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# 2018 SUPER BOWL COMMERCIALS: ARE THEY WORTH THE EXPENSE?

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## **EXECUTIVE SUMMARY**

As the Super Bowl is one of the most coveted events for television advertising, companies repeatedly spend a large portion of their advertising budget on air time. The commercials that are aired can last as short as 15 seconds, and often include different variables from their commercial the previous year in order to attract a viewer base that is worth millions. Due to the buzz about the large expenditure of Super Bowl commercials, watching the commercials has become an inherent part of the Super Bowl experience for the viewers. Annually there has been an average of 14 million Super Bowl viewers, which has translated to positive impacts for the company that aired the commercial, which includes increased sales and company inquiries (Eastman, 2010).

While the companies receive positive impact, is it just as important for stockholders to feel a positive impact from the Super Bowl Commercial. Due to the relationship between Marketing and Stockholders, there is a need for investors to have credible measures of the effect on the Super Bowl Commercial on the stock of the company. The aim of the following research is to determine what factors, if any, are likely to make for a “successful” Super Commercial that is worth the face value of millions. In the case of our research study, the term “successful” is determined through average ratings that consumers assign to each Super Bowl advertisement that aired in 2018, as well as the change in stock price for the company’s advertisement.

## **PREVIOUS STUDIES**

Previous studies have looked into this topic before and have found that there has been an increasing challenge for marketing professionals to translate marketing actions to financial performance measures. McAlister has found in his studies that price promotions correlate to consumer perceptions that there is a decrease in demand, which is a negative impact on consumers. This is often considered as representativeness bias (McAlister, 2009). On the other hand, Super Bowl Commercials that increase representativeness bias for viewers brings a positive outcome, especially for investment decision-making. For example, past returns on stocks may be indicative of future returns. For the Super Bowl in particular, when viewers watch a commercial and like it, they end up liking the firm that aired the commercial, which leads to a net buying of those firm’s stocks. Studies show that if a firm is able to get a modest 0.1% stock price boost from airing a likeable Super Bowl commercial, the stock will bring an extra \$100 million in market capitalization to a \$100 billion market capitalization (Kim, 2016). Therefore, representativeness bias is an essential part of the success of a Super Bowl Commercial, which is difficult to measure other than an increase or decrease in the company’s stock prices following the commercial.

While representativeness bias has been a factor for Super Bowl commercials in the past, this finding still holds strong. This is due to consumers expected likeliness of a certain brand’s commercial, for example, Budweiser and Pepsi. More recently, studies have been released about four Super Bowl Ads that impacted stock prices in 2019. Similar to Kenneth Kim’s studies, Tomkovick and Yelkur have found that companies experienced a 1% spike in their stock in a 10-day trading period from the Monday before the Super Bowl to the Friday after. Their study found that the commercial data and stock price correlations reveal that companies who could afford the airtime did well whether their commercial ratings were high or not. Although Pepsi and Coca-Cola had very different commercials, in 2019 Pepsi’s commercial led to a 0.8% increase in their stock the following Monday, and Coca-Cola had a 1.1% increase (Sraders, 2019). In 2019, Coca Cola’s commercial was aired prior to the Super Bowl, while Pepsi was aired during the Super Bowl. This increase is due to a combination of the viewers’ expected likeliness of the commercial, and the companies’ ability to afford airtime.

The following research has been done on the 2018 Super Bowl Ads to determine which variables in a Super Bowl Commercial are most effective on the ad rating, which will be indicative of whether or not the company’s

stock has been affected. Previous studies have shown that higher levels of affect are associated with advertising goods rather than services, which is why companies that have received high ratings in 2018 such as Budweiser and Doritos place a great importance on their commercial. Popular commercial strategies include using emotional appeals, avoiding straightforward announcements, including animals, and refraining from making quality claims (Kelley, 2004). The goal for this research is to determine which variable is most effective for conducting a successful Super Bowl ad that is worth its expenditure.

## *DATA*

The first step in our methodology to gather data was to determine our desired y-variable and define our various desired x-variables through the use of secondary research. The determined x-variables are Cameos, Humor, Length of Commercial, Social Media, Animal/Mascot, Product Placement, Air Time, and the use of a Song or Slogan. The determined y-variable for our research is Average Ratings of Super Bowl Ads that were collected from Ad Meter. Our sample statistic and average ratings were acquired from a secondary source that had listed all 65 Super Bowl Ads from 2018 ranked by consumer ratings (Ad Meter, 2018). After collecting this data, we then proceeded to go through and watch each commercial individually and similarly find responses for our x-variables. Such variables were determined using previous research that states the importance of animals, celebrities, and emotional appeals in their commercials (Kelley, 2004), which lead to an overall storytelling aspect that viewers easily identify (Monarth, 2014).

For our research, we are searching for a dominant variable, because each year commercials that spend similarly high expenditures base their commercials off of different variables. Therefore, in order to establish the significance of a dominant variable we analyzed each commercial. If the variable is “celebrity cameos,” we would find the commercial and look at how many celebrities made in appearance in it and record that data. In our analysis, we found that there was a mean of 5.4 celebrities in each commercial, with a maximum of 7.18 and a minimum of 3.78 in the commercials that did contain celebrities. If an ad used humor to attract a humorous target segment or to position itself as a relatable company, this was documented as a humor variable, which we found in a sum of 30 of the 65 commercials. Social Media was noted for commercials who contained an Instagram, Twitter, or Snapchat code at the end of the commercial or within the commercial, in order to interact with viewers and allow viewers to follow the commercial once it is aired, which was found in 9 of the 65 commercials. Animal Mascots, such as the Cheetah in Cheetos Commercials are used to ignite brand awareness and recognition for viewers, or to establish an emotional appeal such as the Golden Retriever in Budweiser commercials. Our descriptive statistics from the data collection show a sum of 10 commercials with animals/mascots out of the 65 commercials. Another variable that we are considering is Product Placement, which was found to be a variable in 33 of the 65 commercials, which places an emphasis on selling the product. As for song and slogan, they are noted as two separate variables, yet they are similar in their purpose to establish a sensory awareness for the product or service. Out of the total commercials, 28 commercials used a song, and 35 used a slogan.

As the Super Bowl is notorious for coveted air times, we are expecting to find in our data a specific air time that is the most competitive. In our data collection, we found that 13 commercials were aired during the First Quarter, and 17 commercials were aired during the Second Quarter, with a sum of 30 commercials aired in the First Half of the Super Bowl. As for the second half of the game, there were 14 commercials aired in the Third Quarter, 9 in the Fourth Quarter and 7 commercials at halftime. Our data also demonstrates that the average length of commercial time (in seconds) is 49.80, with a minimum of 15 seconds and a maximum of 120 seconds. Since the average rating for all commercials is a 5.44, with a minimum of 3.78 and a maximum of 7.18, it will be interesting for the regression to detect a relationship between the rating and the length of the commercial/ air time.

After the data collection and descriptive statistics phase was completed, we proceeded to find correlations among the data before the regression was ran. Specifically, these correlations are referred to as Pearson Correlations, and the stronger this correlation is to .5, the stronger the correlation is. The first correlation found was between Product Placement and Humor, which had a correlation of .418. This relationship may exist because the product was used in a way to establish an enduring humor for consumers to remember as they see the product or service and establish likeliness in consumers. The next correlation found was Air Time First Quarter and Animal Mascot, with a correlation of .426. This correlation establishes that Animal Mascots are commonly found in commercials that air during the First Quarter. The correlations found can be seen in Table 1 below.

After the data collection phase was complete, we proceeded to run a regression with the data and determine the significant variables that prove to have the greatest impact on average ratings. The most significant variables from our regression were variables with p values below .05. Once a factor or a mix of factors prove to be the most effective in producing a higher rating in the eyes of consumers, we can assume that it is beneficial for companies to implement this factor (or these factors) in future commercials that the said companies may be involved in. It will be highly likely for the advertisement to provide a greater benefit to the company whether it be through brand or product awareness, or an increase in stock price.

## ***RESULTS***

As our research had found earlier, it is vital to understand the correlation between the independent variables in order to run an effective Super Bowl Commercial that is worth the expenditure that companies spend on the commercial and can create a return on stock. Our research demonstrated the correlation between Product Placement and Humor, and the relationship between the Air Time in the First Quarter and the Animal Mascot. These relationships are vital to understand because it may lead to an increase in viewers' attention, which may lead to a higher commercial rating. Although we were able to find correlations, we conducted further data analysis of the data's p-value's and coefficients to carefully understand how statistically significant these individual independent variables are, along with the other independent variables that are included in our research.

In order to understand how statistically significant our independent variables are, we ran a regression factors explaining average rating of the 2018 Super Bowl commercials to the viewers based on likeness of the viewers. We ran a stepwise regression involving the independent variables: Cameos, Humor, Length of the Commercial (seconds), Social Media, Animal/ Mascot, Product Placement, Air Time First Q, Air Time 2nd Q, Air Time 3Q, Halftime, Song, and Slogan. All independent variables listed were included in the Step 1 regression, which can be found in Figure 1 below. In the Step 2 regression we removed two independent variable (1) Cameos (p-value: 0.768) and (2) Social Media (p-value: 0.684), which came to be statistically insignificant. Following this process, for the Step 3 regression we removed Product Placement (p-value: .016). Continuing this process, we gradually removed other insignificant variables step by step to come to final Step 7 where all the significant variables are statistically significant. The variables that were remaining by final Step 7 include Length in Commercials, Animal/Mascot, Air Time Third Quarter, Air Time during Halftime, along with the inclusion of a Song, and lastly, a Slogan.

Considering the independent variables that were found to be statistically significant by p-value, the coefficients of these independent variables determine the effect the variable had on the p-value by the final step of the stepwise regression. The coefficients for (1) Length of Commercial (0.006), (2) Animal/Mascot (0.604), (3) Song (0.303) and (4) Slogan (0.385) had positive effects on the p-value on the other hand, (1) Air Time Third Quarter (-0.616), (2) Air Time Halftime (-0.613) had a negative effect on the p-value. These coefficients had a negative effect, likely because Pearson Correlations were found for the First Quarter and the First Half, and not for the Third Quarter of Halftime.

## ***CONCLUSION***

Overall, our research findings allow companies to experiment with the statistical significances that were found so that companies can use their expenditure on Super Bowl commercials most effectively. Although we determined statistically significant variables, it is vital to determine the limitations of our data that may have limited other significant findings. Certain limitations include the availability of time and resources. As with many semester long projects, it is expected that time and resources be a limitation. Throughout the process we considered changing y-variables multiple times, and spent time gathering secondary sources to help us gather useful x-variables. A different y-variable could have been the change in stock price, since previous studies have stated that the stock of a company can increase whether or not the ad rating was high. This is important because if companies had an increase in stock, and paid the minimum for a minimum airtime, this may save companies millions of dollars in the future by refraining from spending millions on a lengthy commercial. In addition, stock prices may increase because a shorter commercial is easier to identify.



table: stepwise regression										
	Coefficient		P-Value							
Dependent Variable: Avg. Rating										
	Step 1 Regression		Step 2 Regression		Step 3 Regression		Step 5 Regression		Step 7 Regression	
	Coefficient	P-value	Coefficient	P-Value	Coefficient	P-Value	Coefficient	P-Value	Coefficient	P-Value
Constant	5.211	0.000	5.135	0.000	5.204	0.000	5.108	0.000	5.109	0.000
Cameos	0.022	0.768								
Humor	0.167	0.435	0.122	0.469						
Length of Commerical (In Seconds)	0.004	0.329	0.007	0.065	0.006	0.080	0.006	0.071	0.006	0.068
Social Media	-0.100	0.684								
Animal/ Mascot	0.309	0.261	0.520	0.042	0.589	0.013	0.596	0.013	0.604	0.007
Product Placement	0.128	0.508								
Air Time First Q	-0.536	0.053	-0.715	0.002	-0.694	0.008	0.025	0.915		
Air Time 2nd Q	-0.446	0.078	-0.696	0.004	-0.721	0.002				
Air Time 3q	-0.535	0.047	-0.326	0.246	-0.721	0.002	-0.615	0.004	-0.616	0.004
Air time Half	-0.422	0.200	0.328	0.062	-0.321	0.251	-0.621	0.003	-0.613	0.077
Song	0.350	0.060	0.369	0.024	0.334	0.056	0.303	0.079	0.303	0.014
Slogan	0.364	0.059	0.369	0.024	0.395	0.013	0.386	0.015	0.385	0.001

Figure 1

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## Stepwise Regression Table

Dependent Variable: Avg. Rating										
	Step 1 Regression		Step 2 Regression		Step 3 Regression		Step 5 Regression		Step 7 Regression	
	Coefficient	P-value	Coefficient	P-Value	Coefficient	P-Value	Coefficient	P-Value	Coefficient	P-Value
<b>Constant</b>	5.211	0.000	5.135	0.000	5.204	0.000	5.108	0.000	5.109	0.000
<b>Cameos</b>	0.022	0.768								
<b>Humor</b>	0.167	0.435	0.122	0.469						
<b>Length of Commerical (In Seconds)</b>	0.004	0.329	0.007	0.065	0.006	0.080	0.006	0.071	0.006	0.068
<b>Social Media</b>	-0.100	0.684								
<b>Animal/ Mascot</b>	0.309	0.261	0.520	0.042	0.589	0.013	0.596	0.013	0.604	0.007
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<b>Song</b>	0.350	0.060	0.369	0.024	0.334	0.056	0.303	0.079	0.303	0.014
<b>Slogan</b>	0.364	0.059	0.369	0.024	0.395	0.013	0.386	0.015	0.385	0.001

# QUALITY AND PERFORMANCE: AMBULANCE DIVERSION

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## ABSTRACT

*Ambulance diversion (AD) is a phenomenon where ambulances local to a hospital are rerouted, or diverted, to more distant facilities due to emergency department (ED) overcrowding. Despite resounding studies done on this topic, none have pinpointed an exact cause as to why EDs become so overcrowded. Using data spanning all hospitals in California from 2007-2015, obtained from the California Health and Human Services website, we investigated the most probable causes of AD hours by running fixed and random stepwise cross-section time-series regressions, and by creating control charts to determine whether the hospital processes are within statistical control. We found that the most prominent cause of a hospital's ED overcrowding was the number of patients who were admitted to the hospital but did not receive treatment (p-value 0.000). This encapsulates patients who were triaged and registered but left before being treated; patients who left before being triaged or registered; patients who were triaged and left before being registered; patients who were not treated but referred to another facility. Through control charts, it was shown that the process is mostly in control (with the exception of one anomaly), and that action needs to be taken in order to reduce the amount of diversion hours within and between facilities. Through determining the primary reason of ED overcrowding, a holistic approach of both educating the general public and influencing either hospital waiting-line models or ED entry criteria is a potential solution to tackling the problem of ED overcrowding.*

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## INTRODUCTION

The primary goal of emergency departments is to provide timely, efficient, and accurate care to patients at a moment's notice. Much goes into the process of this; patient care and medical knowledge, interpersonal and communication skills, professionalism, and proper systems-based practice (American University of Beirut). In dealing with emergencies, the number of patients arriving at any given time cannot be controlled, thus a hospital must be able to accommodate a given number of patients at any time. However, a facility can only process so many patient requests at once, and eventually, might reach full capacity. This is where ambulance diversions come in.

Ambulance diversions (AD) occur when hospitals turn away incoming ambulances due to emergency department (ED) overcrowding, where the ED has reached a maximum capacity of patients which it can accommodate and can no longer accept new patients. An increasing number of hospitals have come to rely on this technique over the years, with a focus on those in California. However, many believe that the practice of ambulance diversion does more harm than good; rather than lessening the burden on nearby hospitals to accommodate more patients than they can handle, it instead has a negative effect on the patient's end regarding timely treatment, quality of care, and potential risk for further harm, or even death of the patient, depending how severe the case and how urgently needed treatment is. This indicates the severity of the issue regarding ED overcrowding, and how diverting ambulances to other hospitals is detrimental.

At first glance, this tactic might seem very useful – hospitals are high volume, high pressure facilities, and any attempt to lessen the burden of emergency patients coming in sounds very promising. However, this does more harm than good, due to the risk it puts on the life of the patient riding in the back of the ambulance. In emergency care, time is of the essence, and having to potentially extend the ride to the hospital by even five to ten more minutes could be a matter of life or death to the patient. Attempting to minimise ambulance diversions can be rooted to the cause of diversions, which is ED overcrowding. The reason hospitals go on diversion is due to an influx of patients

greater than the facility can hold or process, so by investigating this problem, we can find a tangible solution to lessening ED overcrowding, and by proxy, ambulance diversions.

From all the research conducted, we have become enlightened as to how large of an issue ambulance diversion is across the United States, but specifically in California and other highly metropolitan areas. We used raw data, specifically Emergency Department Services - Ambulance Diversion Trend, provided by the California Health and Human Services (CHHS) Open Data Portal. This dataset includes data gathered from hospitals and treatment facilities in 58 counties within the State of California, and details whether they experienced any ambulance diversion, and the number of hours each month the facilities were on diversion status between the years 2007 and 2015 (California Health and Human Services Open Data Portal, June 2017) By sorting the data and using the number of diversion hours, we ran regressions and created control charts for each year between 2007 and 2015, to show the control limits of diversion hours, which variables are relevant to causing ED overcrowding, and whether the process is in control or not.

### ***LITERATURE REVIEW***

The problem with ambulance diversion is that it usually results in a lesser quality of patient care, increased risk of harm for the patients, reduces the availability of emergency medical services and ambulance personnel, and contributes to emergency department overcrowding in nearby hospitals (Burke, 2010). One study focused on causes of emergency department overcrowding in the United States during the early 2000s, specifically regarding staffing and capacity issues, which led to the conclusion that “between 40 and 50 percent of U.S. hospitals experienced crowded conditions in the emergency department with almost two-thirds of metropolitan emergency departments experiencing overcrowding” (Burt, 2006).

In further investigation on literature regarding ambulance diversions, some prominent findings were brought to surface regarding ED overcrowding. A study done in 2003 on one hospital in Toronto from January to December of 1999 found that admitted patients was the most important determinant in resultant diversion hours, with nurse hours and number of emergency physicians not being a determinant (Schull et al., 2003). Another study done in 2006 which reviewed (at the time) current literature on ambulance diversions found other important results to ambulance diversion. Cited the year before the start of the data we used in our study, this paper found that ambulance diversion is common among hospitals and is increasing in frequency, is most common on Mondays, during mid-afternoon to early evening, during influenza season, and when hospitals are at full capacity (Pham et al., 2006).

In terms of the impact on patients, some grim findings were discovered in a study done in 2015 on 26 California counties between 2001 and 2011. The study focused on whether ambulance diversions affects “access to technology, likelihood of treatment, and ultimately health outcomes for Medicare patients with acute myocardial infarction” (Shen & Hsia, 2015). The study found that when a patient’s nearby hospital was on diversion, the patient ended up receiving decreased access to hospitals with sufficient cardiac technology, which in turn led to a 4.6 percent decreased likelihood of revascularization and a 9.8 percent increase in one-year mortality compared to patients who did not experience diversion (Shen & Hsia, 2015).

On the other hand, another study done in 2008 regarding trends between ambulance diversion and paediatric mortality rates found that diversions caused no significant increase in inpatient mortality rates, while factors such as illnesses, injury, or transfer were more likely to result in death (Shenoi et al, 2008).

The patient-end of the impact of ambulance diversions isn’t the only end which suffers a loss. Another study done on a hospital in Pennsylvania in 2007 showed that in a 12-month period from July 2004 to June 2005, one hospital lost \$3,881,506 in revenue due to ambulance diversions and patient elopements alone. This comes as a result of ED overcrowding, disallowing hospitals to use their existing bed capacity to accommodate additional patient visits (Falvo et al., 2007).

Regarding solving ambulance diversions, some literature has broken ground on potential solvency techniques, but to no avail. One study found that a “Round Robin” system organized among several hospitals in the Sacramento Region - intended to reduce ambulance diversion - actually made the problem worse. While those hospitals did have status updates available, they were often inaccurate and misleading for incoming ambulances, since they were entered manually (Patel, 2006). On the contrary, some researchers studied optimal AD control policies through utilization of the Markov Decision Process, in order to minimize the average time that patients wait beyond the point of safety. Their findings provide insight regarding the importance of the effective design of AD policies and suggest that “centralized decision making across a number of hospitals, rather than localized decision

making by each hospital” for neighbouring hospitals could help minimize patient wait time and improve care (Ramirez-Nafarrate et al., 2013).

Correlating with our study, one paper found that “entry block” – a term designed to encapsulate impaired access entry to both the emergency department and inpatient care – was the primary cause of emergency department overcrowding and ambulance diversion (Fatovich & Hirsch, 2003). This sets good footing for a root cause of ambulance diversion; the number of patients entering the emergency department at one time is too large for the hospital to handle. However, our study aims to determine why those patients are arriving at the emergency room and try to pinpoint the cause even further in order to hone in on an accurate and precise solution to this problem.

These findings on entry block are supported by another study done by the same author in 2005 in Perth, Western Australia, regarding that access block (effectively the same as entry block for our purposes) was the primary cause of emergency department overcrowding, and by reducing access block we can increase patient inflow, decrease ambulance diversion hours, and decrease emergency department overcrowding (Fatovich et al., 2003).

Finally, hitting home with our study in California, another article investigated population demographics and whether hospitals serving larger portions of minority patients were more likely to employ diversion as a tactic to reduce overcrowding. This study found that, even while controlling for factors such as hospital ownership, emergency department, capacity, and other hospital demographic and structural factors, hospitals who serve larger minority populations were in fact more likely to go on diversion compared to other hospitals (Hsia et al., 2012). Despite attributed causes, the solutions we propose aim to solve emergency department overcrowding.

In terms of general solutions, one literature review study done in 2003 found, in addition to the other findings listed above about emergency department overcrowding, that potential solutions “will require multidisciplinary system-wide support” (Trzeciak & Rivers, 2003). This correlates with our study by providing an access point to build our potential solution on; understanding that there needs to be system-wide support enforces the holistic approach poised by us, allowing us to stipulate and address the problem of emergency department overcrowding from all sides.

### ***LITERATURE REVIEW DEFINES OUR RESEARCH OBJECTIVE***

Given the above literary findings, this study is designed to answer two additional questions raised: (1) to determine if certain processes within the ambulance diversion system are in statistical control, and if they are not, identify statistical significance among the variables selected, and (2) run cross-sectional/time-series regressions on hospital data in order to determine the most impactful cause of ambulance diversions/emergency department overcrowding. With the findings, managers and analysts can pinpoint when and where ambulance diversion occurs and provide a solution to the issue when diversion hours are high.

### ***DATA***

For gathering the data, we found a set of information from the California Health and Human Services Open Data Portal, containing information about each hospital within the 58 counties in California. This data contained information regarding, per hospital: the number of diversion hours per month of the year (and in total); the number of total EMS visits; the total number of non-emergent EMS visit; the total number of EMS treatment stations; total EMS admitted patients; total EMS patients who were registered without receiving treatment.

<u>Table #1: Descriptive Statistics</u>	N	Minimum	Maximum	Mean	Std. Deviation
X2: EMS Visits Total Admitted	581	182	35835	7380.06	4799.197
X3: EMS Treatment Stations	581	5	84	26.79	15.381
X4: EMS Nonemergent Visits	581	0	50338	2012.12	6630.904

X5: EMS Registered Without Treatment	581	0	11108	1187.68	1484.432
Y: Total Diversion Hours	581	2	5640	589.57	770.701
Valid N (listwise)	581				

Correlation(EMS Visits Total Admitted, EMS Treatment Stations) = .652  
 Correlation(EMS Visits Total Admitted, EMS Registered Without Treatment) = .491  
 Correlation(EMS Visits Total Admitted, Total Diversion Hours) = .294  
 Correlation(EMS Treatment Stations, EMS Registered Without Treatment) = .473  
 Correlation(EMS Registered Without Treatment, Total Diversion Hours) = .532

In the table above, we computed the bivariate correlations between each variable, and chose to focus on the two with the most statistical significance (values above .5): EMS Visits Total Admitted with EMS Treatment Stations, and EMS Registered Without Treatment with Total Diversion Hours. The significance this provides is that these variables are correlated with each other more strongly than the rest, and that they deserve further analysis in order to determine their causes on ambulance diversions.

## ***METHODOLOGY AND RESULTS***

### **Study Design**

This was a cross-section/time series (panel data) study based on data from hospitals across all 58 counties in California from 2007-2015. First, we considered the cross-section variable over a single year. Then, we considered all the years (from 2009-2015) across all the cross-section variables.

### **Identification of Variables**

Given the data we obtained from the CHHS, the variables which hospitals had reported data on were already predetermined, and thus the five following variables were the focus of our study: number of EMS patients admitted to the hospital; number of EMS treatment stations; number of EMS visits; number of EMS non-emergent visits; number of EMS patients registered without treatment.

### **Statistical Analysis**

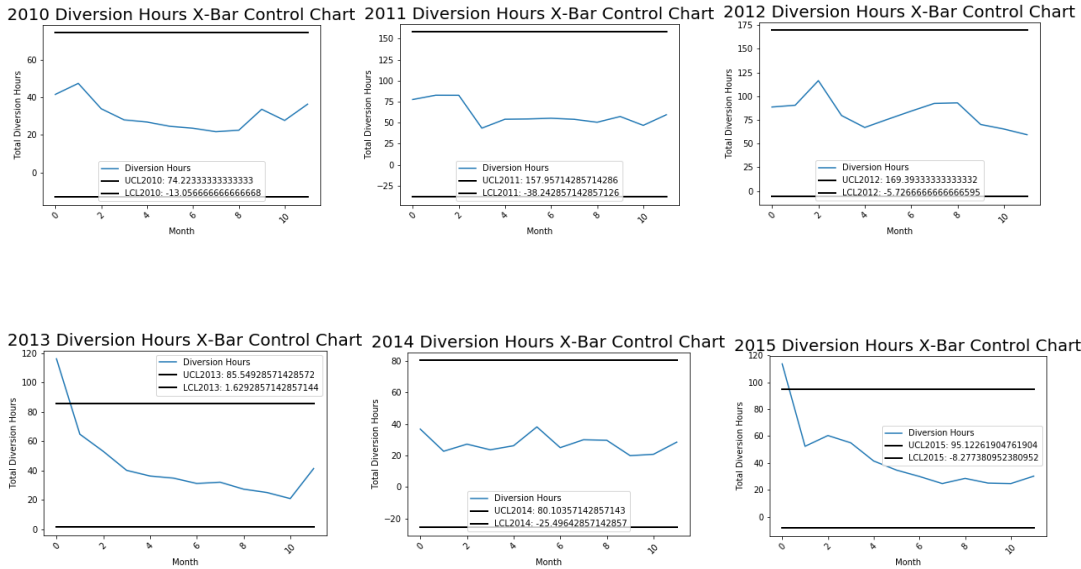
We were able to download this dataset as an excel spreadsheet and import it into a python IDE as a Pandas dataframe. After examining the data, we found that only a portion of the total hospitals opted to report diversion data, so the dataframe was pruned down to include only hospitals which reported diversion data, which brought the total number of samples down from 4508 to 1523. After this, we then found that out of the hospitals which did report diversion data, some only did for a portion of the nine years, rather than the entirety. To adjust for this, we then pruned the dataframe down to only include hospitals which reported for five consecutive years or more. This then brought the number of samples down from 1523 to 581. To further shape the dataframe for the purposes of this study, we eliminated every column which was irrelevant to the following analysis and renamed columns to indicate which ones were specifically independent and dependent variables. After that, we ran two separate types of regressions: (1) we created a separate dataframe to hold each year's data, and ran an OLS regression for each year (nine years) to find whether the total number of diversion hours was affected by the variables, and (2) we used the pruned set of data to run a GLS cross-section time-series regression to further determine which of the five variables were most correlated with the number of diversion hours a hospital experienced.

After running the two separate regression types, we then created two separate types of control charts for diversion hours per month for each year: an  $\bar{X}$ -chart and an  $R$ -chart. First, we started by generating a random subsample of 14 rows of data for each year's worth of data. Next, for the  $\bar{X}$ -chart, we computed the sample mean of each month's diversion hours, then computed the mean of the mean of each month's diversion hours. Next, in lieu of having a population standard deviation, we resorted to a statistical chart to find values for  $A_2$ , which is a function of our sample size (14) which substitutes for the standard deviation. Then, to create the  $\bar{X}$ -charts, we used the following formula:

$$UCL = \bar{X} + A_2\bar{R}$$

$$LCL = \bar{X} - A_2\bar{R}$$

Where UCL and LCL again are equal to the upper and lower control limits, and  $A_2$  is the number from the aforementioned chart corresponding to our sample size. After that, we then created a separate graph for each year, which includes twelve points indicating the mean of each month's diversion hours, which is then bounded by the upper and lower control limits, allowing us to visualise not only which months individually exceed the limits, but to also see whether the process is in control. In the following figures, each point on the X-axis represents each month from January-December, starting at 0 and ending at 11.



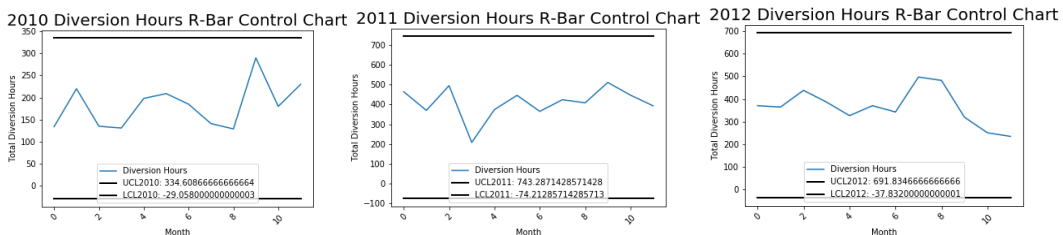
In examining the  $\bar{X}$ -chart, we found that only one data point (January 2013) was out of statistical control. For determining the cause of this anomaly, the data we have is insufficient to give rise to any specific reason.

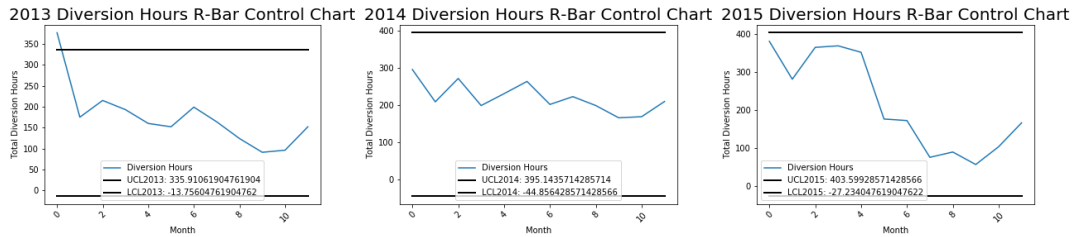
For the  $\bar{R}$ -chart, we followed a similar process as the  $\bar{X}$ -chart. We took the ranges of each month's diversion hours using the same subsample as before, then took the mean of the total ranges. Then, for creating the upper and lower control limits, we followed this formula, as such:

$$UCL = D_4\bar{R}$$

$$LCL = D_3\bar{R}$$

Where  $D_4$  and  $D_3$ , like  $A_2$ , are numbers to be found on a pre-existing chart specific to the number of your sample size. After that, we followed the same process as before; creating a graph for each year, bounded by the upper and lower control limits dictated by the  $\bar{R}$  formula, and indicating which points exceed the control limits. As with the  $\bar{X}$ -chart, the X-axis represents months from January-December, starting at 0 and ending at 11.





In examining the  $\bar{R}$ -chart, the same data point that was out of statistical control in the  $\bar{X}$ -chart (January 2013). Given that this was the exact same as the point in the previous charts, we can conclude that it must be a similar anomaly.

## Results

In running the nine regressions, we found an interesting trend which developed from year to year. In 2007, the total number of admitted patients had a p-value of .009, indicating significance of acting on our dependent variable of total diversion hours, given  $p < .05$ . In 2008, the same variable had a p-value of .000, which indicates further significance. In 2009, the same variable rose to a p-value of .032. However, in 2010, the p-value of that variable dipped to .007, but then the p-value of the number of patients admitted without treatment was .000, showing that in this year, the number of patients who went to a treatment centre and were registered, but did not receive treatment, became a highly influencing factor in affecting the number of diversion hours a facility had. Then in 2011, the p-value for the number of admitted patients rose to .383, indicating no significance, but the p-value of the number of patients registered without treatment stayed below .05, being at .000. In 2012, both the number of EMS treatment stations and the number of patients registered without treatment were significant variables, at .000 and .019 respectively. In 2013, there were no variables with a p-value less than .05, indicating no significance among any variables. In 2014, the number of patients registered without treatment returned as a more relevant variable, with a p-value of .001. That trend continued into 2015, with the same variable having a p-value of .000.

After running the nine regressions, we then ran a cross-section time series regression, or a panel data regression, using this equation:

$$Y_{it} = a + b_1X_{1it} + b_2X_{2it} + \dots + b_nX_{nit} + \epsilon_{nit}$$

Where  $i$  is the cross section of the hospital, and  $t$  is the time variable. Our  $X$  variables are as follows:

$X_2$  – EMS Visits Total Admitted

$X_3$  – EMS Treatment Stations

$X_4$  – EMS Nonemergent Visits

$X_5$  – EMS Registered Without Treatment

We decided to omit our  $X_1$  variable, EMS Visits Total, because our first regression analysis showed that variable to have the least statistical significance among our five variables.

	Time Series/Cross Section Regression 1		Time Series/Cross Section Regression 2		Time Series/Cross Section Regression 3	
Y	Coefficient	P Value	Coefficient	P Value	Coefficient	P Value



X2	0.0105073	0.22	0.0045364	0.557		
X3	-6.167256	0.208				
X4	-0.0082809	0.329	-0.007532	0.371		
X5	0.2034679	0.001	0.1975813	0.001	0.1952658	0.000
Constant	452.2397	0.000	336.5798	0.000	357.6534	0.000
R Square Within	0.0605		0.0484		0.0423	
R Square Between	0.04311		0.4309		0.4556	
R Square Overall	0.2737		0.276		0.283	
Number of Observations	581		581		581	
Number of Groups	83		83		83	

Table 1 - Time Series/Cross Section Regression (Panel Data Regression): Random Effect Model Stepwise

	Time Series/Cross Section Regression 1		Time Series/Cross Section Regression 2		Time Series/Cross Section Regression 3	
Y	Coefficient	P-Value	Coefficient	P-Value	Coefficient	P-Value
X2	-0.0034792	0.617				
X3	-19.55405	0.036	-4.297039	0.357		
X4	-0.0122937	0.156				
X5	0.1328316	0.057	0.2016523	0.001	0.1952658	0.000
Constant	1006.038	0.001	465.1786	0.000	357.6534	0.000
R Square Within	0.0877		0.0515		0.0423	
R Square Between	0.0001		0.4564		0.4556	
R Square Overall	0.0089		0.2788		0.283	

Number of Observations	581	581	581
Number of Groups	83	83	83

Table 2 - Time Series/Cross Section Regression (Panel Data Regression): Fixed Effect Model Stepwise

### **Analysis**

After using multiple methods of statistical analysis, we found there to be two significant findings worth mentioning. First, over time regarding the nine separate OLS regressions, the number of total admitted patients was the dominant significant variable to explain the trend of total diversion hours, but then, that was replaced with the total number of patients registered without treatment becoming the most significant variable. There was one year where the number of treatment stations became a relevant variable, but that might be an anomaly. After comparing this to the three GLS regressions which were ran, we then determined that the most important factor affecting ambulance diversion hours was in fact the total number of patients who were registered without receiving treatment.

We also found that through the control charts, all of the data points were within statistical control, barring one exception – January 2013, on both charts. Given this was the only data point exceeding the upper control limit, we attributed this to an anomaly. Although these charts deem statistical control, we, ideally, would like the number of diversion hours to be as low as possible. The reason we are looking for data points only above the control limit and not below, is because of the nature of diversion hours themselves; when studying this problem, we found that, ideally, we want the amount of diversion hours to be as low as possible, barring human error. Where certain processes need to be regulated within strict parameters, our process would benefit the most from the absolute minimisation of total diversion hours.

### ***DISCUSSIONS AND CONCLUSION***

Based on the raw dataset, *Emergency Department Services - Ambulance Diversion Trend*, provided by CHHS, we found that between the years 2007 and 2015, ambulance diversion in California was in control, with the exception of one anomaly in January of 2013. Although our dependent variable, diversion hours, was caused by a litany of other variables, we have concluded that the primary cause for ambulance diversion/emergency department overcrowding is too large a number of patients who are triaged within a hospital but not treated. Hospitals dealing with patients who are not in need of immediate treatment causes an inability to treat patients who do need that treatment, which in turn causes more hours on diversion and thus increases the wait time before a patient can be treated.

We found that one of the main causes to ambulance diversion is weak emergency department infrastructures, more so, not enough inpatient beds to accommodate all EMS patients (Burt, 2006). One chart from the same article shows that in the U.S. in 2003, 56.5% of diversion hours were the result of lack of inpatient beds and that 54% were the cause of total number of EMS patients admitted (multiple variables could be chosen as the cause for diversion hours, hence the percentage greater than 100%).

In terms of addressing the problem of emergency department overcrowding, a holistic approach would prove to benefit the process the most. On the patient end, the most accessible solution would be patient/public education. Informing people on what the emergency department truly is, why it is needed, and when it is necessary to go (or not to go) to it would be a good start to combatting this issue. By educating people on the correct times to go to the emergency department, we believe we can decrease the number of patients who choose to go to a hospital's emergency department, rather than wait to go to the doctor's office, or go to an urgent care facility.

On the facility end, suggestions we would make to help combat the issues of emergency department overcrowding and ambulance diversion include increasing the capacity of hospitals and treatment facilities, improving direct communication among neighbouring hospitals, and using automatic technology to report diversion status and other important facility happenings as opposed to manually-entered information by each hospital.

Our study shows that the most significant factor in determining emergency department overcrowding is the number of patients who are registered within a hospital but do not receive treatment. This finding relates directly to ambulance diversions, indicating that when this variable is addressed properly, the amount of hours a hospital has to divert ambulances will decrease accordingly.

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# AN ANALYSIS OF POLITICAL INSTITUTIONS AND INEQUALITY

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## ABSTRACT

*This paper explores the effect of political institutions on a country's overall level of inequality. More specifically, it looks at levels of civil liberties such as electoral processes, functioning of the government, and organizational rights as a measure of political institutions. The aim is to understand the direct significance that political institutions have in determining inequality. Using cross-sectional multivariate regression analysis, we determined the effect of political institutions, GDP, openness, and education on inequality. Our results suggest possible effects from political institutions, with the most significant results coming from GDP and openness. Policy implications include promoting political institutions as a framework for other institutions, while understanding the importance of proper wealth distribution and openness with other countries.*

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## INTRODUCTION

Within the context of modern economic theory, institutional quality has consistently been recognized as a major contributor to the level of inequality within individual countries. This is most apparent in the analysis of differences in institutional quality among developed and developing nations. While the resources available to developed nations are generally superior to that of undeveloped countries, what is seen is that there can still be extreme high and low levels of inequality no matter the economic and political standing a country may experience. A thorough understanding of this relationship is important, but what is even more crucial is revealing which factors most significantly impact this relationship, and to what degree. There are many different decisions that a government has to make regarding their institutions, and many different dynamics to political institutions. While looking at political institutions, this paper will specifically look at the relationship between civil liberties and inequality.

Civil liberties is a broad term, but in this paper it specifically relates to topics such as; electoral process, political pluralism and participation, the functioning of the government, freedom of expression and of belief, associational and organizational rights, the rule of law, and personal autonomy and individual rights. To test if a relationship exists between civil liberties and inequality, a multivariate cross sectional regression analysis will take place using the national gini-coefficient figure for each country as a determinant of severity of inequality, and a "Freedom of the World" variable, produced through the Freedom House organization as a measure of civil liberties.

## LITERATURE REVIEW

Prior research has supported the notion that "good institutions" not only promote growth and economic development, but also extend to areas such as happiness, support for government, occurrence of civil war, and democratic stability. Moreover, the general argument extends to equality, meaning better institutions can help to further increase equality. The connection between institutions and these other areas occur as "the organizations and institutions with which we continually interact in our daily lives are centrally implicated in the rise of inequality...organizations perpetuate inequality by privileging some groups over others in hiring, promotion, reward and other decisions" (Amis et. al 2018). This is important as high levels of inequality are associated with lower life expectancies, high levels of communal dysfunction, drug use, poor physical health, and increased levels of violence (Wilkinson and Pickett 2010). These negative externalities of inequality further manifest themselves into issues that

hold society back such as lack of social mobility, class division, exploitation, and marginalized groups of individuals (Munir 2017). Therefore, the way in which institutions can combat these issues is a crucial area of study.

Institutions combat inequality through their role in encouraging, and maintaining development. When factors such as corruption, FDI, and population growth are controlled for, it is found that institutions matter for economic growth. Specifically, institutions that help to promote property rights and enforce sound monetary policy are especially important. As Haan and Sturm noted, “There is a large literature showing that finance plays a positive role in promoting economic development (at least up to a point), which will benefit the poor” (Haan and Strum 2017). This is true to an even higher extent when the development of a country is controlled for, meaning institutions play in an important role in bridging the convergence gap between developed and developing countries (Das and Quirk 2016).

More precisely, this paper will be conducting an investigation into the the role of political institutions, those that promote democracy, political freedom, and human rights, and their subsequent impact on measures of inequality. This is because it has been concluded by prior research that political institutions “set the stage” in which other institutions can be derived to foster growth (Acemoglu 2005). However, research is limited in the arena of testing the direct effect of political institutions on growth and inequality. While prior research is limited, this investigation stills proves necessary as the results of Kotschy and Sunde (2017) “indicate a robust interaction between political institutions and (in)equality within and across countries” (Kotschy and Sunde 2017). However, this testing looked at the effect of democracy on institutional quality when inequality was taken into account, not the effect of political institutions on inequality. Likewise, in his review essay on Globalization and Inequality, Martin Ravallion concluded that “high inequality (of outcomes or opportunities) in a country can impede economic growth, poverty reduction, and human development, and foster social ills such as crime, political paralysis, or excessive political influence of a rich elite” (Ravallion 2017). This begs further consideration into the notion that if inequality can affect democracy, couldn’t the relationship work the other way as well?

### **RESEARCH METHODS**

All resultant data is the product of a multivariate cross sectional regression analysis produced using SPSS data processing software. The dependent variable utilized as a representation of national level inequality was the gini-coefficient value for each nation, averaged over a ten-year period. The gini-coefficient value, commonly used for economic comparisons, is a measure of statistical dispersion that is used to evaluate inequality in a specific region. The gini-coefficient scale ranges from zero to one, with a score of zero indicating perfect equality and a score of one representing perfect inequality, so a higher gini-coefficient represents higher inequality. A ten-year average was utilized in this regression because the reporting of the gini-coefficient differs in consistency from country to country. Since the method of calculating the gini-coefficient has not changed in the past ten years, taking a ten-year average allowed for the maximum amount of observations for the analysis. Data on the gini-coefficient was obtained through the Central Intelligence Agency, who provided a report on this statistic.

The Freedom of the World index was used as the main independent variable to represent the quality of civil liberties with a specific country. The Freedom of the World index, calculated by Freedom House, ranges from 0 to 100 with higher scores indicating a more positive standing. The Freedom of the World index accounts for numerous variables, including: electoral process, personal autonomy and individual rights, rule of law, and freedom of expression, among many others. Below is a list of summary variables.

	Gini	Freedom House	Population (millions)	Openness	GDP Per Capita (\$)
Min	16.6	6	10	1.1	700
Mean	38.4	62.5	48418.7	6.6	18239.7
Max	60.5	100	1393337	50.2	106300
Standard	8.0	26.5	164115.2	6.12	18650.7

deviation					
N	136	136	136	136	136

The multiple regression analysis also controlled for four other potentially relevant independent variables. These variables are total national population, gross domestic product (GDP) per capita, educational quality, and openness. Total population of each nation was provided in a report by the World Population Review that makes consistent measurements of population in every country. The figures for GDP per capita of each nation were accessed through a CIA report that maintains a record of economic performance for individual nations. The representation of educational quality was an Educational Index provided through the United Nations and its Human Development Report which ranked each country based on its educational quality and estimated an accurate value based on this. Openness is determined based on the average tariff amount, where a low average tariff amount represents a more open country. This variable was derived from the World Bank organization which focuses on economic, political, and social conditions across the globe and was made viewable by the Statista data analysis group.

### ANALYSIS

The first step of the analysis was to develop a multiple regression analysis without any manipulation of the existing data. This would be crucial to providing an accurate understanding of any existing relationship among the selected variables. The results of said analysis are clearly illustrated in the charts below.

#### Model Summary<sup>D</sup>

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.397 <sup>a</sup>	.158	.132	7.44285882	1.786

a. Predictors: (Constant), GDP Per Capita, Pop, openness, Freedom House

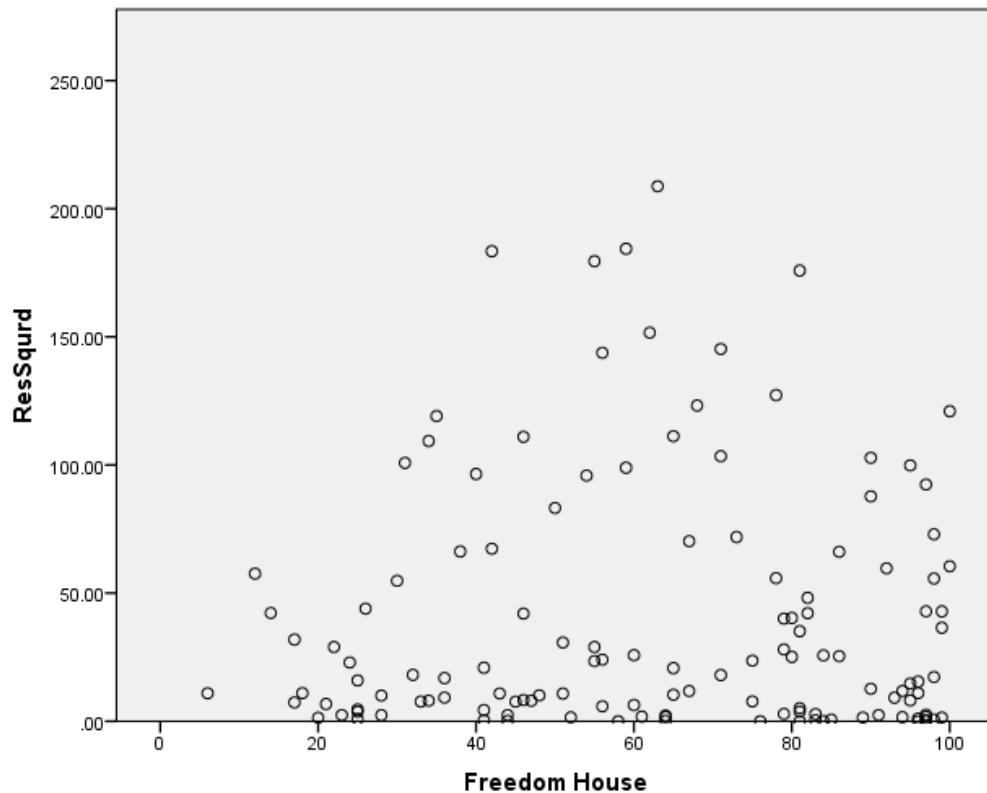
b. Dependent Variable: 10 Year Gini Average

#### Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	35.003	2.261		15.483	.000
	Freedom House	.057	.032	.187	1.771	.079
	Pop	1.108E-6	.000	.023	.282	.778
	openness	.338	.119	.260	2.828	.005
	GDP Per Capita	.000	.000	-.315	-2.976	.003

a. Dependent Variable: 10 Year Gini Average

After discussion, the one change we decided to make was to also control for education levels. This was measured by average years of schooling for 25 year old adults. The next step was to look at heteroscedasticity. Below is a graph of freedom of the world variable against the squared value of the residual. The data points are randomly distributed which indicates heteroscedasticity. This is a problem when running a regression analysis because a regression analysis assumes homoscedasticity.



In order to determine whether or not heteroscedasticity existed, a Glejser Test was run. This is when a regression is run with the absolute value of the residual as the dependant value, and each of the original variables as the independent variables. If heteroscedasticity is present in any of the variables, those values would be significantly related to the absolute value of the residual. The result of the Glejser Test is provided below.

		Coefficients <sup>a</sup>				
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	7.287	2.035		3.581	.000
	openness	-.065	.069	-.100	-.946	.346
	GDP Per Capita	-2.310E-5	.000	-.112	-.763	.447
	Education	-2.533	3.170	-.120	-.799	.426
	Freedom House	.004	.018	.027	.218	.828

a. Dependent Variable: AbsRes

As clearly seen from the chart above, heteroscedasticity is most severe when reviewing the Freedom of the World variable. To correct for this, every variable in the regression was divided by the Freedom of the World variable and another round of testing took place to account for this change, the results of which are displayed below.



## Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.975 <sup>a</sup>	.950	.948	.22594

a. Predictors: (Constant), New Edu , New Pop , New GDP , New Open , Freedom

## Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.116	.035		3.322	.001
	Freedom	22.634	3.633	.507	6.229	.000
	New Pop	7.814E-6	.000	.057	2.719	.007
	New Open	1.352	.148	.466	9.140	.000
	New GDP	.000	.000	-.059	-2.021	.045
	New Edu	3.267	6.166	.032	.530	.597

a. Dependent Variable: New Gini

The results after attempting to solve for the issue of heteroscedasticity amongst the selected variables are a bit complex. In simple terms, by identifying a main outlier, in this case Freedom House Index, and then dividing the entire equation by this variable, heteroscedasticity is controlled for. After controlling for it, the R-Squared increased significantly to .950 and every variable except for education became statistically significant at the 5% level or better. By doing this test, outliers are controlled for and the true significance of each variable is revealed. This dramatically changes the conclusions drawn by our initial test.

The R-Squared value after adjusting for heteroscedasticity is .950. This means that freedom of the world, population size, openness, GDP per capita, and mean education levels causes 95% of the change in the gini-coefficient. The variables that are found significant are freedom of the world, population size, openness, and GDP per capita.

The slope on the freedom of the world is positive. This suggests that as a country has more civil liberties, higher inequality will occur. Civil liberties allow for individuals to have more personal freedom, as seen that personal autonomy is a function of the variable. An increase in this gives individuals the ability to capitalize on this freedom, but not everyone will. This will allow for some individuals to become wealthy and others to not. These findings run consistent with those of the United Nations which noted that “globally, income inequality rose steadily in the last two decades, whereas democracy has never been so widespread.” Additionally, similar research has concluded that “there is no systematic or uniform effect of democracy on the income distribution” (Lambert 2017). This is due to the global differences in inequality amongst countries, values of individuals in a country, and civic participation, etc.

The slope of the GDP per capita is also positive. This again makes sense. If a country is very poor there cannot be large inequality, because there is not enough capital in a country to have extreme inequality. As a country gains capital, and becomes wealthier, more variation in income is expected to happen. This is not to say a country should not strive to boost its wealth, rather the distribution of wealth needs to be considered after it is obtained.

Openness also has a positive slope. This means that as a country becomes more open, ie. tariff levels decrease, the gini coefficient also decreases, ie inequality decreases. The implication of this is that a country that is more open is more equal. Population size also has a positive slope, again meaning that as population size increases inequality increases.<sup>1</sup>

Finally, education is insignificant with a P-Value of .597. This does not necessarily mean that education is insignificant, but the measure used in the regression is insignificant. By using average year of education, the variable does not take into account the vast differences between education equality levels in each country. One year of schooling is not uniform across countries. Future research would be need to investigate the relationship between schooling and inequality.

### **CONCLUSIONS AND IMPLICATIONS**

The original hypothesis centered around the notion that civil liberties, in this case that being the measured used for political institutions, would have a significant effect on inequality. Freedom House Index was seen as insignificant during the initial testing period, meaning there is not as clear as a relationship as expected. When heteroscedasticity was controlled for, this relationship did become significant. As an implication, these contradicting results mean that civil liberties may not be the best indicator of civil liberties. However, they should still be deemed as an important factor in providing a framework for the advancement of a country both economically and politically.

As GDP and openness are considered significant under both tests, it can be more confidently concluded that they have an effect on a country's inequality. As a result, policies should work to promote not only overall wealth, but distribution of this wealth in an equitable manner. Moreover, openness allows for free flow of ideas, technology, and new products which can help to foster more equal civil liberties. Drawing on prior research, these results are not surprising based on the findings of Kotschy and Sunde who noted the importance that income inequality has on the level of development for a country's political institutions. Based on the possibility of reverse causality and multicollinearity, there is a chance that GDP is affecting both civil liberties and the gini-coefficient.

