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The Super Bowl and Individual State Income Taxes

Benjamin T. Cosby
Georgia Southern University

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The Superbowl and Individual State Income Taxes

An Honors Thesis submitted in partial fulfillment of the requirements for Honors in Accounting.

By
Benjamin Cosby

Under the mentorship of Dr. Britton McKay

ABSTRACT

Every year the NFL Super Bowl is held in a different state. Due to the differing state income tax rates, there appears to be an incentive for the NFL Super Bowl to be held in some states over others. Over the past 21 years, the Super Bowl has occurred more often in low tax states, but there after analyzing the relationships between state income tax rates, average state temperatures, and the states in which the Super Bowl has been held, it appears that average state temperature is a more important factor in determining the location of the Super Bowl, not state income tax rates.

Thesis Mentor: Britton McKay

Dr. Britton Mckay

Honors Director: _____

Dr. Steven Engel

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I. INTRODUCTION

The Super Bowl: Background and History

Started on January 15, 1967 to commemorate the merger of the National Football League and the rival American Football League, the NFL Super Bowl is the yearly championship game held between that top two NFL football teams, in which the two teams compete to see which one is the season champion. Since 2004, the Super Bowl has been held on the first Sunday in February. Many Americans treat this day as if it were a national holiday and gather with friends and family to eat, drink, and watch the game on television, and tens of thousands of people flock to the stadium where the Super Bowl is being held that year to watch the game in person (“Super Bowl in the United States”).

Revenues and Taxes

The Super Bowl generates a many different streams of revenue for all who take part: revenues such as ticket sales, advertisement space on the television and radio, concession sales, the cost of parking, hotel rooms, etc. Additionally, the players of each team get a bonus based on whether their team wins or loses, as predetermined in the NFL Collective Bargaining Agreement, and the players all earn a yearly salary, part of which is from the time they spend on the Super Bowl. As with any revenues or income, these various incomes are subject to multiple layers of taxation: federal income tax, state income and sales tax, and potentially even local income and sales tax. While the taxes at the federal level remain consistent regardless of where the Super Bowl is held, tax rates at the state level vary widely, with some states having no state income tax, such as Florida

and Texas, and California having as high as a 12.3% individual income tax rate for the highest tax bracket in the year 2020 (“State Individual Income Tax Rates 2000-2020”).

The “Jock Tax”

Under the United States Constitution, all states are given the authority to levy various taxes on state residents and individuals who work in the state, and the authority to authorize local municipalities within the state to do the same. Historically, individuals who work in multiple states throughout the year, such as actors and television personalities, have been required to pay taxes to the different states in which they have worked, based on the amount of time they spent in the state or the portion of their income that can be attributed to work functions performed in the state. In the 1980s, the salaries of professional athletes started to increase, and as a result of this, states started to collect individual income taxes from nonresident professional athletes who played games in the state in what is commonly referred to as the “jock tax.” Even though many states have adopted a “duty days” formula for taxing these athletes, taxing the athletes based on the percentage of their days spent doing work functions that were spent in said state, there are still large differences and inconsistencies in the ways different states levy taxes upon these nonresident professional athletes, and this can cause filing taxes for these athletes to be a complicated affair. In some instances, this can lead to athletes being taxed multiple times on portions of their income (Difrischia).

Taxes are an important consideration for NFL players, in part because they are paid so much, and also because the NFL imposes hard salary caps on the total amount

that any team can play their players in one year in an attempt to make teams equally competitive and attractive to potential players, regardless of how much money the team makes. In his paper *Touchdowns, Sacks and Income Tax—How the Taxman decides who wins the Super Bowl*, Dr. Matthias Petutschnig analyzes the regular season win rates for all NFL teams over the period of time from 1994 to 2016, and compares these with the tax rates in the teams' home states to conclude that there is a negative relationship between the individual income tax rate in the team's home state and the teams win rate in the regular season. Dr. Petutschnig goes on to say that this is most likely because with the salary cap placing an upper limit on the amount that NFL players can earn, talented players who have high negotiating power are incentivized to negotiate to play for teams located in states with lower individual income tax rates, thus maximizing the amount of their paycheck that they get to keep at the end of the year.

