braghieri, Sarah Eichmeyer, and Matthew Gentzkow (2020). "The Welfare Effects of Social Media," *American Economic Review*, 110(3): 629-676.

Anderson, D. Mark (2010), "Does Information Matter? The Effect of the Meth Project on Meth Use among Youths," *Journal of Health Economics*, 29(5): 732-742.

Andrews, Bianca, Briony Hill, and Helen Skouteris (2018). "The Relationship Between Antenatal Body Attitudes, Pre-Pregnancy Body Mass Index, and Gestational Weight Gain," *Midwifery*, 56: 142-151.

Arduini, Tiziano, Daniela Iorio, and Eleonora Patacchini (2019). "Weight, Reference Points, and the Onset of Eating Disorders," *Journal of Health Economics*, 65: 170-188.

Balsa, Ana I., Michael T. French, and Tracy L. Regan (2014). "Relative Deprivation and Risky Behaviors," *Journal of Human Resources*, 49(2): 446-471.

Bertrand, Marianne, Esther Duflo, and Sendhil Mullainathan (2004). "How Much Should We Trust Difference-In-Differences Estimates?" *Quarterly Journal of Economics*, 119(1): 249-275.

Borusyak, Kirill, Xavier Jaravel, and Jann Spiess (2021). "Revisting Event Study Designs: Robust and Efficient Estimation," Working Paper.

Bosma, Niels, Jolanda Hessels, Veronique, Schutjens, Mirjam Van Praag, and Ingrid Verheul (2012). "Entrepreneurship and Role Models," *Journal of Economic Psychology*, 33(2): 410-424.

Braghieri, Luca, Ro'ee Levy, and Alexey Makarin (2022). "Social Media and Mental Health," *American Economic Review*, 112(11): 3660-3693.

Buchmueller, Thomas C., John DiNardo, and Robert G. Valleta (2011). "The Effect of an Employer Health Insurance Mandate on Health Insurance Coverage and Demand for Labor: Evidence from Hawaii," *American Economic Journal: Economic Policy*, 3(4): 25-51.

Buckles, Kasey S. and Daniel M. Hungerman (2013). "Season of Birth and Later Outcomes: Old Questions, New Answers," *Review of Economics and Statistics*, 95(3): 711-724.

Business Insider (2017). "Target's Latest Swimsuit Campaign Includes No Photo Retouching and Plenty of Stretch Marks," Accessed at: https://www.businessinsider.com/target-swimsuit-campaign-no-photoshop-2017-3 (August 2021).

Cameron, A. Colin and Douglas L. Miller (2015). "A practitioner's guide to cluster-robust inference," *The Journal of Human Resources*, 50(2): 317-372.

Cameron, A. Colin, Jonah B. Gelbach, and Douglas L. Miller (2008). "). Bootstrap-based improvements for inference with clustered errors," *The Review of Economics and Statistics*, 90(3): 414-427.

Card, David and Gordon B. Dahl (2011). "Family Violence and Football: The Effect of Unexpected Emotional Cues on Violent Behavior," *Quarterly Journal of Economics*, 126(1): 103-143.

Carpenter, Christopher S. and D. Sebastian Tello-Trillo (2015). "Do Cheeseburger Bills Work? Effects of Tort Reform on Fast Food," *Journal of Law and Economics*, 58(4): 805-827.

Carpenter, Christopher S. and Mark Stehr (2008), "The Effects of Mandatory Seatbelt Laws on Seatbelt Use, Motor Vehicle Fatalities, and Crash-Related Injuries Among Youths," *Journal of Health Economics*, 27(3): 642-662.

Carrell, Scott E., Marianne E. Page, and James E. West (2010). "Sex and Science: How Professor Gender Perpetuates the Gender Gap," *Quarterly Journal of Economics*, 125(3): 1101-1144.

Chou, Shin-Yi, Michael Grossman, and Henry Saffer (2004). "An Economic Analysis of Adult Obesity: Results from the Behavioral Risk Factor Surveillance System," *Journal of Health Economics*, 23(3): 565-587.

Chatterji, Pinka, Dhaval Dave, Robert Kaestner, and Sara Markowtiz (2004), "Alcohol Abuse and Suicide Attempts among Youth," *Economics and Human Biology*, 2: 159-180.

Costa-Font, Joan and Mireia Jofre-Bonet (2013). "Anorexia, Body Image and Peer Effects: Evidence from a Sample of European Women," *Economica*, 80: 40-64.

Cunningham, Scott and Manisha Shah (2018). "Decriminalizing Indoor Prostitution: Implications for Sexual Violence and Public Health," *Review of Economic Studies*, 85(3): 1683-1715.

Currie, Janet, Michael Mueller-Smith, and Maya Rossin-Slater (2022). "Violence While in Utero: The Impacts of Assaults During Pregnancy on Birth Outcomes," *Review of Economics and Statistics*, 104(3): 525-540.

Dahl, Gordon and Stefano DellaVigna (2009). "Does Movie Violence Increase Violent Crime?" *Quarterly Journal of Economics*, 124(2): 677-734.

Dee, Thomas S. (2005). "A Teacher Like Me: Does Race, Ethnicity, or Gender Matter?" *American Economic Review: Papers & Proceedings*, 95(2): 158-165.

Eibner, Christine and William N. Evans (2005). "Relative Deprivation, Poor Health Habits, and Mortality," *Journal of Human Resources*, XL(3): 591-620.

Field, Alison E., Kristin M. Javaras, Parul Aneja, Nicole Kitos, Carlos A. Carmago Jr., C. Barr Taylor, and Nan M. Laird (2008). "Family, Peer, and Media Predictors of Becoming Eating Disordered," *Arch Pediatric Journal of Adolescent Medicine*, 162(6): 574-579.

Flood, Sarah, Miriam King, Renae Rodgers, Steven Ruggles, and J. Robert Warren (2018). Integrated Public Use Microdata Series, Current Population Survey: Version 6.0 [dataset]. Minneapolis, MN: IPUMS, 2018.

Gershenson, Seth, Cassandra M.D. Hart, Joshua Hyman, Constance A. Lindsay, and Nicholas W. Papageorge (2022). "The Long-Run Impacts of Same-Race Teachers," *American Economic Journal: Economic Policy*, 14(4): 300-342.

Golden, Neville H., Marcie Schneider, Christine Wood, Committee on Nutrition, Committie on Adolescence, Section on Obesity (2016). "Preventing Obesity and Eating Disorders in Adolescents," *Pediatrics*, 138(3): e20161649.

Grabe, Shelly, Monique L. Ward, and Janet Shibley Hyde (2008). "The Role of the Media in Body Image Concerns among Women: A Meta-Analysis of Experimental and Correlational Studies," *Psychological Bulletin*, 134(3): 460-476.

Gruber, Jonathan and Michael Frakes (2006). "Does Falling Smoking Lead to Rising Obesity?" *Journal of Health Economics*, 25(2): 183-197.

Hodgkinson, Emma L., Debbie M. Smith, and Anja Wittkowski (2014). "Women's Experiences of Their Pregnancy and Postpartum Body Image: A Systematic Review and Meta-Synthesis," *BMC Pregnancy and Childbirth*, 14: 330.

Huang, Wei, Elaine M. Liu, and C. Andrew Zuppann (2020). "Relative Obesity and the Formation of Non-cognitive Abilities During Adolescence," *Journal of Human Resources*, forthcoming.

Jensen, Robert and Emily Oster (2009). "The Power of TV: Cable Television and Women's Status in India," *Quarterly Journal of Economics*, 124(3): 1057-1094.

Jiang, Yongwen, Marga Kempner, and Eric B. Loucks (2014). "Weight Misperception and Health Risk Behaviors in Youth: The 2011 US YRBS," *American Journal of Health Behavior*, 5: 765-780.

Kaiser Family Foundation (2010). "Generation M2: Media in the Lives of 8- to 18-Year-Olds," Accessed at: https://www.kff.org/other/event/generation-m2-media-in-the-lives-of/.

Kearney, Melissa S. and Phillip B. Levine (2019). "Early Childhood Education by Television: Lessons from *Sesame Street*," *American Economic Journal: Applied Economics*, 11(1): 318-350.

Kearney, Melissa S. and Phillip B. Levine (2015). "Media Influences on Social Outcomes: The Impact of MTV's *16 and Pregnant* on Teen Childbearing," *American Economic Review*, 105(12): 3597-3632.

Kofoed, Michael S. and Elizabeth McGovney (2017). "The Effect of Same-Gender or Same-Race Role Models on Occupation Choice: Evidence from Randomly Assigned Mentors at West Point," *Journal of Human Resources*, 54(2): 430-467.

La Ferrara, Eliana, Alberto Chong, and Suzanne Duryea (2012). "Soap Operas and Fertility: Evidence from Brazil," *American Economic Journal: Applied Economics*, 4(4): 1-31.

Lindo, Jason M., Dave E. Marcotte, Jane E. Palmer, and Isaac D. Swensen (2019). "Any Press is Good Press? The Unanticipated Effects of Title IX Investigations on University Outcomes," *Economics of Education Review* 73.

Lindo, Jason M., Isaac D. Swensen, and Glen R. Waddell (2022). "Persistent Effects of Violent Media Content: Evidence from the Rise of the UFC," *Journal of Health Economics*, 83: 102623.

MacKinnon, James G. and Matthew D. Webb (2020). "Randomization Inference for Difference-in-Differences with Few Treated Clusters," *Journal of Econometrics*, 218(2): 435-450.

Mosquera, Roberto, Mofioluwasademi Odunowo, Trent McNamara, Xiongfei Guo, and Ragan Petrie (2020). "The Economic Effects of Facebook," *Experimental Economics*, 23: 575-602.

Nash, Meredith (2012). "Weighty Matters: Negotiating 'Fatness' and 'In-Betweenness' in Early Pregnancy," *Feminism and Psychology*, 22(3): 307-323.

