

# Revising the Fox News Effect

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## Abstract

The conservative news channel Fox News was founded in 1996 and gradually introduced in various US cities. The 2000 Presidential election was the first time in history where a significant proportion of the US population already had access to this TV channel for several years while other cities having no access. This study observes the vote shares for the Republicans of the Presidential election in years 1992, 1996 and 2000 depending on socio-economic factors and the share of Fox News subscribers in different areas. We ask the question, to which extent did the introduction of Fox News affected US voting behavior in the presidential elections between 1996 and 2000. The analysis yields revealing results, but the idea of the highly influential TV channel in terms of political outcomes, the so-called ‘FOX NEWS EFFECT’, had to be revised, as the analysis showed no significance in this area.

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# 1 Introduction

The media landscape has changed dramatically in the last few decades. Media have an increasingly important role in our modern society where access to information is not a privilege anymore. As a consequence of media's constant presence in citizen's life, the effects of media and to what extent media bias can influence people's party choices have also become a crucial questions. This research paper aims to decipher the potential influence of media on citizens' voting decisions. To examine the problem the research paper focuses on the absence and presence of the right wing Fox News TV channel - introduced in 1996 - in US cities and how it's appearance influenced people's support for the Republican party. Therefore, the research question will be the following: to what extent did the introduction of Fox News affect voting behavior between the US presidential elections of 1996 and 2000? In the case of our research and our available data, we categorize the variables about the socioeconomic background of the people as personality traits and the exposure to media via the existence or non-existence of Fox News. Therefore, our hypothesis is that the consumption of Fox News affects the behavior of the electorate as much as their socioeconomic background. The analysis to answer the research question is divided into 3 parts. The first part gives a general overview of the data. Then the second part aims to unveil whether the adoption of Fox News by different cities correlated with the increase in support for the Republican party. Furthermore, this part also focuses on if the effect of Fox News differs in towns where the population's level of education, average income, and race is different. Finally, the linear regression analysis aims to answer the question of whether socioeconomic background or the effect of Fox News has a greater influence on people's voting behavior.

## 2 Literature Review

In recent decades, there has been increasing attention on the role of media during political campaigns and its effects on the actual outcomes of elections (Alotaibi 2013). It is more widespread to include factors beyond the traditional social and economical models. However, it is still debated within academia to what extent news media influence the behavior of the electorate (Alotaibi 2013).

A potential answer to the question is that news media does not have an actual effect on people's voting behavior. It is called the sociological model of voting behavior which states that people's voting behavior is determined by long-term factors. This theory is supported by Lazarsfeld, Berelson, and Gaudet's (Lazarsfeld, Berelson, and Gaudet 1968) research analysis whose results show that the effect of media on electoral decisions is minimal but people belonging to different social groups is what determines their voting behavior. Kriesi, Grande, and Lachat (Kriesi et al. 2008) also argue people's voting behavior is determined by their belonging to different cleavages. However, instead of the old cleavages, there is a new social division within society that defines people's voting behavior which is the distinction between the winners and losers of globalization (Kriesi et al. 2008). Losers of globalization feel that their social status is protected by the nation-state and therefore they are strongly connected and identify themselves with the national community and that is what determines their voting behavior (Kriesi et al. 2008). In contrast, the winners of globalization benefit from open borders, they have more opportunities and therefore they vote differently (Kriesi et al. 2008).

In contrast, other scholars argue that media has a relatively insignificant, but not at all inherent effect on voting behavior (Alotaibi 2013). As an example, Lippmann states in his book, *Public Opinion*, that the media's agenda setting power has a central influence on forming images about politicians and political issues in the minds of voters [Lipp]. Furthermore, McCombs's research results confirm the media's influence over election results through agenda setting (McCombs et al. 1997). The results of their empirical study show a significant correspondence between what media outlets put on the agenda and people's pictures and images of parliamentary candidates (McCombs et al. 1997). However, Alotaibi argues that, in general, the role of the media in influencing election results is generally quite small (Alotaibi 2013).

### 3 Hypotheses

Therefore, based on the existing literature the hypothesis of the analysis, as mentioned above, will be the following:

**HP1:** The adoption of Fox News affects the voting behavior of the constituency as much as their socioeconomic background.

Sociological model of voting Kriesi's (Kriesi et al. 2008): People's voting behavior is just shaped by long-term factors (socialization).

### 4 General Overview Over the Data

This paper uses data that was collected in 1992, 1996 and 2000. The dataset (DellaVigna and Kaplan 2007) contains town-based data on two-party vote share for the Republicans, socio-cultural details and share of Fox news subscribers. The dataframe holds data from 10126 towns across 28 American states.

In order to have a rough overview of the vote share among states, the *state* variable is converted into a factor variable. With this modification the average two-party vote share for the Republicans at the different presidential elections (1992, 1996, 2000) in the different states could be calculated as shown in Figure 1.

