THE 2008 HOEFER PRIZES
FOR EXCELLENCE IN UNDERGRADUATE WRITING

IN RECOGNITION OF WRITING ACHIEVEMENT IN THE
UNDERGRADUATE FIELD OF STUDY

STANFORD UNIVERSITY
MAY 21, 2008
Immigration and Public Opinion: The Influence of the Media

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Abstract

This paper studies media’s influence on public opinion formation relating to immigration. Since the intensity of media coverage of immigration is likely endogenous, I use editorial changes as an instrumental variable to identify the causal effect of media on public opinion. I find that an increase in newspaper coverage increases hostility toward immigration. This result is consistent with the communication theory that media can serve an agenda-setting role by influencing public opinion. It suggests that media have a powerful influence on public opinion, one not typically addressed in economic literature, but does not indicate whether this effect is beneficial or damaging.

Introduction

I examine media coverage of immigration as a possible determinant of public opinion on immigration in the United States. Communication theories postulate that the media are able to influence how their constituents evaluate issues. In particular, agenda setting theory claims that issues discussed in the media are mentally tagged as more important than issues the media does not cover and thus the former have more thought devoted to them. That is, the media tell people what to think about. Priming theory makes an even stronger claim, that the way media present issues influences people’s opinions and judgments. Thus, in addition to telling people what to think about, priming says that media also tell people what to think. I hypothesize that media coverage of immigration will significantly affect public opinion of immigration because of these theories.

There are many studies that prove the existence of priming and agenda setting effects brought on by the media. Many of these are performed in controlled, experimental settings.
to reduce the number of uncontrollable variables. Several other studies link media coverage of immigration and public opinion, but very few establish causality. These studies are run outside of the laboratory to increase realism and thus face the problems of omitted variable bias and simultaneous causality. A study on this subject in 1999 by Domke, McCoy, and Torres found priming effects to be tied to the expression of opinion in an experimental setting where immigration was used as the topic. They prove that the media’s framing of an issue structures how people evaluate or discuss that issue at a later time.

The three main sets of data I use for this analysis come from newspaper archives, The Roper Center for Public Opinion Research, and the Current Population Survey (iPoll Databank, “Current Population Survey”). Such sources add realism to my analysis because the data are not gathered in contrived experimental environments, but the data come with the disadvantage that I could not control the circumstances of their gathering. I employ instrumental variables so that my results can be interpreted causally instead of as correlations between variables. Instrumental variables prevent endogeneity in the regression. For example, a recession in the United States might influence the public’s opinion about immigrants because they may believe that immigrants are burdening the welfare system, but the recession would also influence the media’s coverage of immigration because the organizations may cover articles relating to low-skilled migrants rapidly losing their jobs. The instrumental variable is necessary to estimate regression coefficients in a consistent manner. It must only affect public opinion through the variable for which it is instrumenting. For newspaper coverage of immigration the instrumental variable is a management change at the company. An argument for the validity of this instrument appears in the Method section, below.
I selected newspapers as the media source because they are an influential resource for information. As one of the oldest and most credible news sources, their articles are subject to strict journalistic standards and quality control. *The New York Times*, the newspaper chosen for this analysis, is commonly thought of as a national newspaper because its content does not focus on a single geographic area and it has the third highest circulation figures after *USA Today* and *The Wall Street Journal* (“Newspaper circulation”). These features make *The New York Times* appropriate for a nation-wide analysis in the United States.

Whether intentional or accidental, the media’s role as agenda setters implies a break with journalistic standards. Newspapers, and the media in general, purport to express public opinion, not guide it. However the results of this paper indicate that newspapers have the power to change public opinion of immigration by increasing or decreasing their coverage of the issue. This does not necessarily imply that newspapers are performing improperly. Reporting on issues such as topics discussed in Presidential speeches is necessary to keep the public informed and will influence public opinion; this is an example of how the relationship can be positive. However, some topics that cost little to report but generate a large amount of attention for the newspaper are given more coverage than they deserve. In these cases, the undue quantity of newspaper coverage may sway public opinion when the issue was not significant to begin with. The existence of a relationship between media coverage of immigration and the formation of public opinion should be taken into account in discussions of policy regarding both immigration and media management.