The above conclusions are limited by the availability of consistent, dependable data. For example, measures such as the Gini Coefficient are not reported consistently amongst countries and therefore averages have to be used in order to conduct testing. Additionally, measures such as openness are hard to define by one measure leading to further limitations by only choosing one measure for such as broad topic. Finally, there is a possibility of issues such as reverse causality, lag times, etc., all implications that need to be considered not only in making recommendations, but also when further testing is done.

### **APPENDICES**

Country	10 Year Gini Average	Freedom House	Population	openness	GDP Per Capita	Education
Albania	29.87	67	3173	3.368182	12,500.00	0.745
Algeria	27.60	34	39208	9.281429	15,200.00	0.664
Argentina	43.79	80	41446	5.981818	20,900.00	0.816

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<sup>1</sup> Because of the mixed evidence on the relationship between openness and inequality, this paper did not employ the commonly used openness index (i.e., (exports + imports)/GDP).

Armenia	30.69	46	2977	2.494545	9,5 00.00	0.749
Australia	35.05	97	23343	2.613636	50, 300.00	0.929
Austria	30.38	96	8495	1.77	49, 900.00	0.852
Azerbaijan	16.60	20	9413	4.707778	17, 500.00	0.709
Bangladesh	32.65	50	156595	12.829	4,2 00.00	0.508
Belarus	27.62	14	9357	2.5375	18, 900.00	0.838
Belgium	28.27	97	11104	1.77	46, 600.00	0.893
Benin	45.60	81	10323	12.95364	2,3 00.00	0.471
Bhutan	38.45	56	754	11.43333	8,7 00.00	0.445
Bolivia	50.45	68	10671	4.440909	7,5 00.00	0.687
Bosnia and Herzegovina	32.93	60	3829	3.906	12, 700.00	0.718
Botswana	60.50	73	2021	1.066364	17, 800.00	0.659
Brazil	53.56	81	200362	7.679091	15, 600.00	0.686
Bulgaria	35.47	79	7223	1.77	21,	0.805

					700.00	
Burkina Faso	37.55	45	16935	8.884545	1,900.00	0.286
Burundi	36.00	32	10163	10.43273	700.00	0.424
Cameroon	44.70	25	22254	14.103	3,700.00	0.547
Canada	33.80	98	35182	1.496364	48,300.00	0.899
Central African Republic	56.20	6	4616	17.875	700.00	0.341
Chad	43.30	21	12825	14.23333	2,300.00	0.298
Chile	47.96	95	17620	2.586	24,500.00	0.8
China	42.50	17	1393337	4.722222	16,700.00	0.644
Colombia	53.52	63	48321	7.123636	14,500.00	0.676
Comoros	45.30	55	735	5.974286	1,600.00	0.473
Congo, Dem. Rep.	42.10	25	67514	11.19333	800.00	0.496
Congo, Rep.	48.10	30	4448	14.448	6,600.00	0.526
Costa Rica	48.85	90	4872	2.62	16,900.00	0.719

Cote d'Ivoire	42.35	46	20316	7.023636	00.00	3,9	0.424
Croatia	32.14	86	4290	1.77	400.00	24,	0.791
Cyprus	32.85	93	1141	1.77	000.00	37,	0.808
Denmark	26.96	98	5619	1.77	900.00	49,	0.92
Djibouti	44.60	28	873	20.61667	00.00	3,6	0.309
Dominican Republic	47.48	73	10404	6.323333	900.00	16,	0.643
Ecuador	48.66	59	15738	5.651	500.00	11,	0.697
Egypt, Arab Rep.	31.05	26	82056	8.36	700.00	12,	0.604
El Salvador	44.12	75	6340	3.564545	00.00	8,9	0.58
Estonia	32.85	95	1287	1.77	800.00	31,	0.869
Ethiopia	36.15	18	94101	10.75143	00.00	2,2	0.327
Fiji	38.55	60	881	11.79556	00.00	9,8	0.785
Finland	27.52	100	5426	1.77	300.00	44,	0.905
France	32.29	95	64291	1.77		43,	0.84

					800.00	
Gabon	42.20	34	1672	14.87889	19, 200.00	0.628
Georgia	38.12	64	4341	1.71	10, 700.00	0.845
Germany	31.02	96	82727	1.77	50, 400.00	0.94
Ghana	42.60	84	25905	9.496	4,7 00.00	0.558
Greece	34.90	83	11128	1.77	27, 700.00	0.838
Guatemala	51.45	55	15468	2.996364	8,1 00.00	0.514
Guinea	36.55	41	11745	12.002	2,0 00.00	0.339
Guinea-Bissau	50.70	40	1704	11.403	1,8 00.00	0.392
Haiti	41.10	41	10317	5.7	1,8 00.00	0.433
Honduras	54.33	49	8098	5.448	5,6 00.00	0.502
Hungary	29.78	82	9955	1.77	29, 500.00	0.815
Iceland	28.22	99	330	1.881818	51, 800.00	0.912
India	35.10	78	1252140	8.111	7,2 00.00	0.556

Indonesia	39.50	64	249866	2.953333	12, 400.00	0.622
Iran, Islamic Rep.	41.34	17	77447	15.68667	20, 200.00	0.741
Ireland	32.50	97	4627	1.77	75, 500.00	0.918
Israel	41.68	80	7733	2.015	36, 300.00	0.874
Italy	34.36	89	60990	1.77	38, 100.00	0.791
Japan	32.10	94	127144	2.468182	42, 800.00	0.848
Jordan	33.40	36	7274	6.331818	12, 500.00	0.711
Kazakhstan	29.28	24	16441	3.651429	26, 300.00	0.814
Kenya	43.65	51	44354	8.592727	3,5 00.00	0.551
Kyrgyz Republic	29.27	38	5548	2.207	3,7 00.00	0.735
Lao PDR	30.47	12	6770	9.97	7,4 00.00	0.485
Latvia	35.90	85	2050	1.77	27, 600.00	0.866
Lebanon	36.00	44	4822	4.378	19, 400.00	0.637
Lesotho	31.80	71	2074	10.16	3,6	0.502

					00.00	
Liberia	54.20	56	4294	12.49667	1,4 00.00	0.434
Lithuania	34.85	91	3017	1.77	32, 300.00	0.879
Luxembourg	35.36	98	530	1.77	106 ,300.00	0.792
Madagascar	39.02	52	22925	7.355455	1,6 00.00	0.498
Malawi	41.63	61	16363	5.891111	1,2 00.00	0.451
Malaysia	45.50	46	29717	3.652	29, 000.00	0.719
Maldives	43.56	48	345	15.507	19, 100.00	0.56
Mali	38.40	44	15302	8.096364	2,2 00.00	0.293
Malta	35.95	97	429	1.77	42, 000.00	0.818
Mauritania	29.11	31	3890	8.82625	4,4 00.00	0.389
Mauritius	34.15	90	1244	1.548182	21, 600.00	0.729
Mexico	35.75	64	122332	3.411818	19, 900.00	0.678
Mongolia	31.63	86	2839	4.85	13, 000.00	0.766



Montenegro	33.72	71	621	3.935	17, 700.00	0.79
Morocco	30.94	42	33008	8.551	8,6 00.00	0.529
Mozambique	40.10	58	25834	6.136667	1,2 00.00	0.385
Namibia	38.10	76	2303	1.087273	11, 300.00	0.571
Nepal	60.05	51	27797	50.16545	2,7 00.00	0.502
Netherlands	32.80	99	16759	1.77	53, 600.00	0.906
Nicaragua	28.53	54	6080	3.066364	5,8 00.00	0.558
Niger	46.30	56	17831	9.971818	1,2 00.00	0.214
Nigeria	36.88	43	173615	9.871111	5,9 00.00	0.483
Norway	43.00	100	5043	2.989091	71, 800.00	0.915
Pakistan	26.79	42	182143	10.30455	5,4 00.00	0.411
Panama	31.53	82	3864	6.664	25, 400.00	0.692
Papua New Guinea	52.23	59	7321	2.36625	3,7 00.00	0.43
Paraguay	41.90	65	6802	3.894545	9,8	0.631

					00.00	
Peru	50.39	71	30376	3.187	13, 300.00	0.689
Portugal	46.65	97	38217	1.77	30, 400.00	0.759
Romania	36.38	83	21699	1.77	24, 500.00	0.762
Russian Federation	36.58	23	142834	6.839	27, 800.00	0.832
Rwanda	40.40	25	11777	9.86	2,1 00.00	0.45
Samoa	48.10	81	190	9.936	5,7 00.00	0.692
Sao Tome and Principe	42.00	81	193	8.443333	3,2 00.00	0.557
Senegal	30.80	78	14133	8.922727	2,7 00.00	0.368
Seychelles	39.75	67	93	24.5175	28, 900.00	0.727
Sierra Leone	46.80	65	6092	11.1775	1,6 00.00	0.39
Slovenia	26.69	90	2072	1.77	34, 400.00	0.886
Solomon Islands	24.96	68	561	25.125	2,2 00.00	0.469
South Africa	41.60	81	52776	4.505455	13, 500.00	0.708

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Korea, Rep.	31.90	84	49263	7.303636	39, 400.00	0.862
Spain	34.90	96	46927	1.77	38, 300.00	0.824
Sri Lanka	38.63	41	21273	7.06	12, 800.00	0.749
Sudan	35.40	6	37964	11.656	4,6 00.00	0.328
Sweden	27.73	99	9571	1.77	51, 500.00	0.904
Switzerland	32.81	96	8078	1.852727	61, 400.00	0.897
Tajikistan	32.33	22	8208	5.593333	3,2 00.00	0.659
Thailand	38.85	33	67010	4.574	17, 900.00	0.661
Timor-Leste	28.25	65	1133	2.5	5,4 00.00	0.505
Togo	43.77	47	6817	10.35455	1,7 00.00	0.506
Tonga	37.50	75	105	5.3	5,6 00.00	0.77
Tunisia	36.75	79	10997	12.27111	11, 800.00	0.659
Turkey	40.17	55	74933	#REF!	26, 900.00	0.689
Uganda	42.70	36	37579	8.603636	2,4	0.525

					00.00	
Ukraine	25.99	62	45239	2.714	8,7 00.00	0.794
United Kingdom	33.94	97	63136	1.77	44, 100.00	0.914
United States	40.83	92	320051	1.667273	59, 500.00	0.903
Uruguay	43.04	98	3407	4.006364	22, 400.00	0.733
Vanuatu	37.60	79	253	14.26143	2,7 00.00	0.529
Venezuela, RB	49.65	35	30405	9.917273	12, 100.00	0.741
Vietnam	36.22	20	91680	6.126	6,9 00.00	0.626
Yemen, Rep.	35.70	25	24407	4.68	1,3 00.00	0.349
Zambia	55.77	60	14539	5.745	4,0 00.00	0.58
Zimbabwe	43.20	28	14150	11.076	2,3 00.00	0.558

Data Table 1

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# FEDERAL RESERVE CHALLENGE

*Sydney Geddes, Siena College*  
*John Keenan, Siena College*  
*Brendan Lauth, Siena College*  
*Kenneth Norman, Siena College*  
*Jacob Perry, Siena College*  
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## **INTRODUCTION**

*Brendan Lauth, Siena College*

Good afternoon. We believe that the appropriate course for monetary policy is to raise interest rates gradually and consistently as economic conditions allow. Over the past eight years, the economy has showed signs of continued improvement, and in turn, we have seen the Fed already raise interest rates a full 1.25 percentage points since March of 2017. We feel that even though the economy is still showing signs of steady increases, there are certain things that have to be taken into consideration. Real GDP continues to grow in excess of real potential GDP growth, and the Federal Reserve is achieving its dual mandate of full employment and price stability. Because of these factors, we are experiencing accelerating wage growth, as evidenced in the Bureau of Labor Statistics October employment report, which showed a 3.1% increase in wages. We believe that there are certain factors in the labor market that show signs of a continued increase in the rate of wage growth, which would support our policy recommendation even more intently, however they also need to be aware of potential headwinds that could give them reason to deviate from our recommendation.

## **REAL VS. POTENTIAL % CHANGE IN GDP**

*Jacob Perry, Siena College*

If you refer to Exhibit 1, you can see that the current economy is in good standing. Since mid 2016, we have seen real GDP growth above potential GDP growth showing the productive and positive state the economy is currently in. Having a higher real GDP growth than potential growth suggests that we are in the midst of a strong expansionary economy. While real GDP growth has been increasing the past two years, potential GDP growth has remained generally constant hovering in between one and two percent since the most recent recession. However, recently potential GDP growth has been lower than the previous business cycle expansion.

## **UNEMPLOYMENT VS. NATURAL RATE**

*Sydney Geddes, Siena College*

When looking at the current state of the labor market in Exhibit 2, traditional indicators suggest that the labor market is tightening beyond its capacity. As we all know, the Federal Reserve has a dual mandate to achieve full employment and price stability. With the current unemployment rate below its natural rate, full employment has been successfully achieved; implying a limited amount of slack in the labor market. This should suggest accelerated wage growth because of a tightening labor market. The natural rate of unemployment is also known as the NAIRU, or the Non-Accelerating Inflation Rate of Unemployment. Given that unemployment is below the NAIRU, we can expect to see accelerating wage growth and inflation rates.

## ***CORE PCE AND HEADLINE PCE***

***Brendan Lauth, Siena College***

In terms of the other side of the Fed's dual mandate, if you look at Exhibit 3 we are close to reaching the Federal reserve's target rate of 2 percent regarding the Core and Headlining PCE, meaning that prices have remained relatively stable.

## ***WAGE GROWTH***

***John Keenan, Siena College***

Given the currently strong economy, and with unemployment below its natural rate, we are now seeing rising wage growth. As seen in Exhibit 4, despite slow wage growth for the first 6 years following the recession, wage growth began to accelerate in 2016. Both the employment cost index and average hourly earnings continue to accelerate up to the present, reaching 3.1% in October 2018.

Composition of Unemployment: Kenny

Exhibit 5 shows the composition of duration of unemployment. One possible explanation for the relative lack of inflation in the previous decade was a shift in unemployment; wage pressure exerted was lessened as the percentage of long-term unemployment increased. As those who have been unemployed for 27 weeks or more are on the fringe of the labor market, they do not exert substantial wage pressure. Also, as the duration of unemployment increased, the cost for the average worker to lose their job increased significantly, resulting in much higher levels of insecurity and lower wage increases. Recently, both long term and short-term percentages and average duration of unemployment have returned to relatively normal levels. This suggests that wage pressure may increase soon as bargaining power increases and insecurity decreases amongst workers, which should also spell increased inflation.

## ***QUIT RATE***

***John Keenan, Siena College***

As Exhibit 6 suggests, the quit rate has been steadily increasing since 2010, and has now surpassed the level of the peak of the previous business cycle. An increasing quit rate is indicative of a strong economy, as workers are confident that they will be able to secure employment in the event that they leave their current position. This in theory should put upward pressure on wages due to an increase in workers' bargaining power, and as we saw in exhibit 4, this has been the case recently, with wage growth accelerating since 2016.

## ***JOB OPENINGS AND HIRES***

***Sydney Geddes, Siena College***

If you look to Exhibit 7, you will find that our current labor market is tight. The competition is currently for qualified, employed workers. This should increase wage growth if we continue down this path. The extreme demand for labor has caused many employers to raise their wages. Relative to the peak of the past business cycle, we saw a much more even distribution of job openings versus total hires. Post-recessionary conditions have shown to affect the path that the labor market is following. The job market is strong, meaning we can anticipate an increase in wage growth.

## ***INITIAL CLAIMS***

***Jacob Perry, Siena College***

Exhibit 8 shows a four-week moving average of initial claims for unemployment insurance, which has returned to its lowest level since 1970. As a leading indicator, initial claims for unemployment insurance are near historic lows, causing us to expect low unemployment and rising wage pressure in the near term.

### ***CONSUMER SENTIMENT***

***John Keenan, Siena College***

Another example of a leading indicator is shown in Exhibit 9. The University of Michigan's Consumer Sentiment Index is at its highest level in 14 years, which we believe is further evidence of an imminent rise in wage growth as consumer demand increases. This rise in consumer sentiment should also put upward pressure on inflation, which gives more support to our recommendation for contractionary monetary policy.

### ***LABOR FORCE PARTICIPATION RATE***

***Brendan Lauth, Siena College***

While there are many signs that the economy is strong and interest rates can be raised, there are also some that suggest caution moving forward. One such factor is  $R^*$ , or the interest rate that causes neither expansion nor contraction in an economy. Some economists have estimated long term interest rates to be as low as 2.5%. Exhibit 10 shows that the Labor Force Participation Rate has dropped significantly in the 10 years since the Great Recession. One reason this has happened is that as Baby Boomers retire, they cannot be adequately replaced from a numerical standpoint by the present generation entering the workforce. This is a headwind that is argued by some economists, including New York Fed President John Williams to predict a new economic era in the years to come, one where  $R^*$  is lower than it historically has been. Also, as people live longer they will save more money for retirement and increasing savings will hold down  $R^*$ . A lower  $R^*$  implies that monetary policy will have to be permanently more *expansionary*.

### ***PRODUCTIVITY GROWTH***

***Kenneth Norman, Siena College***

Exhibit 11 displays productivity growth. Productivity is another headwind that economists argue is a sign of a lower  $R^*$ . Some, including Northwestern University economist Robert Gordon, predict that productivity will continue to decrease over time, and Exhibit 11 suggests that this may be the case. Overall, productivity in this business cycle is at a level about a percentage point lower than it was at this time in the previous business cycle.

### ***TRADE WEIGHTED U.S. DOLLAR INDEX***

***Sydney Geddes, Siena College***

As told by Exhibit 12, the U.S. dollar is strong, and has been gaining strength since 2014. The strong dollar implicates expensive exports and cheap imports. Inflation has been suppressed due to the competition of cheaper foreign goods. This forces domestic producers to lower their prices. It is also important to mention the trade deficit, which has remained large and unchanged relative to levels prior to the recession of 2008. The deficit indicates that the U.S. imports more than it exports. This has been the case for over a decade as the trade deficit has remained at around 3% of GDP since 2013.

### ***OKUN'S LAW***

***Jacob Perry, Siena College***



If you observe measures such as Okun's Law or the Phillips Curve, we see there is room for continued change in monetary policy. Looking at Okun's Law in *Exhibit 13* the coefficient has significantly changed. In the previous business cycle expansion, the coefficient was  $-.098$ , but has since climbed to  $-.015$ . This suggests that an increasing output does not produce rapid decreases in unemployment relative to the natural rate, as one would expect. Rather, large increases in output (GDP) have little effect on unemployment. While the clear causes for this decreasing coefficient have yet to be defined, factors including automation, more skilled labor, technological changes, and the rise of jobless recoveries could possibly explain the reduction in this coefficient.

### ***PHILLIPS CURVE***

***John Keenan, Siena College***

As shown in Exhibit 14, the Phillips Curve has dramatically flattened in the years following the financial crisis, which indicates that changes in unemployment are not causing changes in inflation like we have seen in the past. While economists may disagree about what this means for monetary policy going forward, we believe that this flattening would potentially allow the Federal Reserve to implement expansionary policies without seeing inflation rise far above its target. However, we believe the Fed should only exercise that option in the event of a downturn in the economy.

### ***FORECASTED REAL GDP***

***Kenneth Norman, Siena College***

Exhibit 15 shows forecasts provided by the survey of professional forecasters as conducted by the Philadelphia Fed as well as forecasts provided by the FOMC's Summary of Economic Projections. It is important to note that the SEP forecasts are in part based on the FOMC's policy decisions; so, they take into account the Fed's goal of gradually raising interest rates as economic conditions allow. These forecasts are indicative of a stable economy. This anticipated achievement of the dual mandate means that the Fed can continue with its plan to gradually raise interest rates without causing either an overheating economy or a significant slowdown in growth.

### ***FORECASTED UNEMPLOYMENT RATE***

***Brendan Lauth, Siena College***

Exhibit 16 shows a projection of the unemployment rate forecasted for the projected future. Leading economists all agree that the forecasted unemployment rate is to remain under the Fed's mandate of full employment which is an unemployment rate of approximately 4%. This shows that there is the possibility of having a tight labor market in the years to come.

Forecasted Inflation Rate: Jacob

Exhibit 17 shows the next few years will bring a constant inflation rate around the Fed's target and remain even till 2020. With a low unemployment rate and a constant rate of inflation projected for the near future, the Federal Reserve should still consider raising interest rates in order to bring their balance sheet towards normalization.

### ***FED BALANCE SHEET 1***

***Sydney Geddes, Siena College***

According to Exhibit 18, the Fed's balance sheet, which here shows only the Fed's holding of treasury and mortgage backed securities, has almost quadrupled relative to the peak of the past business cycle. A portion of these assets, mortgage-backed securities, were not held with respect to the economy pre-recession of 2008. Since 2015,

the total assets held on the balance sheet have remained constant. In order to do this, The Fed has kept up on replacement of matured securities with new ones. Now that the economy is reaching the Fed's dual mandate, there is talk of unwinding these assets. By stopping this replacement, the size of the balance sheet will head down the path of normalization. The reduction of the balance sheet will allow the Fed more room in the future to take on treasuries during the next crisis.

## ***FED BALANCE SHEET 2***

***Kenneth Norman, Siena College***

Although the balance sheet is essentially unlimited, it is not a bad idea to gradually sell off securities while the economy is expanding. Rather than the Fed taking on a larger balance sheet during the next recession, it might be best to gradually reduce it as we are approaching a time period where the dual mandate is achieved. Selling off securities is more desirable given the strength of the economy and housing market. This would allow for balance sheet normalization to happen at a faster rate.

## ***OTHER FACTORS TO CONSIDER***

***John Keenan, Siena College***

With all this in mind, there are additional factors the Federal Reserve needs to consider when implementing monetary policy. One of the factors is a possible trade war with foreign economies as a result of the imposition of tariffs on imported goods, which would decrease the trade deficit and lead to less foreign savings and investment in the United States, which would put contractionary pressure on market interest rates. Another factor is possible economic sanctions on Saudi Arabia and Iran that could cause a rise in the price of oil. This could lead to the unique situation of stagflation, where there is rising headline inflation and a rise in unemployment as businesses lay off workers to offset the rise in oil prices. Additionally, the Fed needs to be mindful of the recent rise in the federal deficit as a result of the current political administration's tax cuts that saw a rise in spending and a decrease in government tax revenue. With the government and the private sector competing for investment capital, crowding out could occur as a result, as market interest rates rise and force investors out of the market. The Federal Reserve should be prepared to respond to any of these scenarios by potentially altering their course of action to adjust for economic changes.

## ***CONCLUSION***

***Brendan Lauth, Siena College***

In summation, while the labor market and the overall economy appears to be strong, there are alternative indicators that show we are experiencing accelerating wage growth. The composition of the labor market is suggested to be a possible indicator of this. As you can see in our monetary policy recommendation slide, in order to improve and maintain the country's economic situation, the appropriate course of action is to gradually increase interest rates in order to maintain price stability and levels of full employment. Falling unemployment shows that there is going to be an uptick in wage growth and our policy recommendations take account of this because a rise in wage growth is followed by a rise in inflation. Increasing the Federal Funds Rate can assist in suppressing the inflation rate during times of increasing rates of wage growth, while also increasing unemployment. This recommendation is contingent on future economic conditions and should be adjusted accordingly. In regard to the balance sheet, we recommend the continued gradual reduction towards normality. We should stay on course to proactively increase the Federal Funds Rate in contractionary efforts, however we should make sure we are ready to react in the case of outside forces affecting the economy. The Fed should take into consideration the actions of the current political administration regarding foreign affairs as well as actions related to domestic policy. The Federal Reserve should remain aware of potential headwinds such as demographic changes and productivity decreases that could slow future economic growth. In conclusion, these are recommendations that should be considered when

conducting future monetary policy. Thank for your time and we look forward to answering any questions you might have.

***NOTES***

Current unemployment rate: 3.7%

Current rate of PCE weighted rate of inflation: 2.0%

Current rate of core PCE weighted rate of inflation: 2.0%

Real GDP growth: 3.0%

Wage Growth: 3.1%

Federal Funds Rate: 2.0-2.25%

Unemployment Gap: Unemployment Rate (U) - Natural Rate (U\*)

Output Gap: Real GDP Growth (Y) - Potential GDP Growth (Y\*)

Housing Starts:

# Federal Reserve Challenge 2018

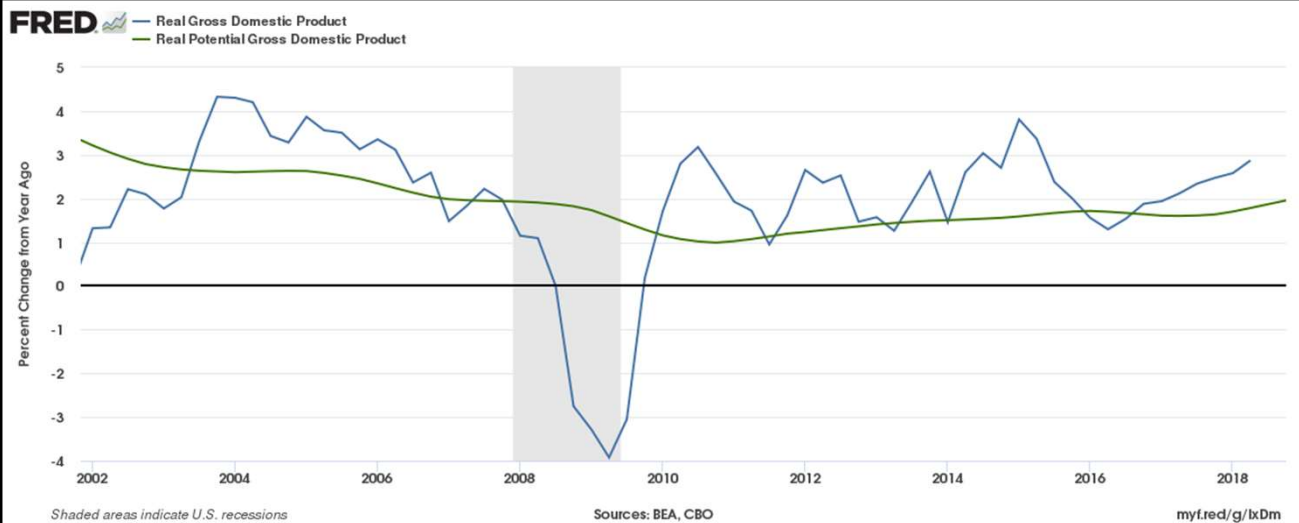
Sydney Geddes  
John Keenan  
Brendan Lauth  
Kenneth Norman  
Jacob Perry



1

## Exhibit 1: Real against Potential GDP Growth

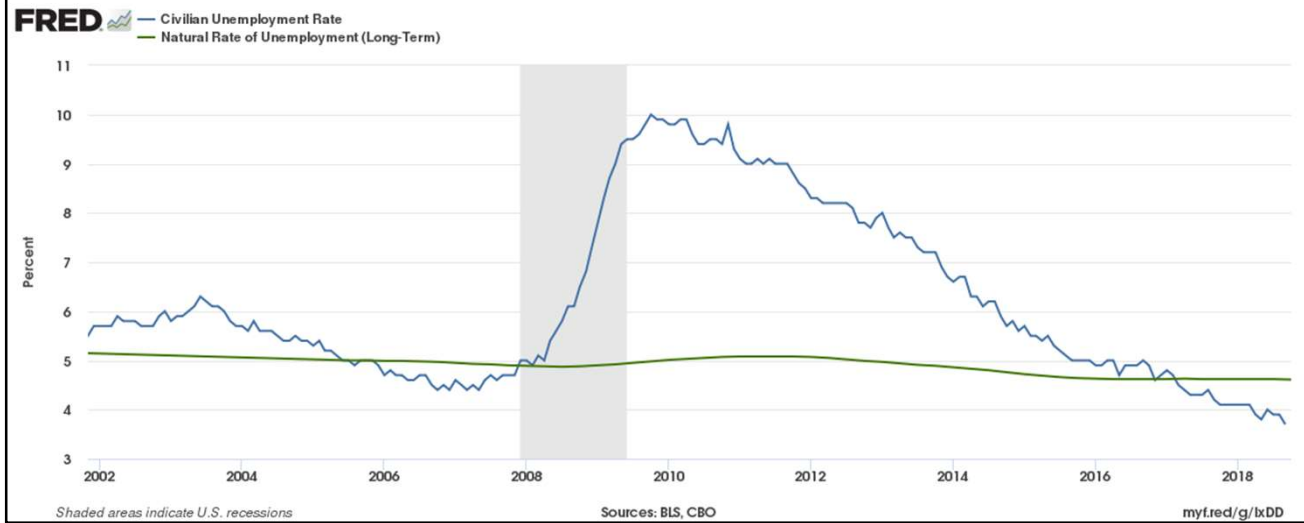
- Real GDP growth is currently exceeding potential GDP growth



2

## Exhibit 2: Unemployment against Natural Rate

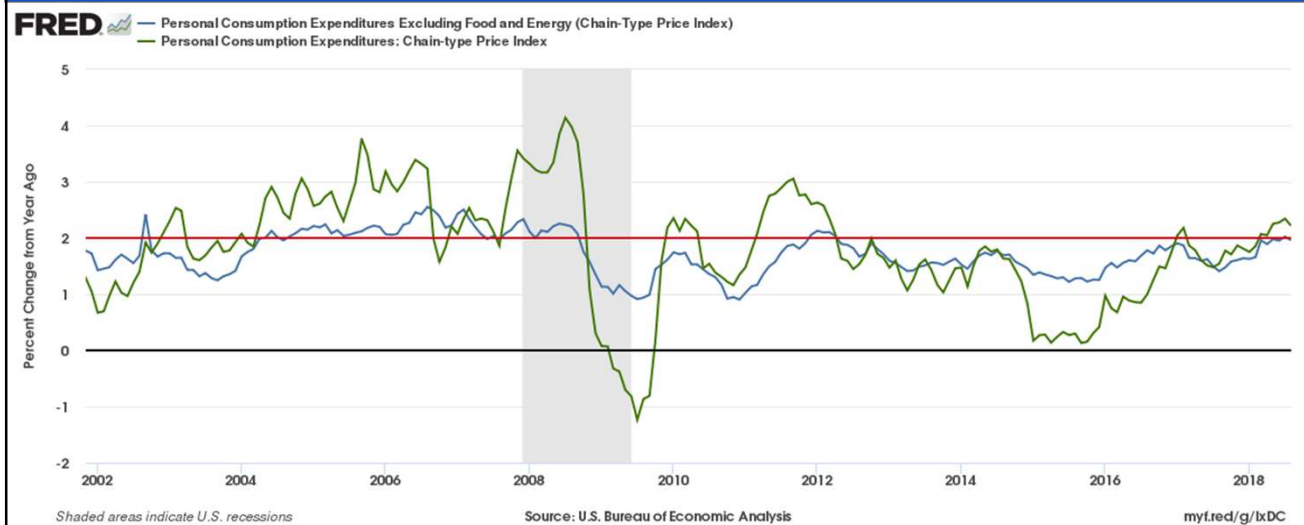
- Labor market at full employment, unemployment rate is below natural rate



3

## Exhibit 3: Core and Headline PCE Inflation Rate

- Inflation rates close to Fed's 2% target



4

## Exhibit 4: Wage Growth

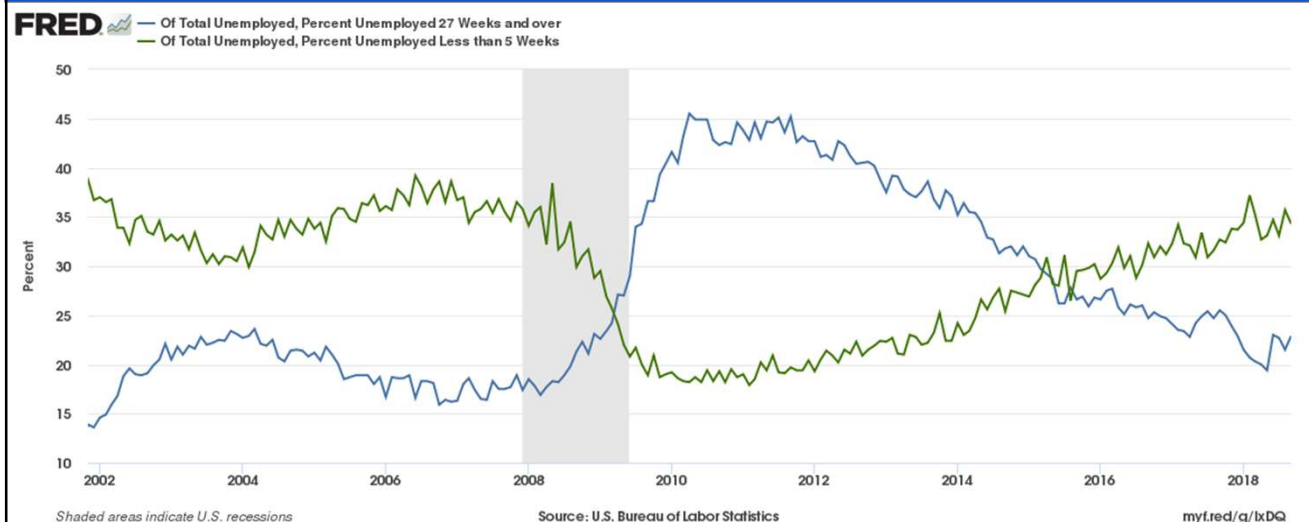
- Wage growth slower than previous expansion and has been recently accelerating



5

## Exhibit 5: Composition of Unemployment

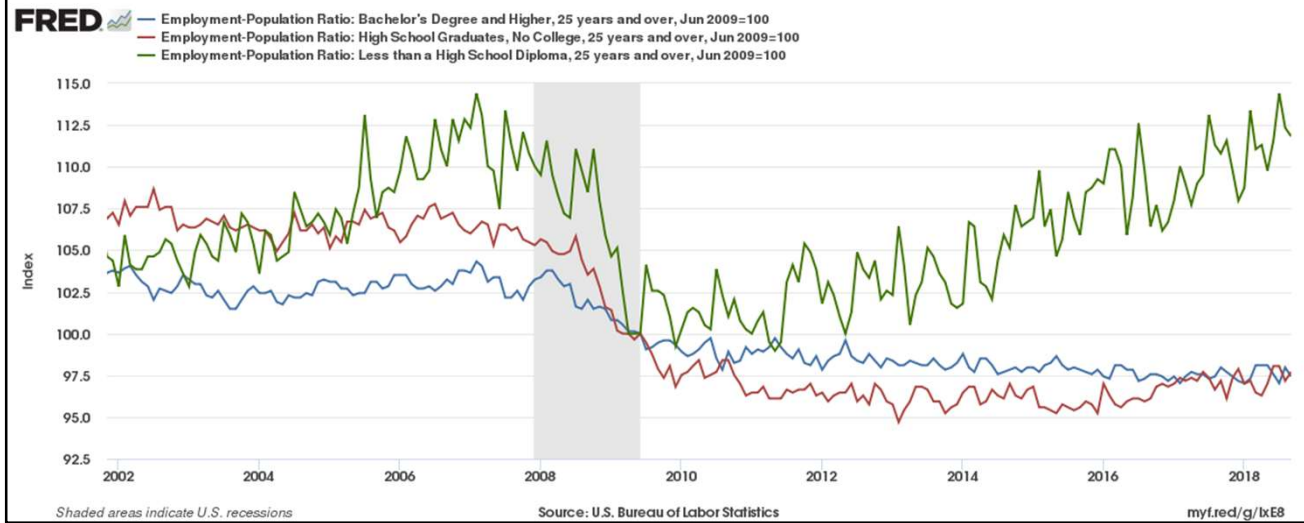
- Decreasing long-term and increasing short-term unemployment



6

## Exhibit 6: Index of Employment to Population Ratio by Education

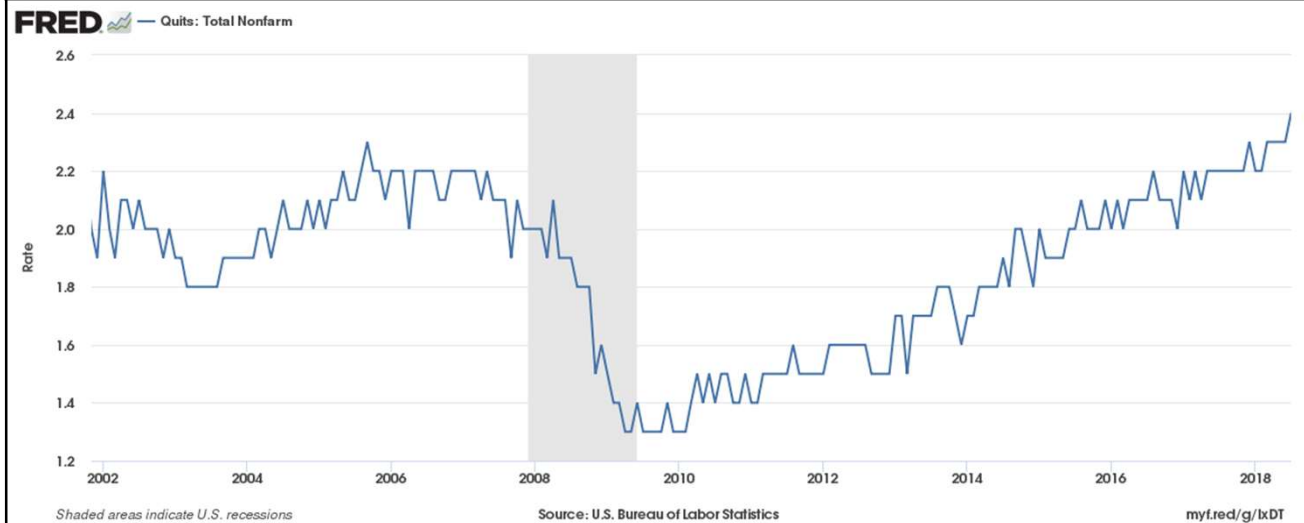
- Increases are mostly among workers with less than a high school diploma



7

## Exhibit 7: Quit Rate

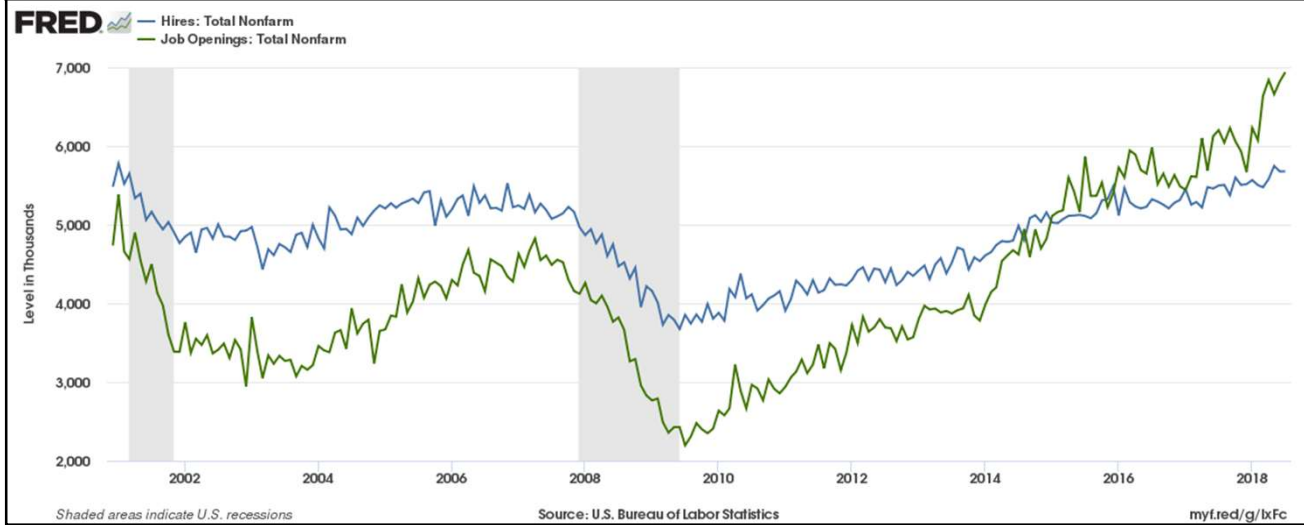
- High and rising quit rates show confidence in the labor market, which should put upward pressure on wage growth



8

## Exhibit 8: Job Openings and Hires

- More openings than hires, which should put upward pressure on wage growth



9

## Exhibit 9: Labor Force Participation Rate

- Declining labor force participation rate may act as a headwind to economic growth

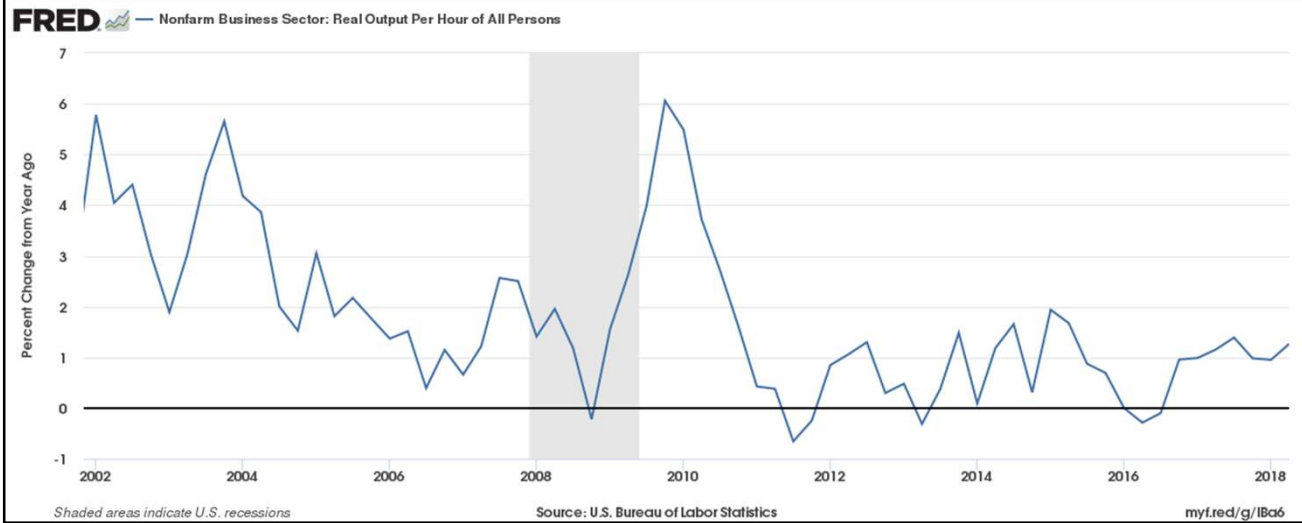


10



## Exhibit 10: Productivity Growth

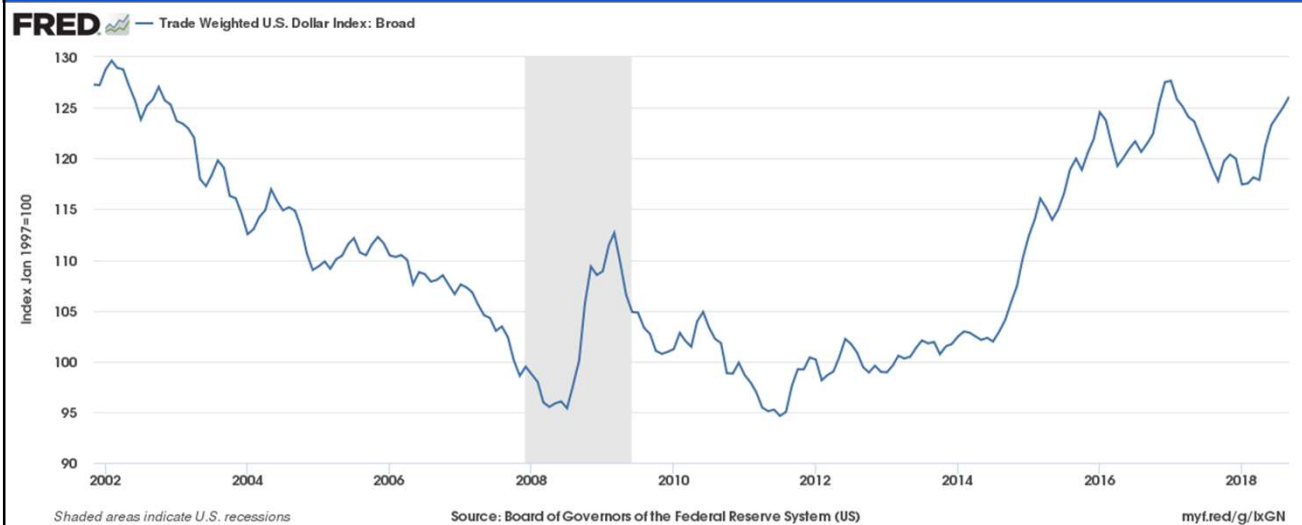
- Slower productivity growth may act as a headwind to economic growth



11

## Exhibit 11: Trade Weighted U.S. Dollar Index

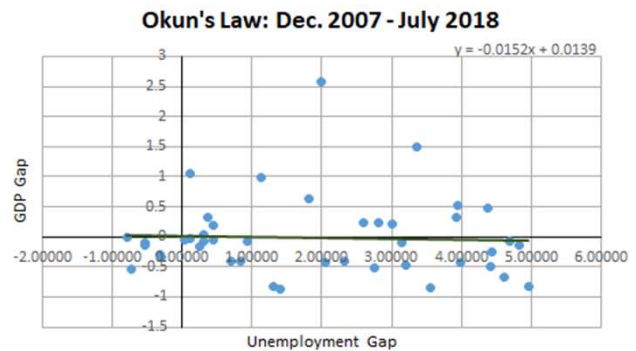
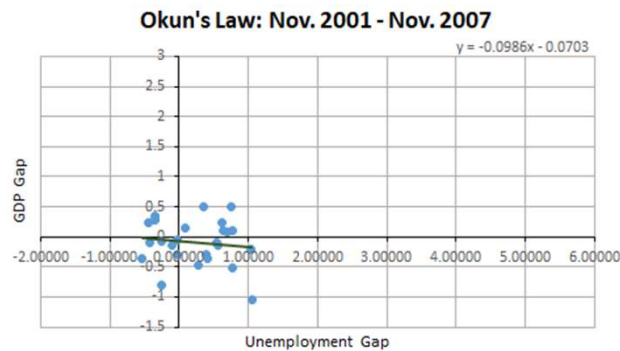
- Increasing strength of the dollar results in rising trade deficits and suppressed inflation, and may act as a headwind to economic growth



12

## Exhibit 12: Okun's Law

- Changes in unemployment becoming less sensitive to changes in output

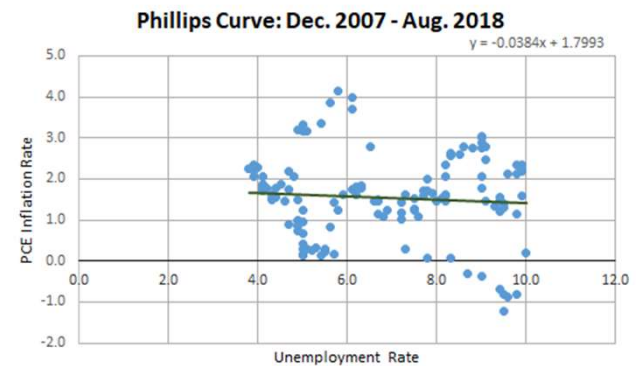
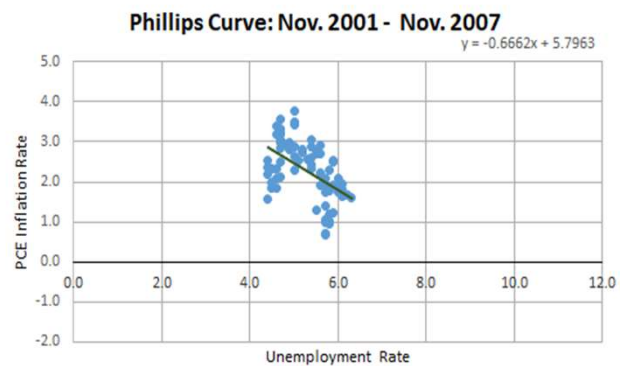


Source: Calculated from BEA, BLS, and CBO data

13

## Exhibit 13: Phillips Curve

- Weakening relationship between unemployment and inflation

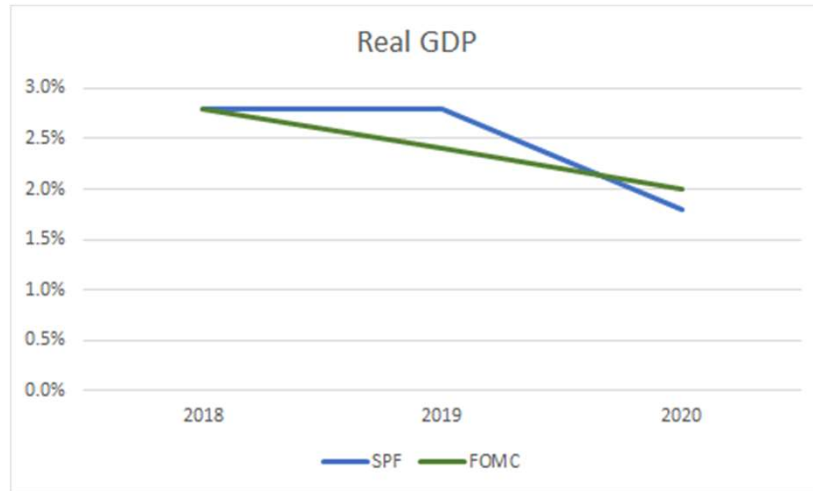


Source: Calculated from BEA and BLS data

14

## Exhibit 14: Forecasted Real GDP

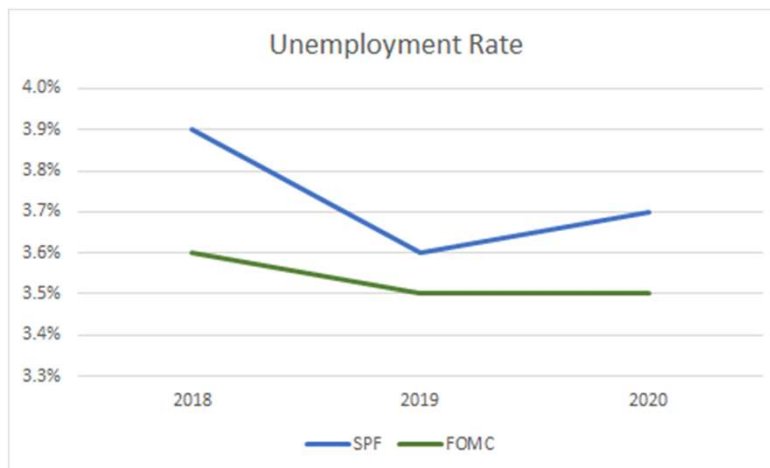
- GDP growth is forecasted to slow minimally over the next two years



15

## Exhibit 15: Forecasted Unemployment Rate

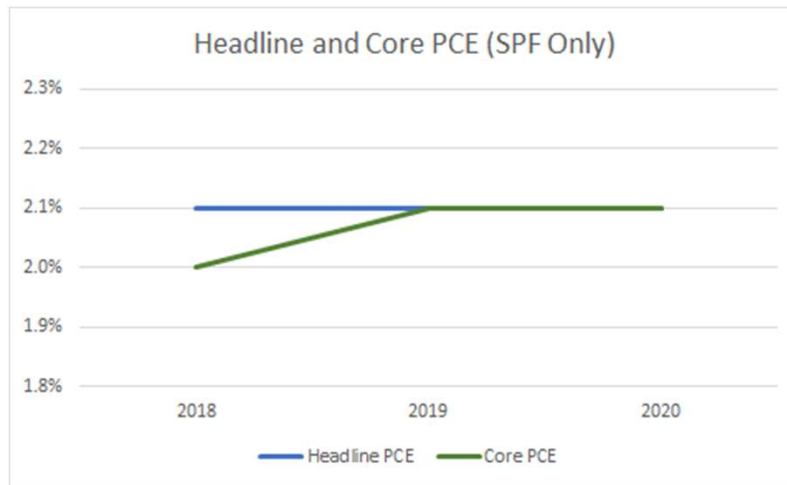
- Unemployment rate is forecasted to stay low over the next two years



16

## Exhibit 16: Forecasted Inflation Rate

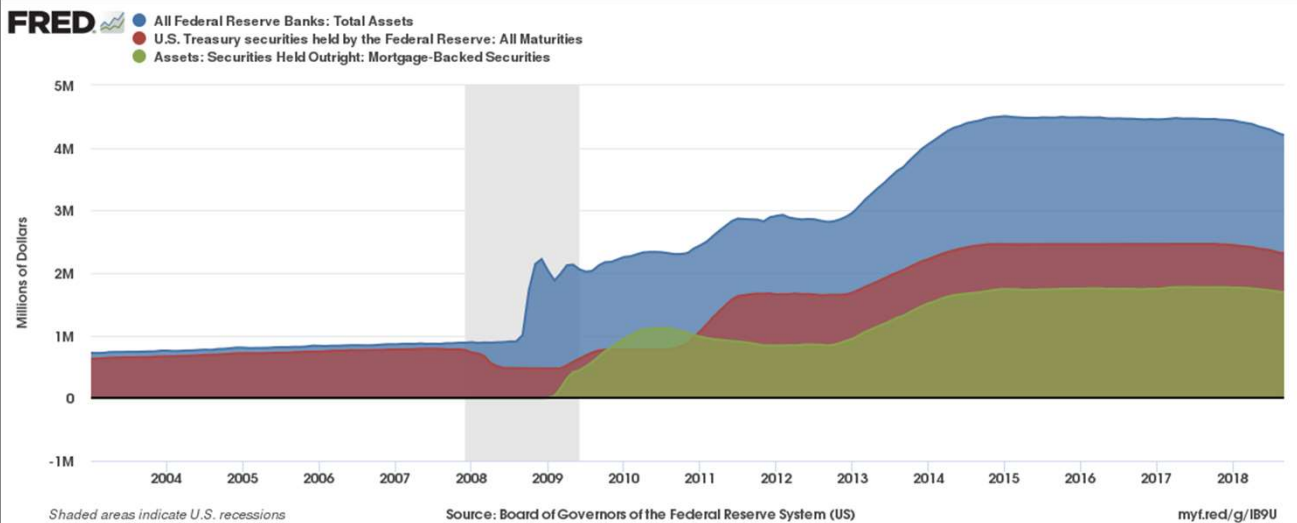
- Inflation rates forecasted to remain close to the Fed's 2% target over the next two years



17

## Exhibit 17: Fed Balance Sheet

- Balance sheet has nearly quadrupled since 2008



18

## Monetary Policy Recommendations

- Continue raising Federal Funds Rate by 0.25% five times until the end of 2019
- The balance sheet should be reduced incrementally by selling treasuries and MBS as warranted by economic conditions

# MIGRATION, THE DIASPORA, AND THE PRESENCE OF NEOLIBERAL REFORMS

*Veronika Gillis, Bard College*

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## **EXECUTIVE SUMMARY**

It is only recently that economics research has started to focus on the institutional impact of migration on the countries of origin. A comprehensive survey of this literature has been published by Baudassé in 2018<sup>2</sup>. The first phase of this new research has been characterized by a wave of optimism about the positive political role of the diaspora, particularly in terms of its role in transferring democratic norms back to origin countries<sup>3</sup>, helping to improve the quality of democratic institutions<sup>4</sup> and mobilize protest against autocratic regimes<sup>5</sup>.