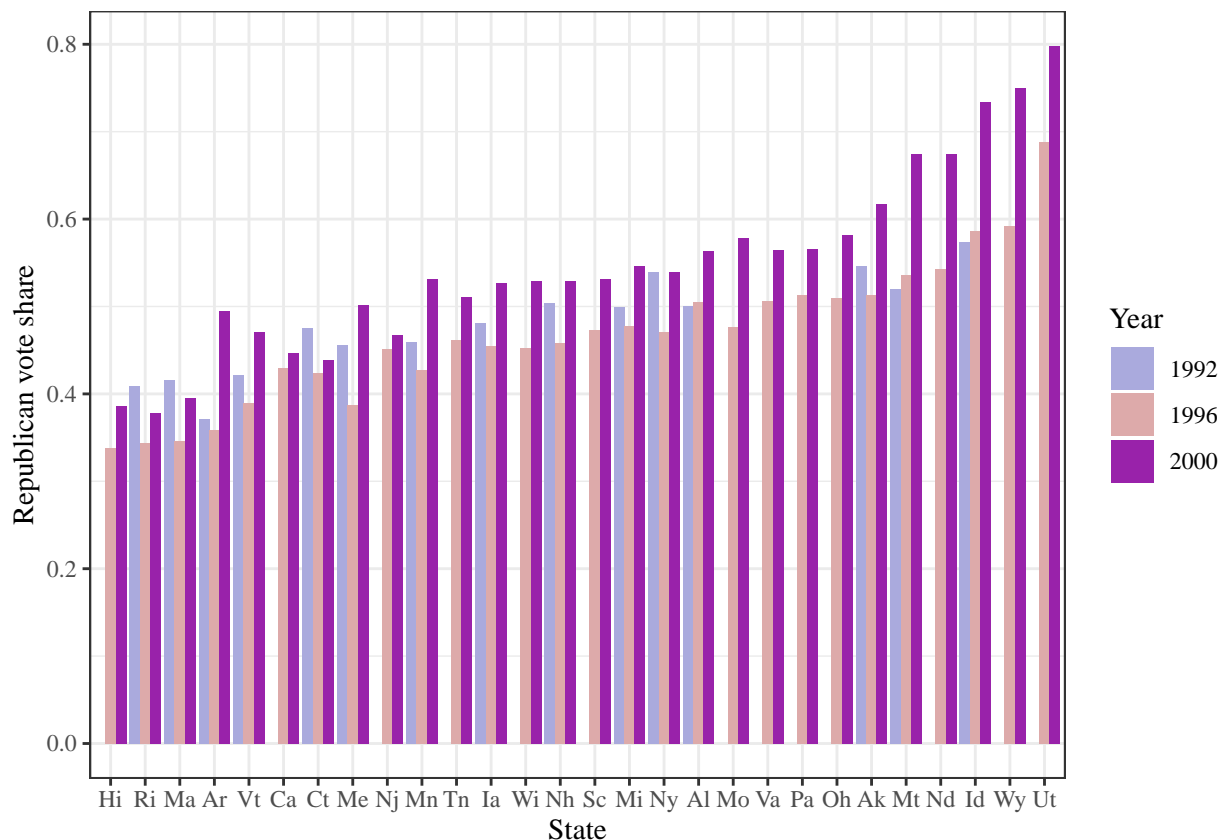


Figure 1: Average two-party vote share for the Republicans in 2000 in the different states.

From these values it is already obvious that there is quite a big variation between the two-party vote share for the Republicans in different states in 2000. Highest and lowest vote share is measured in Utah (0.798) and Rhode Island (0.378) respectively.

The plot also shows general trends in the different states over time. On average there has been a slight decrease in republican vote share in the period of 1992 and 1996, however there has been differences in different region. For example Main experienced a huge drop while in Idaho a slight increase is visible.

On the other hand in the time period of 1996 and 2000 there has been a strong increase (on average from 0.468 to 0.547 ). An important note is that there has been no single state where the republican vote share has decreased in this time period.

#### 4.1 Socio-Cultural Descriptors of the Data Set

As an initial step, since most descriptive values are measured in the range of  $[0, 1]$ , the *income1990* variable is normalized in the same region as well. In our hypotheses the independent variables are the different socio-cultural descriptors such as the education level, the ethnic composition and the income share. The varying dimension is the so-called “low-high dimension” which describes that 0 - 100 per cent of the population is black or Hispanic, the the whole population has low or high income or education level.

Table 1: Basic descriptors of the independent variables

Collage eduacted	Male	Black	Hispanic	Average income
Min. :0.00000	Min. :0.2845	Min. :0.000000	Min. :0.0000000	Min. : 0.420
Median :0.12257	Median :0.4908	Median :0.002165	Median :0.0054680	Median : 2.586
Mean :0.15582	Mean :0.4911	Mean :0.031380	Mean :0.0197700	Mean : 2.808
Max. :0.78536	Max. :0.8817	Max. :0.990427	Max. :0.8616408	Max. :15.000

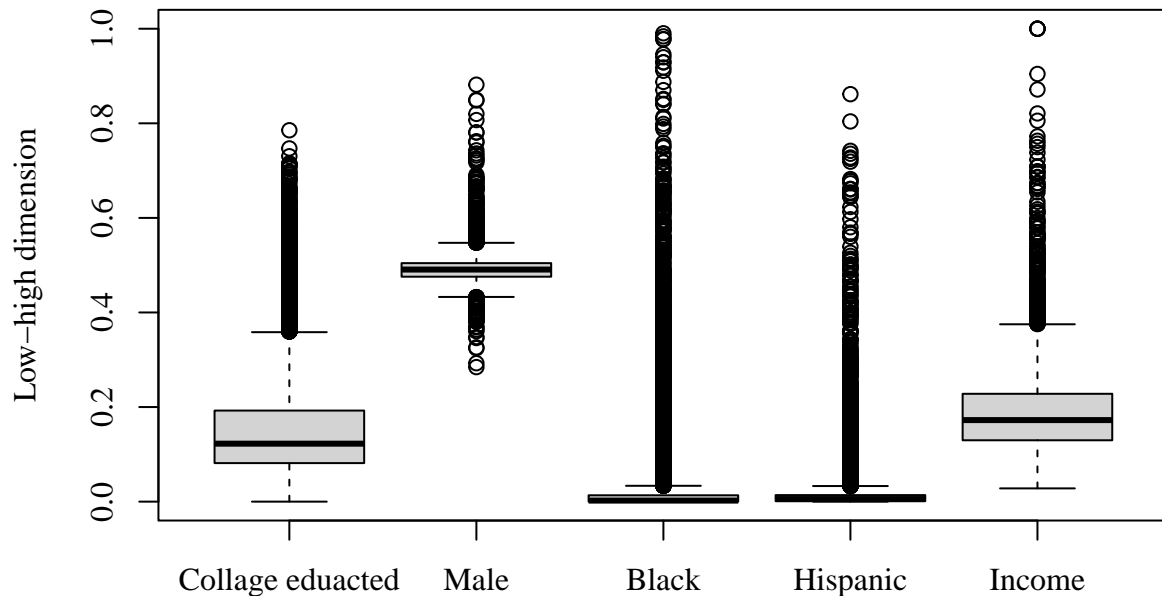


Figure 2: Independent variables in the study.

