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

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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

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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 health behaviors by using variation from the Miss America and Miss USA beauty pageants. 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 and fitness portions of the competitions. 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. Importantly, we show that these differences were not attributable to pre-existing trends and were instead unique to the period after the pageant aired. We then 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. Although we find no effects on self-reported weight in either the BRFSS or YRBS, we 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.

The paper proceeds as follows. Section 2 discusses relevant prior literature and describes institutional details of the Miss USA and Miss America 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. Literature Review and Institutional Details

2.1 Literature Review

Our study is related to a literature documenting how media affects economically relevant outcomes.[1] For example, Kearney and Levine (2015), using an instrumental variables strategy based on pre-existing popularity of MTV, find that the show *16 and Pregnant* led to reductions in local teen birth rates and increases in proxies for contraception and abortion, while La Ferrara et al. (2012) demonstrate that Brazilian telenovelas – which disproportionately portray small families – reduce fertility. Regarding violence, Lindo et al. (2020) show that exposure to *The Ultimate Fighter* – a violent show featuring mixed marital arts – reduced violent crime, while Dahl and DellaVigna (2009) find that exposure to violent 'blockbuster' movies from 1995-2004 reduced same-day violent crime. A large body of research shows that televised sporting events affect crime outcomes (see, for example, Card and Dahl 2011). We are aware of only one economics study linking television media to weight-related behaviors. Leveraging variation in the switch to digital television that afforded some regions of the country access to additional channels, Principe and Carrieri (2020) find that food-related television content improved the macronutrient composition of household food baskets in Italy.

An emerging economics literature also explores how social media can drive relative comparisons. Alcott et al. (2020), for example, find that experimentally inducing some individuals to stop using Facebook for four weeks increased self-reported happiness relative to a control group, and Mosquera et al. (2020) find a similar result in a different experiment. Our paper is also broadly related to an economics literature demonstrating that relative socioeconomic position, a type of social comparison, is associated with health and economic outcomes. Eibner and Evans (2005)

[1] For an example of media's causal effects on labor market outcomes, see Kearney and Levine (2019) who use variation in broadcast transmission technology (i.e., UHF vs. VHF) to identify effects of *Sesame Street* at increasing school performance for young boys.

find that relative deprivation – having less income than those in one's surrounding area – is associated with worse self-reported health, higher body mass index, and increased risk of death. Balsa et al. (2014) find that relative deprivation is also significantly related to increased alcohol and tobacco consumption among adolescent males. Pham-Kanter (2009) uses data from the National Social Life, Health, and Aging Project to find that relative deprivation within one's own social network is negatively related to health.

We do not review here a large literature in public health, psychology, and sociology that documents relationships among societal ideals about beauty, body weight, weight perceptions, and adverse health outcomes for girls and young women. Generally, scholars have clearly documented correlations between mass media ideas about thinness with negative weight-related behaviors, as well as correlations between weight misperception and adverse health outcomes/risky health behaviors. There is less attention to these issues from economists, with a few notable exceptions. Perhaps the most closely related study to ours is Arduini et al. (2019), who find that a youth's weight relative to her same-grade peers in a school cohort is related to the onset of purging behavior in the AddHealth data. They posit that the mechanism is interpersonal comparisons: girls who are objectively thin but who are quasi-randomly exposed to thinner peers are more likely to think of themselves as overweight, and this leads to unhealthy weight-related behaviors. Costa-Font and Jofre-Benet (2013) use Eurobarometer data to show that the heavier a woman's peers the less likely she is to be anorexic. Huang et al. (2020) show that children whose relative body weight increased due to moving to an on-average thinner area experienced greater behavioral problems.

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.

2.2 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. Over most of our sample period, the pageant was held 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 fitness/swimsuit, evening gown, interview, and talent competitions over the period we study.

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. It was televised on CBS and NBC over our period and held in February, March, or April from 1991 until 2009. The Miss USA pageant contestants compete in swimsuit, evening gown, and interview competitions, and the winner earns a year-long salary and living expenses. Appendix Figure A1 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 study how home-state pageant performance affected exposure to the pageant-related media and, consequently, thin-ideal imagery. 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.[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 Google Trends data from 2004 to 2010 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. While these data do not reveal *who* is performing the searches, they provide insights into the relative search intensity for various terms.

We explore the relationship between home-state pageant winners and media exposure with the following specification:

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

where the dependent variable, Y_{st}, is either (i) an indicator for whether state *s* had front-page coverage of the pageant in year *t* or (ii) the Google Trends index for the terms 'Miss America' or

[2] Appendix Table A3 lists the newspapers.

'Miss USA' for state *s* during time *t*. The newspaper data are measured at the state-year level, while the Google Trends data are available at the state-by-year-by-month level.

To account for state-level characteristics which may influence health behaviors and are associated with pageant performance, 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, Grossman, and Saffer 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, to account for unchanging local attitudes. We also include a vector, T_t, of location-invariant time fixed effects. 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:

[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.

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

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. Moreover, it allows us to explore 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. 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 more than 4 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 national 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 that focuses on health outcomes and health behaviors. Interviews are performed throughout the calendar year. In addition to questions

[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.

about health, the survey also includes standard demographic characteristics such as age, race/ethnicity, education, and marital status. We focus on young adult 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 young 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 winner during pregnancy.

We consider a range of weight-related outcomes in these data. For adults in the BRFSS we observe self-reported height and weight, whether the respondent reports trying to lose weight, tobacco use, exercise, and dieting behaviors. For the youths in the YRBS we observe whether the respondent engages in several weight-management activities, including exercise, dieting, and purging.[6] In the NCHS Natality Data, we consider mother's weight gain during pregnancy and infant birth weight among teen and pageant-aged mothers.

[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 by the Centers for Disease Control and Prevention to monitor national trends.

Using these data, we study the effect of pageant-generated social comparisons on health behaviors and outcomes by estimating the following model:

$$Y_{ist} = \alpha + \beta \text{Home-State Winner}_{st} + B'_{st}\pi + X'_{ist}\gamma + S_s + T_t + S_s \times \text{TREND} + \varepsilon_{ist} \quad (3)$$

where 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, equation (3) also includes individual-level demographic controls. When analyzing the BRFSS data, the vector X'_{ist} contains 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, we 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.

Our identification assumption is that – after adjusting for our covariates – the weight-related behaviors of young women in states winning national beauty pageants would have evolved

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.

[7] We utilize conception fixed effects to account for the possibility the treatment may affect the length of gestation (Bound et al. 1995; Buckles and Hungerman 2008; Persson and Rossin-Slater 2016; Currie et al. 2020). We show that our estimates are robust to utilizing birth month and birth year fixed effects.

similarly to the behaviors of women in non-winning states. Again, we assess the validity of this assumption using the following specification:

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

where the independent variables of interest are indicators for being *j* periods away from a home-state pageant win. We show in the appendix that the patterns are robust to excluding the state-specific trends.

4. Results

4.1 Pageant Exposure: Newspaper Coverage & Google Search Popularity

Figure 1 Panel A explores whether home-state pageant performance affected pageant-related statewide newspaper coverage. The dependent variable is an indicator for whether the state's newspaper had front-page newspaper coverage of the Miss America or Miss USA beauty pageants during the two days following the competition.[8] The solid black line plots the event study coefficients obtained from equation (2) and the dashed grey lines denote the 95 percent confidence intervals.[9] Prior to the winning, the probability of front-page coverage was near zero and statistically insignificant. Concurrent with a home-state pageant winner, the probability of front-page coverage increased by over 40 percentage points, and the increase faded in the subsequent years.[10]

Although this pattern indicates that home-state pageant winners increased local reporting of the competitions, it does not tell us whether readers absorbed the coverage. Panels B and C of

[8] For example, Appendix Figure B1 shows The Daily Oklahoman's front-page coverage after Shawntel Smith from Muldrow, Oklahoma was crowned Miss America 1996.

[9] Appendix Table B1 presents the results separately for each pageant estimated using equation (1). Consistent with the event study, we find that home-state pageant winners increased pageant coverage. Appendix Table B2 shows that Miss America coverage was driven by a Miss America pageant winner and Miss USA coverage was driven by a Miss USA pageant winner. We do not detect any changes attributable to second of third place finishers.