National Public Radio (2018). "Miss America Says Farewell to Its Swimsuit Competition, Embracing 'Whole New Era,'" Accessed at: https://www.npr.org/sections/thetwo-way/2018/06/05/617088219/miss-america-drops-its-swimsuit-competition-embracing-whole-new-era (January 11th, 2022).

Patton, George C., J.B. Carlin, Q. Shao, M.E. Hibbert, M. Rosier, R. Selzer, and G. Bowes (1997). "Adolescent Dieting: Health Weight Control?" *Journal of Child Psychology and Psychiatry*, 38(3): 229-306.

Persson, Petra and Maya Rossin-Slater (2018). "Family Ruptures, Stress, and the Mental Health of the Next Generation," *American Economic Review*, 108(4-5): 1214-1252.

Pham-Kanter, Genevieve (2009). "Social Comparisons and Health: Can Having Richer Friends and Neighbors Make You Sick?" *Social Science and Medicine*, 69(3): 335-344.

Porter, Catherine and Danila Serra (2020). "Gender Differences in the Choice of Major: The Importance of Female Role Models," *American Economic Journal: Applied Economics*, 12(3): 226-254.

Principe, Francesco and Vincenzo Carrieri (2020). "Health's Kitchen: TV, Edutainment and Nutrition," Ruhr Economic Papers No 883.

Rasmussen, Kathleen M., Patrick M. Catalano, and Ann L. Yaktine (2009). "New Guidelines for Weight Gain During Pregnancy: What Obstetrician/Gynecologists Should Know," *Current Opinion in Obstetrics and Gynecology*, 21(6): 521-526.

Riley, Emma (forthcoming). "Role Models in Movies: The Impact of Queen of Katwe on Students' Educational Attainment," *Review of Economics and Statistics*, forthcoming.

Rubinstein, Sharon and Benjamin Caballero (2000). "Is Miss America an Undernourished Role Model?" *Journal of the American Medical Association*, 283(12): 1569.

Ruhm, Christopher J. (2015). "Recessions, Health No More?" *Journal of Health Economics*, 42: 17-28.

Ruhm, Christopher J. (2000). "Are Recessions Good for Your Health?" *Quarterly Journal of Economics*, 115(2): 617-650.

Sabia, Joseph J., M. Melinda Pitts, and Laura M. Argys (2019). "Are Minimum Wages a Silent Killer? New Evidence on Drunk Driving Fatalities," *Review of Economics and Statistics*, 101(1): 192-199.

Stice, Eric, Erika Schupak-Neuberg, Heather Shaw, and Richard Stein (1994). "Relation of Media Exposure to Eating Disorder Symptomatology: An Examination of Mediating Mechanisms," *Journal of Abnormal Psychology*, 103(4): 836-840.

Tiggemann, Marika and Amy Slater (2013). "NetGirls: The Internet, Facebook, and Body Image Concern in Adolescent Girls," *International Journal of Eating Disorders*, 46(6): 630-633.

Time (2014). "American Eagle Stops Photoshopping Models for New Lingerie Campaign," Accessed at: https://time.com/1187/american-eagle-ditches-photoshop-for-new-lingerie-campaign/ (August 2021).

Watson, Brittany, Jaclyn Broadbent, Helen Skouteris, Matthew Fuller-Tyszkiewicz (2016). "Qualitative Exploration of Body Image Experiences of Women Progressing through Pregnancy," *Women and Birth*, 29: 72-79.

Wilking, Cara L. and Richard A. Daynard (2013). "Beyond Cheeseburgers: The Impact of Commonsense Consumption Acts on Future Obesity-Related Lawsuits," *Food and Drug Law Journal*, 68(3): 229-240.

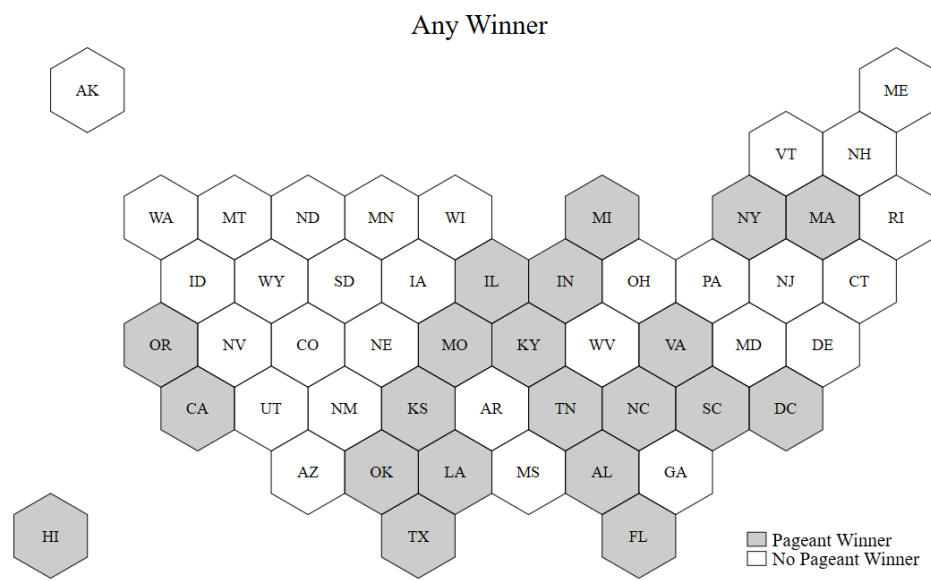**Figure 1: States Winning Miss America and Miss USA, 1991-2009**

Any Winner

Figure 2: Example of Front-Page Pageant Coverage

Source: Newspaper.com archives of newspapers from 1990-2000

Figure 3: Home-State Pageant Winners Increased Pageant-Related Newspaper Coverage
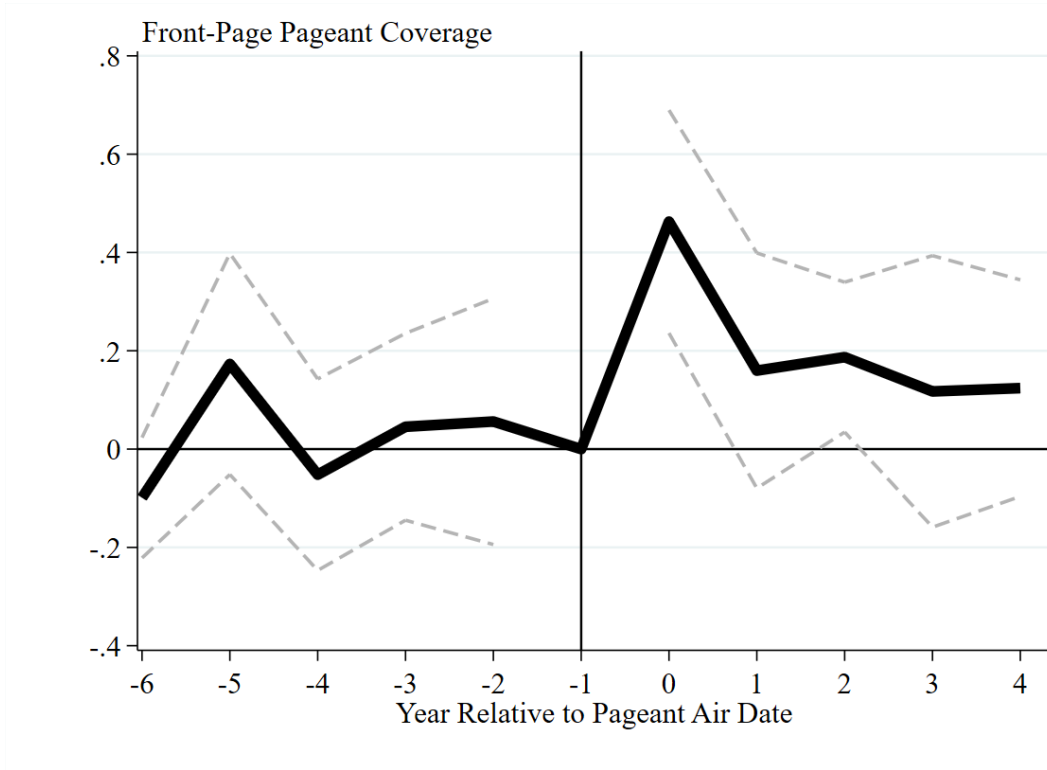
Front-Page Pageant Coverage

Source: Newspapers.com archives of newspapers from 1990-2000

Note: The dependent variable is an indicator for whether the state newspaper had front-page coverage of the Miss America or Miss USA in a given year. The independent variables of interest – shown with the dark solid line – are indicators from being j periods away from the state winning the beauty pageant. The lighter dashed grey lines denote 95 percent confidence intervals where the standard errors are clustered at the state level. The regression includes the full set of controls from equation (2).