Super Bowl Selection Process

Each year, the state, city, and stadium in which the Super Bowl is held has already been decided years in advance. For example, as of May 23, 2018, the locations for the Super Bowl had been decided through 2024 (Trope). According to Lauralys Shallow in her article *How Does the NFL Pick Super Bowl Cities?* for CNN, "The deciding factor in determining a Super Bowl city used to be warm weather." Until 2018, the NFL gave cities the opportunity to put together a bid and present it at a meeting of the 32 NFL owners. After hearing all the bids, the owners would vote and decide on which city would host the NFL Super Bowl. Starting in 2018, the NFL changed the bidding process, and now the NFL reaches out to select cities to ask them if they would like to host the Super

Bowl. These cities then put together a pitch and present it to the owners, and the owners vote. Some cities, such as Miami, Florida, have committees that work year-round to prepare the city to compete to host the Super Bowl.

The Question

Given all of this, in my research I aim to determine if state individual income tax rates are correlated with the yearly location of the Super Bowl. As secondary questions, I also look to see if there is a correlation between average state temperature and the location of the Super Bowl, and I also look to see if there is a correlation between the average state temperature and state income tax rates. My hypothesis is that the Super Bowl is held more frequently in states with low or no state income tax.

II. DISTRIBUTION OF TAX RATES

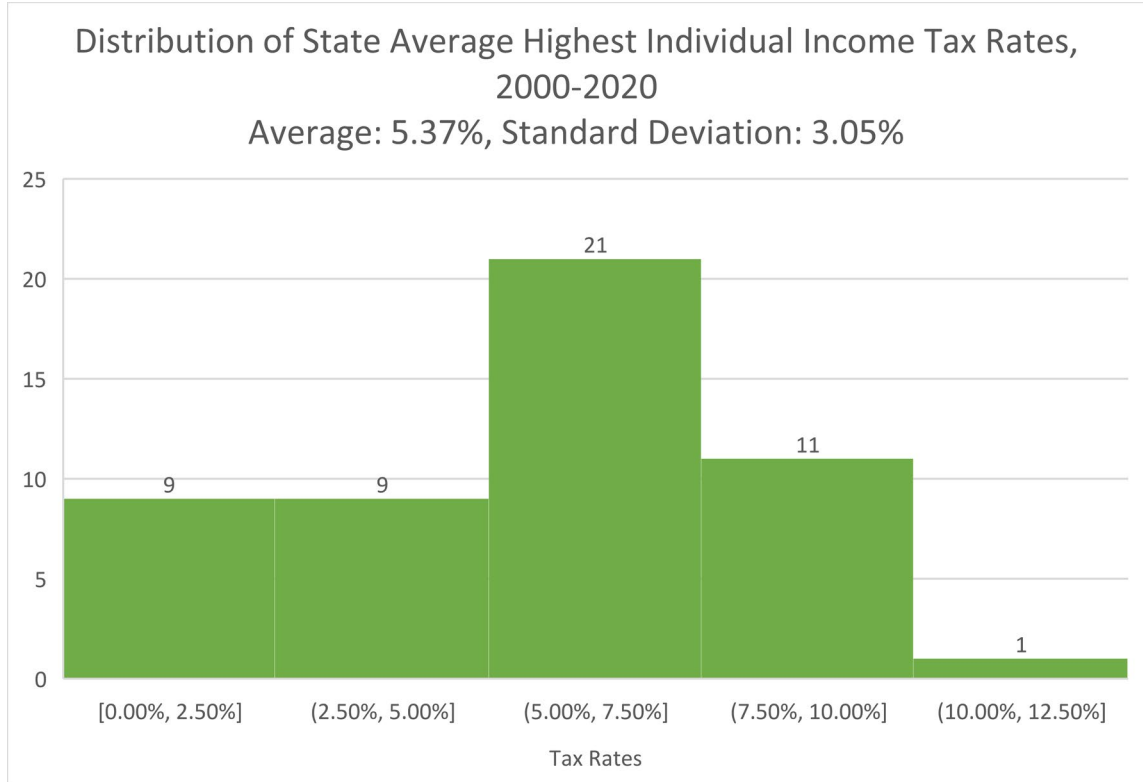
For tax rates, I obtained state individual income tax rate data for all 50 states and Washington, D.C. over the 21-year period from 2000 to 2020 from the Tax Policy Center website (“State Individual Income Tax Rates 2000-2020”) and looked at the highest individual income tax rates, since the NFL is subject to minimum salary limits that put NFL players into the highest tax brackets in all states. During this time period, there were seven states who had no individual state income tax (Alaska, Florida, Nevada, South Dakota, Texas, Washington, and Wyoming), and two states who only taxed income from dividends and interest (New Hampshire and Tennessee). For the purposes of my research, I counted New Hampshire and Tennessee as having a 0% tax rate, since any salary that an NFL player would be receiving would be earned income and not taxed in either of these states. It is worth noting that the Super Bowl has never been held in New Hampshire or Tennessee.