Figure 1 examine this possibility using Google Trends data. The dependent variable in Panel B is the Google Trends Index for the term 'Miss America' and in Panel C for the term 'Miss USA.' These figures show that the pageant-related search popularity was not differentially trending prior to the pageant date. However, states with home-state pageant winners experienced large spikes in search intensity coincident with the pageant air date. These increases then faded over the subsequent months.[11] We show in Appendix Figure B4 that these patterns remain in models excluding the state-specific linear time trends.

4.2 Effects of Home-State Pageant Wins on Young Adult Women: BRFSS

The prior section showed that people living in states winning national beauty pageants were more aware of the competitions. Because these pageants emphasized thin-ideal imagery, we now use the BRFSS data to explore whether this exposure affected the likelihood that pageant-aged women were attempting to lose weight. The dependent variable in Table 1 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 equation (3) on three different samples shown in the column header: pageant-aged women, pageant-aged men, and older women.

Table 1 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.[12] In contrast, column 2 shows that the estimate

[11] Appendix Table B1 shows that winning states experienced a 3.64 (3.72) point increase in searches for Miss America (Miss USA). We also used the Google Trends data to examine the relationship with weight-related terms, including 'exercise,' 'diet,' 'fat,' 'obese,' and 'skinny.' The results were inconclusive but are reported in Appendix Table B2 for completeness.

[12] Appendix Figure C1 shows that our conclusion is robust to using either randomization inference of coefficients (Buchmueller et al. 2011; Cunningham and Shah 2018) or test statistics (MacKinnon and Webb 2020).

for similarly aged men is negative and statistically insignificant, suggesting that the relationship was not driven by a broader trend in young adult weight loss decisions. Nor does it appear that the relationship was due to an underlying sex-based trend; the point estimate for older women in column 3 is smaller in magnitude, negative, and statistically insignificant. We show in Appendix Table C1 that the relationship is robust to alternative specifications.[13]

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 equation (4). Figure 1 Panel D 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 relating pageant performance to pageant-related media exposure, the increase faded over the subsequent months. We show in Appendix Figure C2 that this pattern is present when using a model excluding the state-specific linear time trends.[14]

4.3 Effects of Home-State Pageant Wins on High School Girls: YRBS

Table 2 examines whether home-state pageant winners affected teen girls' self-image. The dependent variable is constructed via the method used by Jiang et al. (2014) to categorize a teen as having a 'too lenient,' 'accurate,' or 'too harsh' view of her body compared to her underlying

[13] Appendix Table C1 reports the robustness of the relationship to employing year-by-month fixed effects, accounting for additional pageant performance, distinguishing pageants, replacing the state-specific linear time trends with state-by-year fixed effects, and limiting the sample to states ever winning a national beauty pageant. Appendix Table C2 suggests that the increase was driven by heavier women, and Appendix Table C3 fails to detect subsequent changes in BMI.

[14] We also examined how home-state pageant performance affected young women's mental health. Appendix Table C4 suggests that home-state performance resulted in a short-term reduction in self-reported mental health. Appendix Table C5 shows that this relationship was unique to young women, and Appendix Table C6 indicates it was not attributable to a pre-existing trend.

BMI. For example, a teen with a BMI in the recommended region who describes 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 equation (3). Panel A examines teen girls and Panel B teen boys. Table 2 provides suggestive evidence that home-state pageant winners distorted teen girls' self-image. Panel A column 2 indicates that teen girls with home-state pageant winners were 2.6 percentage point less likely to accurately describe their bodies. Instead, Panel A column 3 indicates that these girls were 2.0 percentage points more likely to describe themselves as heavier than their BMI. Panel B shows that this pattern was unique to teen girls.

In Table 3 we explore whether the patterns detected for pageant-aged women in the BRFSS data are also present for adolescent girls in the YRBS. The dependent variables, shown in the column headers, are indicators for whether the girls report engaging in the activity to lose or maintain weight. In column 1, the dependent variable is exercising for weight management, 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 engaged in *any* calorie-limiting weight-loss behavior from columns 2-5.[15] Because we do not know interview date in the YRBS – though we know that most of the surveys are completed in the spring – the independent variable of interest refers to whether the respondent lived in the same state as a reigning beauty pageant winner as of June 1st of the survey year. Panel A examines adolescent

[15] 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 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).

girls and Panel B examines adolescent boys. All columns include the full set of controls from equation (3).

Table 3 provides evidence that high school adolescent girls with home-state pageant winners were more likely to participate in weight management activities. 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).[16] 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 were 1.7 percentage points more likely to report dieting and 1.3 percentage points more likely to report taking diet pills (Panel A) when there was a home state pageant winner, though these estimates are not statistically significant. If we combine these non-exercise weight-loss strategies into a single 'calorie-limiting weight-loss' variable, however, we find that teens with home-state pageant winners were 3.7 percentage points more likely to report utilizing some calorie-limiting weight-loss strategy.[17,18] Appendix Table D1 shows that the relationship is robust to controlling for additional pageant performance, accounting for pageant leads and lags, excluding the state-specific linear time trends, and replacing these trends with Census region-by-year and Census division-by-year fixed effects.

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 beauty-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

[16] Appendix Figure D1 shows that statistical significance is robust to employing randomization inference.

[17] Appendix Table D3 indicates that non-overweight or obese teen girls with home-state pageant winners were more likely to report exercising and dieting to lose weight. In contrast, overweight and obese teen girls with home-state pageant winners were more likely to report risky weight loss strategies, such as consuming diet pills and fasting.

women are barred from competing in Miss America and Miss USA, several papers in medical and public health literature have shown that pregnant women are often particularly concerned about weight gain, especially early in gestation before '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 4, 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.[19,20] Similarly, column 2 indicates that home-state pageant winners reduced gestational weight gain by approximately a tenth of a pound.[21] We do not detect any significant relationship between home-state pageant winners and infant birth outcomes in columns 3 or 4.[22] While modest in size, the estimates in Table 4 provide further evidence that the shock to beauty norms induced by home-state pageant winners helped shape the expectations and preferences of teen girls and young women.

[19] 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).

[20] Appendix Figure E1 plots the event study coefficients from equation (4). 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.

[21] 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, and excluding the state-specific linear time trends. Consistent with the public health literature, we 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. The relationship is also robust to replacing the dependent variable with the inverse hyperbolic sine of pregnancy weight gain or instead using an indicator for gaining less than 15 pounds during pregnancy.

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 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 2.2 percentage points more likely to report that they were trying to lose weight. In the YRBS data, we show that teen girls were 2.6 percentage points 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 3.4 percentage points more likely to report exercising to lose or maintain their weight and 3.7 percentage points more likely to report calorie-limiting behaviors. Finally, using the NCHS Natality Data, we find that pregnant women were 0.3 percentage points less likely to have adequate weight gain. Throughout all these data sets and sample periods, we do not detect any changes 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. 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 speak directly to the consequences of prolonged and repeated exposure to thin-ideal imagery. Because policymakers are increasingly interested in how social media and targeted advertising affect adolescents, this 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.

