

The Role of Celebrity Endorsements in Politics: Oprah, Obama, and the 2008 Democratic Primary

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Abstract

Candidates in major political contests are commonly endorsed by other politicians, interest groups and celebrities. Prior to the 2008 Democratic Presidential Primary, Barack Obama was endorsed by Oprah Winfrey, a celebrity with a proven track record of influencing her fans' commercial decisions. In this paper, we use geographic differences in subscriptions to *O! – The Oprah Magazine* and the sale of books Winfrey recommended as part of *Oprah's Book Club* to assess whether her endorsement affected the Primary outcomes. We find her endorsement had a positive effect on the votes Obama received, increased the overall voter participation rate, and increased the number of contributions received by Obama. No connection is found between the measures of Oprah's influence and Obama's success in previous elections, nor with underlying local political preferences. Our results suggest that Winfrey's endorsement was responsible for approximately 1,000,000 additional votes for Obama.

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INTRODUCTION

Political endorsements have a long and rich history in American politics. Endorsements by politicians and interest groups, such as labor unions, business organizations and special interest groups date back to the early 20th Century. Celebrity endorsements have a tradition nearly as long. Historians trace the role of celebrities in politics to the 1920 presidential campaign of Warren Harding, who was endorsed by numerous film stars, including Al Jolson, Lillian Russell, Douglas Fairbanks and Mary Pickford (Morello, 2001). Many presidential campaigns since have involved celebrities. In 1960, John F. Kennedy's received the support of "Rat Pack" members such as Sammy Davis Junior and Dean Martin (Mortman, 2004). Warren Beatty was a prominent supporter and campaign strategist for George McGovern and Ronald Reagan received support from a variety of celebrities including Frank Sinatra (Lofton, 1999; Smart, 2004). Despite many political contests where celebrity endorsements have occurred, there has been little effort to understand what effect these endorsements have on important political outcomes.

Political candidates court those who may be willing to make endorsements, send out press releases when endorsements occur, and often arrange their campaign schedules in order to appear with endorsers considered particularly important or influential. While these actions demonstrate a belief that endorsements are important, such endorsements are often accompanied by media commentary that they have little effect on vote share (e.g. Memmot, 2008; Dinan, 2008; Moore, 2007; Turque and Wagner, 2008). A frequently-cited example of the lack of an effect was Hillary Clinton defeating Barack Obama in the 2008 Massachusetts Democratic Primary. Gary Younge, a columnist for *The Nation* wrote, "[i]n this election cycle endorsements do not seem to have made the slightest difference. Obama bagged support from Massachusetts Senators Ted Kennedy and John Kerry and Governor Deval Patrick, only to lose the state by 15 percent" (Younge, 2008).

There are few academic studies documenting a clear link (or lack thereof) between endorsements and voter behavior. According to Stratmann (2005) "[e]ndorsements represent another area of research where little empirical work has been done ... endorsements of candidates by the local media, celebrities

or other political figures can have a direct or indirect effect on election outcomes.” Attempts to estimate such a connection are hampered by the difficulty of finding an appropriate measure of an endorsement’s impact. Endorsements commonly occur before any votes have been cast, making time series analysis impossible to perform. Moreover, measures of geographic variation in the impact of an endorsement require local measures of an endorser’s ability to influence voters that are uncorrelated with any underlying level of support for the candidate. However, interest groups’ memberships are based upon political preferences, as is support for politicians who endorse candidates. These preferences are likely to be correlated with the *ex ante* support for the eventual endorsee.

Barack Obama announced he was running for election as President of the United States in February 2007. Three months later he was endorsed by the talk show host Oprah Winfrey. Winfrey’s ability to influence the actions of her supporters is impressive. As an example, Figure 1 contains sales figures for two books included in *Oprah’s Book Club*: *Anna Karenina* by Leo Tolstoy and *Love in the Time of Cholera* by Gabriel Garcia Marquez. The sales of both books increased more than one hundred times immediately after their selection. Polling evidence suggests that this effect on consumers’ decisions may translate to politics. According to the Pew Research Center, 23 percent of Democrats said that Winfrey’s endorsement would make them more likely to vote for Obama (Pew Research Center, 2007).

Winfrey’s endorsement of Obama provides a rare opportunity to examine the effect of celebrity endorsements on political outcomes, primarily because there are geographically-varying indicators of Winfrey’s popularity and influence that should be unrelated to political factors. She has a history of endorsing commercial products, the most prominent being the books she recommends for *Oprah’s Book Club* and the products she includes in her annual “Favorites List.” In this analysis we use geographic variation in the sales of books included in *Oprah’s Book Club*. Winfrey also produces commercial goods whose attractiveness to consumers is intimately connected to the degree to which they like her. *O! – The Oprah Magazine* (hereafter “Oprah Magazine”), which features her on the cover every issue, is the

archetypical example of these products. In this analysis, we use county-level variation in subscriptions to this magazine as a measure of Winfrey's geographic popularity.¹

There are other factors that make this examination possible. Despite having a nationally broadcast television show since 1986, Winfrey has never before endorsed a presidential candidate, nor someone running for any elective office. Indicators of her influence prior to her endorsement of Obama should not be directly contaminated by voters' political preferences. Furthermore, Oprah is regarded as one of the most prominent and influential public figures in the United States: if a celebrity endorsement is ever going to have an empirically identifiable influence, then it is likely to be hers. Finally, the sheer length of the 2008 Democratic primary process created a large enough sample of elections in order to conduct such an analysis.

Our results suggest that Oprah Winfrey's endorsement of Barack Obama prior to the 2008 Democratic Presidential Primary generated a statistically and qualitatively significant increase in the number of votes Obama received as well as in the total number of votes cast. For example, a 10 percent change in the county-level circulation of Oprah Magazine is associated with an increased vote share for Obama of approximately 0.2 percentage points. This estimated effect was higher in areas holding caucuses rather than primary elections. In terms of voter participation, a 10 percent change in circulation is associated with a 0.06 percentage point increase in turnout. Similar effects from the endorsement were found in areas with differentially high sales of books included in Oprah's Book Club. In total, we estimate that the endorsement was responsible for 1,015,559 votes for Obama. The 95 percent confidence interval around this estimate is higher than the difference in votes between Obama and Hillary Clinton in our sample. This suggests that Winfrey's endorsement was responsible for the difference in the popular vote in our sample.

¹ While Nielsen's television ratings could also be used to measure Winfrey's popularity, they are subject to several criticisms, including that their samples are not representative of the general population (Manly and Hernandez, 2005; Bialik, 2007). In addition, television viewing is a relatively passive activity, compared to buying books, subscribing to magazines, and voting.

Political Endorsements

The literature addressing the effect of endorsements on political outcomes is primarily theoretical and has mainly focused on the endorsements by interest groups. In these models, uninformed individuals decide who to vote for using political cues from interest groups and other sources, such as social groups, political advertising and the media.

The simple structure of endorsements – an interest group either endorses a candidate or they do not – means these endorsements can be communicated cheaply, at least to an interest group's members. Grofman and Norrander (1990) develop a model where endorsements serve as signals to voters about the underlying ideological and policy preferences of candidates, and affect electoral outcomes. Grossman and Helpman (1999) consider the role of endorsements when both interest group leaders and candidates seeking their endorsement behave strategically. They develop a model where voters are not fully informed about a policy issue and candidates are willing to shift their position on this issue in order to maximize their votes. Some voters are members of an interest group and have distinct policy preferences on this issue. Only these voters take note of the interest group's endorsement. If group members hold different views on other issues, then members face a signal extraction problem in determining what is in their best interests. Grossman and Helpman find there are circumstances under which candidates may shift their policy positions to obtain an endorsement, leading to policy outcomes that favor special interest group members at the expense of the general public.

A recent development has been to consider how interest groups can convey information about a candidate's quality or "valence," which is determined by personal characteristics and is orthogonal to policy. Prat (2002) and Coate (2004) consider the ability of interest groups to convey information about quality, but signaling is done through costly advertising. Wittman (2007) considers the role of interest group endorsements in cheaply conveying information about quality. In his model, an interest group has inside information about the quality of candidates. He finds truth-telling by interest groups is an equilibrium outcome and interest group endorsements generally improve the welfare of all voters.

These models are part of the broader voting literature using a Downsian framework in which voters are both rational and uninformed. Voters need information to vote but find gathering such information costly. Information is costly for a variety of reasons, including “the problem of assessing the credibility of information; the difficulty of distinguishing between campaign rhetoric and actual position statements; the question of interpretation of vague positions; the difficulty of assigning responsibility for collective outputs; and simple gaps in the available information” (Popkin, Gorman, Philips and Smith, 1976: 787). Voters will therefore only gather information about issues that directly affect them or when it is “free,” such as information available as part of their day-to-day activities. A clear implication is that for a large portion of the electorate it is rational to be uninformed. Collier, Ordeshook and Williams (1989) provides experimental evidence in support of this fact, showing that under situations where the political preferences of candidates are stable, voters “buy” less information. Endorsements by celebrities may provide information shortcuts that can signal quality to voters at little or no cost.

Empirically estimating the effect of these group endorsements has been difficult. Rappoport (1991) estimates the effect of endorsements by labor unions, teacher’s groups, and women’s groups on voting behavior during the 1984 Democratic presidential caucuses in Virginia, Michigan, and Iowa by looking at *ex post* election results for the candidates among group members. There was no accounting for the *ex ante* support for candidates among group members, however, meaning the estimates can have no causal interpretation. McDermott (2006) attempts to overcome this problem by using experimental data from a national survey of voting behavior. Respondents were asked about hypothetical scenarios involving endorsements by the AFL-CIO. The results suggest that endorsements by labor unions provide informational cues to both group members and non-members. This cue results from a general knowledge about the political beliefs and policy preferences of the interest group.

While there have been no empirical estimates of the effect of celebrity endorsements on political outcomes, it is clear that celebrities have the ability to influence the behavior of their fans in other arenas. For example, celebrities are routinely paid to endorse products because it makes advertisements believable; increasing perceptions of quality, and sales (Kahle and Homer 1985; Kamins 1989; Ohnian,

1991). Agrawal and Kamakura (1995) finds that the stock value of a firm increases when it announces prominent celebrity endorsements, suggesting celebrity endorsements are a worthwhile investment. Similarly, Mathur, Mathur and Ragan (1997) finds that the announced return of Michael Jordan from retirement increased the market value of firms whose products Jordan endorsed by over \$1 billion. It is unclear whether this ability to influence consumers translates to voting decisions. It is logical, however, that if signals of quality can be transmitted under a setting where the endorser is paid, they should also be effective in the political realm where the endorser receives no direct payment.

The 2008 Democratic Presidential Primary

The 2008 Democratic Presidential Primary process (“the Primary”) was distinguished by the length and closeness of the contest. Hillary Clinton declared for the presidency on January 21, 2007—nearly one year before the Iowa caucus was held. This declaration was soon followed by Barack Obama on February 11, 2007.

During the Primary, many states attempted to increase their relative importance by hold their elections in the calendar year than they had previously. While the Iowa caucus and the New Hampshire primary still occupied the first two time slots for elections, 22 states held their primary election on February 5, 2008. Except for four approved states, this was the earliest date allowed by the Democratic National Committee. Only Florida and Michigan held unapproved elections prior to February 5th. Consequently, Barack Obama and some other candidates removed their names from the ballot in Michigan, and all candidates agreed not to campaign in Florida. Table 3 contains the dates for all primaries and caucuses included in our sample.

The primary process continued until the last possible contest (June 3, 2008), when Barack Obama received enough pledged and super delegates to be considered the presumptive nominee (Zeleny, 2008). Demonstrating the competitiveness of the process, even on this last day Clinton won the South Dakota primary by over 10 percentage points. The leading candidates, Obama and Clinton, both won individual

contests throughout the primary season, suggesting that voting behavior in late-voting states was not dominated by “political momentum,” as in Knight and Schiff (2007).

Oprah Winfrey’s endorsement came well before any voting actually took place. Obama was frequently mentioned as a potential 2008 presidential candidate following his election to the United States Senate in 2004. In late 2006, during an interview on *Larry King Live*, Oprah Winfrey first mentioned a preference for Senator Obama. At this point she stopped short of a clear endorsement and Barack Obama was not a declared candidate. On February 11, 2007 Obama officially declared his candidacy for the Democratic nomination. Three months after this point on May 1, 2007, Oprah Winfrey officially endorsed Obama’s candidacy.

Oprah: A Celebrity and an Endorser

Oprah Winfrey is a celebrity of nearly unparalleled influence. She has been named to *Time* magazine’s list of the 100 most influential people six times—more than any other individual, including the Dalai Lama, Nelson Mandela, Bill Gates, George Clooney and Rupert Murdoch. She was named one of the 100 most influential people of the 20th Century, an honor shared with Albert Einstein, Mohandas Karamchand (Mahatma) Gandhi, and Franklin D. Roosevelt. She was only one of four people who were included on these lists in both the 20th and 21st Century. The others included Mandela, Gates, and Pope John Paul II.

According to *Forbes* magazine, Winfrey was the most powerful celebrity in 2007—the year she endorsed Obama—and 2008. This is based on a ranking that “analyzes celebrity earnings, plus media metrics like Google hits, press mentions as compiled by Lexis/Nexis, TV/radio mentions from Factiva and the number of times an A-lister appears on the cover of 32 major consumer magazines” (Goldman, 2007). From June 2006-07, Winfrey made \$270 million—making her highest paid celebrity in the United States. She also ranked first in web presence and TV or radio mentions.