There were also three states that calculated individual state income tax liability in some years based off a percentage of the taxpayer’s federal income tax liability (North Dakota, Rhode Island, and Vermont). In 2008, Rhode Island also gave taxpayers the option to pay a flat rate regardless of tax bracket instead of calculating state income tax liability based off federal income tax liability. Because the actual rate paid would vary widely by individual, these years (North Dakota: 2000; Rhode Island: 2000-2008; Vermont: 2000-2002, 2005-2006) were excluded from calculations. It is also worth

noting that the Super Bowl has never been held in North Dakota, Rhode Island, or Vermont.

Taking these things into consideration, I calculated the average highest individual state income tax rate for 2000 to 2020 for all 50 states and Washington D.C. (See Appendix A). I also looked at the highest individual income tax rates in the states in which the Super Bowl was held from 2000 to 2020.

Below, **Figure 1** shows the distribution of average highest individual income tax rates in the 50 states and Washington, D.C. from 2000 to 2020. The average tax rate across the nation was 5.37%, with a standard deviation of 3.05% and a moderate left skew. Twenty-one out of the 50 states and Washington D.C. have average rates that fell in the (5.00%, 7.50%] bracket, which is almost twice as many as any other group. One additional point is that the lowest bracket of [0.00%, 2.50%] contains nine states, but all these states had no individual income taxes throughout this time period. There were no states who had tax rates less than 2.5% but greater than 0%. The one state in the (10.00%, 12.50%] bracket was California, which had an average highest individual income tax rate of 10.47% during this time period (see Appendix A).

Figure 1

In **Figure 2** on the following page, the distribution of the highest individual income tax rates in states where the Super Bowl was held appears quite different from distribution of state average rates. The average tax rate for these states is 3.84%, with a standard deviation of 3.97% and a heavy right skew. Nine out of the 21 years, the state in which the Super Bowl was held fell in the [0.00%, 2.50%] bracket. For each of these years, the state in which the Super Bowl was held had no state income tax. As before, the only state to fall in the (10.00%, 12.50%] was California, with a 12.30% highest individual income tax rate in the year 2016.