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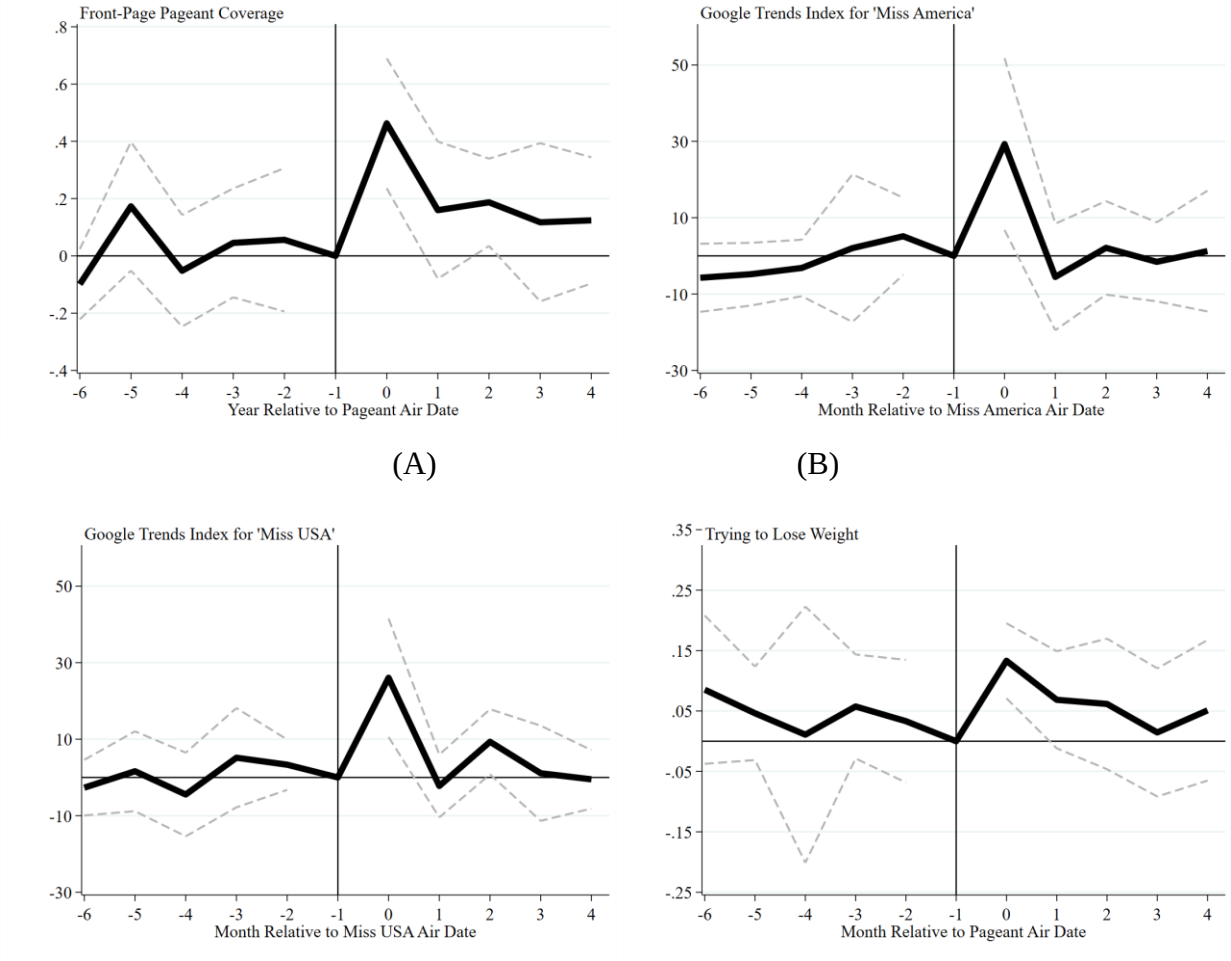
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Figure 1: Home-State Pageant Winners Increased Pageant Exposure and the Likelihood that Pageant-Aged Women Were Trying to Lose Weight



Source: Newspapers.com archives of newspapers from 1990-2000; Google Trends 2004-2010; Behavioral Risk Factor Surveillance System 1991-2003, 2005.

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 dependent variable in Panel (D) 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 regressions in Panels (A), (B), and (C) include the full set of controls from equation (2). The regression in Panel (D) includes the full set of controls from equation (4) and the sample is 18-28-year-old females. The estimates in Panel (D) utilize the sample weights.

Table 1: 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)
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 2: 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	-0.026*	0.020
Pageant Winner	(0.014)	(0.014)	(0.016)
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	0.012	0.006	-0.017
Pageant Winner	(0.025)	(0.019)	(0.015)
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 (as of June 1st of that year). 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 3: Teen Girls from States Winning National Beauty Pageants Were More Likely to Employ Weight-Loss Strategies YRBS 1991-2009

	(1)	(2)	(3)	(4)	(5)	(6)
Outcome →	Exercised	Dieted	Diet Pills	Vomited	Fasted	Any Calorie-Limiting Strategy from Columns 2-5
Panel A: Teen Girls						
Home-State	0.034***	0.017	0.013	0.001	0.006	0.037**
Pageant Winner	(0.012)	(0.019)	(0.011)	(0.009)	(0.010)	(0.018)
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	-0.016	-0.011	0.004	0.003	0.006	-0.010
Pageant Winner	(0.011)	(0.010)	(0.006)	(0.004)	(0.009)	(0.013)
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 (as of June 1st of that year). 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 4: Pregnant Women with Home-State Pageant Winners Gained Less Weight During Pregnancy NCHS 1990-2002

	(1)	(2)	(3)	(4)
Outcome →	Inadequate Pregnancy Weight Gain	Weight Gain	Low Birth Weight	Birth Weight
Home-State Pageant Winner	0.00369***	-0.09881**	-0.00042	0.42119
	(0.00130)	(0.03783)	(0.00074)	(1.57617)
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.

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

Appendix A: Additional Figures and Tables

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

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

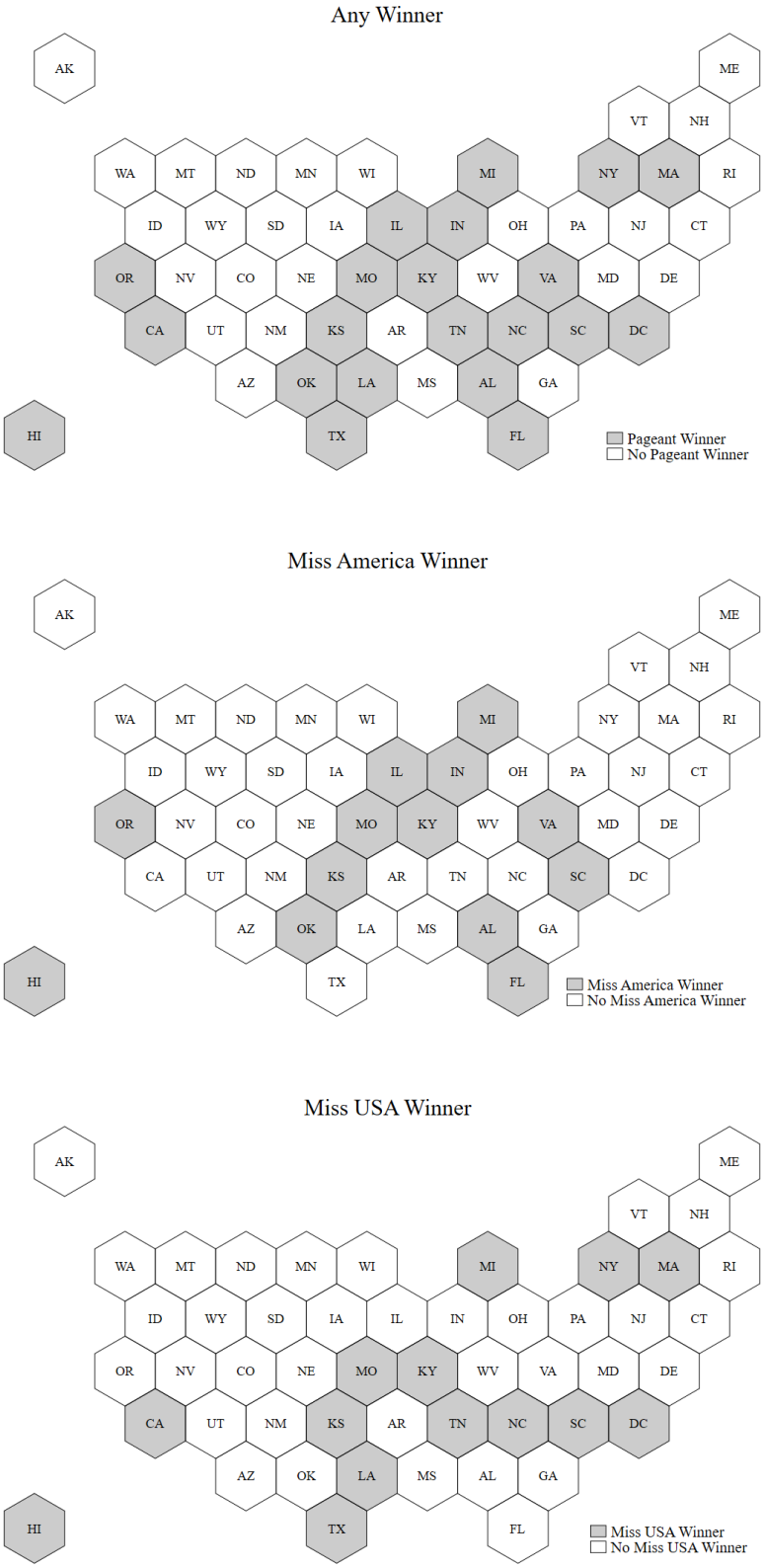
Appendix Table A2: Miss USA Pageant Winners, 1990-2010