Winfrey is also unique in her ability to translate her star power into influencing the purchasing decisions of her followers. From the establishment of her book club, to the launching of a popular

women's magazine, to creating an "Oprah's Favorites" list, Winfrey has a commercial reach that eclipses other stars. Her reference can literally mean the success or failure of a variety of products. For example, when the cosmetic company Philosophy's "Gingerbread Man Salt Scrub" was included in the 2004 favorite things list, the company was forced to rearrange its entire production schedule to meet the resulting demand (Walker, 2004). After selecting Ciao Bella blood orange sorbet for her 2007 list, the company's website received 3 million hits in one week compared to an average of 175,000 in previous weeks. Clarisonic skin-care system had their sales increase "10-fold in just one week after her endorsement" (Goldman, 2007). After challenging her viewers to beat the one day sales record for Lance Armstrong "Livestrong" bracelets, 900,000 bracelets were sold—besting previous records by approximately 600,000.

A negative comment by Winfrey can be equally damaging to a products success. During a 1996 show concerning "mad cow" disease Winfrey stated that her fear of the disease "stopped me from eating another burger" (Babineck, 1998). The day after the show cattle futures fell 10 percent (Verhovek, 1998). Winfrey was subsequently sued by a group of cattlemen claiming they suffered losses of \$12 million.

In addition to her influence on the sales of consumables, Winfrey has also been credited with repopularizing book-buying and reading in the United States. Beginning in 1996, Winfrey began operating a book club. She selected books and then approximately one month later had an hour long show featuring the author of the novel (or an expert on the novel in cases where the author was deceased). Butler et al. (2005) found that each of the first 48 books selected for the show became a top 150 best seller and that these sales successes lasted longer than the month the book was included in the club. Table 1 contains weekly sales from Nielsen Bookscan for several books included in the club. As can be seen, during the weeks immediately following inclusion in the book club, sales of affected books were demonstrably higher. For example, in the case of *Anna Karenina* there were 11,648 units sold during the 12 weeks prior to inclusion in the club. In the 12 weeks following inclusion, this book sold 643,122 units—a staggering increase of 5,421 percent.

Winfrey has also successfully created commercial ventures of her own, such as the 2001 launch of *O – Oprah the Magazine* (Oprah Magazine). Originally conceived as a bi-monthly magazine, the initial issue's 1.6 million copies sold and quick popularity caused it to be upgraded to a monthly publication within 6 months of release (Peterson, 2003). Unlike even other celebrity magazines, this publication was definitively connected with Winfrey, even to the point of only featuring her picture on the cover of every issue. Its immediate success was attributed to the power of Winfrey's brand. Advertising executive Roberta Finkle commented "[m]y theory is that you could put out a magazine, call it Oprah, put her picture on the cover, and have blank pages inside and it would still sell" (Kuczynski, 2000). Oprah Magazine now averages selling 2.4 million issues a month split roughly equally between subscription and newsstand sales (Audit Bureau of Circulations, 2007). It is estimated that over 16 million people view each issue (Mediamark, 2007).

Oprah Magazine reaches a diverse group of readers. In Table 2, the demographic characteristics of the readership base of the magazine are compared those reported for the 2000 United States Census. Readers of Oprah Magazine are disproportionately women, have either graduated or attended college, are between the ages of 25-64, and work in professional or managerial occupations. Compared to the general population, they are also more likely to be working, married, and are wealthier on average. Readers are evenly distributed across the country. When it comes to race, white representation in the readership is similar to that in the general population, while African-Americans are overrepresented and Hispanics are underrepresented in the readership.

Winfrey's ability to influence the purchasing decisions of her followers exceeds that of a traditional talk show host. A 2007 poll of likely voters conducted by *Forbes Magazine* found that Winfrey's influence in the commercial sector may also translate to politics. Fourteen percent of likely voters, and 26 percent of likely voters aged between 18 and 24 years old, said that they would react positively to an endorsement by Winfrey. This was the highest percentage for any celebrity included in the survey (Andelman, 2007). A Pew Research Center poll found that 23 percent of Democrats said they would be more likely to vote for Winfrey's endorsee. Interestingly, while 69 percent of all respondents

said that their vote would be unaffected, 60 percent said that they believed the endorsement would help Obama (Pew Research, 2007).

The scope of Winfrey's influence creates a unique opportunity to examine the effect of endorsements on political outcomes. First, Winfrey's endorsement was very public and acquired a large amount of attention in the popular press. Figure 2 shows the number of news stories by month containing both "Oprah," "Obama," and "President." Before Oprah first announced a preference for Obama in September, 2006 there were few stories connecting mentioning both individuals. Following this point, however, a large number of stories were written peaking at nearly 550 in December, 2007. This peak reflects the second unique feature of Winfrey's endorsement. During the last months of 2007, Winfrey hosted several very large and well reported events in key primary states. For example, *The Los Angeles Times* reported that in order to accommodate the crowd, a Columbia, South Carolina event in December, 2007 was moved from an 18,000 seat basketball stadium to an 80,000 seat football stadium (Abcarian and Roug, 2007). As a comparison, Figure 2 also contains a similar count of news stories for Chuck Norris and Mike Huckabee, the second most prominent celebrity-politician pairing in 2008. Even at its peak, the number of stories for this candidate-endorser pair is less than half of the peak for Winfrey and Obama.² A third feature of Winfrey's endorsement is that this was the first time that she had ever publicly endorsed a political figure. Her approval rating dropped from 77 percent in January, 2007 to 66 percent in October, 2007, which was attributed to her endorsement being viewed as a surprising, partisan move (Pew Research Center, 2008). The lack of a history of endorsements makes her endorsement unlikely to be related in voters' views of the policies or politics of other political figures. This is different, for example, from an endorsement by another politician or by a more politically active celebrity, such as Martin Sheen or Barbara Streisand.

² Moreover, from reading a sample of these stories, a large number of the articles were primarily about Winfrey and Obama which then referenced other celebrity-politician pairings.

THEORETICAL FRAMEWORK

There are, to our knowledge, no existing theoretical models specifically analyzing endorsements of political candidates by *celebrities*. To motivate and inform the empirical analysis that follows, we develop a signaling model where voters' knowledge of the quality of candidates is uncertain and the signals are noisy. We also allow for abstention by introducing voting costs, which enables us to consider how a celebrity endorsement may affect voter participation as well as the number of votes the endorsed candidate receives.

The approach is broadly similar to existing models of interest group endorsements. Voters are rational, partially informed, and of two types. Here, instead of being a member or non-member of an interest group, voters are either a "fan" or a "non-fan" of a particular celebrity. Fans pay attention to signals from the celebrity, while non-fans pay no attention to the celebrity. Like interest group members in Grossman and Helpman (1999), fans of a celebrity who endorses a candidate face a signal extraction problem.

Celebrities' characteristics, however, mean that the type information conveyed by an endorsement and the source of the noise in the signal are different from interest group endorsements. Unlike interest groups and political leaders, celebrities' primary activities and sources of income are not political in nature. Their relative lack of policy and political expertise limits their desire and ability to get candidates to change their policy positions, as well as their ability to convey policy information to voters.

Similar to Prat (2002) and Wittman (2007), we assume voters value candidates' non-policy personal characteristics, but are uncertain about them. We assume celebrities also value the personal qualities of candidates, but unlike most voters they can meet with candidates to observe these qualities first-hand. Candidates are willing to meet with celebrities of a certain stature, as their costs are minimal: they do not need to shift policy positions to secure such endorsements, and the endorsement by one celebrity does not preclude endorsements by other celebrities.

The motivations of celebrities are similar to those of local political leaders in Shachar and Nalebuff's (1999) "follow-the-leader" model. Each celebrity knows the number of fans they have and behaves like a pivotal voter with the votes of their fans instead of just their own vote. A celebrity x endorses candidate j if:

$$B_x + \pi_x V^x(Q_j) > C_x \quad V^x(Q_j) > 0 \quad (1)$$

Where B_x is the benefit of endorsing, π_x is the probability of the endorsement being pivotal, $V^x(.)$ is the value of having the candidate win, and C_x is the cost of endorsing. The benefits and costs are private information, and related to a celebrity's personal preferences or the approval and disapproval of their endorsement by third parties, such as advertisers, employers and some fans.³ The value a celebrity places on a candidate winning increases in the candidate's quality Q_j . A celebrity is more likely to endorse a "high quality" candidate, so an endorsement sends a signal about candidate quality. There is noise in the signal, however, because fans do not observe a celebrity's private benefits and costs of endorsing.

Voter preferences

We adopt general voter preferences similar to Knight and Schiff (2007). The preferences of voter i for candidate j are:

$$u_{ij} = q_j + \eta_{ij} \quad (2)$$

Where q_j represents the quality of candidate j and η_{ij} represents an individual preference for candidate j , individual preferences are assumed to be distributed type-1 extreme value and independently across both candidates and voters' utility. Underlying preferences are assumed to be stable across time.

³ As a result, the effect of the number of fans on the likelihood of endorsing is indeterminate. While the probability of being pivotal increases in the number of fans, the cost of endorsing is also likely to increase in fan numbers. Popular celebrities rely on their ability to appeal to diverse audiences, so may have more fans dislike any partisan actions.

Voters are uncertain about candidate quality and are Bayesian. Voters who are fans view celebrities as credible “insiders” with access to better information about candidates.⁴ For simplicity, we assume there is only one celebrity endorsement and she endorses candidate 1. After the celebrity endorsement, the fans of the celebrity receive a common noisy signal (θ_1) of the quality of candidate 1:

$$\theta_1 = Q_1 + \varepsilon_1 \quad (3)$$

Where the noise in the signal is assumed to be distributed normally and independently across fans, with the error having a mean of zero and variance σ_ε^2 . Fans treat this as a signal extraction problem. Before the endorsement, the voters’ prior beliefs about candidate quality are normally distributed with a candidate-specific mean μ_j and a variance σ_q^2 that is common across candidates. Their private updating over the endorsed candidate’s quality is given by:

$$E(q_1 | \theta_1) = \alpha\theta_1 + (1 - \alpha)\mu_1 \quad (4)$$

Where the weight on the signal is given by:

$$\alpha = \frac{\sigma_q^2}{\sigma_q^2 + \sigma_\varepsilon^2} \quad (5)$$

Voters place more weight on the celebrity signal when the noise in the signal is relatively smaller than the variance of their prior information. Fans’ post-endorsement preferences for candidate 1 can be written as:

$$E(u_{i1} | \theta_1) = \alpha\theta_1 + (1 - \alpha)\mu_1 + \eta_{i1} = \mu_1 + \alpha\delta_1 + \eta_{i1} \quad \delta_1 > 0 \quad (6)$$

Where δ_1 is the difference in the mean of the celebrity signal θ_1 and the mean of voters’ priors about the endorsed candidate, μ_1 . It is positive on the assumption that the endorsement signal of quality has a higher mean than voters’ existing perceptions. Non-fans share the same prior beliefs as fans, and as their perceptions of quality are unaffected by the endorsement their preferences about candidate 1 remain:

⁴ There are probably several factors at work here. First, celebrities are seen as traveling in the same circles as politicians and are thus able to judge personal qualities. Second, fans consider themselves as having similar tastes to celebrities and are likely to perceive celebrities’ judgments as likely being close to what their own would be. Third, celebrities have no obvious ulterior motive for their endorsement. The information in their signals is unlikely to be easily substituted by the activities of interest groups or politicians, or by political advertising.

$$E(u_{i1} | \theta_1) = E(\mu_{i1}) = \mu_1 + \eta_{i1} \quad (7)$$

Voter Participation

Voting is assumed to be costly, allowing for the possibility of abstention. Specifically, a voter selects the candidate they most prefer, candidate j^* , and votes only if:

$$B + E(u_{ij^*} | \theta_j) > \psi(c_k, c_g) \quad (8)$$

Where B represents the intrinsic benefits of voting, and the cost function $\psi(\cdot)$ is determined on the basis of voting system cost characteristics (c_k) and group-specific cost characteristics (c_g). The intrinsic benefits of voting can be thought of the enjoyment or satisfaction a voter receives from performing their civic duty (Riker and Ordeshook, 1968). The expected quality of a voter's most preferred candidate, $E(u_{ij^*} | \theta_j)$, can be thought of as an expressive voting component: utility from voting increases in the intensity of these preferences.

The cost function is increasing in both of its elements. The most important voting system characteristic is whether the voting occurs via a primary or a caucus, as caucus participation requires significantly greater time costs (Hasen, 2008). Other important voting system characteristics include registration and identification rules, voting technology and the number and location of polling places.

Group-related costs allow social interactions to influence participation in voting. The importance of social interactions has been considered for a wide range of behaviors, including the impact of demographics on crime and education on wages. Changes in individual behavior can multiply at aggregate levels through interactions between family members, work peers, friends and neighbors (Glaeser, Sacerdote and Scheinkman, 2003). In this model, the decision to vote by one member of a group lowers the voting costs of other members, either by making it more enjoyable to vote or by receiving some "peer pressure" to vote.

This concept is perhaps clearest when it pertains to couples. It is common in couples for both to vote or for neither to vote: one voting and the other not voting is rare (Glaser, 1960; Wolfinger and

Rosenstone, 1980). While much of this correlation may be due to couples sharing common interests, actions are likely to have some direct effect. Therefore it is especially important to consider social interactions for endorsements by celebrities who appeal to one gender more than the other. As such interactions are likely to affect participation but not necessarily voting choices – which are confidential – this may be a mechanism through which an endorsement increases participation by voters who do not necessarily vote for the endorsed candidate.