The Table 1 and Figure 2 shows the general quality of the independent variables of the data set. It is visible that the median of male population in the towns are around 0.5, however there are more towns where there are an extremity towards a high male population share than to women. The black and Hispanic population of the towns in the study is generally low, but there are cases with especially high rate from both ethnic groups. The median of education and the income is below 0.2 and the later one has a higher expansion.

## 4.2 Change of Vote-Share Over Time

To have a more detailed overview, the differences in the two-party vote share for Republicans between the observed election is calculated. The histograms in Figure 3 indicate that there has been a slight decrease of Republican vote share between 1992 and 1996 which was replaced by a much higher increase between 1996 and 2000. It again shows that while in the first period the decrease was rather moderate, the increase in the later period was exclusive to all observed states.

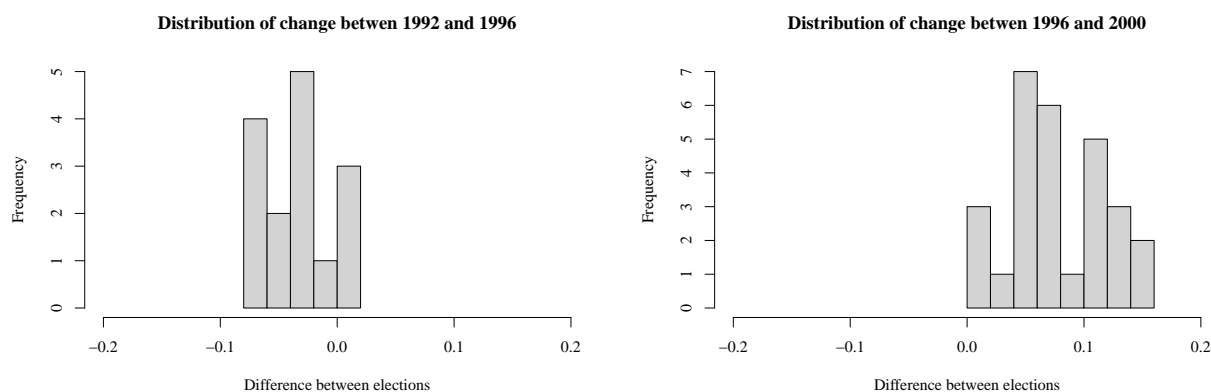


Figure 3: Change in Republican vote share between the three observed elections.

## 4.3 Correlation Analysis

The dataset contains various measures of the towns in question. In order to get a sense what could influence the vote share the correlation of these factors and the vote share is calculated.

Table 2: Correlation between Republican vote share and different independent variables.

	Level of education	Average income	Share of black people	Share of hispanic people
Republican vote share	-0.0991	0.0193	-0.3313	-0.229

The correlation analysis of Table 2 shows that there are a few factors that have an close to zero correlation to the vote share for the Republicans, such as the income or the education level. The share of males in the population has a direct but moderate correlation with the vote share as it is a positive number and reaching  $\sim 0.2$ . The share of different ethnic categories (Hispanic or Black) in the population has an inverse relationship to the vote share, being both negative numbers. The highest correlation is between the black population and the vote share (-0.331) suggesting a moderate negative linear relationship between these two variables. The negative sign indicates that as the percentage of the black population increases in a given district, the vote share tends to decrease. The magnitude of the correlation coefficient indicates that this relationship is not extremely strong, but it is still statistically significant. It is however important to note that correlation does not imply causation.

#### 4.4 Fox News Subscribers in Different Towns

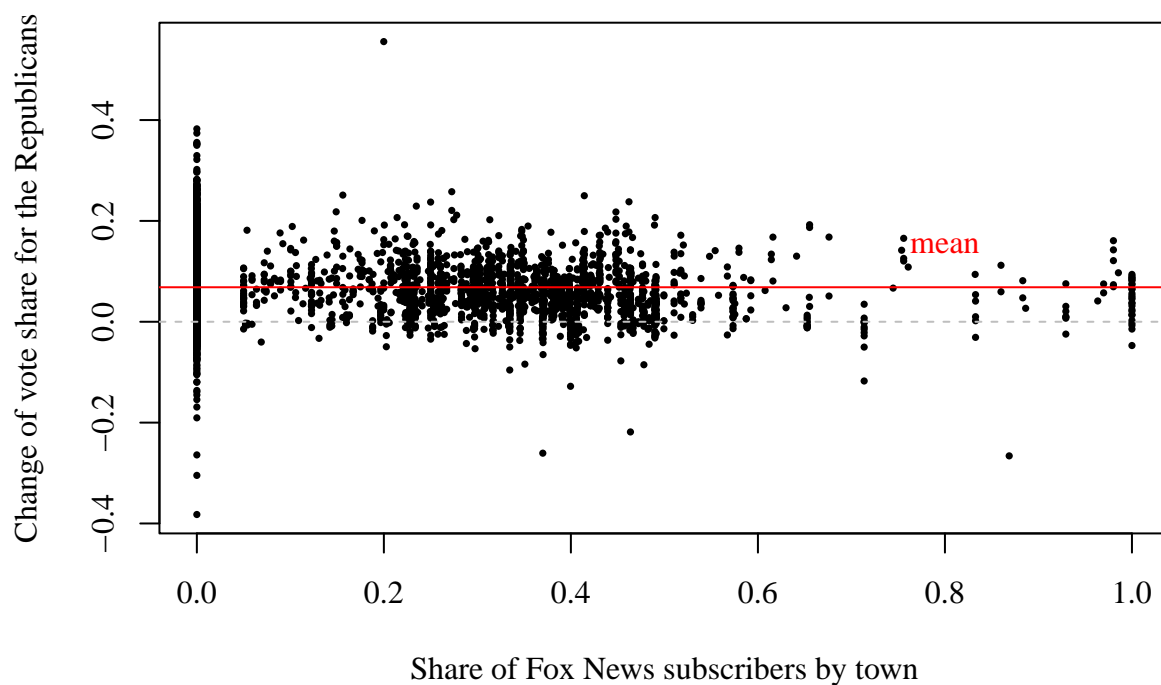


Figure 4: Change in vote share for republicans between the presidential elections of 1996 and 2000 versus the share of Fox News subscribers in 2000 by town