The remainder of this paper is organized into five sections. The Literature Review gives further background on the communication and economic theory behind this paper. The Method section covers the assumptions, instrumental variable, and economic models used.
In the Data section, a description of the data is accompanied by summary statistics, while the results section discusses key findings. Finally, the Conclusion summarizes and describes implications of the results.

**Literature Review**

Previous papers related to this topic come from two general fields: economics and communication. Economic literature regarding public opinion focuses on the determinants of public opinion, while communication literature focuses on how those determinants actually become opinion. The communication literature finds that the media prime viewers to think about topics, such as immigration, in certain ways. The way the media frame an issue influences what the public thinks. Economic literature focuses on the categories that affect public opinion of immigration, such as competition for jobs, concern about welfare, and cultural concerns. The degree to which these areas influence one’s public opinion is determined by the demographics of each individual.

**Communication Theory:**

In the area of communication theory, Domke et al. experimentally determine that the theory of priming is relevant for immigration. Their 1999 paper describes a study where subjects were exposed to immigration articles written in two different styles, material and ethical. Material articles focus on facts and figures, stating how and to what degree immigration may affect United States citizens in specific areas. Ethical articles, on the other hand, describe intangible concepts such as freedom and morals, and focus on emotions. Subjects answer an open-ended question on immigration and their responses are rated based on their answer’s material or ethical focus. Domke et al. find that the framing of an article
primes subjects to think about immigration in specific ways that later influence their answers to the open-ended question. The experimental setting allows the researchers to interpret results causally, however they face the classic trade-off between internal validity and generalizability. People generally do not encounter media in a laboratory setting and are not asked to immediately give an opinion on what they read, hear, or see. It is possible that priming effects are initially strong but diminish over time to the point where they would not affect public opinion of immigration (Domke, et al., 1999).

Ransford Danso and David A. MacDonald address the issue of media’s influence over time in a 2001 paper, but are unable to determine a causal relationship. Danso and MacDonald look at the effect that the media have on xenophobia by analyzing a random sample of articles from South African newspapers written in English. The authors find that well over half of the articles are not analytical in nature, meaning they simply list statistics or describe an event in order to avoid analyzing a controversial issue. The articles keep to a safe middle ground instead of giving pros and cons. According to Danso and MacDonald these articles do not provide readers with the resources to arrive at an educated opinion on immigration. The authors also show that when articles are analytical, they become overwhelmingly positive toward immigration. While they are unable to determine causality, Danso and MacDonald do show that if South African newspapers were more analytical in their coverage of immigration, their constituents might not be so negative on the issue (Danso and MacDonald, 2001).

In a 2002 analysis of the Irish Times, Piaras Mac Éinrí makes the unusual claim that newspapers are not doing enough agenda-setting regarding immigration in Ireland. Mac Éinrí finds that newspaper coverage of immigration issues is still dominated by topics related
to refugees despite the fact that Ireland recently became a net immigration country after many years of being a net emigration country. His study categorized every relevant article from a year of the *Irish Times* in many different areas including keywords, perspective, themes, institutions mentioned, and location within the newspaper. The results show that “asylum seeker” was mentioned 2.60 times as often as “immigrant” and “refugee” 1.77 times as often. Mac Éinrí finds that the *Irish Times* in 2000 did not accurately reflect the state of Ireland on the issue of immigration and thus did not perform its duty of informing the population. Like Danso and MacDonald, he is also unable to establish causality (Mac Éinrí, 2002).

When possible, establishing causality strengthens results and clarifies potential next steps. A causal link between media coverage of immigration and public opinion on immigration, as described by Domke et al. has policy implications because the source of the cause is clear. Action can be taken to correct for misrepresentation of an issue in the media when the source of the problem can be identified. However, the generalizability of Card, Dustmann, and Preston’s studies, described below, is equally desirable because their analysis of public opinion determinants can be applied to any relevant survey with minor adjustments.