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

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 Figure A1: States winning Miss America and Miss USA, 1991-2009



Appendix B: Pageant Exposure

Table B1 explores 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. For example, Appendix Figure B1 shows The Daily Oklahoman's front-page coverage after Shawntel Smith from Muldrow, Oklahoma was crowned Miss America 1996. Meanwhile, the dependent variable in column 3 is the Google Trends index capturing the relative search popularity for the term 'Miss America,' while the dependent variable in column 4 is the Google Trends index for 'Miss USA.'

Appendix Table B1: Home-State Winners Increased Pageant-Related Exposure Newspaper Archives 1990-2000, Google Trends 2004-2010

	(1)	(2)	(3)	(4)
Outcome →	Front-Page Coverage of Miss America	Front-Page Coverage of Miss USA	Google Trends Index for 'Miss America'	Google Trends Index for 'Miss USA
Home-State Pageant Winner	0.273***	0.371***	3.636**	3.720***
	(0.108)	(0.109)	(1.756)	(0.848)
Mean of Outcome	0.261	0.055	17.536	15.242
R^2	0.512	0.445	0.310	0.201
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.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Appendix Figure B1: Example of Front-Page Pageant Coverage



THE DAILY OKLAHOMAN

The State Newspaper Since 1907

OKLAHOMA CITY, OK — MONDAY, SEPTEMBER 18, 1995 — 50¢

City Leaders Push for Special Bond Issue for Streets, Parks

By Jack Money
Staff Writer

People who consider the progress of Metropolitan Area Projects (MAPS) might believe that Oklahoma City hasn't accomplished much.

But city officials disagree. They are hopeful that enough dirt will be flying on the MAPS project involving the downtown baseball stadium and canal to convince residents to approve the sale of bonds for more improvements citywide.

The city has until Oct. 12 to set an election date for a mammoth $369 million bond proposal that would fund repairs to streets, bridges, drainage systems and parks.

The city has routinely handled similar proposals before.

The most recent bond issue passed by residents was one in 1989 for $153.7 million to build new streets, bridges, intersections and drainage systems.

Most of that work has been completed, although a few of the MAPS individual projects are still in the design phase.

Oklahoma City Councilman Mark Schwartz said voters need to be aware of the work that has been done with that bond issue, as well as with earlier ones.

"Voters need to recognize the fact that projects approved by them in 1989 have been completed," he said. "They can look at the list of projects and go see that they have been done."

The city could wait to try the bond issue proposal until construction on the MAPS projects is well under way.

But if officials do wait, they will be asking residents to increase their property taxes, because the amount of property tax charged to pay off the city's bonded indebtedness would start dropping dramatically if no new bonds were voted.

City Manager Don Bown said passing the bond issue proposal in December would be preferable, because residents might be less likely to approve tax increases as opposed to approving bond issues that would keep their property rates steady.

See BOND, Page 2

Oklahoma City's Tax Levy Authorized Bonds

Crown Iced Miss America's Birthday Cake

Photos, Limo Ride Smith's First Duties

By Penny Owen
Staff Writer

Shawntel Smith woke up Sunday morning and eyed the magnificent Atlantic City hotel suite surrounding her.

An hour's sleep wasn't enough for the crowning concept to sink in.

"I'm still a little in shock. I didn't really expect to win Miss America," she told *The Oklahoman*. "Then I went over and got my crown and looked at it. And it's just beautiful."

For the Muldrow, OK, native — and first redhead to wear the beauty crown in 51 years — reality then hit: "Isn't it wonderful?"

Saturday night, Smith became the fourth Miss Oklahoma to win the coveted national title, and she garnered the crown on her 24th birthday.

It was a marked year for both the pageant, which celebrated its 75th anniversary, and Oklahoma, which was the site of the worst domestic terrorist bombing in U.S. history.

Smith seized her high visibility to thank the nation for their support of Oklahoma in the aftermath of the April 19 bombing of the Alfred P. Murrah Federal Building.

But she dismissed the idea that her winning the title had anything to do with national sympathy toward Oklahoma.

"I am so proud I have the opportunity to tell people thank you, but this program is not judged on that," Smith told *The Oklahoman*. "I sure don't want Oklahoma to think that."

Smith said winning is based solely on a contestant's personal attributes and how she performs in such areas as the swimsuit, personal interview and talent competitions.

"While I was up there, the press did not ask me one question about the Oklahoma City bombing."

See CROWN, Page 9

Miss America Shawntel Smith continues the traditional morning-after-pageant photo session by leaping into the air Sunday on a beach in Atlantic City, N.J. Smith, who represented Oklahoma in the 75th annual contest, posed for the photos despite driving wind and rain. — AP Photo

Serbs Get More Time For Pullout

SARAJEVO, Bosnia-Herzegovina (Reuter) — NATO and U.N. commanders late Sunday gave Bosnian Serbs another 72 hours to complete the pullout of their heavy weapons from around Sarajevo after the Serbs showed initial compliance.

The Serbs had promised to meet the Sunday night deadline for removing their siege guns under threat of renewed NATO attack, admitting catastrophic losses in northwest and central Bosnia.

The commander of the besieging forces around Sarajevo, Gen. Dragomir Milosevic, said an agreement to end hostilities would be signed by the end of the new NATO-U.N. deadline.

"When the 144th hour is over, everything will be fulfilled, and we expect that, in the meantime, that is by the end of the sixth day, a cessation of hostilities agreement will be signed," he said.

Milosevic said his forces already had withdrawn about 80 percent of their artillery and tanks ringing the city.

In Washington, President Clinton said he was pleased that the Bosnian Serbs were moving their weapons away but added that the weapons must be completely moved or new air strikes would be launched.

A White House spokesman told reporters less than an hour after the deadline had passed that the extension of the bombing pause was "the correct course. ... (Clinton) is pleased significant numbers of Bosnian Serb heavy weapons are being moved out."

"The president underlined our expectation that we expect all of the Bosnian Serb heavy weapons within the exclusion zone to be moved out by the end of the 72-hour period, which began this afternoon," spokesman David Johnson said.

"I think the president made it very clear Friday if there is not full movement out ... then we would recommence bombing," Johnson said when asked what would happen if the deadline were not met.

In Naples, the commander of NATO's Allied Forces Southern Europe, Adm. Leighton Smith, said the Bosnian Serbs had made a substantial start toward removing their siege guns from Sarajevo.

"It is our common judgment that the Bosnian Serbs have shown a substantial start toward withdrawing their heavy weapons beyond the limits of the exclusion zone," the admiral said in a statement.

"The additional 72 hours will permit the Bosnian Serbs to completely relocate the heavy weapons beyond the limits of the Sarajevo total exclusion zone," Smith said in his statement.

"It must be completely understood that the Bosnian Serbs must fully respect their commitments during this additional 72-hour pause, or the air strikes will resume."

In Belgrade, British Foreign Secretary Malcolm Rifkind said former Yugoslavia faced a historic chance to end its war by Christmas.

"I believe we have an opportunity for the present time of peace in Bosnia which is better than we have had for a very long time," he said after discussions with Serbian President Slobodan Milosevic on Sunday.

Hours before the extension was granted, U.N. officials monitoring the Sarajevo pullback estimated that between 200 and 220 big guns had to be withdrawn, and only 71 had been removed from the 12.4-mile heavy weapons exclusion zone.