Figure 4 gives an first overview between the change in vote share for republicans between the presidential election of 1996 and 2000 and the share of Fox News subscribers by town in 2000. Three fundamental things, which are a basis for further analysis, can be read from the scatterplot: (1) no clear direction of the data is discernible at first glance; (2) cities that did not have access to Fox News in 2000 range across the spectrum of Republican support, from no Fox News and low support for Republicans to no Fox News and very high vote share for Republicans. (3) it looks like (purely visual ‘first analysis’) the majority of cities are around the cut point (0.5/0.4), which means there are a lot of cities that are relatively split between Democrats and Republicans and between having or not having Fox News. Since most of the data is expressed in proportions, this also means that there will be many values in the middle.

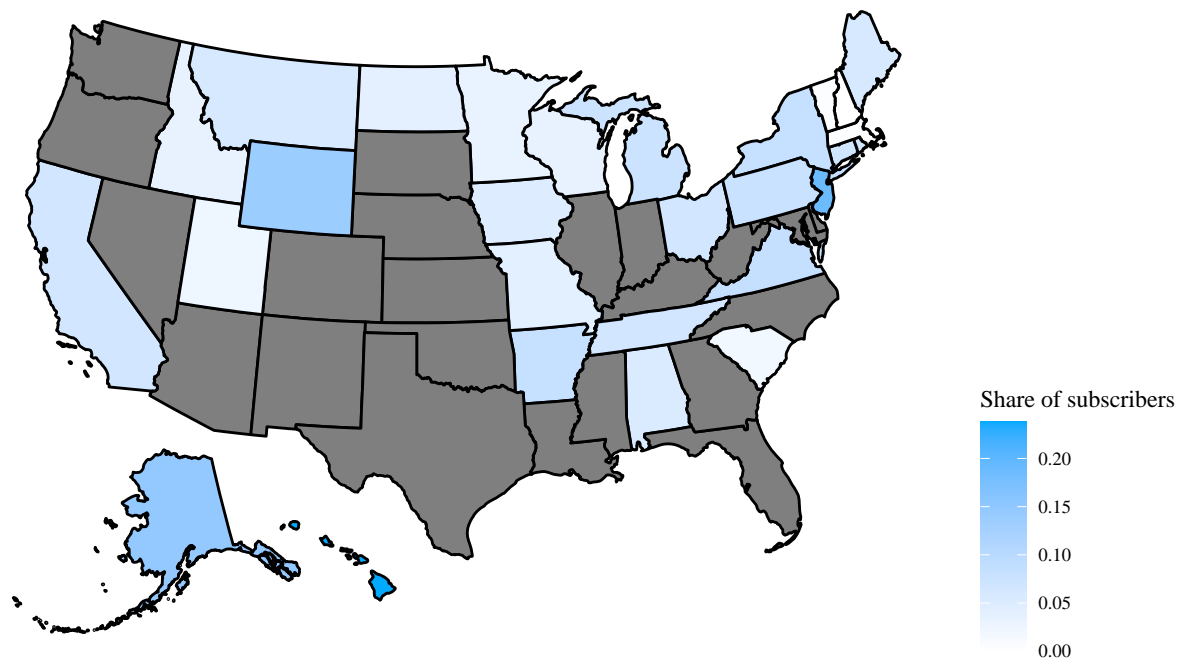


Figure 5: Share of Fox News subscribers by state in 2000

To get a better picture of the implementation of Fox News in the USA, the share of Fox News subscribers by state in 2000 got plotted. The differences are immense. New Hampshire does not have any access to Fox News in 2000 yet, also in Vermont, Massachusetts and South Carolina is the access ratio to the Fox News Channel almost non existence. On the other hand is the channel already very accessible in states like New Jersey, Wyoming and Alaska. According to the bar plot has the biggest proportion of Fox News subscribers. However, due to the fact, that the bar plot does not represents the number of Fox News subscribers, only the the proportion of citizens with a subscription per town it does not mean that Hawaii does have the highest amount in a quantitative sense.

