

# Revising the Fox News Effect

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## Abstract

The conservative news channel Fox News was founded in 1996 and gradually implemented 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 focus on the potential influence of media on people's party choices. To examine the problem the research paper will focus on the presence of Fox News in cities in the US and how it influenced people's support for the Republican party. Therefore, the research question will be the following: to what extent had the implementation of Fox News affected the US voting behavior in the presidential elections between 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 discover if the implementation of Fox News 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. 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. 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). However, some scholars argue that media has a relatively insignificant, but not at all inherent effect on voting behavior (Alotaibi 2013).

## 3 Hypotheses

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

**HP1:** The consumption of Fox News affects the behavior of the electorate 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.

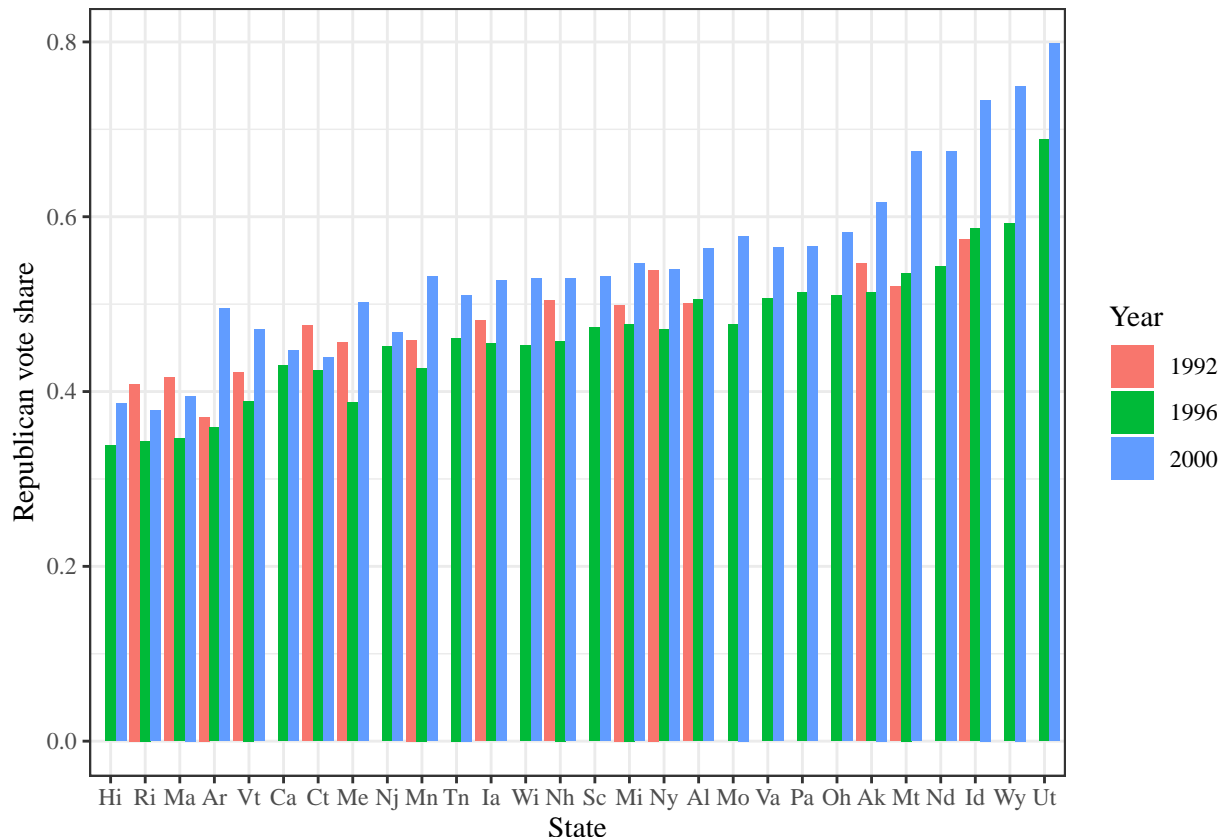


Figure 1: Average two-party vote share for the Republicans in 2000 in the different states.