Reporters saw 105 mm howitzers, 120 mm mortars, 128 mm multiple-rocket launchers and tanks being withdrawn from Krupac, eight

See SERBS, Page 2

Muldrow Proud of Hometown Girl's Win

By Jim Killackey
Staff Writer

MULDROW — Installed at several entrances to this eastern Oklahoma community of 3,000 residents only two weeks ago, the blue-and-white signs declaring "Welcome to Muldrow, Home of Miss Oklahoma: Shawntel Smith" became obsolete in a hurry.

And Muldrow Mayor Dave Morgan couldn't be more ecstatic.

He's already ordering newer, bigger signs with this message for the whole country to see — "Welcome to Muldrow, Home of *Miss America* Shawntel Smith!"

"We jumped up and yelled. It was sheer excitement," Morgan, 64, recalled Sunday of the moment that Smith won the 1996 Miss America title Saturday night in Atlantic City, N.J.

The city was buzzing Sunday after a night of watch parties.

The mayor's home telephone started ringing immediately after Smith received the title, and it didn't stop all day. A dispatcher with the Muldrow Police Department said Sunday he was swamped with media inquiries.

Long-time Muldrow school Superintendent Roger Sharp said Smith's victory "is such a big deal here."

"We knew Shawntel was destined for stardom. She has the looks, the intelligence and the talent. But when they called out her name on Saturday night, it was still a shock," Sharp said.

Sharp coached Smith's softball team for three or four years when she was a teenager. Not only was she a good outfielder, he said, "She was a good person, with an unblemished character and high morals. She's what you hoped your daughter would be.

"Shawntel is a young lady deserving of the title. She'll represent America with pride, dignity and honor befitting her new position," Sharp said.

Located on Interstate 40 about 12 miles from the Ar-

See MULDROW, Page 9

Crowning Achievements

- Mrs. America Judges Pick Edmond Woman

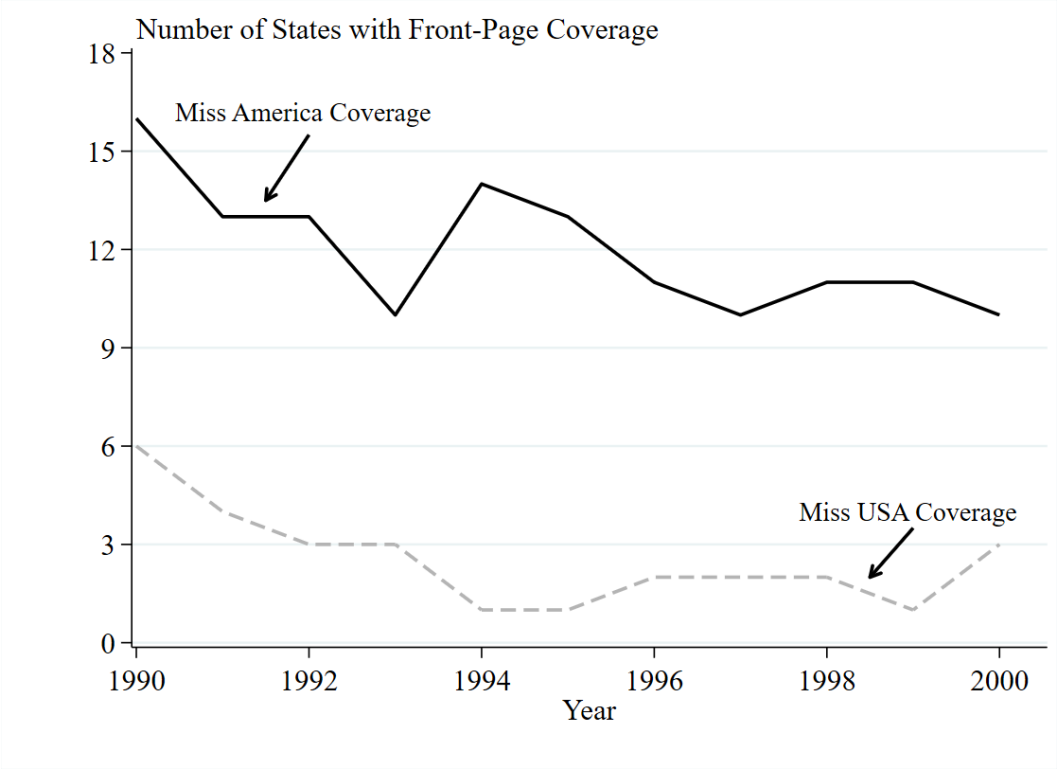
— Page 9

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

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. These increases are very large relative to the sample means. Appendix Figure B2 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 these patterns 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 3.64 (3.72) point increase – or a 20.7 (24.4) percent increase relative to the sample mean – in searches for Miss America (Miss USA).

Appendix Figure B2: 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.

In Appendix Table B2 we separate out the independent variable into distinct indicators for winning Miss America or Miss USA. The dependent variable in column 1 is an indicator for whether the state newspaper had front-page coverage of the Miss America pageant and in column 2 an indicator for whether the paper had front-page coverage of the Miss USA pageant. Reassuringly, we show that the increased coverage of Miss America was entirely attributable to states winning Miss America, and the increased coverage of Miss USA was due to states winning

Miss USA. Moreover, we do not detect a statistically significant relationship for first and second runner-up states. We then show in Appendix Table B3 that home-state pageant performance was not associated with changes in other weight-related search terms, such as ‘exercise,’ ‘diet,’ and ‘skinny.’ Finally, we show in Appendix Figure B4 that the event study estimates are robust to excluding the state-specific linear time trends. Specifically, there is no evidence that front-page newspaper coverage (Panel A) or Google search behaviors (Panels B and C) were differentially trending in winning states prior to the competition. However, we document a spike immediately after the pageant aired.

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)
Mean		
R^2	0.545	0.526
Observations	506	506

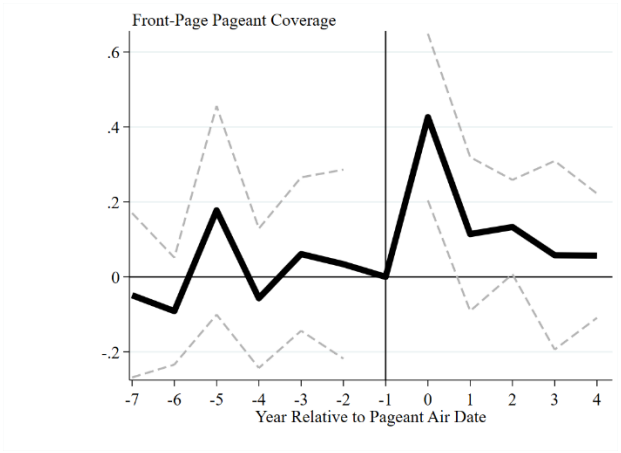
Source: Newspapers.com archives of newspapers from 1990-2000.
Note: The dependent variable in column 1 is an indicator for whether the largest available state-specific newspaper had front-page coverage of the Miss America pageant during the two days following the competition, while the dependent variable 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.

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

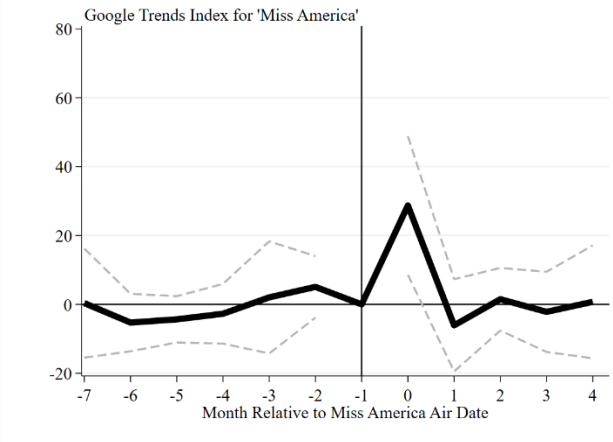
	(1)	(2)	(3)	(4)	(5)
Outcome →	Exercise	Diet	Fat	Obese	Skinny
Home-State	1.333	-1.100	-0.058	2.057	-0.874
Pageant Winner	(1.237)	(0.996)	(1.262)	(1.738)	(1.950)
Mean	55.938	52.456	69.875	29.522	46.780
R^2	0.579	0.662	0.537	0.348	0.642
Observations	4,284	4,284	4,284	4,284	4,284

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,' and in column 5 the term 'skinny.' 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.