**Economic Theory:**

A series of economic papers by Christian Dustmann and Ian Preston in combination with David Card cite four primary determinants for public opinion on immigration. In a 2006 paper, “Is Immigration Good or Bad for the Economy: Analysis of Attitudinal Responses,” Dustmann and Preston find that views on “labour market competition,” the “burden [on] public finances,” and economic efficiency from immigration are influential in determining an individual’s attitude toward immigration (Dustmann and Preston, 2006).
2004 paper Dustmann and Preston also find that “racial attitudes” influence public opinion of immigration (Dustmann and Preston, 2004). However, an individual’s likelihood of believing that immigrants generate labor market competition, burden the welfare system, or dilute their country’s culture depends on the demographics of that individual. The papers examine several demographic characteristics of individuals and find significant results for three: education, age, and employment status. Card, Dustmann, and Preston use data from the European Social Survey to conclude that higher education leads to more liberal attitudes toward immigration (2005). Card et al. also find that when they control for education, age is positively related to anti-immigration sentiments and that stable employment discourages anti-immigration sentiments.

Dustmann and Preston’s 2004 analysis of the British Social Attitudes Survey finds racial attitudes to be the strongest overall determinant of public opinion on immigration (Dustmann and Preston, 2004). This effect is most significant for the group with comparatively low education. The authors interpret their results as implying that persons with low education resort to racial attitudes because they do not have the faculties to consider the potential effects of immigration on the level of jobs or welfare. “There are at least two explanations for this: Either education itself makes economic arguments more accessible to those educated, or education attracts those more inclined to think in such terms” (Dustmann and Preston, 2004 31). Even though most literature argues that immigrants are complements in labor for highly educated people, Dustmann and Preston find that the educated consider welfare and labor market effects far more than those with low education. The common conception is that less educated workers, who tend to have jobs with fewer specific skill requirements, lose jobs to immigrants and thus should oppose immigration on economic
Public opinion of immigration is a complex combination of many factors. Card, Dustmann, and Preston are able to isolate four main determinants of public opinion, however, the authors also note that the salience of these determinants depends on demographic characteristics. Their list of determinants is by no means exhaustive and the strength of those determinants varies greatly by geographic location. My paper considers media coverage as another potential determinant of public opinion of immigration.

**Method**

To determine the causal effect of media coverage on United States public opinion of immigration, I express the relationship using a two stage least-squares estimator. The equation I employ is of the following format:

\[
\begin{align*}
\text{first stage:} & \quad X_1 = \alpha_0 + \alpha_1 Z_1 + \alpha_2 X_2 + \alpha_3 X_3 \ldots \alpha_n X_n \\
\text{second stage:} & \quad Y = \beta_0 + \beta_1 \hat{X}_1 + \beta_2 X_2 + \beta_3 X_3 \ldots \beta_n X_n + u
\end{align*}
\]

where \( Y \) is public opinion, \( X_1 \) is newspaper coverage of immigration (the variable of interest), \( X_2 \) is the number of immigrants, \( Z_1 \) is the instrument for newspaper coverage, \( X_3 \ldots X_n \) are other observable factors that influence public opinion, \( \hat{X}_1 \) is the predicted value of \( X_1 \), and \( u \) is the error term containing unobservable determinants of public opinion. An instrumental variable estimator provides a consistent estimate of \( \beta_1 \), newspaper coverage’s causal effect on public opinion.

An ordinary least squares regression would not be sufficient for this paper because of the potential endogeneity problem; omitted factors that are correlated with the variable of
interest (public opinion) and the independent variables would result in biased and inconsistent estimates of the parameters of interest. Both public opinion and newspaper coverage could change in response to an omitted factor, such as a natural disaster in a country that sends many immigrants to the United States. The natural disaster could cause an influx in illegal immigrants but would also generate media coverage in the United States. In isolation, more illegal immigrants would likely increase hostility toward immigration, but media coverage of the natural disaster would decrease hostility, thus making the effect ambiguous. This hypothetical natural disaster influences the dependent variable (public opinion) through more than one independent variable (media coverage and number of immigrants). It is necessary to find an instrument that changes the independent variable without changing the variable of interest apart from the effect that comes through the independent variable.