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. Highest and lowest vote share is measured in Utah (0.7981762) and Rhode Island (0.3782243) 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 0.468436 to 0.5474526 ). 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

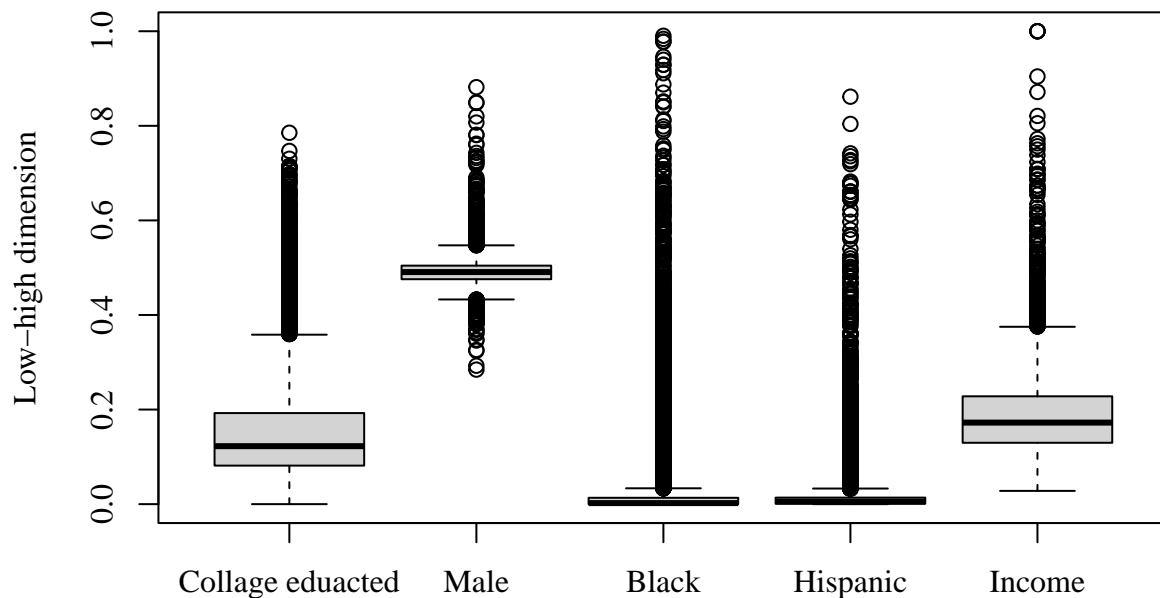


Figure 2: Independent variables in the study.

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.

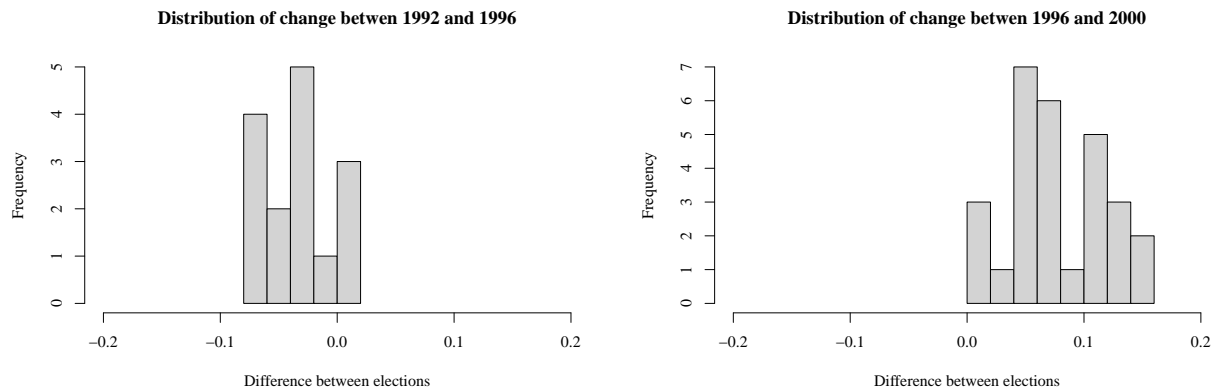


Figure 3: Change in Republican vote share between the three observed elections.