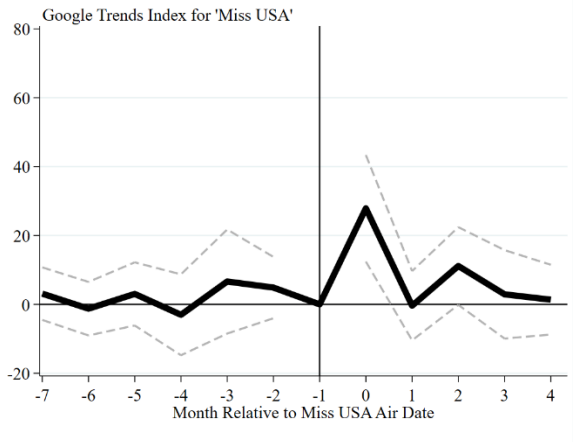
Appendix Figure B4: Home-State Pageant Winners Increased Pageant Exposure in Models Excluding State-Specific Linear Time Trends



(A)



(B)



(C)

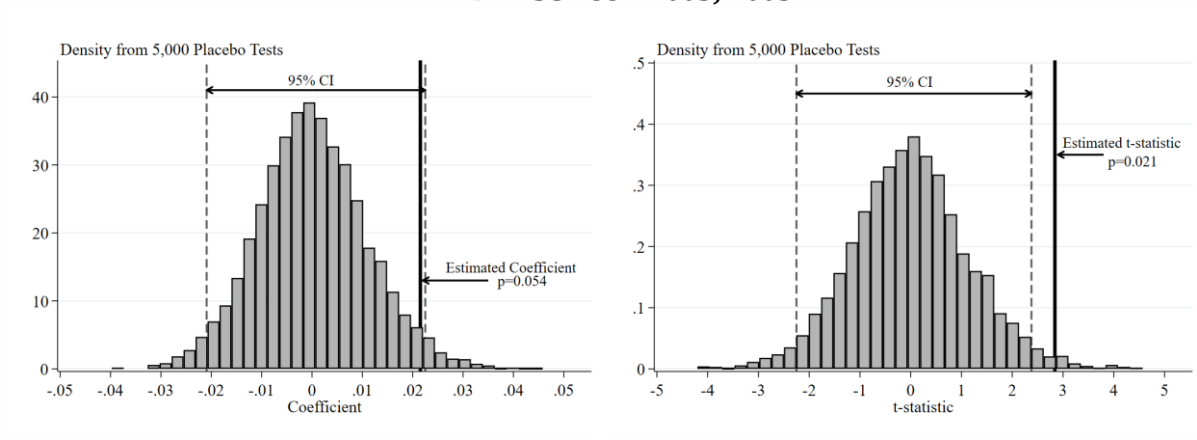
Source: Newspapers.com archives of newspapers from 1990-2000; Google Trends 2004-2010
Note: The dependent variable in Panel (A) is an indicator for whether the state newspaper had front-page coverage of the Miss America or Miss USA in a given year. The dependent variable in Panel (B) is Google Trends 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 C: BRFSS Estimates

To increase confidence that the estimated increase in the likelihood that pageant-aged women were trying to lose weight using the BRFSS data is not merely a spurious relationship, we randomly assigned home-state winners for each year of the Miss America and Miss USA pageants 5,000 times and re-estimated equation (3). We then compared the coefficient we obtained for pageant-aged women using actual home-state performance (Table 2 column 1) to the distribution of placebo coefficients (Buchmueller et al. 2011; Cunningham and Shah 2018). Because randomization inference using coefficients can under- or over-reject the null hypothesis depending on the size of the treated clusters, we also adopt a more conservative approach comparing the estimated cluster-robust t-statistic to the distribution of placebo statistics (MacKinnon and Webb 2020). While these are demanding tests for statistical significance, Figure C1 indicates that the relationship between home-state pageant performance and the likelihood of trying to lose weight was unlikely to have been obtained from chance. Panel A shows that the actual coefficient was larger in magnitude than most of the placebo coefficients ($p^{\beta}=0.054$). Similarly, Panel B shows that the cluster robust t-statistic estimated using actual pageant performance was larger than the placebo statistics ($p^{t}=0.021$).

Next, Appendix Table C1 tests the robustness of the result to alternative specifications. Column 1 alters utilizes more flexible year-by-month fixed effects, and column 2 augments our preferred specification with indicators for whether there was a home-state runner-up or a home-state second runner-up. In both cases, we estimate a statistically significant 2.2 percentage point increase from home-state pageant performance, while runner-up performance is not statistically related to weight loss intentions. Column 3 separately considers the Miss America and Miss USA pageant; we estimate a 2.6 (1.6) percentage point increase in the likelihood of trying to lose weight

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.

when residing in the state as the reigning Miss America (Miss USA). Column 4 replaces our state-specific linear time trends with state-by-year fixed effects.[23] We continue to estimate a 1.9 percentage point increase in the probability of trying to lose weight, though the relationship is less precisely estimated. Column 5 estimates the preferred specification but limits the sample to women from states which ever won a national beauty contest. Again, we estimate a statistically significant 2.0 percentage point increase in the likelihood that women with home-state pageant winners reported trying to lose weight. Similarly, Appendix Figure C2 shows that the event study patterns are robust to excluding the state-specific linear time trends (Panel A) or replacing those trends with state-by-year fixed effects (Panel B).

[23] Note that a pageant queen's tenure does not necessarily coincide with a calendar year. Because the pageants occur mid-year – and we know the exact interview date in the BRFSS – we can include state-by-year fixed effects.

Appendix Table C2 shows suggestive evidence that home-state pageant performance increased the likelihood that overweight and obese women – whose BMI is furthest away from that of a typical pageant winner – were trying to lose weight. However, the estimate is not statistically significant at conventional levels (p=0.118). In contrast, the point estimates for

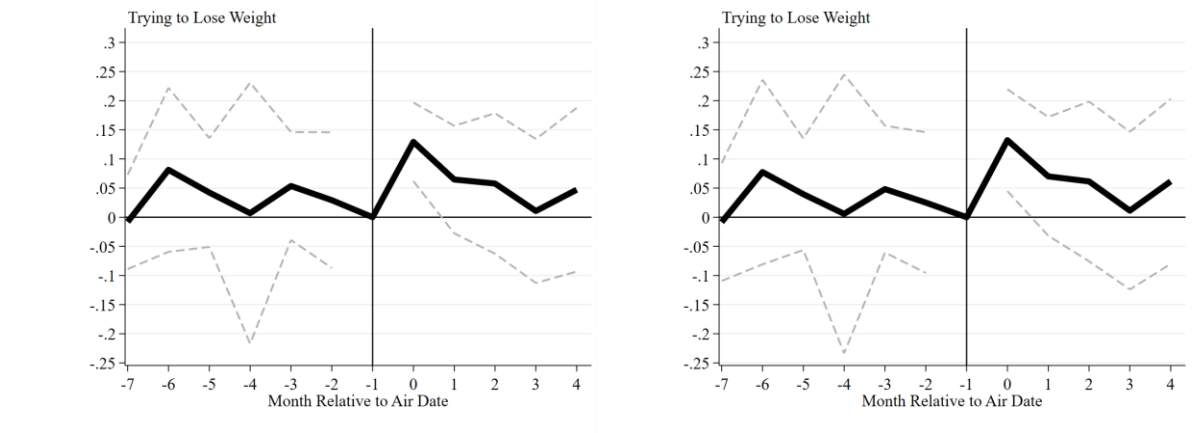
Appendix Table C1: The Home-State Pageant Winner-Weight Loss Relationship is Robust to Alternative Specifications BRFSS 1991-2003, 2005

	(1)	(2)	(3)	(4)	(5)
Specification →	Year-by-Month Fixed Effects	Additional Pageant Placements	Distinguishing Pageants	State-by-Year Fixed Effects	Limiting Sample to Ever Treated States
Home-State Pageant Winner	0.022***	0.022***		0.019	0.020**
	(0.008)	(0.008)		(0.021)	(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	0.021	0.016
Observations	94,271	94,271	94,271	94,271	44,134
State, Month, and Year FE?		Y	Y	Y	Y
State-Specific LTT?	Y	Y	Y		Y
State and Year-by-Month FE?	Y				
State-by-Year FE?				Y	

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, column 4 includes state-by-year fixed effects, and column 5 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.