Figure 2

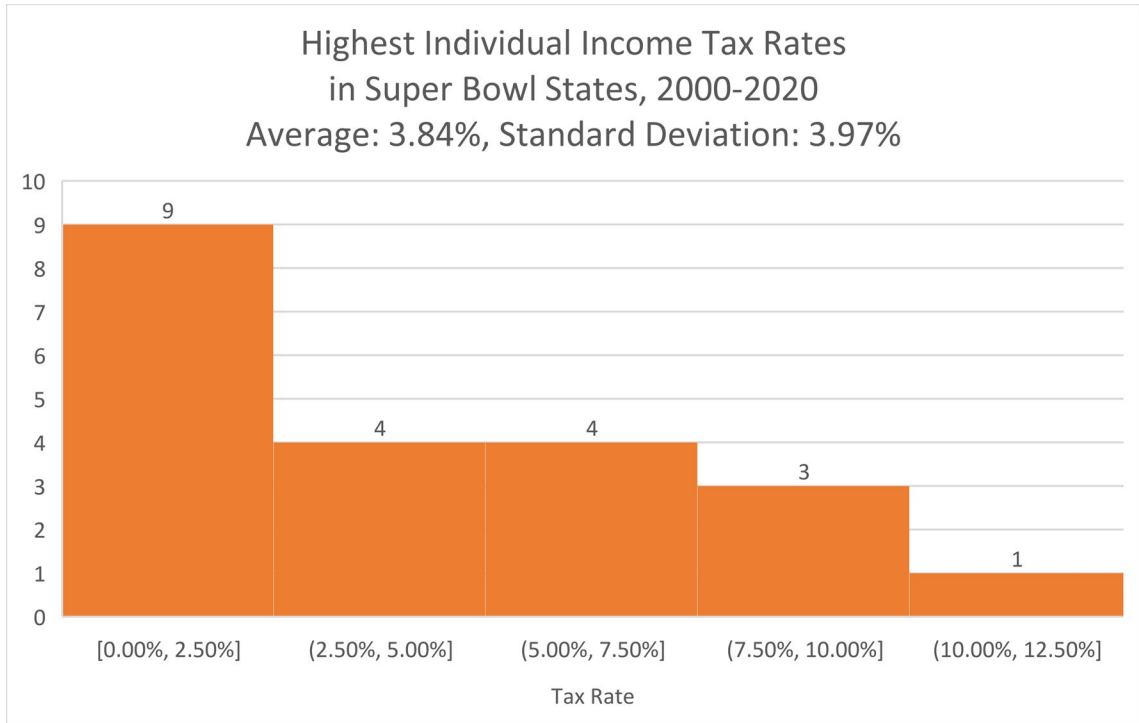


Table 1 shows a side-by-side comparison of the two distributions.

Comparison of Distributions		
Tax Rate	% of State Average Highest Individual Income Tax Rates 2000-2020	% of Super Bowl State Highest Individual Income Tax Rates 2000-2020
[0%, 2.5%]	17.65%	42.86%
(2.5%, 5%]	13.73%	19.05%
(5%, 7.5%]	45.10%	19.05%
(7.5%, 10%]	21.57%	14.29%
(10%, 12.5%]	1.96%	4.76%

III. PLAYER PAYOUTS

In addition to looking at the distribution of tax rates, I researched the winning and losing bonuses that NFL athletes get paid when their team plays in the Super Bowl to determine how much tax that states stand to receive solely based on the direct amounts athletes are paid for the Super Bowl. These numbers are estimates based on teams consisting of a maximum of 53 players, and do not take into account the portion of a player's salary that would be allocated to the time that the player spend in the state and performing work functions relevant to the Super Bowl, nor do they account for inflation. The winning and losing bonus amounts were found in the NFL Collective Bargaining Agreements for 1993, 2006, and 2011, where they are set years in advance. Therefore, the tax liabilities presented in **Table 2** represent the maximum income tax liability that could arise from Super Bowl winning and losing bonuses.

It is worth noting that even the athletes on the losing team stand to owe well over a thousand dollars in income taxes to the state just from playing in the game, and over the 21-year period that was analyzed, potentially as much as \$5.67 million in state income taxes were collected as a result of athletes receiving bonuses for playing in the Super Bowl.

Table 2

State Income Tax Arising from Super Bowl Win/Loss Bonuses 2000-2020												