A strong instrument will be relevant, \( \text{corr}(Z_i, X_i) \neq 0 \), and exogenous, \( \text{corr}(Z_i, \text{unobservable determinants of } Y) = 0 \). Instrumental relevance is a testable assumption and details of this test appear in the Results section. Exogeneity is a non-testable assumption, thus, arguments for the exogeneity of my instrument appear below.

I use changes in The New York Times’ executive editor as the instrumental variable for newspaper coverage. Executive editors commonly manage the operations of a newspaper and have authority over which articles or topics take precedence. By allocating funds to various departments, the executive editor could also determine which segments of the paper are able to write more or better quality articles. The changes in the executive editors of The New York Times are exogenous if they do not influence public opinion on immigration other than through changes in the newspaper’s coverage of the issue. This is likely the case
because the editorial changes I observe during the time span of my study occur predominantly because of promotions and retirements, and not in response to changes in public opinion. *The New York Times* places a mandatory retirement age on all of its top executives (McFadden, 1994). The 1994 change from Max Frankel to Joseph Lelyveld and the 2001 change from Lelyveld to Howell Raines were both caused by retirements (McFadden, 1994; McFadden 2001). In 2003 Bill Keller succeeded Raines as the Executive Editor because the newspaper’s staff did not approve of Raines’ management style (Steinberg, 2003).

These editorial changes are caused by pre-set rules or by personal decisions on the part of the editor or the newspaper’s management. I believe they are not results of changing public opinion or of other observables that affect public opinion of immigration; the decisions are internal to the company or the individual people. This analysis covers each month from January of 1990 to October of 2007, which provides three editorial changes for *The New York Times*. I input this instrumental variable as a sequence of zero’s followed by one’s then two’s, etc. to indicate that the change persists throughout the tenure of each editor instead of just in the month of the editorial change. For example, the editorial change instrumental variable changes from zero to one in September of 1994 and from one to two in September of 2001, because these are the first months after their respective editorial changes to be included in the sixty-eight months of the regression.

The number of immigrants entering the United States also requires an instrument to eliminate the potential endogeneity problem\(^1\). However, endogeneity of the number of

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\(^1\) I attempted to instrument for the number of Hispanic immigrants entering the United States using the Mexican consumer price index (*El Índice Nacional de Precios al Consumidor*) and the United States’ dollar to Mexican peso exchange rate, however these instruments were never significant (“Índices de Precios al Consumidor y UDIS,” “US Dollars to Mexican Peso”).
immigrants will not present a problem for consistent estimation of the effect of the newspaper as long as the former is not correlated with the instrument for the latter. To consistently measure the causal effect of *The New York Times*’ immigration coverage, the instrumental variable must not be related to any factors that also influence public opinion of immigration. As long as the editorial changes are uncorrelated with the measure of immigration, results for the influence of newspaper coverage will not be affected by the potential endogeneity of the number of immigrants. In other words, as long as $Z_1$ is uncorrelated with $X_2$, $\beta_1$ will not be an inconsistent estimate.

**Data**

The three primary categories of data used in this paper are public opinion, newspaper, and number of immigrants. Public opinion data came from the database of the Roper Center for Public Opinion Research (“iPoll Databank”). The Roper Center archives are searchable by subject matter and contain questions that have been asked by different survey organizations for several decades. It has an extensive archive of questions relating to immigration. I selected one question that was asked over various time periods so that the results would be comparable across time. This question asked United States respondents whether they thought immigration, or the number of immigrants, should be decreased, increased, or remain the same. The question also allows respondents to express no opinion. Although the versions of this question all exhibit slight variations – for example some specifically ask about legal immigration and some do not specify – I believe their results are comparable because they all deal with immigration as a general and conceptual issue. I excluded any questions that were formed in a clearly variant manner, for example those that
asked specifically about illegal immigration, so that I could graph a consistent measure of public opinion over time. Appendix A contains examples of the wording of various questions included in the sample. All questions included in this paper were given to a national sample of adults and the survey organizations weighted data to be representative of the population.