Figure 4: Home-State Pageant Winners Increased Pageant-Related Information Seeking Behavior

Google Trends Index for 'Miss America'

(A)

Google Trends Index for 'Miss USA'

(B)
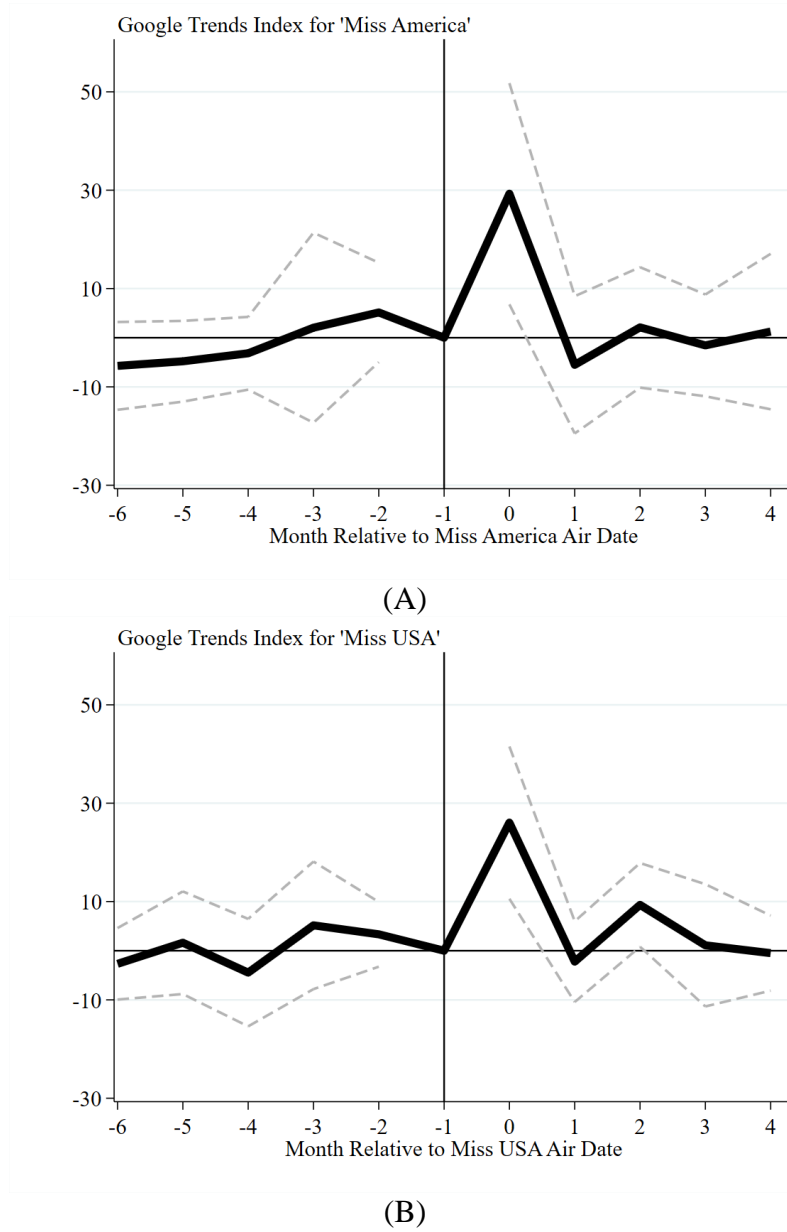
Source: Google Trends 2004-2010

Note: The dependent variable in Panel (A) is Google Trends Index for the term 'Miss America' and in Panel (B) for the term 'Miss USA.' The independent variables of interest – shown with the dark solid line – are indicators from being j periods away from the state winning the beauty pageant. The lighter dashed grey lines denote 95 percent confidence intervals where the standard errors are clustered at the state level. The regressions include the full set of controls from equation (2).

Figure 5: Home-State Pageant Winners Increased the Likelihood that Pageant-Aged Women Were Trying to Lose Weight

Source: Behavioral Risk Factor Surveillance System 1991-2003, 2005.
Note: The dependent variable is an indicator for whether the respondent reported trying to lose weight. The independent variables of interest – shown with the dark solid line – are indicators from being j periods away from the state winning the beauty pageant. The lighter dashed grey lines denote 95 percent confidence intervals where the standard errors are clustered at the state level. The regression includes the full set of controls from equation (4) and the sample is 18-28-year-old females. The estimates utilize the sample weights.

Table 1: Home-State Winners Increased Pageant-Related Exposure
Newspaper Archives 1990-2000, Google Trends 2004-2010

Outcome →	(1) Front-Page Coverage of Miss America	(2) Front-Page Coverage of Miss USA	(3) Google Trends Index for 'Miss America'	(4) Google Trends Index for 'Miss USA'
Home-State	0.273**	0.371***	4.104**	2.692**
Pageant Winner	(0.108)	(0.109)	(1.780)	(1.228)
% Δ from Mean	104.60**	674.54***	23.40**	17.66**
Mean of Outcome	0.261	0.055	17.536	15.242
R^2	0.512	0.445	0.276	0.157
Observations	506	506	4,284	4,284

Source: Newspapers.com archives of newspapers from 1990-2000, Google Trends 2004-2010.
Note: The dependent variable in column 1 is an indicator for whether the largest available state-specific newspaper had front-page coverage of the Miss America pageant during the two days following the competition, while the dependent variable in column 2 is an indicator for front-page coverage of the Miss USA pageant. The dependent variable in column 3 is the Google Trends Index for the term 'Miss America,' while the dependent variable in column 4 is the Google Trends Index for the term 'Miss USA.' The independent variable of interest is an indicator for having a home-state pageant winner. All columns include full sets of time-invariant state fixed effects, location-invariant year fixed effects, and state-specific linear time trends. Columns 3 and 4 also include location-invariant month fixed effects. The regressions also include the monthly unemployment rate, whether the state had adopted a Commonsense Consumption Act, the real value of cigarette taxes, the natural log of real state product per capita, the share of women in a state living in poverty, the share of the state comprised of pageant-aged women, and the share of non-white women. Standard errors, shown in parentheses, are clustered at the state level. For the list of newspapers used to generate these data, see Appendix Table A3.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Table 2: Young Women from States Winning National Beauty Pageants Were More Likely to Report Trying to Lose Weight
BRFSS 1991-2003, 2005

	(1)	(2)	(3)
Sample →	Women 18-28	Men 18-28	Women 54-64
Home-State Pageant Winner	0.022***	-0.019	-0.008
	(0.008)	(0.012)	(0.018)
% Δ from Mean	4.93***	-8.30	-1.63
Mean	0.446	0.229	0.490
R^2	0.014	0.018	0.021
Observations	94,271	77,403	104,135

Source: Behavioral Risk Factor Surveillance System 1991-2003, 2005

Note: The dependent variable is an indicator for whether the respondent reported trying to lose weight. The independent variable of interest is an indicator for whether the respondent was from the same state as the reigning Miss America or Miss USA. Each column is a separate regression. All columns include demographic controls, including indicators for age (19-28, with 18 omitted or 55-64, with 54 omitted), race/ethnicity (Asian, Hispanic, Black, and other, with white omitted), education level (high school diploma, some college, college degree, with less than high school omitted), and marital status (divorced, widowed, separated, never married, and member of an unmarried couple, with married omitted). The regressions also include state-level time-varying controls, including the monthly unemployment rate, whether the state had adopted a Commonsense Consumption Act, the real value of cigarette taxes, and the natural log of real state product per capita. The regressions also include the share of the group under consideration (female or male) in the state living in poverty, comprised of the age group of interest, and which is non-white. Finally, the regressions include full sets of state fixed effects, year-by-month fixed effects, and state-specific linear time trends. The sample in column 1 is women ages 18-28, in column 2 men ages 18-28, and in column 3 women ages 54-64. Estimates utilize the sample weights. Standard errors, shown in parentheses, are clustered at the state level.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Table 3: Teen Girls from States Winning National Beauty Pageants
Had Harsher Views of Their Bodyweight Relative to Their BMI
YRBS 1991-2009

	(1)	(2)	(3)
Outcome →	Self-Description Relative to BMI		
	Too Lenient	Accurate	Too Harsh
Panel A: Teen Girls			
Home-State	0.006	-0.027*	0.020
Pageant Winner	(0.014)	(0.014)	(0.016)
% Δ from Mean	3.11	-4.38*	10.47
Mean	0.193	0.616	0.191
R^2	0.035	0.010	0.026
Observations	40,583	40,583	40,583
Panel B: Teen Boys			
Home-State	0.011	0.006	-0.017
Pageant Winner	(0.025)	(0.019)	(0.015)
% Δ from Mean	2.71	1.12	-29.31
Mean	0.405	0.537	0.058
R^2	0.013	0.010	0.009
Observations	39,527	39,527	39,527

Source: Youth Risk Behavior Survey 1991-2009
Note: The dependent variable in column 1 is an indicator variable for the respondent's self-described weight relative to his/her BMI. The independent variable of interest is an indicator for whether the respondent resided in the same state as the reigning Miss America or Miss USA. The regressions include the full set of controls from equation (3). Panel A examines teen girls, while Panel B examines teen boys. Estimates utilize the sample weights. Standard errors, shown in parentheses, are clustered at the state level.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Table 4: Non-Overweight or Obese Teen Girls from States Winning National Beauty Pageants Were More Likely to Describe Themselves as Overweight YRBS 1999-2009

Self-Described →	(1) Underweight	(2) Normal Weight	(3) Overweight
Panel A: Non-Overweight or Obese Teen Girls			
Home-State	0.004	-0.047***	0.042***
Pageant Winner	(0.010)	(0.013)	(0.015)
% Δ from Mean	3.13	-7.24***	18.75***
Mean	0.128	0.649	0.224
R^2	0.011	0.016	0.022
Observations	29,678	29,678	29,678
Panel B: Overweight or Obese Teen Girls			
Home-State	0.013	-0.004	-0.010
Pageant Winner	(0.015)	(0.018)	(0.026)
% Δ from Mean	44.83	-2.08	-1.28
Mean	0.029	0.192	0.779
R^2	0.040	0.078	0.079
Observations	10,905	10,905	10,905

Source: Youth Risk Behavior Survey 1999-2009

Note: The dependent variable in column 1 is an indicator for whether the teen girl described herself as underweight, in column 2 for describing herself as 'normal' weight, and in column 3 for describing herself as overweight. Panel A examines non-overweight or obese teen girls and Panel B examines overweight or obese teen girls. The regressions use the controls from Response Table 3. The estimates utilize the sample weights. Standard errors, shown in parentheses, are clustered at the state level.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Table 5: Teen Girls from States Winning National Beauty Pageants Were More Likely to Employ Weight-Loss Strategies
YRBS 1991-2009