Year	Win Bonus per Player	Loss Bonus per Player	State	Tax Rate	State Income Tax Liability Arising from Win Bonus per Player	State Income Tax Liability Arising from Loss Bonus per Player	Total State Income Tax Liability Arising from Super Bowl Win Bonuses*	Total State Income Tax Liability Arising from Super Bowl Loss Bonuses*	Total State Income Tax Liability Arising from Super Bowl Bonuses*			
2000	\$ 58,000	\$ 33,000	Georgia	6.00%	\$ 3,480.00	\$ 1,980.00	\$ 184,440.00	\$ 104,940.00	\$ 289,380.00			
2001	58,000	34,500	Florida	0.00%	-	-	-	-	-			
2002	63,000	34,500	Louisiana	6.00%	3,780.00	2,070.00	200,340.00	109,710.00	310,050.00			
2003	63,000	35,000	California	9.30%	5,859.00	3,255.00	310,527.00	172,515.00	483,042.00			
2004	68,000	36,500	Texas	0.00%	-	-	-	-	-			
2005	68,000	36,500	Florida	0.00%	-	-	-	-	-			
2006	73,000	38,000	Michigan	3.90%	2,847.00	1,482.00	150,891.00	78,546.00	229,437.00			
2007	73,000	38,000	Florida	0.00%	-	-	-	-	-			
2008	78,000	40,000	Arizona	4.54%	3,541.20	1,816.00	187,683.60	96,248.00	283,931.60			
2009	78,000	38,000	Florida	0.00%	-	-	-	-	-			
2010	83,000	42,000	Florida	0.00%	-	-	-	-	-			
2011	83,000	42,000	Texas	0.00%	-	-	-	-	-			
2012	88,000	44,000	Indiana	3.40%	2,992.00	1,496.00	158,576.00	79,288.00	237,864.00			
2013	88,000	44,000	Louisiana	6.00%	5,280.00	2,640.00	279,840.00	139,920.00	419,760.00			
2014	92,000	46,000	New Jersey	8.97%	8,252.40	4,126.20	437,377.20	218,688.60	656,065.80			
2015	97,000	49,000	Arizona	4.54%	4,403.80	2,224.60	233,401.40	117,903.80	351,305.20			
2016	102,000	51,000	California	12.30%	12,546.00	6,273.00	664,938.00	332,469.00	997,407.00			
2017	107,000	53,000	Texas	0.00%	-	-	-	-	-			
2018	112,000	56,000	Minnesota	9.85%	11,032.00	5,516.00	584,696.00	292,348.00	877,044.00			
2019	118,000	59,000	Georgia	5.75%	6,785.00	3,392.50	359,605.00	179,802.50	539,407.50			
2020	124,000	62,000	Florida	0.00%	-	-	-	-	-			
*Calculations are based on 53 players per team, and do not account for inflation							TOTAL: \$	3,752,315.20	\$	1,922,378.90	\$	5,674,694.10