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 C2: 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 ≤ BMI < 25	Women 18-28 BMI ≥ 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.

underweight women and those in the recommended CDC range were 60 to 90 percent smaller, sometimes wrong signed, and statistically insignificant. Appendix Table C3 finds no meaningful

relationship between home-state pageant performance and the likelihood that women were classified as 'underweight,' within the 'recommended' range, or 'overweight/obese.'

Appendix Table C3: 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 Pageant Winner	-0.003	-0.004	0.007
	(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.

Given increased interest in how media-driven thin-ideal imagery might affect young women's mental health (Stice 1994; Field 2008; Tiggemann and Slater 2013), Appendix Table C4 4 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. The independent variable of interest in column 1 is an indicator for whether the respondent resided in the same state as the reigning Miss America or Miss USA, and while the estimate suggests a 3.7 percent increase in the number of poor mental health days, it is not statistically significant. However, informed by the pattern in Figure 7, column 2 redefines treatment as an indicator for being within 30 days of a home-state pageant win. Here we find a 17 percent increase in the number of poor mental health days immediately after the pageant aired, and

columns 3 and 4 indicate that this relationship faded out over time. Appendix Table C5 shows that this pattern is unique to pageant-aged women.[24]

Appendix Table C4: 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 within Last 30 Days		0.170***		
		(0.055)		
Home-State Pageant Winner within Last 60 Days			0.077	
			(0.058)	
Home-State Pageant Winner within Last 90 Days				0.069
				(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.

[24] Appendix Table C6 replicates the structure of Appendix Table C4 but instead explores how pageant-performance affected the mental health of young women interviewed *prior* to the pageants' air date. Reassuringly, the relationship was unique to the period immediately after the competition aired.

Appendix Table C5: Home-State Pageant Performance Was Unrelated to the Mental Health of Young Men and Older Women
BRFSS 1991-2003, 2005

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Sample →	Men 18-28	Men 18-28	Men 18-28	Men 18-28	Women 54-64	Women 54-64	Women 54-64	Women 54-64
Home-State Pageant Winner	-0.022				0.010			
	(0.014)				(0.018)			
Home-State Pageant Winner within Last 30 Days		0.110				-0.143*		
		(0.089)				(0.085)		
Home-State Pageant Winner within Last 60 Days			0.032				-0.072	
			(0.056)				(0.059)	
Home-State Pageant Winner within Last 90 Days				0.030				-0.057
				(0.064)				(0.037)
Mean	3.199	3.199	3.199	3.199				
R^2	0.023	0.023	0.023	0.023	0.035	0.035	0.035	0.035
Observations	174,983	174,983	174,983	174,983	421,563	421,563	421,563	421,563

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 columns 1 and 5 is an indicator for whether the respondent resided in the same state as the reigning Miss America or Miss USA. The independent variable in columns 2 and 6 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 columns 3 and 7 the first 60 days, and in columns 4 and 8 the first 90 days. The sample in columns 1-4 is pageant-aged men, while the sample in columns 5-8 is older women. 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

Appendix Table C6: Future Home-State Pageant Performance Was Unrelated to Young Women's Mental Health
BRFSS 1991-2003, 2005

	(1)	(2)	(3)	(4)
Outcome →	IHS(Poor Mental Health Days)			
Home-State Pageant Winner Next Year	0.012			
	(0.028)			
Home-State Pageant Winner in the Next 30 Days		-0.015		
		(0.046)		
Home-State Pageant Winner in the Next 60 Days			-0.029	
			(0.038)	
Home-State Pageant Winner in the Next 90 Days				0.035
				(0.044)
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

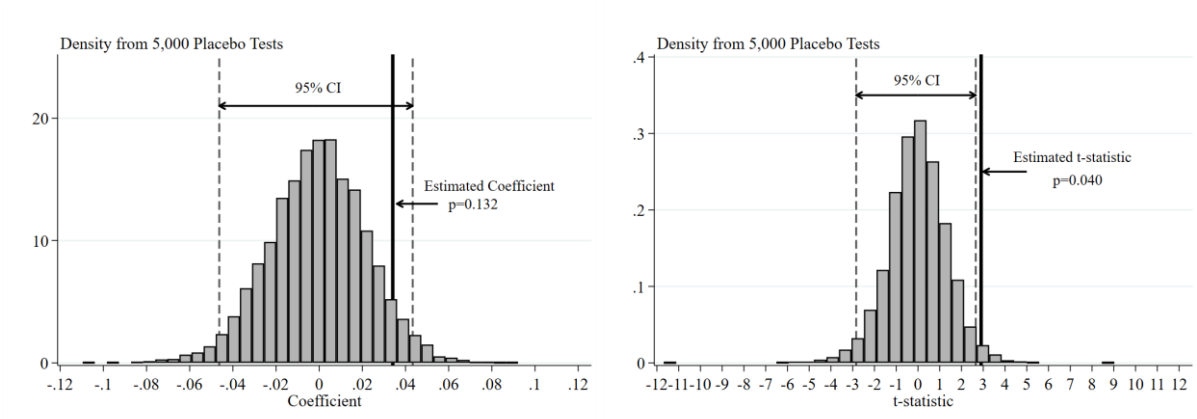
Note: The dependent variable is the inverse hyperbolic sine of the number of reported poor mental health days. The independent variable in column 1 is an indicator for whether the respondent resided in the same state as the reigning Miss America or Miss USA. The independent variable in column 2 is an 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

In Figure D1 we employ randomization inference to improve confidence that we are detecting a statistically meaningful relationship between home-state pageant performance and the likelihood that teen girls reported exercising to lose weight. Figure D1 plots the placebo distributions of coefficients (Buchmueller et al. 2011; Cunningham and Shah 2018) and cluster robust t-statistics (MacKinnon and Webb 2020) obtained by randomly assigning treatment status for each year of our sample, estimating equation (3), and repeating this procedure 5,000 times. While these are demanding tests for statistical inference, Panel A shows that the coefficient obtained using actual pageant performance was larger than most of the placebo values (p^{β}=0.132). Meanwhile, Panel B provides stronger evidence that the estimated relationship was unlikely to have been obtained from chance (p^{t}=0.040).

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.

Next, Table D1 explores the robustness of the relationship to alternative specifications. Column 1 augments the specification from equation (3) with additional indicators for whether the respondent resided in the same state as a pageant runner-up or second runner-up. Because we do states enter and exit the YRBS – as shown in Appendix Table D2 – 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. Instead, column 2 includes additional indicators for (i) whether the respondent resided in a state which will win a beauty pageant in the next year or two years later and (ii) whether the respondent lived in a state which won a beauty contest during the prior two years. Column 3 excludes the state-specific linear time trends, column 4 replace these trends Census region-by-year fixed effects, and column 5 replaces the trends with Census division-by-year fixed effects, respectively.

Consistent with the prior evidence, column 1 shows that the increase in the likelihood that teen girls report exercising for weight management is unique to a home-state pageant win: the estimates for home-state runner-up and home-state second runner-up are smaller in magnitude and not statistically significant. Nor is there any evidence in column 2 that home-state pageant performance affected teen girls' propensity for exercise *prior* to when the pageant occurred or that the increase persisted beyond the time that these girls would have experienced the strongest shock to the salience of thin-ideal imagery. Column 3 shows that the result is robust to excluding the inclusion of state-specific trends, while column 4 indicates that the relationship is robust to instead measuring time-varying spatial heterogeneity with census region-by-year fixed effects. Finally, column 5 continues to find that home-state pageant winners increased the probability that teen girls were exercising to lose weight by 2.4 percentage points after including census division-by-year fixed effects.