Outcome →	(1) Exercised	(2) Dieted	(3) Diet Pills	(4) Vomited	(5) Fasted	(6) Any Calorie-Limiting Strategy from Columns 2-5
Panel A: Teen Girls						
Home-State Pageant Winner	0.033***	0.016	0.013	0.001	0.005	0.036*
	(0.012)	(0.019)	(0.011)	(0.009)	(0.010)	(0.018)
% Δ from Mean	5.41***	3.20	16.46	1.59	2.91	6.15*
Mean	0.610	0.500	0.079	0.063	0.172	0.585
R^2	0.087	0.047	0.028	0.014	0.014	0.026
Observations	69,655	69,477	69,386	69,546	43,123	42,723
Panel B: Teen Boys						
Home-State Pageant Winner	-0.016	-0.012	0.004	0.003	0.006	-0.010
	(0.011)	(0.010)	(0.006)	(0.004)	(0.010)	(0.013)
% Δ from Mean	-3.86	-5.43	11.11	13.64	8.22	-3.23
Mean	0.415	0.221	0.036	0.022	0.073	0.310
R^2	0.118	0.038	0.027	0.023	0.018	0.011
Observations	69,847	69,683	69,566	69,743	42,128	40,618

Source: National Youth Risk Behavior Survey 1991-2009
Note: The dependent variable in column 1 is an indicator for whether the respondent reported exercising to lose or keep from gaining weight, in column 2 dieting, in column 3 taking diet pills, in column 4 vomiting or taking laxatives, and in column 5 fasting. The dependent variable in column 6 is an indicator for whether the teen reported engaging in any risky weight-loss behaviors, which is to say any of the outcomes from columns 2-5. The independent variable of interest is an indicator for whether the respondent resided in the same state as the reigning Miss America or Miss USA. The regressions include the full set of controls from equation (3). Panel A examines adolescent girls, while Panel B examines adolescent boys. Estimates utilize the sample weights. Standard errors, shown in parentheses, are clustered at the state level.
*** $p < 0.01$, ****** $p < 0.05$, * $p < 0.10$

Table 6: Pregnant Women with Home-State Pageant
Winners Gained Less Weight During Pregnancy
NCHS 1990-2002

Outcome →	(1) Inadequate Pregnancy Weight Gain	(2) Weight Gain	(3) Low Birth Weight	(4) Birth Weight
Home-State Pageant Winner	0.00369***	-0.09881**	-0.00042	0.42119
	(0.00130)	(0.03783)	(0.00074)	(1.57617)
% Δ from Mean	1.23***	-0.32**	-0.56	0.01
Mean	0.299	31.14	0.075	3291.53
R^2	0.020	0.022	0.013	0.044
Observations	22,270,146	22,270,146	27,999,837	27,999,837

Source: National Center for Health Statistics 1990-2002

Note: The dependent variable in column 1 is an indicator for whether the mother gained less than 25 pounds throughout the course of her pregnancy. The dependent variable in column 2 is the weight gained in pounds, in column 3 an indicator for whether the infant was born low birth weight (birth weight < 2500 grams), and in column 4 birth weight in grams. The independent variable of interest is an indicator for whether the infant was conceived while the mother's state of residence held the Miss America or Miss USA titles. The regression includes the full set of controls from equation (3). The sample uses data from birth certificates where the mother was at most 28-years-old. Standard errors, shown in parentheses, are clustered at the state level.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Appendix A: Additional Figures and Tables

Appendix Table A1: Miss America Pageant Winners, 1990-2010

Pageant	Date	Winner	Winner state
Miss America 1990	September 16, 1989	Debbye Turner	Missouri
Miss America 1991	September 8, 1990	Marjorie Vincent	Illinois
Miss America 1992	September 14, 1991	Carolyn Sapp	Hawaii
Miss America 1993	Sat Sep 19, 1992	Leanza Cornett	Florida
Miss America 1994	Sat Sep 18, 1993	Kimberly Clarice Aiken	South Carolina
Miss America 1995	Sat Sep 17, 1994	Heather Whitestone	Alabama
Miss America 1996	Sat Sep 16, 1995	Shawntel Smith	Oklahoma
Miss America 1997	Sat Sep 14, 1996	Tara Dawn Holland	Kansas
Miss America 1998	Sat Sep 13, 1997	Katherine Shindle	Illinois
Miss America 1999	Sat Sep 19, 1998	Nicole Johnson	Virginia
Miss America 2000	Sat Sep 18, 1999	Heather French	Kentucky
Miss America 2001	Sat Oct 14, 2000	Angela Perez Baraquio	Hawaii
Miss America 2002	Sat Sep 22, 2001	Katie Harman	Oregon
Miss America 2003	Sat Sep 21, 2002	Erika Harold	Illinois
Miss America 2004	Sat Sep 20, 2003	Ericka Dunlap	Florida
Miss America 2005	Sat Sep 18, 2004	Deirdre Downs	Alabama
Miss America 2006	Sat Jan 21, 2006	Jennifer Berry	Oklahoma
Miss America 2007	Mon Jan 29, 2007	Lauren Nelson	Oklahoma
Miss America 2008	Sat Jan 26, 2008	Kirsten Haglund	Michigan
Miss America 2009	Sat Jan 24, 2009	Katie Stam	Indiana
Miss America 2010	Sat Jan 30, 2010	Caressa Cameron	Virginia

Appendix Table A2: Miss USA Pageant Winners, 1990-2010

Pageant	Date	Winner	Winner state
Miss USA 1990	March 2, 1990	Carole Gist	Michigan
Miss USA 1991	February 22, 1991	Kelli McCarty	Kansas
Miss USA 1992	February 7, 1992	Shannon Marketic	California
Miss USA 1993	February 19, 1993	Kenya Moore	Michigan
Miss USA 1994	February 11, 1994	Lu Parker	South Carolina
Miss USA 1995	February 10, 1995	Chelsi Smith	Texas
Miss USA 1996	February 2, 1996	Ali Landry	Louisiana
Miss USA 1997	February 5, 1997	Brook Lee	Hawaii
Miss USA 1998	March 10, 1998	Shawnae Jebbia	Massachusetts
Miss USA 1999	February 4, 1999	Kimberly Pressler	New York
Miss USA 2000	February 4, 2000	Lynnette Cole	Tennessee
Miss USA 2001	March 2, 2001	Kandace Krueger	Texas
Miss USA 2002	March 1, 2002	Shauntay Hinton	Washington DC
Miss USA 2003	March 24, 2003	Susie Castillo	Massachusetts
Miss USA 2004	April 12, 2004	Shandi Finnessey	Missouri
Miss USA 2005	April 11, 2005	Chelsea Cooley	North Carolina
Miss USA 2006	April 21, 2006	Tara Conner	Kentucky
Miss USA 2007	March 23, 2007	Rachel Smith	Tennessee
Miss USA 2008	April 11, 2008	Crystle Stewart	Texas
Miss USA 2009	April 19, 2009	Kristen Dalton	North Carolina
Miss USA 2010	May 16, 2010	Rima Fakih	Michigan

Appendix Table A3: State Newspaper Data
Newspapers.com 1990-2000

State	Newspaper
Alabama	The Montgomery Advertiser
Alaska	-
Arizona	The Arizona Republic
Arkansas	The Baxter Bulletin
California	Los Angeles Times
Colorado	The Daily Sentinel
Connecticut	Hartford Courant
Delaware	The News Journal
District of Columbia	-
Florida	St. Petersburg Times
Georgia	The Atlanta Constitution
Hawaii	The Honolulu Advertiser
Idaho	South Idaho Press
Illinois	Chicago Tribune
Indiana	The Indianapolis Star
Iowa	The Des Moines Register
Kansas	The Wichita Eagle
Kentucky	The Courier-Journal
Louisiana	The Times
Maine	The Bangor Daily News
Maryland	The Baltimore Sun
Massachusetts	The Boston Globe
Michigan	Detroit Free Press
Minnesota	The Star Tribune
Mississippi	The Clarion-Ledger
Missouri	St. Louis Post-Dispatch
Montana	The Billings Gazette
Nebraska	The Lincoln Journal Star
Nevada	The Reno Gazette-Journal
New Hampshire	-
New Jersey	Courier-Post
New Mexico	Albuquerque Journal
New York	Daily News
North Carolina	The Charlotte Observer
North Dakota	The Bismark Tribune
Ohio	The Cincinnati Enquirer
Oklahoma	The Oklahoman
Oregon	Statesman Journal
Pennsylvania	Pittsburgh Post-Gazette
Rhode Island	-
South Carolina	The Greenville News
South Dakota	Argus Leader
Tennessee	The Tennessean
Texas	Fort Worth Star-Telegram
Utah	The Salt Lake Tribune
Vermont	The Burlington Free Press
Virginia	Daily Press
Washington	The Spokesman-Review
West Virginia	-
Wisconsin	Wisconsin State Journal
Wyoming	Casper Star-Tribune

Appendix B: Pageant Exposure

Appendix Figure B1: Number of States with Front-Page Newspaper Coverage of Miss America and Miss USA Newspaper Archives 1990-2000
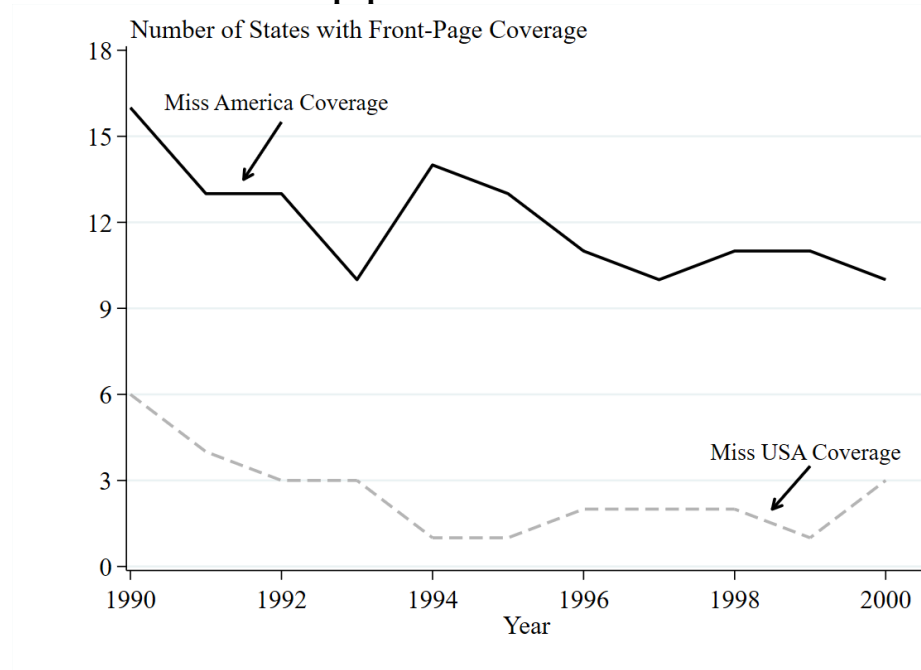
Source: Newspaper.com archives of newspapers from 1990-2000
Note: The dark solid line indicates the number of states with front-page newspaper coverage of Miss America, while the lighter grey dashed line shows the number of states with front-page newspaper coverage of Miss USA.