To explore the voting decision further, we make the simplifying assumption that everyone is part of a two-person group.⁵ We also ignore location-specific costs for the moment, and make costs a linear function of a common cost (c) and a group-related component (c_g), which enters the cost function negatively as it lowers the relative cost of voting. Group-related costs are proportional to the net utility of the other group member, where the net utility from voting received by person i voting for their most preferred candidate j^* is:

$$v_{ij^*} = B + E(\mu_{ij^*} | \theta_j) - \psi(c, c_g) \quad (9)$$

This proportionality factor (γ) is between zero and one and everyone knows the net utility of the other group member.^{6,7} The net utility from voting for person 1 in a group is therefore based on person 2 in the following way:

$$v_{ij^*}^1 = B + E(q_{j^*} | \theta_1) + \eta_{ij^*} + c + \gamma v_{ij^*}^2 \quad (10)$$

We assume individuals' preferences about a candidate are independent within a group. Where there are no fans in a pair, person 1's net utility function is:

$$v_{ij^*}^1 = \omega_{j^*} + \frac{\eta_{ij^*}}{1 - \gamma} \quad (11)$$

⁵ A model with larger groups, representing families, work groups, and other social organizations, would generate similar results.

⁶ Making the costs proportional to the unconstrained net utility implies that the size of the other person's difference in utility between voting and not voting matters more than the action of voting itself. Both probably have some role, and introducing a group cost based on others' actions has similar implications.

⁷ In practice a range of social interaction parameters may exist, and some are likely to be negative – implying some voter's decision to vote increases the costs of their partner voting. However, turnout patterns and analyses of similar types of social interactions suggest assuming this is positive at the aggregate level.

Where:

$$\omega_{j*} = \frac{1}{1-\gamma} [q_{j*} + B - c] \quad (12)$$

And he votes if v_{ij*}^1 is positive. The same relationship holds for person 2. Suppose now that there is one fan in a pair, and person 1 is the fan while person 2 is the non-fan. If the fan does not prefer the endorsed candidate, the utility functions remain as before. If the fan prefers the endorsed candidate 1, each person's net utility function is affected in the following way:

$$\text{Fan:} \quad v_{i1*}^1 = \omega_1 + \alpha \delta_1^1 + \frac{\eta_{i1}}{1-\gamma} \quad (13)$$

$$\text{Non-fan:} \quad v_{ij*}^2 = \omega_j + \frac{\gamma}{1-\gamma} \alpha \delta_1^1 + \frac{\eta_{ij*}}{1-\gamma} \quad (14)$$

The utility function for the fan increases by the rise in expected quality due to the celebrity endorsement, while the non-fan in the pair received additional utility from the change in their partner's voting function, irrespective of whether they prefer the endorsed candidate.⁸

To see the aggregate implications of the endorsement, suppose that the proportion of the voting-age population who are fans is equal to β (where $0 < \beta < 1/2$). Each fan is paired with a non-fan, and the remaining non-fans are paired together. With the preferences over candidates independently distributed across voters and locations and distributed type-1 extreme value, the stochastic elements in the participation and candidate selection equations depend on the differences in perceptions of candidate quality and are logistically distributed.

Conditional on voting, equation (15) governs the vote share of the endorsed candidate. Recall the weight placed on the celebrity signal is α . The vote share τ of the endorsed candidate 1 is equal to:

$$\ln(\tau_1 | (1 - \tau_1)) = \mu_1 + \alpha \beta \delta_1 \quad (15)$$

⁸ In the case of two fans in a group, the utility of both individuals is $v_{ij*} = \omega_j + \frac{1}{1-\gamma} \alpha \delta_j + \frac{\eta_{ij}}{1-\gamma}$. This is strictly greater than the utility of the fan in the group with one fan and one non-fan, and thus is an even stronger case of the social multiplier effect described in Glaesar, Sacerdote and Scheinkman (2003). For most celebrities, and certainly the one we consider here, the pairing of two fans in a couple would be expected to rare.

The net utility from voting is the latent variable in the voter participation equation: voting is observed when net utility is positive. If the voters' priors about candidates' quality possess the same mean (μ_j) then, recalling that the social interaction parameter is γ , the voter participation ρ in location k is equal to:

$$\ln(\rho_k | (1 - \rho_k)) = \omega_{jk} + \frac{1}{1 - \gamma} \alpha \beta \delta_1 \quad (16)$$

In equations (15) and (16), the second term represents the effect of the celebrity endorsement, as the log-odds ratio can be expressed as a linear combination of the increase in quality in the signal received by fans (δ_1) and the characteristics of all voters prior to the realization of the signal. The quality signal increases the endorsed candidates' vote share, while both mechanisms in the model – the signal of candidate quality and group behavior – affect participation.

There are three explicit predictions of this model:

- (1) In areas with more fans, represented by a higher β , the endorsed candidate is expected to receive a higher percentage of the votes cast;
- (2) In areas with more fans, the overall level of voter participation should be higher; and
- (3) In terms of the number of voters, an endorsement's effect on participation should be larger than the effect on vote share.

In reality, it is unlikely that the effects of the signal and of group behavior are as distinct as modeled here. It is likely that some voters also receive a diffuse signal from the celebrity about the importance of voting itself, similar to the way in which a celebrity advertising a soda brand may convey information about the desirability of drinking sodas in general. Also, fans who update their beliefs about the endorsed candidate's quality may affect their spouse's view of that candidate's quality. Introducing these effects would not change the overall implications of a celebrity endorsement, however, as long as the strongest effects are the ones we have identified. In sufficiently large populations, and with other variables that take account of election characteristics as well as differences in voters' underlying

preferences and belief formation processes, more fans should result in more votes for the endorsed candidate and still more votes cast in total.

In our empirical framework we also consider the effect of endorsements on campaign contributions. A large portion of the model above can also be used to motivate the actions of political contributions. Voters will contribute to the endorsed candidate in situations where their expected utility from donating is higher than the contribution. The formal decision process, however, involves considerations by the contributor about the potential effect of their contribution on the probability of the candidate winning. This process is beyond the scope of this analysis and left to future work.

EMPIRICAL STRATEGY

In the theoretical framework, a celebrity's fans are described as those who pay attention to her signals. We now focus on Oprah Winfrey's endorsement of Barack Obama prior to the 2008 Democratic Presidential Primary. Our key identifying assumption is that areas with high per-capita circulations of Oprah Magazine and high per-capita sales of books in Oprah's Book Club are also areas with more fans of Winfrey, and it is in those areas that her endorsement had the greatest effect.

We assume voter i from location k 's prior beliefs and other information signals are fully described by a set of demographic and socioeconomic variables, so that remaining differences in voting behavior are random. Conditional on voting, at the individual level the probability voter i casts their vote for Barack Obama is:

$$\Pr(i \text{ prefers Obama} \mid v_{ij^*k}^g > 0) = \frac{\exp(\text{Oprah}_i \lambda + X_i' \beta)}{1 + \exp(\text{Oprah}_i \lambda + X_i' \beta)} \quad (17)$$

Where Oprah_i is a measure of Oprah's influence and X_i is a matrix of demographic, socioeconomic, and geographic controls. As we have access to nothing smaller than county-level data, equation (17) is re-written as a logit model for group-level observations (Maddala, 1983). Obama's vote share in location k becomes:

$$VoteShare_k = \frac{1}{1 + \exp\{-(Oprah_k \lambda + X_k' \beta + u_k)\}} \quad (18)$$

The error term u_k is normally distributed with a zero mean. Rearranging this equation, we end up with the log of the odds-ratio of Obama's vote share as the dependent variable, and an equation that is linear in the variable used to measure Oprah's influence:

$$\ln\left(\frac{VoteShare_k}{1 - VoteShare_k}\right) = Oprah_k \lambda + X_k' \beta + u_k \quad (19)$$

This is the form of the equations we use in our estimation. We control for differences in county populations' race, age, sex, marital status, educational attainment, family size, income, poverty status, home ownership, house prices, labor force participation, unemployment, veteran status and urban/rural mix. Such covariates have been identified as important in previous empirical studies of voting (Cebula and Toma, 2006; Milligan, Moretti, and Oeropolous, 2004). Exit polling suggests that gender and race characteristics were particularly important in the 2008 Democratic Primary, so quadratic terms for those covariates were added. Table 4 contains details of the included covariates.

In this form, an estimated coefficient represents the change in the log-odds of a voter voting for Obama that is associated with a unit change the relevant independent variable (Cleary and Angel, 1984). Marginal effects are easier to interpret. The marginal effect of the m^{th} regressor on $VoteShare$ is calculated in the following way:

$$\frac{\partial VoteShare_k}{\partial X_m} = \beta_m E[VoteShare_k (1 - VoteShare_k)] \quad (20)$$

The approach described by equations (17) to (20) is also applied to the voter participation decision. The latent variable is the net utility from voting, and participation in voting is observed when it is positive. The equation to be estimated is a specification of equation (19) with the log of the odds ratio of voting participation as the dependent variable. Voting participation is defined as the number of voters divided by the voting age population. The other variables and the calculation of the marginal effects remain as before.

Our first specification uses the per-capita circulation of Oprah Magazine at the county level. To ensure that individuals are not subscribing to Oprah Magazine because of her support for Obama, we use magazine circulation data from 2005—a year before Winfrey is publicly connected to Obama.

Specifically, we estimate the following base models:

$$\ln\left(\frac{VoteShare_c}{1 - VoteShare_c}\right) = \beta_{0v} + \lambda_v OprahMag_c + \sum \beta_{vm} X_{mc} + u_c \quad (21)$$

$$\ln\left(\frac{Participation_c}{1 - Participation_c}\right) = \beta_{0p} + \lambda_p OprahMag_c + \sum \beta_{pm} X_{mc} + u_c \quad (22)$$

Where $OprahMag_c$ represents the circulation per adult capita in 2005 of the Oprah Magazine in county c , and the dependent variables are as previously described. In addition to the covariates previously described, X_{mc} includes a cubic time trend to account for the different dates of the elections, a dummy variable for whether or not the election was a caucus, and a dummy variable for the seven Illinois counties included in the Chicago Metropolitan Statistical Area. Chicago is a “home town” for both Obama and Winfrey, so a positive relationship in these counties would generate an upward bias to our estimates of the effect of the endorsement on vote share.

Gerber, Green and Shachar (2003) found that voting was habit forming—individuals who vote in one election are more likely to vote in the subsequent elections. To control for this as well as a general preference for voting, we include the voting participation rate in the 2004 Democratic Presidential Primary as an independent variable.⁹ Also, because of the greater importance of location-specific voting costs on the levels of participation, we only estimate the model using state fixed effects.

Throughout the analysis we allow for an arbitrary variance-covariance matrix accounting for within-group correlation at the state level. Regressions examining vote share are weighted by the number of voters in each county, while regressions examining voter participation are weighted using the voting-age population in each county.

⁹ Participation figures in 2004 were not available for Colorado, Maine, Nevada, and Utah. This explains the lower sample size in these specifications compared to the vote share results reported earlier.

While it is likely that magazine sales are unconnected to voters' preferences for Obama's presidency, there is still some concern that omitted variables may affect our main results. For example, Oprah Magazine's readership is more educated and wealthy than the general public, and the readership is disproportionately African-American. If individuals with these characteristics are more likely to support Obama and these characteristics are not fully controlled for in our specifications, then bias would be introduced into estimates of the endorsement's effect. Our first attempt to address this is the inclusion of per-capita circulation figures for women's magazines with similar readerships to Oprah Magazine, in the hope that they measures additional preferences or information signals not controlled for by the existing covariates. In addition, we estimate models when we include the per-capita circulation of *Ebony*—one of the most popular African-American magazines in circulation.

We estimate similar models using book sales as an alternate measure of Winfrey's influence. The measure of her popularity is based on the responsiveness of sales of books once they are added to Oprah's Book Club. The covariate of interest is a measure of the effect of Winfrey's book club in Nielsen Market Area n , and all other variables are defined as in equations (21) and (22). $BookSales_n$ is an index which combines the sales of the nominated books into a single measure. It is calculated as:

$$BookSales_n = \sum_{z=1}^Z \left[\left(\frac{1}{T} \sum_{t=1}^T WeeklySales_{znt} - \frac{1}{12} \sum_{t=-11}^0 WeeklySales_{znt} \right) / MarketSize_{zn} \right] \quad (23)$$

The "Oprah effect" on each book z is the difference between the average weekly sales for T weeks after its selection and the 12 weeks prior to its selection. As was shown in Figure 1, selection in Oprah's Book Club results in an immediate peak and then weekly sales that slowly decrease. To ensure this measure is robust to the time period used, an index using sales for the four weeks post-selection (i.e. $T = 4$), an index using sales for the eight weeks post-selection (i.e. $T = 8$) and an index using sales for the 12 weeks post-selection (i.e. $T = 12$) are used. We report results using all three measures. The results for each title are normalized to one to give all titles equal importance and to prevent the index being dominated by preferences for specific titles. The remaining Nielsen Market Areas are used to estimate equations similar to equations (21) and (22).

We also attempt to address concerns about omitted variables bias through several falsification exercises. First, we estimate models using Oprah Magazine circulation and voting results from the 2004 Democratic Primary for the Illinois Senate position, the election which resulted in Barack Obama receiving the Democratic nomination for the 2004 Illinois Senate race. If the Winfrey's endorsement in 2006 is the cause of the relationship between Oprah Magazine circulation and voting behavior, there should be no detectable relationship between circulation and voting behavior in this 2004 election.¹⁰

Second, we investigate whether there is a relationship between Oprah Magazine circulation and measures of underlying policy preferences. We estimate a relationship between an index of the voting records of House of Representatives' members and the per-capita circulation of Oprah Magazine in their congressional districts. We also estimate a relationship between the per-capita circulation of Oprah Magazine and the Democratic vote share in the 2002, 2004, and 2006 US Senate elections. If Oprah Magazine circulation is an exogenous measure of the effect of the endorsement, then circulation per capita should be unrelated to the ideological preferences and electoral outcomes of elected officials. Finally, we estimate the 2008 Democratic Primary regression equations using a book sales index based on the relative popularity of the titles selected for Oprah's book club *prior* to their selection. The relative popularity of these titles before their nomination by Oprah should have no connection to voting behavior.