Of late, the discipline has started to question whether this optimism in regards to the influential role of the diaspora is warranted. Recent literature has suggested a negative impact of the increase in remittances on human rights<sup>6</sup>. Doyle (2015) has speculated that migration leads to a shift in government spending away from public goods because of the way in which increased remittances change voting tendencies for households<sup>7</sup>. Some authors have also explored a reverse channel of causality where remittances can increase the likelihood of autocracies or poor institutions<sup>8</sup>. In this research project, I endeavor to further the dialogue that recent literature has started on the negative impacts of the diaspora on the institutions of their origin countries.

Do immigrants help to promote the adoption of pro-market policies? Existing literature has soundly established that households migrate to escape poor institutions/oppressive regimes, and to pursue economic opportunity. After migration, I argue that this new economically better off diaspora has an incentive to support neoliberal reforms in their country of origin. Pro-market policies relax barriers to migration, perpetuate existing socioeconomic structures, and make wealth creation easier for those at the top end of this distribution. Migrants have a stake in maintaining the current socioeconomic structure because they want to sustain their new place in the social hierarchy that they have achieved through migration. They also most often want the family they have left behind to migrate as well, in order to escape institutional oppression and experience the same economic opportunity they did. Because migration places migrants in a new paradigm, we argue that their interests change in such a way that lends themselves to pro-market policies.

This empirical study is conducted on a time series cross sectional (TSCS) dataset of approximately ninety countries from the years 1990 to 2015. Following De Soysa (2013), this paper will be using the Economic Freedom Index (EFI) constructed by the Fraser Institute as a measure for pro-market policies.

We argue that changes in the EFI are signals for changes in economic policies. Data on remittances, used as a measure for the size of the diaspora, comes from the World Development Indicators.

## **FOOTNOTES**

<sup>1</sup> Baudassé, Thierry, Rémi Bazillier, and Ismaël Issifou. "Migration and Institutions: Exit and Voice (from Abroad)?" *Journal of Economic Surveys* 32, no. 3 (2018): 727-766.

<sup>1</sup> Spilimbergo, Antonio. "Democracy and foreign education." *American economic review* 99, no. 1 (2009): 528-43.

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<sup>1</sup> Pfütze, Tobias. "Does migration promote democratization? Evidence from the Mexican transition." *Journal of Comparative Economics* 40, no. 2 (2012): 159-175.

<sup>1</sup> Escribà-Folch, Abel, Covadonga Meseguer, and Joseph Wright. "Remittances and democratization." *International Studies Quarterly* 59, no. 3 (2015): 571-586.

<sup>1</sup> Bang, James T., Arindam Mandal, and Aniruddha Mitra. "Transnational Remittances and State Protection of Human Rights: A Case for Caution." *Manuscript in preparation*.

<sup>1</sup> Doyle, David. "Remittances and social spending." *American Political Science Review* 109, no. 4 (2015): 785-802.

<sup>1</sup> Ahmed, Faisal Z. "Remittances and incumbency: Theory and evidence." *Economics & Politics* 29, no. 1 (2017): 22-47.

# EFFECTS OF C-SECTIONS ON MATERNAL MORTALITY

Melissa Voerg, Siena College

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## ABSTRACT

According to Deneux-Tharoux, Carmona, Bouvier-Colle, and Bréart (2016), cesarean delivery led to a 3.6 times greater risk of death in comparison to natural delivery. The increased risk was due to “complications of anesthesia, puerperal infection, and venous thromboembolism.” The study looked at 65 cases over the span of 5 years from 1996-2000 in France. According to D’Souza, and Arulkumaran (2012), there is insufficient evidence or data that cesarean delivery upon mother’s request is superior or not to natural birth. There are future reproductive concerns regarding C-sections, and the benefits and risks should be discussed and considered. Mothers are now being asked to explain their reasoning behind electing to have a C-section over natural delivery when there is no medical necessity instead of discussing the benefits and risks. There are not many studies concerning the effect of C-sections on maternal mortality. According to Berg, Callaghan, Syverson, and Henderson (2010), it is unclear why maternal mortality rates have been increasing from 1998-2005. Some possible factors include “an increase in the risk of women dying, changed coding with the International Classification of Diseases, 10<sup>th</sup> Revision, and the addition by states of pregnancy checkboxes to the death certificate.” There may still be difficulty in getting an accurate report on the reason behind maternal deaths. It is important to explore different variables to see what is causing maternal mortality rates to continue to increase, in order to improve future outcomes.

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## BACKGROUND INFORMATION

As cesarean section rates increase, mother mortality rate is expected to increase as well. There has been an increase in the rate of cesarean sections for birth since it is a fairly rapid procedure and surgeons can perform multiple C-sections in one day. Doctors may be experiencing pressure to have good surgical outcomes, or the mother may be requesting to have a C-section when she does not need one. C-sections are nearly double the cost of natural birth and doctors may push for C-sections in order to make more money. Mothers can opt to receive full anesthesia or be awake during the procedure, and they no longer have to push or be in pain. Many women do not know that they have the right to refuse a C-section if it is recommended or suggested by a doctor, and that the hospital must ensure that the C-section is the best course of care. Many mothers are pressured to continue to have C-sections with subsequent children if they have already had one in the past. There are some cases in which a C-section is absolutely necessary and helps ensure a positive outcome for mother and child, but there are unnecessary C-sections performed. C-sections are major surgery and carry many risks since it is highly invasive. There is a long recovery time and many prescription drugs prescribed in order to mitigate the pain. Since it is a high risk procedure, maternal mortality rate would be expected to be higher for more C-sections. An additional factor that will impact maternal mortality rate include whether or not the mother has insurance, since this will affect whether or not they receive prenatal care which is normally when serious complications are determined. Smoking is incredibly dangerous and detrimental to the body in general, and it can exacerbate problems with surgery. Obesity has a serious impact on health and makes surgeries and childbirth more dangerous. Public funds can provide people the opportunity to avoid unwanted pregnancy. Those without access to these services and who are below the poverty line are unlikely to have access to prenatal services and care which are beneficial and imperative to a safe birth.

Maternal Mortality Rate<sub>i</sub> =  $\beta_1 + \beta_2 \text{Cesarean Delivery Rate}_i + \beta_3 \text{Uninsured}_i + \beta_4 \text{Smoking during Pregnancy}_i + \beta_5 \text{Obesity}_i + \beta_6 \text{Publicly-Funded Women's Health Services}_i + u_i$   
MMR<sub>i</sub> =  $\beta_1 + \beta_2 \text{Csec}_i + \beta_3 \text{Unins}_i + \beta_4 \text{SDP}_i + \beta_5 \text{Obesity}_i + \beta_6 \text{PFWHS}_i + u_i$



**Table 1:**

Variable	Definition	Source	Sign	Statistical Sig	Practical Sig (.05 level)
Maternal Mortality Rate (MMR)	Number of deaths from any cause related to or aggravated by pregnancy or its management during pregnancy and childbirth or within 42 days of termination of pregnancy per 100,000 births	United Health Foundation (CDC WONDER Mortality Files)			
Cesarean Delivery Rate	Percentage of all live births that were cesarean deliveries	National Center for Health Statistics	Positive	Yes	Yes
Uninsured Women	Percentage of women aged 18 to 44 who are not covered by private or public health insurance	United Health Foundation (US Census Bureau American Community Survey)	Positive	Yes	Yes
Smoking during pregnancy	Percentage of women aged 18 to 44 who are smokers (reported smoking at least 100 cigarettes in their lifetime and currently smoke every or some days)	United Health Foundation (CDC Behavioral Risk Factor Surveillance System)	Positive	Yes	Yes
Obese Women	Percentage of women aged 18 to 44 with a body mass index of 30.0 or higher based on reported height and weight	United Health Foundation (CDC Behavioral Risk Factor Surveillance System)	Positive	Yes	No
Publicly-Funded Women's Health Services	Percentage of need for contraceptive services by women with a family income 250% below the federal poverty level and women younger than age 20 met by publicly funded providers	United Health Foundation (Guttmacher Institute)	Negative	Yes	No
Table 2:	<i>Maternal Mortality Rate</i>		<i>C-section RATE</i>		<i>Obesity</i>
Mean	19.67708333	Mean	30.514	Mean	26.562
Standard Error	1.195281947	Standard Error	0.551591464	Standard Error	0.577142079
Median	18.3	Median	30.95	Median	26.2
Mode	18.3	Mode	33.8	Mode	26.8
Standard Deviation	8.281156245	Standard Deviation	3.900340644	Standard Deviation	4.081010779
Sample Variance	68.57754876	Sample Variance	15.21265714	Sample Variance	16.65464898

Kurtosis	-0.109379148	Kurtosis	-0.621786357	Kurtosis	0.033848849
Skewness	0.57183447	Skewness	-0.131876745	Skewness	0.422081925
Range	33.5	Range	15.9	Range	18.1
Minimum	5.8	Minimum	22.3	Minimum	18.5
Maximum	39.3	Maximum	38.2	Maximum	36.6
Count	48	Count	50	Count	50
	<i>Uninsured</i>		<i>Smoking during pregnancy</i>		<i>Public Funds</i>
Mean	15.518	Mean	12.258	Mean	30
Standard Error	0.769800875	Standard Error	0.760011224	Standard Error	1.520472537
Median	15.55	Median	11.75	Median	29
Mode	13.7	Mode	17.7	Mode	19
Standard Deviation	5.443314192	Standard Deviation	5.374090906	Standard Deviation	10.75136441
Sample Variance	29.62966939	Sample Variance	28.88085306	Sample Variance	115.5918367
Kurtosis	-0.553061078	Kurtosis	-0.532819024	Kurtosis	0.506078525
Skewness	0.071879317	Skewness	0.191515563	Skewness	0.824975768
Range	24.7	Range	22.8	Range	47
Minimum	3.6	Minimum	1.4	Minimum	14
Maximum	28.3	Maximum	24.2	Maximum	61
Count	50	Count	50	Count	50

According to Table 2, the average maternal mortality rate across 48 states (for Alaska and Vermont the data was unavailable) was nearly 20%, which is extremely high. The median was 18.3%, which is also high. On average, 2 out of 10 women will die due to childbirth or complications surrounding pregnancy. The average C-section rate is approximately 31%, which is also high considering it was initially intended for emergency situations. The median C-section rate is approximately 31% as well.

**Table 3:**

		<b>Coefficients<sup>a</sup></b>				
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-3.140	10.163		-.309	.759
	C-section RATE	.209	.304	.095	.687	.496
	Obesity	.445	.352	.221	1.265	.213
	Uninsured	.559	.226	.356	2.472	.018
	Smoking during pregnancy	.049	.236	.032	.208	.836
	Public Funds	-.165	.114	-.186	-1.449	.155

a. Dependent Variable: Maternal Mortality Rate

The model explained 35.9% of the variation in maternal mortality rate. There is a gap between R squared and adjusted R squared of 7.7% which indicates that there are some variables that do not affect the maternal mortality rate. The F-stat of 4.7 is very low which indicates that the independent variables are not jointly non-zero. This insinuates that there are some variables that do not have an effect. According to Table 3, the only significant variable is the uninsured rate, which is surprising since most of the variables were expected to be significant. For every one-percentage increase in the uninsured rate, the maternal mortality rate increases by .559 or nearly one death per 20 women. This is the relationship expected since those without health insurance are less likely to receive prenatal care and may be less likely to go to a hospital. All of the signs on the slopes were as to be expected. As C-section rate increases the maternal mortality rate was expected to increase as well since doctors may be overprescribing C-sections when they are not necessary. Since the true slope may very well be zero and the C-section rate may not have an effect on mortality rate this indicates that mothers are not unnecessarily dying as a result. This does not diminish the fact that a C-section is a highly invasive surgical procedure that carries many risks including death. As the C-section rate increases by 1% or by one woman out of 100, the maternal mortality rate increase by .209. For approximately every 5% increase in C-sections, one more woman dies out of ten. Obesity and smoking during pregnancy can put more stress and strain on the body and be detrimental to the health of the mother and baby. No statistically significant relationship was found, but practically there is a relationship between these variables. Obesity and smoking makes surgical procedures and childbirth more dangerous and life threatening.

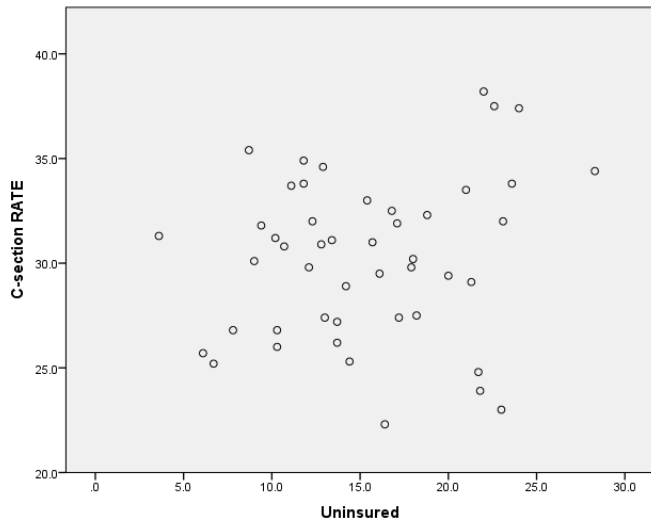
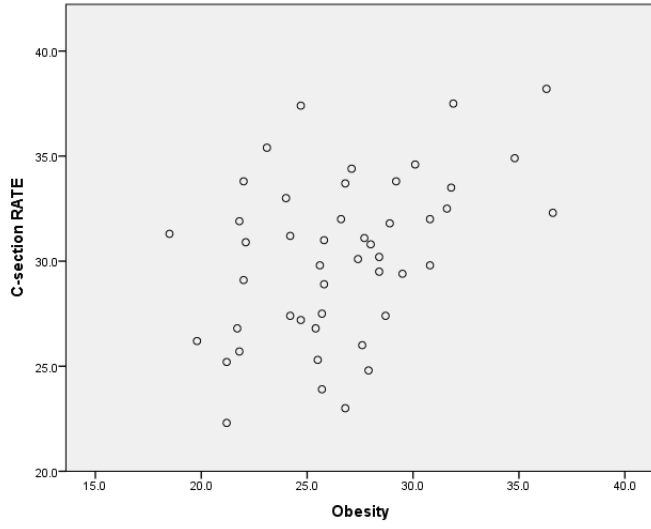
Nevada has an extremely low maternal mortality rate, nearly one third or one fourth of the predicted value. Alabama has an extremely low maternal mortality rate of approximately one-half of the predicted value. Nevada and Alabama have a very low rate of opioid and heroin addiction that would lead to improved outcomes in maternal survival. It would also help outcomes of C-sections. New Jersey has an extremely high maternal mortality rate that is nearly double that which was predicted. The heroin and opioid epidemic has plagued New Jersey and there has been an increase in babies born into drug addiction in New Jersey. This can have a detrimental effect on mothers and outcomes of C-sections. New Jersey, Alabama, and Nevada were removed from the data set.

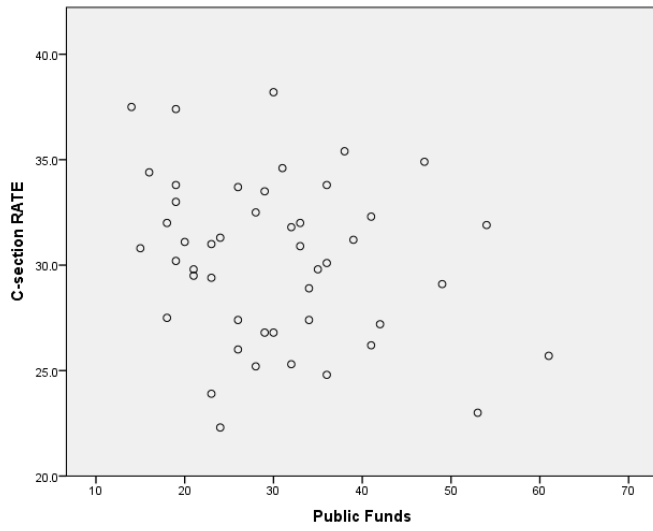
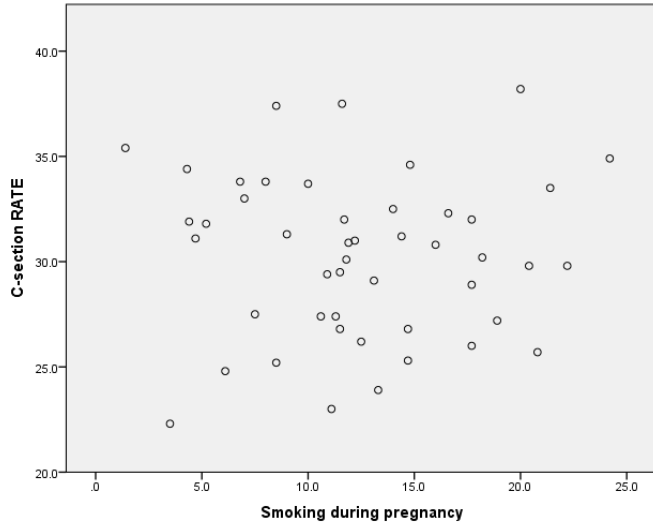
**Table 4:**

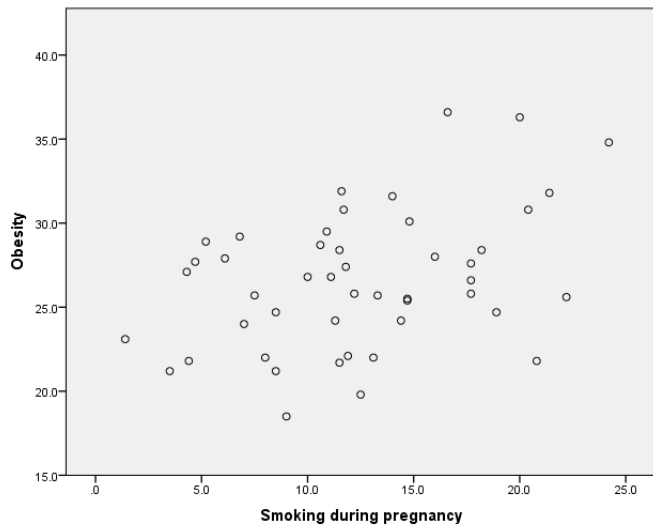
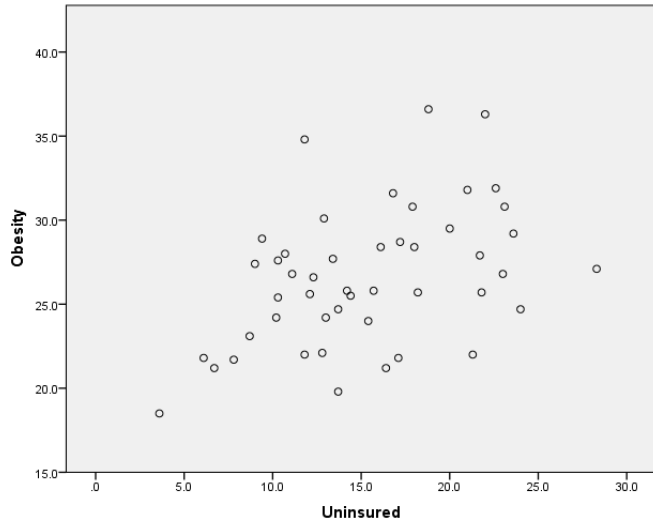
**Correlations**

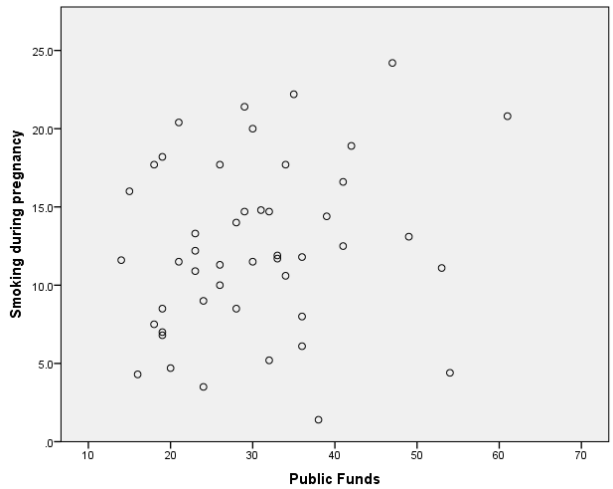
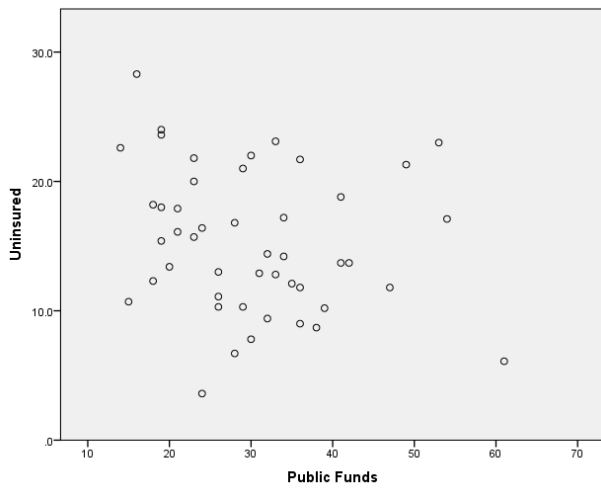
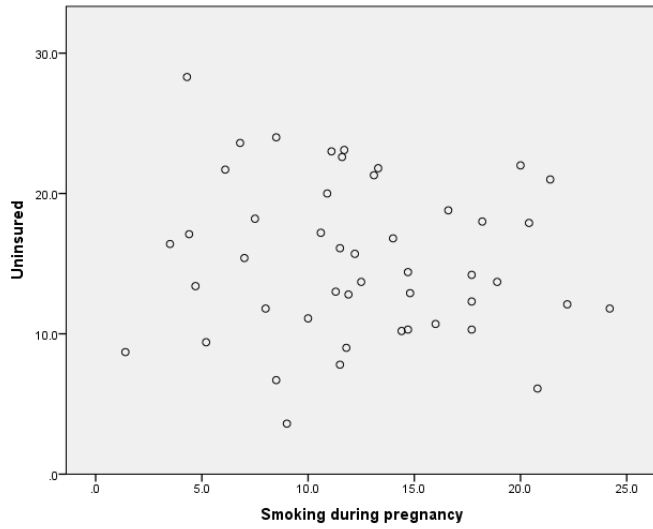
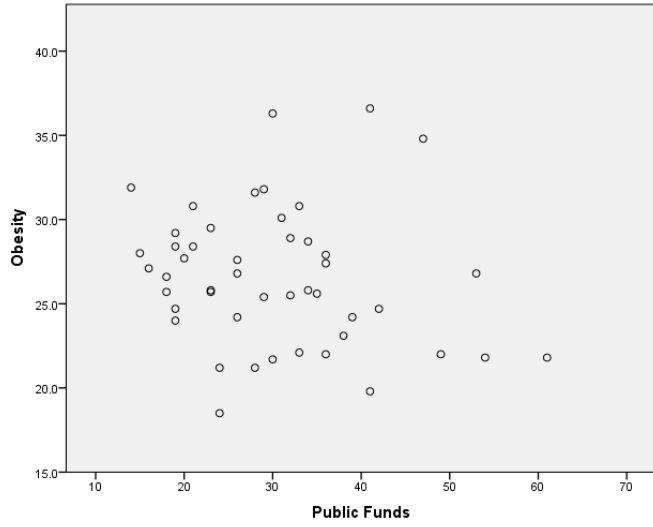
	Maternal Mortality Rate	C-section RATE	Obesity	Uninsured	Smoking during pregnancy	Public Funds
Maternal Mortality Rate	1.000	.315	.556	.626	.140	-.335
C-section RATE	.315	1.000	.433	.223	.035	-.089
Obesity	.556	.433	1.000	.424	.455	-.116
Uninsured	.626	.223	.424	1.000	-.044	-.201
Smoking during pregnancy	.140	.035	.455	-.044	1.000	.135
Public Funds	-.335	-.089	-.116	-.201	.135	1.000

After removing the two outliers, it is apparent that there may be some Multicollinearity between obesity and uninsured, obesity and smoking during pregnancy, and obesity and the C-section rate. Scatter plots of variables against each other:









Upon initial inspection of the scatter plots there appears to be a positive relationship between the C-section rate and obesity. There does not appear to be a relationship between the C-section rate and uninsured rate, between the C-section rate and smoking during pregnancy, or between the C-section rate and public funds. There appears to be a positive relationship between obesity and the uninsured rate and a positive relationship between obesity and smoking during pregnancy. There are issue with Multicollinearity with the obesity rate and the other independent variables. There does not appear to be a relationship between obesity and public funds or between uninsured and smoking during pregnancy. There does not appear to be a relationship between uninsured rate and public funds or between smoking during pregnancy and public funds. There do not appear to be any other significant outliers.

**Table 5:**

		Coefficients <sup>a</sup>		Standardized		
Model		Unstandardized Coefficients	Std. Error	Coefficients	t	Sig.
		B		Beta		
1	(Constant)	21.132	4.048		5.221	.000
	Obesity	.494	.166	.526	2.984	.005
	Uninsured	-.064	.111	-.091	-.573	.570
	Smoking during pregnancy	-.136	.114	-.192	-1.192	.240
	Public Funds	-.045	.051	-.128	-.895	.376

a. Dependent Variable: C-section RATE

The model explains 24% of the variation in C-section rate, which is not good. The only significant variable is obesity, which leads to the conclusion that obesity and C-section rate are collinear. The F-stat is 3.32, which is low, which suggests that most of the variables do not have an effect on C-sections. According to Table 5, for every 1% increase in obesity C-sections increase by .494, or for every 2% increase in obesity another C-section is performed. Therefore, obesity doubles the chance of getting a C-section.

**Table 6:**

		Coefficients <sup>a</sup>		Standardized		
Model		Unstandardized Coefficients	Std. Error	Coefficients	t	Sig.
		B		Beta		
1	(Constant)	2.604	7.188		.362	.719
	Smoking during pregnancy	-.334	.152	-.329	-2.196	.034
	Public Funds	-.028	.071	-.056	-.402	.690
	C-section RATE	-.122	.213	-.085	-.573	.570
	Obesity	.805	.220	.597	3.661	.001

a. Dependent Variable: Uninsured

The model explains 29.2% of the variation in the uninsured rate. The F-stat is fairly low (4.33) which indicates that not all the variables have an effect on the uninsured rate. According to Table 6, the significant statistics are the obesity rate and smoking during pregnancy. For every 1% increase in obesity, the uninsured rate increases by .805. For a nearly 2% increase in obesity, one more person would be uninsured. For every 1% increase in smoking during pregnancy, the uninsured rate decreases by .334%. For every 3% increase in smoking during pregnancy, the uninsured rate would decrease by approximately 1%. It seems to be that obesity is an issue. Smoking should not have a practical effect on whether or not people decide to purchase insurance. Although some smokers elect not to pay high insurance premiums if they disclose that they are smokers, many just lie, say that they are non-smokers, and avoid paying higher premiums. There are definitely issues with collinearity with obesity, but smoking will not be removed as it is not practically related to the uninsured rate.

**Table 7:**

### Coefficients<sup>a</sup>



Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients Beta		
1	(Constant)	8.148	4.215		1.933	.060
	Smoking during pregnancy	.344	.082	.458	4.177	.000
	Public Funds	-.037	.043	-.099	-.871	.389
	C-section RATE	.354	.119	.333	2.984	.005
	Uninsured	.300	.082	.405	3.661	.001

a. Dependent Variable: Obesity

The model explains 52% of the variation in the obesity rate, which is extremely high. When comparing the different models, this is the highest R squared so far. This leads to the assumption that the obesity rate has the largest issues with collinearity among the independent variables. The F-stat is higher (11.352), which indicates that some variables have an effect on the variation in the obesity rate. According to Table 7, smoking during pregnancy, C-section rate, and the uninsured rate all have a significant effect on the obesity rate. There are more significant variables in this model than the original, which is problematic. For every 1% increase in smoking during pregnancy, the obesity rate increases by .344%. For every 1% increase in C-section rate, obesity increases by .354%. For every 1% increase in the uninsured rate, the obesity rate increases by .3%. In order to take care of the issues with Multicollinearity, obesity will likely be removed. Dealing with Multicollinearity usually improves the t-statistics, yet it lowers R squared if data is removed since any independent variable added will contribute something to R squared.

**Table 8:**

<b>Coefficients<sup>a</sup></b>						
Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients Beta		
1	(Constant)	-1.313	6.918		-.190	.850
	Public Funds	.102	.066	.202	1.531	.133
	C-section RATE	-.241	.202	-.170	-1.192	.240
	Uninsured	-.309	.140	-.313	-2.196	.034
	Obesity	.852	.204	.641	4.177	.000

a. Dependent Variable: Smoking during pregnancy

The model predicts 32.6% of the variation in the rate of smoking during pregnancy. A high R squared is not ideal since it indicates that there are independent variables explaining each other or Multicollinearity. The F-stat is 5.089 which indicates that not all the variables have an effect on smoking during pregnancy. According to Table 8, the only significant variables are the uninsured rate and obesity. For every 1% increase in the uninsured rate, smoking during pregnancy decreases by .309%. For every 1% increase in the obesity rate the smoking during pregnancy rate increases by .852%. Whether or not someone has insurance should not affect whether or not they smoke during pregnancy. Usually people become addicted to smoking at a young age and find it difficult to quit even if they are pregnant. Whether or not they have insurance should not affect whether they decide to continue smoking during pregnancy or not. Whether or not someone is obese would not likely have an effect on whether or not someone decided to smoke during pregnancy. However, obesity provides other issues with collinearity particularly with the C-section rate.

**Table 9:**

<b>Coefficients<sup>a</sup></b>						
Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients Beta		

1	(Constant)	50.985	13.540		3.765	.001
	C-section RATE	-.412	.461	-.146	-.895	.376
	Uninsured	-.135	.335	-.069	-.402	.690
	Obesity	-.474	.544	-.179	-.871	.389
	Smoking during pregnancy	.520	.340	.261	1.531	.133

a. Dependent Variable: Public Funds

The model predicts 13% of the variation in the public funds rate. The F-stat is 1.572, which indicates that most if not all of the variables do not have a significant effect on the public funds rate. According to Table 9, none of the variables are significant at the 5% or even 10% confidence level.

**Table 10:**

		Coefficients <sup>a</sup>		Standardized Coefficients Beta	t	Sig.
Model		Unstandardized Coefficients B	Std. Error			
1	(Constant)	-.627	8.154		-.077	.939
	C-section RATE	.344	.240	.165	1.436	.159
	Uninsured	.797	.169	.550	4.720	.000
	Smoking during pregnancy	.271	.161	.190	1.681	.101
	Public Funds	-.194	.095	-.235	-2.043	.048

a. Dependent Variable: Maternal Mortality Rate

Obesity was removed from the data set since it affects whether or not mothers receive a cesarean section. Those who are obese are more likely to receive a C-section even though pregnancy and birth is also riskier for obese women. Those who are obese are also not as healthy which might lead to it being correlated with smoking. The higher the level of smoking the unhealthier people are which may just be captured by higher obesity levels. Those with obesity may elect not to have health insurance also since it may be more expensive to them. After removing obesity, the model explains 50.2% of the variation in maternal mortality rates. The difference between R squared and adjusted R squared is 5% which is fairly low but there are likely some variables that do not have a significant effect on the maternal mortality rate. The F-statistic increased to 10.068, and is significant beyond the .01% level. In addition to the uninsured rate, the public funds rate is significant at the 5% level, and the smoking during pregnancy is nearly significant at the 10% level. According to Table 10, the uninsured rate remains significant beyond the .01% level and the public funds rate is significant at the 4.8% error level. For every 1% increase in uninsured rate, the maternal mortality rate increases by .797%. For every 1% increase in public funds the maternal mortality rate decreases by .194%. The C-section rate is not significant which indicates that doctors are correctly prescribing C-sections and that they help the outcome of the mothers even though it is a very intensive procedure.

Scatter plots of the residuals squared against each of the variables:

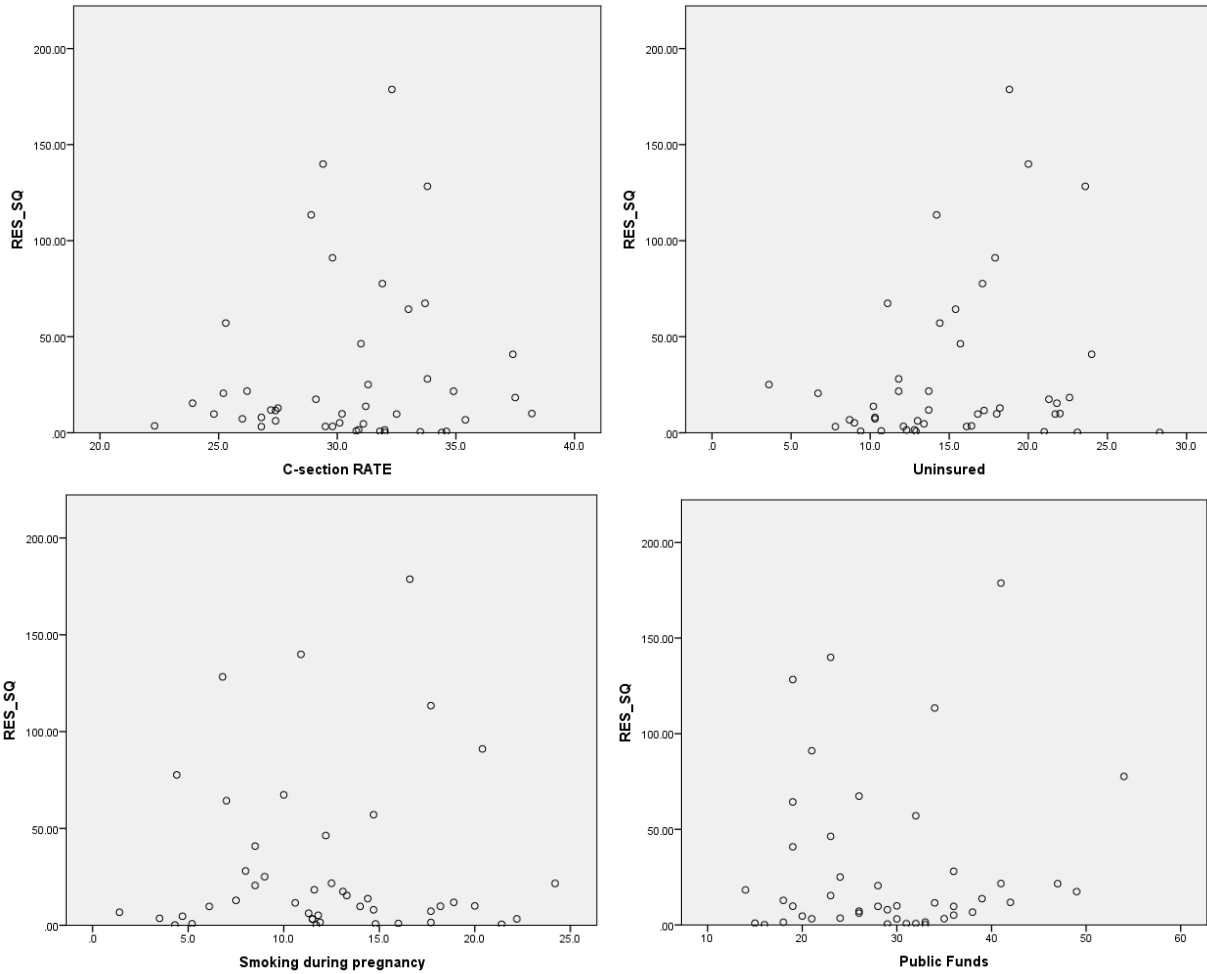


Table 11:

		Coefficients <sup>a</sup>				
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	-34.372	60.345		-.570	.572
	C-section RATE	.676	1.773	.060	.381	.705
	Uninsured	1.786	1.249	.228	1.429	.161
	Smoking during pregnancy	.082	1.194	.011	.069	.946
	Public Funds	.503	.701	.113	.718	.477

a. Dependent Variable: ABS\_RES\_SQ

The scatter plots all show bands indicating homoscedasticity. After running the Glejser test, the independent variables only explain 6.3% of the variation in the absolute value of the residuals. The adjusted R squared is negative 3% indicating that the four variables lead to a small relationship attributable only to using multiple variables. According to Table 11, none of the independent variables are significant, all of the p-values on

the t-statistics are very high. This indicates that there is no heteroscedasticity in the variables and that all the variables are homoscedastic. There is no need to transform the data or rearrange the regression equation.

**Table 12:**

<b>Model Summary<sup>b</sup></b>					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.706 <sup>a</sup>	.499	.449	5.7591	1.886

a. Predictors: (Constant), Public Funds, C-section RATE, Smoking during pregnancy, Uninsured

b. Dependent Variable: Maternal Mortality Rate

The Durbin Watson statistic was 1.886 which fell between the Durbin Watson upper limit of 1.72 and 2.28. The DW lower limit was 1.336 and the other value was 2.664. This shows that there is no autocorrelation between the data values which was to be expected since the states should not affect one another. Cross sectional data does not usually have autocorrelation although time series often does.

Overall the model captures a decent amount of the variation in maternal mortality rate. It would be beneficial to expand the model to include illicit drug use since this likely has a significant effect on maternal mortality rates. It might be beneficial to look at the states over time to see if there is more of a relationship. C-sections are highly invasive surgical procedures, which have significant risks. Sometimes they are medically necessary, but it is important to be informed and know your rights when it comes to elective procedures. Smoking during pregnancy likely also has an effect on maternal mortality rates even though this model did not demonstrate that. Practically, all the original independent variables would have an effect on the maternal mortality rate.

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# “Who has Ownership of the Land in West Virginia?”

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## *EXECUTIVE SUMMARY*

Living in Brooklyn, New York I live a fast-paced life, in a place with diversity and opportunities. When I was traveling to West Virginia with my class I did not have any knowledge of its history, culture or economy. I knew it was going to be different from Brooklyn, but when I arrived, I was in for a culture shock. Upon arriving West Virginia, I learned about the economic, literacy, health, social, and identity issues. But the one issue that drew to my attention was the housing development issue in West Virginia. Driving through West Virginia and interacting with people from all the different counties, urban and rural, I learned about the problems surrounding housing development. Many of the residential and commercial properties in communities are under developed or completely abandoned. But why are these properties abandoned? Who is responsible for this? Who owns the property and land of West Virginia? It seems to be another West Virginia mystery that needs to be solved.

I claim that West Virginia does not have an identity because we do not know who owns the land of West Virginia. I believe that having ownership of something, you have control over it and you have the power of directing its future. Ownership gives a person confidence because it makes them feel good about themselves. Also accomplishing ownership allows the person to have a duty, responsibility and ability to take care of it and to create something out of it. Ownership grants people opportunity! If you owned land, you have the opportunity to develop it, sale it, maintain it, and ect. The possibilities are endless if you have the right mind and motivation. I believe that ownership can give people the motivation for expansion and development to benefit themselves and their community. But there seems to be an issue with property ownership in West Virginia because either corporations, the government or absentee owners control the land. The people of West Virginia have lost their roots, connections and ownership of their land. As a result, owners of the land, set the standard of living and their future; the people of West Virginia do not have a say in how to live their life because they cannot control what has already been taken away or purchased from them.

West Virginia’s land is stored with various natural resources such as coal, timber, minerals, natural gas, sand and etc. Settlement of West Virginia began in 1702, but Scottish-Irish and German settlers did not develop colonies until after the American Revolution (Shifflett, 12). Many of the migrants traveled frequently in West Virginia because of agriculture. Agriculture was a challenge for them because of the mountainous terrain. As a result, West Virginia has a history of companies and outsiders imperializing their resources. Agriculture was the main economic market for migrants in the beginning of their settlement because they did not have access to other opportunities; isolation kept them from expanding and developing into other markets. Agriculture did not last very long as the main economic industry; soon it started to dwindle in the late 1800’s.

As the 1800’s was ending, along with agriculture, the twentieth century was approaching with big and new changes. In the early 1900’s the industrial revolution was coming in full force. America was developing into a new era of efficiency and machinery. The railroad was the start of the industrial development of West Virginia because the construction of the railroad was one of the main discoveries of its resources. As laborers dug into the land to construct railroads, they discovered coal, minerals and other resources. Also, the railroads gave West Virginia the transportation of its resources to other parts of America. Without the railroad, business and the industry would not have done well because of the isolation.

Once the railroad was established, the coal industry was the next step of industrial change. During this time, the two states that were the largest producers of coal were West Virginia and Pennsylvania. Both states competed against each other to declare dominance (Uchimura, 60). The advantage West Virginia had was that the land contained coal that was “smokeless” (Uchimura 64). This type of coal was used for heating and cooking in homes and for steel making. This made West Virginia more valuable because it was cheaper to sell. As a result, with the coal industry booming with business, the companies were in demand of workers. The companies recruited West Virginian men and migrants to work in the mines. In return the companies provided housing for them and their families. These housing developments were called coal camps or coalfields. A typical home in a coal camp

was “A single hallway, originally stretching from one end of the house to another, was walled up in the center, divided to provide each family with a corner of the house; each corner had an upstairs and a downstairs” (Corriher 93). Usually in the coal camps, the coal companies built a school for the children, a town store, and a church for the miners and their families. Coal companies built these town developments because they wanted to have control over the people. Therefore, if the miners and their families were comfortable in their living situation, they would keep working in the mines.

Most people considered the coal companies a blessing because they provided housing and jobs for men and their families. Before the coal boom, they were living in poverty, but coal companies created a middle class in West Virginia. Even though the coal industry created stability, it created simple minded mentality. Living in the coal camps, kept the people of West Virginia from expanding outside from the coal mining industry; they were reliant on the company. The coal companies provided them with the basic necessities they needed to live their life. But these coal camps were never measured up to the national standard because they were unsanitary and not serviced. Since the companies owned the land; they controlled everything built on it. Land economists say that “Throughout history, patterns of land ownership have shaped patterns of human relations in nearly all societies” (Geisler 1). The coal companies established the standard of living because they were owners of the land and the only opinion that matter to them were themselves.

Today West Virginia is a struggling state with a lack of economic tools and resources to help it become a prosperous state. One of the many issues West Virginia is facing is property ownership. Many owners of property are either vacating the land, getting foreclosed on by the banks, not developing it or not maintaining the buildings or homes they have developed. There are “large areas of concentrated absentee land ownership in the southern counties where the highest poverty levels in the state happen to exist, along with all the health disparities and daunting economic challenges that come with them” (Board, para.10). Also, absentee land ownership in West Virginia has been a major impediment to economic diversification for generations.

This leaves the question of “Who owns West Virginia and to what extent”? In the article “Who owns West Virginia” by Glynis Board, Board discusses the comparison of land ownership over the decades in West Virginia. In the past coal companies owned most of the land, but today timber management companies are coming into West Virginia. Included in this article is a podcast by Ted Boettner, executive director of the West Virginia Center on Budget and Policy, discussing topics about land ownership. Boettner discusses that policy makers cannot create or enforce policy because the land is bought by private owners. If the land is bought and occupied by private ownership, the government cannot control the land. This is an issue because absentee land is mostly owned by people who have abandoned the premise, but the government does not a policy or law that gives them direction on how to go about obtaining land. This leads to the question of who is paying property taxes if the land is abandoned? Is the government responsible or the land owner? Also, if no one is responsible, does the government tax the poor people of West Virginia or does the federal government pay for the unpaid property taxes, causing the United States to go into my debut?

In the book “Who own Appalachia”, the Geisler heavily goes into detail about the issues and statistics of land ownership in Appalachia. In the beginning of the book the author describes land as the “means for distributing and exercising power” (Geisler 2). This is because land sets the stage for how people are living because land gives people the advantage and power of others. “Who owns the lands effects how the land is used, and vice versa” (Geisler 7). As a result, it is extremely important to know who owns the land. The mystery of land ownership in West Virginia is a problem because without the land, there will be no development of the land for the better of the state, its economy and its people. In the book the author discusses that most of the land owners are divided into many categories: absentee, in and out of state corporations, the government and mineral rights owners.

In West Virginia there is “a high 85 percent” of absentee land in the state (Geisler 12). In McDowell, WV. 79.3 % is an absentee owned. Another county in West Virginia, Mingo: 67.9% is absentee owned (Geisler 22). The majority of the absentee owners in West Virginia own small amounts of land that range from 20-250 acres of land. The stereotype that people expect of absentee land would be from abandoned coal mines or coalfields. But that is not the case because coal mines and fields will be bought by timber companies or of the government. Timber is the longest lasting industry in West Virginia and is the most concentrated ownership in land in West Virginia. In West Virginia there are 1,590,609 acres of absentee land and 69% of that is not being developed or used of economic growth or for the benefit of the people.

“Four of the top five most corporately held counties in southern, are so called the West Virginia “the heart of the billion-dollar coalfield” (Geisler 25). These four counties are McDowell, Logan, Raleigh, and Mingo and the

corporate owned acre surface is estimated at about 900,000 acres. These 4 counties are heavily concentrated in the coal industry, but coal is not the only company that controls land. The next competitor of coal would be steel and other metal companies (444,910 acres), and then oil, gas and energy companies with 227,559 acres of land and the least number of acres of land goes to the individuals of West Virginia with only 121,753 acres of land.

The corporate ownership statistics in the book surprised me, but the most shocking thing to me was that if companies also owned the mineral rights to the surface land; it would double in value of the acreage of land. Also, mineral rights brought more wealth to the company because whoever owned underneath the land, had the power to harvest its minerals and use them for profit. Companies that have mineral rights are in the top 2% of wealthy companies because when you own mineral rights, usually large companies will buy them in greater acreages than surface land due to the high value of minerals.

Now with land ownership comes with property tax burden. Half of West Virginia's state revenue comes from tax revenue. The primary tax that makes up most of the tax revenue is property taxes. Also, the tax revenue goes towards the needs of the state, such as: schools, infrastructure and social services. Ownership of property has a domino effect because land has the power of the community and its economic wealth. If people are not paying their property taxes, then that tax revenue is not generating back into the state. Also, West Virginia faces the issue of unfair tax pricing. There is an unbalance of property taxes between local property owners and corporations. Finally, there is the huge epidemic of taxation on minerals, which is the most wealth generating industry in West Virginia.

The first issue West Virginia faces dealing with taxation is that the property is undervalued. This is a concern because the property of West Virginia could be worth more or less than it should be; causing an impact of increased taxes. Appraisals of the land need to be up to date and current for property owners. Under appraised land creates issues around how much corporations and local individuals pay for their property taxes. In a study they took a survey of how much corporations, individuals and absentee landowners pay in property taxes per acre of surface land. Researchers have discovered a pattern that corporations and absentee owners are paying half of the property taxes of in state citizens (Geisler 45). Why is there a discrepancy in property taxes?

The first reason is that the value of the land is measured by "which rural assessors determine value is through recent sales on the market. Value is fixed according to what willing buyers would pay willing sellers in arms-length transactions" (Geisler 45). An arms-length transaction is a real estate term used when the seller and the buyer agree to meet in the middle and sell the home for its fair market value. The goal for an arms-length agreement for the buyer and seller to get the best possible deal for themselves. As a result, the seller gets a large profit and the buyer buys the property for a cheap price. But an arms-length agreement for West Virginia real estate is an issue for taxation because the land today is not correctly appraised, therefore we do not know the true value of the land and who would be getting the better deal; the buyer or the seller. If the land is not appraised, we do not know if it could be in high demand for sellers or valuable for buyers.

The second reason why corporations and absentee owners are taxed less is because their property is underdeveloped. Usually their land is empty or does not contribute to the economy because they do not have any source of economic growth on their property. Also, corporations will put their property as "farmland" causing them to pay 25% of property tax rather than 40% of property tax required for industrial companies; which is cheating the system (Geisler 45). As a result, there needs to be more regulation on corporations and absentee land because they are not paying the right amount of property taxes. "The coal is valued handsomely at \$7,604,963, but the actual tax generated is only \$76.05" (Geisler 49). If corporations and absentee owners pay a reasonable amount of taxes, then more money would be generated back into West Virginia, improving the economy for people of West Virginia. Corporations and absentee owners need to have more ethical and moral reasoning because their large company affects the lifestyle and economic growth of workers and the community they are incorporated in.

Another taxation issue facing Appalachian regions is the taxation on mineral rights. Mineral rights are worth about double the price of surface land resources. Also, the taxes on minerals are half the price of surface property taxes or almost non-existence. The resources that would be considered minerals would be uranium, oil, gas and coal. The price of the mineral tax is \$.12 per acre. "Conservatives estimates using formulas describe below suggest that the major coal-producing counties would realize \$2.4 million additional tax annually if coal reserves were properly taxed" (Geisler 50). These coal reserves are more valuable underground and they are getting taxed for nothing! The main issue is that the state does not know how to properly value the minerals underground because they do not know the existence of the property and the volume of the minerals. Also, how would the government appraise the minerals? What method would they use to appraise the minerals? Would they use the same method they use to measure the value of property?

Possible solutions to appraise minerals would be to use the cost approach, which is evaluating the cost of developed coal mines of their operating systems. This would be an issue because it does not affect the value of the coal, so what is the proper use of this method if the minerals are not being appraised? Another method to evaluate mineral value is to use the market approach. The market approach is to compare prices of current day tax prices to past tax prices, but this is also an issue too because the mineral owners have been the same owners for the past couple decades. Long term ownership of minerals rights is an issue because there have been few transactions of selling and purchasing minerals rights. If an owner has owned the mineral rights for decades you will not see many comparisons of prices from purchasing minerals rights to paying the mineral taxes. Also, comparing old tax rates from the past would be invalid because they were not properly appraised either! A study from the West Virginia Tax Department has made the same point: “After more research in coal property sales, it was concluded that because of the limited number of sales and the difficulty of finding similar comparable coal land sales in some counties, this concept could not be utilized in most situations” (Geisler 53).