## 5 The Fox News Effect

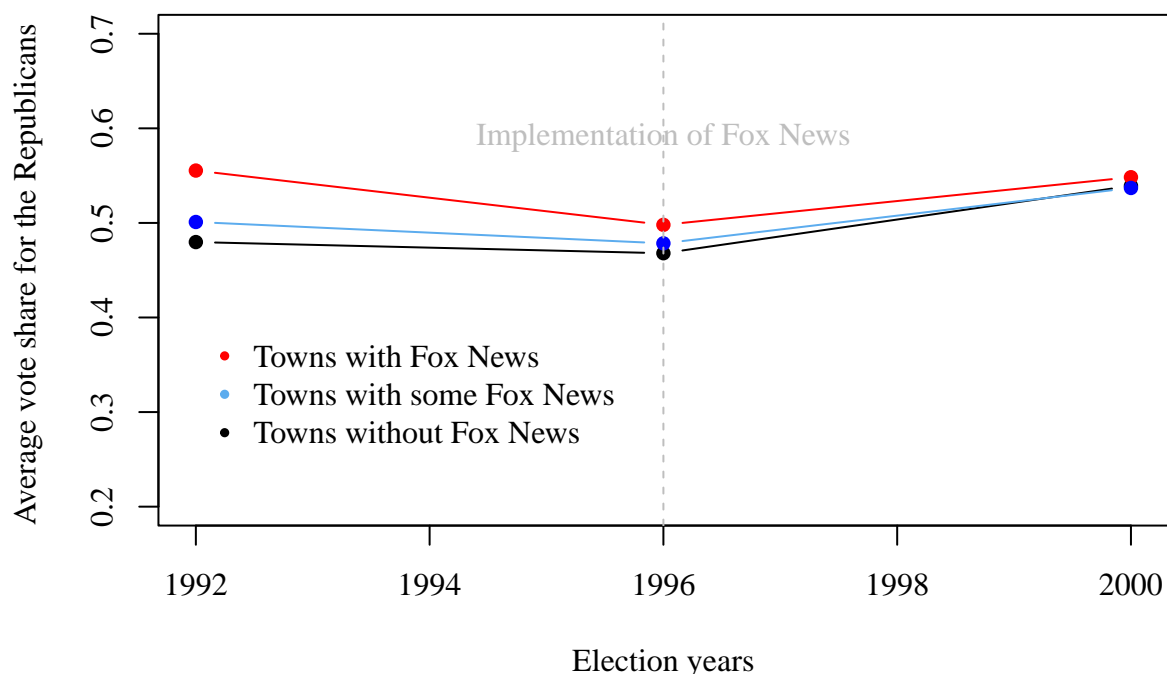


Figure 6: Differences in Vote Share Across Towns With/Without Fox News

To test the hypothesis of the research and to measure the effect of the treatment, it is crucial to define the independent variable of the paper: access to Fox News by the year 2000. As mentioned above Fox News got implemented in 1996. Therefore, the cities without any access to Fox News in 2000 got characterized as ‘Towns without Fox News’. Cities who have a share of Fox News subscribers over 0.75 got defined as ‘Towns with Fox News’, due to the fact, that have 75% of the inhabitants is a clear majority, especially when we consider that people live in households with other persons. The data set does not elaborate the information whether children or other people who are not allowed to vote in the states (like prisoners) are included or not, however a threshold of 0.75 this circumstance cushions instead a threshold of 1. The third subset will be ‘Towns with some Fox News’, in particular, all towns between 0 and 0.75 will be part of it.

The graph illustrates that in all cities, no matter how much access to Fox News the various cities had, there was an increase in Republican voters in 2000, compared to the 1996 presidential election. Nevertheless, a staggered effect of the different groups can be seen, even if it is small. Cities with Fox News voted for the Republican president by a larger percentage in both 1996 (the year Fox News was implemented in some cities) and the 2000 presidential election. Cities without any Fox News access were the least likely to vote in favor of Republicans, even though the percentage of Republican voters nevertheless increased in 2000.



## 5.1 Sample average treatment effect (‘Fox News Effect’) among socioeconomic variables

The hypothesis states, that it might be possible that socioeconomic backgrounds like education and race of people influence a potential ‘Fox News Effect’ differently. It could be also possible that voters with different incomes get affected differently by the input of Fox News. We will evaluate whether there is a difference in the effects of Fox News on the Republican vote share between cities where socioeconomic variables differ. Furthermore, the average change of votes for Republicans (during presidential elections) among towns before and after the availability of Fox News could be a crucial indicator to understand the effect, therefore is computed. To measure the differences between cities a difference in differences research design will be used.

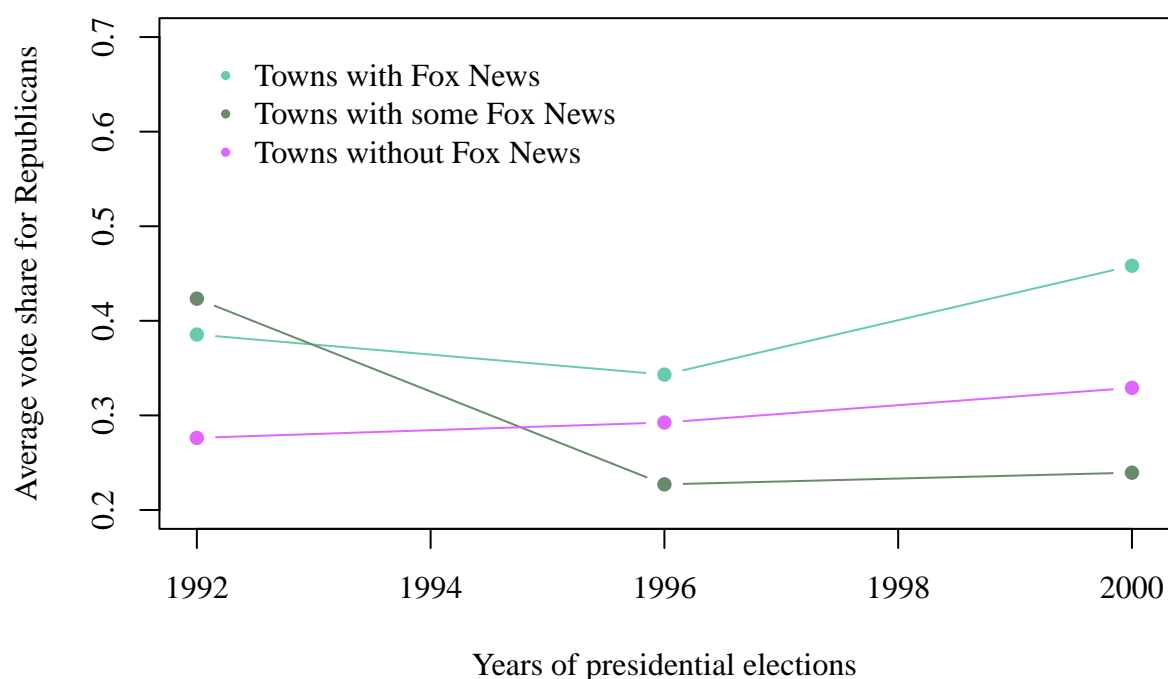


Figure 7: (#fig:diffInDiff\_black) Differences in Vote Share in Towns with High Black Population

Figure ?? focuses on the changes in the Republican party’s vote share in cities where the black population tends to be high and we measured whether the introduction of Fox News had a bigger/smaller impact on black people in the USA. The African American population makes up 15% of the US population and in the analysis cities with a percentage above 0.40 were considered to have a high black population. The results show that in those cities where the black population is considered to be high and people had access to Fox News the Republican vote share increased. However, in cities where people did not have access to Fox News, or the access was more limited the Republican vote share was stagnating between 1996 and 2000.