Figure 1 shows trends in United States public opinion on immigration. The lines are not smooth because surveys were not taken at regular intervals, but trends are still visible. Proponents of immigration decreasing or remaining the same are in the majority, but their lines converge over time. Proponents of an increase in immigration were steadily in the minority until recent years when their numbers began to climb. For some regression specifications I included a dummy in the regression for September – December of 2001 to control for differences in public opinion on immigration due to the terrorist attacks on the United States.
The public opinion variable I use is the percentage of people who favor a decrease in immigration as reported by the survey that occurred in each month. It approximates hostility toward immigrants. If more than one survey spans a month, I average their values. If multiple surveys cover only portions of a month, I calculate a weighted average based on how many days in the month each survey covers.

Data on newspaper coverage of immigration come from the archives of *The New York Times* (“NYT Archive Since 1981”). The database allows public access to all articles that have been published since 1981. I searched the archives for mentions of “immigration” and “immigrant” during every month from January of 1990 to October of 2007, recording the overall number of results and the number that appeared on the front page each month. I also searched for “the” as a proxy for the total number of articles the paper published in each month. Regressions run using the number of articles mentioning “immigrant” and regressions on the percentage of articles relating to immigration are not included in this paper but will be provided upon request. Figure 2 graphs the number of articles mentioning immigration from the newspaper. The labeled points are sharp increases in the number of articles. After reading a selection of articles from each of these time periods, I attribute the spikes to:

1) August, 1994: Change in U.S. immigration policy in response to increased illegal Cuban migration to the U.S. and speeches by Fidel Castro (“Cuban Migration: Averting a Crisis”).

2) April, 1999: NATO begins a bombing campaign in Yugoslavia (“NATO’s role in relation to the conflict in Kosovo”).

4) April and May, 2006: Debate in the United States Senate and House of Representatives over President Bush’s proposed “comprehensive immigration reform” (“President Bush Discusses Comprehensive Immigration Bill”).

5) May and June, 2007: Negotiations surrounding President Bush’s immigration reform bill and Senate’s decision to not pass an immigration bill (“News Releases for April 2006”).

The Current Population Survey provides a proxy for the number of immigrants to the United States on a monthly basis. The number of people included in the survey ranges from 117,495 in April of 2001 to 150,873 in October of 2006. The percentage of immigrants and the percentage of Hispanic immigrants in the sample is available for 1994 to 2007. I use the number of Hispanic immigrants in my regressions because this immigrant ethnicity is the most controversial in the United States. The number of Hispanic immigrants is more likely
to influence public opinion on immigration than the number of immigrants from a country which does not send many people to the United States. Since Mexican immigration alone comprises the dominant portion of U.S. immigration, measures of Hispanic immigration will be a suitable proxy for how total immigration affects public opinion (“Table 2”).

Figure 3 shows the steadily increasing percentage of the CPS that is composed of immigrants and Hispanics. The three spikes in March of 1999, 2000, and 2001 correspond to the Current Population Survey’s Annual Demographic Supplement, which gathers additional demographic information from respondents and surveys a larger number of Hispanics in the United States. Results were not significantly different when I included dummy variables for the months of the year to account for the fact that the CPS has several different annual surveys that occur in the same month every year (Bureau of Labor Statistics).

Other data came from various sources that make information publicly accessible via the Internet. The Bureau of Economic Analysis provides information on the per capita United States’ gross domestic product (“Table 7.1 Selected Per Capita Product and Income
Series in Current and Chained Dollars”). Data on the quantity of immigration related discussion in Congress comes from the Government Printing Office (GPO Access). Editorial changes at The New York Times were covered by the papers themselves and other news sources (McFadden, 1994; McFadden 2001; Steinberg, 2003).