Throughout the Appalachian region there has been no general policy to fix the taxation issue of minerals, but they have started to implement a plan of actions to evaluate the taxes. Since West Virginia is the poorest state in the country of the United States, the government has noticed the terrible turn it has taken from the industrial revolution. They have noticed that the taxation problem has impacted West Virginia the most and decided to start their plan of action there; in the state that needs the most help. West Virginia is the only state that has received concerted attention by the federal government. The government has realized that “The coal industry’s support of local government and schools, through property taxes, has not been realistic given the extent of the industry’s mineral and fee property holdings. These huge fee and mineral properties and their assessments are a primary concern in West Virginia as an equalization problem” (Geisler 51). As a result, the government has finally realized that there is an imbalance of power between corporations and the people because the people are being taxed higher than the corporations. There needs to be a balance of ownership in West Virginia in order to make it a thriving state, instead of companies imperializing its resources.

In the podcast and article of “Who Owns West Virginia”, Ted Boettner, discusses that this is only the first layer of the problem and that this will take time and resources to find the solution of the issue. In the article, Boettner says that his “report only scratches the surface of the issue, literally and figuratively. Mineral ownership still needs to be investigated as well as how many companies are leasing on the properties and how the population benefits from that business in the state” (Board, para 11). Some implications and recommendations Boettner suggest is to establish fair corporate tax rates to support education and infrastructure, greater transparency of public records, establish a Future Fund. “A permanent mineral trust fund that is funded by 25% of natural gas and oil severance tax revenue over \$175 million” (Cloud Front).

Corporations, absentee landowners and the government have taken the life out of the people of West Virginia. They have received no support or positive change to improve their lives. Also, some lack the confidence they need to pick themselves up and strive for improvement because they have never had the chance or ability to accomplish things on their own. The capitalism in West Virginia has established the limit for their exposure to new opportunities and have a voice in the development of their financial, social and economic standpoint.

An economic philosopher that supports my claim is Karl Marx. Karl Marx was an economic philosopher in the late 1800’s. Karl Marx was the man that challenge the idea of capitalism and how it affects the laborers in his early work, Economic and Philosophic Manuscripts of 1844. In his Manuscripts includes his famous theory of “Alienated Labor”. The theory explains that capitalism is causing laborers to seclude themselves from the world outside of work. The theory explains that the laborers are considered as a “commodity” or “the laborer as a strange thing”, rather than real human beings. In West Virginia, Karl Marx’s theory of alienated theory is demonstrated through property owners and corporation’s capitalism. “Landowners” are considered the “enemies” from Karl Marx’s eyes because they are controlling the lives of the laborers (Marx 194).

The theory of alienated labor describes that “society disintegrates into two classes-owners and workers” and the one that always comes out on top are the owners (Christ 567). The workers never win the battle of capitalism because “since the labor belongs to the owner rather than the laborer, the economic activity of the laborer is abstract, determined by other, and not liberating” (Christ,568). In West Virginia, laborers do not have a choice of choosing a work profession because for decades coal has been the dominant provider for income and the people of West Virginia only have the option of “force labor” to provide for themselves and their families.

During my time in West Virginia, I have noticed the segregations of owners and workers from their appearance of their houses. While I was in Fairmount, I spoke to a real estate agent, Mandy, and she explained the



different types of towns and cities in West Virginia and their lifestyle. She said in cities like Bridgeport, homeowners want to be excluded from the poor and not associated with them. But when our class visited Phillippe, we spoke to a woman named Caroline and her husband. Caroline and her husband were little above middle class, but they decided to stay in a small town like Phillippe and restore a beautiful Victorian home. Caroline told me that she had hoped that if she restored her home, that her neighbors would do the same. As a result, Caroline and her husband were hoping that a trend would begin to start improving the community and the appearance.

A reason for the mixed socio-economic classes in neighborhoods could be from the “scare alluvial land” or from the “rugged topography”. The location of the property is important because you want to build the home on a foundation that is stable. Some wealthy home owners rather live in an area where it is less mountainous and less isolated, even if it means being a part of the poor community. Also, some property owners feel that rather “live in a place of their own, surrounded by their own kind of people” (Leonard 282). From my experience in West Virginia, I will say that community is a big part of their culture because their hospitality is genuine and kind. They want to be surrounded by people and not feel the sense of loneliness especially when you live in a place of isolation.

West Virginia housing developments are mostly made up of mobile homes. “West Virginia has the third highest proportion of trailers in the US” (Geoghegan, para 10). The people in these mobile homes are people of poverty or middleclass citizens. In my research some argue that mobile homes are dirty and not livable, but others say that mobiles homes are better than permanent housing. Mobile homes were originally used but gypsies and soon Americans on the move started living in these types of homes.

In West Virginia, some residents like the idea that they can move and bring their home with them. Michael Breeden,<sup>27</sup> said that “I know I could have got a [foreclosed] house if I wanted to but we can move this where we want and if [house-owners] want to move they’re stuck” (Geoghegan, para 12). Also, if you live in a mobile home, you only pay “\$60 property tax”. The concept of these mobile homes in West Virginia comes from that if men need to work for a new coal company, they have the ability to get up and move their whole entire life. This is an example of how some are simple minded and controlled by the coal companies instead of trying to find a better and safer source of income.

The theory of alienated also explains how this can affect people socially, not just their economic statuses. Marx describes the social aspect as “Capital is dead labor, which, vampire-like, lives only by sucking living labor, and lives the more, and the more labor it sucks” (Hudis 28). In West Virginia, some have lost hope because their lives have been entirely established by the people who own the land, which are mostly large coal companies. As a result, if working for the coal companies sucks the life out of the laborers, then they will not have the motivation to try to improve their lives and expand their minds to new possibilities or opportunities outside of the coal industry. The identity of West Virginia has lost the confidence to become independent from corporations and landowners.

Today West Virginia is ranked fiftieth best state of business and in growth prospects in the United States. According to Forbes Best States of Business, West Virginia finishes last for the third straight year. The median household income in West Virginia is \$41,751 and the job growth rate is -.03% (Forbes). These statistics show that West Virginia is not the booming coal industry state it used to be. West Virginia needs to make a turning point because the state is not developing or generating money. The first step to making this transition is to establish ownership of the land because then taxes will be established, followed by improvements in education, infrastructure and wealth fare. Also, taking ownership of the land will give the confidence and persistence it needs to become a successful state.

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# **EMPOWERU**

*Yumi Kageyam, Siena College*

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## ***ABSTRACT***

*EmPowerU first product is the Summit Training system for Taekwondo judge training. It is a virtual reality driven technology solution for improving training for judges/referees. This is an idea that can be expanded to other training. VR dramatically improves training retention and effectiveness.*

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# FUNLETZ LLC, BUILDING A BRAND

*Zachary Mills, Siena College  
Vincent Mills, Siena College  
Prof. Michael Hickey, Siena College*

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## **ABSTRACT**

*An evaluation of the fashion accessories market yielded a growing demand for affordable, individualistic, expressive accessories. The products (Funletz & Zipletz) are self-expression fashion accessories for all individuals. The branded tagline for the product is “Wearable, Shareable, Collectibles”. This tagline uniquely identifies Funletz and incorporates our mission of delivering a distinctive, self-expressive accessory inclusive for all individuals.*

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## **PROJECT PROCESS OVERVIEW**

The Funletz target audience focuses on three sectors:

- Children ranging in ages from 9-14 with an emphasis on characters/images and animals.
- Young adults ranging in ages from 15-21 with an emphasis on branding/logo/sports/and self-expression.
- Companies/institutions with a unique brand and wishing to provide a marketing platform through a different channel, and allow corporate/school branding via mascots/lettering/logo/ identification.

All major sectors detailed above provide a stage for Funletz to exhibit its individual characteristics—animals, logos, sports, numbers, lettering, images, symbols, and numerous other brandable opportunities. Fan “fanatics” in athletics—both played and team supported—will particularly benefit with a Funletz association enabling the fan to display his or her self-expression through the display of the Funletz attached to the drawstring, shoelace, or any hook or tab fastened by the Zipletz.

The sky’s the limit for an item that yells out “Fun-letz you express yourself.” Parents can support their children and teams by choosing a Funlet which displays the team logo, school logo, jersey number, etc. Children can truly express their individuality by wearing any emoji, sport, animal that they have a connection with. From universities, corporations, sports teams.

Funletz packaging is designed as “kid friendly”, ensuring safety and enjoyment in the entire purchasing experience. The Funletz price point is \$4.97 which includes:

- A pair of Funletz
- Two Zipletz providing the attachments for any zipper, ring, or tab
- Authentically branded Funletz carry-canvas bag which will fit up to 5-pair of Funletz.

Funletz fills a void in this highly competitive industry with a value-added opportunity in its:

- DTC – Direct to Consumer model
- Trend -to-Turnaround: Trends are spotted and Funletz manufacturing adapts to a 3-week turnaround cycle
- Quantities are controlled, and excess supply avoided with pre-orders, custom orders and increased volume runs in flexible and quick turn-around times
- Competitive pricing (below \$5) resulting in increased impulse purchases.

The adaptability of Funletz allows the company to create unique and branded designs. At Siena College, the goal of Funletz is to create specially branded images, target market the collegiate audience, and sell the product at various college-oriented venues.

Ted Winnowski ‘63 Student Conference in Business  
April 5<sup>th</sup>, 2019

# AMAR ATTA

*Sureet Pabbi, Siena College*

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## **ABSTRACT**

*The idea was cultivated after observing the founder's mother, who suffered from celiac symptoms for over a year, and realized that Indian cuisine is highly limited without gluten. After an extensive R&D phase a 100% gluten free flour was developed that provides more nutritional value than conventional Indian flour but doesn't compromise taste. But that simply wasn't enough- this product may be essential for those who deal with celiac or other medical conditions but can be provided as a healthier alternative to conventional flour products. As the inspiration behind this idea came from my mother it has become the namesake: Amar Atta ("atta" is flour in Hindi). Amar Atta wants to educate and provide a new healthier alternative to traditional flour.*

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# MILLIONAIRE MILLENNIALS

*Nicholas Desautels, Siena College*

*James Schaible, Siena College*

*Kathryn Sovie, Siena College*

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## **ABSTRACT**

*A Financial Education Application with the goal of increasing financial independence among millennials in an easy to use, modern format.*

# A PRELIMINARY ANALYSIS OF INFLUENCER MARKETING

*Sarah E. DiCaprio, Siena College*  
*Danielle N. DiGiacomo, Siena College*  
*Kelly C. Dokmecián, Siena College*  
*Dr. Cheryl Buff, Siena College*

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## EXTENDED ABSTRACT

*Influencer marketing, “the action of promoting and selling products or services through people (influencers) who have the capacity to have an effect on the character of a brand” (Yodel, 2017, p. 1), has increased steadily, with a survey by the Association of National Advertisers predicting that marketers will spend \$101 billion on influencer campaigns in 2020 compared to \$81 billion in 2016 (Conick, 2018). It is built to win consumer trust, engage with the audience in a new way and utilize social media to drive and influence consumer product choices (Conick, 2018). Empirical research of influencer marketing is limited but increasing, as its strategic use by organizations grows (Evans, Phua, Lim, & Jun, 2017; Ge & Gretzel, 2018; Lim, 2017; Pitz, Kohler, & Esch, 2018).*

*The present research explores the relationship between influencer marketing and characteristics of the consumer; namely, conformity, health consciousness, and self-presentation on social media. Further, we explore the characteristics of influencer marketers that appeal to followers and determine the types of influencers followed. An electronic survey was distributed, yielding a sample of 237. Extant scales were used to measure conformity (Mehrabain & Stefl, 1995), health consciousness (Gould, 1990), and self-presentation on social media (Michikyan et al., 2014). Reliability analysis was conducted, with all scales performing above the recommended  $\alpha=.70$  (Nunnally, 1978). A number of hypotheses were proposed and tested for each variable with data analyses includes reliability analysis, one-way and repeated measures ANOVA, and regression. Findings include, but are not limited to, the following observations.*

*Regression analysis indicates that conformity predicts engagement (i.e., action oriented interaction including liking and commenting) with influencers on social media ( $R^2=.04$ ,  $F(1,165) = 8.2$ ,  $p=.005$ ). Reviewing purchase behavior, there is no significant difference in the conformity scores of those that have purchased an item that an influencer has promoted as compared with those who have not ( $F(1, 165)$ ,  $p=.437$ ). With regard to health consciousness, results suggest that health consciousness does not predict engagement ( $R^2=.02$ ,  $F(1,167) = 3.01$ ,  $p=.084$ ), however those with a higher level of health consciousness are more likely to follow an influencer ( $F(1,230) = 6.45$ ,  $p=.012$ ). Our analysis was then extended into the likelihood of purchase of various types of products being promoted by an influencer relative to level of health consciousness. These results have practical value for marketing practitioners. Finally, we looked at self-presentation on social media. Michikyan et al. (2014) posit five selves that may be manifested on Facebook; ideal self, real self, false self, deceptive self, and exploratory self. For purposes of the current research, we modify the scale and extend its application to social media in general. Results suggest that the higher the level of self-presentation of the ideal self on social media, the more likely the individual is to follow an influencer marketer ( $F(1,232)=9.247$ ,  $p=.002$ ). Further, the higher the level of self-presentation of the deceptive self on social media, the more likely the individual is to follow an influencer marketer ( $F(1,233)=10.89$ ,  $p=.001$ ). Results for manifestations of the other three selves suggest no significant impact on whether the individual follows an influencer or not. We further evaluated manifestations of self and intention to purchase products promoted by influencers.*

*Finally, we evaluate our results in terms of the practical relevance for marketers looking to adopt influencer marketing as part of the integrated marketing communications strategy. We report the relationship between multiple product categories and likelihood to purchase based on influencer promotion. We further explore*

how the purchase of influencer recommended products makes the individual feel. Finally, we discuss the limitations of our study and make recommendations for future influencer marketing research.

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# **BUSINESS PLAN RECOMMENDATION FOR A STUDENT-RUN MARKETING AGENCY AT SIENA COLLEGE**

*Sophie Henneman, Siena College*

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## ***INTRODUCTION AND OVERVIEW***

This project contains a business plan and supporting research for the development of a student-run marketing agency at Siena College. The business plan was developed based on primary and secondary research conducted.

The primary research methods used were a survey analysis to gather opinions of Siena students, depth interviews with Siena faculty to get their opinions and insight, depth interviews with the president of three different agencies to learn more about a successful agency from a participant's perspective. Secondary research included looking at agency websites and a literature search of scholarly articles about student-run agencies. This research allowed me to grasp the insights of many key players including experts in running a successful student agency. From this research, I formed a recommendation for the operations of a Siena student-run marketing agency. The business plan recommendation follows an overview of the research results.

## ***IDEA***

A marketing agency is a business dedicated to creating, planning, and handling advertising and other forms of promotion and marketing for its clients. In essence, they are a third party consultant for all things marketing. They vary in specialties and services, ranging in traditional advertising, digital, social media, public relations, market/consumer research, strategy development and more. A student-run agency functions similarly to a professional marketing agency, but it is run by students.

This summer, I worked with a student from Le Moyne College who participated in their student-run advertising agency. He spoke very highly of it and it got me wondering why Siena doesn't have a program like this. It seems like an experiential learning opportunity that students here would benefit from.

What I envisioned prior to conducting research was that the agency would be conducted through the School of Business and offered for credit. The types of clients would be ranging from on campus to for profit and not for profit. Students would be in a team ranging in skills and assigned to a client for the semester to do a marketing project for them with the deliverable that the client wants. The research done throughout the semester has allowed me to see what Siena students believe is most feasible and desirable, what faculty sees as feasible and appropriate, and the overall best way for the agency to operate at Siena College.

## ***RESEARCH***

### **Research on Other Schools**

There are over 150 student-run agencies around the country (Comcowich). In specific, I developed Table 1 below to showcase the qualities of 10 agencies at different schools to aid the development of the survey questions. The schools selected were based off of relation to Siena in some way. The variables researched are outlined in the table in Appendix A. These answers were found through in-depth research of each agency by looking at their websites.

In order to gather additional information about specific details of a student-run agency, I set up a phone call with presidents of other agencies around the country. Three interviews of note were with the president of TNH Agency at Syracuse University, Agency 1693 at William and Mary, and Live Oak Communications at Elon University. Each university had different business plans and structures for their agencies. I found talking to three

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presidents on actual agencies gave me a better picture on the specifics and logistics that work for an agency. When conducting these interviews, I asked about topics not showcased on their websites or news articles online. The topics discussed were the business, funding, students, clients, and benefits.

	<b>TNH Agency (Syracuse University)</b>	<b>Agency 1693 (William &amp; Mary)</b>	<b>Live Oak Communications (Elon University)</b>
Business Structure and Operations	<ul style="list-style-type: none"> <li>- They have 1 advisor</li> <li>- Each client gets a lead account person, a creative, media, and strategy person</li> <li>- The executive board: President, Vice President, Creative Director, Strategy Director, CFO, Managing Director, New Business Director</li> </ul>	<ul style="list-style-type: none"> <li>- They have 2 advisors.</li> <li>- Each client gets a team including a strategist, and usually creatives but it depends on the project</li> <li>- The most popular work they do includes building websites, making videos, conducting research and focus groups</li> <li>- They have a spreadsheet with the costs of their services to clients in it. Private businesses pay the most, and on-campus clients are always pro bono</li> </ul>	<ul style="list-style-type: none"> <li>- Organizational structure she provided is included in Appendix B</li> <li>- They do a wide range all across the communications spectrum that varies over the semester (event planning, website redesign, creative deliverables (video, social, posters, advertisements), and research)</li> <li>- 2 faculty advisors (one creative and one account)</li> </ul>
Agency Funding	<ul style="list-style-type: none"> <li>- They do not get a budget from the University</li> <li>- Every student pays dues and they take on all clients pro bono</li> <li>- Dues go towards general agency costs including printing and production, and food at meetings</li> </ul>	<ul style="list-style-type: none"> <li>- The agency is a registered as an LLC, and does not get funding from the university. The owner is transferred each year</li> <li>- The agency started as an initiative by the marketing department and was funded by them. When they started to gain more clients and able to make more money, they changed to the LLC model</li> </ul>	<ul style="list-style-type: none"> <li>- Get a budget from the school of communications that covers agency fees, and agency director, account director, and creative director get a stipend of \$1200 each semester</li> <li>- Their logo has to say Elon School of Communications on it</li> </ul>
Student Recruitment and Participation	<ul style="list-style-type: none"> <li>- Students are recruited and hired through a general interest meeting that is held at the beginning of the semester</li> <li>- Students don't get credit</li> <li>- The application is open for 2 weeks, and they base much of the hiring decisions on client needs</li> <li>- Competitive application process: 55 spots in the agency and 90 people applied</li> </ul>	<ul style="list-style-type: none"> <li>- Since the business is not part of the school, students cannot get credit</li> <li>- Recruit/hire students through word of mouth and approaching marketing and creative clubs on campus</li> </ul>	<ul style="list-style-type: none"> <li>- Everybody who does it gets 1 credit hour that counts as an elective, and management gets 2 credits</li> <li>- Students can earn up to 4 credit hours in total for it, but can continue to participate without getting credit</li> <li>- They have a syllabus (Appendix C) and run like a real class</li> <li>- They have one 2 hour meeting once a week, and one 1 hour leadership meeting that their advisor attends</li> <li>- All members have to hold</li> </ul>

			<p>office hours</p> <ul style="list-style-type: none"> <li>- 55 members each semester and a competitive application process</li> <li>- They like to have larger teams to get more ideas</li> </ul>
Client Acquisition and Fees	<ul style="list-style-type: none"> <li>- They have an average of 15 clients per semester that are a mix of for profit, not for profit, and on campus</li> <li>- The clients are recruited through the president cold calling local businesses and through connections the advisor has</li> <li>- The president develops a statement of work/contract with the client before the semester begins that includes goals, deliverables, and a timeline</li> </ul>	<ul style="list-style-type: none"> <li>- They set a specific start and end date with clients according to the academic calendar</li> <li>- Recruiting clients is through word of mouth, and referrals from past clients. They also did a press release when they first started that helped them gain traction</li> <li>- When they first started, all clients were on campus or pro bono to build a reputation</li> <li>- Charge clients a flat fee and hourly rate depending on the project</li> </ul>	<ul style="list-style-type: none"> <li>- Each client pays a semester fee of \$1,000</li> <li>- One client is on campus that they do pro bono</li> <li>- Any extra costs for photo shoots or posters they pay for that</li> <li>- Faculty advisors pick and recruit clients through connections they have</li> <li>- Clients are only contracted for a semester but can stay longer</li> </ul>
Benefits	<ul style="list-style-type: none"> <li>- Believes it is the only way to get real experience because advertising in an academic environment is not representative of the real world</li> <li>- Gives students in college to understand what the actual industry is like</li> <li>- Is confident in his ability to get a job because of the connections and skills he's built</li> </ul>	<ul style="list-style-type: none"> <li>- It makes you do real work</li> <li>- She said "I can for sure say there are few people who have actually worked to establish a partnership with a local business" and that has helped her build her professionalism</li> </ul>	<ul style="list-style-type: none"> <li>- Being able to really work with clients and know every little thing that goes on is invaluable</li> <li>- You don't understand something until you do it yourself</li> <li>- To really be producing something for someone that is using it for their business is something you can't do anywhere else</li> <li>- She said, "going into internships I feel so much more prepared because I've done it, I've gotten so much more confident as a communicator and as a person to be able to make these connections."</li> </ul>

Table 1 - Student Depth Interviews

**Articles**

To look more into benefits for student participation in a student-run agency, and qualities of a successful student-run agency from an outside perspective, I did a literature search for secondary articles addressing this topic. These articles also helped provide further insight to what to include in the student survey developed.

Some relevant information in the articles highlights most popular/successful business aspects of student-run agencies which helped support my business model recommendation. The complete list of findings can be found in Appendix F, but one important finding to note is that 56% of agencies in a sample of 9 offered course credit for participation, but agencies that offered course credit made no difference in terms of the services offered, structure of the agency or business protocols (Limonges 102). In addition, the author discussed services offered and the percentage of agencies questioned that included those services in their portfolio. The findings are summarized in Table 2 below and were used to select the services questioned in the survey.

<b>Service</b>	<b>Respondents that Offer Service (%)</b>
Social Media	100
Press Releases	100
Event Management	89
Full Campaigns	89
Logo Development	89
Graphic Design	89
Website Development	89
Newsletters	89
Broadcast Commercials	22
Blogging	56
Video Production	67
Print Advertising	67

Table 2 - Percentages of Schools that Offer Certain Services

In “Student Public Relations Agencies: A Qualitative Study of the Pedagogical Benefits, Risks, and a Framework for Success” by Lee Bush, the author provides a table that outlines traits that agencies have that make them at higher or lower risk of agency disintegration. All research was gathered through in-depth phone interviews with ten agency faculty advisors and three student directors at ten US. universities and two agency advisors whose chapters have dissolved. For example, it was found that agencies without a professional office space or no required meetings had a higher risk of dissolving (Bush, 8). Some noteworthy qualities that proved lowest risk for agency disintegration are team based, charge clients, and a mix of nonprofit and for-profit clients (Bush 8). The completed table can be found in Appendix F. Overall, the more involved the students are, the less likely the organization is to dissolve.

There are vital benefits to participating in a student-run marketing agency. Three noteworthy benefits described by Bush are experiential process learning, professional identity development, and career choice opportunities (Bush 35). In addition, James Marra and James Avery articulate students are able to develop a portfolio, and have an opportunity to give back to the community in in “Student-Run Advertising Agency: A Showcase for Student Work” (Marra 3). Included in this article are two student testimonials for a student-run agency, which are included in Appendix F. They both attribute much of their success in their career to participation in their respective student-run advertising agencies (Avery & Marra 5-6).

Finally, an article shared important ideas for execution of the agency and an appropriate timeline. In “Building a Business Model for Funding Undergraduate Research,” the authors discuss the development of a

professional university agency and its integration into the research programs established at the university. Students run projects like they are research projects and can recruit any faculty member to assist, that way students that participate are truly invested in the success of the project. The authors stated, “This novel blend of research, practice, and service develops the whole of the student and aligns with the overall mission of the college (Shields, Joseph J., et al. 64),” which is something that would apply to Siena as well. The timeline described is found below:

- October 2010: 5 students who completed essential new business elements
- February 2011: mission, vision, org structure, job descriptions, branding and marketing materials created and approved by the college
- March 2011: First client was acquired, the college
- May 2011: First paying client was acquired

### ***STUDENT SURVEY***

#### **About**

The purpose of the Qualtrics survey was to gather the opinions of Siena students on having an agency, the value an agency would bring, and the characteristics the agency should have. These characteristics include what services should be provided, how often it should meet and if it should be offered for credit. Also, students were asked to rank their overall interest, then rank their interest in different positions that would be involved in the agency. A full copy of the survey and questions is supplied in Appendix D.

The survey began with the descriptions of a marketing agency and a student-run marketing agency to make sure participants understood what they were supplying information for. This is important because I shouldn't just assume that students know what a marketing agency is, especially underclassmen that haven't had marketing work experience or many marketing classes. Next, the survey asked a series of questions about the value students believe a student-run agency would bring to Siena. This ranged from expanding professional development and improving the brand reputation of Siena College and encouraging students to attend Siena. This is the most critical section of the survey, because if students see a lot of value in this program, it provides a rationale to develop it as an actual program at Siena. After this section of questions, a series of questions are asked about the services students think the agency should provide. This shows what students are interested in the field of marketing communications, and what students would actually be passionate about creating. The next block of questions concerns agency funding, and other logistic matters such as credit and the application process. Finally, students rank their interest and what positions they would be interested in.

#### **Analysis**

For the survey analysis, 53 total responses were collected, and 43 were useful based on completeness. Out of the total respondents, 51.2% were juniors at Siena, 69.8% were marketing majors, and 65.1% of respondents were female. The results are summarized in table 3 below by four topics: perceived benefits, services, logistics/overall interest, and positions and demographics.

#### **Perceived Benefits**

The table below summarizes the findings from the first section of the survey. Based on the survey results in this section, students find value in a student-run agency, however, they seem skeptical that Siena students would actually participate in the program. In addition to the means summarized in Table 3 below, the mode for every question was 7.

<b>Question</b>	<b>Mean*</b>	<b>Standard Deviation</b>
In general I believe... students in the Siena Community would be interested in a student-run marketing agency	5.8	1.3
In general, I believe... a program	6.2	1.3

like this improves the brand value of Siena College		
In general, I believe... a program like this would positively influence prospective students to choose Siena	6.0	1.3
In general, I believe... a student-run marketing agency would be a resume/portfolio builder	6.5	1.2
In general, I believe... participation in a student-run marketing agency would improve my professional development	6.3	1.2
In general, I believe... participation in a student-run marketing agency would increase my chances of post-graduate employment or internship	6.3	1.2
In general, I believe... participation in a student-run marketing agency would align with my career goals	6.0	1.3
In general, I believe... a student-run marketing agency would improve alumni engagement	5.8	1.2

\* Measured on a 7-point Likert Scale with verbal anchors of 1=strongly disagree, and 7=strongly agree.

Table 3 - Perceived Benefits of a Student Run Marketing Agency Survey Results

### **Services**

The services questioned were social media, web design, event planning, market/consumer research, print advertising, media relations, digital advertising, video production, blogging, press releases, broadcast commercials, market strategy development, and communications strategy development. The service students see as most important is social media, and digital advertising was a close second. This is expected because of the ratio of students in the digital marketing concentration compared to the others. The services students ranked the least on average were broadcast commercials and video production. Showing students do not have interest in these areas. The public relations services including press releases and media relations received an overall lower rating, whereas the marketing services including market/consumer research, market strategy development and communications strategy development received higher interest. Exact means are shown in Table 4 below.

<b>Service</b>	<b>Mean*</b>	<b>Standard Deviation</b>
Social Media	6.4	1.3
Web Design	6.2	1.2
Event Planning	5.6	1.4
Market/Consumer Research	6.2	5.8

Print Advertising	5.8	1.2
Media Relations	5.9	1.4
Digital Advertising	6.3	1.3
Video Production	5.6	1.2
Blogging	5.8	1.2
Press Releases	5.6	1.3
Broadcast Commercials	5.4	1.3

\* Measured on a 7-point Likert Scale with verbal anchors of 1=strongly disagree, and 7=strongly agree.

Table 4 - Necessary Services in a Student Run Marketing Agency Survey Results

**Logistics/Overall Interest**

Table 5 shows that receiving credit for participation would be a benefit for students, and they do not want to pay dues to participate. This aligns with many faculty recommendations that students need extrinsic motivation. Additionally, in a pairwise comparison, it was found that the difference between question 3 and 4 was very significant, with a significance of .000. The responses on charging clients were more varied, and students do not seem to be pulled toward either end of the scale.

For overall interest, 55.6% of respondents said “yes” they were interested in participating in a student-run marketing agency. 40.0% responded “maybe,” and only 4.4% responded “no.” The respondents that said “yes,” or “maybe” were directed to a question to rank their overall level of interest on a scale of 1=not at all interested to 7=extremely interested. No respondent ranked their interest less than 4 out of 7, and 34.9% responded extremely interested, and 9.3% ranked their interest as a 4.

<b>Question</b>	<b>Mean*</b>	<b>Standard Deviation</b>
The student-run marketing agency should offer services pro bono	4.7	1.9
The student-run marketing agency should charge clients a fee to cover agency costs only	4.9	1.3
The student-run marketing agency should allow students to earn credit for participation	6.5	.8
The student-run marketing agency should charge students dues to participate in the agency	2.8	1.8
The student-run marketing agency should have a competitive application process	4.8	1.2
The student-run marketing agency should have their own designated office space	5.8	1.2

*\* Measured on a 7-point Likert Scale with verbal anchors of 1=strongly disagree, and 7=strongly agree.*

Table 5 - General Qualities of a Student Run Marketing Agency Survey Results

### **Positions**

For the positions section of the survey, respondents were asked to rank their interest in the following positions, outlined in Table 6 below. Ranks were averaged, with lower numbers representing positions that were ranked more highly. For the positions, students most frequently ranked account executive, social media manager, and market analyst the highest, and copywriter the lowest. The position results demonstrate again that students are most interested in social media and market research, but it also reveals that students are interested in interacting with clients. There is a lower response rate for the more execution based positions, such as copywriter and creative specialist.

<b>Position</b>	<b>Mean*</b>
Account Executive	3.7
Copywriter	5.1
Creative Specialist	4.1
Social Media Manager	2.4
Web Designer	4.6
Market Analyst	4.0
Public Relations Specialist	4.3

*\*Respondents ranked positions, and a lower mean means students ranked the position higher on average.*

Table 6 - Interest in Positions Survey Results

### **Depth Interviews with Faculty**

Part of the research to develop a business plan includes receiving faculty input since they are the people that interact with students on a day-to-day basis. For my research, I conducted depth interviews with marketing faculty, including Dr. Zwanka, Dr. Sun, Dr. Pepe, and Dr. Joo and Dr. Taylor from the communications department. After these conversations, a content analysis was conducted and results are presented based on opportunities, concerns, and suggestions. In general, feedback was very much in favor of a Siena student-run agency. A summary of each is below and exact comments are found in Appendix E.

### **Opportunities**

Overall, faculty responded that a student-run marketing agency would be beneficial for students to gain real-world experience, and it would complement the marketing curriculum at Siena very well. There are also further educational opportunities that could arise from it, such as workshops and such about marketing. One faculty member highlighted that a major benefit is that students get a more realistic experiential learning from this on-campus opportunity than a lot of other on-campus internships and projects. In addition, a big value-add for companies is that they get a fresh point of view from a student, especially since we have a growing communications program.

### **Concerns**

The majority of concern comes from the schedule of the students and the lack of continuity that will exist year to year at the agency. Since students are always moving on, there needs to be a very established training program for people graduating or leaving the agency. In addition, the academic calendar poses a concern because of breaks. The agency has to have a very involved advisor that would be able to maintain continuity in the agency in that aspect. There is also concern about proving the student's credibility when it comes to doing agency work. Also,



from a legal standpoint, the agency needs to be sure that they aren't going against the mission of the college or do work for companies that would be competitors with vendors Siena employs.

### **Suggestions**

Every faculty member agreed that there needs to be some sort of extrinsic motivation for students to participate. This motivation needs to be either payment or credit, but they all agreed that it should be offered for credit. Some mentioned that over time, it could evolve into a volunteer organization that students would participate in just for the experience. One suggestion to note is that it could be offered as a choice for the practicum. This way, a new class would not have to be established and students can still get credit. Many faculty also suggested that the agency should do work pro bono until a reputation is established. However, this is also a new way to get connections in the community and their form of payment is being involved with Siena in other ways, such as employment opportunities and educational presentations.

### ***RECOMMENDATION***

Based on the research findings, I recommend that Siena College implement a student-run marketing agency. The research has shown the logistics and specifics of the agency. I have concluded that Siena should implement an agency that has a focus on supporting the mission of the college by providing quality marketing services pro bono. In addition, I am recommending that agency participation be offered as credit. This credit can be obtained as part of the Marketing Practicum course, internship credit, or independent study credit. However, the mandatory meeting/class time will take place when the marketing practicum meets, and this will be reflected on student's academic schedules. The agency should specialize in marketing-centered services such as social media, strategy development, and market research. There should not be a focus on public relations services such as media relations and press releases. There will be a marketing communications focus, but not public relations. This may change over time if the communications major continues to develop.

There are also measures that need to be taken to acquire clients and establish reputation. I am recommending that when the agency is in the stage of implementation where they are ready to take on clients, a press release should be developed similar to one of the agencies I had a depth interview with. In addition, the Career Education and Professional Development Center (CEPD) should be utilized to establish a connection with alumni that are entrepreneurs or have a connection to the market department in their respective jobs.

To implement the student-run agency, there is a timeline of events that needs to occur. A website will need to be developed, students need to be informed, and clients need to be acquired, along with other tasks. This timeline is outlined in the implementation section.

### **Business Structure and Operations**

#### **1. Agency Name**

The most important of an organization's identity is the name. This is especially true for an agency establishing a reputation for itself. Including a part of Siena College in the name would make the agency more recognizable and trustworthy right off the bat, especially in the community. The name idea I came up with is Paw Print Marketing. This was inspired by the student agencies I researched, as well as incorporating the paw to represent Bernie from Siena.

#### **2. Branding**

A large part of the brand will be centered around Siena's Franciscan values and education. This will differentiate us from other student-run agencies, and other marketing agencies in the area. We will provide the best marketing services for the best value because we can bring a unique student perspective to a client's marketing problems. The marketing materials that need to be produced for the brand are a website and a logo with consistent

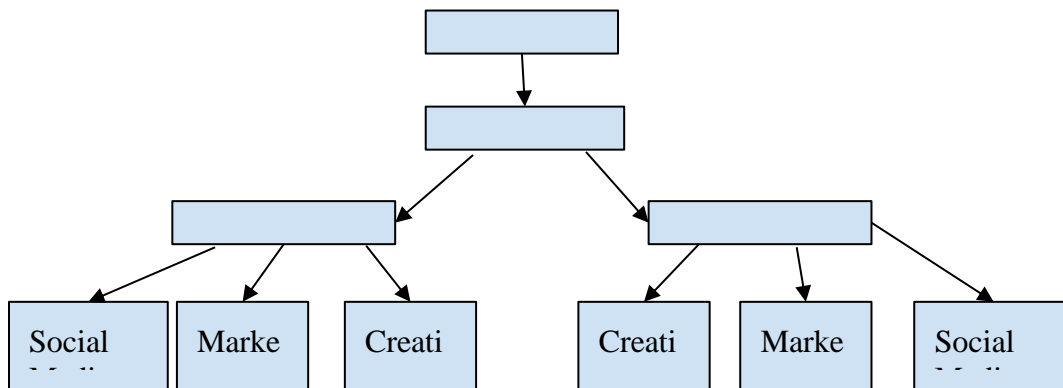
look and feel. Creative arts students could be utilized to develop the final version of a logo design. Sample ideas are shown below:



3. **Mission**  
It is important to establish a mission for the agency before

execution. The mission statement was inspired by the secondary sources researched. The mission statement is: To offer extraordinary marketing services and recommendations to non-profit and small businesses from a student perspective.

4. **Organizational chart and Positions**



This organizational chart was developed based on survey responses to what positions students are interested, as well as taking other school’s positions and organizational charts into account. Job positions for each position are below:

**Faculty Director:** The faculty member is the professor of the marketing practicum course that semester. They will be responsible for guiding students through their projects and ensuring all deliverables are being met to client expectations. They will establish the client’s statement of work and expectations before the semester begins. Then the project development will be passed to the rest of the agency. This is the only faculty role and all other positions are held by students.

**Agency Director:** The agency director will oversee the whole team and be the main liaison between the faculty advisor and the other students in the agency. They would develop more high level strategies than the individual deliverables.

**Account Executive:** The account executives are the go to people for the client and the liaison between the client and the rest of the team. Their routine tasks include being a liaison between the agency and client, briefing other teams in the agency on client needs, making sure all deadlines are met, and managing the budget. The two account executives would each take half of the clients and would be responsible for them for the entire semester. Good for any major, especially people that are organized and good communicators.

**Social Media Coordinator:** The social media coordinator would be responsible for social media strategies and content development for clients. The ideal candidate would be a marketing/communications majors with an interest and/or experience with social media.

**Market Analyst:** This position would do a lot of research, and develop reports on the market and trends. They would also turn these into recommendations. Great for marketing majors with skills in research.

**Creative Specialist:** These are the people that design and create the work. This work would be visual or written marketing communications materials that the client wants. This is best for a student with a knack for graphic design and writing.

### **5. Syllabus for course**

The syllabus for the course can be based on the example provided by one of the student depth interview subjects found in Appendix C. There would need to be a course description, expectations from students, course work, and an established calendar for deliverables. The deliverables would be produced by the faculty advisor in conjunction with the clients determined before the semester.

### **Agency Funding**

My recommendation for charging clients is to do all work pro bono, especially in the beginning years of the agency. Not only will it be less difficult to acquire clients by offering work free of charge, this promotes our Franciscan values. This promotes the idea that we should utilize the skills and education we have been given to further good in our community. One of the benefits of participating in a student organization described in one of the articles researched is that it gives students a way to give back to the community. This benefit will be explored by offering services pro bono to clients that otherwise may not have the best marketing materials.

Since services will be offered pro bono, the agency needs to get funding for agency costs in other ways. I am recommending that the agency be funded by the School of Business and have a budget that comes from there. This money would be used to cover the costs of printing and materials for projects. In addition, this money could also come from a lab fee charged to students. Since some projects may require use of labs and computers, funding could come from tuition similar to computer science and some creative arts classes.

### **Student Recruitment and Participation**

As previously stated, the agency will be offered as credit that can be obtained as part of the Marketing Practicum course, internship credit, or independent study credit. To spark interest, the faculty advisor should start advertising the opportunity with the help of the current agency members before students start meeting with advisors to schedule classes. For the first time the agency is offered, marketing faculty should present the opportunity to all upper level marketing classes, since those are the students that will be needing the practicum course. Students will need to apply for a position before course registration, and the application process will need to be complete by course registration so students know they have a practicum experience lined up. When the agency has a team established, they will be a part of the recruitment and selection process for the next round of students. In addition, at the end of the semester they will have a day where they train the incoming students for the next semester's practicum to avoid the delay it would take to get them up to speed on clients and practices the following semester. This training day would take place the same day the meeting for all practicum students occurs.

Having the agency as part of the practicum will be successful because communications students who are in the marketing track, and all marketing concentration students also have to take the marketing practicum. The other methods of obtaining credit are included to ensure that younger students can participate that don't have the prerequisites to join the practicum course, and students will be able to participate for more than one semester if desired. This also opens the agency up to a variety of majors and minors.

### **Client Acquisition and Fees**

A huge way to attract clients is through centers on campus such as the CEPD and Stack Center. It will be important to reach out to key players there and ask them for assistance in reaching alumni or loyal employers in the Siena community. In addition, to reach non profit clients, the Franciscan Center for Service and Advocacy could be useful. They work with a variety of non-profit agencies in the Albany community that would need the help. Also, on campus clients would be a good start. It would also be an opportunity for students to learn more about the client-agency relationship because there are offices with on campus marketing interns that could act as the client. This is truly an immersive and experiential learning opportunity that is so beneficial for students and they don't have to leave campus. In addition, student clubs could be utilized as clients as well.

Another way to attract clients once the website and marketing materials are up and running is to contact local newspapers with a press release, similar to Agency 1693 at William and Mary. The president there said that they attracted several clients through that promotion.

As previously stated, the services will be offered pro bono. However, establishing relationships with these companies in the community will be a valuable contribution to Siena College. This opens up the opportunity for post-graduate employment and other internships. It is a great networking opportunity and a chance for students to showcase their skills to employers. A couple years down the road, it could be a possibility to have clients pay a fee once the agency establishes a reputation for itself.

Finally, clients will be kept on for a year-long project and the students will switch from semester to semester. The clients need to be told and understand the academic calendar, and adjust their expectations and due dates accordingly.

**Implementation Timeline**

This is a sample timeline of everything that would need to get done to implement the student-run agency. This would take an entire semester to establish fully and the following are tasks that would need to be done in each month.

Month	Task
1	- Get School of Business Approval - Develop Syllabus
2	- Create agency website - Get brand and marketing materials approved by Siena Marketing and Communications - Recruit Students - Hold interviews - Reach out to Possible Clients
3	- Press Release - Solidify Clientele
4	- Meet with hired students before semester end

Table 7 - Recommended Implementation Timeline

**Potential Weaknesses or Concerns**

There are weaknesses and concerns in this business plan that may need to be addressed in the future. These include:

- Exact monetary contribution needed from the School of Business is unknown at this time.
- I am currently a senior and will not be able to develop the agency past this plan, and there is not a student known that would take my place.
- The professor for the marketing practicum course changes every semester, so that continuity will be difficult to maintain, and according to my research, a strong advisor is integral to the success of the agency.

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Shields, Joseph J., et al. “Building a Business Model for Funding Undergraduate Research.” *Scholarship and Practice of Undergraduate Research*, vol. 1, no. 1, 2017, pp. 63–69.

“Student Organizations | Newhouse School | Syracuse University - Syracuse University.” *Newhouse School | Syracuse University*, newhouse.syr.edu/my-newhouse/student-organizations.

“Swoop Agency.” *Swoop Agency*, www.swoopagency.com/.

“The Agency at Endicott.” *Facebook.com*, www.facebook.com/pg/ecagency/about/.

“TNH Student Advertising Agency.” *TNH Student Advertising Agency*, www.tnhagency.com/.

“VT PRISM.” *VT PRISM*, www.vtprism.com/.

Williams , Jennifer L. “Student-Run Marketing and Advertising Agency Launching at Business School.” *William and Mary*, 26 Sept. 2017, www.wm.edu/news/stories/2017/student-run-marketing-and-advertising-agency-launching-at-business-school.php.

## APPENDICES

### Appendix A: Variables Observed from Student-Agency Websites

School	Organizational Structure	Types of Clients?	Blog/ social channels?	Funding?	Sponsorships?
Syracuse University		On campus, for profit and not for profit	Twitter and Instagram	through dues	

<b>LeMoyne College</b>		On campus, for profit and not for profit	facebook, twitter, LinkedIn		Le Moyne
<b>Boston University</b>		On campus, for profit and not for profit	Facebook, Twitter, LinkedIn, Instagram		
<b>William &amp; Mary</b>		Non profit focus	Facebook, LinkedIn	LLC - all funding through client payments	
<b>Butler University</b>			None		currently sponsored by the business and communications schools, but wants to be self-sufficient
<b>UNC Chapel Hill</b>			Facebook, LinkedIn, and Twitter		
<b>Virginia Tech</b>	7 teams: account team, graphics team, analytics team, copywriting team, multimedia team, social media team, operations team				School of business and Altria, a tobacco company
<b>University of North Texas</b>	account executive, account planning, art direction, copywriting, PR, social media	on campus, non-profit and for profit	blog		
<b>Elon University</b>		on campus, non-profit and for profit	blog, facebook, linkedin		

<b>Marist</b>		mostly non profits	twitter, facebook, instagram and a blog		
<b>Endicott College</b>			twitter, facebook, instagram and a blog		

Appendix B: Sample Agency Leadership Positions

Faculty Advisor – Faculty Creative Advisor

***Management***

Agency Director  
Creative Director  
Assistant Agency Director

***Supervisors***

Account Supervisors  
Media Analytics Supervisors  
Branding Director

***Executives***

Account Executives  
Creative Content Producers  
Media Analytics Executives  
Branding Executives

Appendix C: Sample Agency Course Syllabus

**COM380: Live Oak Communications  
Fall 2018 - Elon University**

**Instructor: Harold Vincent**  
**Office: Schar 210D**  
**Office phone: 336-278-5348**  
**hvincent@elon.edu**

**Office hours: Mon 8:00 – 9:00, 3:30 – 4:30 Tu 8:00-11:15, 1:00 – 2:00 W 8:00 – 9:00  
F 10:45 – 12:00 (@Live Oak) And by appointment**

**Class time: M 5:30 – 7:10**  
**Classroom: Live Oak office**  
**Cell phone: 813-323-7514 E-mail:**

***COURSE DESCRIPTION***

Live Oak communications is a hands-on, student-run strategic communications agency. We have real clients and structure and operate in every way possible to most closely mirror professional environments students will encounter in internships and careers. Students are expected to see more details and description of

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responsibilities in the Employee Handbook.

At the minimum, as a one-credit hour course, students are expected to:

- 1) Attend and participate in all Monday staff meetings for the entire duration (sign in required)
- 2) Miss no more than one staff meeting (see attendance policy for the school of communications)
- 3) Attend their office hours on time and stay the duration missing no more than three office hour duties, and always having someone “cover” for them if they are unable to attend (sign in required)
- 4) Participate fully in accordance with their supervisor and team needs as a professional to meet agreed to obligations
- 5) Complete tasks and assignments including, but not limited to, readings, in-class discussions, supervisor agency needs such as blog posts and completion of peer evaluations.

Students will gain actual hands-on experience with real-world clients and replicate the professional world of strategic communications in every way possible.

### ***TEXTBOOK AND READING ASSIGNMENTS***

- Required: The Student-Run Agency: Transitioning from Student to Professional  
<https://he.kendallhunt.com/product/student-run-agency-transitioning-student-professional>

- Recommended: *SmartBrief.com* (PR, AAF, AAAA, IAB) *Mashable*, *Media Post*, *PRWeek* *Mediabistro* 's, *PRnewser*

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### ***COMMUNICATION WITH PROFESSOR & CO-WORKERS***

Professor = Office hours are indicated on page one of this syllabus. Appointments are accepted as well. I am fine with you using my cell phone instead of my office phone. I will make every effort to answer student questions via email and voicemail in a timely manner. Please note, I likely will not be able to respond to requests during weekends or after work hours, so please plan ahead to ask questions in class or office hours and if you must email: M-F 8:00 AM – 5:00 PM. But this is an agency, if you need me, don't hesitate to text/call when you need it.

Student = You must be reasonably able to respond to your university email (or other means) every 24 hours during the typical 9-5 work week; especially during group projects. Failure to be responsive to the professor or peers will negatively impact your participation score. If you give out your cell phone and never respond to a text then you are not communicating with co-workers.

### ***GRADING***

You will be graded on 1,000 pt. scale (Note: No D+ or D-)

930 pts. and up A	800 pts. – 829 pts. B-
900 pts. – 929 pts. A-	780 pts. – 799 pts. C+
880 pts. – 899 pts. B+	700 pts. – 729 pts. C-
830 pts. – 879 pts. B	600 pts. – 699 pts. D

**Incomplete Grades:** An incomplete (I) grade is temporarily given in rare instances when a student is passing, but due to unforeseeable circumstances he/she is unable to complete the course requirements before the end of the term. Please see the professor, an academic advisor, or the registrar's office to review policies and procedures regarding withdrawals and incompletes.

**\* All assignments must be turned in via Moodle as a MS Office product or PDF unless otherwise indicated. Google products not accepted.**



Grades generally will be earned in whole letter increments.

A = 97 = Completed on time, on strategy, and thought out. Free of grammatical, style, and professional issues. Attention to detail and thoughtfulness exhibited. Turned in properly formatted and professional. B = 86 = Completed on time. Generally accepted as OK/acceptable in professional settings. Needs a little work on thought formation, logic, reflection, or formatting C = 75 Completed on time. Average. Feels rushed and/or “going through the motions.” Usually missed part of the assignment need, might have grammatical, style, spelling, or professionalism awkwardness. Would be considered average and needing improvement in professional settings. D = 63 = Completed on time. Below average. Difficult to read or understand. Missing important elements. Effort not evident. Professionals would be disappointed with the assignment. F = 0-50 = Not turned in on time = 0. Anything above that is an assignment that was submitted before deadline but woefully below average.

\* No one expects perfection. In fact, we want you to fail spectacularly so do not be afraid of risk. Effort and professionalism are the factors that matter. This is a place to learn and try and experiment. Missing deadlines, half-hearted effort, and unreliability are to be avoided. This is agency about learning, revising, coaching and being coached.

## ***COURSE WORK***

**I. Individual (Ind.) assignments (Assign)** – Assignments completed individually inside and/or outside of class are designed to reinforce material learned from readings and class discussion. Typically, 1-3 pages and may include the use of secondary and primary research to validate your critical thinking and analysis and may include a presentation component. They are intended to enhance professional learning by reading the textbook and reflecting on the mission and purpose of a student agency experience or otherwise prepare students to do the job of the agency, and thus, bolster their education to prepare them for real-world internships and careers.

**II. Attendance and participation**– Students are expected to not only adhere to the professional attendance policy, but do the professional work of the agency in accordance with needs of their teams. Employees are expected to be prepared, engaged, on-deadline, and exhibiting positive attitude and effort during staff and team meetings. See a note about laptops/tablets/phones. This means signing in for office hours and staff meetings. Failure to sign in is equivalent to an absence. To earn a perfect score means to adhere to the attendance policy perfectly. Even one absence or lateness, while certainly understandable/acceptable, is not “perfect.” Be professional and it’ll be just fine.

**III. 360 evaluations**– Peer, client, and supervisor reviews are the best and most reliable and real- world replication measure for if we get promoted or lose our jobs. Not turning in 360 reviews = 0 pts earned for this category.

\* A note about **Laptops/Tablets/Phones**: With the myriad of distractions from social media, texting, online gaming, etc., it has become increasingly difficult to keep the attention of students or hold discussions during class. While it is your responsibility to pay close attention in class, it is my responsibility to make sure you learn the material. This becomes increasingly difficult if I am talking to a wall of computers. Laptop/tablet computers are allowed in class only for taking notes or searching the Web for material we are discussing at the time. However, please do not use your computer or phone for checking Insta, IM, Twitter or other social media pages, or for texting your friends. Doing so will affect your final grade. Remember in the professional world computer use often has negative perceptions of engagement.

### **Grade/Points distribution:**

Attendance/Participation 200 20%

Individual Assignments 550 55%

360 Reviews 250 25%

TOTAL 1,000 100%

\* *Any grade earned and not questioned with one week upon receiving it/entered on Moodle will not be open for discussion or alteration at later dates.*

## ***COURSE EXPECTATIONS & POLICIES***

### **School of Communications Attendance Policy**

Students in the School of Communications are expected to attend all classes. Just as professionals go to work each day, we expect students in a professional school to come to class on time and be prepared to work. Your “participation” grade and overall course grade is heavily influenced by your ability to come to class prepared and ON TIME (i.e. at the start of class, not 10 seconds late). And, ability to be present mentally and physically until the session is officially over. Absences are neither excused or unexcused, they simply are absences. The only exception is missing an agency function because of pre-approved agency business.

A student who misses more than 20 percent of scheduled classes in a term (more than two absences for classes meeting once a week, and four office hour sessions) automatically receive an F because the student has missed too much content and participation to pass a course in a professional school.

Teachers will lower the final grade in a class for each absence beyond the equivalent of one week of class (i.e. after one absence) as indicated in the course syllabus.

- 2 staff meetings and/or 3 office hour absences = One full letter grade deduction off the student’s final earned average
- 3 staff meetings and/or 4 office hour absences = Automatic F

Being “late” and/or “leaving early” also seriously impacts your grade just as the inability to arrive at work or meet deadlines will lead to difficulties with employment. Meetings will begin on time with the role taken. Any student who does not sign in or is observed arriving late will be noted. Two lates or leaving early equal an absence and will receive the same penalties accordingly. Excuses such as car trouble, travel for holidays, job/internship interviews/commitments, alarm clock didn’t work, weather delays, etc., will count towards the allotment of absences. The professor and agency Assistant Director keep diligent records of class attendance to adhere to this professional policy.