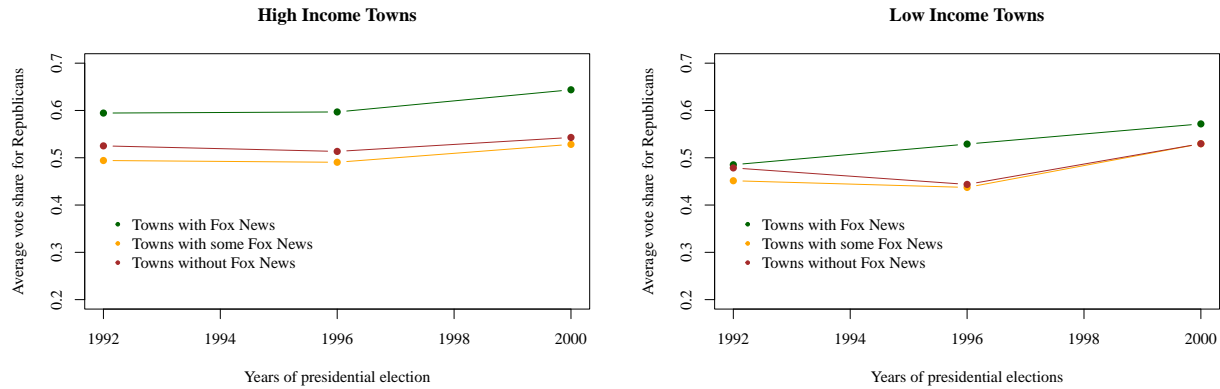


Figure 8: Differences in Vote Share in High and Low Income Towns

Figure ?? focuses on how the average income in cities and the implementation of Fox News influence people's support for the Republican party. Those towns are considered to be high-income cities where the average income is over or equals 3.420\$ and low-income towns are where the average income is below \$1.500. The results show that in high-income towns the support for the Republican party increased in both towns with Fox News and without even though the towns where Fox News was implemented already had higher Republican vote share. In low-income cities, the support for the Republican party increased in towns without or limited access to Fox News and slightly raised in towns where Fox News was implemented. Therefore, income does not seem to have a clear effect on whether the implementation of Fox News influenced the support for Republicans.

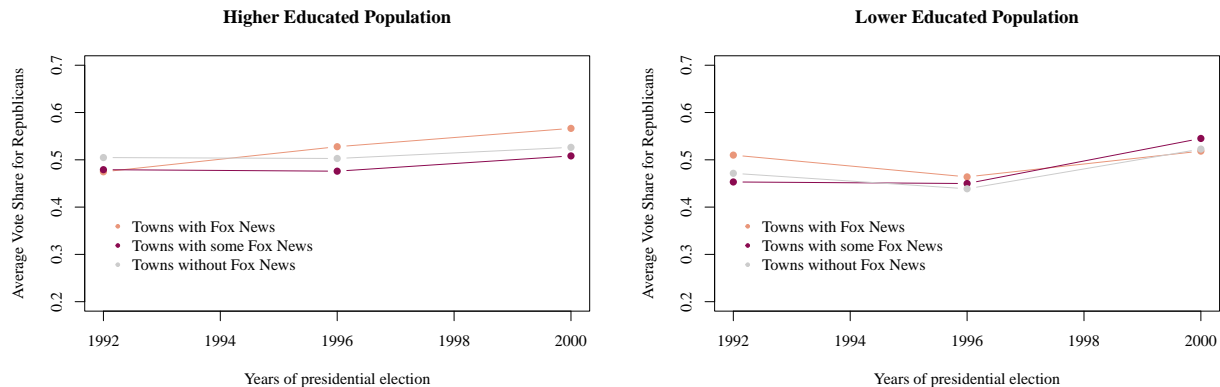


Figure 9: Differences in Vote Share in Average Higher and Lower Educated Towns

Finally, Figure ?? measures whether the average level of education in a city and access to Fox News influences people's support for the Republican party. A city is considered to be "higher educated" when 20% or more of the population has a college degree and it is considered to be "lower educated" when this number is smaller than 8%. The results show that in cities where the population tends to be lower educated, there is an increase in the support of the Republican party but in every city with or without Fox News as well. Interestingly, in towns where the population tends to be higher educated the increase of the Republican vote share is less intense.

In summary, socioeconomic factors do not seem to have a clear effect on the influence of Fox News implementation on the increasing support for the Republican party. The findings are not salient and decisive on the

Table 3: Linear models observing the effect of fox news and socio-economic factors on republican vote share

	Model 1: Effect of different factors on Republican vote share	Model 2: Effect of different factors on the change of Republican vote share
Intercept	0.567	0.125
Share of Fox-news subscribers	-0.008	-0.016
Level of education	0.146	-0.137
Share of black people	-0.466	-0.138
Share of hispanic people	-0.43	-0.11
Average income	-0.207	-0.15
$R^2$	0.172	0.287
Adjusted $R^2$	0.171	0.287
Residual Std. Error	0.118	0.046
P value	$< 2.2e-16$	$< 2.2e-16$

basis of various socio-economic criteria and thus no ‘Fox News effect’ was found. There have been changes that seem reasonable and appropriate, but it would be presumptuous to relate these to a Fox News effect, as the changes have always been marginal.

## 6 Regression analysis

### 6.1 Linear models

We already tested above the influence of different socioeconomic factors effects on people’s support for the republican party and how the presence of Fox News in some cities changed people’s party choices. However, we are also interested in to what extent socioeconomic factors or the potential effect of Fox News’ presence in some cities influence people’s vote for the Republican party. In Table 3 the effect of Fox News and socio-economic factors on electoral outcome is observed through regression analysis.