Data

In order to complete this analysis we require data on voting results, magazine circulation, book sales, voting report cards for elected officials (for policy preferences), and county-level demographic and socioeconomic data. Given the range of sources involved, more details are in a data appendix that is available from the authors.

¹⁰ We focus on the primary election in 2004 because this is the election that is most like 2008 primary election in the main results. Voters in a primary are choosing between ideologically similar candidates, while in a general election voters must also contend with significant policy differences between candidates.

Election data for the primaries, caucuses, and all previous elections were obtained from the online *Atlas of U.S. Elections*.¹¹ These data are taken from official returns. The number of voters who participated in the 2008 Iowa caucuses is not officially reported, so an unofficial count reported by the Associated Press that matched official delegate numbers was used for that election. It is not possible to include five states in the analysis. Michigan is excluded because Barack Obama did not appear on the ballot. Kansas, North Dakota, and Alaska are excluded because they do not report county-level voting information. Texas is excluded because the Texas Democratic Party uses both a primary and a caucus to allocate its delegates. In Texas, voters were able to participate in the primary, the caucus, or both events, creating different incentives in voting behavior that could not be controlled for with the available data. In total, 45 states and the District of Columbia are included in this analysis.

Data on magazine circulation comes from the Audit Bureau of Circulations (ABC). Established in 1914, ABC was the first auditing organization for magazine circulations. ABC is the primary source of circulation data used for advertisement sales and rate setting. We use the *ABC Supplemental Data Reports*, which provide county-level sales information.

Book sales data comes from Nielsen BookScan (Nielsen). Nielsen provides a sales-tracking service that covers, according to their estimates, 75% of the United States' retail book market. Transaction data for the sales of individual titles is collected at the point of sale and dispatch systems of more than 6,500 book retailers, and reported on a weekly basis. It includes all major book retailers, as well as smaller retail chains and general independent book stores. Nielsen began reporting data at a sub-national level in January 2004, and has maintained a consistent panel of reporting retailers and the weighting methodologies since then.

Nine titles were selected to be part of Oprah's Book Club between the beginning of 2004 and when she officially endorsed Obama in May 2007. Two selections could not be used in this analysis. *One Hundred Years of Solitude* was selected in January 2004 and so there was insufficient information about its pre-selection sales. A compilation of three novels by William Faulkner selected in June 2005 was

¹¹ Available online at <http://www.uselectionatlas.org>

produced specifically for the Oprah Book Club, making it impossible to measure its pre-selection popularity. Sales data for the seven books used in the analysis are included in Table 1.

Book data is available for Nielsen Market Areas, which are 99 geographic areas defined by Nielsen BookScan, and are based on major cities. To account for the varying sizes of Nielsen Market Areas and the seasonality in the book market, the increase in books sales is scaled by $MarketSize_{zn}$, which is the average weekly aggregate book sales in each Nielsen Market Area for the 12-month period spanning the six months before the selection and the six months after the selection (when this window was before 2004, the 2004 averages were used). To create the same demographic and socioeconomic variables, we match counties to Nielsen Market Areas using the following procedure. First, we identify the counties in the Metropolitan Statistical Areas where the cities named in the Nielsen Market Areas are located. If the counties in a Nielsen Market Area span more than one state, only the counties in the state that made up the majority of the voting-age population are used. In two Nielsen Market Areas, no one state held the majority of the voting-age population, so they were excluded from the analysis.

Data on elected officials voting records were obtained from the *National Journal*—a political magazine focused on domestic political issues, and particularly on the activities of Congress and the Executive Branch. Since 1981, the *National Journal* has gathered data on the voting behavior of members of the Senate and House of Representatives and created an annual ranking of their ideological preferences. We use data from the magazine’s “liberal” rankings. *National Journal* editors selected 216 key votes from the 2007 legislative calendar (107 Senate Votes and 109 House Votes), that were used to calculate percentile rankings of how “liberal” each representative was with respect to economic, social, and foreign policy. For example, Barack Obama received a liberal score of 95.5 for 2007. This means that, on average, Obama voted more “liberally” than 95.5 percent of the Senate, making him the most “liberal” senator. Hillary Clinton received a liberal score of 82.8.

Demographic and socio-economic data were taken from the 2000 Census, using county-level extracts from the National Historical Geographic Information System. A description of the regressors is provided in Table 1. One county in Hawaii (Kalawao) was removed because some of the per capita

measures could not be calculated. This left 2,610 counties across 45 states in the sample. For analyses using book sales data, there were 88 Nielsen Market Areas, with only ten of them located in states in which caucuses were held.

VOTESHARE AND PARTICIPATION RESULTS

Throughout this analysis, the key underlying assumption is that geographic variation in commercial indicators of Winfrey's success is a proxy measure for the number of fans in any particular area. Our model predicts that in areas with a greater number of fans the endorsee should enjoy a greater degree of political success and there should be higher levels of voter participation. A number of tests and robustness checks below confirm the predictions of this model.

The Effect of the Endorsement Using Magazine Circulation

In our first specification we utilize differences in the per-capita circulation of Oprah Magazine as the proxy measure of the number of fans in a particular county in a model with the log odds of Obama's vote share as the outcome of interest. Table 5 contains the estimated marginal effects for this model. Column (1) contains estimates for the entire sample. The estimated marginal effect of the Oprah Magazine measure is positive, large, and statistically significant at the 0.01 level. To check whether state-specific characteristics influence vote share, we re-estimate the same equation except for the addition of state fixed-effects. The results are reported in Column (2). The marginal effect of the Oprah Magazine measure is still positive and statistically significant at the 0.01 level, although it is roughly one third the size of the estimate in Column (1), which suggests fixed state-level differences play an important role in explaining electoral outcomes.

In addition to magazine circulation, positive and statistically significant coefficients are estimated for female labor force participation and the percent of the population that are black, high school graduates, over 40 years of age, and college graduates, while those for percent married, widowed, white,

urban, and Hispanic are negative and statistically significant. The sign of most of these covariates are in the direction that would be expected based upon exit polling.

There are fundamental differences between caucuses and primary elections. For instance, in primary elections electioneering is specifically prohibited within a certain distance of the polling location and an individual's ballot is secret. In a caucus, however, participants' voting preferences are known to the entire room and campaigning occurs throughout the balloting process. The process of voting in a caucus is also far more arduous and difficult than in a primary system. The two systems result in very different turnouts: in our sample, caucuses had an average turnout of 0.4 percent while primary elections had an average turnout of 18 percent. Under our theoretical framework, Winfrey's endorsement could plausibly have different effects under the two systems

Therefore, the model is estimated using separate samples of primary-only counties and caucus-only counties. Columns (3) and (4) contain results for states that using primary voting, without and with state fixed effects. These results are qualitatively similar in magnitude and sign to those in Columns (1) and (2). Columns (5) and (6) contain estimates for caucus states. In these states, the marginal effect of changes in Oprah Magazine circulation per capita is over 1.5 times the size of the estimated effect for primary states. This suggests that Winfrey's endorsement had a greater impact on vote share under a caucus system. Fewer covariates are statistically significant in the caucus-only sample, although this should be not be surprising given that there are 478 counties in this sample compared to the 2,130 counties in the primary-only sample.

Table 6 provides some insight into the relative magnitude of the estimated marginal effects. The entries in the table represent the estimated change in Obama's vote share for a 10 percent change in the value of the independent variable. For example, a 10 percent change in the per capita circulation of Oprah Magazine is associated with a 0.2 percentage point change in the vote share for Obama. This is greater than the effect for the percent of the population that is urban or Hispanic, but far less than the estimated effect of labor force participation, educational attainment, marital status, and age.

As described in the theoretical model, in addition to changes in vote share, a celebrity endorsement may also increase overall voter participation. This effect may be different than the change in vote share because some individuals may be induced to vote as a result of group pressure but may not actually choose the endorsee once they are at the polling location. Table 7 contains the estimated marginal effects on participation—defined as the percentage of the adult population voting in the election. Results are reported with state fixed effects for three samples: all states, primary states, and caucus states.¹²

There is a positive and statistically significant effect on participation for Oprah Magazine circulation in the sample of all states and primary-only states. There is no statistically significant effect in caucus states. In the context of the theoretical model, this lack of an effect suggests that perhaps the additional utility some fans receive – via increases in their perceptions of the endorsed candidate’s quality – is insufficient to overcome the high costs of caucus voting. The unreported marginal effects show that, in general, participation is positively associated with higher labor force participation, median income, voter participation in 2004, and the percent of the population that is white, black or a military veteran.

Other Magazines

There is some concern that magazine buyers—particularly buyers of women’s magazines with a similar readership to Oprah Magazine—are not controlled for in these regressions. To address this concern, we re-estimate equations (22) and (23) including additional covariates for the per-capita circulations of magazines with similar readership demographics to Oprah Magazine. In order to identify the appropriate magazines we obtained demographic data from MediaMark Research and Intelligence (MRI) on Oprah magazine and 15 magazines identified by MRI as having potentially similar readership demographics. Over the last 25 years, MRI has conducted extensive research into the behavior of consumers including their magazine reading habits. Data from MRI is often used in rate-setting for

¹² For this and all remaining tables only the coefficients of interest are reported. Results for all covariates are available from the authors.

magazine advertising and serves as the basis of the demographic information in Oprah Magazine's media kit. Using MRI data, we identified the two magazines with the most similar customer base on the basis of demographic factors such as sex, age, race, family size, income, occupation, marital status, and other factors. These two magazines were *Self* and *People*.^{13,14} Figure 3 contains a scatter plot of the demographic characteristics in Table 2 of these comparable magazines and Oprah Magazine. Each point represents the fraction of readers in a particular demographic group. Points along the solid line represent an exact match between the percentage of Oprah Magazine readers in a group and those of the respective alternate magazines. The bunching of points along the 45 degree line demonstrates how closely the readerships of these magazines overlap.

Given that in our theoretical framework the information received by voters has important effects on their voting behavior, it is important to consider whether these magazines may include stories that are more favorable to one candidate over another. Like Oprah, *Self* and *People* have primarily female readerships. They appear to provide more information about Hillary Clinton than Barack Obama, both in overall terms and in terms of coverage that could be considered positive. Recent issues of *People* magazine have had twice as many articles mentioning Hillary Clinton as Barack Obama. In September, 2007, three months before the first primaries and caucuses, *Self* magazine named Hillary Clinton one of the 10 most inspirational women in America for the fourth year in a row. To the extent that similar coverage appeared in other women's magazines, and the readership of these magazines overlaps with that of Oprah Magazine, this type of coverage could create a downward bias in our estimate of the effect of Winfrey's endorsement. Controlling for effects connected to these similar magazines should provide a more accurate and precise estimate of the effect of Winfrey's endorsement on political outcomes.

¹³ The most similar demographic base to Oprah was *Martha Stewart Living*, this magazine was not included because our circulation data is from 2005—the year immediately following the arrest and imprisonment of Martha Stewart for obstruction of justice and lying to investigators. The magazine suffered a sharp decline in circulation following this event and it is likely that this decline occurred in a non-random manner.

¹⁴ For each demographic characteristic (race, sex, income, etc.) the average difference between the readership of Oprah Magazine and 15 other magazines was calculated. The two magazines with the smallest average difference across categories were selected.

While these two magazine controls most closely match Oprah Magazine readers across a wide variety of characteristics, the fact that Obama is the first African-American nominee of a major party suggests that race may be a primary characteristic of interest. Therefore, we will also estimate the effect of circulation of *Ebony* magazine on political outcomes. According to Amazon.com, “*Ebony* is a black-oriented, general, picture magazine dealing primarily with contemporary topics.” If the results of Oprah Magazine are being driven by the magazine’s disproportionate African-American readership, this effect should also exist for areas with high circulation levels of *Ebony* magazine.¹⁵

Table 8 contains the estimated marginal effects from a specification of equation (22) with the county-level circulation of other magazines included as covariates. Column (1) contains results with vote share as the dependent variable for a sample of primary only states. The estimated marginal effect for circulation of Winfrey’s magazine is larger than the estimate in Table 5. In addition, the estimated effect for *Self* magazine is negative and statistically significant. There is no statistically significant effect for *People* magazine. These results suggest that the information conveyed by women’s magazines may have influenced voters against Obama. This could be a result of information signals from these magazines in favor of other candidates. Column (2) contains results for primary states with participation as the dependent variable. The estimated marginal effect for Oprah Magazine is slightly larger than previously in Table 7, but not to the same degree as in the vote share specification. The estimated effects of *Self* and *People* are statistically insignificant at conventional levels. Columns (5) – (8) contain the results with county-level circulation per adult capita of *Ebony* magazine included as a covariate. The only statistically significant estimate for *Ebony* is a negative coefficient for vote share in caucus states. This effect is significant at the 0.10 level. The results from all three alternate magazines suggest the underlying preferences of readers similar to Oprah Magazine or information from these magazines are not upwardly biasing our estimates of the endorsement’s effect.

¹⁵ According to MRI, the readership of *Ebony* is nearly 88 percent African-American.

The Effect of the Endorsement using Book Sales

An analysis similar to that from Table 5 is conducted using a second commercial indicator of Winfrey's popularity—sales of books included in her book club. Table 9 contains the estimated marginal effects of this measure of Winfrey's popularity on Obama's vote share. Results are reported for a sample of all states and for primary-only states. With a small number of Nielsen Market Areas in states that held caucuses, we are unable to separately estimate the model for this group. Results are also reported for three different measures of book sales based on the number of weeks before and after the books inclusion in the club that were included in the construction of the index.