Exceptions exist for individual class absences for the observance of a recognized religious holiday and for absences because of participation in sanctioned university activities. In supporting religious diversity, Elon has a policy and procedures for students who wish to observe religious holidays that are in conflict with the academic calendar, allowing students an excused absence. Students who wish to observe a holiday during the semester must complete the online Religious Observance Notification Form (RONF) Religious Observance Notification Form, available at the following website within the first two weeks of the semester.

[http://www.elon.edu/eweb/students/religious\\_life/ReligiousHolidays.xhtml](http://www.elon.edu/eweb/students/religious_life/ReligiousHolidays.xhtml)

#### *\*Description of Professor’s Attendance and Participation Policy:*

This course is intended to replicate the “real world” industry standards for attendance and thoughtful contribution that determine success or failure; in reality it’s employment versus unemployment. If Advertising/Public Relations/Marketing Communications is the student’s career choice, then this policy will further prepare them for employment or future academic endeavors. *The six o’clock news does not start at 6:01.*”

**Deadlines/Turning in Assignments:** Professionals meet deadlines. **Late work in this course will not be accepted** since assignment due dates are posted well in advance. Failure to turn in work on time will result in a “0” being assigned. If you are going to be absent on a day an assignment is due it should be posted on Moodle before the deadline or if it is to be handed-in, it must be delivered to me by the student before the class period begins.

**Assignments on Moodle should generally be MS Word, PowerPoint, PDF, or Excel. NOT GOOGLE SLIDES OR GOOGLE DOCS and never as an email for me to access Google. An email sending me to Google will be not be graded.**

**Grade Communication:** If you would like to discuss or ask questions about an earned grade, total grade, grading policy, or anything to do with grades, please visit me during office hours or a scheduled appointment. Or ask before class or after class. If grades are important than any and all communication about them ought to be with a voice; Ideally in person or even by phone when necessary. If it matters, then it **should not be an email**. Repeated attempts to discuss grades in email will result in deductions for attendance/participation. I will not respond to emails

regarding anything to do with grades. Grades must be discussed face-to-face or at least on the phone.

**Classroom/Office:** This is a group-learning environment. Please come to class having read all assignments, and be prepared to share ideas, comments, etc. It is equally important to come prepared to your group meetings. Mobile phones and computers are NOT permitted to be used for anything other than class material. You should be focused on the material we discuss in class – please show other students this courtesy. Use of computers/mobile phones during class time will result in lowering the attendance and participation portion of your grade by one letter grade on each occasion, no exceptions.

Class etiquette and decorum

- Arrive on time. Arrival of even 1 second late will negatively impact your attendance/participation grade.
- Stay the whole time. Early class departure will also negatively impact that grade in the form of being considered LATE with all associated penalties previously stated.
- No electronic devices. All phones, laptops or other electronic devices must be off or silent and out of sight for the entire class session. If it is a disturbance the student may be asked to leave class for the session. If you're texting or on your computer for non-class related activities, you are losing participation points. You may excuse yourself from class if you must to make phone calls, or initiate/respond to text/email messages.
- Respect fellow students. No verbal or physical disrespect will be tolerated. Everyone is entitled to an opinion and is to be treated with respect.
- Pay attention and engage. Sleeping, daydreaming, working on non-related course material, lack of preparation/enthusiasm, etc., will result in a major deduction of class participation points.
- Be Smart. The professor reserves the right to eject any class member if deemed woefully unprepared, unresponsive, abusive, intoxicated, disrespectful to others, or any other reasonable case of class disruptions. If it occurs a second time after discussions with the student, then official university procedures for discipline and class ejection may be followed.

### ***HONOR CODE***

Elon's honor pledge calls for a commitment to Elon's shared values of Honesty, Integrity, Respect and Responsibility. To be clear about what constitutes violations of these values; students should be familiar with code of conduct policies described in the student handbook. Students with questions about the specific interpretation of these values and violations as they relate to this course should contact this instructor immediately. Violations in academic-related areas will be documented in an incident report which will be maintained in the Office of Student Conduct, and may result in a lowering of the course grade and/or failure of the course with an Honor Code F.

Violations specifically covered by academic honor code policies include: plagiarism, cheating, lying, stealing, and the facilitation of another's dishonesty. Multiple violations may result in a student's suspension from the University.

You are expected to do all of your own work and not engage in...

- Cheating is using or attempting to use, giving or attempting to give, obtaining or attempting to obtain information relative to a quiz, test, or other work that a student is expected to do alone.
- Plagiarism is the copying or "borrowing" of themes and ideas from other sources without citing them.

*Avoiding plagiarism*

- Cite all sources, including all digital sources. You must cite any and all information that is not original thought.
- Citations DO NOT need to be official research style citations. You can use in-text citations in a journalistic style or modified research style with parentheses.
- Made up quotations or research findings and/or sources constitutes plagiarism

### ***ELON DISABILITY SERVICES***

If you are a student with a documented disability who will require accommodations in this course, please register

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with Disabilities Services in the Duke Building, Room 108 (278-6500), for assistance in developing a plan to address your academic needs. For more information about Disabilities Services, please visit the website: [http://www.elon.edu/e-web/academics/support/disabilities\\_services.xhtml](http://www.elon.edu/e-web/academics/support/disabilities_services.xhtml).

***ADDITIONAL COURSE INFORMATION***

**Moodle** will be our official means of electronic communication and usually to upload your assignments. In Moodle, you will find the course syllabus, assignments, and other important information about the course. All announcements will be made via Moodle or On-Track emails. You can also check your earned grades via Moodle.

**Diversity/Multiculturalism/Globalism:** Elon University, the School of Communications, and this professor believe strongly in and complies with national accrediting standards designed to help prepare students to understand and relate to issues of interest to women and minorities in a multi-cultural, multi-ethnic, multi-racial, multi-faith, and otherwise diverse society. Class discussion, assignments, and case studies will often ask students to recognize and appreciate the unique differences of race, class, gender, sexual identity/expression, politics, lifestyle, beliefs and values to honestly, legally and ethically contribute to the advancement and support of all human beings.

**Technology, Audio/Visual Recording:** The use of photo, audio and/or video recording devices and/or reproduction or dissemination of class material or lecture resources/slides is expressly prohibited unless written permission from the Professor is obtained.

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***SCHEDULE OF CLASS ACTIVITIES***

This is a tentative schedule and will likely change during the semester. Revisions will be posted. Always refer to the current copy of the syllabus posted on Moodle. Additional assignments, readings, or changes to this

			Answer: Q5&9 p201; Social Media Ch. prompt (1 page or less) "Why did everyone at Live Oak read this? What should every strat com pro know about social media? How can you use this information in your job here at Live Oak?"
5	9/24	Project Management	Read Ch. 9 Answer: Q9&11 p225
6	10/1	Develop Yourself (professionalism)	Read: Ch.10 Answer: Q4&7 p251 (with a partner, plan ahead to do this).
7	10/8	Focus on your specialty	Read: (all): Research Real Talk (p315), Unleashing Your Creativity (p323) Answer: prompt (1 page or less) Why does everyone need to know about research and creativity? How does Live Oak provide value to clients through research and creativity? How are these concepts similar/work together and different/seem at odds? Assignment: Mid-term peer reviews posted to Moodle

schedule are subject to the discretion of the Professor at any time throughout the semester.

<b>Week</b>	<b>Date</b>	<b>Topics &amp; Activities</b>	<b>Assignments Due BEFORE class</b>
1	8/27	Orientation/Kickoff	
2	9/3	Social Media, Agency structure.	Read: Ch. 1 (briefly), Ch. 2 Answer: Q9 p27, Q2&5 p52
3	9/10	Process and Client Management	Read Ch. 4, Ch. 7 Answer: Q3&4 p98, Q3&9 p171 Assignment: Great. Social media campaign. Be brief; include link/visuals. Answer...how is this a campaign and not just "great content?" How does this campaign support or stand-alone from other strat com efforts the brand does? What is the objective (business and communications) of this campaign?
4	9/17	Planning	Read: Ch. 8; Social Media p339

8	10/15	(Really) Focus on your specialty	Read: Creative = A crash course in copywriting p369, Creating the essence of a brand through design p379. A/E = Media relations p331, Spending other people's money p349 Answer: prompt (1 page or less) Do these chapters relate to your career ambitions, why/why not? Do you think Live Oak is a place to practice these principles, why/why not?
***	10/19	<b>CLASS WITHDRAWAL DEADLINE</b>	<b>Drop Class - academic penalty free</b>
9	10/22	Selling your ideas	Read: Ch. 11 Answer: Q4&5 p276
	Thur 10/25	Live Oak Open House	
10	10/29	(Really, really) Focus on your specialty	Read: Two professional chapters or one chapter + a trade article (attach it). Answer: prompt. I worked at Live Oak this semester, I read and I practiced,

			this is why you should hire me.
	Fri. 11/2	Homecoming Reception 4:15-5:00	
11	11/5	Important Real World Issues Diversity, Legal, Ethics	Read: Ch. 6, Ch.12
12	11/12	Prepare to end/wrap-up	Read: Ch. 13 Assignment: Discuss the transition plan and needs with agency management
13	11/19	<b>NO CLASS - THANKSGIVING</b>	Have fun. Be safe.
14	11/26	Agency "final client" presentations	
15	12/3	Party / Awards	Assignment: 360 Evals posted to Moodle.

\* This schedule is subject to change as class needs or opportunities arise.

## Student Run Marketing Agency

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Start of Block: Default Question Block

Q9 The purpose of this survey is to assess the development and implementation of a student-run marketing agency. These survey responses will help me build a business plan for the optimum Siena College student-run marketing agency. I would like to request your assistance with our research by taking this short 5-minute survey. There is no benefit to individual participation in this survey. There will not be a penalty for non-participants or for those who stop participating in the survey once they begin. Demographic information to assist in the analysis will be collected and may be sensitive, but is optional to respond to. Responses will remain confidential and results will be reported in aggregate only. Your participation is voluntary but much appreciated. That data will be stored for three years and will be maintained in a password protected file. If you have any questions about this project now or in the future, please contact Sophia Henneman (sr14henn@siena.edu) or Cheryl Buff (cbuff@siena.edu). This survey has been approved (xxxxxxx) by the Institutional Review Board at Siena College which reviews all human subjects research. If you have any questions about the process that is used by Siena to protect participants in research from any harm or your rights as a research participant, please contact the Institutional Review Board at irb@siena.edu. Clicking on the appropriate "AGREE" button below and proceeding with the questions indicates that: - you voluntarily agree to participate - you have read and understood the information above - you provide consent to participate in this survey- you are 18 years or older If you do not wish to participate in the research study, please decline participation by checking "disagree." If you choose to discontinue participation in the study after beginning, you can stop completing the online survey at any time without prejudice.

- AGREE: I am 18 years old or older and I agree to participate (1)
- DISAGREE: I do not agree to participate and/or I am under 18 years of age (2)

*Skip To: End of Survey If The purpose of this survey is to assess the development and implementation of a student-run marke... = DISAGREE: I do not agree to participate and/or I am under 18 years of age*

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Page Break

Q18

A marketing agency is a business dedicated to creating, planning, and handling advertising and other forms of promotion and marketing for its clients. In essence, they are a third party consultant for all things marketing. They vary in specialties and services, ranging in traditional advertising, digital, social media, public relations, market/consumer research, strategy development and more. A student-run agency functions similarly to a professional marketing agency, but it is run by students.

The goal of the agency would be to enable Siena students to run a marketing agency, interacting with clients in the community by making marketing and communications materials for them from start to finish. The survey responses will help guide the business plan development for an agency on Siena's campus.

-----

Q6 In general, I believe...

	Strongly Disagree (1)	(2)	(3)	(4)	(5)	(6)	Strongly Agree (7)
students in the Siena community would be interested in a student-run marketing agency (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
a program like this improves brand value of Siena College (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
a program like this would positively influence prospective students to choose Siena (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
a student-run marketing agency would be a resume/portfolio builder (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
participation in a student-run marketing agency would improve my professional development (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



participation in a student-run marketing agency would increase my chances of post graduate employment or an internship (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
a student-run marketing agency would align with my career goals (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
a student-run marketing agency would improve alumni engagement (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
a student-run marketing agency would give me "real world" experience without leaving campus (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
participation in a student-run marketing agency would give me a better understanding of the marketing industry (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q4 A student-run marketing agency should provide services in...

	Strongly Disagree (1)	(2)	(3)	(4)	(5)	(6)	Strongly Agree (7)
social media (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
web design (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
event planning (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
market/consumer research (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
print advertising (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
media relations (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
digital advertising (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
video production (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
blogging (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
press releases (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
broadcast commercials (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
market strategy development (12)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
communications strategy development (13)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q8 The student-run marketing agency should...

	Strongly Disagree (1)	(2)	(3)	(4)	(5)	(6)	Strongly Agree (7)
offer services pro bono (free of charge) (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
charge clients a fee to cover agency costs only (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
allow students to earn credit for participation (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
charge students dues to participate in the agency (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
have a competitive application process (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
have their own designated office area (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q21 How often do you believe students participating in the student-run marketing agency should meet?

- Weekly (1)
- Bi Weekly (every other week) (2)
- Twice per Week (3)

Q20 Are you interested in participating in a student-run marketing agency?

- Yes (1)
- Maybe (2)
- No (3)

*Skip To: Q12 If Are you interested in participating in a student-run marketing agency? = No*

Q7 Please note your overall level of interest in participating in a student-run marketing agency

	Not at all Interested (1)	(2)	(3)	(4)	(5)	(6)	Extremely interested (7)
(1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*Skip To: Q12 If Please note your overall level of interest in participating in a student-run marketing agency =*

Q16 Please rank your level of interest in the following positions:

\*The description lists majors that would likely work well in a position, but positions would be open to a student in any major.

\_\_\_\_\_ **Account Executive:** The go to person for the client. The liaison between the client and the rest of the team. Good for any major, especially people that are organized and good communicators. (1)

\_\_\_\_\_ **Copywriter:** The word genius. This person writes and edits all the words on an advertisement or piece of work. If you are an English or Communications major, this position may be calling your name. (2)

\_\_\_\_\_ **Creative Specialist:** If you have an eye for design, this is the position for you. These are the people that design the work. This is best for a creative arts major with a knack for graphic design. (3)

\_\_\_\_\_ **Social Media Manager:** This job is in the title. You would oversee social media strategies and content development for clients. This is best for marketing/communications majors with an interest in social media. (4)

\_\_\_\_\_ **Web Designer:** This position would help with website design, content, and usability. Great for any major with a passion for the web. (5)

\_\_\_\_\_ **Market Analyst:** This position would do a lot of research, and develop reports on the market and trends. They would also turn these into recommendations. Great for marketing majors with skills in research. (6)

\_\_\_\_\_ **Public Relations Specialist:** Most of the work in this position will involve working with news outlets, and event planning for clients. Great for communications or marketing majors. (7)

Q12 Thank you for your answers so far, now just a few questions on demographics.

Q5 What year are you at Siena?

- Freshman (1)
  - Sophomore (2)
  - Junior (3)
  - Senior (4)
- 

Q14 Major?

- Marketing (1)
  - Communications (2)
  - Business (3)
  - Creative Arts (4)
  - English (5)
  - Other (6) \_\_\_\_\_
- 

Q13 Gender

- Male (1)
- Female (2)
- Transgender (3)
- Other (4)
- Prefer not to respond (5)

#### Appendix E: In-Depth Faculty Interviews

##### Opportunities

- One faculty member mentioned that a major opportunity is that students have a unique perspective to provide clients and that could be a way to draw clients in.
- This idea fits perfectly with the integrated marketing communications class content and what those students are interested in.
- One faculty suggested the main selling point is that it is the best on-campus internship opportunity available to students.
- One faculty member said they could get a donor for the program.
- Could bring a better opportunity for networking.
- The agency could integrate workshops as a learning opportunity for students, such as on Google Ads or Analytics.

Ted Winnowski '63 Student Conference in Business  
*April 5<sup>th</sup>, 2019*

- All faculty showed interest in being involved, and two committed to an advisory role.
- The communications program is growing, there are currently 22 communications majors.
- Emphasize coordination with Siena’s mission.

Concerns

- It will be difficult to educate students on what this is.
- It would have to be only local clients.
- It will be difficult to establish a reputation in the community as a new agency.
- The main issue will be maintaining continuity since students are constantly leaving and entering programs. Because of this, there needs to be a balance between under and upperclassmen.
- Students don’t have to experience that 30-year consultants have.
- The students that participate need to be very qualified and engaged, it would be better to have a smaller agency with more involved students than bigger with less committed students.
- The advisor needs to be very involved.
- We may not have the right software and facilities available to make communications materials needed.
- Be sure that clients don’t go against the mission of the college and existing vendors.

Suggestions

- Every faculty member recommended that participation in the agency needs to be offered for credit because students need extrinsic motivation to fully participate and commit.
- One faculty member recommended offering it as an option in the marketing practicum, especially applied to the digital track. However, it was also mentioned that it could evolve over time to being a volunteer organization.
- There needs to be an established recruiting process to be sure the best group of students participate that will represent Siena well.
- It would be useful to connect with the Career Center and Office of Internships to find Siena alumni with businesses that would make good clients.
- There is a lot of value in getting students outside of marketing to join.
- One faculty member suggested that all clients be provided services pro bono until a reputation is established.
- One suggestion for the structure is to make the agency part of the digital practicum course. Students would have three options: project, internship, or participating in the agency.
- The agency should be defined as a digital marketing agency because that is what most students have an interest in.
- The organization needs to work around class schedule and clients need to understand that.
- By doing it pro bono as far as payment, the agency could collect “payment” by asking companies to be “otherwise engaged,” ie. doing on-campus interviews and other internship opportunities, etc.
- There needs to be an advisor that is an expert in not only the marketing piece but the actual creation of content.

Appendix F: Additional Findings in Secondary Sources

**“An Analysis of Successful Student-Run Public Relations and Advertising Agencies” by Amanda Limoges**

- Studied various articles, one listed next, that showed the benefits of student-run agencies
- More based on the characteristics of different agencies

<b>Research Question</b>	<b>Finding</b>
Is the agency focused on primarily public relations or advertising?	56% of respondents integrate both, 44% primarily PR, 0% primarily advertising

Does the staff receive course credit?	56% of survey respondents reported course credit for working at their student-run agency
Is the agency affiliated with a university department or with Public Relations Student Society of America (PRSSA)	33% of agencies were affiliated directly with a student organization, such as PRSSA or the American Advertising Federation (AAF); 33% were run by university communications or journalism department; 22% were completely independent of the university, and 11% were part of a practicum class
Does the agency have an independent workspace, and how is the agency leadership structured	38% of respondents had their own workspace, 28% shared their workspace with another student group and 34% had no dedicated workspace All respondents have account team leaders and advisor A majority of them had a student director (89%), less than half with a creative team (44%), and only 22% with a new business director
Are students paid, how long each agency has been existence, what services each agency provides its clients, and what does each agency believes had led to its own success	None paid all it's staff, more than half (56%) paid no staff at all, while some paid only their student leadership team (33%)
What services each agency provides its clients	social media (100%), press releases (100%), event management (89%), full campaigns (89%), logo development (89%), graphic design (89%), website development (89%) and newsletters (89%) broadcast commercials (22%) blogging (56%) video production (67%) and print advertising (67%)
what formalized processes are required	Student agencies had the following common business practices: client contacts (100%), timesheets (89%), weekly agency meetings (89%), and client invoicing (78%) Less than half of agencies adopted the following business practices: a competitive application process (22%), client report templates (44%), and required office hours (44%).

### ***Three Major Trends***

- Independent workspaces fostered a greater number of formal business practices
- Agencies affiliated with PRSSA had been in existence the longest probably because of the guidance and support they received
- Agencies with paying clients were more targeted in their offered services

### **“Student Public Relations Agencies: A Qualitative Study of the Pedagogical Benefits, Risks, and a Framework for Success” by Lee Bush**

**Table 1**  
**THREE AGENCY TYPES**

<b>Characteristics</b>	<b>Accountability</b>	<b>Faculty Involvement</b>	<b>Levels of Learning</b>	<b>Risk of Dissolving</b>
<b>Type 1</b>				
Titled Structure	Course Credit	High –	PR Application	Low
Team Based	Required Work	Course Release	PR/Business Processes	
Concrete Business Protocols	Hours	or Paid Course	Professional Skills	
Competitive Application Process	Agency/Team	Overload		
Formal Assessment Process	Meetings			
Some Student Officers Paid				
Dedicated Office Space				
Charge Clients				
For-profit and Non-profit Clients				
<b>Type 2</b>				
Titled Structure	Agency/Team	High –	PR Application	Medium
Team Based	Meetings	Self-determination,	Some PR/Bus. Processes	
Some Business Protocols		Service Component	Professional Skills	
Application Process				
(Non-competitive)				
Informal Client Assessment				
Share Student Org. Space				
Mostly Non-profit Clients				
<b>Type 3</b>				
Titles at Top Only	No Required	Medium to Low –	PR Application (Tactical)	High
Few, If Any, Business Protocols	Meetings	Service Component	Some Professional Skills,	
Volunteer-based – No Application			Mostly at Director Level	
No Assessment Process				
Managed as Student Organization				
No Space				
All Non-profit Clients				

**“Student-Run Advertising Agency: A Showcase for Student Work” by James R Avery and James L Marra**

<b>Student</b>	<b>School</b>	<b>Past Position</b>	<b>Current Employment</b>	<b>Quote</b>
Jed Schroeder	University Of Kansas	President	Account management at Foote, Cone & Belding in Chicago	“I know that my experience at Oread got me interviews. Once (I was) in the interviews, people were impressed with the drive it took to run an on-campus agency. They were also impressed with the practical experience that could not be gained in a classroom, and was not offered in any graduate program” (Avery & Marra 7).



Jack Fund	University of Oregon	President	Copywriter at Rubin Postaer in Los Angeles	"The confidence I learned dealing with clients gave me the where-with-all to deal with advertising people in interviews" (Avery & Marra 6)

# CANNABIDIOL (CBD) AWARENESS AND ATTITUDES AMONGST COLLEGE STUDENTS

*Aurelie Daeron, Siena College*  
*Katelin Gagnon, Siena College*  
*Diosmary Perez-Trinidad, Siena College*  
*Dylan White, Siena College*  
*Dr. Russell J. Zwanka, Siena College*

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## **ABSTRACT**

*Cannabidiol, or CBD, is one of the many cannabinoids found in the cannabis plant. When derived from hemp, CBD contains no Tetrahydrocannabinol (or THC), the element from the cannabis plant that creates the feeling of “being high”. The high that is prevalent with use of THC often causes negative stigmas towards the marijuana plant altogether due to the culture that has grown with popularity of the plant. These negative stigmas have prevented many people from understanding the positive aspects of the plant, and the medical benefits that are available. The cannabidiol portion of cannabis has the ability to provide relief to medical issues, including anxiety, migraines, seizures, muscle conditions, depression, and other disorders. We are studying awareness, attitudes, and acceptance of CBD in its multiple methods of being introduced into the body. The results are in the form of descriptive analysis.*

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## **LITERATURE REVIEW**

In this study, we are working to understand the awareness and acceptance of cannabidiol (CBD) amongst college students. The goal of the study is to ascertain the level of knowledge currently held within the college ranks, whether or not further information can alter perception, and potentially be able to understand how well college students understand the difference between cannabis and cannabidiol.

We must describe the Endocannabinoid System (ECS) first. This system is a self-regulating system containing receptors throughout our bodies. These receptors work together as a lock and key. When the ECS system is working properly, our bodies produce our own phytocompounds, called endocannabinoids. These compounds help the ECS in its job to communicate with every system in our body, including all our organs, the Central Nervous System, our Immune System, etc. (Hempfusion, 2018) The primary function of the ECS is to promote homeostasis, or the “self-regulating process by which biological systems tend to maintain stability while adjusting to conditions that are optimal for survival. If homeostasis is successful, life continues; if unsuccessful, disaster or death ensues. The stability attained is actually a dynamic equilibrium, in which continuous change occurs yet relatively uniform conditions prevail.” (Ibid)

We did not know about our body’s reaction to THC until as recently as 1988. According to CBD Origins, a team of researchers discovered a cannabinoid receptor in rats that interacted exclusively with receptors found in the cannabis compound, tetrahydrocannabinol (THC). The receptors were found concentrated in parts of the brain responsible for mental and physiological processes, like memory, high cognition, emotion, and motor coordination. (Cadena, 2018)

When a second cannabinoid receptor was identified in rats that was distributed throughout the immune system and peripheral tissues of the body and had the same reaction to THC as the first receptor, then a larger picture began to form. The clues led scientists to search for these receptors in other beings. They found them in humans. They called these receptors CB1 and CB2. (Hempfusion, 2018)

Researchers were able to further analyze the relationship between the cannabinoid receptors within our body (endocannabinoids) and the cannabinoid receptors in cannabis compounds like cannabidiol (CBD) and THC (both called Phyto cannabinoids). What was found was a previously unknown signaling system between Phyto cannabinoids and endocannabinoids. Our bodies were designed to engage with cannabinoids. These discoveries were the origin of the Endocannabinoid System. (Zwanka, 2018).

Endocannabinoids can only do so much, once the body begins to deteriorate. What the body needs are Phyto cannabinoids (like CBD) to help bring health levels up in the body. When CBD bonds with the CB1 or CB2 receptors, it has been shown to improve the capabilities of that receptor, and thusly improving functionality of the receptors. Plus, if the body is experiencing a cannabinoid deficiency, CBD can close the gap. A cannabinoid deficiency can result in inflammation, headaches, etc. (Cadena, 2018)

In this study, we are researching hemp-derived CBD, which carries less than .3% THC. Because it is hemp-derived, and because it has no psychoactive effects, hemp-derived CBD is legal. In regard to marijuana versus hemp. They are both members of the cannabis family, so they do share a lot of characteristics. There is, however, a crucial difference between the two: the amount of psychoactive tetrahydrocannabinol (THC) each plant produces. While marijuana can contain up to 30% THC, hemp contains no more than 0.3% THC. Marijuana can get you “high”, while hemp has such a low amount of THC, that it would be impossible to get high off it. (Cadena, 2018) Figure 1 shows the breakdown of the cannabis plant components.

The majority of the peer reviewed research has been performed on cannabinoids and their impact on the pain control of patients suffering from debilitating illnesses. According to Campbell et al, “humans have cannabinoid receptors in the central and peripheral nervous system in animal testing cannabinoids are analgesic and reduce signs of neuropathic pain Some evidence exists that cannabinoids may be analgesic in humans. (Campbell et al, 2001) In other research, it was found short-term use of existing medical cannabinoids appeared to increase the risk of non-serious adverse events. The risks associated with long-term use were poorly characterized in published clinical trials and observational studies. High-quality trials of long-term exposure are required to further characterize safety issues related to the use of medical cannabinoids. (Wang et al, 2008)

According to Kerstin and Franjo, the favorable safety profile of CBD in humans was confirmed and extended by the reviewed research. The majority of studies were performed for treatment of epilepsy and psychotic disorders. Here, the most commonly reported side effects were tiredness, diarrhea, and changes of appetite/weight. In comparison with other drugs, used for the treatment of these medical conditions, CBD has a better side effect profile. (Kerstin and Franjo, 2017) In another study, a limited number of preclinical studies suggest that CBD may have therapeutic properties on opioid, cocaine, and psychostimulant addiction, and some preliminary data suggest that it may be beneficial in cannabis and tobacco addiction in humans. (Prudhomme et al, 2015) Currently, the research regarding CBD is focused on the medical field and its patients.

Researchers have been investigating the anti-cancer properties held within CBD, along with other medical related issues. Research is currently being conducted on the benefits of CBD, where potential claims to treating a wide range of problems like “arthritis, diabetes, alcoholism, MS, chronic pain, PTSD, depression, antibiotic-resistant infections are being found” (CBD User Manual,n.d)

It must be understood that individuals compare the perceptions of those around them when considering trying out a new product. Research and evidence have the chance to influence the perception of individuals, thus affecting how those around them view CBD. (Taylor, 2018)

## ***THE METHODOLOGY AND MODEL***

The goal of the survey was to examine how many students within the college student population know what cannabidiol (CBD) is and observe what type of perception they have regarding CBD. This project was designed to focus more on the perception of students regarding cannabidiol, and whether students believe it is something that has medical benefits, or if it is believed to be more in line with the negative stigmas attached to cannabis altogether. A twenty-question survey was designed to ask questions about initial knowledge of cannabidiol, whether there were positive or negative connotations, to show a video and brochure about cannabidiol, and gauge responses after this information. The survey was sent to college students at a small liberal arts school, and the snowball method was used in order to reach a representative sample size.

## ***THE FINDINGS***

The sample size returned was n=148. The awareness of CBD was high amongst the college students who responded to the survey. Additionally, many students were already open to using CBD, if they were not already doing so. Figure 2 shows the responses to the question asking if the respondents knew the various forms for CBD delivery to the body. There was awareness of all forms, and a significant response when given the choice “all of the above”.

From our survey (and shown in Figure 3), it was found that 53.7% of the students knew what CBD is. This means that of our 147 respondents, 79 knew what CBD is, and understand the benefits that are available with usage.

Once acquiring information on this, we then asked the following question: "Have you used CBD before?" Although more than half our respondents knew what CBD was, only 22.1% have actually used CBD products. Figure 4 shows the majority of our responses, about 58.5%, said they would be interested in trying CBD products. Figure 5 shows the majority of the students stated that they would recommend using CBD to others. After learning the positive aspects that cannabidiol has to offer, most would recommend to a close friend or family member.

### ***SUMMARY AND CONCLUSIONS***

Cannabidiol has previously been combined by consumers under the negative stigmas that are attached to the entire marijuana plant. However, as it appears within our data collected, and secondary data found, the two sides of the cannabis plant are becoming clearer to the population as a whole. After surveying 148 students, more than half of respondents knew what CBD is, and around 20% of them have used in it in the past. Figure 6 shows that the perception of CBD did not change, because most college students responded that they already knew the difference between CBD and marijuana.

### ***FURTHER LIMITATIONS AND REPLICATION***

In addition to the stated limitations of ethnicity and age, it is unclear in the survey if the students knew we were asking about CBD specifically, or if they thought we were asking about cannabinoids or cannabis.

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**APPENDICES**

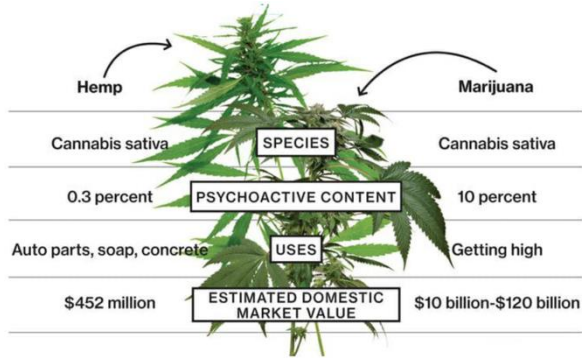


Figure 1: Hemp and Marijuana breakout from Cannabis (Cadena, 2018)

Which of the following are the forms of CBD?

148 responses

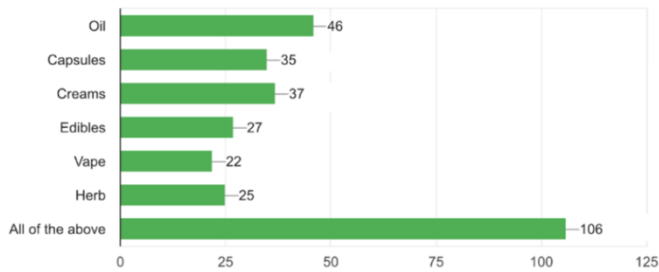


Figure 2: CBD Form Awareness

Count of Do you know what CBD is? (If Yes, please answer the next question, if no please skip the next question)

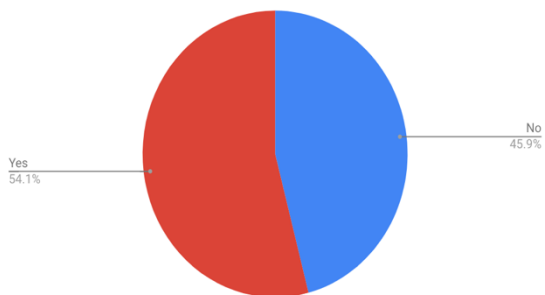


Figure 3: Overall CBD Awareness

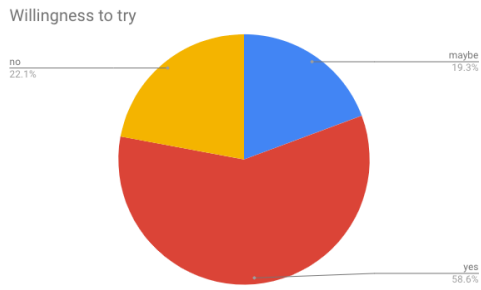


Figure 4: Willingness to try CBD

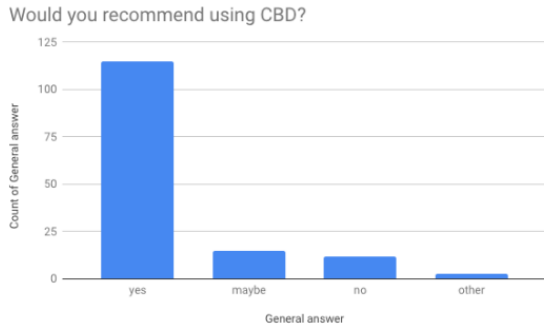


Figure 5: Would you recommend CBD?

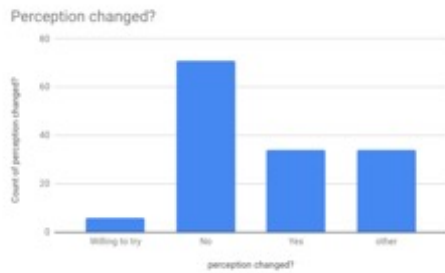


Figure 6: Perception changed?



# PERCEPTIONS AND ATTITUDES OF INDIAN-AMERICAN CONSUMERS OF FINANCIAL SERVICES IN THE USA

*Daniel Chacko, SUNY Old Westbury  
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## ABSTRACT

*While most scholars have devoted time and attention to the Latino/Hispanic market segment of the US population, research in financial services marketing has not addressed the Indian-American segment as much. The Asian and Pacific Islanders are among the fastest growing segment of the US population. We specifically focus on the Indian-American sub-segment and their consumption of financial services. In today's diverse and fast changing world, financial advisors must consider the impact of origin and culture on whether—and how—consumers choose to take advantage of their services. The purpose of this study is to identify the traits and attitudes of Indian-Americans in the USA as they relate to consumption decisions about financial services. We extended an existing conceptual model that examines attitudes toward risk, savings, asset allocation, international investment, and the need for financial advisors. Primary data has been collected from a random sample of over 200 Indian-American respondents and it is our intent to share our preliminary findings and implications with the conference participants.*

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# THE EFFECTS OF PERSONALITY, RELIGIOSITY, AND SEXUAL ORIENTATION IN RESPONSE TO SEXUAL APPEALS IN ADVERTISING

*Erin Noble, Siena College*

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## ABSTRACT

**Purpose-** The purpose of this paper is to add valuable research to the marketing community about the effects of personality type and sexual orientation when it comes to advertisements involving sexual appeals. There will be an examination of the responses collected by a random selection of the population.

**Design/Methodology/Approach-** The study is based upon the survey responses of a random group of people within the population in the United States. Advertisements selected for inclusion in the study were collected from Coors Light advertisements. Five advertisements were selected to represent a combination of genders using sexual appeals in each advertisement. There are two advertisements with only one model, one advertisement having a single female and the other having a single male. The following three advertisements each feature two models, the first being a male and a female, the second being two females, and the third being two males.

**Findings-** The results show that there is no direct relation between specific personality types and positive response to sexual appeals, mixed results among religiosity and the five advertisements, and our hypotheses for straight men were proven right, while there were mixed results in our hypotheses for straight women.

**Research Limitations/Implications-** Recommendations are made based on the data collected. It is recommended that advertisers focus on targeting women and people who score high on openness to when using advertisements that have sexual appeals featuring the LGBTQ Community. We had several limitations in our research based on the demographics of respondents.

**Originality/Value-** This research will provide valuable insight into people's opinions on sex in advertising. It will show whether or not it is an effective form of advertising. If it is found to be effective, I will be able to analyze what advertisements that involve sex work best for which demographic. If it is found not to be effective, I will be able to analyze why it is not effective. Either way, this research will provide valuable insight to marketers on what should and should not be included in advertisements when it comes to sex.

**Keywords-** Personality Type, Sexual Orientation, Sex appeals, Sex in Advertising, Religiosity, Gender, Advertisements, Beer Industry, Coors Light

**Paper Type-** Research Paper

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## INTRODUCTION

Advertising plays a crucial role in today's marketing. Companies are grabbing at the market trying to gain the most market share. One of the tactics companies have begun to use is sexual appeals in their advertisements. Sexual appeals are used to lure consumers in by appealing to their sexual desires and fantasies. By using sexual appeals it really grabs the public eye and people's attention.

Sex Appeal is one of many advertising strategies that marketing professionals use to persuade people to buy a product, pay for a service, donate to a cause, or otherwise be persuaded. Sex appeal lures audiences by appealing to their sexual desires and fantasies. Advertisers use this approach because it is an easy and proven method for attracting attention quickly. Sex appeals can be very broad, the same person can respond both positively and negatively to sex appeal ads.



Sexual appeals do not just have to do with the attractiveness of a model. It is also not just the way the models are dressed or the type of contact between the two models. Sex appeals in advertising also include lighting, editing, sound, and verbal information, such as double entendre, suggestive language, or innuendo. According to research done by Tom Reichert, he found that consumers have, “four overarching characteristics of sexy ads: (1) physical features of models (clothing, physique, and general attractiveness), (2) behavior/movement, (3) intimacy between models, and (4) contextual features (e.g., camera effects).” In the study, both men and women most frequently mentioned the physical features category. However, women were more likely to mention contextual features and intimacy category than men.

All sexual appeals can be used in any form of advertisement or commercial through various channels. In Tom Reichert’s 2010 article, *Sex in Advertising*, he states that “Up to 10% of television commercials contain sexual content, compared to a higher proportion in magazine and Internet ads.” Advertising containing sexual appeals can be seen anywhere by anyone because they are on so many different channels.

Sex appeal advertising is a legitimate tactic used by many companies. The goal for these companies is to stand out in the media. According to Clow and Baack (2007), sex appeal is a legitimate tactic, “if used in a manner that is interesting, germane to the products and within the ethical standing of the region”. Increasingly, sex appeals in advertising have been used to suggest that it is an effective marketing tool. However, this marketing tactic is very controversial and very highly debated. Many people perceive this tactic as unethical and inappropriate. These same people generally doubt the effectiveness of this tactic.

Whether or not sexual appeals in advertising are effective are based on key demographics. One of these key demographics is an individual's personality type. Another key demographics is an individual's sexual orientation. The last main key demographic is an individual's religiosity. There are three main key demographics, however, gender, income, education, and several other demographics can also play a role in consumer’s response to sexual appeals used in advertising. Each demographic in the study will be tested based on the appropriate scales for each of them.

In order to test an individual's personality type, we plan to utilize the NEO Five-Factor Inventory scale. This scale was developed to provide a concise measure of the five basic personality types: neuroticism, extraversion, openness, agreeableness, and conscientiousness. The NEO Five-Factor Inventory contains 60 items and is measured using a five-point Likert scale. We will also be using a five-point Likert scale to test for religiosity. We will be using nominal scales to measure sexual orientation as well as the other various other demographic questions.

In addition to the consumer’s key demographics, another factor that plays a role is what is happening in the advertisement. Some consumers may be more or less inclined to purchase a product based on the gender of the model or models within the advertisement. If the advertisement suggests sexual promiscuity between two people of the same gender this may lead to a consumer being less or more likely to buy the product based on the consumer’s personality type and sexual orientation along with other key demographics.

This study will explore how the gender of the model(s) along with the consumers’ demographics will play a role in the response to sexual appeals used in advertising. We will use five advertisements with a combination of a single model and two models with a mix of genders in each advertisement to see how a consumer responds to these advertisements for the same product.

## ***HISTORY***

Sexual appeals are very commonly used in today’s society. Major companies use sexual appeals as an advertising tactic, however, the use of sexual appeals in advertising is not new. The use of sexual appeals dates as far back as the 1800s. During this period the most common type of advertisements you would see sexual appeals in were entertainment advertisements, specifically the circus. They used sexual appeals to draw big crowds for their performance. According to Servedio, “The new ability to print high-quality illustrations popularized “pretty girl” pictures in the 1890s. Full page black and white ads quickly appeared in some magazines. Because the Victorians covered their bodies from chin to toes, advertisers found that a peek at the forbidden could bring readers to a halt” (Servedio, 2002). Today, we are no stranger to the typical ‘pretty girl’ we constantly see companies using the idolized ‘pretty girl’ in all of their advertisements. Very few companies stray away from using the idolized girl and focus on using the real-life girl, which is a depiction of what regular girls look like every day.

Another use of the pretty girl can be seen in the “Sozdont Girl”.<sup>9</sup> The Sozdont Girl was used as an advertisement for Sozdont toothpaste. She first appeared in the 1800s as a woodcut portrait and then developed into a halftone photograph (Servedio, 2002). Seeing that sexual appeals could be used to sell products like toothpaste other companies began to use this tactic.

A company called White Rock Springs adapted what Sozdont did and created their own pretty girl. Their pretty girl was called the “White Rock Girl”.<sup>10</sup> The “White Rock Girl was depicted as a half-clothed fairy psyche that was “kneeling on a stone and peering at her reflection in a pool of water on the labels of their [White Rock Springs Company] products” (Servedio, 2002). After sex appeals as an advertising tactic proved successful for Sozdont and the White Rock Springs Company large corporations began, such as Coca-Cola and Kodak camera also used this tactic to associate their products with pretty and fashionable women.

A common misconception is that only males create content using sexual appeals. Several women marketers have chosen to utilize sexual appeals. A famous female marketer who utilized sexual appeals was Helen J. Lansdowne Resor. Resor was noted for adding, “the essential emotional appeal to the sales argument when her celebrated ad for Woodbury’s facial soap first appeared in 1911” (Serevido, 2002). Within this advertisement, there was a painting of an attractive couple with a provocative headline. This headline enticed readers to look more into the advertisement. The provocative headlines read, “A skin you love to touch”. Instead of merely just selling the product Resor was able to discuss the benefits of the product by suggesting softness of skin and even romance. Resor’s advertisement was featured in Ladies’ Home Journal and even caused many members to cancel their subscription.

Another noted individual for the advertising tactic of using sexual appeals is Elliot Springs. Springs was given the nickname the “expert tease” because of his “approach combining the typical sexy double entendre and puns in his advertisements” (Serevido, 2002). The main feature of all of Springs advertisements were sexual appeals, but he also ensured that there was a prominently placed logo in all of his advertisements. For example, “one [of Springs advertisements] 1949 ad showed an illustration of a Native American sleeping in a hammock with the headline ‘A buck well spent on a Springmaid sheet.’ And a 1948 ad, ‘Perfume and Parabolics,’ used a girlie illustration of a skater with her skirt billowing around her legs” (Servedio, 2002). Based on survey results thanks to Smith’s tactics, Springmaid’s advertisements there was a significant increase in consumer brand recall for the company between 1947 and 1951 (Belch, G. and Belch, M., 1999). This was generating more publicity than ever for Springmaid’s due to the use of sexual appeal tactics in advertising.

The goal of sex in advertising is to increase product and brand awareness as well as increase sales. That is why companies have spent years investing so much capital into this marketing tactic. Calvin Klein is a company largely known for its sexual appeals in advertising. In their 1995 Calvin Klein released an advertisement using sexual appeals and it doubled the sales of their jeans (Ivinski, 2000). Calvin Klein also invested money into sexual appeal tactics in the promotion of their Obsession perfume. The advertisements for this perfume suggested an “erotic fantasy world awaited consumers” (Servedio, 2002). The company spent a total of \$17 million to launch their Obsession perfume line and within one year it was selling approximately \$40 million worth of the perfume.

A common target audience for sexual appeals is teenagers. Teenagers have proven to be susceptible to certain advertising tactics and one of them being the use of sexual appeals. Several popular companies including Sergio Valente, BonJour, Calvin Klein, Gloria Vanderbilt, and Jordache in 1980 spent nearly \$40 million in advertising. When Calvin Klein introduced his jeans campaign in 1981 there was a lot of controversy over the sexy ads and commercial spots. These advertisements featured teen star, Brooke Shields. Shields was used as a way to seduce audiences with her provocativeness. The advertisement also featured Shields stating, ‘know what comes between me and my Calvin’s? Nothing’. This led to three network-owned stations in New York banning this advertisement. However, sales of the expensive Calvin Klein jeans increased to nearly 300 percent after the first release of the commercial (Belch, G. and Belch, M., 1999).

The use of sexual appeals is on the rise. In the article *An Update on Sex in Magazine Advertising: 1983-2003*, the authors state that between 1993 and 2003 sex in advertising has increased by 9%. The article also states that women progressively are wearing less and fewer clothes in advertisements. Women wearing less clothing in advertising is due to the increase in the use of sex appeal tactics to convince consumers to purchase goods. The correlation between the increase in intimate clothing and intimate contact advertising appeared to be more common

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<sup>9</sup> See Figure 1 in the Appendix for a picture of “Sozdont Girl” advertisement

<sup>10</sup> See Figure 2 in the Appendix for a picture of “The White Rock Girl” advertisement

in magazines. Magazines may have been highlighting advertisements using sex appeals because some networks frowned upon these tactics and banned overtly sexual advertisements from playing on air.

Previous research suggested that males and females have different attitudes toward traditional media advertising along with different advertising stimulated consumer behaviors. However, the results from Lori D. Wolin, Pradeep Korgaonkar's study found that: "males and females differ significantly on several dimensions with males exhibiting more positive beliefs about Web advertising and more positive attitudes toward Web advertising than females. Additionally, males are more likely than females to purchase from the Web and surf the Web for functional and entertainment reasons, whereas females are more likely to surf the Web for shopping reasons". From their study, we can see the difference in why both men and women shop online and the likelihood of them buying a product due to an advertisement that they saw online.

### ***LITERATURE REVIEW***

According to Reichert, sexual appeals are defined as brand messages that contain visual and/or textual information with the purpose of selling branded goods. Some of these appeals include sexual suggestiveness and full or partial nudity. Sexual appeals are a commonly used technique to promote products. The tactic originally started in western societies, however, it is even spreading to places like China. Even though sexual appeals are a widely used tactic when it comes to advertising there are mixed views on whether or not it is an effective form of advertising.

Earlier research suggests that both males and females will react negatively to ads that use sex appeal because they are perceived as unethical and manipulative. Now, being in the 20<sup>th</sup> century we know this is not true. A recent study found that "under the sort of constrained processing conditions that allow the elicitation of spontaneous, gut-level reactions, men on average will exhibit a more positive attitudinal response to gratuitous sex appeals than women" (Sengupta and Dahl, 2008). This study shows that people's opinion on sex in advertising is changing.

The results from experimental findings show that people are attracted to a sexy and seductive opposite sex (Peterson and Kerin, 1977; Simpson et al, 1996). These results can be confirmed by numerous different studies. One study by Mager and Helgeson's in 2011 reported an increasing trend of models positioned in suggestive ways in advertising. These studies all drew one common conclusion and that was that outright nudity is not preferred in advertisements.

A majority of literature suggests that advertisements with sexual appeals outperform advertisements that do not use sexual appeal tactics, there are some contradictory findings. According to James King, "Parker and Furnham (2007) failed to find an effect of sexual content on recall, and Fried and Johnson (2008) provided evidence to suggest that sexual content can be a distraction that interferes with the processing of the product information" (Sex Really Does Sell, page 1).

Howard Lavine, Donna Sweeney, and Stephen H. Wagner conducted a study to examine consumer's response to seeing an advertisement depicting a model in a sexual way. The study found: "that women exposed to sexist ads judged their current body size as larger and revealed a larger discrepancy between their actual and ideal body sizes (preferring a thinner body) than women exposed to the nonsexist or no ad condition. Men exposed to the sexist ads judged their current body size as thinner, revealed a larger discrepancy between their actual and ideal body size (preferring a larger body), and revealed a larger discrepancy between their own ideal body size and their perceptions of others' male body size preferences (believing that others preferred a larger ideal) than men exposed to the nonsexist or no ad condition". We can see that both men and women may have an initial negative feeling towards themselves when seeing an advertisement using an attractive model to sell a product or service. Depending on the product consumers may purchase the product just to try to associate themselves with the model in the advertisement.

A similar study conducted by Darren W. Dahl, Jaideep Sengupta, Kathleen D. Vohs showed differing results from the one conducted by Lavine, Sweeney, and Wagner. This study draws on the differences between men and women's attitudes about sex in advertising. They found that "either as an end in itself (men) or as inextricably linked to relationship commitment (woman) to understand attitudes toward the gratuitous use of sex in advertising". The results of the four experiments showed that women's spontaneous dislike of sexual ads softened when the ad could be interpreted in terms of commitment-related resources. In contrast, men's positive attitudes toward sexual ads were relatively unaffected by the salience of relationship commitment cues. The study brings in the interesting point that sex appeal tactics may not be enough to convince a consumer to buy a product instead the intent of the message needs to be something consumers can align themselves with.

Individuals responded differently to the use of sexual appeals in advertisements based on their personality type. Based on results of a study conducted by Iain R. Black, George C. Organ, and Peta Morton, the results show that individuals who scored higher in extraversion based on the NEO-Five Factor Inventory responded more favorably to advertisements using sexual appeals. The study found that there was no connection between neuroticism and openness and the favorability of advertisements using sexual appeals. The study did not observe whether or not conscientiousness or agreeableness as a personality type played into whether or not an individual has favorability towards advertisements using sexual appeals. The study further investigated whether gender played a role in an individual has favorability towards advertisements using sexual appeals and found that gender was not a factor.

Through research, it is clear that an individual's religiosity plays an effect on how they will respond to sexual appeals used in advertising. According to Dr. Michael Pepe, "religiosity is traditionally under the cultural and psychological fields of study, its relevancy to consumer behavior has been well documented" (Pepe, 2). A consumer's behavior is dictated in some sense towards their religiosity. The more religious an individual is the more likely they are to be offended by certain aspects of advertising. Sexual appeals in advertising can be extremely offensive to some individuals who are more religious.

Another factor that plays into an individual's preference for sexual appeal in advertising is sexual orientation. A study conducted by Lisa Petty Thompson found that "for overt manipulations of both gay male and lesbian images in ads, the homosexual population shows a strong positive response" (Morton, 2008, 440). The researchers used a T-test to calculate the results. The study used five different brands which included, Diesel, Levi's, Versace, Prada, and Ralph Lauren. The mean score for each brand varied greatly. The greatest difference between homosexual and heterosexual preference can be seen in the Diesel brand. For Diesel, the mean score for homosexuals was 5.64, while for heterosexuals the mean score was 2.71. The scores were closer for the brand Prada with a mean score for homosexuals of 4.56 and heterosexuals of 4.14. This study shows that homosexuals are more likely to prefer brands that are using models who are portrayed as homosexuals than people who are heterosexual will. The study also shows that homosexuals and heterosexuals can share similar views on the use of models who are homosexuals or portrayed as homosexuals depending on the brand of the advertisement.

### ***THEORETICAL FRAMEWORK***

Based on our research we generated our own theoretical framework. We recognized that the framework needed to be holistic of all the variables we were studying. Our theoretical framework can be broken down into the following categories; personality traits, sexual orientation, religiosity, gender, and various other demographic variables. All of these variables lead us to an understanding of an individual's feelings towards an advertisement.

The first variable is personality traits. In order to be able to further analyze an individual's personality, we are using the NEO Five-Factor Inventory scale<sup>11</sup> to determine whether an individual classifies more as extraversion, neuroticism, or openness. From here we will be able to determine an individual's feelings towards an advertisement based on their personality.