The first linear regression model aims to decode the relationship of the vote share for republicans at the 2000 presidential election with four predictor variables: the share of Fox News subscribers in 2000, the median income in 1990, the proportion of hispanic or black population in 1990, and the proportion of population with a college degree in 1990. The model shows that the proportion of hispanic or black population and the proportion of population with a college degree are statistically significant predictors of the vote share for republicans, while the share of Fox News subscribers and median income are not significant predictors. The adjusted R-squared value of 0.1713 indicates that only about 17% of the variability in the vote share for republicans can be explained by the predictor variables included in the model.

The second model indicates that all five predictor variables are statistically significant in predicting the change in Republican vote share between 1996 and 2000. Specifically, higher values of the share of Fox News subscribers, median income, Hispanic population proportion, black population proportion, and college degree proportion are associated with a decrease in the Republican vote share between 1996 and 2000. The adjusted R-squared value of 0.2868 suggests that approximately 28.7% of the variability in the change in Republican vote share can be explained by the predictor variables included in the model. The model’s F-statistic of 788.7 with a very low p-value indicates that the overall model is statistically significant. Overall, this model suggests that the examined variables have a significant influence on the change in Republican vote share between 1996 and 2000, providing insights into the factors that may have contributed to shifts in political preferences during that time period.

## 6.2 Prediction

When interpreting the results of a statistical analysis, it is important to consider not only the point estimates of the coefficients but also their associated confidence intervals. The confidence interval provides a range of plausible values for the true population parameter with a specified degree of confidence.

The 95% confidence interval for a coefficient estimate means that if we were to repeat the study many times, in 95% of the cases the true population parameter would fall within the given interval. Thus, it provides a measure of the precision and uncertainty of the estimate.

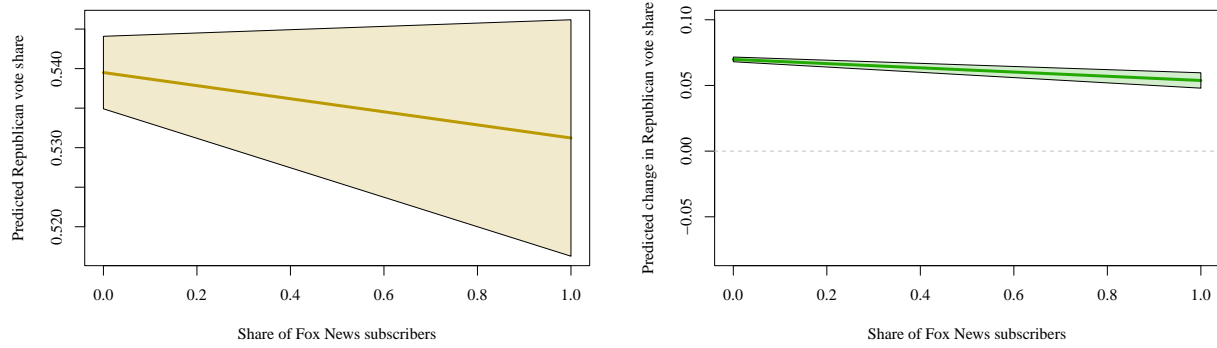


Figure 10: Predicted effect of Fox News on Republican vote share and change in Republican vote share, including confidence interval.

Figure 10 analyses the Foxnews effect both on the Republican vote share and on the change of Republican vote share between elections. The graphs show that as the share of fox news subscribers increase, both the predicted Republican vote share and the positive change of Republican vote share decreases, indicating a negative Foxnews effect. It is notable that at predicted Republican vote share the uncertainty range allows for no decrease or a minor increase, allowing no strong implications.

In order to contrast the measured Fox news effect with other possibly determining variables, the predicted effect of other socio-economic factors in electoral outcome in terms of change of Republican vote share between elections.