IV. CORRELATION ANALYSES

In **Figure 3**, I analyzed the relationship between state income tax rates and the location of the Super Bowl. For this analysis, I looked at the states that hosted the Super Bowl between 2000 and 2020 and did not look at any of the states that did not host the Super Bowl during this time. It is worth noting that all the states that have ever hosted the Super Bowl also hosted the Super Bowl at least once between 2000 and 2020. At first glance, there does appear to be a weak negative correlation ($R^2=-0.3872$) between state income tax rate, with the expected number of times a state has hosted the Super Bowl decreasing by 0.27 for every 1.00% increase in a state's highest individual income tax rate. The two states that hosted the Super Bowl the most during this time (Florida: six times, Texas: 3 times) both have no state income tax. However, at the 95% confidence level, this correlation fails to be significant with a p-value of 0.0547 (See **Appendix A** and **Appendix C**).

Figure 3

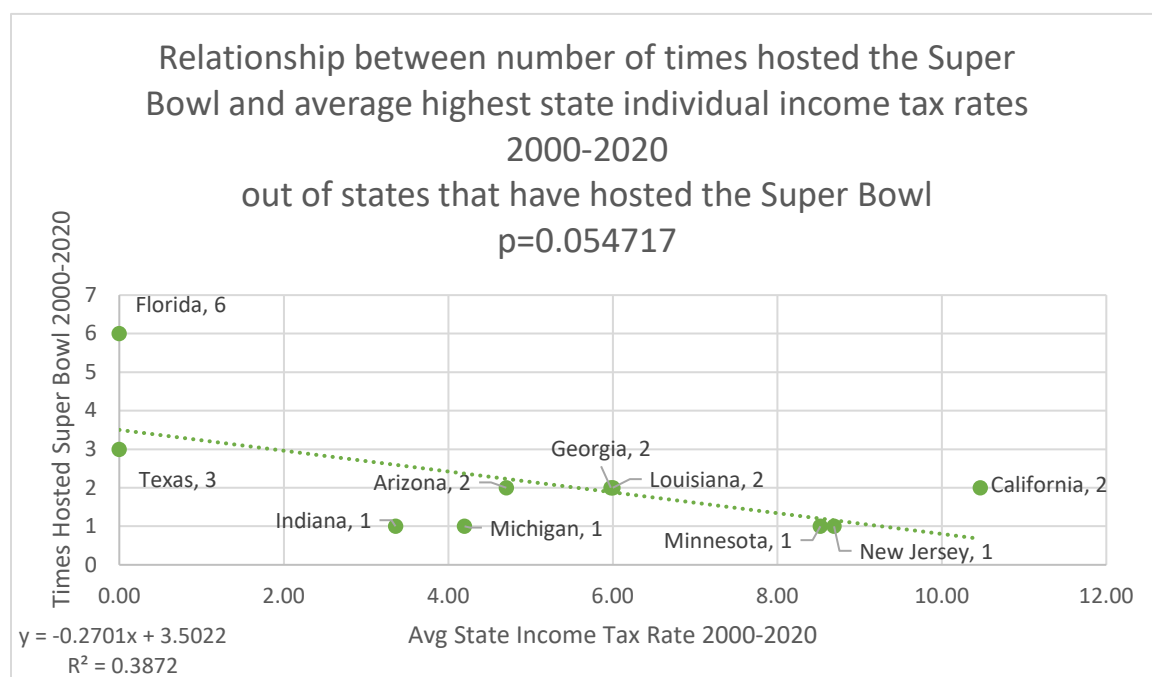
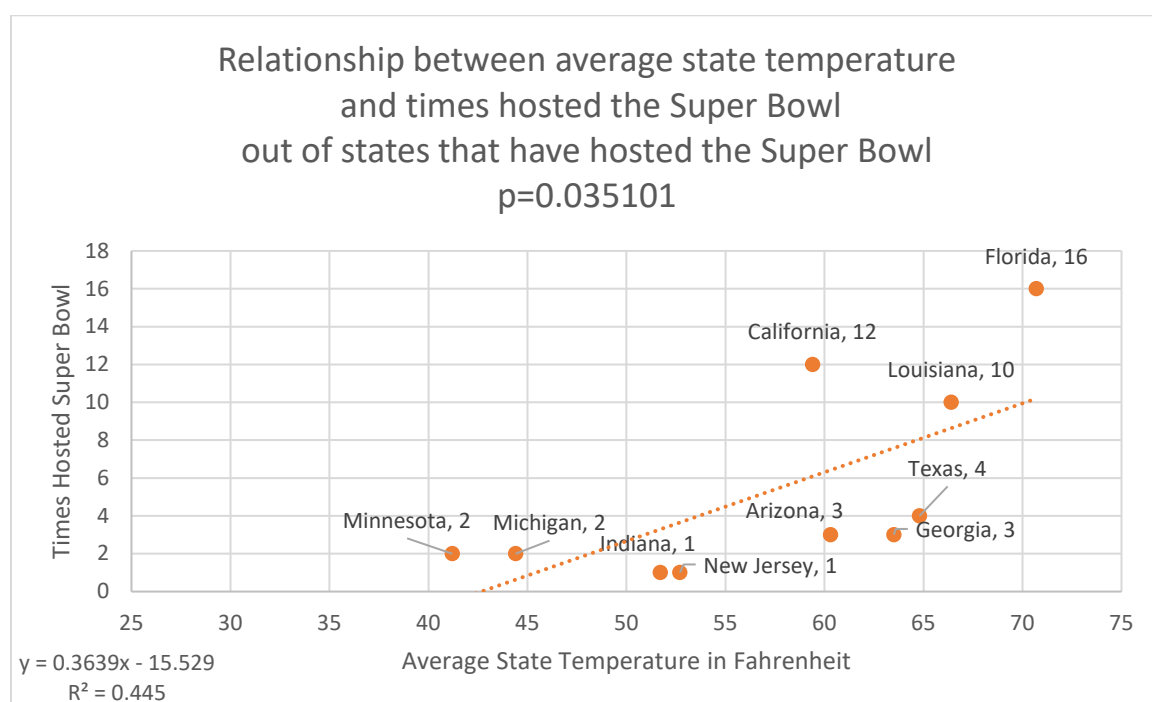