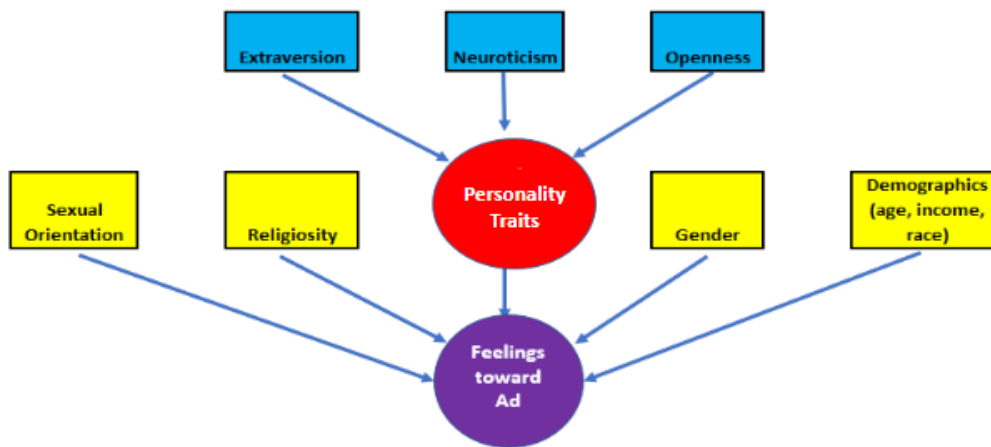
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<sup>11</sup> See Table 1 in Appendix "Revised NEO FFI Scale"

For the other demographic variables, we are using a series of questions to get specific demographic information on the individual. For example, when it comes to religiosity we will be using a five-point Likert scale to determine how an individual evaluates the strength of their religious affiliation. For the other demographic variables, such as sexual orientation, age, and income we will be using a series of multiple choice and open-ended questions to determine if there is a correlation with these demographic variables and an individual's feelings towards an advertisement.<sup>12</sup>

### ***HYPOTHESES***

Each of our hypotheses is broken down into three different areas based on our research and on our own beliefs. The three categories of our hypotheses are personality type, religiosity, and sexual orientation. Within each of these categories, we have hypotheses that we believe will be proven in the results of our study.



Based on the individual's personality type we believe if the individual is considered more extraverted they will respond more in favor of sexual appeals used in advertising. However, if an individual is more conscientious they will respond very unfavorably to sexual appeals used in advertising.

*H<sub>1</sub>: There is a significant positive relationship between participants scores on the extraversion scale and a more favorable response to sexual appeals in advertising.*

*H<sub>2</sub>: There is a significant negative relationship between participants scores on the neuroticism scale and a more favorable response to sexual appeals in advertising.*

*H<sub>3</sub>: There is a significant positive relationship between participants scores on the openness scale and a more favorable response to sexual appeals in advertising.*

Based on the individual's religiosity will depend on whether or not they like or dislike sexual appeals in advertising. We hypothesize that the more religious an individual is the less likely they are to respond to sexual appeals in advertising in a positive way.

*H<sub>4</sub>: The more religious an individual is the less likely they are to respond positively to sexual appeals in advertising (and vice-versa)*

We have drawn several hypotheses based on the individual's sexual orientation. We have hypothesized that straight men and straight female will respond positively to seeing their opposite-sex portrayed in an advertisement

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<sup>12</sup> See Figure 3 in Appendix "Attitudes Towards an Advertisement"

using sexual appeals. While we have hypothesized that straight men and straight women will not respond positively to seeing their same-sex portrayed in an advertisement using sexual appeals. We have hypothesized that gay men or lesbian women will respond positively to seeing their same-sex portrayed in an advertisement using sexual appeals. Lastly, we have hypothesized that gay men and lesbian women will not respond positively to seeing their same-sex portrayed in an advertisement using sexual appeals.

*H5: Straight men are likely to respond positively to seeing their opposite-sex in an advertisement using sexual appeals.*

*H6: Straight women are likely to respond positively to seeing their opposite-sex in an advertisement using sexual appeals.*

*H7: Straight men are likely to respond negatively to seeing their same-sex in an advertisement using sexual appeals.*

*H8: Straight women are likely to respond negatively to seeing their same-sex in an advertisement using sexual appeals.*

## **METHOD**

This experiment was conducted throughout the United States. The survey was created through Qualtrics. In total there were fourteen questions on the survey. The questions varied in length. Responses to each question will be used to draw conclusions between response to sexual appeals in advertising and specific demographics of the individual. The time for completion of the survey was between ten and fifteen minutes. The survey was distributed through several different channels to participants. The data was analyzed using a combination of Excel and SPSS.

### **Measurement Instruments**

A multitude of scales will be used in order to assess each variable of an individual’s demographic characteristics. In order to properly assess an individual’s personality type, the results will be analyzed using the scale of the five-factor inventory. The scale for religiosity will be based on a five-point Likert scale. Other demographic questions will be assessed based on multiple choice answers, short-answers, and semantic scales.

### **Sample**

A total of 287 individuals participated in the survey, however, there were only 199 valid responses. The sample was mostly consistent with college-aged students. There was an age restriction on the survey in order to avoid any consent and legality issues. The survey sample also consisted of adults from a wide age range with the oldest participant being 78 years old. A majority of the participants were also female. The distribution was 110 female, 85 male, one transgender, and two participants did not respond. Most of our respondents also identified as straight. The breakdown is 183 respondents identified as straight, two as gay, eight as bisexual, one as queer, one as other, and then four participants either did not want to disclose that information or chose not to respond. A majority of the respondents also identified as Caucasian, white.

<b>Statistics</b>						
		How religious, if at all, do you consider yourself to be?	Please indicate your gender identity.	Please select the sexual orientation you best identify with	Place select what you feel best describes your race/ethnicity.	What is your age?
N	Valid	197	197	196	197	195
	Missing	2	2	3	2	4
Mean		2.95	1.59	1.24	3.06	29.66
Median		3.00	2.00	1.00	3.00	21.00
Mode		4	2	1	3	21

<b>Statistics</b>
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		What is your highest level of education?	What is your annual income?	How many children do you have?	What best describes your marital status?
N	Valid	197	40	163	194
	Missing	2	159	36	5
Mean		3.17	67613.75	.67	1.54
Median		3.00	37500.00	.00	1.00
Mode		3	0	0	1

### **Procedure/Distribution**

As stated previously, the survey was distributed through a reusable link. The link to the survey was sent out through email. The link was also distributed through social media pages and through asking professors, friends, family, peers, employers, and various other individuals to complete the survey and encourage people they know to complete the survey.

The survey ran for approximately three weeks. After the three weeks, the data began to be analyzed. Specific scoring guidelines were used when it came to measuring each individual participant's personality type. As previously stated, the data were analyzed through a mixture of Excel and SPSS. With the use of data analytic techniques, several correlations were drawn between the data.

## ***RESULTS***

Based on the data from our study we have been able to gather numerous results based on several demographic variables. This study was specifically looking at three key variables sexual, which were personality, religiosity, and sexual orientation. Based on these three key demographic variables there were several hypotheses made. With the data analyzed correlations can be seen with my hypotheses and the data.

### **Personality**

There were three hypotheses made based on participants personality type. Each one of these hypotheses was based on previous research done. My hypothesis was contradictory of previous research. Each one of my three hypotheses was not supported based on the data we collected throughout this study.

H<sub>1</sub> hypothesized there is a significant positive relationship between participants scores on the extraversion scale and a more favorable response to sexual appeals in advertising. The results indicate there is no significant relationship between an individual's' extraversion score and their response to sexual appeals for all five advertisements presented as the p values all exceeded .05. Therefore, the hypothesis is not supported.

H<sub>2</sub> hypothesized there is a significant negative relationship between participants scores on the neuroticism scale and a more favorable response to sexual appeals in advertising. The results indicate there is no significant relationship between an individual's' openness score and their response to sexual appeals for four advertisements presented as the p values all exceeded .05. Therefore, the hypothesis is not supported. Ad #3, featuring a male and female resulted in a significant negative relationship with a p-value of .017.

H<sub>3</sub> hypothesized there is a significant positive relationship between participants scores on the openness scale and a more favorable response to sexual appeals in advertising. The results indicate there is a significant relationship between an individual's' openness score and their response to sexual appeals for the two advertisements featuring individuals of the same gender. The p values were .048 and .050. The three advertisements that featured a female only, a male only and both a male and female had p values exceeding .05. Therefore, the hypothesis is not supported for those three advertisements.

### **Correlations for Personality Type**

		AVERAG E 5	AVERAG E 7	AVERAGE 9	AVERAG E 10	AVERAGE 12
AVERAGE 5	Pearson Correlation	1	.385	.308	.267	.120
	Sig. (2-tailed)		.000	.000	.000	.094

	N	198	196	196	197	197
AVERAGE 7	Pearson Correlation	.385	1	.330	.204	.178
	Sig. (2-tailed)	.000		.000	.004	.013
	N	196	196	194	195	195
AVERAGE 9	Pearson Correlation	.308	.330	1	.318	.208
	Sig. (2-tailed)	.000	.000		.000	.003
	N	196	194	197	196	196
AVERAGE 10	Pearson Correlation	.267	.204	.318	1	.742
	Sig. (2-tailed)	.000	.004	.000		.000
	N	197	195	196	198	198
AVERAGE 12	Pearson Correlation	.120	.178	.208	.742	1
	Sig. (2-tailed)	.094	.013	.003	.000	
	N	197	195	196	198	198
EXTRA RSION- TOTAL- AVERAGE	Pearson Correlation	.068	.099	.063	.074	.039
	Sig. (2-tailed)	.349	.173	.384	.307	.592
	N	194	192	193	194	194

AVERAG E 5	Pearson Correlation	1	.385	.308	.267	.120
	Sig. (2-tailed)		.000	.000	.000	.094
	N	198	196	196	197	197
AVERAG E 7	Pearson Correlation	.385	1	.330	.204	.178
	Sig. (2-tailed)	.000		.000	.004	.013
	N	196	196	194	195	195
AVERAG E 9	Pearson Correlation	.308	.330	1	.318	.208
	Sig. (2-tailed)	.000	.000		.000	.003
	N	196	194	197	196	196



AVERAG E10	Pearson Correlation	.267	.204	.318	1	.742
	Sig. (2-tailed)	.000	.004	.000		.000
	N	197	195	196	198	198
AVERAG E 12	Pearson Correlation	.120	.178	.208	.742	1
	Sig. (2-tailed)	.094	.013	.003	.000	
	N	197	195	196	198	198
NEUROTICISM-TOTAL-AVERAGE	Pearson Correlation	-.068	-.086	-.170	-.005	-.013
	Sig. (2-tailed)	.345	.232	<b>.017</b>	.942	.858
	N	195	193	194	195	195

		AVERAG E 5	AVERA GE 7	AVERA GE 9	AVERAG E 10	AVERAGE 12
AVERAGE 5	Pearson Correlation	1	.385	.308	.267	.120
	Sig. (2-tailed)		.000	.000	.000	.094
	N	198	196	196	197	197
AVERAGE 7	Pearson Correlation	.385	1	.330	.204	.178
	Sig. (2-tailed)	.000		.000	.004	.013
	N	196	196	194	195	195
AVERAGE 9	Pearson Correlation	.308	.330	1	.318	.208
	Sig. (2-tailed)	.000	.000		.000	.003
	N	196	194	197	196	196
AVERAGE10	Pearson Correlation	.267	.204	.318	1	.742
	Sig. (2-tailed)	.000	.004	.000		.000
	N	197	195	196	198	198
AVERAGE 12	Pearson Correlation	.120	.178	.208	.742	1
	Sig. (2-tailed)	.094	.013	.003	.000	

	N	197	195	196	198	198
OPENNESS-TOTAL-AVERAGE	Pearson Correlation	.044	.095	-.057	.142	.137
	Sig. (2-tailed)	.545	.191	.427	<b>.048</b>	<b>.056</b>
	N	195	193	194	195	195

### Religiosity

For the key variable demographic religiosity, there was one hypothesis made. H<sub>4</sub> hypothesized the more religious an individual is the less likely they are to respond positively to sexual appeals in advertising (and vice-versa). The results indicated that only the ad featuring a male only had a significant positive relationship with the level of religious beliefs and a favorable response to the advertisement. There were no significant relationships found between the level of religiosity and the other four advertisements.

### Correlations for Religiosity

		AVERAGE 5	AVERAGE7	AVERAGE9	AVERAGE10	AVERAGE12
AVERAGE 5	Pearson Correlation	1	.385	.308	.267	.120
	Sig. (2-tailed)		.000	.000	.000	.094
	N	198	196	196	197	197
AVERAGE7	Pearson Correlation	.385	1	.330	.204	.178
	Sig. (2-tailed)	.000		.000	.004	.013
	N	196	196	194	195	195
AVERAGE9	Pearson Correlation	.308	.330	1	.318	.208
	Sig. (2-tailed)	.000	.000		.000	.003
	N	196	194	197	196	196
AVERAGE10	Pearson Correlation	.267	.204	.318	1	.742
	Sig. (2-tailed)	.000	.004	.000		.000
	N	197	195	196	198	198
AVERAGE12	Pearson Correlation	.120	.178	.208	.742	1
	Sig. (2-tailed)	.094	.013	.003	.000	
	N	197	195	196	198	198
How religious, if at all, do you consider yourself to be?	Pearson Correlation	.085	.164	.054	-.073	-.093
	Sig. (2-tailed)	.233	.022	.450	.309	.193
	N	197	195	196	197	197

### Sexual Orientation

For the key demographic variable, sexual orientation, there were four hypotheses predicted based on the limited research available in for this variable. H<sub>5</sub> hypothesized that straight men are likely to respond positively to seeing their opposite-sex in an advertisement using sexual appeals. A paired samples t-test was generated and resulted in finding there was a significant difference in the favorable level of response from straight men toward the advertisement only depicting the female alone versus the other four ads. The p-value was less than .05 in all instances providing support for the hypothesis.

H<sub>6</sub> hypothesized that straight women are likely to respond positively to seeing their opposite-sex in an advertisement using sexual appeals. A paired samples t-test rejected the hypothesis with a p-value of .089 as there was not a significant difference between responses to the advertisement featuring a female only compared to a male only. Females had a more favorable response to the female only ad compared to the ad with the male only.

H<sub>7</sub> hypothesized that straight men are likely to respond negatively to seeing their same-sex in an advertisement using sexual appeals. A paired samples t-test was generated and resulted in findings that there was a

significant difference between the response from straight men toward the advertisement depicting two males versus the other four ads. The p-value was greater than .05 in all instances providing support for the hypothesis.

H<sub>8</sub> hypothesized that straight women are likely to respond negatively to seeing their same-sex in an advertisement using sexual appeals. A paired samples t-test rejected the hypothesis. The opposite occurred as there was a significantly higher favorable response from women towards the advertisements featuring both females and both males compared to the other three ads.

## *CONCLUSION*

Despite not all of our hypothesis being accepted, overall the results support our theories that certain types of sexual appeals are not favorable to specific groups of people. We can see this in terms of an individual's personality type. Previous research suggested that individuals that have an extraverted personality type responded more favorably to advertisements using sexual appeals. This information was not supported by my study. The data from my study suggested that there is no significant relationship between an individual's extraversion score and their response to sexual appeals in the five advertisements used in the study.

Similarly, there was no significant relationship between an individual's neuroticism score and their response to sexual appeals on four out of the five advertisements used in the study. However, the third advertisement that featured a male and a female resulted in a significant negative relationship. This new data shows that individuals with a higher neuroticism score respond less favorably to advertisements using a 'traditional couple' of male and female.

According to the data found in my study, there is a significant relationship between an individual's openness score and their response to sexual appeals in two out of the five advertisements. The two advertisements with favorable responses are those in which a same-sex couple is featured. This study has provided a new finding in that individuals with a high openness scale are more open to advertisements featuring the LGBTQ community.

Due to the data found in the study conducted advertisers have gained insight in how to target specific personality types. Advertisements that feature the LGBTQ community should be targeted more towards individuals who have a high openness score. Advertisers should also not market only 'traditional couples' to individuals who score high on the neuroticism scale because the study suggests that there is a negative relationship between these two.

My hypothesis suggesting that the more religious an individual perceives themselves to be the less likely they are to respond positively to sexual appeals in advertising was rejected. There was no significant relationship between the level of religious beliefs and a favorable response to sexual appeals in advertising. This means that religiosity when it comes to the use of sexual appeals is an area for future researchers.

When it came to an individual's sexual orientation there were mixed results within the hypotheses. I first hypothesized that straight men are likely to respond positively to seeing their opposite-sex in an advertisement using sexual appeals. This hypothesis was confirmed as straight men responded most favorably to the advertisement of just a female. In terms of straight men, I also hypothesized that they would respond negatively to seeing their same-sex in an advertisement using sexual appeals and this hypothesis was accepted.

For straight women, I first hypothesized that they would respond favorably to seeing their opposite-sex in an advertisement using sexual appeals. This hypothesis was rejected. The data showed there to be no significant difference between responses to the advertisement featuring a female only compared to the male only. I also hypothesized that straight women are likely to respond negatively to seeing their same-sex in an advertisement using sexual appeals. The data showed that in fact, the opposite occurred as there was a significantly higher favorable response from women towards the advertisements featuring both females and both males compared to the other three ads.

Due to the data found in the study conducted advertisers have gained insight into how to target specific sexual orientations. Advertisements featuring sexual appeals with members of the LGBTQ community should not be targeted towards straight males because they will respond negatively to them. Instead, if an advertiser is trying to target straight males they should do so by utilizing advertisements that use sexual appeals featuring their opposite-sex. On the other hand, females are more accepting of advertisements that utilize sexual appeals featuring the LGBTQ community. When airing an advertisement that uses sexual appeals featuring the LGBTQ community, advertisers should consider one of the key demographics to be straight females.

## ***THEORETICAL CONTRIBUTIONS***

An individual's personality traits as measured by their level of neuroticism, extraversion and openness had no significant relationship with their response to the various ads. The results contrast with the general theory that personality does have a significant influence on how people respond to sexual appeals in advertising. Therefore, this research identifies the need to further analyze the impact of personality traits on how individuals respond to sexual appeals in advertising.

Individuals scoring high on the openness scale are many times described as imaginative, curious and willing to entertain novel ideas and unconventional values. The results in this study support this notion as open-minded people had a significantly favorable response to the advertisements depicting two males and two females.

The findings of the study indicate that males do not respond favorably to advertisements featuring same-sex couples. Marketers need to proceed with caution when considering running advertisements of LGBTQ on platforms viewed mainly by males. Females are more open-minded and accepting of advertisements featuring same-sex couples. It is recommended that marketers run ads of same-sex couples that target a female audience

## ***LIMITATIONS AND FUTURE RESEARCH***

The main limitation of this research is that the majority of this sample was college-aged students. While, it is great to get the opinion of the up-and-coming generation, in order to have a more well-rounded idea of individuals' response to sexual appeals in advertising it would have been beneficial to have a more evenly distributed age of respondents. Another limitation was that there was also not a wide variety of respondents with different sexual orientations. It would have been more beneficial to have a wide variety of respondents with different sexual orientations. Most of the respondents were of the same race and it would have been more beneficial if the respondents were from a broader variety of races. A final limitation was that the survey did not ask respondents their attitude towards the brand, Miller Light, before the survey. Respondents could have bias views on Miller Light that could have disrupted the survey results.

For future research, researchers should consider how to target a wide variety of respondents from different ages, races, sexual orientations, and various other demographic variables. By doing this future researchers will be able to have a better understanding of different groups of peoples' responses to sexual appeal in advertising. In the future, researchers should have a question addressing attitudes towards the brand of advertisements used at the beginning and end of the survey. This will allow researchers to see whether or not respondents have a bias towards the brand of the advertisements featured. It will also allow researchers to see if the respondent's image of the brand changed throughout the course of the survey due to new information featured in the survey's advertisements.

## ***APPENDIX***

Figure 1- Sozodont Girl

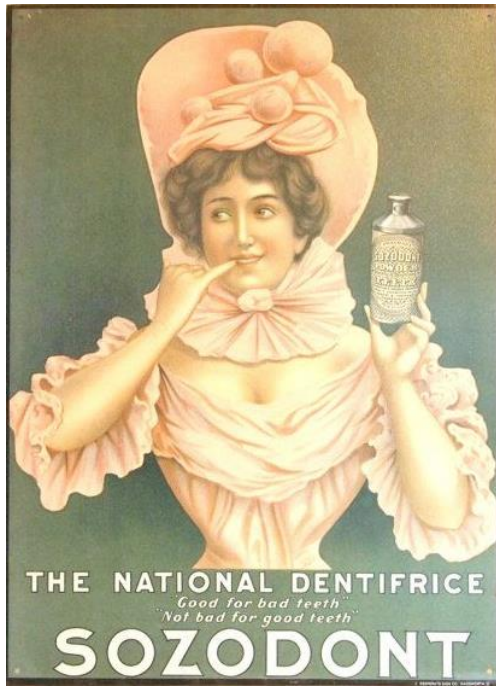


Figure 2- White Rock Girl

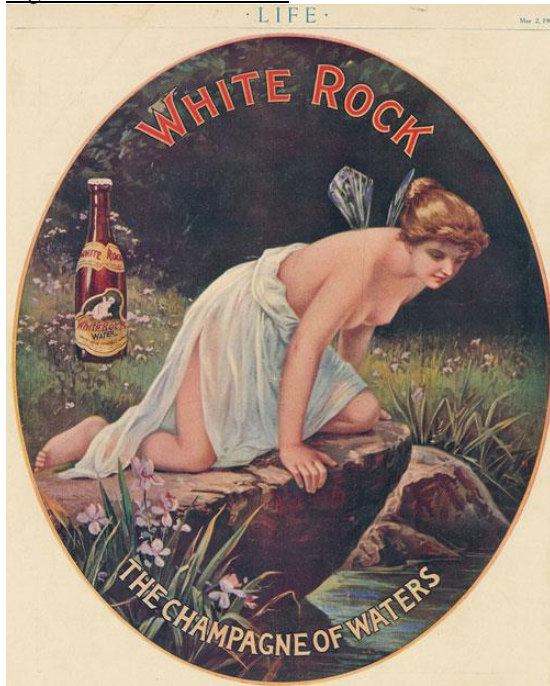


Figure 3- Scale for Attitudes Towards the Advertisement

Scale items

Attitude towards the ad  
 Bad/Good  
 Like/Dislike  
 Irritating/Not irritating  
 Boring/Interesting  
 Unpleasant/Pleasant  
 Unfavourable/Favourable  
 Offensive/Not offensive

Mitchell and Olsen (1981)

MacKenzie and Lutz (1989)  
 Droge (1989)

MacKenzie, S.B. and Lutz, R.J. (1989), "An empirical examination of the structural antecedents of

attitude toward the ad in an advertising pretesting context", *Journal of Marketing*, Vol. 53 No. 2, pp. 48-65.

Mitchell, A.A. and Olsen, J.C. (1981), "Are product attribute beliefs the only mediator of advertising effects on brand attitude?", *Journal of Marketing Research*, Vol. 18, August, pp. 318-32.

Droge, C. (1989), "Shaping the route to attitude change: central versus peripheral processing through comparative versus noncomparative advertising", *Journal of Marketing Research*, Vol. 26, May, pp. 193-204.

Table 1- Revised NEO FFI Scale

Item	NEO-FFI factor					NEO-FFI-R factor				
	N	E	O	A	C	N	E	O	A	C
1	0.53	-0.10	0.02	0.04	0.07	0.55	-0.09	-0.01	0.03	0.07
6 <sup>a,b</sup>	0.64	-0.10	-0.11	0.06	-0.15	0.40	-0.20	0.13	-0.24	-0.01
11	0.71	0.05	-0.01	-0.05	-0.07	0.72	0.06	-0.01	-0.06	-0.09
16	0.63	-0.19	0.08	-0.07	-0.13	0.64	-0.18	0.06	-0.08	-0.15
21	0.65	-0.04	-0.03	-0.14	-0.08	0.66	-0.04	-0.04	-0.14	-0.10
26	0.70	-0.08	-0.05	-0.08	-0.19	0.68	-0.07	-0.06	-0.09	-0.21
31	0.61	-0.01	0.01	0.10	-0.07	0.63	-0.01	0.00	0.09	-0.08
36	0.56	-0.04	-0.05	-0.31	-0.07	0.55	-0.03	-0.06	-0.31	-0.08
41	0.64	-0.06	-0.16	-0.01	-0.29	0.62	-0.05	-0.15	-0.03	-0.31
46	0.61	-0.20	0.07	-0.04	-0.14	0.62	-0.17	0.05	-0.04	-0.15
51	0.54	-0.02	-0.10	-0.06	-0.27	0.52	-0.03	-0.10	-0.07	-0.29
56	0.60	0.02	-0.05	-0.05	-0.15	0.58	0.00	-0.03	-0.08	-0.17
2	0.10	0.65	-0.12	-0.09	-0.14	0.08	0.69	-0.12	-0.06	-0.14
7	0.02	0.55	0.09	0.07	-0.01	0.02	0.52	0.13	0.08	-0.01
12 <sup>a,b</sup>	-0.08	0.37	0.06	0.17	-0.09	-0.09	0.50	-0.05	0.19	-0.07
17	-0.01	0.61	0.11	0.17	0.06	-0.01	0.64	0.14	0.19	0.05
22	0.06	0.57	0.03	-0.23	-0.05	0.06	0.59	0.05	-0.22	-0.06
27 <sup>a</sup>	-0.11	0.44	-0.08	0.17	-0.12	-0.22	0.57	-0.05	0.00	-0.02
32	-0.02	0.59	0.11	-0.11	0.05	-0.03	0.56	0.13	-0.08	0.06
37	-0.21	0.68	0.01	0.12	0.13	-0.21	0.63	0.05	0.13	0.14
42 <sup>a,b</sup>	-0.31	0.51	0.06	0.25	0.05	-0.02	0.52	0.09	0.17	-0.01
47	0.12	0.42	0.12	-0.27	0.15	0.14	0.41	0.12	-0.25	0.17
52	-0.13	0.54	0.05	-0.14	0.29	-0.12	0.53	0.08	-0.12	0.30
57	-0.19	0.41	-0.00	-0.09	0.10	-0.18	0.43	-0.02	-0.05	0.11
3 <sup>a</sup>	0.27	0.16	0.34	-0.01	-0.33	0.30	0.23	0.36	-0.13	-0.22
8 <sup>a</sup>	-0.19	-0.12	0.16	-0.10	-0.30	-0.03	0.20	0.39	0.08	0.16
13	-0.01	0.00	0.63	0.17	0.08	-0.03	-0.03	0.63	0.15	0.07
18	-0.08	0.01	0.42	0.05	0.00	-0.07	0.01	0.40	0.02	0.02
23	0.08	0.11	0.56	0.17	-0.03	0.07	0.10	0.56	0.16	-0.04
28 <sup>a</sup>	-0.12	0.19	0.36	-0.04	0.06	0.09	0.05	0.40	0.01	-0.25
33	-0.05	0.07	0.50	0.08	0.09	-0.04	0.04	0.51	0.07	0.09
38 <sup>a</sup>	-0.07	-0.15	0.29	-0.08	-0.17	0.36	0.29	0.39	-0.02	0.07
43	0.08	0.07	0.61	0.11	-0.01	0.06	0.04	0.61	0.10	-0.01
48	-0.10	-0.05	0.64	0.07	0.03	-0.13	-0.08	0.63	0.05	0.01
53	-0.04	0.14	0.61	-0.10	0.17	-0.06	0.10	0.61	-0.10	0.16
58	-0.02	0.01	0.57	-0.23	-0.01	-0.07	-0.00	0.56	-0.22	-0.03
4	0.05	0.25	0.13	0.43	0.25	0.05	0.23	0.16	0.42	0.23
9 <sup>a</sup>	-0.41	-0.08	0.08	0.39	0.22	-0.17	-0.11	0.07	0.55	0.16
14	-0.10	0.07	-0.07	0.52	0.08	-0.09	0.07	-0.05	0.51	0.08
19 <sup>a</sup>	0.13	0.00	0.04	0.44	0.00	-0.12	-0.16	0.07	0.53	0.05
24 <sup>a,b</sup>	-0.39	0.15	0.00	0.45	-0.02	0.19	0.00	-0.08	0.48	-0.05

19 <sup>a</sup>	0.13	0.00	0.04	0.44	0.00	-0.12	-0.16	0.07	0.53	0.05
24 <sup>a,b</sup>	-0.39	0.15	0.00	0.45	-0.02	0.19	0.00	-0.08	0.48	-0.05
29 <sup>a</sup>	-0.38	-0.05	0.20	0.36	-0.01	-0.07	0.12	0.04	0.42	0.00
34 <sup>a</sup>	-0.11	0.39	0.11	0.21	0.19	-0.21	0.24	0.10	0.40	0.11

(continued on next page)

Table 1 (continued)

Item	NEO-FFI factor					NEO-FFI-R factor				
	N	E	O	A	C	N	E	O	A	C
39	-0.03	0.29	0.08	0.61	0.05	-0.02	0.25	0.11	0.59	0.06
44	-0.20	-0.08	-0.02	0.53	-0.09	-0.20	-0.08	-0.02	0.52	-0.09
49	0.09	0.24	0.20	0.42	0.31	0.09	0.20	0.24	0.40	0.28
54	-0.03	-0.10	0.09	0.58	0.09	-0.03	-0.13	0.11	0.58	0.08
59	-0.12	-0.12	-0.03	0.56	0.14	-0.10	-0.12	-0.03	0.60	0.14
5	-0.06	-0.05	-0.11	0.11	0.56	-0.04	-0.04	-0.11	0.11	0.56
10	-0.22	-0.05	-0.10	0.11	0.62	-0.19	-0.05	-0.10	0.11	0.64
15 <sup>a,b</sup>	-0.13	-0.12	0.13	-0.02	0.46	-0.30	-0.15	0.06	0.09	0.47
20	-0.09	-0.02	0.07	0.18	0.57	-0.07	-0.03	0.06	0.17	0.58
25	-0.10	0.15	-0.01	-0.12	0.63	-0.08	0.15	-0.00	-0.09	0.63
30	-0.32	-0.12	-0.04	0.13	0.51	-0.28	-0.10	-0.06	0.14	0.54
35	-0.06	0.24	0.13	0.01	0.66	-0.03	0.22	0.15	0.03	0.67
40	-0.14	0.10	0.16	0.11	0.57	-0.11	0.09	0.17	0.12	0.57
45	-0.28	-0.09	-0.02	0.12	0.46	-0.26	-0.07	-0.04	0.12	0.48
50	-0.11	0.13	0.04	-0.04	0.66	-0.08	0.12	0.06	-0.03	0.67
55	-0.21	-0.05	-0.01	0.11	0.59	-0.18	-0.03	-0.02	0.11	0.60
60	-0.02	0.20	0.13	-0.13	0.59	-0.00	0.19	0.14	-0.09	0.59
% <sup>c</sup>	9.89	7.20	5.60	5.76	8.42	8.90	7.48	5.97	6.37	8.41

#### Figure 4- Survey Used in Study

The Effects of Personality, Religiosity, and Sexual Orientation on Response to Sexual Appeals in Ads Published

iQ Score: **Good**

Default Block

Block Options

Q1

This is a research project being conducted by Erin Noble, a student at Siena College. It should take approximately 10-15 minutes to complete.

Your participation in this survey is voluntary. You may refuse to take part in the research or exit the survey at any time without penalty. You will receive no direct benefits from participating in this research study. However, your responses may help us learn more about the effectiveness of sex in advertising when it pertains to gender.

Your responses will remain anonymous. No one will be able to identify you or your answers, and no one will know whether or not you participated in this study. If you have questions at any time about the study or the procedures, you may contact me via email at et07nobl@siena.edu or my mentor, Professor Michael Pepe via email at mpepe@siena.edu.

This survey has been approved by the IRB. The IRB number is 02-19-17 and the date the survey was approved on is 2/16/2019.

Thank you for your participation!

ELECTRONIC CONSENT: Please select your choice below. You may print a copy of this consent form for your records. Clicking on the "Agree" button indicates that

You have read the above information  
You voluntarily agree to participate  
You are 18 years of age or older

- Agree: I am at least 18 years of age and I wish to participate
- Disagree: I do not wish to participate and/or I am under 18 years of age

Page Break

Q2

Here are a number of characteristics that may or may not apply to you. Please select how strongly you agree or disagree with each statement as it pertains to you.

	Disagree Strongly	Somewhat Disagree	Neither agree nor disagree	Somewhat Agree	Agree Strongly
Is talkative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tends to find fault with others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Does a thorough job	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is depressed, blue	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is original, comes up with new ideas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is reserved	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is helpful and unselfish with others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Can be somewhat careless	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is relaxed, handles stress well	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is curious about many different things	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is full of energy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Starts quarrels with others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is a reliable worker	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Can be tense	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Is ingenious, a deep thinker	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Generates a lot of enthusiasm	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has a forgiving nature	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tends to be disorganized	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Worries a lot	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has an active imagination	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tends to be quiet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is generally trusting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tends to be lazy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is emotionally stable, not easily upset	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is inventive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has an assertive personality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Can be cold and aloof	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Perseveres until the task is finished	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Can be moody	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Values artistic, aesthetic experiences	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is sometimes shy, inhibited	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is considerate and kind to almost everyone	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Does things efficiently	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Remains calm in tense situations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prefers work that is routine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is outgoing, sociable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is sometimes rude to others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Makes plans and follows through with them	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Gets nervous easily	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Likes to reflect, play with ideas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has a few artistic interests	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Likes to cooperate with others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is easily distracted	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is sophisticated in art, music, or literature	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Page Break

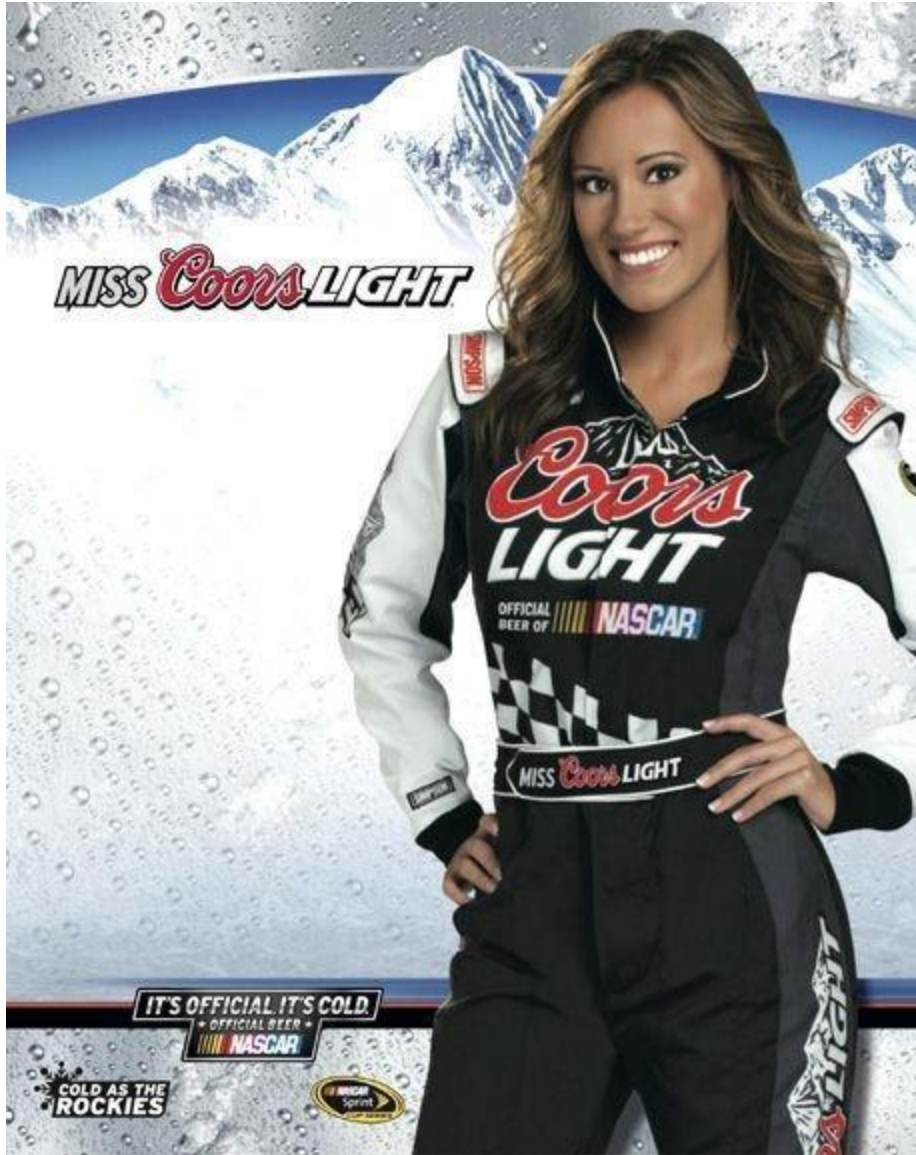
Q3

In the next portion of the survey, you are going to see five different advertisements. You will be asked to provide your perception of each of the five advertisements.

Page Break

<a href="#" style="color: white; text-decoration: none;">Import Questions From...</a>
<a href="#" style="color: white; text-decoration: none;">Create a New Question</a>
<a href="#" style="color: #008000; text-decoration: none;">Add Block</a>

Block 1  
Block Options  
Q4



Q5

Here are a number of characteristics that may or may not apply to the advertisement presented above. Please select which you feel mostly relates to your opinion of the advertisement.

Bad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Good
Dislike	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Like
Irritating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Not Irritating
Boring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Interesting
Unpleasant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Pleasant

Unfavorable

Favorable

Offensive

Not Offensive

[Import Questions From...](#)

[Create a New Question](#)

[Add Block](#)

Block 2

Block Options

Q6



Q7

Here are a number of characteristics that may or may not apply to the advertisement presented above. Please select which you feel mostly relates to your opinion of the advertisement.

Bad

Good

Dislike

Like

Irritating

Not Irritating

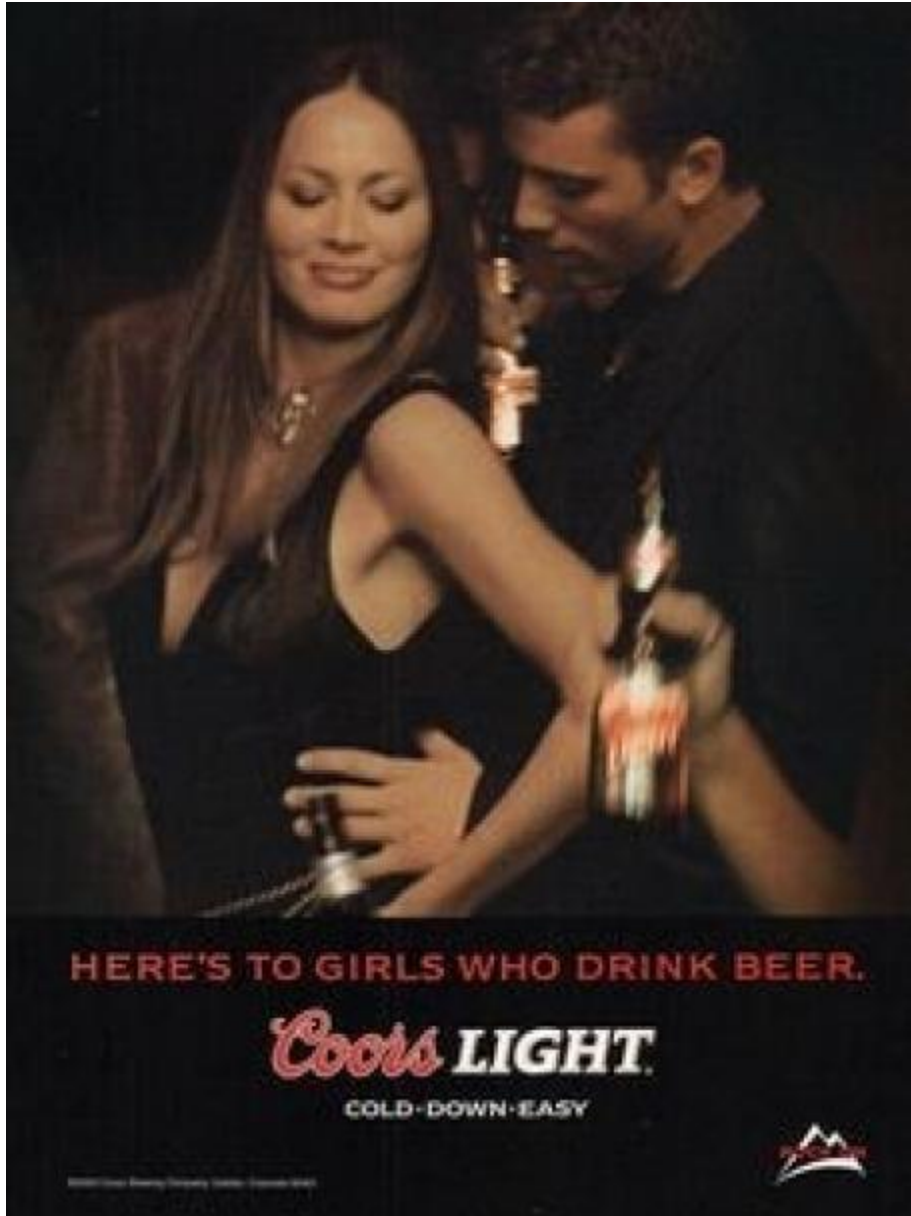
Ted Winnowski '63 Student Conference in Business

*April 5<sup>th</sup>, 2019*

Boring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Interesting
Unpleasant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Pleasant
Unfavorable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Favorable
Offensive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Not Offensive

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Block 3  
 Block Options  
 Q8



Q9

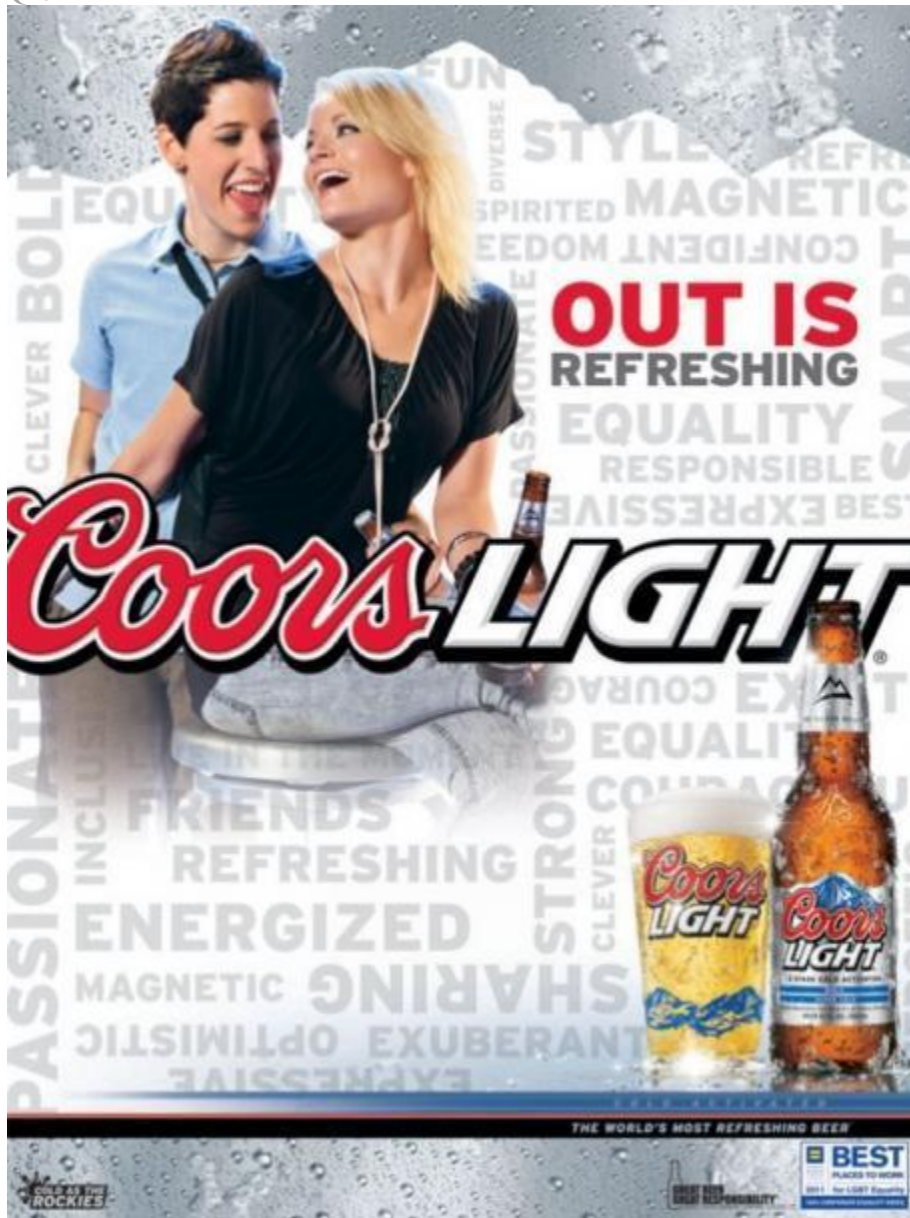
Here are a number of characteristics that may or may not apply to the advertisement presented above. Please select which you feel mostly relates to your opinion of the advertisement.

Bad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Good
Dislike	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Like
Irritating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Not Irritating
Boring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Interesting

Unpleasant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Pleasant
Unfavorable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Favorable
Offensive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Not Offensive

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 Q10



Q10\_1

Ted Winnowski '63 Student Conference in Business  
 April 5<sup>th</sup>, 2019

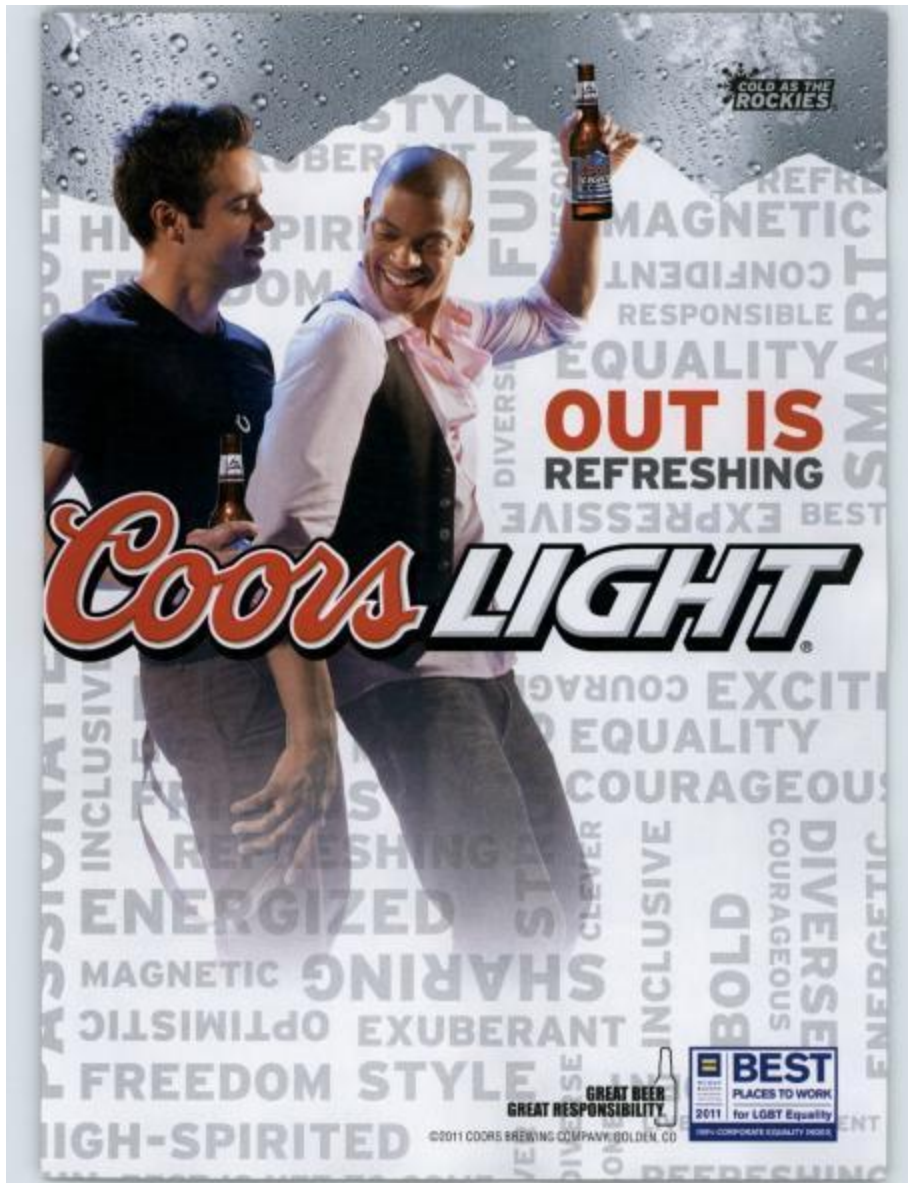
Here are a number of characteristics that may or may not apply to the advertisement presented above. Please select which you feel mostly relates to your opinion of the advertisement.

Bad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Good
Dislike	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Like
Irritating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Not Irritating
Boring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Interesting
Unpleasant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Pleasant
Unfavorable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Favorable
Offensive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Not Offensive

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Q11





Q12

Here are a number of characteristics that may or may not apply to the advertisement presented above. Please select which you feel mostly relates to your opinion of the advertisement.

Bad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Good
Dislike	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Like
Irritating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Not Irritating
Boring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Interesting
Unpleasant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Pleasant

Unfavorable

Favorable

Offensive

Not Offensive

[Import Questions From...](#)

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Block Options

Q13

How religious, if at all, do you consider yourself to be?

Not at all religious

Somewhat not religious

Neither religious or not  
religious

Somewhat religious

Very religious

Q14

Please indicate your gender identity.

- Male
- Female
- Transgender
- Another Identity
- Would rather not disclose

Q15

Please select the sexual orientation you best identify with

- Straight
- Lesbian
- Gay
- Bisexual
- Transgender
- Queer
- Pansexual
- Other

- Would rather not disclose

Q16

Place select what you feel best describes your race/ethnicity.

- African American
- Asian/Pacific Islander
- Caucasian, white
- Hispanic/Latino
- Native American
- Other
- Would rather not disclose

Q17

What is your age?

Q18

What is your highest level of education?

- No formal education
- High School
- College
- Vocational Training
- Masters
- Doctorate/PHD
- Other
- Would rather not disclose

Q19

What is your annual income?

Q21

How many children do you have?

Q20

What best describes your marital status?

- Single, not married
- Married
- Living with partner
- Separated
- Widowed
- Divorced

Import Questions From...  
Create a New Question

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# AN EXPLORATORY ANALYSIS OF DRUG REHABILITATION DATA AND THE NEED FOR EVIDENCE-BASED POLICY REFORM

*Liam Rowland, Siena College*

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## **ABSTRACT**

*Drug addiction has plagued our society for many years and the number of deaths from overdoses per year has quadrupled in the last 20 years. Through my analytical exploration of the Treatment Episode Data Set, a data set with qualitative information on 1.6 million rehabilitation patients all over the United States, I was able to distinguish some key characteristics of repeat rehabilitation patients; those patients who have been to rehabilitation prior to their latest stint. In addition, I investigated the massive difference between federal spending on rehabilitation and federal spending on drug prevention, and observed the distinct linkage between homelessness and drug addiction. Based on this evidence, I developed and proposed an idea for policy reform.*

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**INTRODUCTION**

Drug addiction is one of the greatest problems our country faces today. Not only has the number of overdoses per year quadrupled in the last 20 years; shattering millions of lives and families in the process, the problem has become an incredibly costly one too. In fact, estimates that include crime and lost work productivity on top of the medical expenses incurred by drug addicts amount to \$600 billion dollars per year (see Figure 1). For context, that is equivalent to about 17% of the U.S federal budget (National Institute on Drug Abuse).

**The Cost of Substance Abuse (USD billions)**

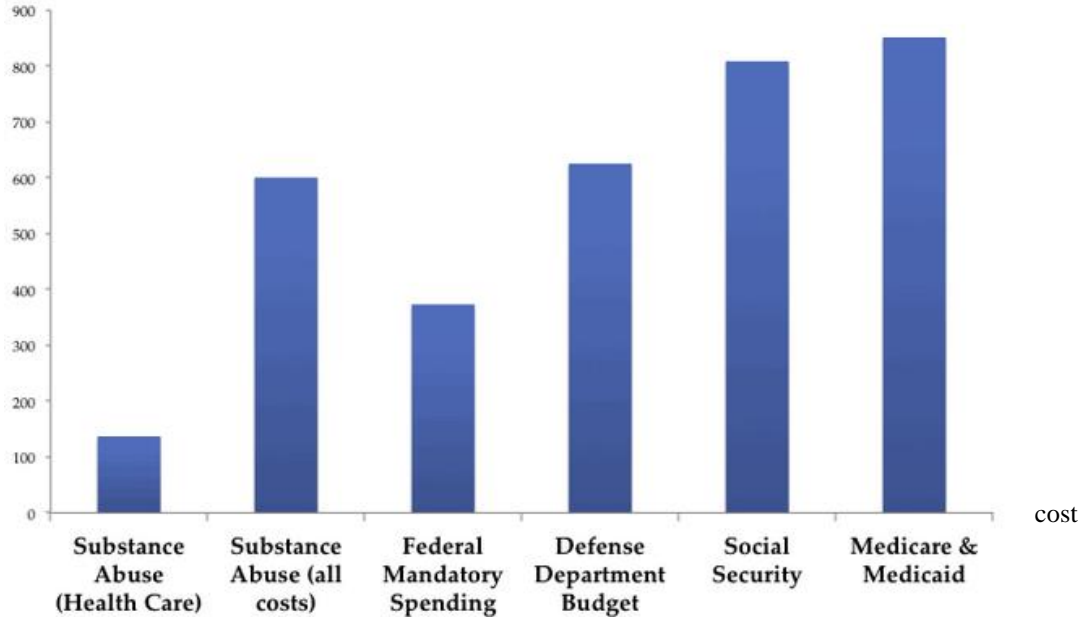


Figure 1 - The of

substance abuse cost in the US compared with other types of federal spending.