Each pair of columns contains results for an index that measures the variation in book sales across Nielsen Market Areas at four, eight and twelve weeks after a title had been selected. There is a positive and statistically significant effect of book sales on Obama's vote share that is robust to the post-selection period of sales used. The estimated effects for the percentage of the population that is divorced and that owns their home are both statistically significant at conventional levels. Few other covariates are statistically significant at conventional levels, a consequence of the small sample size.

Table 10 contains results for the estimated effect of book club sales on voter participation. There is no detectable effect between book sales and voter participation in the sample of all Nielsen Market Areas regardless of the time period of sales considered. Focusing on primary-only market areas, there is a positive and statistically significant effect for all measures of book sales. Compared to the vote share equations, a larger number of covariates are statistically significant. It is of interest that the percentage of the population above the age of 40 is negatively related to participation. The omitted category is individuals aged 18-39, suggesting that turnout was greater among younger individuals during the 2008 primary.

Taken together, these results using books sales provide support for the results using magazine subscriptions. The estimated effect of Winfrey's endorsement is consistent across the two commercial indicators of her geographic variation in her popularity.

Falsification Exercises

The results across both commercial indicators limit concern that potential unobserved preferences for Obama (or voting in general) are biasing our estimates of the effect of Winfrey's endorsement. In order to further test for the presence of omitted variables we conduct several falsification tests.

Illinois Primary in 2004

There should be no connection between Oprah Magazine circulation and Obama's previous electoral outcomes. We would prefer to have data from a previous Presidential Primary season in which Obama was a candidate. Prior to his 2008 campaign, Obama was involved in only three other types of elections— his election to the Illinois State Senate in 1996, 1998, 2000, and 2002; a failed run for the United States House of Representatives in 2000; and his 2004 election to the United States Senate. This last election is the only feasible event for a falsification exercise, given it was a statewide contest and therefore included all of Illinois's 102 counties. The 2004 senate election also contained a Democratic Primary that is more similar to the election analyzed here than his general Senate election against the Republican and other candidates so we examine results from the primary.

Table 11 contains the results with both vote share and participation as dependent variables in both the 2004 Senate Primary and 2008 Presidential Primary in Illinois. Columns (1) and (2) contain the results for vote share. While there is no statistically significant effect for Oprah Magazine circulation in either specification, in the estimate using 2008 vote shares in Illinois the Oprah Magazine variable is positive and roughly similar in magnitude to the main results, while those for 2004 are large and negative.

Columns (3) and (4) contain the 2004 and 2008 results with participation as the dependent variable.¹⁶ The effect in Illinois in 2008 is positive and statistically significant at the 0.10 level. The effect in 2004 is also positive but it is not statistically significant at conventional levels. Taken together, these vote share and participation results in the two different time periods in Illinois – one before

¹⁶ In this falsification test it is not possible to use 2004 participation as a measure of underlying preference for voting. Instead, turnout data from the 2002 Senate Primary were used in both regressions.

Winfrey's endorsement of Obama and the other after – provide suggestive evidence that an underlying correlation between support for Winfrey and Obama are not driving the main results.

Policy Preferences

A second dimension of an unobserved preference for Obama could be a relationship between the circulation of Oprah Magazine and the underlying policy preferences at the local level. For example, if voters in areas with high levels of Oprah Magazine circulation tend to support more liberal candidates and Obama is supported by liberals, the main results in Table 5 could be driven by these policy preferences. To address the concern that the estimated coefficients in the main model are affected by underlying political preferences that are correlated with Winfrey's endorsement, we estimate the relationship between the voting records of elected officials and the circulation per capita of Oprah Magazine at the congressional district level. Specifically, we estimate a specification of equation (19) with the voting index of the House of Representative for a district as the dependent variable and the covariates defined at the district level. The voting index is a *National Journal* ranking of liberal voting for the Representative serving constituents in district d during the 2007 legislative calendar, and is between 0 and 100. All other variables are as defined in equation (1). Given Obama was the most liberal US Senator in 2007 according to the *National Journal*, it would be a particular concern if the estimated effect of Oprah Magazine circulation is positive as it would indicate that voters in areas where circulation of Oprah Magazine is higher are more likely to support candidates who are ideologically similar to Obama.

Data on the political districts for each respective county was obtained from the United States Census. Many Congressional districts in the United States cross county lines. In the 108th Congress, approximately 15 percent of counties crossed at least one Congressional district line. As aggregating magazine circulation to the district level is not possible for these counties, they are dropped from the analysis of policy preferences. Columns (1) – (4) of Table 12 contain the estimated coefficients from specifications of equation (28) using the overall vote ranking and the ranking for all three subcategories (economic policy, social policy, and foreign policy). There is no statistically significant relationship

between circulation of Oprah Magazine and the voting records of elected officials. This lack of an effect suggests that areas with differentially higher circulation of Oprah Magazine are not likely to elect politicians with any particularly liberal (or conservative) set of policy preferences.

Limiting the analysis to counties that do not cross county borders results in a small sample size, so we also used county-level voting outcomes in United States Senate elections in 2002, 2004, and 2006 to assess the possible relationship between ideological preferences and the Oprah Magazine circulation. Using three cycles of elections ensures that each Senate seat is included, and each county is counted at least twice. The sample size is 5,022 county observations. We estimate a specification of equation (22) with the log of the odds-ratio of the Democratic vote share as the dependent variable. Column (5) contains the estimated marginal effects for Oprah Magazine on Democratic vote share in Senate elections. There is no statistically significant relationship between county-level Oprah magazine circulation and Democratic vote share. Unlike the results for voting records, a greater number of additional covariates are found to have an effect on Democratic vote share, limiting concerns of Type II error in this case.

WINFREY'S ENDORSEMENT AND CAMPAIGN CONTRIBUTIONS

Increased campaign contributions may be a mechanism through which an endorsement increases the endorsee's votes, as increased campaign spending is associated with better political outcomes (Levitt, 1994). Campaign contributions are collected both before and after Winfrey's endorsement. This variation over time allows for the use of county-level fixed effects to control for underlying time invariant characteristics. While our previous results show that Oprah Magazine circulation appears to be unrelated to political preferences, counties with high levels of Oprah Magazine circulation could have an underlying time invariant preference for donating to Obama (or donating in general). The use of county-level fixed effects will eliminate any bias from our estimate of the effect of the endorsements on campaign contributions resulting from these preferences.

While campaign contributions are not considered in the theoretical model of celebrity endorsements, it is logical that similar mechanisms may operate. Fans who believe a candidate is of

higher quality following a celebrity endorsement will be more likely to contribute financially to the candidate's campaign. Contributing to a campaign, however, probably requires a more intense preference for the candidate than voting: a much smaller percentage of Americans donate to presidential campaigns than vote in primaries or general elections. Empirically identifiable effects may therefore only be observed in areas with a particularly high concentration of fans.¹⁷

The relative rarity of donating also generates a large number of counties reporting no contributions during a particular time period. The vast majority of daily observations of county-level contributions (83%) are zeroes, and many county-level observations remain at zero when aggregated to weekly or monthly time periods. Therefore we focus on the decision to donate rather than on the amount contributed, using the total number of contributions made each week as the dependent variable and only considering data in the 300 largest counties.¹⁸ These counties account for nearly 70 percent of the sample population.

We estimate a fixed effect negative binomial regression model. In the presence of panel data and over-dispersion, Allison and Waterman (2002) suggest estimating a negative binomial model with dummy variables for fixed-effects is the most appropriate count model. The analysis is limited to a sample of contributions covering the time period one quarter before and after the endorsement, and we allow for an arbitrary variance-covariance matrix accounting for within-group correlation at the county level.

The panel nature of the contributions data allows for the use of fixed-effects to control for potential unobserved county-level preferences for Obama. A number of factors other than the endorsement may have occurred during the post-endorsement time period. To control for these factors, we implement a difference-in-differences identification strategy. We define treatment groups for this strategy based on the number of fans that are in the county. We assume that counties with a greater number of fans receive more of a "treatment" from the endorsement than those with fewer fans. We

¹⁷ This is particularly true given we are only able to observe donations that are above \$200.

¹⁸ The probability of a county reporting no contribution in any period is primarily a function of the county size. One county for which no contributions were ever recorded was then eliminated, resulting in 299 counties.

construct three distinct sets of treatment and control group with samples split at the median, 75th, and 95th percentiles of Oprah Magazine circulation.¹⁹ Under the assumption that pre-treatment contribution trends are the same between the treatment and control group, this identification strategy will accurately estimate the effect of the endorsement on campaign contributions.

It is not clear what the effect of the endorsement should have on contributions to Obama's opponents in the Democratic Primary. Like voting participation, it is possible that group behavior and diffuse signals could lead to a celebrity endorsement increasing total contributions of all candidates. Therefore, we conduct falsification exercises using the contributions data of candidates in the Republican Primary contest. We use contributions to the two leading Republican primary candidates Governor Mitt Romney and Senator John McCain. It is likely that these individuals are less affected by Winfrey's endorsement than Obama's direct competitors in the Democratic Primary.

We assume counties with differing levels of Oprah Magazine per-capita circulation have similar pre-endorsement contribution activity. If this were not the case, then the estimate of the effect of Winfrey's endorsement on contribution behavior may be biased. To test for this effect, we conduct a falsification test using a placebo-endorsement during the pre-endorsement time period.

Contributions Data

Campaign contributions data were obtained from the Federal Elections Commission (FEC). The FEC collects exacts address information on all individuals who contribute \$200 or more. Each individual contributor is limited to contributions totaling \$2,300 per election. Data for this study are taken from the FEC Detailed Files. These files include the exact address, occupation, employer, and contribution amount. Using contributor zip code of residence, contributions were aggregated into weekly totals for

¹⁹ The decision to contribute is costly and therefore should require more intense support then the decision to vote. Therefore, there may only be a detectable effect in counties with very high levels of fans. This is particularly true in this case, when we are only able to observe donations that are above \$200.

each county included in this analysis.²⁰ In compiling FEC data for this study, only contributions from private individuals intended for the primary election are counted. Given our focus on the decision to contribute, negative contributions are dropped from that data.²¹

An important caveat to this analysis is that we do not have data on small-dollar donors. According to the Campaign Finance Institute Obama received 32 percent of his total contributions from donations of less than \$200. Given the expected effects the endorsement, this probably creates a downward bias in the estimated effect of the endorsement on fans' contribution decisions.

The Endorsement's Effect on Campaign Contributions

The simplest estimate of the effect of the endorsement on contributions is to compare the average weekly contributions for counties in the treatment and control group before and after the endorsement. Tables 13 – 15 contain average weekly contributions for counties above and below the median, 75th, and 95th percentile of circulation respectively. The effect for counties above and below the median is negative, and is primarily driven by a decrease in donors in counties with Oprah Magazine circulation above the median. There is a large and positive effect for counties split at the 75th and 95th percentile. For the sample split at the 95th percentile, this result is driven primarily by increases in high circulation counties rather than decrease in lower circulation counties. Figure 4 contains average weekly contributions for counties above the below the 95th percentile in circulations. The dotted vertical line represents the week of Winfrey's endorsement. Counties above the 95th percentile in contributions had greater average contributions in seven of the 12 weeks before the endorsement. In addition, the pre-endorsement trends for both groups are similar. Following the endorsement, the "heavily treated" counties have higher average contributions in all 12 weeks and the trends of contributions are less similar.

²⁰ While the majority of zip codes do not overlap county boundaries, roughly 14 percent of observations in this data were in a zip code that overlapped a county border. In these cases, contributions were allocated to the primary county attached to that zip code.

²¹ Negative contributions reflect instances where the campaign is refunding money. This can happen for a variety of reasons. For instance, the Obama campaign has a policy of not accepting contributions from registered lobbyists and refunds money if they discover they have inadvertently violated this policy.

A difference-in-differences estimate is more precisely estimated using a negative binomial regression with county fixed-effects. Table 16 contains the results from this specification. Columns (1) – (3) contain the results for a specification with the treatment group composed of all counties with circulation of Oprah Magazine above the 75th percentile.²² There is a positive and statistically significant result for Obama. This result suggests that counties above the 75th percentile in circulation have approximately 0.17 more donors per week during the post endorsement time period than counties with lower per-capita circulations. There is also a negative and statistically significant effect for both McCain and Romney.

Columns (4) – (6) contains results for a specification with the treatment group defined as counties with circulation of Oprah Magazine above the 95th percentile. There is a statistically significant effect for contributions to Barack Obama. This estimate is significant at the 0.05 level. The marginal effect suggests that counties above the 95th percentile have 0.35 more donors per week than counties with lower circulations. There is no statistically significant effect on this interaction term for either McCain or Romney.

This fixed-effects specification will accurately estimate the effect of the endorsement assuming that the two groups of counties have similar pre-endorsement contribution trends. Table 17 contains the demographic statistics of counties split at the 95th percentile. Counties in the treatment group have a higher percentage of Hispanics and lower percentage of Caucasians. They also have a higher percentage of college graduates. In terms of contributions, the average weekly contributions before the endorsement are similar with 5.6 in the treatment group and 4.9 in the control group.

These similar demographics and trends in Figure 4 are suggestive of the two groups being similar prior to the endorsement. To ensure, however, that the positive and significant results in Table 14 are not the result of a differing trend of contributions over time in the treatment group, a falsification test is conducted during the pre-endorsement time period. We introduced a placebo endorsement on March 1,

²² In unreported results splitting counties at the median level of circulation there are no statistically significant results for any of the three candidates.

2007 and limit the total sample to all weeks before the actual endorsement date—May 1, 2007. Table 18 contains the results for this test. There is no statistically significant result for specifications with a treatment group defined as either those counties above the median or the 95th percentile. This suggests that different pre-endorsement time trends are not driving the results in Table 15.

THE MAGNITUDE OF WINFREY’S ENDORSEMENT

These results provide strong evidence that Oprah Winfrey’s public endorsement during the 2008 Democratic primary had an impact on the political outcomes of Barack Obama and on the overall number of voters. The magnitudes of these effects are important.