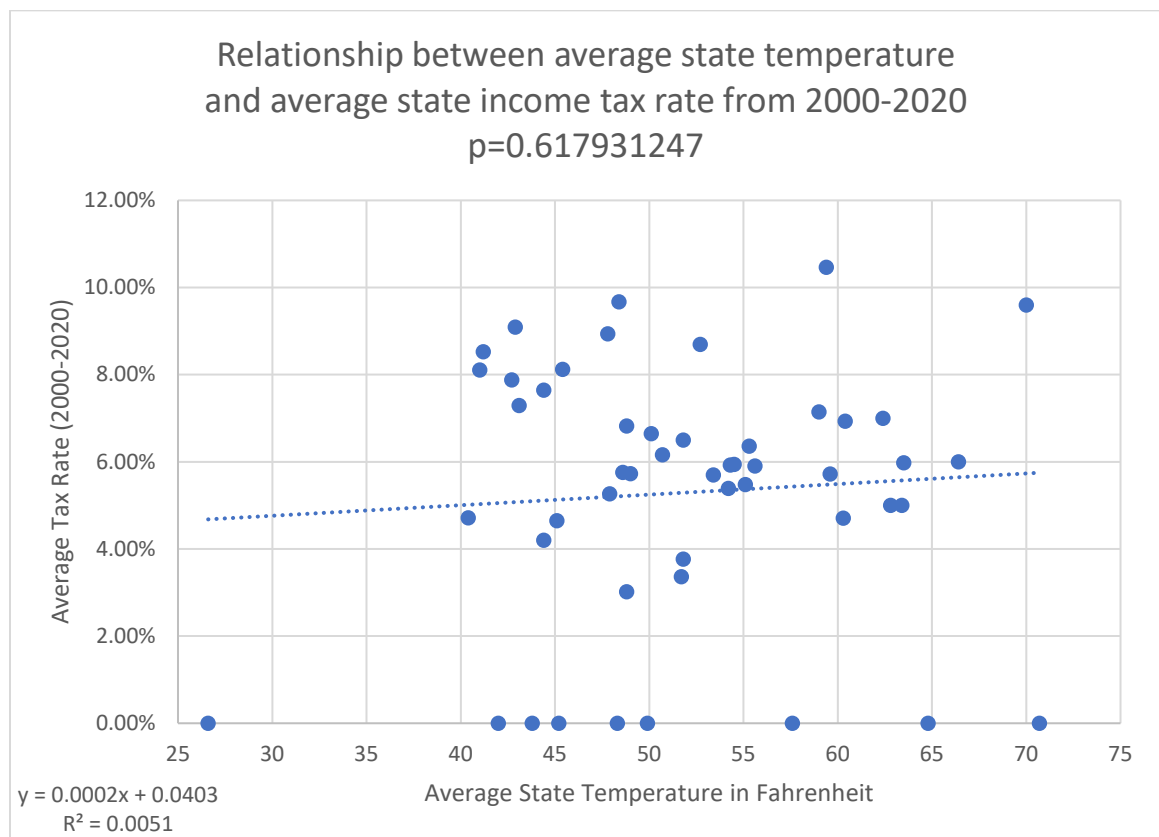
Figure 4 shows the correlation between average state temperature and the number of times a state has hosted the Super Bowl out of the states that have hosted the Super Bowl. The average state temperatures that I used are based off records from the National Oceanic and Atmospheric Administration as far back as 1970, so I looked at the correlation across all years that the Super Bowl has happened. With a p-value of 0.0351, at the 95% confidence level there is a statistically significant moderate positive correlation ($R^2=0.445$) between average state temperature and the number of times a state has hosted the Super Bowl. For every 1°F increase in average state temperature, on average a state can be expected to have hosted 0.36 more times. The state that has hosted the Super Bowl the most, Florida at 16 times, also has the highest average state temperature out of states that have hosted the Super Bowl (See **Appendix B** and **Appendix C**).

Figure 4



In **Figure 5**, I looked to see if there was a relationship between average state temperature and the average highest state individual income tax rate for all 50 states and Washington, D.C. in the years 2000 to 2020. I failed to find any evidence of a correlation between average state temperature and average highest state income tax rates, with an R^2 value that was less than 0.01 and a correlation coefficient that is approximately 0. At the 95% confidence level, these results are not statistically significant with a p-value of 0.6179 (See **Appendix A** and **Appendix C**).

Figure 5



V. CONCLUSION AND DISCUSSION

Conclusion

Based on the tax and location data from 2000 to 2020, at the 95% confidence level there is no evidence to conclude that there is any correlation between state individual income tax rates and the yearly location of the Super Bowl. There is evidence to conclude that there is a positive correlation between average state temperature and the location of the Super Bowl. It appears that the weak negative correlation observed in **Figure 3** is due to both Texas and Florida, both of which in the top three warmest states that have hosted the Super Bowl, happening to have no state income tax. Lastly, I failed to find any evidence to suggest that there is a correlation, positive or negative, between average state temperature and highest average individual state income tax rates.

Discussion

Though it is tempting to look at the 16 times the Super Bowl has been hosted in Florida, a state that has historically had no state income tax, and draw the conclusion that the Super Bowl locations are skewed towards cities in states that have no state income tax, it is also worth noting that the Super Bowl has been hosted in California 12 times, and California is a state that has historically had some of the highest state income tax rates. The state in which the Super Bowl was held the third most number of times, Louisiana at 10 times, had an average highest individual income tax rate of 5.90% from 2000-2020. Based on this analysis, it does appear that the major factor in which states host the Super Bowl is weather.

Additional Questions

During the research process, I came up with some questions that would be interesting topics for future research:

- Given that the NFL changed the selection process for the Super Bowl locations just in 2018, if the same analysis were to be conducted in the future, would there still be no correlation?
- What factors contribute to a winning bid/pitch to host the Super Bowl? Are there any factors that would make an otherwise competitive city unattractive as a potential Super Bowl location?