Table 1 provides summary statistics of the important variables for the sixty-eight months used in the regression (the months for which data on public opinion was available).

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Number of Observations</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Description*</th>
</tr>
</thead>
<tbody>
<tr>
<td>perc_dec</td>
<td>68</td>
<td>0.5104</td>
<td>0.0811</td>
<td>percent of people voting for a decrease in the number of immigrants</td>
</tr>
<tr>
<td>cpshispimm</td>
<td>68</td>
<td>0.0389</td>
<td>0.0079</td>
<td>number of Hispanic immigrants in CPS sample</td>
</tr>
<tr>
<td>nytimm_count</td>
<td>68</td>
<td>119.2794</td>
<td>40.1091</td>
<td>articles mentioning &quot;immigration&quot;</td>
</tr>
<tr>
<td>nytedchange</td>
<td>68</td>
<td></td>
<td></td>
<td>categorical dummy variable for changes in Executive Editor at NYT</td>
</tr>
<tr>
<td>gdp_percap</td>
<td>68</td>
<td>34.0169</td>
<td>3.0835</td>
<td>United States per capita GDP, in billions of chained (2000) dollars. (quarterly)</td>
</tr>
<tr>
<td>congress</td>
<td>68</td>
<td>57.75</td>
<td>36.9927</td>
<td>number of mentions of immigration in the Congressional Record</td>
</tr>
<tr>
<td>congress_dummy</td>
<td>68</td>
<td></td>
<td></td>
<td>dummy that is 1 for months with observations on congress, 0 otherwise</td>
</tr>
<tr>
<td>sept11_quarter</td>
<td>68</td>
<td></td>
<td></td>
<td>dummy that is 1 for September through December of 2001</td>
</tr>
<tr>
<td>ttrend</td>
<td>68</td>
<td></td>
<td></td>
<td>1 for 1990, 2 for 1991, 3 for 1992, etc.</td>
</tr>
<tr>
<td>months</td>
<td>68</td>
<td></td>
<td></td>
<td>dummies for each month of the year</td>
</tr>
<tr>
<td>polls</td>
<td>68</td>
<td></td>
<td></td>
<td>dummies for each polling organization</td>
</tr>
</tbody>
</table>

*All data are monthly unless stated otherwise.
**...calculated as the product of the chain-type quantity index and the 2000 current-dollar value of the corresponding series, divided by 100." ("Gross Domestic Product by State")

For the congress variable, only 58 data points were available. I included a dummy variable that is 1 when the value is missing and 0 when it it not missing and replaced the missing values with the sample mean. For the counts of Hispanic immigrants in the CPS sample, only 66 data points were available. I used an ordinary least squares regression to estimate the
values of the two missing data points. A graph of this ordinary least squares regression line appears in Appendix B.

Results

First stage regressions for the main results appear in Table 2. Column numbers correspond to those of Table 4, which contains the second stage regressions. The four columns show that the instruments are significant for several different specifications. The second editorial change is consistently significant at the 1% level while the first and third editorial changes vary between no significance and significance at the 1% level. A correlation between the instrumental variables and the natural log of the number of articles relating to immigration indicates that the editorial changes are good instruments for the article count. The F tests of joint significance in the final row of the table test the hypothesis that the effect of all instruments is equal to zero. These results indicate that the instrumental variables (editorial changes at *The New York Times*) are jointly significant, and thus serve as good instruments for the number of articles related to immigration.
Table 3 contains a regression of the number of Hispanic immigrants on explanatory variables that influence public opinion and on the instruments for *The New York Times’* coverage of immigration. This regression determines whether the coefficients on the number of immigration articles can be interpreted causally in the main regression. Since the article count is endogenous to the model, I include instrumental variables so that I can interpret coefficients as causal. The number of Hispanic immigrants is most likely endogenous also; however the results in this table indicate that this will not affect coefficients on the article count. Although the editorial changes are correlated with the number of immigration related articles, as seen in Table 2, Table 3 shows that they are not correlated with the number of
Hispanic immigrants. Thus, the coefficients in the main regression can be consistently estimated for the number of New York Times’ articles, but not for the number of Hispanic immigrants.