The results for primary elections and caucus elections using Oprah Magazine and state fixed effects are used to generate predictions of the vote share Obama would have received, with and without the Winfrey’s endorsement. These were then used to predict county-level vote totals, and were then summed to provide an estimate of Winfrey’s total effect on Obama’s vote share, conditional on voting. In total, it is estimated that Winfrey’s endorsement was responsible for 1,015,559 votes for Obama. The 95% confidence interval for this estimated effect is 423,123 to 1,596,995. There are two important caveats for this estimate. The first is that this is the effect conditional on voting: it does not taking into account any participation effect. The second is that this is the estimated effect for our sample of states, which does not include Texas, Michigan, North Dakota, Kansas, or Alaska. In the elections in the 45 states and the District of Columbia included in our sample, Barack Obama received 278,966 more votes than Hillary Clinton. Given that 423,123, the lower bound of the estimated impact of the endorsement is greater than this difference, the results suggest that Oprah’s endorsement was responsible for the difference in the popular vote in our sample between Barack Obama and Hillary Clinton.

A similar approach is used to estimate the effect of Winfrey’s endorsement on participation. We estimate that the endorsement was responsible for increasing turnout in our sample by 2,196,300, with a 95 percent confidence interval for this estimate between 1,673,183 and 2,719,476. This is a substantial impact, given in our sample a total of 33,386,184 votes were cast. The lower bound of this estimate is

strictly higher than the interval around the magnitude of the estimated effect of the endorsement on vote share, suggesting that the effect on participation is larger in magnitude than the effect on vote share. In combination, our main estimates imply that votes for other candidates slightly increased as a result of the endorsement, although Obama's votes increased by far more. This fits with the theoretical model, and suggests that a social multiplier affects participation or the endorsement contained information about the importance of voting (or both).

Are the sizes of the estimated effects plausible? Oprah Winfrey is an exceptionally popular and influential celebrity. Every day, 8 million people watch her daily talk show, over 15 million watched her prime-time television show "Oprah's Big Give," and it is estimated that 16 million people read each issue of Oprah Magazine. Therefore, the estimated effect of the endorsement on vote share is 12.5 percent of her daily audience, 6.7 percent of the Big Give audience, and 6.3 percent of the readers of Oprah Magazine. Perhaps most significantly, 23 percent of Democrats reported that the endorsement would make them more likely to vote for Obama. The estimated effect represents only 2.5 percent of all votes cast by Democrats, far below the percentage who said their vote would be affected. Winfrey has already demonstrated an ability to influence the behavior of her fans in terms of their purchasing, eating, and philanthropic habits. While voting is a distinctly different activity, the magnitudes of these endorsement effects are plausible in the context of these other behaviors.

CONCLUSION

The results of this study suggest that Oprah Winfrey's endorsement of Barack Obama during the 2008 Democratic Presidential Primary had statistically and politically significant effects on Obama's political outcomes. Winfrey's involvement increased the share of the vote and the campaign contributions received by Obama, as well as the overall level of voter participation. The estimated effect in our sample is larger than the difference in the popular vote totals at the end of the Primary season.

To our knowledge, this is the first attempt to model and estimate the effect of a celebrity endorsement on political outcomes. The empirical results support the prediction of our formal model. In

areas where there were a greater concentration of fans, the endorsee enjoyed a higher than expected level of electoral success. There are important questions concerning the applicability of these results to other situations. These questions of external validity exist on several dimensions. The first and most obvious is whether a similar effect could be found for other celebrities. For example, would we expect a similar increase for Mike Huckabee in areas where Chuck Norris was particularly popular? It is clear that Winfrey is a celebrity of nearly unparalleled popularity. Therefore, this estimate likely serves as an upper bound of the potential effect of a celebrity endorsement. This does not mean that other endorsers would not have an effect, but rather that such effects may be more difficult to detect.

A second dimension of concerns about the external validity of the results relates to the type of election. Both the theoretical and empirical results of this paper are focused on the dynamics of a Primary election within one party. In the theoretical model, celebrities provide information to voters about a candidate's personal characteristics, not about their policies. This information may be most important during a Primary election, where candidates are nearly ideologically identical. In the case of a general election, voters are more concerned with policy positions, and therefore it unclear how much influence a celebrity endorsement may have.

Finally, it is important to consider the applicability of our results to endorsements by elected officials and special interest groups. Unlike celebrities, it is likely that the signal sent by an endorsement from these non-celebrities may contain more information than simply the quality of the candidate. Due to the known policy beliefs of these individuals, their endorsement will likely also convey information about the ideological preferences of the endorsee. Under these circumstances it is unclear whether our results are applicable. It is also quite possible that endorsements by these politicians may convey far more indirect benefits. These include access to fundraising sources and staff infrastructure. Further work is required to assess the role of endorsements on these indirect benefits.

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Figure 1 Effect on Sales of Oprah Recommending *Anna Karenina* and *Love in the Time of Cholera*

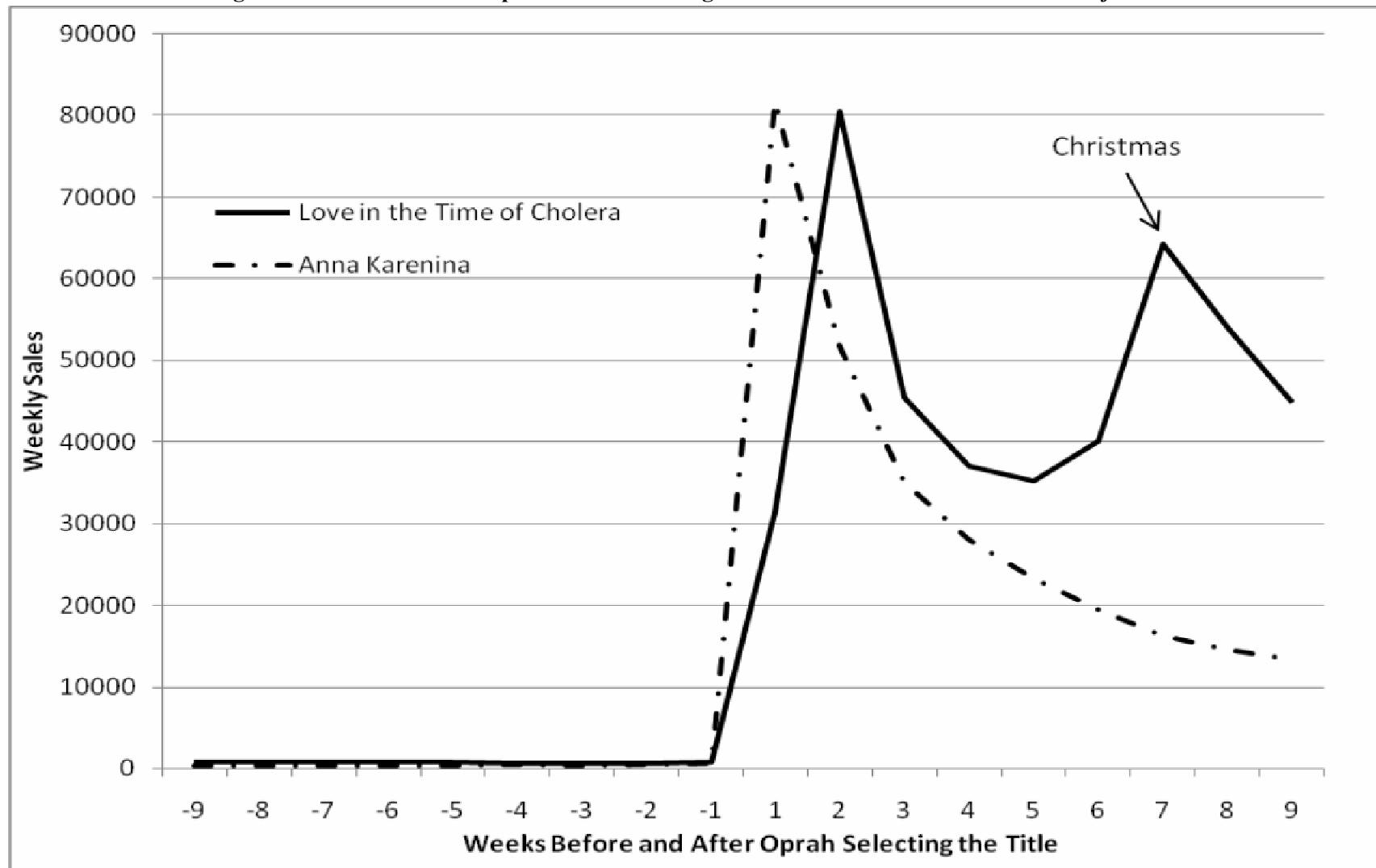


Figure 2 Media Mentions of “Oprah”, “Obama” and “President”