Because addiction is such a pervasive disease and nearly every person knows someone who is dealing with it or has dealt with it, I was motivated to apply the exploratory data analysis (EDA) methodology to identify the characteristics that lead a person to return enter drug rehabilitation or return to rehabilitation after a previous visit. In our study, we utilized the “Treatment Episode Data Set-Admissions” from 2016, also known as TEDS-A, which is collected every year by the Substance Abuse and Mental Health Archive and contains more than 1.6 million data points, each representing each individual rehabilitation patient with over 60 characteristics (henceforth referred to as variables) attributed to them. We performed an EDA in order to better understand the data and locate any associations between the variables. After performing the EDA using the statistical software JMP-Pro, we were able to uncover the variables that had the greatest impact on whether the person had been to rehabilitation a number of times prior, which we defined as our output variable during the EDA process. This led us to perform a partitioning analysis to determine which of those key variables were the most impactful and made policy recommendations based on the evidence those variables provided.

The remainder of the article is organized as follows:

Section 2: Description of the TEDS data set in further detail.

Section 3: Description of the EDA Process

Section 4: Our recommendations

**THE TREATMENT EPISODE DATA SET – ADMISSIONS**

The Treatment Episode Data Set (TEDS) is a vast data set collected by states for the purposes of monitoring their substance use treatment systems. The data is prepared for the Substance Abuse and Mental Health Services Administration (SAMHSA) and U.S. Department of Health and Human Services. The data is collected every year with 2016 being the most recent collection. The patients listed in the data set are patients who were admitted to state-licensed or certified substance use treatment centers that receive federal public funding. The data is public domain and intended for public analytical use, but the identity of the patients in the data must be kept confidential. SAMHSA takes certain precautions in order to ensure no patient is identifiable and disclosure risk is eliminated. For example, age and age of first use are two variables that are separated into 12 categories or stratum (i.e 12-14; 15-17

etc.) so that the oldest and youngest person or the youngest and oldest users in the dataset cannot be identified (Samsha.gov/teds) .

The data consists of 1,699,261 records (or observations), each one representing a different patient admitted to a United States rehabilitation facility during 2016. There are over 60 variables associated with each patient. SAMHSA provides a codebook to go along with the data that contains some statistics about each variable and a detailed definition of the variable as well as a definition of each value that can occupy the variable. Figure 2 provides an example of the codebook's definition of the Employment Status variable. As you can see, some variables have a large portion of Missing or uncollected data. During the EDA process we cleaned this data, a process explained in the EDA section (Samsha).

#### EMPLOY: EMPLOYMENT STATUS

Designates the client's employment status at the time of admission or transfer:

- FULL TIME: Working 35 hours or more each week; including active duty members of the uniformed services.
- PART TIME: Working fewer than 35 hours each week.
- UNEMPLOYED: Looking for work during the past 30 days or on layoff from a job.
- NOT IN LABOR FORCE: Not looking for work during the past 30 days or a student, homemaker, disabled, retired, or an resident of an institution. Clients in this category are further defined in the supplemental data set item 'Detailed Not in Labor Force' (DET NFL).

Guidelines: Seasonal workers are coded in this category based on their employment status at time of admission. For example, if they are employed full time at the time of admission, they are coded as 01. If they are not in labor force at time of admission, they are coded 04.

Value	Label	Frequency	%
1	FULL TIME	280,509	16.5%
2	PART TIME	122,792	7.2%
3	UNEMPLOYED	598,660	35.2%
4	NOT IN LABOR FORCE	610,245	35.9%
-9	MISSING/UNKNOWN/NOT COLLECTED/INVALID	87,055	5.1%
<b>Total</b>		<b>1,699,261</b>	<b>100%</b>

- Minimum: 1
- Maximum: 4

Width: 2; Decimal: 0  
Variable Type: numeric

Figure 2 - A sample

definition of a variable (Employ) in the SAMHSA codebook.

It was apparent from our first read through of the data that there were some limitations to it.

- **Continuity.** Due to the sensitive nature of the data, the data is encrypted and very confidential. Therefore, we could not confirm the prior visits of patients because, as noted in the codebook, the variable is self-reported for the most part and many of the facilities do not keep record of the prior visits of patients.
- **Traceability.** We also could not trace patients back to past TEDS-A reports to see what drug their prior admissions were for, so we could not analyze if their drug use patterns changed over time.
- **Forward Continuity.** We had to eliminate the treatment type variable from our analysis. If we were able to follow a patient into the next year, the variable would have a predictive quality to it and we could measure treatment effectiveness. It could have been a vital component of our analysis, but confidentiality of patients is paramount. As with any self-reported data, there is always the risk of errors on untruthfulness of the data. We placed our trust in the integrity of the rehabilitation centers.

The TEDS data set contained information on numerous variables that were relevant for program administration but unnecessary for purposes of analytical exploration. One of our first steps was to read through the codebook and read the definition of each variable so that we could decide which of the variables would be important to our analysis and delete those that would not to conserve space. Figure 3 shows a snippet of the spreadsheet we used to determine the variables we would keep. Once we understood each variable and deleted the variables we deemed unnecessary for our purposes, we were able to move on to the EDA process.



Category	CASEID	STFIPS	AGE
<b>Definition</b>	Program generated case (record) identifier. This variable does not have a frequency; each case has a unique value generated for identification purposes.	CENSUS STATE FIPS CODE	Calculated from date of birth and date of admission and categorized. 1= 12-14 2 =15-17 3= 18-20 4=21-24 5= 25-29 6= 30-34 7 =35-39 8= 40-44 9=45-49 10= 50-54 11= 55-64 12= 65 and older
<b>To Delete?</b>	Yes	Yes	No
<b>Reason?</b>	No repeats, value is uniquely generated, will not be necessary for our purposes.	Already given state & location will not be our necessary for our analysis	Will be used to determine the average ages of rehab patients

Figure 3 -

Snippet of our variable analysis and deletion process

### ***EXPLORATORY DATA ANALYSIS***

Exploratory Data Analysis (EDA) is a general way of analyzing data in situations where the analyst does not have a predetermined hypothesis to test (or confirm) for, but rather hopes to gain new insights or find something unexpected. The approach employs a variety of graphical techniques of data analysis. The main purposes of the analysis are to uncover previously unidentified associations between variables, identify the most important variables, and detect outliers and/or unusual patterns in the data set. The JMP Pro software offers powerful and flexible features to facilitate EDA of complex data sets. For our purposes, perhaps the most important function of JMP was the ability to quickly and easily create a partitioning analysis to identify the most impactful input variables on our output variable.

As mentioned before, we had to clean the data. In the original data set, the data labels all values that were not reported as “-9”. For example, in JMP, we were able to specify that “-9” values were to be treated as blanks and not included in our analysis. While there are a variety of ways to carry out an EDA, our basic order was:

- I. Identify and analyze our output variable (Y)
- II. Create histograms and analyze each input (X) variable
- III. Identify associations between X and Y
- IV. Analyze multiple X’s by Y through partitioning

#### **Identify and analyze our output variable**

After looking through the data, we found that the variable “NOPRIOR”, referred to in this paper as the Number of Prior visits, was the most fitting output variable that we would measure our input variables against. We figured that a great measure of the grip drugs have on patients is how many times they have had to seek treatment for it. The codebook specifies that the count in the variable does not include patients who transferred from one facility to another, only patients who checked into the rehabilitation facility that collected their data. We categorized the number of prior visits into three categories: 0 (New), 1-4 (Mid), 5+, (High). Figure A is a histogram of the amount of patients in each category in the data. It is clear that the majority of patients have been to a rehabilitation facility more than once before their current stint. What we were most interested in just from this early analysis was what factors were leading towards people seeking treatment 5 or more times.

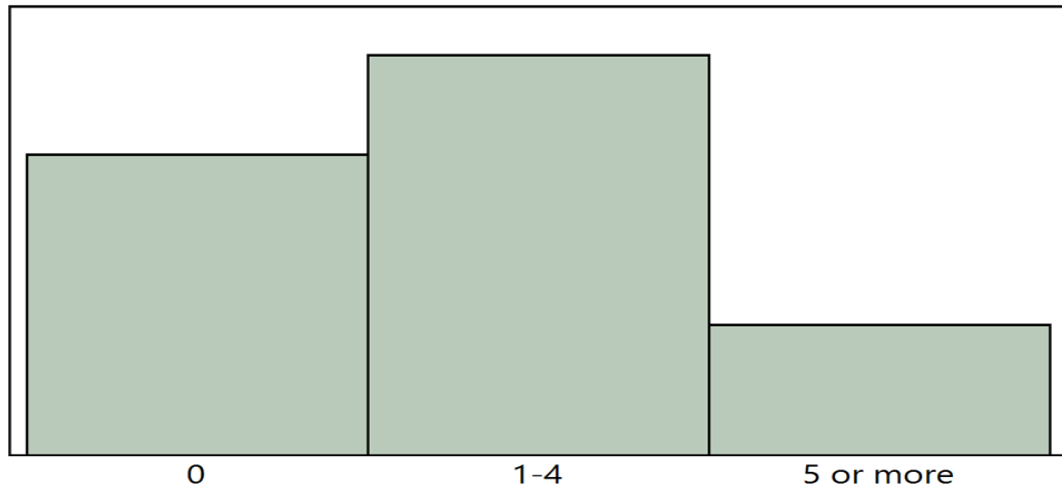


Figure 4 - Number of Prior Visits Histogram

**Create histograms and analyze each X variable**

When we looked through the data and deleted the variables we deemed unnecessary, we identified the variables we were going to work with which were Age, First Use Age, Employment, Education, Living Arrangements, & Substance.

Age is the age the person was when they arrived to the facility. It is based on the person's self-reported date of birth upon that they gave upon arrival. Figure B below is a histogram of the makeup of age in the data. Clearly, most people in the data are in the category of 25-34 years old with a small fraction of the patients over 40 and an even smaller fraction of people under 20 years old.

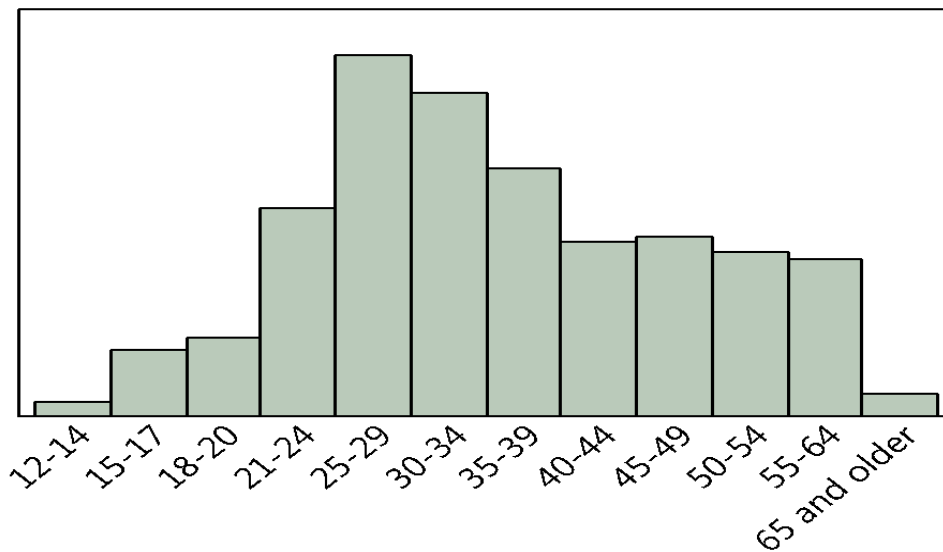


Figure 5 -

Histogram of Age

First Use Age is the age the patient reported that they first used the drug that they were admitted for. As you can see in Figure C below, the First Use Age for most patients falls in 12-14; 15-17; and 18-20. Interestingly, there is a slight spike in first use after age 29.

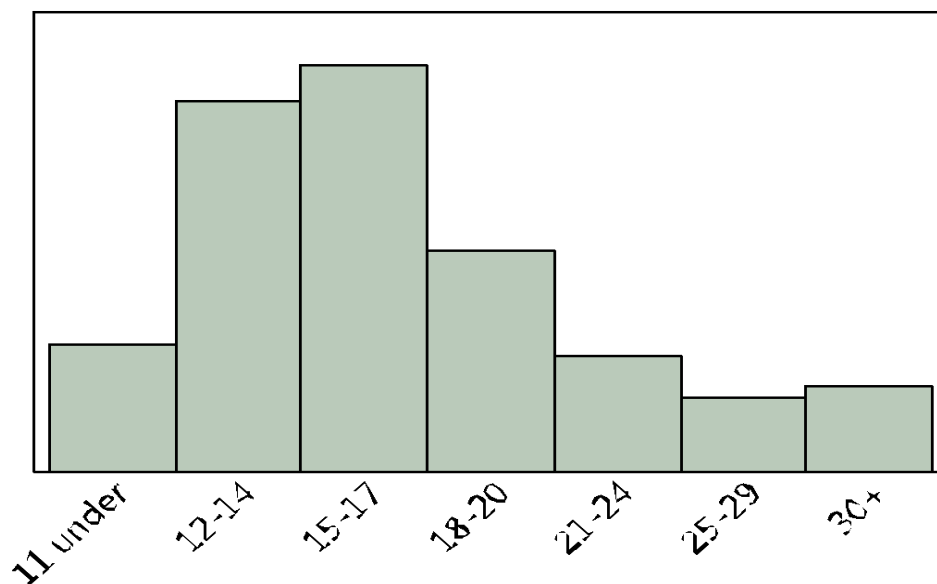


Figure 6 - Histogram of First Use Age

The Employment variable describes the working situation of the patient. There are three options: Full time, Part Time, and Unemployed; a category that also includes those patients who are not collecting Unemployment but are not in the labor force. The data in Figure D shows that an overwhelming majority of patients in the data are not currently working.

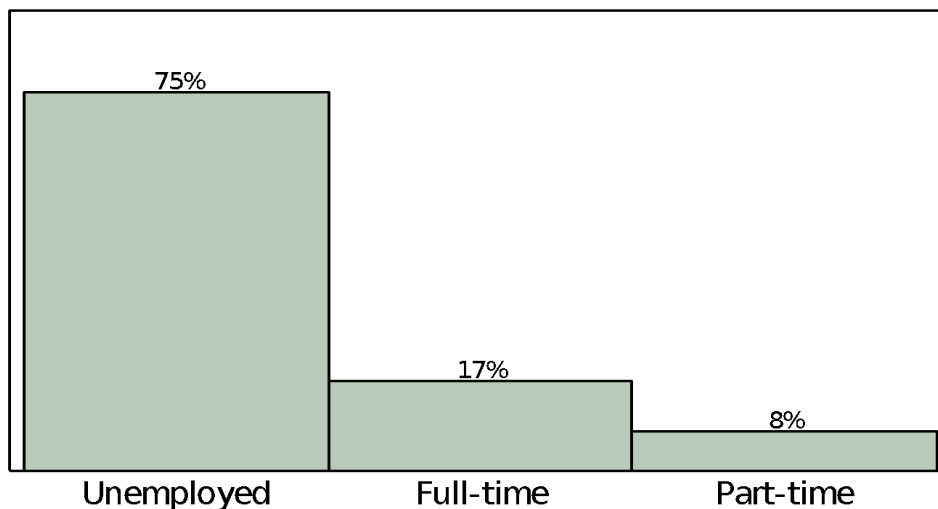


Figure 7 - Histogram of Employment

The Education variable describes how much education the patient has in years. This variable was very interesting and immediately drew our attention because the histogram below shows that a very large majority of the patients in the dataset have 12 years of education or a GED equivalent. From there, the data was split relatively evenly between the low end of education and the high end.

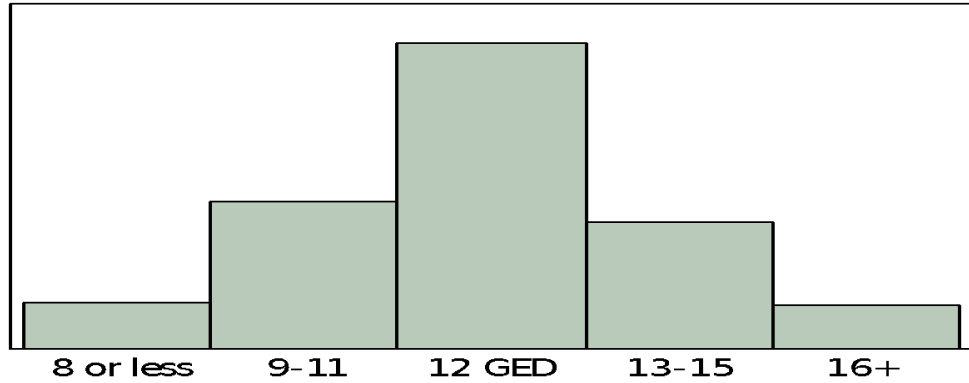


Figure 8 - Histogram of Education

The Living Arrangements variable shows how the patients in the data are living. There are three options: Independent Living (On their own), Dependent Living (Living with a parent or other care provider), and Homeless. Clearly most of the data is Living Independently, but the 15% of patients that are homeless is a substantial figure and worth investigating.

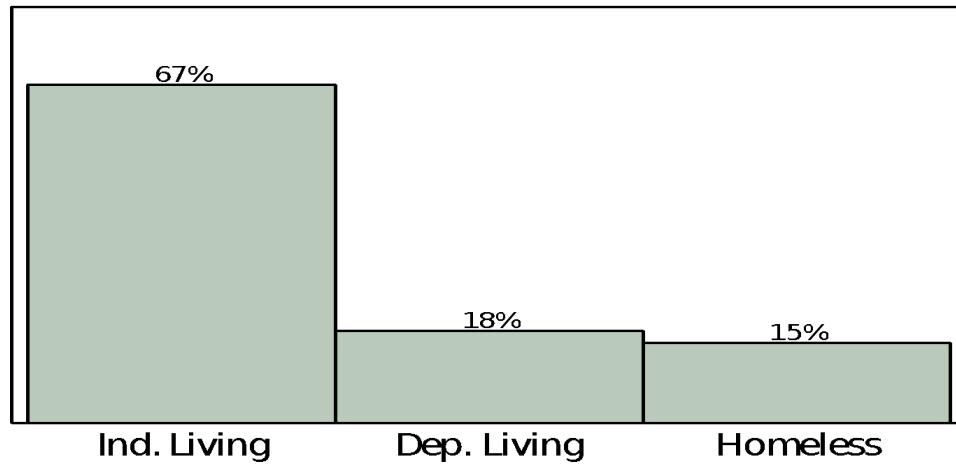


Figure 9 - Histogram of Living Arrangements

The last of the X variables we investigated was the Substance the patient was admitted for. The data had up to three drug types per patient: Primary, secondary, and tertiary. We decided to focus on the primary drug of the patient. Alcohol, Heroin, and Marijuana were the primary drug for a large percentage of patients. As you can see, many of the substances were a very insignificant portion of the data. We focused our analysis of drug type on the 7 most reported substances.

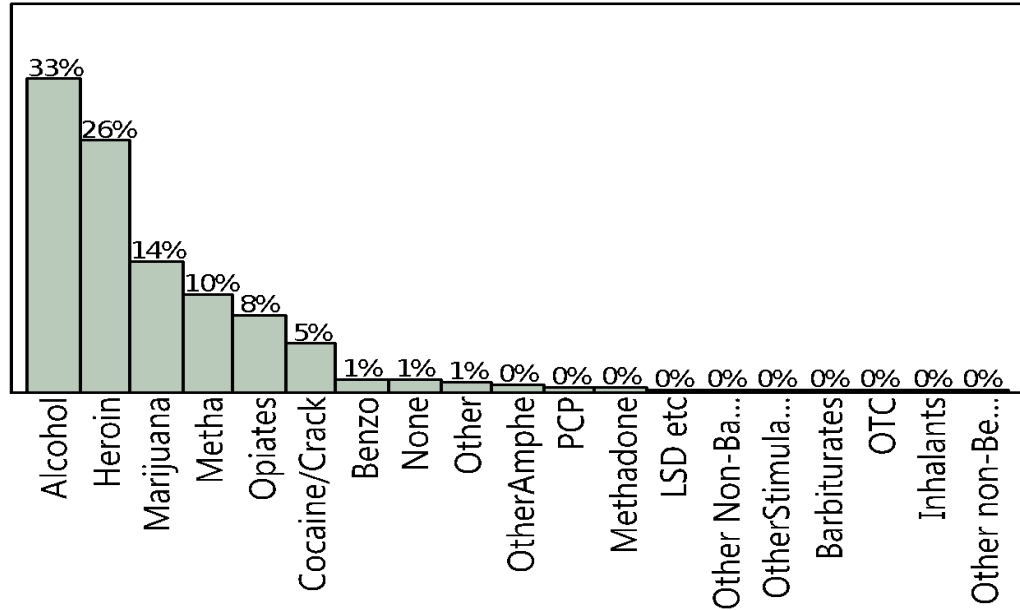


Figure 10 - Histogram of Substance

**Identify associations between X and Y**

Our next step was to examine the relationship between the X variables and the Y, or output variable, Number of Prior Visits. The first X variable that we analyzed with Number of Prior visits was Drug Type. The graph below shows the average number of prior rehabilitation stints for each drug type. The most reported substances in the data are labeled on the graph. Heroin users averaged almost three prior rehabilitation stints before their current one. Cocaine and Alcohol users are also high, hovering around an average of two prior stints before their current one. What we learn from this graph is that the rehabilitation efforts for these substances could be ineffective, or the addiction to these substances is so strong that rehabilitation is not enough to prevent a relapse.

The remaining X variables did not give us a clear-cut conclusion as to their effects on the number of prior rehab visits. Shown in Figure H below are two distributions of an X variable by the Y variable, Number of Prior Visits. Other than the relatively large proportion of homeless patients that are in the excessive category, neither gives us much evidence as a conclusion to their predictability of the Number of Prior Visits. The other X by Y distributions are not shown for brevity sake, as their distributions are very similar and just as inconclusive.

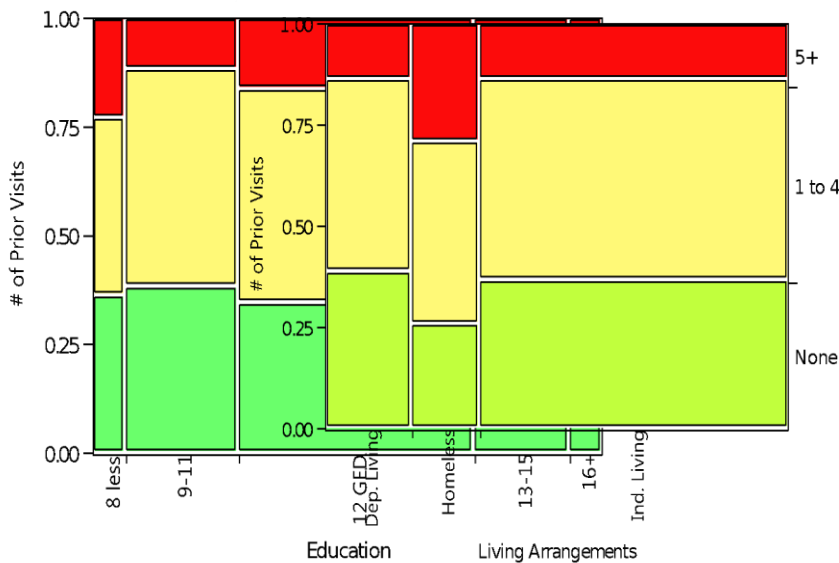


Figure 11 - Distributions of Y by X

**Analyze multiple X's by Y through partitioning**

Because of the lack of evidence that the one variable at a time approach gave us, we had to move on to an analysis of multiple X's by Y at a time. Partitioning is a type of analysis where the user starts with their output variable, which in our case was Number of Prior Visits, and the method algorithmically identifies the X variables that have the greatest impact on the output variable (James, Witten, Hastie, and R. Tibshirani, 2017). The variables continue to split based on their impact. We developed two different partitions, the first of which is shown below. The first split in this tree is the substance. Alcohol, Barbiturates, Cocaine/Crack, Heroin, Over the Counter Medicines and PCP have the greatest impact on whether or not the patient was had a mid to excessive number of prior rehab visits. The next split was employment. Clearly, the red bars, which represent patients in the high range of visits, start to shift as the patients who used those drugs split between employed and unemployed. Finally, the tree splits again by living arrangement. A large majority of unemployed, homeless patients who use those particular drugs are have a high number of prior rehabilitation patients. We address this discrepancy later in the recommendations section.



Partition 2



For the second partition, we eliminated the substance from the tree to see the effect of the other variables. The results were the same and confirmed what we learned in the last tree: Employment Status and Living Arrangements are very important factors for whether a person was a repeat rehabilitation patient. The first split, however, was Age. Patients in the 12 to 20 Age range had a low number of prior rehabilitation visits, which should be expected. We decided that in our recommendations, we would focus on these people and what could be done to prevent them from needing rehabilitation or returning to rehabilitation

**RECOMMENDATIONS**

The findings of our study suggest several recommendation described here. It's important to note that these are merely recommendations based on our findings from one dataset that is made up of mostly self-reported data for one specific year. These are not intended to be taken as actionable, step-by-step solutions but rather mere suggestions to be considered.

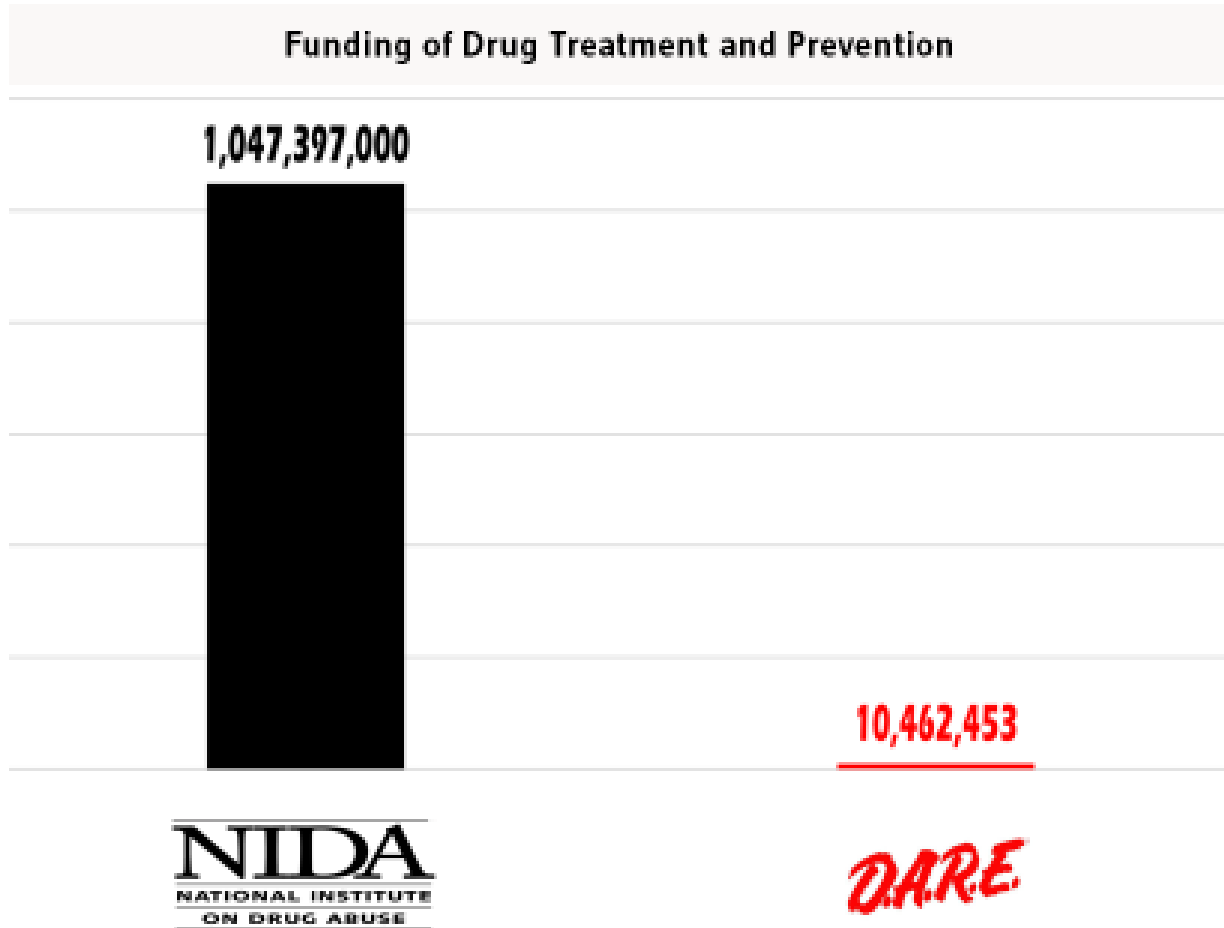
Our first recommendation was based on the fact that the Age groups of 12 to 20 shown above had the lowest number of high repeat visitors and the fact that the largest portion of the data had 12 years of education or a GED equivalent. Our recommendation is a class for high school juniors or seniors that focuses on the harsh reality of drug addiction.

The D.A.R.E program is the most recognized early drug prevention program in the country. D.A.R.E is a police-officer led program for educating students on drug abuse, bullying, gang violence and more. While D.A.R.E creates a curriculum for students in elementary school, middle school, and high school; the elementary and middle school programs are the most popular. The high school courses are mostly web-based and include “Celebrating Responsibly”, a resource packet distributed to students in 11<sup>th</sup> and 12<sup>th</sup> grade, and the “myplaybook High School Curriculum”, a web-assisted program which includes two in-class lessons after which the students complete the rest of the course online (DARE).

From my own experience of the program in middle school and the experiences of many of my peers, and from reading through curriculum of the classes that are offered to high school students, the classes generally deal with drugs in a more “PG” way due to the age of the students at the time of the class. The program does not necessarily expose the students to the reality of addiction. My experience was that the program gave a general idea of the type of person that could become an addict, and never addressed the fact that any person could become an addict. What we propose is a class that shows these young adults that drugs can lead to unemployment and homelessness and will ruin their relationships, family, and all hope for financial stability; concepts that are becoming much more real as students approach adulthood. The classes should have Narcotics Anonymous and Alcoholics Anonymous program-runners and rehabilitation facility employees speak to the students about the people that they meet and the fact that what has happened to so many Americans can happen to them too.

A major issue in creating a class like this is funding. The bar on the left of Figure I below shows the funding of the National Institute of Drug Abuse, which includes mainly Research Project Grants, Research Centers, and Research and Development Contracts totaling \$1,047,397 (National Institute on Drug Abuse). The bar on the right shows the funding of the D.A.R.E program, which amounts to \$10,462,453 (Dare). Only 1% of that funding is obtained through grants, the most major contributor to their funding is sweepstakes income. Just a small amount of the disparity between spending on research and spending on prevention could be used to fund our idea of a new program.

Figure 12 - Funding of NIDA vs. Funding of Dare



Our next recommendation deals with the evidence we gathered on the link between unemployed homeless patients and prior rehabilitation visits. Displayed below is a pie chart with a population of unemployed and homeless patients in the dataset. 78% of those who were both unemployed and homeless had a mid to high number of prior visits. There is a fundamental question that needs to be answered: Are homeless people in the data homeless because of their drug addiction, or are people in the data addicted to drugs because they are homeless?



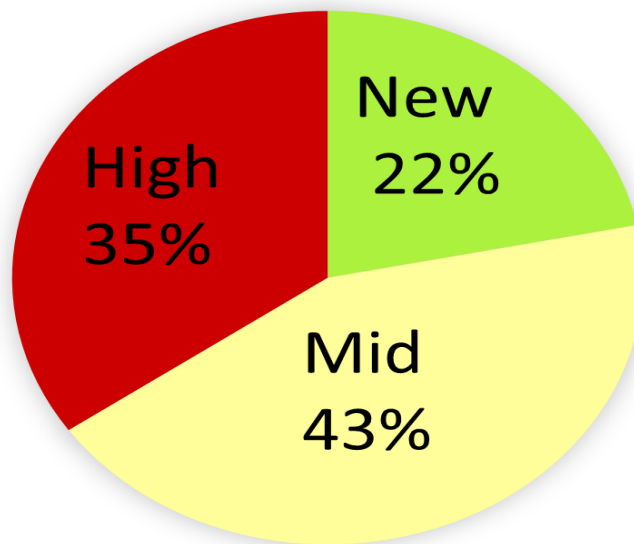


Figure 13 - unemployed and homeless patients

Sometimes incentivizing business owners can be a viable solution for a social issue. Based on the evidence we gathered, we recommended a policy that we felt could help to alleviate the unemployment and homelessness issue as it relates to former addicts, and therefore decrease the amount of people seeking rehabilitation. Much like there are tax benefits for hiring long-term unemployed Veterans and Wounded Warriors, there should be a tax credit for hiring a former rehabilitation patient who has been certified clean for one full year, or any amount of time that lawmakers deem appropriate. The policy could cut down the cost of rehabilitation nationwide, as patients who are employed and living on their own will be less likely to return to rehab, according to our data.

#### ***ACKNOWLEDGMENTS***

We would like to express our gratitude to Professor Nicole Heller, Department of Psychology, for her guidance on the interpretation of the TEDS data set and variable relationships.

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# DATA ANALYTICS TO GUIDE DONOR DEVELOPMENT AT CATHOLIC CHARITIES

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## ABSTRACT

*Catholic Charities of Albany has been collecting data on their donation history over the last 19 years. The donor data set involves over 31,000 donations, 9,000 donors, and 270 variables. Catholic Charities hoped to be able to use their donation history to help determine who they should target for future contributions, in an effort to reach their annual donation goal. In its raw state however, the data did not offer much actionable insight. The variables that had been tracked were not easily correlated to information that would provide the type of direction being sought. For example, I could not easily delineate which donors donated the largest amounts of money, which donated the most frequently, or how long a donor had been donating for. After understanding what exactly the data tracked and how it could be adapted, I was able to determine the 7 out of the 270 variables that would be of interest to my analysis. As a starting point, I used k-means clustering analysis to categorize historical donation patterns of donors into three distinct clusters. From this I was able to determine key characteristics that placed a donor in each cluster, and what the most likely outcome of a donor in each cluster was. I determined that there are medium to high monetary value donors, high frequency donors, and low frequency donors. Based on further analysis, I identified a small subset of donors who are most likely to become committed donors through targeted donor development. Moreover, the methodology and implementation guidelines are transitioned to Catholic Charities to enable sustainable growth for their future annual donations.*

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## INTRODUCTION

Data is everywhere and it is continuously being collected on an ever growing array of things. However, the question is, what can it be used for? Data analytics is becoming a highly demanded field because it allows us to generate extremely meaningful information from otherwise meaningless data. In doing so, the complexity lies with figuring out what the data is tracking, what it means, and how it can be analyzed in order to draw conclusions from it. Once the data is understood, a data analyst can begin to determine what trends exist, if any correlations exist between variables, and if there is a possibility that future actions can be predicted based on historical trends.

For Catholic Charities of the Diocese of Albany (Catholic Charities), collecting data has not been a problem. They have been diligently tracking all donations to their organization, for the last 19 years through their information system, Raiser's Edge (a fundraising and relationship management software for nonprofit organizations). However, using this data to generate useful information that could assist in promoting their mission was proving to be much more difficult than simply compiling the historical data. On its own, the historical donation data did not provide Catholic Charities with a methodology to assist in increasing future donations. Catholic Charities needed a way to systematically target potential donors as a result of information gained through analyzing the historical data.

Our connection with Catholic Charities was facilitated through Siena College Center for Academic Community Engagement (ACE) as a pilot consulting project. I was motivated to work on the challenge using the basic tools and methodology of the data analytics curriculum in the MSA program.

ACE organized a partnership between Catholic Charities and the Graduate Business department, where Catholic Charities shared their data with Dr. Necip Doganaksoy, a Data Analytics professor at Siena College, along with two of his students, Julie Magand and myself. Based on the data analytics techniques that Dr. Doganaksoy had taught Julie and myself through his courses, we were confident that we would be able to assist Catholic Charities by providing them with some direction to aid in their donor development, based on their historical data.

## ***BACKGROUND ON CATHOLIC CHARITIES***

Catholic Charities is a social service agency in the capital region that helps over 77,000 people across 14 counties throughout the year. They do this by providing food, clothing, shelter, mental health counseling, prison support, disaster assistance and many more services to those that are in need. In order to support these services, Catholic Charities heavily relies on donations from members of the local communities.

To solicit the donations that they need to pursue their mission, Catholic Charities organizes multiple different donation campaigns throughout the year. There are several different funds that donors can choose to donate to, but the primary fund is the annual fund, which consists of money that can be used to support any of the services that Catholic Charities offers. Like most non-profit organizations, donor trends show a decrease in number of donors, but increase in dollar raised. Catholic Charities intends to use the data that they collect on all of their donors to create a method of targeting donors in an effort to increase donations to the annual fund so that they can sustainably fulfil their mission.

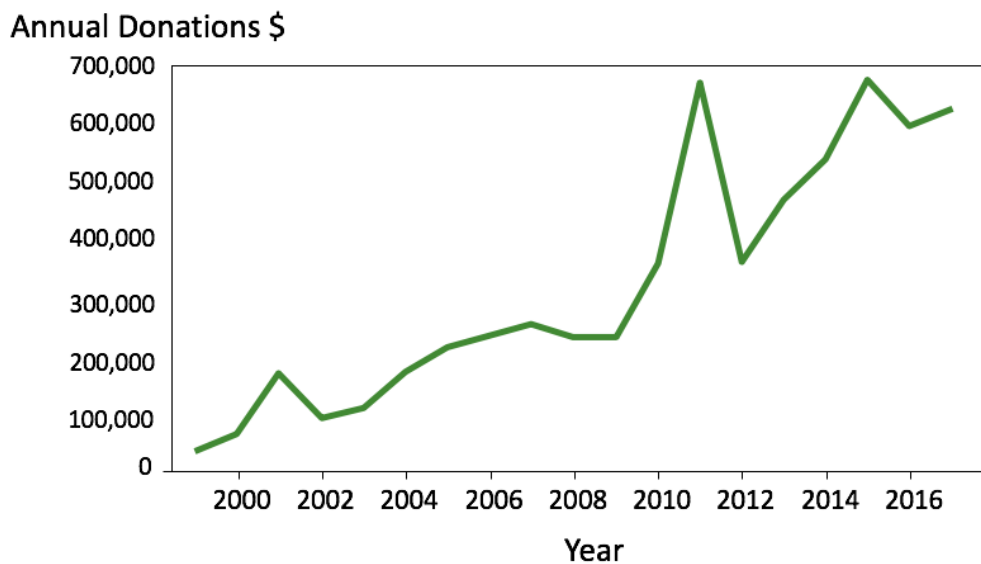
## ***EARLY STAGES***

Siena College and The Center for Academic Community Engagement (ACE) have partnered to analyze the data in hopes of providing Catholic Charities with meaningful information from the data that they have been collecting and consequently enabling them to increase annual donations within the Diocese of Albany.

## ***DATA AND VARIABLES***

Catholic Charities uses Raiser's Edge to collect their data, which allowed for it to be exported into a CSV file for further analysis. Because of the general nature of the software, the exported data was not in the exact form that would be necessary for our analysis. The data set of the donation history that we received included over 31,000 donations, 9,000 donors, and 270 variables. A time-series plot of the total amount of donations received per year is shown below in exhibit 1. The data was collected over the last 19 years, and the variables that were tracked changed multiple times throughout that period. This presented difficulties in our initial analysis of what the data was tracking and how it could be interpreted, but after several meetings with Catholic Charities, we began to understand the data better and see what kind of information we would be able to gather from it.

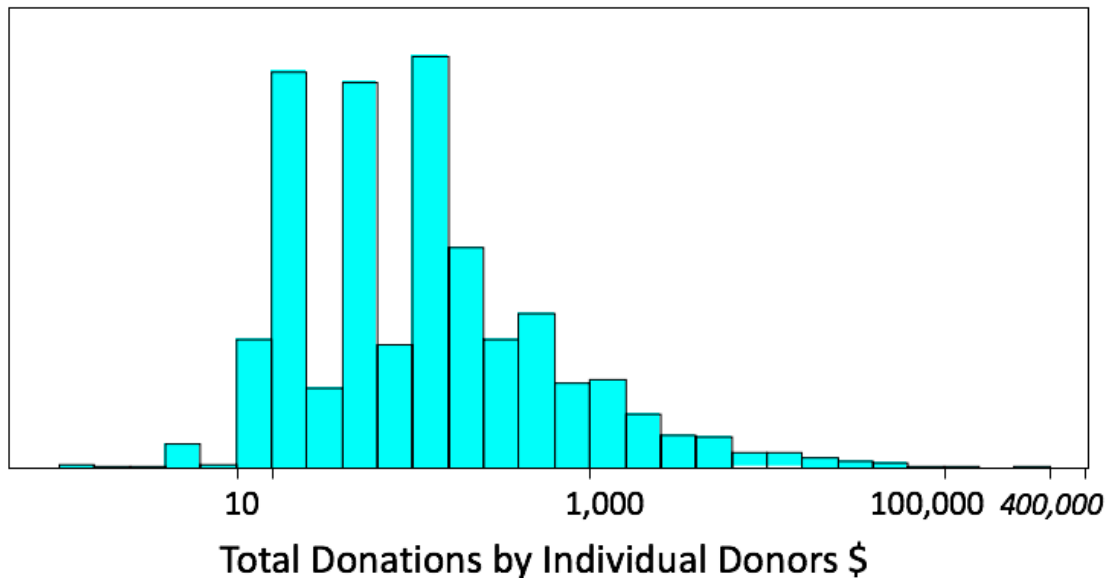
Exhibit 1: *Total Donations Over Time* - y-axis variable is the total donations made to the Annual Fund each year and the x-axis variable is the year in which gifts were made.



To get the data to a format that would be more useful to our analysis, we had to do preliminary data cleaning where we grouped all of the information provided for each individual donor and created new, cumulative variables. This allowed for us to evaluate donors from a more holistic approach as opposed to analyzing individual

donations. From the new variables that we created, we immediately recognized that the data was incredibly asymmetric; that is, a very small portion of donors make up a large portion of the total donations. Details about the donation disbursement are shown below in Table 2.

Table 2: *Disbursements of Donation Amounts*



The varying nature of donor donation patterns caused us to shift the focus for our analysis from tracing significant donations back to donors who would be good targets for future donor development actions, to focusing on donors who already exhibit certain characteristics that we believe could indicate that they may be significant future donors.

### **GOALS**

After several conversations with the Catholic Charities Donor Development team members, we determined that the most beneficial direction for our analysis would be to first understand what type of donor base there currently was. From this information, we would be able to determine what kind of donor development actions would be best for each type of donor. Although the donor data set did include a history of actions already targeted at each donor, we decided that our analysis would not consider this variable. There had not been a systematic approach in place for targeting donors, so the data would not provide meaningful insight into how the prior actions helped generate increased donations. Our goal was that going forward, the number of actions taken on a donor would be positively correlated to the number or dollar value of the donations that the donor would make.

Upon discussion with Catholic Charities, we decided that we could assist in creating this correlation by providing Catholic Charities with a list of donors that, based on the data, we believed would be the most likely to increase their donations as a result of targeted donor development and interaction. By analyzing the donor data set we were able to develop historical trends that we could use as a basis for our suggestions.

### **ANALYSIS**

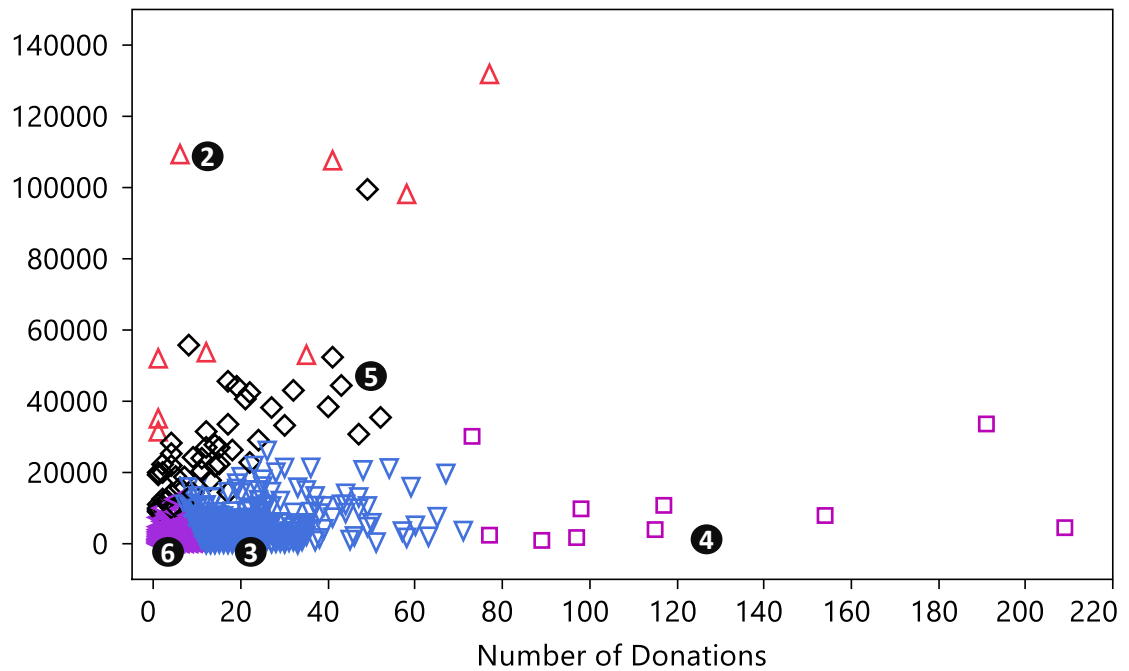
From the 270 variables that were being tracked in the data set, it became clear that only seven of the variables would be of interest for our analysis. The excluded variables were either collected for administrative purposes or missed large amounts of data. We decided that with information about how long a donor had been donating for, when their most recent donation was, how many donations they have made over time, and what their mean gift amount was, we would have enough data to effectively analyze donation patterns.

Through analyzing the synthesized data set that we created with visualization software, Tableau and JMP Pro, the first of our major revelations about donation patterns revealed itself. From this analysis we were able to determine that each of the over 30,000 donors could be grouped into six unique clusters based on their donation

patterns. We used the k-means algorithm for clustering (James, Witten, Hastie, and Tibshirani, 2017). This algorithm assigns observations in a data set into k mutually exclusive clusters based on similarity of multiple variables. In our application, k=6 seemed to be a reasonable initial value to use. The disbursement of donors among the clusters are shown below in exhibit 3.

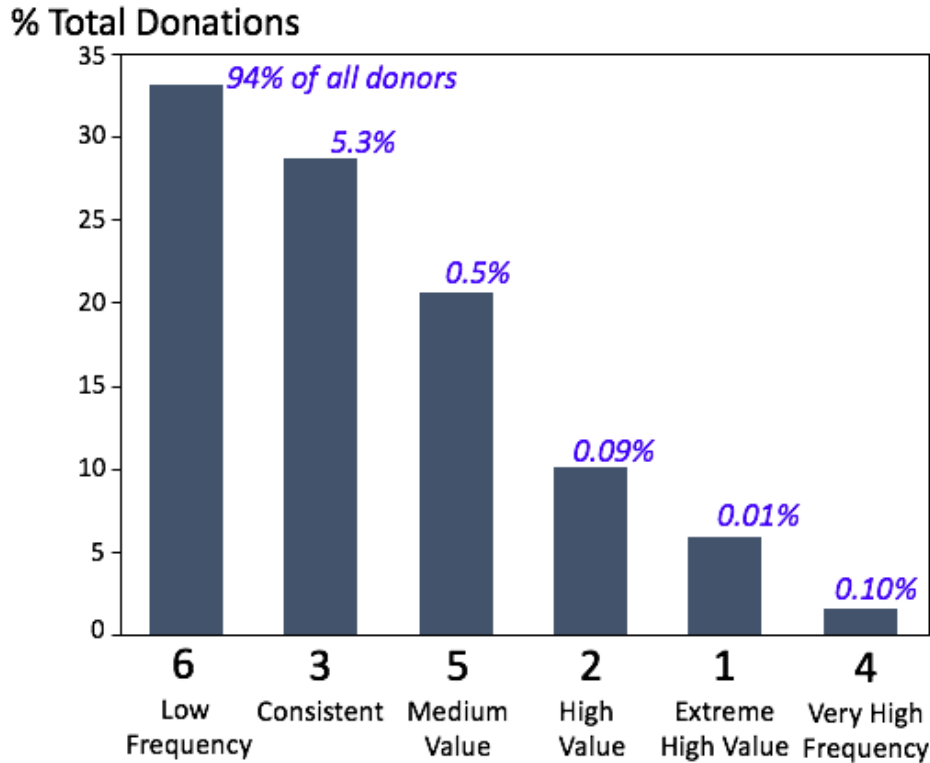
Exhibit 3: *Donation Patterns by Cluster* - y-axis variable is the total gift amount given by donors and the x-axis variable is the number of times a donor has donated. The symbols designate different clusters based on donor donation patterns. Cluster 1 consisted of only one donor and is not shown here.

### Total Donations \$



After analyzing the unique characteristics of donors in each cluster, we were able to distinguish what characteristics determined which cluster a donor was in. In doing so we were able to categorize the type of donor that was in each cluster, as this would aid us in determining the projection of the donations that could be expected from donors in each cluster. The type of donor that each cluster represents and their proportion of total donations are depicted below in exhibit 4.

Exhibit 4: *Break Down of Clusters and Donor Type by Percentage of Total Donations (\$)*



These donor types allowed for us to make assumptions about the sorts of actions that would, or would not be, effective when targeting a donor in each cluster for additional donations. For example, donors in Cluster 3, the consistent donor category, would be much less likely to respond to a request for a large annual donation, where as there is probably a very good chance that they might commit to becoming a monthly donor of a relatively small amount as this sort of donation would be much more consistent with their donation history than a large, lump sum donation. Catholic Charities will be able to more successfully target their donor development by understanding what types of donors make up the donor population, and this is a crucial first step in doing so.

Because the data set contains data on all of the donations made over the last 19 years, it included data about many donors who are no longer actively donating to the organization and therefore were not of interest for our analysis. We instead focused on the population of donors that would be useful to select for further donor development. This distinction caused us to remove all deceased donors from the data set. It is important to note here that this adjustment to the data set eliminated Cluster 1 as Cluster 1 was made up of only one donor, who is deceased. We also determined that if a donor had not donated to Catholic Charities in the last three years they were unlikely to react to donor development actions and would therefore not be considered in our analysis. Instead, we decided to only analyze the donation patterns of those donors that we considered to be active, that is, still living and making at least one donation in the last three years.

By decreasing the population of interest for our analysis, the data set became much more focused. The number of unique donors decreased from over 9,500 to just under 5,000. Our analysis of this new, focused data set was much more expressive of our research goals as the donation patterns of only those donors who are currently active are of interest in determining who of that group should be of interest for further targeted actions.

## ***RESULTS***

Our analysis allowed us to determine which of the 5,000 active donors it would be most beneficial for Catholic Charities to focus their future campaigning efforts on in order to incite further donations. In making this determination it was important to consider the longevity of donation history, frequency of donations, and dollar value of donations. It was also important to realize that the results of each of these considerations was different for each of the clusters.

For our final analysis, we determined that donors in Clusters 2 and 5 had very similar donation patterns, as did donors in Clusters 3 and 4. Because of this, we made the decision to make our final analysis based off of new clusters; Cluster 25, made up of all of the active donors from Cluster 2 and Cluster 5, Cluster 34, made up of all of the active donors from Cluster 3 and Cluster 4, and Cluster 6. The population and contribution percentages of each of these new clusters are listed below in Table 5.