Appendix Figure B2: Home-State Pageant Winners Increased Pageant Exposure in Models Excluding State-Specific Linear Time Trends
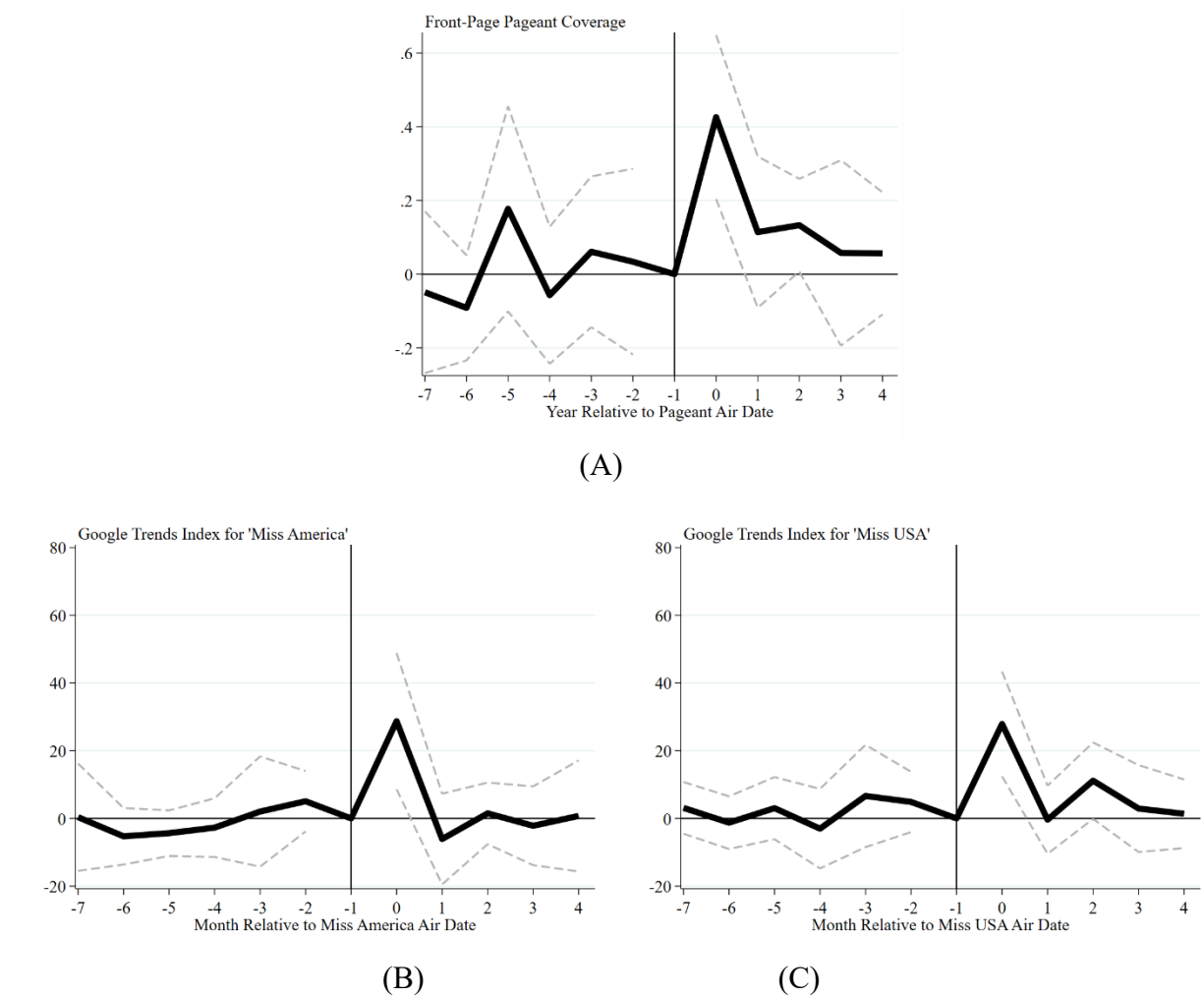
(A)

(B)

(C)

Source: Newspapers.com archives of newspapers from 1990-2000; Google Trends 2004-2010

Note: The dependent variable in Panel (A) is an indicator for whether the state newspaper had front-page coverage of the Miss America or Miss USA in a given year. The dependent variable in Panel (B) is Google Trends Index for the term 'Miss America' and in Panel (C) for the term 'Miss USA.' The independent variables of interest − shown with the dark solid line − are indicators from being j periods away from the state winning the beauty pageant. The lighter dashed grey lines denote 95 percent confidence intervals where the standard errors are clustered at the state level. The regressions in Panels (A), (B), and (C) include the full set of controls from equation (2) but exclude the state-specific linear time trends.

Appendix Table B1: Home-State Winners Increased
Pageant-Related Newspaper Coverage including Pictures

Outcome →	(1) Front-Page Coverage of Miss America with Picture	(2) Front-Page Coverage of Miss USA With Picture	(3) Front-Page Coverage of Miss America Without Picture	(4) Front-Page Coverage of Miss USA Without Picture
Panel A: Any Winner				
Home-State Pageant Winner	0.358*** (0.105)	0.143 (0.087)	-0.085 (0.094)	0.228** (0.094)
Mean of Outcome	0.105	0.028	0.156	0.028
R^2	0.486	0.397	0.448	0.383
Observations	506	506	506	506
Panel B: Pageant Type				
Home-State Miss America Winner	0.652*** (0.169)	-0.021 (0.019)	-0.074 (0.138)	0.072 (0.066)
Home-State Miss USA Winner	0.043 (0.055)	0.318* (0.166)	-0.097 (0.091)	0.394** (0.167)
Mean of Outcome	0.105	0.028	0.156	0.028
R^2	0.521	0.435	0.448	0.383
Observations	506	506	506	506

Source: Newspapers.com archives of newspapers from 1990-2000, Google Trends 2004-2010.
Note: The dependent variable in column 1 is an indicator for whether the largest available state-specific newspaper had front-page coverage of the Miss America pageant during the two days following the competition that included a picture, while the dependent variable in column 2 is an indicator for front-page coverage of the Miss USA pageant that included a picture. The dependent variable in column 3 is an indicator for whether the largest available state-specific newspaper had front-page coverage of the Miss America pageant during the two days following the competition that did not include a picture, while the dependent variable in column 4 is an indicator for front-page coverage of the Miss USA pageant that did not include a picture. The regressions also include the monthly unemployment rate, whether the state had adopted a Commonsense Consumption Act, the real value of cigarette taxes, the natural log of real state product per capita, the share of women in a state living in poverty, the share of the state comprised of pageant-aged women, and the share of non-white women. Standard errors, shown in parentheses, are clustered at the state level. For the list of newspapers used to generate these data, see Appendix Table A3.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

**Appendix Table B2: Miss America Drove Miss America Coverage and
Miss USA Drove Miss USA Coverage
Newspaper Archives 1990-2000**

	(1)	(2)
Outcome →	Front-Page Miss America Coverage	Front-Page Miss USA Coverage
Home-State Miss America Winner	0.585***	0.047
	(0.147)	(0.069)
Home-State Miss America Runner-Up	0.266*	-0.095
	(0.156)	(0.078)
Home-State Miss America 2nd Runner-Up	-0.137	-0.040
	(0.167)	(0.025)
Home-State Miss USA Winner	-0.046	0.733***
	(0.102)	(0.137)
Home-State Miss USA Runner-Up	0.206	0.108
	(0.130)	(0.115)
Home-State Miss USA 2nd Runner-Up	0.085	0.050
	(0.080)	(0.086)
R^2	0.545	0.526
Observations	506	506

Source: Newspapers.com archives of newspapers from 1990-2000.

Note: The dependent variable in column 1 is an indicator for whether the largest available state-specific newspaper had front-page coverage of the Miss America pageant during the two days following the competition, while the dependent variable in column 2 is an indicator for front-page coverage of the Miss USA pageant. The independent variables of interest are indicators for whether the pageant winner, runner-up, or second runner-up were from the state for both the Miss America and Miss USA pageant. Both columns use the full set of controls from equation (1). Standard errors, shown in parentheses, are clustered at the state level. For the list of newspapers used to generate these data, see Appendix Table A3.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Appendix Table B3: Google Trends Data Was Inconclusive About State Pageant Performance and Alternative Search Terms
Google Trends 2004-2010

Outcome →	(1) Exercise	(2) Diet	(3) Fat	(4) Obese	(5) Skinny	(6) Botox	(7) Plastic Surgery	(8) Lipo
Home-State	1.333	-1.100	-0.058	2.057	-0.874	3.604**	-0.289	0.324
Pageant Winner	(1.237)	(0.996)	(1.262)	(1.738)	(1.950)	(1.612)	(1.404)	(2.125)
Mean	55.938	52.456	69.875	29.522	46.780	34.975	44.486	27.075
R^2	0.579	0.662	0.537	0.348	0.642	0.378	0.445	0.471
Observations	4,284	4,284	4,284	4,284	4,284	4,284	4,284	4,284