## 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

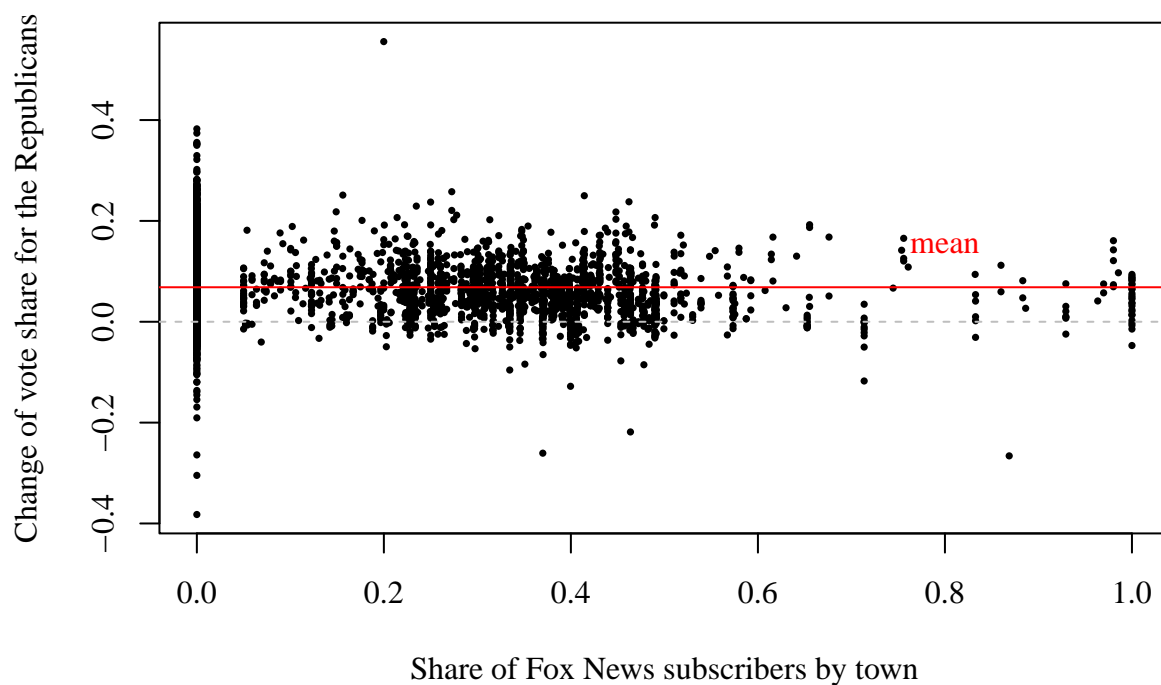


Figure 4: Change in vote share for republicans between the presidential elections of 1996 and 2000 versus the share of Fox News subscribers in 2000 by town

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.