| Table 3 - Regression of Number of Hispanic Immigrants on Independent Variables and Instrumental Variables |
|---------------------------------------------------------------|---------------------------------|
| Editorial Change 1                                            | -0.0460 (0.1078)                |
| Editorial Change 2                                            | 0.1139 (0.6419)                 |
| Editorial Change 3                                            | -0.0504 (0.9368)                |
| U.S. Per Capita GDP                                           | 0.3449 (0.1366)**               |
| Dummy Variable for Congress                                    | 0.2822 (0.1366)**               |
| Mentions of "Immigration" in Congressional Record             | 0.0002 (0.0013)                 |
| Constant                                                      | -6.5200 (4.0398)                |
| F-statistic                                                   | 593.1                           |
| Adjusted R Squared                                           | 0.7872                          |

Note: * indicates 10% statistical significance, ** 5%, and *** 1%.
Note: All standard errors are robust.

Four specifications of the second stage regression are in Table 4. Column 1 contains a basic form of the regression, while columns 2 through 4 include other explanatory variables to determine if the relationship between the number of articles and public opinion is robust to various specifications. I added variables one at a time in columns 2 through 4 because of the small size of my sample. Adding too many variables to a regression on a small sample would lower the degrees of freedom.
The coefficient on the natural log of the number of articles related to immigration is consistently significant at the 5% level. Adding dummies for the polling organizations decreases the effect from the range of 0.175 to 0.0978, but the coefficient remains highly statistically significant. This indicates that the number of articles has some degree of influence on the percentage of people favoring a decrease in immigration. For example, column 1 shows that a 10% increase in the article count would result in a 1.789 percentage point increase in the number of people favoring less immigration.

**Table 4 – Effect of media on public opinion: main results (Dependent Variable is % Favoring a Decrease in Immigration)**

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log(Number of Articles Related to Immigration)</td>
<td>0.1789 (0.0719)**</td>
<td>0.0978 (0.0491)**</td>
<td>0.1759 (0.0698)**</td>
<td>0.1754 (0.0819)**</td>
</tr>
<tr>
<td>Number of Hispanic Immigrants (Thousands)</td>
<td>0.0160 (0.0232)</td>
<td>0.0025 (0.0202)</td>
<td>0.0103 (0.0156)</td>
<td>0.0161 (0.0234)</td>
</tr>
<tr>
<td>U.S. Per Capita GDP</td>
<td>-0.0196 (0.0091)</td>
<td>-0.0133 (0.0076)*</td>
<td>-0.0695 (0.0212)**</td>
<td>-0.0195 (0.0091)**</td>
</tr>
<tr>
<td>Dummy Variable for Congress</td>
<td>0.1210 (0.0358)***</td>
<td>0.0883 (0.0293)***</td>
<td>0.1259 (0.0334)***</td>
<td>0.1201 (0.0356)***</td>
</tr>
<tr>
<td>Mentions of &quot;Immigration&quot; in Congressional Record</td>
<td>-0.0005 (0.0003)*</td>
<td>-0.0003 (0.0002)*</td>
<td>-0.0005 (0.0003)*</td>
<td>-0.0005 (0.0003)</td>
</tr>
<tr>
<td>Sept. 11th Quarter</td>
<td></td>
<td>-0.0074 (0.0031)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time Trend</td>
<td></td>
<td>0.0356 (0.0141)**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poll Dummies</td>
<td>included</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>0.2570 (0.3732)</td>
<td>0.4939 (0.2662)*</td>
<td>1.5937 (0.5989)**</td>
<td>0.2712 (0.3996)</td>
</tr>
</tbody>
</table>

Note: * indicates 10% statistical significance, ** 5%, and *** 1%.
Note: All standard errors are robust.