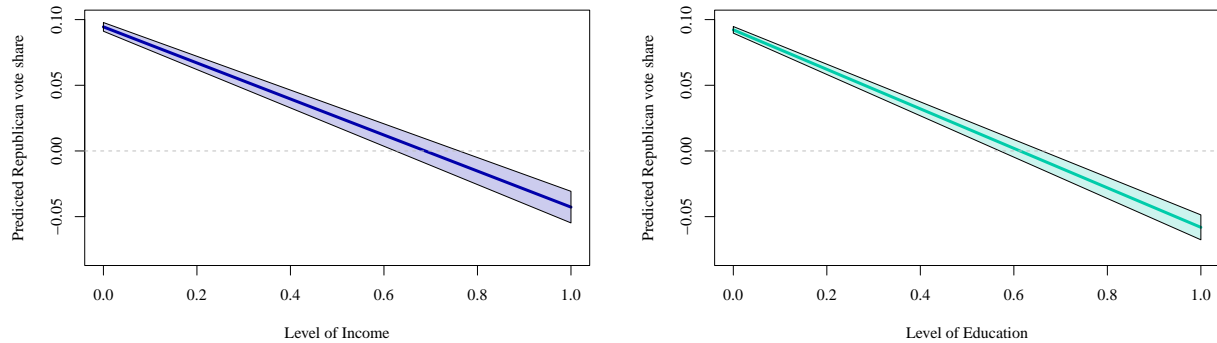


Figure 11: Predicted effect of Income and Education on Republican vote share

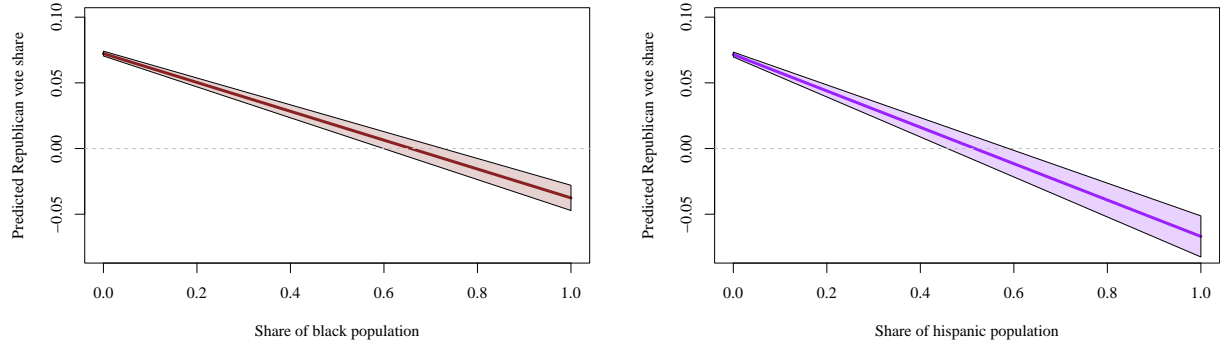


Figure 12: Predicted effect of on Republican vote share

Observing the different socio-economic factors clearly indicate certain tendencies, that are more far reaching than the previously seen fox-news effect. Figure 11 suggests that both lower income and lower educated neighborhoods have a higher likeliness to result in an increased Republican vote share, while both higher income and higher educated electoral districts are expected to have a slight decrease in Republican vote share. Both the intensity of the difference among the ends and the certainty of the prediction is higher when observing the effect of the level of education.

Figure 12 indicates that areas with lower share of hispanic and black population are more likely to result in an increase in republican vote share while higher share of black and hispanic population are more likely to have a slight decrease in Republican vote share. However, both the intensity and the uncertainty is higher of the effect of share of black population.

Consequently it is an important observation that the effect of the presence or absence of Fox-news is far less significant and far more uncertain than socio economic factors such as ethnic diversity or intellectual or material wealth. These findings highlight the importance of considering a broader range of variables when examining electoral outcomes and suggest that factors related to socio-economic conditions play a more substantial role in shaping voting patterns.

## 7 Discussion & Conclusion

This research paper examines the potential influence of media, specifically the introduction of the right-wing Fox News TV channel in 1996, on voting behavior in the US between the presidential elections of 1996 and 2000. The study categorizes variables related to socioeconomic background as well as the presence or absence of Fox News. The hypothesis is that the consumption of Fox News affects voter behavior as much as socioeconomic background. However, no significant sample average treatment effect or strong “Fox News effect” is found. Instead, the regression analysis reveals that socioeconomic factors such as income, education, and racial composition have a more significant influence on voting behavior.

The findings did not provide strong evidence of a significant “Fox News effect” on voting behavior. While there were slight changes in Republican vote share associated with the presence of Fox News, these changes were marginal and could not be solely attributed to the influence of the channel. On the other hand, socioeconomic factors such as the proportion of Hispanic or black population, the proportion of college-educated individuals, and median income were found to have a more pronounced impact on voting behavior. Thus, the hypothesis of the paper must also be refuted, as there is no clear evidence that Fox News together with socioeconomic background affects the behavior of the electorate in 2000. It was also evident from the sample average treatment effect studies that all of the effects shown can only be described as minimal.

The reasons why an effect is only so minimally visible can be manifold. First of all, it must be mentioned that a new channel may take a while to be added to a cable provider's lineup because of the talks negotiations during the implementation. Due of this, contrary to popular belief, Fox News was unable to establish itself as the first player in conservative media markets. This means that people who live in cities without Fox news are still influenced by conservative TV channels, but are not recorded as such in this data set because they watch a different conservative channel.

Furthermore, it is important to note that while there is a small effect, covering the external (such as the political or economic environment, change in demographics, interest group activities) and internal (such as campaign strategy or advertising) variables that influence an election is extremely difficult. Third, the heavily conservative states of New Jersey and Wyoming would be the perfect example of this, ranking second and third, respectively, among the states with the largest vote share. This would mean that the effect could be weakened, since people have already voted conservatively anyway. The conservative preference has already reached a high level, potentially forming a ceiling (ceiling effect) beyond which it becomes challenging for conservative candidates to gain additional support.

One potential limitation is the reliance on observational data and the absence of a controlled experiment. Observational studies, like this one, analyze data collected from existing conditions rather than manipulating variables directly. This means that the researchers cannot control or randomly assign the exposure to Fox News, potentially introducing confounding factors that influence the relationship between Fox News and vote choice. Other unaccounted variables could be responsible for the observed effects, making it difficult to establish a direct causal link.

Moreover, the study utilizes a quasi-experimental design by comparing cities with and without access to Fox News. While this approach attempts to mimic an experimental setup, it still faces potential issues. There may be underlying differences between cities with and without Fox News access that affect vote choice, unrelated to the presence of Fox News itself. These differences, such as socioeconomic factors or political climate, could confound the results and limit the ability to attribute the observed effects solely to Fox News. Also it is not known (as it is potentially a business secret of the media holding) whether the selection of towns where fox news was introduced was randomly selected or based on some corporate strategy.

Additionally, the study acknowledges the influence of long-term factors, such as socioeconomic backgrounds and social divisions, on people's voting behavior. However, controlling for these factors can be challenging due to data limitations and potential measurement biases. The inability to fully account for these confounding variables further complicates the establishment of a causal relationship between Fox News and vote choice.

However, even if the aforementioned external problems were not present and the internal validity is flawless, it is possible that the Fox News effect would only play a minor role. As the theories and also the regression results have shown, socioeconomic factors play an important role. Thus, the second hypothesis of the paper can be confirmed, namely that socioeconomic factors are crucial for voting in the American two-party system. In particular, the factors of race and the level of education were the most decisive influences. Lastly, another potential explanation to the the general increase of support for the Republican party in most of the states is that the US had a democratic president (Bill Clinton) during this time period who had an impeachment. These external factors could have a more important positive effect on people's support for the Republican party than the influence of watching Fox News.

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