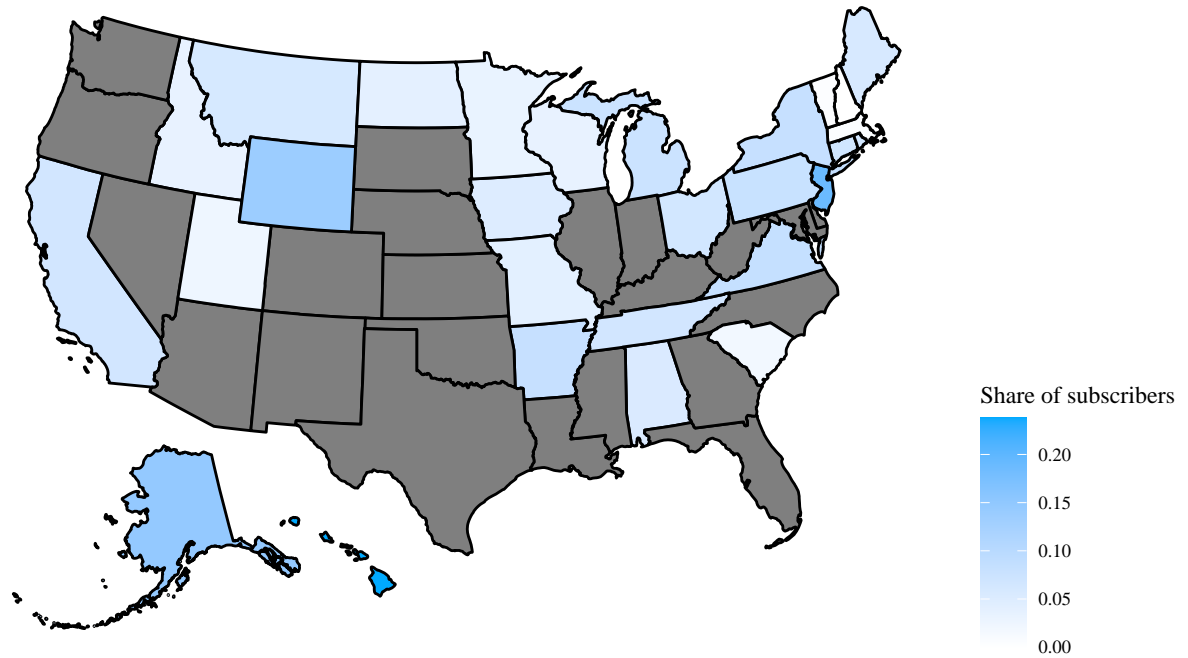


Figure 5: Share of Fox News subscribers by state in 2000

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 Hawii does have the highest amount in a quantitative sense.

## 5 The Fox News Effect

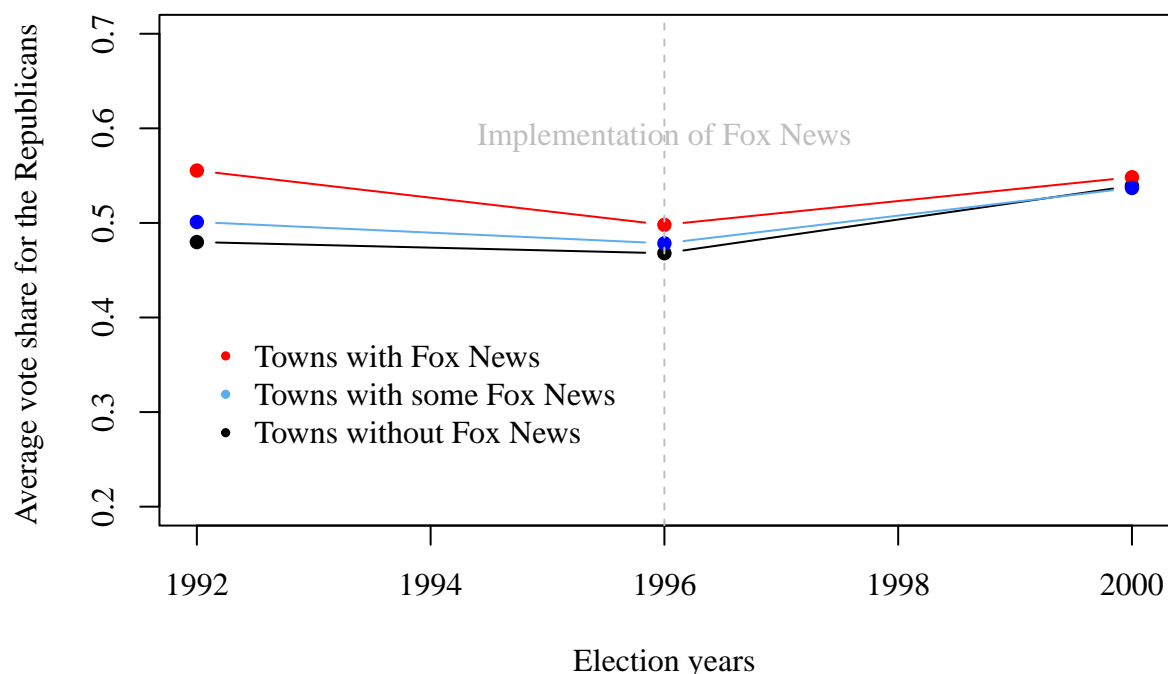


Figure 6: Differences in Vote Share Across Towns With/Without Fox News

To Test the hypotheses of the research and to measure the effect of the treatment, it is crucial to define the independent variable of the paper: the 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 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 in this circumstance cushions instead a threshold of 1. The third subset will be 'Towns with some Fox News', in particular all towns between the 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

Our hypotheses stating, 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 effected differently by the input of Fox News.