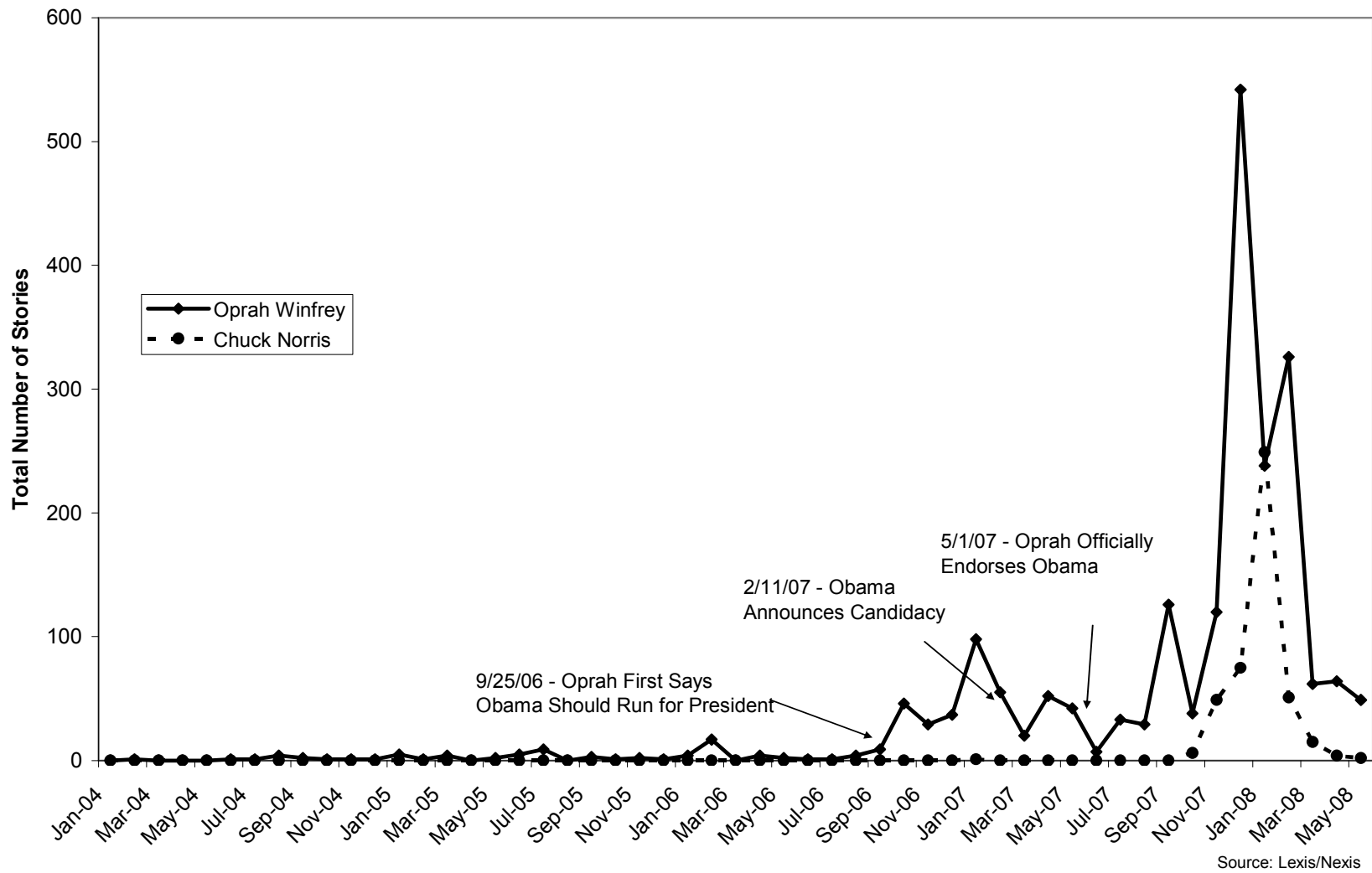


Figure 3 Comparison of Magazine Demographics: Oprah, Self, and People Magazines

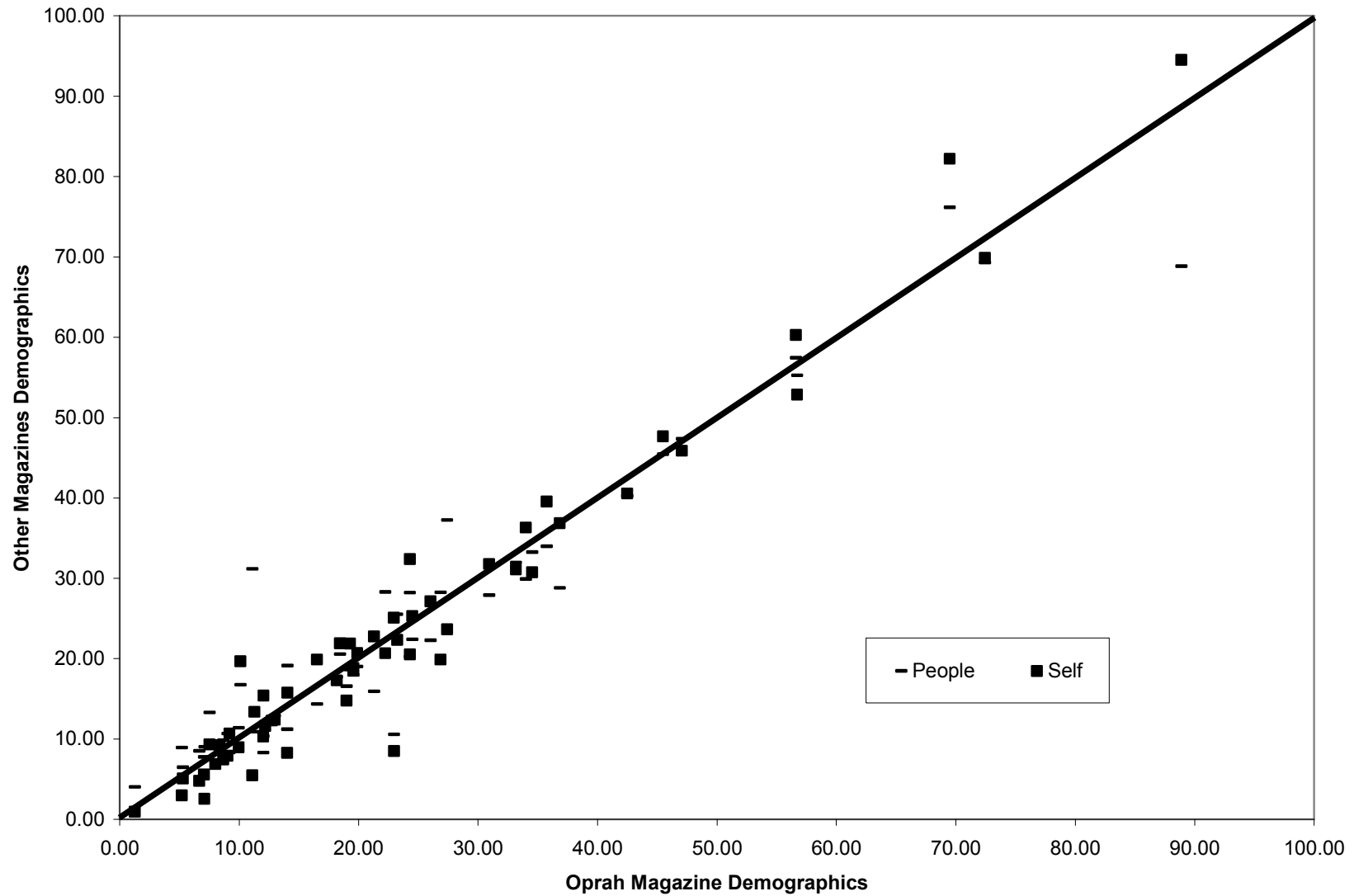


Figure 4 – Average Weekly Contributions by Percentile Circulation

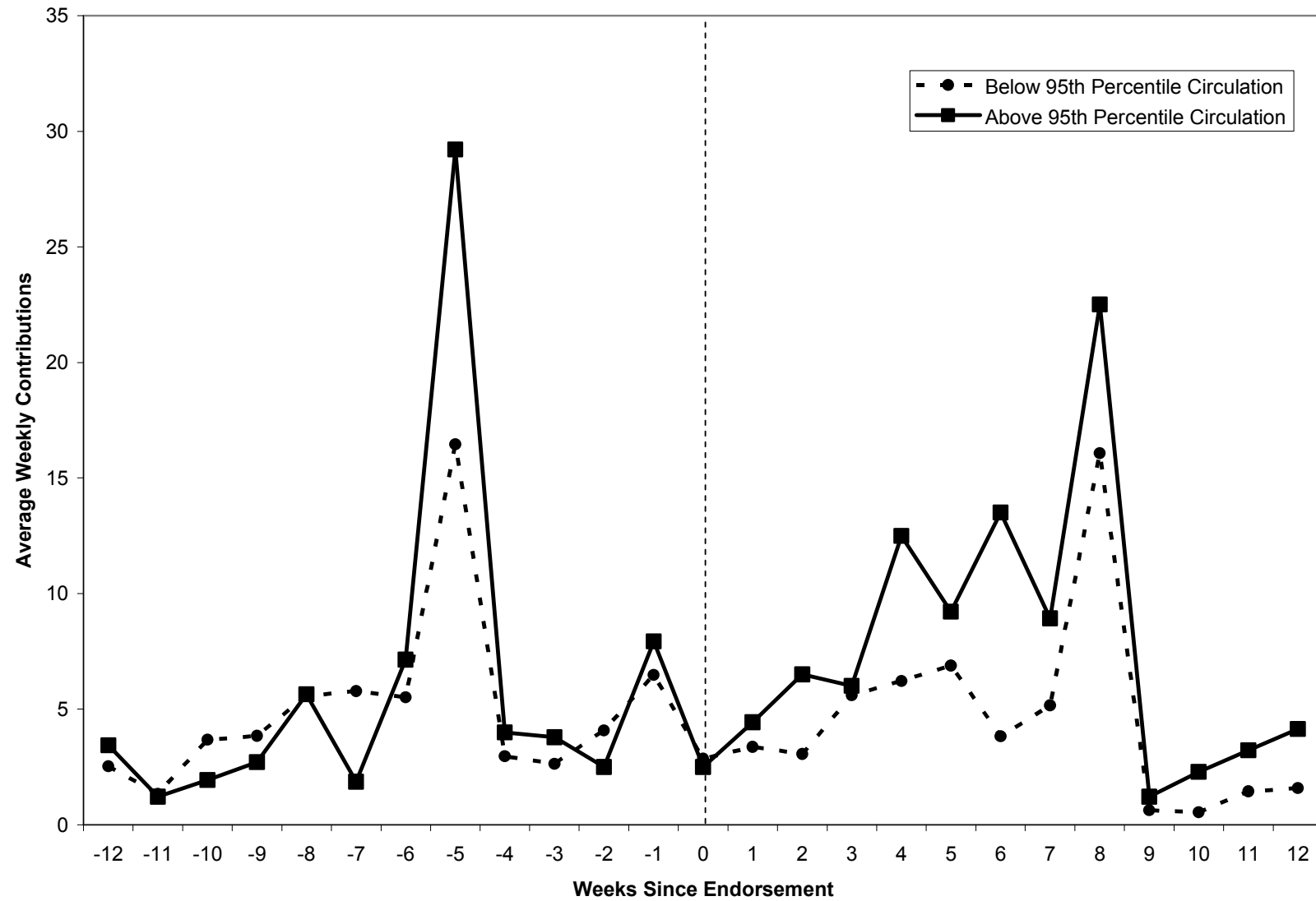


Table 1
Change in Sales Resulting from Oprah's Book Club

	Date Selected	Sales Three Months Before	Sales Three Months After	Percent Difference
<i>The Heart is a Lonely Hunter</i>	April 23, 2004	6,348	636,008	9919%
<i>Anna Karenina</i>	May 31, 2004	11,648	643,122	5421%
<i>The Good Earth</i>	September 16, 2004	31,508	472,558	1400%
<i>A Million Little Pieces</i>	September 22, 2005	37,576	3,141,246	8260%
<i>Night</i>	January 16, 2006	6,4226	1,402,916	2084%
<i>The Measure of a Man</i>	January 26, 2007	476	866,146	181863%
<i>The Road</i>	February 28, 2007	53,944	988,250	1732%

Source: Nielsen Bookscan

Table 2
Demographic Characteristics of Oprah Magazine

Demographic Category	Oprah Magazine	2000 United States Census
Men	11%	49%
Women	89%	51%
Graduated college plus	37%	24%
Attended college	36%	27%
Graduated high school	22%	29%
Did not graduate HS	5%	20%
Age 18-24	10%	10%
Age 25-34	18%	14%
Age 35-44	26%	16%
Age 45-54	24%	13%
Age 55-64	14%	9%
Age 65+	7%	12%
Employment: working full time	57%	55%
Employment: working part time	17%	15%
Employment: not working	27%	30%
Occupation: professional and related	21%	12%
Occupation: management, business and financial operations	12%	8%
Occupation: sales and office	25%	16%
Occupation: natural resources, construction and maintenance	1%	6%
Occupation: other employed	14%	28%
HHI \$150,000+	11%	5%
HHI \$75-149,999	34%	18%
HHI \$60-74,999	12%	10%
HHI \$50-59,999	9%	9%
HHI \$40-49,999	9%	6%
HHI \$30-39,999	8%	6%
HHI \$20-29,999	7%	13%
Marital status: never married	24%	27%
Marital status: now married	57%	54%

Marital status: legally separated/widowed/divorced	19%	19%
Race: White only	70%	75%
Race: Black/African American only	23%	12%
Spanish, Hispanic or Latino Origin or Descent	7%	13%

Source: MediaMark Research and Intelligence and the United States Census Bureau

Table 3
Timeline and Results of Democratic Primaries and Caucuses

Date	Election
January 3, 2008	Caucus: Iowa
January 8, 2008	Primary: New Hampshire
January 19, 2008	Caucus: Nevada
January 26, 2008	Primary: South Carolina
January 29, 2008	Primary: Florida
February 5, 2008	Primaries: Alabama, Arizona, Arkansas, California, Connecticut, Delaware, Georgia, Massachusetts, Missouri, New Jersey, New Mexico, Missouri, New Jersey, New Mexico, New York, Oklahoma, Tennessee, Utah, Caucuses: Colorado, Idaho, Minnesota
February 9, 2008	Primary: Louisiana Caucuses: Nebraska, Washington
February 10, 2008	Caucus: Maine
February 12, 2008	Primaries: D.C., Maryland, Virginia
February 19, 2008	Primary: Wisconsin Caucus: Hawaii
March 4, 2008	Primaries: Ohio, Rhode Island, and Vermont
March 8, 2008	Caucus: Wyoming
March 11, 2008	Primary: Mississippi
April 22, 2008	Primary: Pennsylvania
May 6, 2008	Primaries: Indiana and North Carolina
May 13, 2008	Primary: West Virginia
May 20, 2008	Primaries: Kentucky and Oregon
June 3, 2008	Primaries: Montana and South Dakota

Table 4
Summary of The Regressors

Voteshare	Obama's vote share in the 2008 Democratic Presidential Primary
Voteshare2004	Obama's vote share in the 2004 Illinois Democratic Senate Primary
OprahMag	Oprah subscription numbers per capita of adult (18+) population
PeopleMag	People subscription number per capita of adult (18+) population
SelfMag	Self subscription number per capita of adult (18+) population
Male	Percent male. Universe: individuals 18+
White	Percent white non-Hispanic. Universe: individuals 18+
Black	Percent black non-Hispanic. Universe: individuals 18+
Hispanic	Percent Hispanic. Universe: individuals 18+
HighSchGrad	Percent graduated High School only. Universe: individuals 18+

CollegeGrad	Percent graduated College or higher. Universe: individuals 18+
Married	Percent married. Universe: individuals 15+
Divorce+Sep	Percent divorced or separated. Universe: individuals 15+
Widowed	Percent widowed. Universe: individuals 15+
Pop40to64	Percent aged 40 to 64. Universe: individuals 18+
Pop65plus	Percent aged 65 plus. Universe: individuals 18+
FamilySize	Average family size. Universe: families
Urban	Percent Urban type. Universe: Population
Veteran	Percent Veterans. Universe: Population: Civilian population 18+
Unemp_Male	Percent of males unemployed. Universe: male civilians 16+ in Labor Force
Unemp_Female	Percent of females unemployed. Universe: female civilians 16+ in Labor Force
LbrFP_Male	Percent of males in labor force. Universe: males aged 16+
LbrFP_Female	Percent of females in labor force. Universe: females aged 16+
Poor	Percent of families who are below poverty line. Universe: families
MedianIncome	Median family income in 1999 (in thousands). Universe: families
OwnHome	Percent of dwellings that are owner-occupied. Universe: occupied dwellings
LowQuartileHouse	25 th percentile for Housing Value
MedianHouse	Median Housing Value
HighQuartileHouse	75th percentile for Housing Value
Chicago	County in Chicago Metropolitan Statistical Area

Table 5
Obama's Votes and Circulation of Oprah Magazine

	All States		Primary Only		Caucus Only	
Oprah Mag	6.22*** (1.3)	2.6*** (0.75)	5.57*** (1.31)	2.69*** (0.775)	4.67** (1.3)	4.377** (0.93)
Male	-1.28 (2.93)	-2.76 (2.13)	-1.18 (3.01)	-2.82 (2.18)	4.59 (3.06)	0.527 (2.75)
Male²	1.51 (2.86)	2.41 (2.08)	1.18 (2.95)	2.45 (2.14)	-3.66 (2.96)	-0.387 (2.5)
White	0.79** (0.29)	0.68*** (0.016)	0.97*** (0.27)	0.68*** (0.16)	0.15 (0.3)	1.002** (0.359)
White²	-0.67** (0.229)	-0.50*** (0.014)	-0.73** (0.22)	-0.51*** (0.14)	-0.19 (0.32)	-0.41 (0.28)
Black	0.49** (0.228)	0.64*** (0.12)	0.60** (0.2)	0.64*** (0.125)	-1.63 (1.35)	-0.02 (1.34)
Black²	0.23 (0.27)	0.059 (0.12)	0.24 (0.26)	0.06 (0.12)	20.34* (10.4)	10.2 (11.4)
Hispanic	-0.47 (0.347)	-0.38** (0.17)	-0.37 (0.31)	-0.39** (0.17)	-0.714 (0.96)	0.291 (0.69)
Hispanic²	0.94* (0.55)	0.906** (0.316)	0.97* (0.53)	0.92** (0.32)	0.20 (1.53)	-0.21 (1.05)
HighSchGrad	0.42* (0.21)	0.37** (0.157)	0.38 (0.23)	0.37** (0.16)	0.22 (0.22)	-0.07 (0.157)
CollegeGrad	0.58** (0.21)	0.56** (0.18)	0.55** (0.22)	0.55** (0.18)	0.9** (0.23)	0.35* (0.16)
Married	-0.38* (0.21)	-0.34** (0.1)	-0.35 (0.21)	-0.32** (0.11)	-0.23 (0.377)	-0.6 (0.43)
Divorce+Sep	-0.87** (0.39)	-0.19 (0.22)	-0.75* (0.413)	-0.17 (0.22)	-0.31 (1.12)	-1.13 (0.816)
Widowed	-2.2***	-2.4***	-2.23**	-2.43***	-0.7	-0.625