The coefficient on the natural log of the number of articles related to immigration is consistently significant at the 5% level. Adding dummies for the polling organizations decreases the effect from the range of 0.175 to 0.0978, but the coefficient remains highly statistically significant. This indicates that the number of articles has some degree of influence on the percentage of people favoring a decrease in immigration. For example, column 1 shows that a 10% increase in the article count would result in a 1.789 percentage point increase in the number of people favoring less immigration.

**Conclusion**

The coefficient on the log(number of *New York Times* articles mentioning immigration), 0.1789, may seem like a negligible effect because of its size. However, during
times when the media are heavily focused on an immigration related issue, such as the peaks identified in Figure 2, the number of articles can more than double. Such a 200% increase in the number of articles could lead to a 35.78 percentage point increase \((200 \times 0.1789)\) in those who oppose further immigration, a consequential difference. This number shows that the media do have the power to influence what the public thinks. During media “feeding frenzies,” when many media outlets obsessively cover the same topic, this effect could easily be magnified to dramatic proportions because each media source would reinforce the others. Coverage in newspapers such as *The New York Times* would be augmented by media sources such as television programs, radio broadcasts, and magazine articles among others. The effects found in this paper most likely underestimate the true effects because only one media source was analyzed. In real life, people interact with a variety of media sources in conjunction.

It is not clear whether media’s influence on public opinion of immigration is beneficial or detrimental. The media may provide valuable information which allows their constituents to learn, however they could also manipulate people’s beliefs because citizens are unaware of the realities of immigration and instead focus only on what they are told by the media. Lack of a proper instrument for the number of Hispanic immigrants prevents me from knowing the degree to which the number of immigrants influences public opinion on immigration. However, the coefficients on \(\log(\text{number of immigration related articles})\) can still be interpreted causally because the instrumental variables for the number of articles were not correlated with the number of Hispanic immigrants. People’s opinions are affected by the stories that the media tell; whether positively or negatively is a topic for a future paper.
The results found in this paper are in accordance with previous research. These findings support the idea of media as agenda-setters who can change the public’s opinion on a wide variety of issues. There are many areas for future research on this subject. Analyzing the combined effects of many media sources would determine whether the agenda setting effect holds for more than newspapers’ discussion of immigration. Such research could also determine whether the effect of several media sources together is greater than the sum of each effect by itself because the media are able to reinforce one another. A study comparing different newspapers could reinforce the results of this study by determining if the effect holds beyond *The New York Times*. One could also examine the interaction of media and public opinion on a local scale where the number of immigrants into a town or city is accurately measured. To improve upon the results in this study, better data could include a public opinion survey that is consistent over a period of time, using data from the United States Census instead of the Current Population Survey, or gathering data from a variety of newspapers. There is much more research to be done in this field, but this study shows that media in the form of newspapers can be added to the list of factors that influence public opinion of immigration.
Appendices

Appendix A

Samples of the various questions aggregated to derive a measure of public opinion regarding immigration. Many of the questions repeated several times. The questions below were selected to show the entire spectrum of questions used to measure public opinion.

CBS News June 21-24, 1993
Should immigration into the United States be kept at its present level, increased or decreased?

General Social Survey January 27 – May 31, 1994
Do you think the number of immigrants from foreign countries who are permitted to come to the United States to live should be increased a lot, increased a little, left the same as it is now, decreased a little, or decreased a lot?

Note: For this question I combined “increased a lot” with “increased a little” and “decreased a lot” with “decreased a little.”

Gallup July 7-9, 1995
In your view, should immigration be kept at its present level, increased or decreased?

NPR/Kaiser/Harvard University May 27 – August 2, 2004
I’d like to ask you some questions now about various things the government could do about legal and illegal immigrants....Should legal immigration be kept at its present level, increased, or decreased?
Appendix B

The following graph shows an ordinary least squares regression line created using a statistical analysis program. Using the equation for this line, I predicted the two missing values for the number of Hispanic immigrants in the CPS sample.

For the most part the data points fall close to the line, so I believe that my predictions are accurate estimates of the two missing data points. These two points are for June and July of 1993 and thus are not outside the scope of this line. The predicted values are 3.606036 and 3.623982 respectively.
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