Source: Google Trends 2004-2010

Note: The dependent variable in column 1 is the Google Trends index for the term 'exercise,' in column 2 the term 'diet,' in column 3 the term 'fat,' in column 4 the term 'obese,' in column 5 the term 'skinny,' in column 6 the term 'botox,' in column 7 the phrase 'plastic surgery,' and in column 8 the term 'lipo.' The independent variable of interest is an indicator for whether the state was home to the reigning Miss America or Miss USA. The regressions use the full set of controls from equation (1). Standard errors, shown in parentheses, are clustered at the state level.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Appendix C: BRFSS Estimates

Appendix Figure C1: The Estimated Coefficient and Test Statistic for Young Women Trying to Lose Weight Are Larger Than Expected from Chance
BRFSS 1991-2003, 2005

(A)   **(B)**
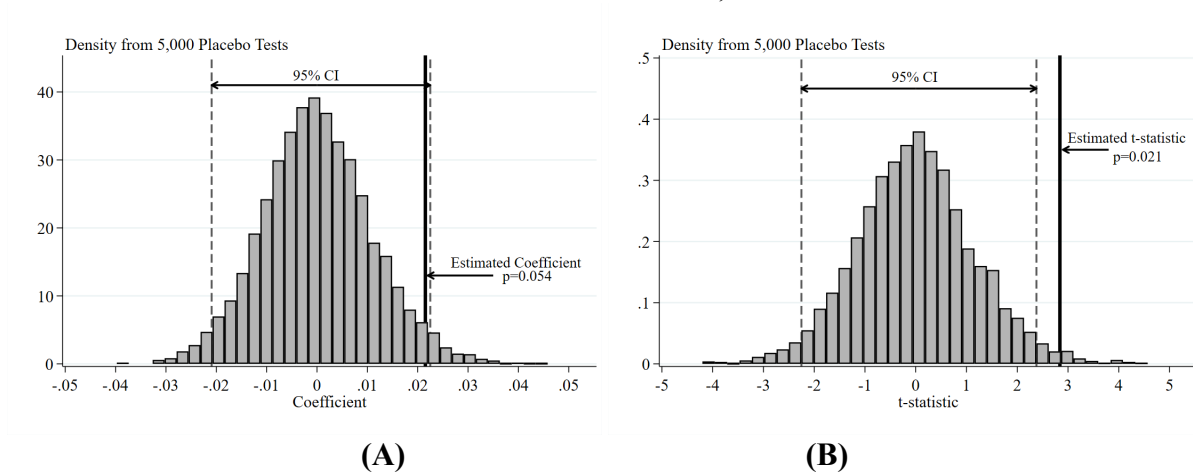
Source: Behavioral Risk Factor Surveillance System 1991-2003, 2005
Note: Panel A depicts the distribution of placebo coefficients obtained from randomly assigning the Miss America and Miss USA pageant winners 5,000 times and estimating equation (3). Panel B depicts the distribution of cluster-robust t-statistics obtained from this same process. The solid black line in Panel A denotes the estimated coefficient from using actual treatment status, while the solid line in Panel B shows the estimated t-statistic from using actual treatment status.

Appendix Figure C2: The BRFSS Event Study Pattern is Robust to Alternative Specifications
BRFSS 1991-2003, 2005
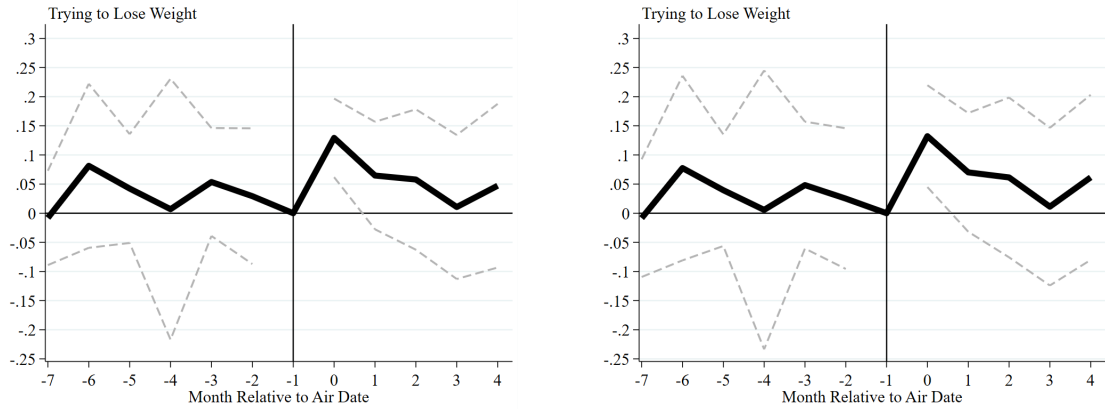
(A)   (B)

Source: Behavioral Risk Factor Surveillance System 1991-2003, 2005

Note: The dependent variable is an indicator for whether the respondent reported trying to lose weight. The independent variables of interest are indicators for being j periods away from a national beauty pageant. The sample is limited to 18-28-year-old women, and the specification uses the full set of controls from equation (4). Panel A excludes the state-specific linear time trends, while Panel B replaces them with state-by-year fixed effects. The solid black line plots the coefficient, while the grey dashed lines indicate 95 percent confidence intervals when clustering standard errors at the state level. Estimates utilize the sample weights.

Appendix Table C1: The Home-State Pageant Winner-Weight Loss Relationship is Robust to Alternative Specifications
BRFSS 1991-2003, 2005

	(1)	(2)	(3)	(4)
Specification →	Year-by-Month Fixed Effects	Additional Pageant Placements	Distinguishing Pageants	Limiting Sample to Ever Treated States
Home-State Pageant Winner	0.022***	0.022***		0.020**
	(0.008)	(0.008)		(0.008)
Home-State Pageant Runner-Up		-0.011		
		(0.010)		
Home-State Pageant 2nd Runner-Up		0.003		
		(0.009)		
Miss America Winner			0.026**	
			(0.010)	
Miss USA Winner			0.016*	
			(0.009)	
R^2	0.017	0.017	0.014	0.016
Observations	94,271	94,271	94,271	44,134

Source: Behavioral Risk Factor Surveillance System 1991-2003, 2005
Note: The dependent variable is an indicator for whether the respondent reported trying to lose weight. Each column is a separate regression and includes the full set of controls from equation (3). Column 1 replaces the month and year fixed effects with year-by-month fixed effects, column 2 controls for whether the state was home to the runner-up or second runner-up of either pageant, column 3 separates out Miss America and Miss USA, and column 4 estimates the baseline model but limits the sample to observations from states which ever won a pageant. Standard errors, shown in parentheses, are clustered at the state level.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Appendix Table C2: Effects of Home-State Pageant Winners on the Likelihood that Young Women Reported Trying to Lose Weight by Race of the Respondent and Contestant BRFSS 1991-2003, 2005

	(1)	(2)
Sample →	White Women	Non-White Women
White Home-State Pageant Winner	0.017 (0.016)	0.024 (0.019)
Non-White Home-State Pageant Winner	0.012 (0.017)	0.049** (0.022)
Mean	0.444	0.449
R^2	0.016	0.023
Observations	67,838	26,433

Source: Behavioral Risk Factor Surveillance System 1991-2003, 2005

Note: The dependent variable is an indicator for whether the respondent reported trying to lose weight. The independent variable of interest is an indicator for whether the respondent was from the same state as the reigning Miss America or Miss USA. Estimates utilize the sample weights. The regressions include the full set of controls from Response Table 6. Column 1 limits the sample to white women and column 2 to non-white women. Standard errors, shown in parentheses, are clustered at the state level.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Appendix Table C3: The Relationship between Home-State Pageant Performance and the Likelihood That Pageant-Aged Women Reported Trying to Lose Weight Was Most Pronounced in the South and Midwest
BRFSS 1991-2003, 2005

	(1)	(2)	(3)	(4)
Sample Region →	Northeast	South	Midwest	West
Home-State	0.002	0.022	0.011	0.004
Pageant Winner	(0.047)	(0.014)	(0.015)	(0.029)
Mean	0.437	0.449	0.459	0.433
R^2	0.024	0.016	0.017	0.021
Observations	15,791	35,068	20,477	22,935

Source: Behavioral Risk Factor Surveillance System 1991-2003, 2005
Note: The dependent variable is an indicator for whether the respondent reported trying to lose weight. The independent variable of interest is an indicator for whether the respondent was from the same state as the reigning Miss America or Miss USA. Each column is a separate regression. All columns include the full set of controls from equation (3). The sample in column 1 is young women in northeastern states, in column 2 in southern states, in column 3 in midwestern states, and in column 4 in western states. Estimates utilize the sample weights. Standard errors, shown in parentheses, are clustered at the state level.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Appendix Table C4: The Relationship between Home State Pageant Winners and the Likelihood That Pageant-Aged Women Were Trying to Lose Weight Appears Driven by Heavier Women
BRFSS 1991-2003, 2005

	(1)	(2)	(3)
Sample →	Women 18-28 BMI < 18.5	Women 18-28 $18.5 \leq BMI < 25$	Women 18-28 $BMI \geq 25$
Home-State Pageant Winner	0.003	-0.009	0.023
	(0.019)	(0.014)	(0.014)
Mean	0.043	0.316	0.720
R^2	0.066	0.016	0.020
Observations	4,172	48,825	31,568

Source: Behavioral Risk Factor Surveillance System 1991-2003, 2005
Note: The dependent variable is an indicator for whether the respondent reported trying to lose weight. The independent variable of interest is an indicator for whether the respondent was from the same state as the reigning Miss America or Miss USA. Each column is a separate regression. All columns include the full set of controls from equation (3). The sample in column 1 is young women with a BMI below 18.5, in column 2 young women with a BMI between 18.5 and 25, and in column 3 young women with a BMI of at least 25. Estimates utilize the sample weights. Standard errors, shown in parentheses, are clustered at the state level.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Appendix Table C5: Home-State Pageant Performance Was Inconclusively Related to Pageant-Aged Women's BMI
BRFSS 1991-2003, 2005