We will evaluate whether these hypotheses are supported by finding the differences in sample average treatment effects by education, race and income in towns with access to Fox News and towns without access to Fox News.

Furthermore, the average change of votes for republican (during presidential elections) among towns before and after the availability of Fox News could be an crucial indicator to understand the effect, therefore is computed.

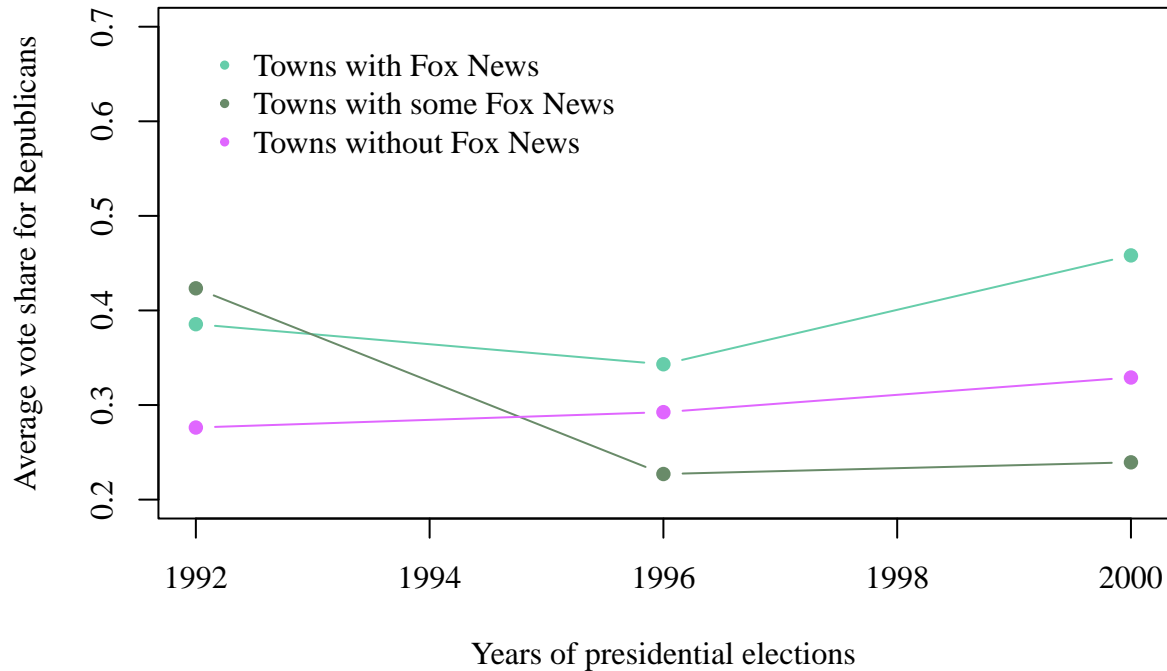


Figure 7: Differences in Vote Share in Towns with High Black Population

The first thing we looked at was whether the introduction of Fox News had a bigger/smaller impact on black people in the USA. The cities were divided into subsets, to take into account different proportions of black people in the cities. For the subdivision of cities and their black population, the different quantiles were not looked at, which is the case in the following SATE calculations. Due to the white majority population in the states, the third quantile of the proportion of black people would have been 0.013411 but the maximum would have been 0.990427. The difference between 1% and 99% would have been too serious to categorize all cities in between as having a high black population. That's why cities with a percentage above 0.40 were considered to have a high black population. As can be seen in the plot, only the line from the cities with a high black population share has a similar shape to the lines in the plot with the general trend effect. In the

cities with a low proportion or none at all, the estimated treatment effect goes in a negative direction.