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Appendices

Appendix A

State	Average Individual Income Tax Rate 2000-2020
Alabama	5.00%
Alaska	0.00%
Arizona	4.70%
Arkansas	6.93%
California	10.47%
Colorado	4.65%
Connecticut	5.73%
Delaware	6.36%
Florida	0.00%
Georgia	5.98%
Hawaii	9.60%
Idaho	7.64%
Illinois	3.77%
Indiana	3.36%
Iowa	8.94%
Kansas	5.93%
Kentucky	5.90%
Louisiana	6.00%
Maine	8.10%
Maryland	5.39%
Massachusetts	5.26%
Michigan	4.20%
Minnesota	8.52%
Mississippi	5.00%
Missouri	5.94%
Montana	7.88%
Nebraska	6.82%
Nevada	0.00%
New Hampshire (for all years, tax rates were set at 5% of dividend and interest income)	0.00%
New Jersey	8.69%
New Mexico	5.70%
New York	8.12%
North Carolina	7.15%
North Dakota	4.71%
Ohio	6.16%
Oklahoma	5.72%
Oregon	9.67%
Pennsylvania	3.02%
Rhode Island	6.64%
South Carolina	7.00%
South Dakota	0.00%
Tennessee (for all years, tax rates were set at 6% of dividend and interest income)	0.00%
Texas	0.00%
Utah	5.76%
Vermont	9.09%
Virginia	5.48%
Washington	0.00%
West Virginia	6.50%
Wisconsin	7.29%
Wyoming	0.00%
Washington, D.C.	8.90%
Average	5.37%

Tax data was obtained from www.taxpolicycenter.org/statistics/state-individual-income-tax-rates-2000-2020

Appendix B

SUPER BOWL LOCATION BY YEAR			
Year	State	City	Highest State Individual Income Tax Rate in Year
2000	Georgia	Atlanta	6.00%
2001	Florida	Tampa, Fla.	0.00%
2002	Louisiana	New Orleans	6.00%
2003	California	San Diego	9.30%
2004	Texas	Houston	0.00%
2005	Florida	Jacksonville, Fla.	0.00%
2006	Michigan	Detroit	3.90%
2007	Florida	Miami	0.00%
2008	Arizona	Glendale, Ariz.	4.54%
2009	Florida	Tampa, Fla.	0.00%
2010	Florida	Miami	0.00%
2011	Texas	Arlington, Texas	0.00%
2012	Indiana	Indianapolis	3.40%
2013	Louisiana	New Orleans	6.00%
2014	New Jersey	East Rutherford, N.J.	8.97%
2015	Arizona	Glendale, Ariz.	4.54%
2016	California	Santa Clara, Calif.	12.30%
2017	Texas	Houston	0.00%
2018	Minnesota	Minneapolis	9.85%
2019	Georgia	Atlanta	5.75%
2020	Florida	Miami	0.00%
		Average	3.84%

Super Bowl yearly location data was obtained from www.espn.com/nfl/superbowl/history/winners

Appendix C

Average State Temperature	
State	Average Temperature, °F
Alabama	62.8
Alaska	26.6
Arizona	60.3
Arkansas	60.4
California	59.4
Colorado	45.1
Connecticut	49.0
Delaware	55.3
Florida	70.7
Georgia	63.5
Hawaii	70.0
Idaho	44.4
Illinois	51.8
Indiana	51.7
Iowa	47.8
Kansas	54.3
Kentucky	55.6
Louisiana	66.4
Maine	41.0
Maryland	54.2
Massachusetts	47.9
Michigan	44.4
Minnesota	41.2
Mississippi	63.4
Missouri	54.5
Montana	42.7
Nebraska	48.8
Nevada	49.9
New Hampshire	43.8
New Jersey	52.7
New Mexico	53.4
New York	45.4
North Carolina	59.0
North Dakota	40.4
Ohio	50.7
Oklahoma	59.6
Oregon	48.4
Pennsylvania	48.8
Rhode Island	50.1
South Carolina	62.4
South Dakota	45.2
Tennessee	57.6
Texas	64.8
Utah	48.6
Vermont	42.9
Virginia	55.1
Washington	48.3
West Virginia	51.8
Wisconsin	43.1
Wyoming	42.0

State temperature data was obtained from www.currentresults.com/Weather/US/average-annual-state-temperatures.php