	(1)	(2)	(3)
Outcome →	BMI < 18.5	18.5 ≤ BMI < 25	BMI ≥ 25
Home-State	-0.003	-0.004	0.007
Pageant Winner	(0.004)	(0.007)	(0.008)
Mean	0.050	0.563	0.387
R^2	0.010	0.063	0.079
Observations	223,586	223,586	223,586

Source: Behavioral Risk Factor Surveillance System 1991-2003, 2005
Note: The dependent variable in column 1 is an indicator for whether the woman had a BMI under 18.5, in column 2 a BMI between 18.5 and 25, and in column 3 a BMI of at least 25. The independent variable of interest is an indicator for whether the respondent was from the same state as the reigning Miss America or Miss USA. Each column is a separate regression. All columns include the full set of controls from equation (3). The sample is all pageant-aged women. Estimates utilize the sample weights. Standard errors, shown in parentheses, are clustered at the state level.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Appendix Table C6: Recent Home-State Pageant Winners Harmed
Young Women's Mental Health
BRFSS 1991-2003, 2005

	(1)	(2)	(3)	(4)
Outcome →		IHS(Poor Mental Health Days)		
Home-State Pageant Winner	0.037			
	(0.030)			
Home-State Pageant Winner		0.170***		
within Last 30 Days		(0.055)		
Home-State Pageant Winner			0.077	
within Last 60 Days			(0.058)	
Home-State Pageant Winner				0.069
within Last 90 Days				(0.053)
Mean	4.522	4.522	4.522	4.522
R^2	0.030	0.030	0.030	0.030
Observations	224,101	224,101	224,101	224,101

Source: Behavioral Risk Factor Surveillance System 1991-2003, 2005
Note: The dependent variable is the inverse hyperbolic sine of the number of reported poor mental health days. The independent variable in column 1 is an indicator for whether the respondent resided in the same state as the reigning Miss America or Miss USA. The independent variable in column 2 is an indicator that only takes on the value of 1 for a home-state pageant win during the first 30 days after the pageant, in column 3 the first 60 days, and in column 4 the first 90 days. All regressions include the full set of controls from equation (3). Estimates utilize the sample weights. Standard errors, shown in parentheses, are clustered at the state level.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Appendix D: YRBS Estimates

Figure D1: The Estimated Coefficient and Test Statistic for Teen Girls Exercising to Lose Weight Are Larger Than Expected from Chance
YRBS 1991-2009

(A)   **(B)**
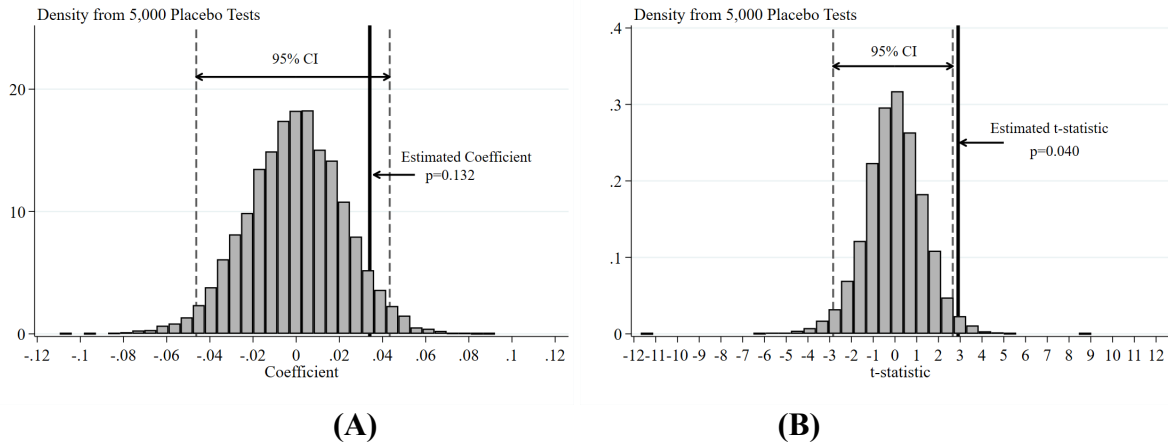
Source: Youth Risk Behavior Survey 1991-2009
Note: Panel A depicts the distribution of placebo coefficients obtained from randomly assigning the Miss America and Miss USA pageant winners 5,000 times and estimating equation (3). Panel B depicts the distribution of cluster-robust t-statistics obtained from this same process. The solid black line in Panel A denotes the estimated coefficient from using actual treatment status, while the solid line in Panel B shows the estimated t-statistic from using actual treatment status.

Appendix Table D1: Home-State Pageant Performance Was Unrelated to Teen Girls' BMIs
YRBS 1999-2009

	(1)	(2)	(3)	(4)
Outcome →	Underweight	Recommended Weight	Overweight or Obese	BMI
Home-State	-0.008	0.021	-0.014	-0.038
Pageant Winner	(0.005)	(0.019)	(0.021)	(0.208)
Mean	0.017	0.740	0.234	22.750
R^2	0.009	0.031	0.027	0.057
Observations	40,583	40,583	40,583	40,583

Source: Youth Risk Behavior Survey 1999-2009

Note: The dependent variable in column 1 is an indicator for whether the teen girl was classified as underweight, in column 2 for being in the recommended region, and in column 3 for being overweight or obese. The dependent variable in column 4 is the teen girls BMI. The independent variable of interest is an indicator for whether the respondent resided in the same state as the reigning Miss America or Miss USA. The regressions include individual demographic controls, state-level time-varying characteristics, state fixed effects, time fixed effects, and state-specific linear time trends. The estimates utilize the sample weights. Standard errors, shown in parentheses, are clustered at the state level.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Response Table D2: Non-Overweight or Obese Teen Girls from States Winning National Beauty Pageants Were More Likely to Report Exercising to Lose Weight YRBS 1999-2009

Sample →	(1) Non-Overweight or Obese Teen Girls	(2) Overweight or Obese Teen Girls
Home-State Pageant Winner	0.072*** (0.021)	-0.016 (0.035)
Mean	0.652	0.779
R^2	0.045	0.051
Observations	29,670	10,924

Source: Youth Risk Behavior Survey 1999-2009
Note: The dependent variable is an indicator for whether the teen girl reported exercising to lose weight. The sample in column 1 includes non-overweight or obese teen girls. The sample in column 2 includes overweight or obese teen girls. The regressions use the controls from Response Table 3. The estimates utilize the sample weights. Standard errors, shown in parentheses, are clustered at the state level.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Appendix Table D3: Effects of Home-State Pageant Winners on the Likelihood that Teen Girls' Weight-Related Behaviors by Race of the Respondent and Contestant
YRBS 1991-2009

	(1)	(2)
Outcome →	White	Non-White
Panel A: Exercised to Lose Weight		
White Home-State	0.021	0.000
Pageant Winner	(0.029)	(0.022)
Non-White Home-State	0.061**	0.049**
Pageant Winner	(0.025)	(0.020)
Panel B: Any Calorie-Limiting Behavior		
White Home-State	0.012	0.047
Pageant Winner	(0.034)	(0.028)
Non-White Home-State	0.040	0.200***
Pageant Winner	(0.044)	(0.034)

Source: National Youth Risk Behavior Survey 1991-2009
Note: The dependent variable in Panel A is an indicator for whether the respondent reported exercising to lose or keep from gaining weight. The dependent variable in Panel B is an indicator for whether the teen reported engaging in any risky calorie-limiting weight-loss behavior. The independent variable of interest is an indicator for whether the respondent resided in the same state as the reigning Miss America or Miss USA. The regressions include the full set of controls from equation (3). Column 1 examines white girls while column 2 examines non-white girls. Estimates utilize the sample weights. Standard errors, shown in parentheses, are clustered at the state level.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Appendix Table D4: Home State Pageant Performance and the Likelihood that Teen Girls Exercised for Weight Management is Robust to Alternative Specifications
YRBS 1991-2009

Specification →	(1) Additional Pageant Performance	(2) Pageant Leads and Lags	(3) Excluding State-Specific LTT	(4) Replace State-Specific LTT w/ Census Region-by-Year FE	(5) Replace State-Specific LTT with Census Division-by-Year FE
Home-State Pageant Winner	0.033*** (0.012)	0.038*** (0.012)	0.035*** (0.012)	0.034** (0.015)	0.024* (0.014)
Home-State Pageant Runner-Up	-0.002 (0.011)				
Home-State Pageant 2nd Runner-Up	-0.015 (0.014)				
Home-State Pageant Winner in 2 Years		-0.000 (0.008)			
Home-State Pageant Winner Next Year		0.013 (0.023)			
Home-State Pageant Winner Last Year		-0.003 (0.015)			
Home-State Pageant Winner 2 Years Ago		0.009 (0.010)			
Mean	0.610	0.610	0.610	0.610	0.610
R^2	0.087	0.087	0.084	0.085	0.088
Observations	69,655	69,655	69,655	69,655	69,655

Source: National Youth Risk Behavior Survey 1991-2009

Note: The dependent variable is an indicator for whether the respondent reported exercising to lose or keep from gaining weight. The independent variable of interest is an indicator for whether the respondent resided in the same state as the reigning Miss America or Miss USA (as of June 1st of that year). The regressions include the full set of controls from equation (3). Column 1 also controls for home-state second- and third-place finishers, while column 2 includes indicators for whether the respondent lived in a state which had won a pageant during the prior two years or would go onto win a pageant during the following two years. Column 3 excludes the state-specific linear time trends, column 4 replaces these trends with census region-by-year fixed effects, and column 5 replaces the trends with census division-by-year fixed effects. Estimates utilize the sample weights. Standard errors, shown in parentheses, are clustered at the state level.
*** p < 0.01, ** p < 0.05, * p < 0.10

Appendix Table D5: States with Observations on Exercise for Weight Management YRBS 1991-2009