	(0.642)	(0.55)	(0.64)	(0.55)	(0.53)	(0.583)
Pop40to64	0.43*	0.31**	0.37	0.29**	0.45	0.66
	(0.23)	(0.13)	(0.237)	(0.14)	(0.55)	(0.52)
Pop65plus	0.97***	0.93***	0.9**	0.927***	-0.12	0.017
	(0.285)	(0.173)	(0.3)	(0.177)	(0.24)	(0.43)
FamilySize	0.13**	0.1**	0.149**	0.102**	0.267**	0.09
	(0.053)	(0.04)	(0.05)	(0.34)	(0.066)	(0.05)
Urban	-0.06**	-0.03*	-0.07***	-0.031*	0.062	-0.02*
	(0.02)	(0.016)	(0.02)	(0.016)	(0.047)	(0.01)
Veteran	-0.02	-0.002	0.02	-0.012	0.11	0.65**
	(0.29)	(0.016)	(0.32)	(0.167)	(0.27)	(0.16)
Unemp_Male	0.48	-0.07	0.53	-0.08	-0.25	-0.07
	(0.39)	(0.16)	(0.4)	(0.17)	(0.316)	(0.37)
Unemp_Female	0.086	0.11	0.06	0.105	0.48	0.52
	(0.283)	(0.122)	(0.3)	(0.125)	(0.39)	(0.53)
LbrFP_Male	0.103	-0.083	0.046	-0.09	0.1	0.028
	(0.0133)	(0.075)	(0.126)	(0.078)	(0.15)	(0.17)
LbrFP_Female	1.04***	0.57***	0.95***	0.59***	-0.22	-0.02
	(0.187)	(0.121)	(0.21)	(0.125)	(0.27)	(0.13)
Poor	-0.38	-0.20	-0.57	-0.19	-0.14	0.12
	(0.37)	(0.221)	(0.37)	(0.22)	(0.85)	(0.65)
MedianIncome (000)	-0.009	-0.2	-0.009	-0.002	0.007	0.013**
	(0.003)	(0.22)	(0.003)	(0.002)	(0.006)	(0.004)
MedianIncome² (000)	0.000	0.000	0.000	0.000	0.000	0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
OwnHome	0.058	0.000	0.005	0.003	0.2	0.063
	(0.13)	(0.07)	(0.126)	(0.08)	(0.257)	(0.139)
Chicago	0.108***	-0.02*	0.108***	-0.019*		
	(0.02)	(0.01)	(0.019)	(0.01)		
LowQuartileHouse	0.000*	0.000**	0.000*	0.000**	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
MedianHouse	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
HighQuartileHouse	0.000	0.000	0.000	0.000	0.000**	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R-sqr	0.7719	0.9152	0.7842	0.9148	0.9035	0.9307
State Fixed Effects		X		X		X
N	2,610	2,610	2,132	2,132	478	478

Unreported covariates include a cubic time trend. Coefficients and standard errors are normalized using a transformation of $E[\text{obamashare} * (1 - \text{obamashare})]$. Standard errors are clustered on state and regressions are weighted using number of voters.

* Significant at 0.1 level

** Significant at 0.05 level

*** Significant at 0.001 level

Table 6
Percentage Point Change in Vote Share for
a 10 Percent Change in Independent Variable

	Primary States	Caucus States
Percent LFP Female	3.25%	-0.11%
Percent Male	-2.26%	0.75%
High School Graduate	2.25%	-0.43%
Percent Widowed	-1.97%	-0.51%
Percent Married	-1.97%	-3.70%
Percent 65 Plus	1.80%	0.03%
Percent 40-64	1.22%	2.77%
College Graduates	0.91%	0.58%
Percent LFP Male	-0.61%	0.19%
Percent Black	0.59%	0.50%
Percent White	-0.52%	2.76%
Percent Divorced or Separated	-0.21%	-1.37%
Percent Poor	0.20%	0.13%
Circulation of Oprah Magazine	0.19%	0.30%
Percent Urban	-0.13%	-0.08%
Percent Hispanic	-0.08%	1.10%
Percent Unemployed Female	0.06%	0.30%
Percent Unemployed Male	-0.05%	-0.04%
Percent Veteran	-0.02%	0.91%

Table 7
Voter Participation and Circulation of Oprah Magazine

	All States	Primary Only	Caucus Only
Oprah Mag	0.897** (0.43)	1.193** (0.492)	0.113 (0.56)
R-sqr	0.9442	0.8581	0.9602
State Fixed Effects	X	X	X
N	2,404	2,103	301

Unreported covariates are described in Table 4 and a cubic time trend. Coefficients and standard errors are normalized using a transformation of $E[\text{participation} * (1 - \text{participation})]$. Standard errors are clustered on state and regressions are weighted using adult population.

* Significant at 0.1 level

** Significant at 0.05 level

*** Significant at 0.001 level

Table 8

Obama's Votes and Oprah Magazine Controlling for Woman's Magazines

	Primary Only Vote Share	Primary Only Participation	Caucus Only Vote Share	Caucus Only Participation	Primary Only Vote Share	Primary Only Participation	Caucus Only Vote Share	Caucus Only Participation
Oprah Mag	4.3*** (1.015)	1.86*** (0.45)	6.25** (2.27)	0.344 (0.605)	2.83** (0.897)	0.233** (0.117)	4.805** (1.03)	0.148 (0.469)
PeopleCap	0.252 (0.689)	-0.382 (0.306)	1.82* (0.81)	-0.359 (0.439)				
SelfCap	-5.00*** (1.39)	-0.615 (0.479)	-9.84* (4.83)	0.056 (0.492)				
EbonyCap					-0.33 (1.498)	0.241 (0.186)	-16.96* (8.33)	-2.51 (2.41)
R-sqr	0.9159	0.8567	0.9324	0.9684	0.9148	0.8587	0.9323	0.9684
State FE's	X	X	X	X	X	X	X	X
N	2,132	2,103	478	301	2,132	2,103	478	301

Unreported covariates are described in Table 4 and a cubic time trend. Coefficients and standard errors are normalized using a transformation of $E[\text{obamashare} * (1 - \text{obamashare})]$ in the vote share equations and $E[\text{participation} * (1 - \text{participation})]$ in the participation equations. Standard errors are clustered on state and regressions are weighted number of voters in the vote share equations and using adult population in the participation equations

* Significant at 0.1 level

** Significant at 0.05 level

*** Significant at 0.001 level

Table 9

Obama's Votes and Oprah's Book Club

	4 Weeks		8 Weeks		12 Weeks	
	All DMAs	Primary Only	All DMAs	Primary Only	All DMAs	Primary Only
BookSales	0.0141** (0.007)	0.0169** (0.008)	0.0158** (0.007)	0.019** (0.008)	0.0147* (0.007)	0.0178** (0.008)
R-sqr	0.8872	0.9016	0.8885	0.9032	0.8868	0.9012
N	87	76	87	76	87	76

Unreported covariates are described in Table 4 and a cubic time trend. Coefficients and standard errors are normalized using a transformation of $E[\text{obamashare} * (1 - \text{obamashare})]$. Standard errors are clustered on state and regressions are weighted using number of voters.

* Significant at 0.1 level

** Significant at 0.05 level

*** Significant at 0.001 level

Table 10
Participation and Oprah's Book Club

	4 Weeks		8 Weeks		12 Weeks	
	All DMAs	Primary Only	All DMAs	Primary Only	All DMAs	Primary Only
BookSales	0.0177** (0.007)	0.02*** (0.006)	0.018** (0.007)	0.0199** (0.006)	0.018** (0.007)	0.02** (0.007)
R-sqr	0.9048	0.8231	0.9042	0.8180	0.9038	0.8146
N	81	75	81	75	81	75

Unreported covariates are described in Table 4 and a cubic time trend. Coefficients and standard errors are normalized using a transformation of $E[\text{participation} * (1 - \text{participation})]$. Standard errors are clustered on state and regressions are weighted using adult population.

* Significant at 0.1 level

** Significant at 0.05 level

*** Significant at 0.001 level

Table 11
Obama's Votes in Illinois in 2008 and in the 2004 Illinois Senate Primary

	2008 Illinois Vote Share	2004 Illinois Vote Share	2008 Illinois Participation	2004 Illinois Participation
Oprah Mag	1.04 (3.04)	-6.45 (8.86)	5.87* (3.02)	11.45 (7.25)
R-sqr	0.9562	0.9470	0.8885	0.7078
N	102	102	102	102

Unreported covariates are described in Table 4 and a cubic time trend. Coefficients and standard errors are normalized using a transformation of $E[\text{obamashare} * (1 - \text{obamashare})]$ in the vote share equations and $E[\text{participation} * (1 - \text{participation})]$ in the participation equations. Standard errors are clustered on state and regressions are weighted number of voters in the vote share equations and using adult population in the participation equations

* Significant at 0.1 level

** Significant at 0.05 level

*** Significant at 0.001 level

Table 12
Policy Preference and Oprah Magazine Circulation

	<i>National Journal Composite</i>	<i>National Journal Economic</i>	<i>National Journal Social</i>	<i>National Journal Foreign</i>	Senate Democratic Vote Share
Oprah Mag	89.83 (570.8)	556.5 (586.6)	414.7 (843.5)	-1150.4 (746.96)	-0.72 (1.05)
R-sqr	0.8793	0.8507	0.8253	0.8080	.7347
N	259	260	259	259	5,022

Unreported covariates are described in Table 4.

* Significant at 0.1 level

** Significant at 0.05 level

*** Significant at 0.001 level

Table 13
Average Weekly Contributions by Circulation Level and Endorsement Timing

	Pre-Endorsement	Post-Endorsement	Difference
Above Median	7.47	6.48	-0.99 (0.982)
Below Median	2.4	2.54	+0.14 (0.49)
		Difference in Differences	-1.13 (1.1)

Table 14
Average Weekly Contributions by Circulation and Endorsement Timing

	Pre-Endorsement	Post-Endorsement	Difference
Above 75	6.92	7.14	+0.22 (1.16)
Below 75	4.28	3.64	-0.64 (0.62)
		Difference in Differences	+0.86 (1.27)

Table 15
Average Weekly Contributions by Circulation and Endorsement Timing

	Pre-Endorsement	Post-Endorsement	Difference
Above 95	5.68	7.44	+1.76 (1.81)
Below 95	4.9	4.37	-0.53 (0.57)
	Difference in Differences		+2.29 (2.6)

Table 16
Fixed Effect Negative Binomial Estimates of Campaign Contributions
May, 2007 – August, 2007

Parameter estimates (standard errors)						
	(1)	(2)	(3)	(4)	(5)	(6)
	Obama	McCain	Romney	Obama	McCain	Romney
POSTENDORSE* ABOVE 75th Percentile	0.167* (0.097)	-0.205* (0.106)	-0.195* (0.103)			
POSTENDORSE* ABOVE 95th Percentile				0.352** (0.175)	0.085 (0.247)	-0.342 (0.288)
POSTENDORSE	0.119 (0.115)	0.072 (0.126)	0.771 (0.122)	0.157 (0.118)	0.702*** (0.124)	0.023 (0.117)
N	299	299	299	299	299	299
N*T	7,774	7,774	7,774	7,774	7,774	7,774

Unreported covariates include a cubic weekly time trend and dummy variables for quarterly filing deadlines.

- * Significant at 0.1 level
- ** Significant at 0.05 level
- *** Significant at 0.001 level

Table 17
Demographic Statistics by Oprah Magazine Circulation

	>95th Percentile Oprah Circulation	<95th Percentile Oprah Circulation
Oprah Circulation Per Capita	0.012	0.022
Pre-Endorsement Weekly Contributions	5.6	4.9
Male	0.48	0.49
White	0.66	0.75
Black	0.13	0.11
Hispanic	0.134	0.06
High School Only	0.50	0.54
College Graduate	0.40	0.28
Married	0.56	0.55
Divorced or Separated	0.13	0.13
Widowed	0.05	0.07
40 – 64 Years Old	0.42	0.40
65+ Years Old	0.13	0.16
Male Unemployment	0.046	0.058
Female Unemployment	0.05	0.06
Adult Population	335,834	415,797
Median Income	\$67,736	\$53,727
N	15	285

Table 18
Fixed Effect Negative Binomial Estimates of Campaign Contributions to Barack Obama
January, 2007 – May, 2007

Parameter estimates (standard errors)		
PLACEBOENDORSE*	-0.09	
ABOVE 75th Percentile	<i>(0.111)</i>	
PLACEBOENDORSE*		-0.025
ABOVE 95th Percentile		<i>(0.233)</i>
PLACEBOENDORSE	-0.164	-0.193
	<i>(0.139)</i>	<i>(0.132)</i>
N	286	286
N*T	4,576	4,576

Unreported covariates include a cubic weekly time trend and dummy variables for quarterly filing deadlines.

- * Significant at 0.1 level
- ** Significant at 0.05 level
- *** Significant at 0.001 level