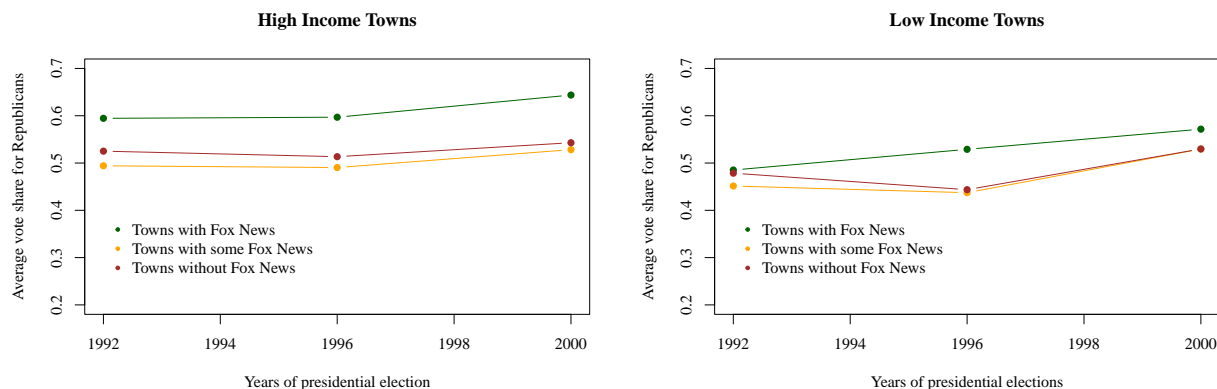


Figure 8: Differences in Vote Share in High and Low Income Towns

Looking at income and the potential sample average treatment effect we can see, that only for persons with high income (towns where the average income is over or equals 3.420\$) the estimated sample average Fox News effect is increasing and more rich people voted for republicans but on the other hand the vote share for Republicans among rich people normally quite high anyways. Therefore it is hard to argue, that the implementation of Fox News is the main reason. Towns with a medium income or low income have decreasing sample average treatment effect.

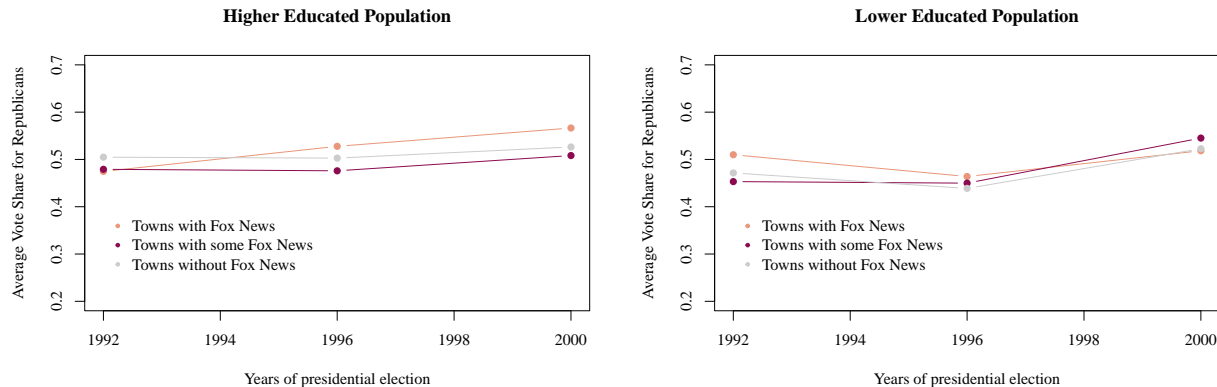


Figure 9: Differences in Vote Share in Average Higher and Lower Educated Towns

The last measurement of finding the differences in sample average treatment effects by socioeconomic backgrounds is SATE for different levels of education. Here it is visible, that high educated regions are less likely to vote for republicans and have lower starting position. Looking at a medium or low level of education a decrease of the potential effect is visible, even though it is a very small one.

In summary, a sample average treatment effect was not found to be salient and decisive on the 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.

Table 3: Linear models

	Model 1: Effect of different factors on Republican vote share	Model 2: Effect of different
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

## 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 the following 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.