	1991	1993	1995	1997	1999	2001	2003	2005	2007	2009
Alabama		Y	Y	Y	Y	Y	Y		Y	Y
Alaska										
Arizona		Y		Y	Y	Y	Y	Y	Y	Y
Arkansas		Y	Y	Y			Y		Y	Y
California	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Colorado	Y	Y	Y	Y		Y				Y
Connecticut			Y	Y				Y		
Delaware			Y				Y			
District of Columbia			Y							
Florida	Y		Y	Y	Y	Y	Y	Y	Y	Y
Georgia	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Hawaii					Y					Y
Idaho						Y		Y		
Illinois	Y	Y	Y		Y	Y	Y	Y	Y	Y
Indiana	Y					Y	Y	Y	Y	
Iowa			Y	Y				Y	Y	
Kansas		Y		Y			Y	Y		Y
Kentucky			Y					Y	Y	
Louisiana			Y	Y	Y		Y	Y		Y
Maine		Y	Y	Y	Y	Y	Y			
Maryland	Y	Y		Y			Y			
Massachusetts		Y	Y	Y		Y	Y	Y	Y	
Michigan	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Minnesota		Y						Y		Y
Mississippi	Y	Y	Y	Y	Y	Y			Y	
Missouri	Y	Y	Y		Y	Y	Y	Y	Y	Y
Montana						Y				
Nebraska		Y								
Nevada						Y				Y
New Hampshire	Y									
New Jersey	Y			Y	Y	Y	Y	Y	Y	Y
New Mexico	Y	Y		Y		Y	Y		Y	Y
New York	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
North Carolina		Y	Y	Y	Y	Y		Y	Y	
North Dakota										
Ohio	Y	Y	Y	Y	Y	Y	Y	Y		
Oklahoma				Y		Y		Y	Y	
Oregon		Y				Y		Y		Y
Pennsylvania	Y	Y	Y	Y	Y		Y	Y	Y	Y
Rhode Island					Y					
South Carolina	Y	Y		Y	Y		Y	Y		
South Dakota	Y						Y			
Tennessee		Y		Y	Y	Y		Y	Y	
Texas	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Utah								Y	Y	Y
Vermont	Y							Y		
Virginia	Y		Y		Y		Y	Y	Y	Y
Washington	Y	Y	Y	Y		Y		Y		Y

West Virginia		Y				Y		Y	Y	Y
Wisconsin				Y	Y	Y	Y	Y	Y	Y
Wyoming										

Note: Bolded boxes shaded in gray are winning states.

Appendix Table D6: Teen Girls with Home-State Pageant Winners Were More Likely to View Themselves as Heavier than Their BMIs and Report Exercising to Lose Weight YRBS 1991-2009

	(1)	(2)	(3)
Outcome →	Exercised	Exercised and Held Too Harsh a View Of Body Relative to BMI	Exercised and Did Not Hold Too Harsh a View Of Body Relative to BMI
Home-State Pageant Winner	0.033*** (0.012)	0.035* (0.019)	0.018 (0.011)
Mean	0.610	0.152	0.533
R^2	0.087	0.024	0.015
Observations	69,655	40,416	40,416

Source: National Youth Risk Behavior Survey 1991-2009

Note: The dependent variable in column 1 is an indicator for whether the respondent reported exercising to lose or keep from gaining weight, in column 2 whether the respondent reported exercising to lose weight and held too harsh a view of her body relative to her BMI, and in column 3 whether the respondent reported exercising to lose weight but did not hold too harsh of view of her body relative to her BMI. The independent variable of interest is an indicator for whether the respondent resided in the same state as the reigning Miss America or Miss USA. The regressions include the full set of controls from equation (3). Estimates utilize the sample weights. Standard errors, shown in parentheses, are clustered at the state level.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

**Appendix Table D7: Home-State National Beauty Pageant Performance
Was Inconclusively Related to Adolescent Mental Health
YRBS 1991-2009**

	(1)	(2)
Outcome →	Considered Suicide	Attempted Suicide
Home-State Pageant Winner	0.005	-0.003
	(0.016)	(0.012)
Mean	0.247	0.106
R^2	0.029	0.021
Observations	69,496	63,713

Source: State Youth Risk Behavior Survey 1991-2009
Note: The dependent variable in column 1 is an indicator for whether the respondent reported that she had seriously considered suicide. The dependent variable in column 2 is an indicator for whether the respondent reported that she had attempted suicide. The independent variable of interest is an indicator for whether the respondent resided in the same state as the reigning Miss America or Miss USA. The regressions include the full set of controls from equation (3). Panel A examines adolescent girls who held too harsh of views of their bodies The sample is adolescent girls. Estimates utilize the sample weights. Standard errors, shown in parentheses, are clustered at the state level.
*** p < 0.01, ** p < 0.05, * p < 0.10

Appendix E: Natality Estimates

Figure E1: The Increase in the Likelihood of Inadequate Pregnancy Weight Gain Was Limited to the Post-Pageant Period
NCHS Natality Data 1990-2002
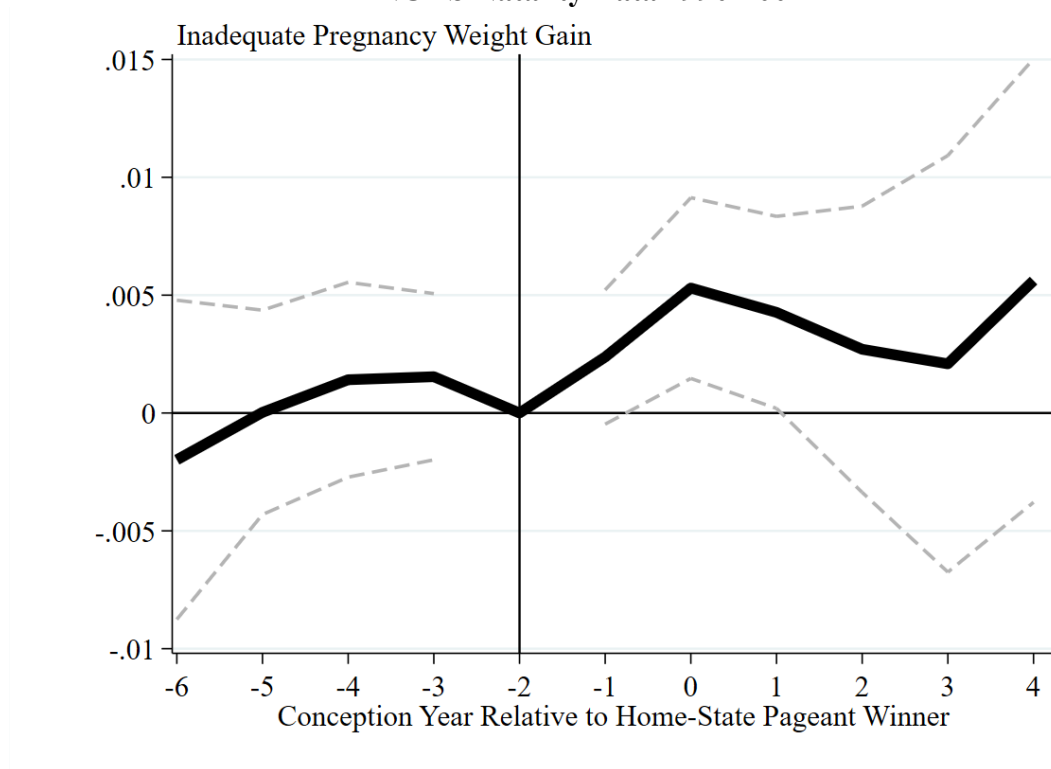
Source: National Center for Health Statistics 1990-2002
Note: The solid black line denotes the coefficients obtained from estimating equation (4), and the grey dashed lines denote 95 percent confidence intervals The dependent variable is an indicator for whether the mother gained less than the recommended 25-35 pounds during pregnancy. The independent variables of interest are indicators for conception year relative to a home-state pageant win. The regression uses the full set of controls from equation (4). The sample uses data from birth certificates where the mother was at most 28-years-old. Standard errors are clustered at the state level.

Appendix Table E1: The Relationship between Home-State Pageant Winners and Gestational Weight Gain is Robust to Alternative Specifications
NCHS 1990-2002

	(1)	(2)	(3)	(4)	(5)	(6)
	Other Home-State Performance	Birth Month and Year FE	Excluding State-Specific LTT	Exposure throughout Pregnancy	IHS(Weight Gain)	Weight Gain < 15 Pounds
Home-State Pageant Winner	0.00361*** (0.00129)	0.00313** (0.00141)	0.00317* (0.00166)		-0.00467* (0.00245)	0.00212*** (0.00065)
Home-State Pageant Runner-Up	-0.00078 (0.00101)					
Home-State Pageant 2nd Runner-Up	-0.00101 (0.00244)					
HSPW at Start of 1st Trimester				0.00249* (0.00147)		
HSPW at Start of 2nd Trimester				0.00175** (0.00076)		
HSPW at Start of 3rd Trimester				0.00005 (0.00154)		
HSPW at Birth				0.00001 (0.00146)		
Mean	0.299	0.299	0.299	0.299	31.14	0.089
R^2	0.020	0.020	0.019	0.020	0.019	0.014
Observations	22,270,146	22,270,146	22,270,146	22,270,146	22,270,146	22,270,146

Source: National Center for Health Statistics 1990-2002
Note: The dependent variable in columns 1-4 is an indicator for gaining less than the recommended 25-35 pounds during pregnancy. The dependent variable in column 5 is the inverse hyperbolic sine of pregnancy weight gain, and the dependent variable in column 6 is an indicator for gaining less than 15 pounds during pregnancy. The regressions include the full set of controls from equation (3). whether the respondent resided in the same state as the reigning Miss America or Miss USA. Column 1 also controls for home-state first and second runner-up finishers. Column 2 replaces the conception year and month fixed effects with birth year and month fixed effects. Column 3 drops the state-specific linear time trends. Column 4 allows the relationship to vary throughout gestation by including indicators for having a home-state pageant winner at conception, the start of the second trimester, the start of the third trimester, and at birth. The sample uses data from birth certificates where the mother was at most 28-years-old. Standard errors, shown in parentheses, are clustered at the state level.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$