Appendix Table D1: Home State Pageant Performance and the Likelihood that Teen Girls Exercised for Weight Management is Robust to Alternative Specifications
YRBS 1991-2009

	(1)	(2)	(3)	(4)	(5)
Specification →	Additional Pageant Performance	Pageant Leads and Lags	Excluding State-Specific LTT	Replace State-Specific LTT w/ Census Region-by-Year FE	Replace State-Specific LTT with Census Division-by-Year FE
Home-State Pageant Winner	0.033***	0.038***	0.035***	0.034**	0.024*
	(0.012)	(0.012)	(0.012)	(0.015)	(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.

Appendix Table D2: 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 D3: Non-Overweight Teen Girls from States Winning National Beauty Pageants Were More Likely to Report Exercising and Dieting
YRBS 1991-2009

	(1)	(2)	(3)	(4)	(5)	(6)
Outcome →	Exercised	Dieted	Diet Pills	Vomited	Fasted	Any Calorie-Limiting Strategy from Columns 2-5
Panel A: Not Overweight or Obese						
Home-State	0.074***	0.060***	0.004	-0.014	0.008	0.062***
Pageant Winner	(0.022)	(0.021)	(0.015)	(0.013)	(0.012)	(0.020)
Mean	0.652	0.511	0.078	0.062	0.155	0.540
R^2	0.044	0.046	0.026	0.014	0.018	0.043
Observations	29,670	29,592	29,540	29,642	29,321	29,076
Panel B: Overweight or Obese						
Home-State	-0.014	-0.027	0.053**	0.038*	-0.023	-0.027
Pageant Winner	(0.035)	(0.031)	(0.021)	(0.021)	(0.029)	(0.027)
Mean	0.779	0.703	0.144	0.087	0.227	0.751
R^2	0.050	0.054	0.032	0.052	0.025	0.044
Observations	10,924	10,873	10,874	10,889	10,782	10,689

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 (as of June 1st of that year). The regressions include the full set of controls from equation (3). Panel A examines adolescent girls who were not overweight or obese, while Panel B examines adolescent girls who were overweight or obese. 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 stratifies the sample by whether the teen girl was classified as overweight or obese. Panel A shows that non-overweight or obese adolescent girls with home-state pageant winners were more likely to engage in weight loss activities. Column 1 shows that these girls were 7.4 percentage points more likely to report exercising, and column 2 indicates that they were 6.0 percentage points more likely to report dieting. In contrast, Panel B – which examines overweight and obese girls – does not document any relationship between home-state pageant wins and these outcomes. However, columns 3 and 4 indicate that heavier teen girls were more likely to report risky weight loss activities, such as consuming diet pills and fasting. One explanation is that over 70 percent of these latter girls were already dieting compared to 'only' 50 percent of non-overweight or obese girls. As a result, there was a smaller margin of adjustment for this outcome, leading these girls to engage in riskier weight loss activities.

Although the YRBS does not include questions about self-rated mental health, Appendix Table D4 examines whether home-state pageant performance affected the likelihood that teen girls reported that they had considered or attempted suicide. While the estimates are imprecisely estimated, we do not detect any discernable change.

Appendix Table D4: 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

Appendix E: Natality Estimates

In Appendix Table E1 we test the robustness of the relationship between home-state pageant performance and the likelihood that young mothers had inadequate gestational weight gain. First, column 1 shows that the relationship was unique to home-state pageant winners; consistent with the prior datasets, we do not detect any change in weight-related behaviors attributable to home-state first or second runner-up finishers. Next, column 2 shows that the pattern is robust to replacing the conception year and month fixed effects (Persson and Rossin-Slater 2018) with birth year and month fixed effects. Column 3 shows that the result is also robust to excluding the state-specific linear time trends. Next, we explore how the relationship may have varied throughout gestation by replacing the independent variable with indicators for having a home-state pageant winner at conception, the start of the second trimester, the start of the third trimester, and birth. We find that home-state pageant winners were more likely to affect weight gain when pageant-related exposure occurred earlier in pregnancy. One explanation for this finding is that being exposed to thin-ideal imagery earlier in pregnancy presents women with a longer opportunity to make weight-related decisions. Moreover, prior research has documented that weight-related concerns are especially salient earlier in pregnancy (Nash 2012; Hodgkinson et al. 2014; Waston et al. 2016; Andrew et al. 2018).

The final two columns show that the result is robust to replacing the dependent variable with alternative measures of 'inadequate weight gain' – the inverse hyperbolic sine of pregnancy weight gain and an indicator for gaining fewer than 15 pounds.[25] Column 5 shows that home-state pageant winners were associated with a reduction in a continuous measure of pregnancy weight gain. Column 6 shows that women with home-state pageant winners and were 2.4 percent more

[25] During the sample period of interest, all women were recommended to gain at least 15 pounds during pregnancy, regardless of their pre-pregnancy BMIs (Rasmussen et al. 2009).

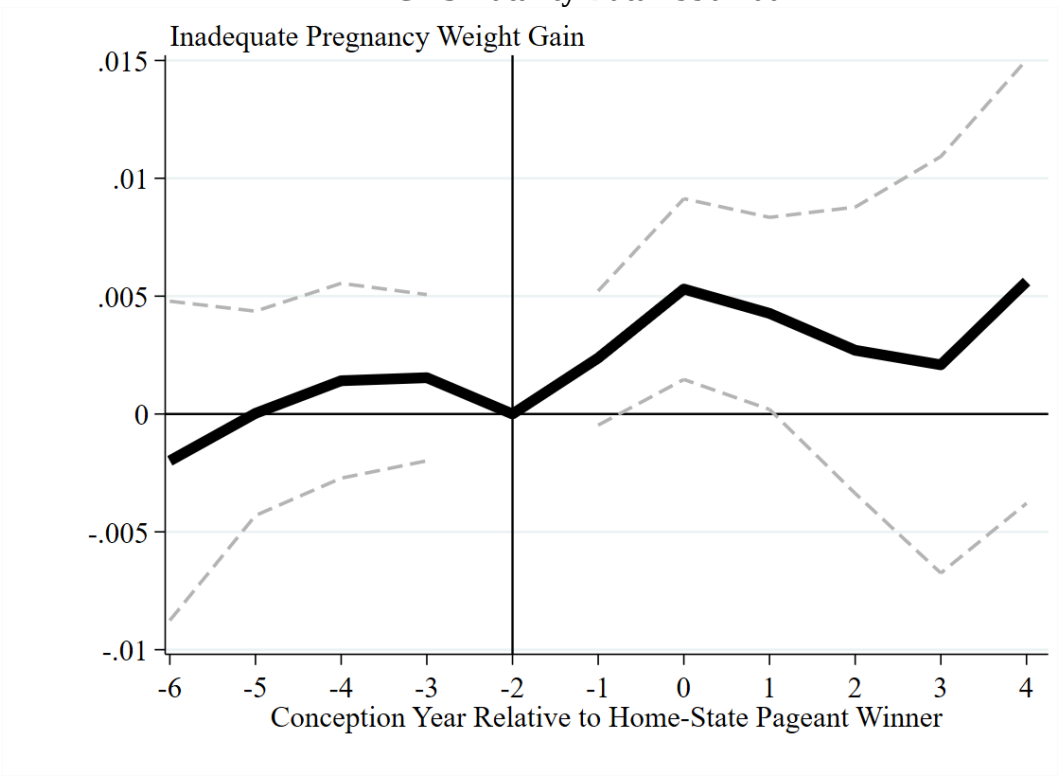
likely to have gained less than 15 pounds relative to the sample mean. Finally, Appendix Figure E1 shows that the positive relationship between home-state pageant performance and inadequate pregnancy weight gain only existed for women potentially exposed to pageant-related media while they had children in-utero.

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***	0.00313**	0.00317*		-0.00467*	0.00212***
	(0.00129)	(0.00141)	(0.00166)		(0.00245)	(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. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

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.