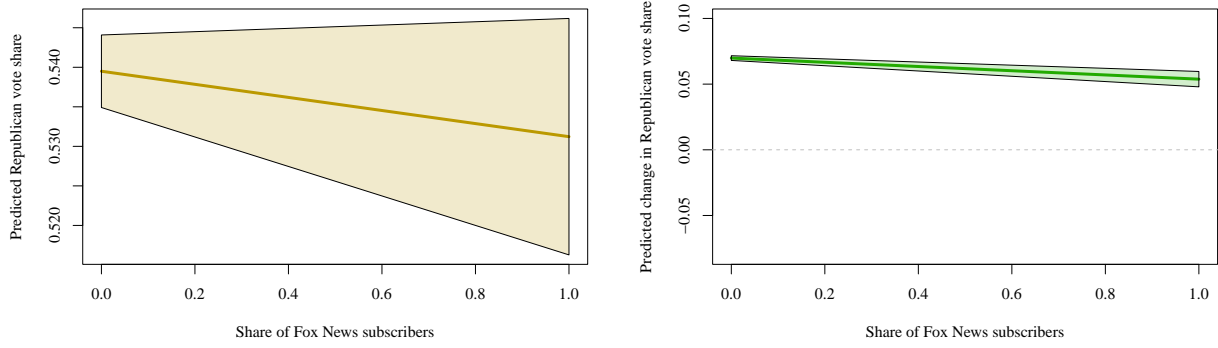


Figure 10: Predicted effect of Fox News on Republican vote share and change in Republican vote share, including confidence interval.

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.

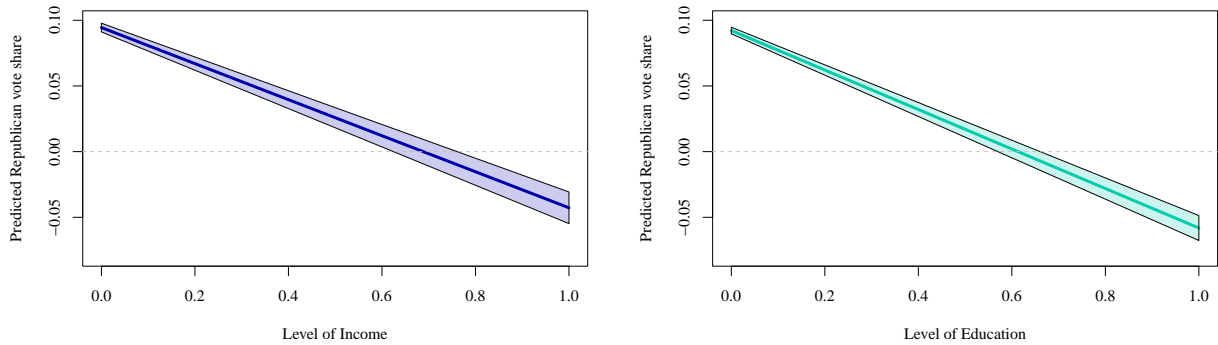


Figure 11: Predicted effect of Income and Education on Republican vote share

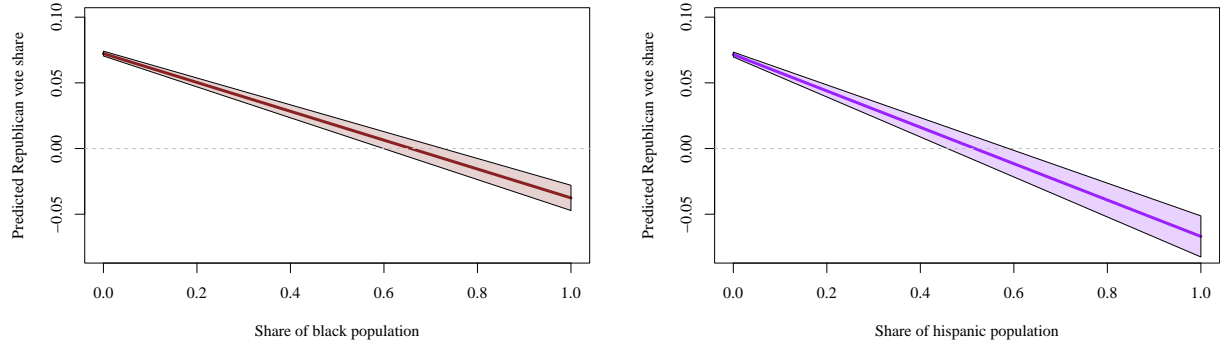


Figure 12: Predicted effect of on Republican vote share

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

After the analysis, it can be summarized that ‘a Fox News Effect’ is not clearly visible and verifiable. Thus, the first 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. This was evident from the results of the regressions ‘foxnews\_2000’ and ‘foxnews\_present\_effect’ which showed no significance or clear correlation. 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 and internal 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.

This would mean that the effect could be weakened, since people have already voted conservatively anyway. 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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