Table 5: *Cluster Summary Statistics*

Cluster	Number of Donors	Percent of Donations from Active Donors	Percent of Total Donations
Cluster 25 <i>Medium to High Value Donors</i>	39	32.14%	23.2%
Cluster 34 <i>Consistent and High Frequency Donors</i>	460	38.22%	27.59%
Cluster 6 <i>Low Frequency and New Donors</i>	4,465	29.64%	21.39%

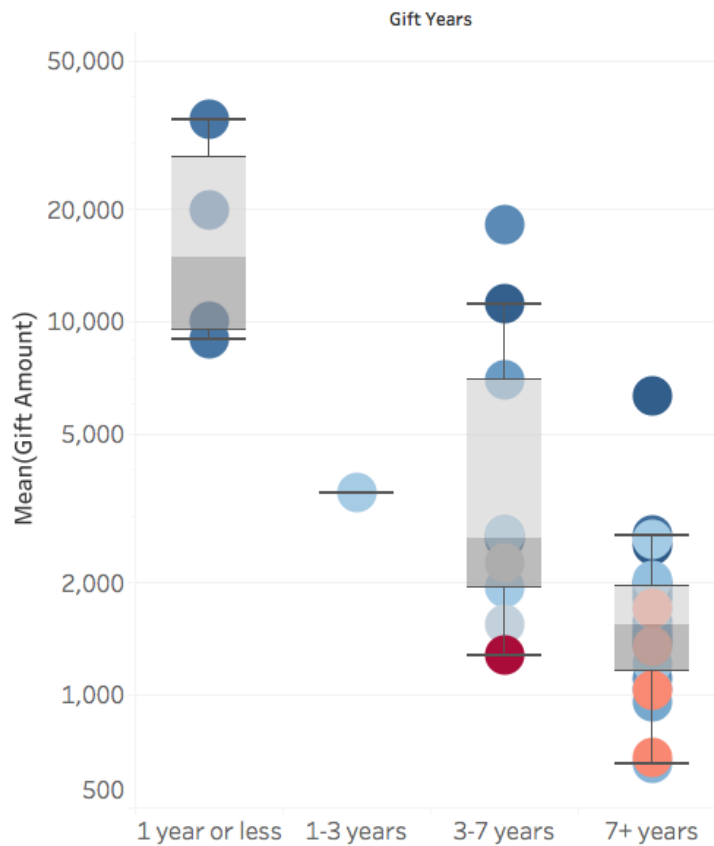
We analyzed each of these new clusters based on the same variables that we originally decided would be of interest; duration of donation history, number of donations, and mean gift amount of each donor. The new combined clusters allowed us to make more general qualifications for which donors would be of interest for further donor development.

### ***INSIGHTS INTO DONOR CLUSTERS***

A graphical representation of the donors that make up Cluster 25 (Medium to High Value Donors) is shown below, in exhibit 6.

Exhibit 6: *Box Plots of Average Gift Amounts by Duration for Cluster 25 (Medium to High Value Donors)- Color Scale Ranging from Blue (.243 donations per year) to Red (6.922 donations per year)*

## Cluster 25 Donations per Year



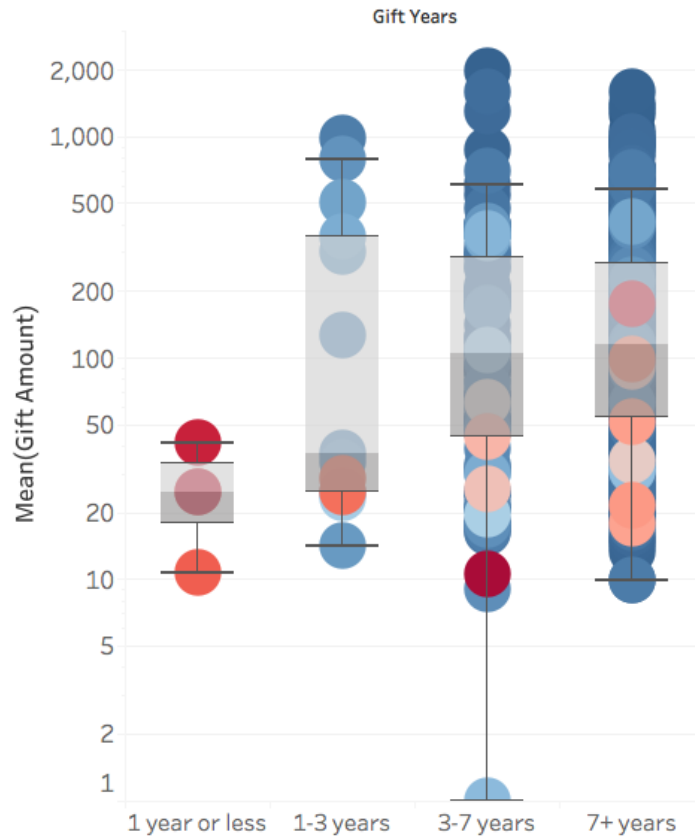
From the graph above, we were able to determine that those medium to high value donors who were making on average 3 or more donations per year, regardless of how long they had been donating for, were strong candidates for targeted donor development. It is reasonable to believe that donors making donations of around \$1,000 per donation, multiple times a year, would have the means to make larger donations if they were moved to do so. The unique consideration for this cluster was that it is very probable that these donors have the ability to largely increase their donation patterns, which could quickly increase the amount donated to the annual fund.

A graphical representation of the donors that make up Cluster 34 (Consistent and High Frequency Donors) is shown below, in exhibit 7.

Exhibit 7: *Box Plots of Average Gift Amounts by Duration for Cluster 34 (Consistent and High Frequency Donors)*  
 – Color Scale Ranging from Blue (.55 donations per year) to Red (18.58 donations per year)



### Cluster 34 Donations per Year

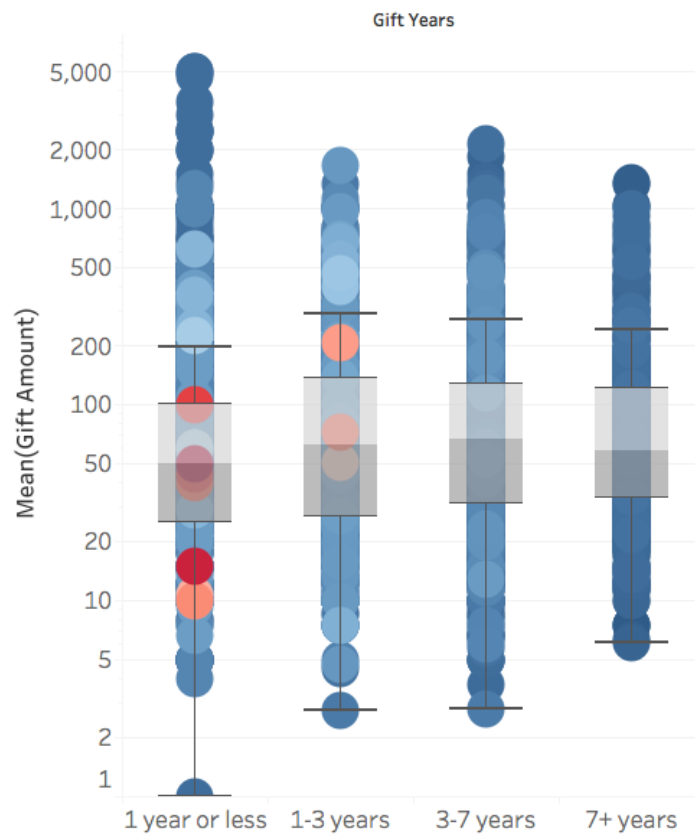


This cluster differs from Cluster 25 (Medium to High Value Donors) because the donors donate significantly smaller amounts of money per donation. These donors have also donated substantially more times than the donors in Cluster 25. Because of these differences, only donors in this cluster who have donated, on average, 6 or more times a year are of interest for targeted donor development. The donors selected from this cluster are strong candidates to become monthly donors. However, it is unlikely that donors who are consistently donating between \$10 and \$200 per donation would be able to donate a large amount, regardless of if they receive personal communications asking for donations. For this reason, it is important to know which type of donors make up each cluster and tailor donor developmental actions to fit the expectations of donors in each cluster.

A graphical representation of the donors that make up Cluster 6 (Low Frequency and New Donors) is shown below, in exhibit 8.

Exhibit 8: *Box Plots of Average Gift Amounts by Duration for Cluster 6 (Low Frequency and New Donors) – Color Scale Ranging from Blue (.13 donations per year) to Red (11 donations per year)*

## Cluster 6 Donations per Year



Cluster 6 differed from both of the other two clusters because the duration that a donor had been donating for was of extreme importance to our analysis. Donors in this cluster all had total donations of 11 or less. However, most of the higher frequency donors were those who had been donating for over three years. For this reason, the average number of donations per year became much more important because donors who donated 11 times in over seven years are not strong prospective future contributors, whereas donors who donated 3-5 times in the one year that they have been donating for represent a completely different donor mentality. The different donor mentalities that exist in this cluster caused us to decide that only those donors who have donated 3 or more times a year would be selected for targeted development. In this cluster, that meant that only donors who have been donating for three years or less are of interest.

For this reason, this cluster is where early risers need to be identified. If within the first three years, a donor is being selected from this cluster for further development, Catholic Charities should interact with them and attempt to transition them to either Cluster 34 (Consistent and High Frequency Donors), by possibly committing them to a monthly donation plan, or to Cluster 25 (Medium to High Value Donors), by soliciting large donations from those donors who seemingly have the means and the motivation to do so.

Ultimately, this analysis allowed us to provide Catholic Charities with a list of 112 high potential donors. These donors are those which we believe would be the most inclined to increase their donation pattern as a result of actions being taken on them.

### ***NEXT STEPS***

The list of high potential donors that we delivered Catholic Charities will provide them with some direction regarding which donors they should be focusing their campaigning efforts on. We anticipate that this will be beneficial in increasing their annual fund donations as they will be reaching out to donors who have the most potential to alter their donation patterns. However, the real value in this analysis is to provide Catholic Charities with a sustainable way to continue growing their annual donations. In order to do this, they need to continuously identify which donors they should be targeting, more specifically, which early risers (Cluster 6 of Low Frequency

and New donors) they should be aiming to transition to Cluster 25 (Medium to High Value Donors) and Cluster 34 (Consistent and High Frequency Donors).

To enable Catholic Charities to be able to do this, we intend on developing a template for them to input their up-to-date donor information into. This will allow them to categorize donors into clusters, classify them as active or inactive, and use our set of rules to determine if they are high potential donors on their own as their data changes.

It is also our vision that this tool could be amended to fit the needs of other non-profit organizations in the area that also use Raiser's Edge, as the system will be able to output the data in the same way that the data we received from Catholic Charities was formatted. To implement this vision, we would host a one or two-day workshop on campus, where we would work with the development teams at the various organizations to edit the tool and the rules to fit their organizational needs.

### ***CONCLUSION***

With the increased popularity of data analytics in the last decade, applications of statistical and machine learning methods to targeted donor identification have been explored by other researchers as well. For example, in 2018 kaggle.com (a site for data science competitions) organized a competition to enable targeted email campaigns recommending specific classroom requests to prior donors to school districts (<https://www.kaggle.com/donorschoose/io>). Ledolter (2013) presents a case study on the application of data analytics to fund raising at a liberal arts college. As also demonstrated by our project, the application of data analytics to fund raising is a fertile field.

Data is extremely valuable when it can be analyzed to generate meaningful information. For this reason, data analytics is even more valuable than the data itself. However, data is constantly evolving so having a way to systematically regenerate the information gathered through data analytics, based on the additional available data, is crucial. That is why we have updated our goal to provide Catholic Charities with a tool to do just that.

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# DIGITAL WALLETS: WHAT'S IN YOUR WALLET?

*Logan Bordiga, Siena College*

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## **ABSTRACT**

During the 1950s, there was an evolution in the financial market as the introduction of credit cards hit the mass population. These plastic cards contained financial information of the user allowing the customer to purchase products without having the physical cash on hand. This led to an increase in consumerism and a strengthening of the American markets. By the 2000s, Americans did not have just one credit card, but some had multiple cards for different purposes such as rent, food, and utility bills. An average American today is walking around with multiple credit cards in his or her wallet. Whenever a user purchases a product with a card, the merchandiser receives information about the user such as purchase history such as other financial information. In present day, there appears to be a growing sector of the financial market dedicated to online payments especially peer-to-peer payment applications such as PayPal and Venmo. This growth in online payments is similar to be paralleling the rise of credit cards in the 1950s since these payments do not require any physical transaction occurring rather a user just transfers funds from his or her card or bank account to the recipient. Similar to having multiple credit cards, people may have their financial information stored in several payment applications for various purposes. This collection of applications forms one's digital wallet. Society has practiced securing and actively avoided dissemination of one's financial information, but it has transformed its security practices and now stores information on websites and applications at will for the ease and convenience. By determining what has led to the rise of digital wallets, one can understand the needs of society and determine if digital wallets are the appropriate solutions. It is imperative to study the risks and benefits of digital wallets to better understand the decision one must make when placing his or her financial information in the hands on the companies in charge of these applications. Digital wallets are a new part of the financial market and requires research to understand the process and safety of the applications moving forward.

It is important to define and understand how a digital wallet operates before analyzing its effects on society. Adam J. Levitin defines a digital wallet as, "computer software applications that store and transmit payment authorization data for one or more credit or deposit accounts" (307). Digital wallets are a byproduct of the continuing advancement of technology in business practices. Digital wallets contain vital financial information of the user and uses this information to authorize payments and purchases of goods and services. Through digital wallets, transactions can be made by the push of a button and occur instantaneously. The transfer process is as simple as it sounds. "Individuals...can send funds – debited from their bank account or credit card – to recipients...The recipient can then either have the funds transferred electronically to their bank or credit card account...or keep the funds in their own (new or existing) payments account with the provider" (Penny 190). Payment application users save their payment information in the app. The user can then enter the amount they wish to transfer and the recipient's username or other identifier. The funds are then transferred, and the recipient can choose to either transfer the funds from the app to their bank account or keep the funds stored in the app for future transactions. Digital wallets can be further defined by factors such as acceptance and funding. Acceptance sectionizes digital wallets into three types: general purpose, single business, and multi-business wallets. Acceptance describes the number of locations that a digital wallet is accepted as a form of payment. General purpose wallets such as PayPal or Venmo can be used at a wide range of locations with little discretion. Single business wallets are restricted to a certain store or business such as the Starbucks App or Walmart Pay. The multi-business wallets are a balance between the two groups because they are not widely accepted, but they can be used at several subsidiaries under a common umbrella corporation such as Amazon.com. Funding is also a criterion when describing digital wallets in terms of where the funds are coming from in the wallet. There are three types of wallets under funding: open, limited-open, and bank wallets. Open funded wallets can be connected to any payment source such as credit or debit cards as well as bank accounts. Limited-open wallets are restricted to certain payment sources. Bank wallets are a more specific wallet where the funding must come from a specific bank such as Chase Pay. Two other factors when describing digital wallets are "pass-through" wallets or "staged" wallets and form. "Pass-through" wallets are direct substitutes for a credit card with payment authorization being stored on the device such as Apple Pay while "staged" wallets act as an intermediary between the two parties in the transaction such as PayPal. Form deals with if the digital wallet is an application or a web-based browser (Levitin 315-318). Understanding the distinctions of digital wallets and their capabilities allows one to identify the factors that have led to the rise of digital wallets.

People's preferences and ideologies drive markets and the same can be seen in the formulation and rise of digital wallets. Digital wallets must be molded to accentuate its simplicities while persuading users to supplant their payment options with their mobile devices. There was a study conducted by Dr. Hem Shweta Rathore of 132 smartphone users who use digital wallets. The study was a structured questionnaire and the respondents' answers were divided based on gender, age and occupation. The study does include bias since the respondents are digital wallets users, but the study allows researchers to understand the inclination towards using a digital wallet. Based on the findings reported in the article, a factor to the rise of digital wallets is the introduction of a new, interactive shopping experience (73). Digital wallets are an innovative way of paying for products and the mystery behind the processes to an average user creates an intrigue to try digital wallets. Credit cards were this new device in the 1950s and drove people to try the new product and the convenience it provided. Digital wallets offer an interactive shopping experience of paying for a product or service with a press of a button. Other factors offered by the study that has led to the rise of digital wallets have been convenience of buying products online and brand loyalty. The most marketable aspect of digital wallets has been the ease and convenience of digital wallets. The convenience of these digital wallets allows users to feel less cumbersome by worrying to carry around cards or cash. Several large entities have their own digital wallets as mentioned earlier with eBay's PayPal, Samsung's Samsung Pay, or Apple's Apple Pay. These companies have a strong fanbase and cultivate a stable brand loyalty. It would be easy for companies such as these to push their digital wallets upon their existing customers especially if these digital wallets offer loyalty rewards or discounts (Rathore 73). These factors have led to the steady rise of digital wallets as technology continues to become a main staple of the business world.

The benefits of digital wallets allow users to see if digital wallets have the power to stay as a permanent payment option. Firstly, digital wallets provide convenience and ease into transactions. "Users are able to get through a purchase in nanoseconds with a simple tap or scan of their mobile devices" (Jain and Singla 193). To authorize most transactions through peer-to-peer (P2P) payment, a user must simply submit the payment and the payment is then authorize and sent to the recipient. One can compare the speed of these transactions to those by cash or check. Cash is an immediate transfer because the custody of the cash transfer upon delivery of the cash. Checks are less convenient because the payment cannot be process until the check is mailed, received, deposited and processed after deposit. Checks can take hours or even days to process unless the check bounces (Bradford and Keeton 49). P2P payments are like cash since they can be instant transfers of funds. The convenience of digital wallets provides users with instantaneous transfer of funds without the wait for the funds to be delivered and processed.

Another benefit of digital wallets and P2P payment applications is payer control. Payer control refers to a user's control over when the funds are transferred and a payer control over seeing the account balance remaining (Bradford and Keeton 51). Cash has a high payer control because the transfer occurs when the money is physically transferred, and the payer does not have to verify that he or she has sufficient funds to cover the payment. Checks, however, have very low payer control. The payer has less control over when the actual transfer of funds may occur and there is a risk of over drafting or having check bounce due to insufficient funds. Digital wallets provide users with relatively high payer control. Payers on P2P payment applications have control over the transfer and knows that the funds will be transferred immediately. There is also little risk that a payer will not have sufficient funds because the applications are linked to bank accounts or cards. This feeling of control over transfer will make users feel more comfortable and more inclined in using the applications for future transactions. Digital wallets also have the ability to track expenditures and payments to better track your account and funds. "Every sum spent on your versatile digital wallet is recorded automatically" (Jain and Singla 193). People and business may spend hours tracking transactions and payments to balance their books, but digital wallets can track the expenditures for them and show the flow of funds from the account. This continues to let users control their fund and track their payments, so they can have an idea of how their account is doing.

A benefit of digital wallets for the digital wallet company is the targeted ads towards users. Digital wallets can collect information on users such as purchase history, contacts, locations and search history. These P2P payment application companies can then sell this data to advertisers who can make targeted ads to their specific user. Digital wallets can collect more information than a standard credit card because of the increased access to a user's mobile device. Companies can research the information of the consumers and make advertisements specific to the user.

Along with these benefits, there are inherent risks associated with these digital wallets. The first issue with digital wallets is a lack of preexisting governing legal regimes (Levitin 336). Digital wallets are still a new part of payment options, so there is not a lot of laws regulating the practice. Use of credit card is regulated under different statutes than use of debit card and different than the use of bank accounts. Because these payment options can all be used under digital wallets, it makes it tough to know which laws digital wallets must abide by. There is confusion about which legal regime reigns over digital wallets. Similar to which legal regulations guide digital wallets, users

may also be confused about how to resolve errors. In a simple transaction, a user may pay funds from his or her Chase Bank through a PayPal account to the recipient's account connected to a Bank of America account. If an error occurs, a user may be confused as to which party to contact and have the error resolved.

Another risk with digital wallets is security. Today's news is filled with stories about companies hacked by online attackers and having tons of information leaked to malicious parties. Although the internet has been around for several decades, it is still susceptible to attacks. Digital wallets are an online, electronic transfer of funds, so it is also open to attacks. Most payment applications require passwords and other security measures, but it is impossible to guarantee total safety. Kadhiwal and Zulfiqar argue that "security is the biggest issue in the field of (mobile) commerce because without secure commercial information exchange and safe electronic financial transactions over mobile network, no one will trust (mobile) commerce" (14). As society has evolved up the years, people have become more trusting in putting their information out in the world. It was not too long ago that people stored money in their home because they were afraid to use banks. In today's world, people willingly accept terms and conditions and grant parties access to their information. It is interesting that security is seen as such a huge risk of digital wallets when most people are so eager to give away their information. People have a trust in the companies that provide the digital wallets, so when the companies get hacked or a person's account gets hacked directly, the user feels attacked and unsafe. This damages a person's confidence in the application. Digital Wallet providers must ensure safety of their users and guard against malicious attacks.

Another material risk for digital wallets is a lack of deposit insurance. The Federal Deposit Insurance Corporation (FDIC) oversees insuring bank depositors for up to \$250,000. This is in case of a bank closing, people can withdraw their funds from the bank without losing their savings. During the Great Depression, people tried to withdraw their savings from the bank, but the bank did not have enough funds to give out, so people lost their savings. A similar concept is plaguing digital wallets. "Staged" digital wallets, which act as an intermediary in transactions, hold funds transferred from a user's bank for future transactions. The "staged" wallets have an account balance until a transaction occurs. "If the digital wallet provider were to fail, the consumer would be a general unsecured creditor of the wallet provider, with no guarantee of ever being able to access the funds" (Levitin 345). If a user put several thousand dollars into their Venmo account, and the next day Venmo went bankrupt, the user would not be able to get those funds back. This is a scary prospect to consider.

The commercial landscape has grown and evolved from a system of bartering goods to a financial instrument transaction of cash and checks to a cash-substitute payment of credit cards. The world is facing another change as the internet and technology impact the business world. Digital wallets are computer software to facilitate online payments between two parties. These wallets are making transactions easier and more convenient while providing a new interactive shopping experience. Digital wallets allow users to complete transaction without any physical contact between the parties involved. Digital wallets have since a growth in recent years due to several key factors such as the perceived convenience of the applications, brand loyalty and the overall intrigue of a new method of payment. Understanding the rise of digital wallets allows people to see the problems that digital wallets answer. However, one must further analyze the benefits and risks offered by the programs. Digital wallets are simple facilitators in transactions. Digital wallets allow for payments to be made instantaneously with a simple push of a button. These transactions also allow users control over their payments in a way that is not available in cash or check transactions. Digital wallet users can track their payment automatically and ensure they have the necessary funds. Finally, the digital wallet providers can benefit from selling data collected on their users to advertisers who can create targeting marketing for the users. However, there are inherent risks with using online payments. Since digital wallets are still in their infancy, there is little clear regulations on these payments and may seem confusing to users and providers. Additionally, being an internet-based application, digital wallets can be subject to malicious hacking and theft. Digital wallets are also not FDIC-insured, so there is a risk of lost funds. Digital wallets are a useful application that can provide help to users as well as merchants, but the risks associated with these applications cannot be ignored. People carry around physical wallets that do not leave their sight or their possession, but digital wallets are stored on servers and who knows who can get access.

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# EVALUATING PARTISANSHIP IN THE 2018 MIDTERM ELECTIONS: ANALYSIS OF NEW YORK TIMES UPSHOT/SIENA COLLEGE RESEARCH INSTITUTE 2018 LIVE POLLING DATA

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## ABSTRACT

*In the 63 days prior to the 2018 United States Midterm elections, the New York Times and Siena College Research Institute partnered to conduct 96 polls of the contested battleground of House and Senate races. The data was weighted and published in real time as over 2.8 million phone calls were made which each call and response appearing online as the poll was live. In this paper, the aggregated data of over 48,000 responses are analyzed to determine what underlying patterns lie within the data and how it impacts the current political landscape.*

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## INTRODUCTION

Whether flicking through the channels on TV or scrolling through feeds on the web, it feels like that Americans are extremely divided on partisan lines. This sense of divisiveness is the product of party leaders adopting more extreme liberal and conservative positions making the Democratic and Republican parties more ideologically homogeneous through polarizing issues on party lines (Shephard 2017). The lack of heterogeneity in both major parties' ideology leaves little room for moderates to exist in Congress and increased the growing ideological distance in policymaking on both sides of the aisle. As the leadership of the major political parties take firmer opposing views on issues, many voters in America adopt those very same positions. The increased partisanship is most observable among voters who are the most politically active, that is, frequent voters and voters who often donate to political campaigns (Pew 2017). As the parties and their most active voters become less diverse in ideology and less exposed to differing ideas, their hostility towards their political opponents has grown (Paris 2017). According to Pew (2017), partisan's unfavorable view of the opposing side of the aisle has reached a staggering 81 percent of Republicans and Republican-leaning along with 81 percent of Democrats and Democratic-leaning viewing the other party unfavorably. Similar conclusions can be made when looking at the data collected during the 2018 midterms by the New York Times Upshot and the Siena College Research Institute. This extreme partisanship is driving voters and politicians from the middle ground which is not healthy for a functioning government built on compromise and a system of checks and balances. The value of compromise in Washington is undermined by the perspectives of strongly identifying partisans who respond negatively when the congressional representatives engage in bipartisan behavior (Harbridge and Malhotra 2011). Politically engaged voters who identify strongly with their party do not share the opinion of the general public on compromise, in fact, Americans want public officials to make compromises and interestingly enough is the fact that the more educated Americans are, the more likely they value their public officials compromising (Pew 2017). When strongly identifying partisans learn of their party working across the aisle, they feel a sense of concessions being made whereas voters who do not strongly identify with either major party view bipartisan behavior positively and as a step in the right direction (Harbridge and Malhotra 2011). As a result of these political stalemates, the wheels of the United States come to a halt in government shutdowns, as seen in 2013 over the Affordable Care Act, in January 2018 over the Deferred Action for Childhood Arrivals Act beneficiaries, and the longest recorded government shutdown that began on December 21st, 2018 over funding a border wall along the U.S.-Mexico border (Matthews 2019). At the polls, the major parties experienced an increase in how a voter's ideology impacts their choice on Election



Day. According to exit polls conducted between 1980 and 2012, the percentage of liberals comprising the Democratic vote increased from 26 percent to 43 percent while the percentage of conservatives voting for Republicans increased from 39 percent to 60 percent (Campbell 2016). As moderate politicians disappear from the ranks of government, moderate voters are also declining in numbers and becoming more consistently conservative or liberal. From 1994 to 2014, Pew (2014) measured an 11 percentage point shift in how many voters are consistently liberal or conservative or at the poles of the political spectrum. The share of the electorate with roughly the same amount of liberal and conservative views is growing smaller in size and with political elites continuing to place distance between the two perspectives, this decline is only expected to continue.

For decades, the convergence of party and ideology progressed as the parties became more homogenous. Scholars argue that the changes in the policy goals and makeup of Congress drove voters to take more consistent ideological positions. Levendusky (2010) asserts that partisan political elites, members of the political class, increased the distance in ideologically between parties by taking more further-from-center positions and decreasing the differences within the party to distinguish themselves from the other party which made it clearer to voters where the parties stood on policy. As a result of the ideological shift of elites, rank and file politicians adapt their stances until the parties' new messaging reaches the voters and as they learn what side of the issue the party supports, they may adjust their beliefs or change their party registration. Since 1975, Gallup asked under what circumstance should abortion be legal and the largest segments of Democrats and Republicans generally support legal abortion under certain circumstances, but since 1975, a growing percentage of Republicans favor banning abortion altogether while a growing percentage of Democrats are increasing supporting legalizing abortion for all circumstances (Saad 2010). Once it becomes clear to voters each side's opinion and policy direction, voters sort, or align their partisanship and ideology, adopting their party's position or changing their party affiliation. As political elites take these one-sided positions that polarizes the parties' stance on issues, it creates more homogeneity in the party leaving little room for moderates in the party. In the last few decades, a gradual divergence of opinion grew between Democrats and Republicans on issues like immigration, climate change, and tax policy. As this happened, voters either shifted their stance on the issue or changed their party to fit their position to be more consistent with party and ideology.

The hyper-partisanship of the current era is not only a result of political elites influencing party policy, structure, and voter's understanding of the party, but also to the emotional reactions associated with democracy. Mason (2014) builds on the work of other scholars and furthers the argument that one's party should be recognized as a social identity. This identity when combined with their other identities creates an emotional connection with the party, fellow partisans, and causes voters to experience anger when their party's stance is threatened. The strength of the voter's reaction when independent of their enthusiasm for the issue is heightened among those who strongly identify with the party and is more tempered among those who do not identify as strongly. The divisiveness of the current political landscape is fueled by voters who are most politically active, who are the most partisan, and those who are more partisan have stronger reactions when their party's position is under siege.

### ***IDENTITIES INFLUENCING PARTISAN SORTING***

Voters derive their political beliefs from a combination of experiences, environment, and expressed identities. This process may be logical, emotional, or both as people sort out the complexities of issues and determine where they fall on the ideological spectrum. For example, female voters may develop a political perspective on an issue like reproductive rights very differently from men or from an immigrant with strong religious beliefs. Identities such as race, gender, sexuality, religion, and many more all influence one's establishment of political beliefs.

The influence of other identities on a voter's political affiliation is under constant review by scholars, but since 2016, gender has been leading the conversation as having a significant influence on one's ideology and party. Kaufmann and Petrocik (1999) find that the partisan gender gap is a male-driven effect where they have been increasingly identifying as Republican and conservative ideology whereas women's partisanship and voting behavior has remained relatively constant from the 1950s to 1990s. In 1996, a substantial shift began in the voting behavior of women where exit polls of presidential elections from then until 2012 showed

that women were seven to twelve points more likely to support the democratic candidate (Gillion 2016 et. al). Through an analysis of ANES data, Gillion (2016) found that college educated voters sorted more than those without a college education based on more awareness of elite polarization and increased distance in ideology between parties. As the ideological choices became clearer to voters through more polarized elites and increased distance between parties, the gender gap in ideology more than doubled from 1970 to 1990 causing further sorting of the genders through pre-existing gender preferences. Not only are voters influenced by the parties' policy stances, but also the makeup of government may have a potential impact on voters. NPR's political reporter, Danielle Kurtzleben (2019), reported that the 116th United States Congress will have its highest number of women in office reaching a historic one in four members will be women; however, the situation is much bleaker because women make up less than 10 percent of Republican members of Congress. Citing a Pew study, NPR reports that there is a huge gap between partisan voters with at least 80 percent of Democrats believing there are too few women in Congress while only one-third of Republicans think so. Voters elect representatives into office to work in Congress on the behalf of the voters, but when representatives are not representative of the general population or their own constituents, a sense of isolation from the party or lack of relatability could develop causing the voter to sort themselves into another party. Analysis of the New York Times Upshot/Siena College Research Institute data shows some consistency with the 1999 gender gap research that men are more likely to identify as Independents, less likely to identify as Democrats, than women. Since the 2016 Presidential Election, the gender gap appears to increase the partisan gap slightly with women 13 percentage points more likely to have supported Hillary Clinton, but with grassroots organizing efforts like the Women's March, a record number of women in office, and the #MeToo movement, one can only presume that ideological sorting of the genders is being amplified likely to further the partisan gender gap. In addition, scholars argue that long-term growth of the partisan gender gap will continue as the parties continue to diverge more on topics such as defense policy, civil right policy, or government spending (Gillion et. al 2016).

Beyond gender, race plays an important role in how voters sort themselves on the political spectrum, specifically the impact of race on party identification became dramatic following President Kennedy's first time in the Civil Rights Era, but first was seen during the period following the passage of the New Deal (Johnson 2016). In the years since the 1960s, the Democratic Party polarized its position on civil rights as the southern segregationist wing faded away and voters picked up on the cue that the party was pro-civil rights and sorted accordingly (Levendusky 2010). Forty-seven percent of black voters identify as liberal and 45 percent as conservative, but their ideology does not equate to partisanship and scholars believe it could be from the combination of some voters prioritizing civil rights as their single issue, solidarity to vote for the community's best interests, and the implications of racial identity and social pressure (Johnson 2016). Between 1980 and 2008, the Democratic presidential nominee has received no less than 82 percent of the black vote while the Republican Party has yet to surpass 39 percent of black voters voting for the party's presidential candidate (Bositis 2012). In House elections since 1980, the proportion of the black vote supporting Democrats never dipped below 79 percent showing a strong relationship between race and party in national elections. Data collected during the 2018 midterm elections support this relationship with an overwhelming majority of black voters identifying as a Democrat with only four and a half percent of black voters identifying as Republicans. Anecdotally, it is believed that conservative Republicans live in more rural areas while liberal Democrats are believed to live in urban areas, if this relationship holds true then partisans may potentially sort themselves based on where they live. In 2014, Pew reported that when given the choice on where to live, seventy-five percent of consistent conservatives would choose a community that is more spread out whereas consistent liberals have an opposing view, with 77 percent preferring a location where residences are smaller and closer together with walkable distances between schools, stores, and restaurants. In another study conducted by Pew (2017), 68 percent of conservative Republicans reported that they would like to live in the more spread out communities while 69 percent of liberal Democrats preferred the condensed and walkable communities. A study conducted by Mummolo and Nall (2016) also found a strong association between a partisan's identity and their rating of a community based on partisan composition, but their evidence suggests that the actual impact of partisanship on where a voter chooses to live is minimal due to the higher prioritization of other factors such as crime rates, educational opportunities, proximity to friends and family, affordability, transportation, and much more. Americans overall are evenly split on the type of community they would like to live in and their ideal house size, with 48 percent of Americans preferring "larger houses

further apart, schools, stores, restaurants miles away” while 47 percent prefer the opposite (Pew 2017). It is evident that if given the option to choose, liberals prefer urban environments and conservatives prefer rural environments, however, the preference does not trump other factors to be considered like affordability, amenities, and other community characteristics. Political elites could further polarize their party’s positions by offering infrastructure that benefits one community type over the other which could result in even more sorting by voters.

During the Constitutional Convention of 1787, America embraced the idea of finding common ground with the Great Compromise that established a form of representative government that valued the diversity of ideas and opinion from states with large and small populations. For more than 200 years, America grew and progressed through deals brokered across the aisle, but that tradition could be at risk as the two partisans move in opposite directions. Upon leaving office George Washington warned against a two-faction political system and as the United States approaches the 2020 Presidential Election the political elite and its constituents are at a crossroads forced to either continue down the path of divisive politics or to search for common ground to propel the country forward. To answer the questions of where does the country currently stand and how much does party matter today, we look to the New York Times Upshot/Siena College Research Institute data collected during the 2018 Midterm Elections. The nearly 50,000 record dataset is comprised of the most divided voters in the country, those in the battleground House districts and Senate races where nearly every race is a toss-up.

#### Methods and Data

The New York Times Upshot/Siena College Research Institute poll used a response-rate-adjusted, probability-proportionate-to-size survey of the likely electorate (Cohn 2018). The researchers obtained sample files for each House district and Senate race from the voter data provider L2. The records of voters and their telephone numbers were stratified by the voter turnout in 2014, race, gender, age, region, and party. The probability that a voter would be selected was inversely proportionate to the strata’s telephone coverage and the probability of response. The probability of selection was weighted by a model turnout score generated from data contained in the L2 voter file.

Voters were contacted on their landline or cell phone usually between five and nine o’clock in the evening local time on weekdays and between eleven in the morning and seven in the evening on weekends<sup>13</sup>. If a human answered the phone, the interviewer would ask for the voter by name, but depending if the voter was not available or no longer was reachable at the telephone number the interviewer would try reaching the voter again at a future time during the fielding period or code that record as “No eligible respondent”. On average, numbers were dialed two to three times during a fielding period which lasted usually between three and five days<sup>14</sup>. To reduce the possibility of underrepresenting the Spanish speaking population, congressional districts and states with Hispanics comprising more than 10 percent of registered voters in the L2 files were administered surveys conducted in both English and Spanish rather than being conducted in only English. The modeled turnout score was computed based on the respondent’s stated likelihood to vote and a calculated value based on voting behavior in previous elections with the weight that considered party registration, education, gender, and region. The weighting was developed from data found in the L2 files except for education which was collected from the respondents.

The New York Times Upshot/Siena College Research Institute polls were conducted for 63 consecutive days between September 4th and November 4th, 2018. A total of 48,326 records were posted live on the New York Times Upshot website as the data from the nearly 3 million phone calls fed through a Secure File Transfer Protocol (SFTP) site from the Siena College Research Institute and its call center partners. The Upshot retrieved the raw data, processed it, and posted it on their interactive site resulting in the response counter to increase for each poll while simultaneously adjusting the margin of error based on the design effect. The majority of the House polls would stop fielding after about 500 responses were collected from voters in

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<sup>13</sup> The Siena College Research Institute partnered with Reconnaissance Market Research, M. Davis and Company, the Institute for Policy and Opinion Research at Roanoke College, the Survey Research Center at the University of Waterloo, the University of North Florida and the Siena College Research Institute to collect data. Based on internal operations and capacities some calling occurred outside the ordinary stated calling windows.

<sup>14</sup> Some of the races polled had high response rates causing not every sample record to be dialed while other less productive races had some records being dialed four to five times.

that district while in the Senate polls the quota up to 800 responses in some states. When the poll was no longer available in the field the processed microdata was then posted at the bottom of the poll page next to the calculated design effect.

The 96 microdata files available on the New York Times Upshot website were downloaded and merged together to create one comprehensive dataset with 48,326 records and 84 variables. The dataset includes sample file data, voter responses, and multiple weights.

The combined dataset underwent three steps of Exploratory Data Analysis (EDA) where all the variables of interest were analyzed one at a time, then the response variables were evaluated against explanatory variables, and lastly, the explanatory variables were measured against one another to look for any confoundedness. The findings from the EDA informed the following stages of analysis by providing an initial level of understanding of the data primed for further and more focused analysis drilling down in the data to answer the question of interest.

Input or independent variables mostly consisted of data found in the L2 sample file and from a few of demographic questions answered by the respondent, while the outcome variables or dependent variables were the survey questions like the respondent's party identification and generic and specific vote choices, candidate favorability, approval of President Trump, and a variety of issue questions that varied from poll to poll<sup>15</sup>.

### ***EXPLORATORY DATA ANALYSIS***

The primary objective of EDA is to summarize the data to form some basic conclusions and to develop questions for further analysis. In the first step of EDA, each variable is evaluated individually to identify any trends or patterns that could be further investigated. The data shows that although there are more registered Republicans and more voters that have the party identification of Republican, the named Democratic candidate option was the most selected response beating the named by a narrow margin of 800 or less than two percent of respondents. While Democrats bare came out on top in the aggregated count of responses, President Trump did not fare well with 49 percent of voters disapproving of the President and only 45 percent of voters approving of the job performed by Trump. Democratic candidates enjoyed higher favorability ratings than Republican candidates, but the net rating was mostly because many respondents did not have a favorable or unfavorable opinion of the candidates, mostly because many of the Democratic candidates in the district polls were challenging Republican incumbents who received fewer non-opinions and more favorable and unfavorable opinions. When asked in the sequence of issue questions<sup>16</sup> whether the voter supports or opposes a federal gun control that would ban the sale of assault-style guns and high capacity magazines, and a majority of the voters supported the proposed policy<sup>17</sup>. Although the net support is 13 percentage points lower than voters supporting the assault weapon ban, 11 percent more voters support the creation of a national health insurance program, in which every American would receive insurance from a single government plan. A majority of likely voters do not support actions of the NFL who kneel in protest during the national and a majority of the respondents support NAFTA. Lastly, a majority of respondents do not believe President Trump

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<sup>15</sup> The majority of the polls conducted between September 4th and October 13th, 2018 contained the issue questions. Following October 13th, the majority of the polls only included the core questionnaire questions like the horserace, candidate favorability, and presidential approval rating.

<sup>16</sup> Issue questions were asked primarily between September 4, 2018, and October 13, 2018. Issue questions varied from poll to poll based on the hot topic issues of the district or Senate race.

<sup>17</sup> For the majority of the questions in the issues sequence voters selected their answer from a four-point Likert scale in the form of agree-disagree and support-oppose such that "Tell me whether you strongly agree, somewhat agree, somewhat disagree, or strongly disagree" with a fifth option of answering "don't know" or refusing to answer the question. There are 12 issue questions that have different response categories than the four-point Likert scales. For example, one of the issue questions is "As you think about your member of Congress, would you prefer your representative: 1) support President Trump and his agenda, 2) serve as a check on President Trump and his agenda, or 3) don't know/refuse."

is cleaning up corruption in Washington and a majority of the likely voters surveyed stated support for the Mueller investigation in contrast to the majority of respondents who believe the investigation into collusion was politically motivated. On other issue questions, the respondents were split as to whether or not the tax reform bill made them better off economically, whether Trump committed crimes since taking office, and whether the allegations against Supreme Court Justice Kavanaugh are true or not.

The battleground likely voters data contains five percent more women than men and three percent more registered Republicans than registered Democrats, in addition, 75 percent of the respondents are white, and 74 percent are 45 or older. There also appears to be a relationship where Democratic voters have a higher composition than Republicans and Independents of respondents that have a high school degree or less or obtained a graduate or professional degree. Women and black voters also composed the pool of likely Democratic voters in higher amounts than Republicans and Independents. Lastly, voters not registered to either major party along with men were assigned a lower turnout score.

The questions raised from performing EDA direct where the further analysis focuses on. Some of those questions include: does the data align with findings from other research about the impact of other identities like race and sex on party identification, or which issue questions do both Democratic and Republican respondents share common ground, and which questions do one of the major parties and independents are in agreement?

To drill down deeper into the data, two ways of analyzing the data are conducted: first, crosstabulations are run on variables of interest and the data is manipulated to plot an estimated value of how traditionally liberal and conservative voters were in their responses to the issue questions.

Analysis

### ***CROSTABULATIONS***

The first crosstabulation lays the groundwork to show the collective response of the battleground respondents with respect to their composition and makeup. In total, Republicans have more registered voters and more voters that identify as Republicans, however, Respondents who did not identify with either major party were composed of five more percent of Republican voters than Democratic voters. Voters appeared to stick to their party lines in developing favorable opinions of the House and Senate candidates. Sixty-five percent of Democrats have an unfavorable opinion of the Republican candidate while only fifty percent of Republicans rated the Democratic candidate unfavorably. Of voters who did not identify with either party, 12 percent more gave the Republican candidate an unfavorable rating than the Democratic candidate. The favorability of the Senate races tells a similar story with only an eight percentage point gap in the size of opposing party with an unfavorable opinion of the Republican and four percentage point more of other voters with an unfavorable opinion of the Democrat. The partisanship is amplified by the voter's response to the named question asking if the respondent would vote for the named Democrat or Republican where 89 percent of Democrats chose the Democrat and 87 percent of Republicans chose the Republican. The likely voter's response is five to nine percentage point higher from the favorability questions where 78 percent of Democrats and Republicans had a favorable opinion of their party's House candidate and 77 percent of Democrats and 82 percent of Republicans had a favorable opinion of their party's Senate candidate. The party-line voting behavior presents itself more drastically with 94 percent of Democrats and 93 percent of Republicans wanted their party to take have control of Congress while the 46 percent of other voters wanted the Democrats in control and 40 percent wanted the Republicans in control. For control of the Senate, 93 percent of Democrats and 94 percent of Republicans wanted their party in control of the chamber and 37 percent of the other voters wanted a Democratic Senate and 46 percent wanted a Republican Senate. Adding to the party-line hypothesis, 90 percent of Democrats disapprove of the job performed by President Trump in contrast to 86 percent of Republicans who approve of the job done by the President with only 41 percent of the other voters also approving Trump's performance.

Looking deeper into the party-line voting brings into question testing the validity of conclusions made from other scholars like the impact of race and gender on how the voter sorts. Thirty-seven percent of respondents who identify as Democrats are men while 63 percent are female. Of the voters who identify as Republicans, half are men and the other women, and for the other voters in the data, 56 percent of them were male and 44 percent female. Not only are women leaning toward the Democrats in their party identification,

but also in their response to the named candidate vote choice, 50 percent of women selected the Democrat and 39 percent chose the Republican while 40 percent of men selected the Democrat and 49 percent the Republican. When asked of their opinion on who should control the House, 41 percent of men wanted the Democrats in control contrasting the 51 percent of women while 52 percent of men wanted the Republicans in control with 40 percent of women sharing the same opinion. Control of the Senate follows the same narrative that men vote more Republican than women with only 36 percent of men wanting the Democrats in control of the chamber and 55 percent wanting the Republicans in power. Women are split with 45 percent in favor of the Democrats in control and 46 percent in favor of the Republicans holding the majority in the Senate.

As men and women follow a pattern in how they politically identify and vote, race and ethnicity are placed under the microscope to gain a deeper understanding of underlying trends. Of the respondents surveyed during the polling period, the voters who identify as Republicans are not very racially diverse with only 14 percent of Republican identifying voters being non-white while 32 percent of Democrats are non-white. Sixty-eight of black voters identify as Democrats while only five percent identify as Republicans, while for Hispanic voters there is only 12 percent Democratic lean, 20 percent for Asian voters, and 6 percent for all other races and ethnicities. When asked who should control the House of Representatives, 86 percent of black voters, 53 percent of Hispanic voters, 64 percent of Asian voters, and 43 percent of voters of other races wanted the Democrats to be in control while white voters are split with 44 percent in favor of the Democrats and 50 percent in favor of the Republicans. Similar to control the House, 83 percent of black voters, 52 percent of Hispanic voters, 58 percent of Asian voters, and 36 percent of voters of other races wanted the Democrats to be in control of the Senate while 45 percent of white voters in favor of the Democrats holding the majority and 59 percent in favor of the Republicans.

Based on the impact of race and gender and its visibility in the data, age and education are also analyzed to detect and trends in partisanship and voting behavior. Within the group of respondents between the ages of 18 and 29 years old, 36 percent identify as Democrats while 21 percent as Republicans. For respondents between the ages of 30 and 44 years old, the gap decreases to five percent more identifying as Democrats. For ages 45 to 64 and 65 and older, only 29 percent and 32 percent identified as Democrats respectively while 34 percent and 37 percent of those respective age groups identified as Republicans. For voter's between 18 and 29 years old and voters between 30 and 44 years old, 54 percent and 49 percent respectively said they would vote for the named Democratic candidate. On the other side of the spectrum, 47 percent of voters 45 to 64 years old and voters who are 65 or older chose the Republican candidate. Of the voters in the first two age categories, 58 percent and 52 percent respectively wanted the Democrats in control of the House, while of the voters in the last two age categories, 48 percent and 49 percent respectively wanted the Republicans holding the House majority. In the Senate races, the Republicans fared a little better with 55 percent and 47 percent of the voters in the first two age categories supporting a Democratic Senate and 55 percent and 53 percent of the voters in the last two age categories preferring a Republicans Senate majority.

Near the end of the survey, voters were asked to state their highest level of education attained from a list of five options from grade school to a professional degree. There is not much variation in the levels of education and the respondents' party identification, but there are seven percent more respondents who completed some college who identify as Republicans over Democrats and there are seven percent more respondents who completed a professional or graduate degree who identify as Democrats over Republicans. Eight percent more of respondents who completed some college chose the named Republican candidate while 14 percent more of respondents with an advanced degree chose the named Democrat than the Republican candidate. The respondents grouped by education level follow the same pattern with similar margins of their support for the control of the House and the Senate with a larger percentage of educated respondents choosing the Democrats over the Republicans and vice versa for the respondents in the categories: some college, high school, and grade school.

### ***ISSUE IDEOLOGY SCALE***

The issues questions asked primarily during the first 39 days of the polling provides some data points to identify where the aggregated group of respondents in the battleground are in the political spectrum. To determine this, a simple scale was developed based on a count of responses per issue question. The scale ranges from negative one to positive one representing liberal viewpoints on the left and conservative

viewpoints on the right. For example, if a respondent agreed that the Affordable Care Health should be repealed and replaced, then that answer would be considered conservative and the total percentage of respondents who agree would be calculated and in decimal form multiplied by 1 while those who disagree, a liberal coded response, would multiply the calculated percentage by negative one<sup>18</sup>. Then the sum of the two decimals represents the aggregate ideology score for that issue question. The closer the value is to negative one or positive one, the more liberal or conservative the pool of respondents answered collectively.

As a group, the respondents are given the collective score of -.10 on the simple issue ideology scale developed meaning that as a whole the likely voters in the battleground lean slightly liberal when all of the issue questions are aggregated<sup>19</sup>. There issue questions were divided into six categories: economics and trade, healthcare, immigration, social, partisanship, and corruption. In the economics and trade category, the calculated score for all respondents was a -0.09 primarily driven by the collective liberal view of opposing the tariffs imposed by President Trump. The average aggregated score for the healthcare category was -0.08 which was surprising driven to the left from the overwhelming net of 13 percent of respondents in favor of a single-payer healthcare system. The immigration category was pulled drastically to the left at -0.30 because many respondents disagree with the idea that illegal immigrants are more likely to commit crimes and oppose funding a border wall on the US-Mexico border. In the social category, respondents received a collective score of -0.06 driven by a lot of support for a federal ban on assault weapons and disagreeing with the idea that discrimination against whites is just as bad or worse than discrimination against other races. In the field of partisanship, the group collectively shifts to the middle with a slight advantage to the liberal side since for all but one of those selected questions. Lastly, under the corruption category, the respondents are on the right side of the spectrum because many respondents don't think the President should be impeached, that the investigation is politically motivated, and the President has not committed any crimes since announcing his candidacy.

### *CONCLUSION*

The United States of America is not becoming more polarized and there is little evidence that supports the notion that the entire nation is taking up extreme views on both side of the political spectrum. On the other hand, the political elites and their constituents are becoming more consistently liberal or conservative meaning that less moderate positions are being taken up by party leaders making the party's stance more clear on the issues for voters to align themselves with the right party and ideology. This realignment of political identity to match with ideology is called sorting and occurs when voters receive clarity on the party's position on issues. Scholars studied the phenomenon of sorting extensively and it's well documented that the process is long and steady and has been underway for the last few decades. Sorting occurs among voters who are most active in the political process because they understand the state of politics and both parties' positions on issues and the nuances between them. Sorting does not occur as quickly or extensively for voters who are less informed about the political process and events because those voters are not picking up the cues of the parties. Highly partisan voters exhibit more hostile behavior and attitudes against the opposing party and look at bipartisanship as make concessions to the to the other party.

Through conducting an extensive analysis of the New York Times Upshot/Siena College Research Institute data collected between September 4, 2018, and November 4, 2018, the findings of the scholars who publish extensively on partisanship and sorting can be confirmed. In the Upshot/Siena data, women identified as Democrats and supported the party in greater numbers and proportions than men who were more supportive of the Republican and Independents positions. Black voters overwhelmingly identify with the Democratic Party and nearly 8 out of 10 black voters cast their ballot in support of the Democratic candidates. Partisanship can be a slippery slope as voters can turn their backs on representatives trying to progress legislation through a compromise focused system making it even harder to elect new representatives who can work with the other side of the aisle. The analysis from the Siena/Upshot data that essentially for all major

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<sup>18</sup> If the respondent did not know or refused to respond, the percentage calculated is multiplied by zero. This maintains the respondents are still counted in the scale by inherently limited the maximum liberal or conservative score for the issue because the absolute value of the sum of all answers for the question is one.

<sup>19</sup> View Figures 1-6 in the Appendix for visualizations and Tables 26 - 31B to see the detailed data

decisions, members of the Democratic and Republican parties are overwhelming voting for their side. Whether it is extreme partisanship or single-issue voting, this kind of voting places the nonpartisan and third party voters under the microscope. Although Republicans in this dataset had the advantage in both numbers and proportions according to party registration records and party identification responses, the Democrats came up on top in the House according to the survey data and in the actual results of the 2018 Midterms. The Siena/Upshot data supports many of the conclusions about voter demographics and behavior by scholars, it shows voting on party lines at very high levels across the board, but it also lays the foundation for future bipartisan work to occur. According to the respondents who answered the issue questions, there are some policy options that voters on both teams agree with that should be used to influence the 116th Congress's policy agenda. The aggregation of voters shows that a majority of respondents support a federal assault weapon ban, oppose the tariffs imposed by President Trump, support a national insurance program establishing a single government plan, and are against vilifying immigrants to justify funding a border wall along the US-Mexico border.

American voters may be sorting more and more and becoming more ideologically consistent with their party's leadership and policy agenda, but it does not mean that compromise cannot occur. Party leaders and engaged voters should continue to push on issues that a majority of Americans can be supportive of rather than trying to win by drawing lines in the sand. Compromise is not going away in the Washington bubble, but it is harder to achieve, and if citizens want to see government function as it should, then both voters and elites need to work together to find common ground with their ideologically different counterparts.

## *QUESTIONS*

### Core Questionnaire

#### LIKELY:

How likely are you to vote in the election on November 6th? Are you almost certain to vote, very likely to vote, somewhat likely to vote, not very likely to vote, not at all likely to vote or have you already voted?

Almost certain ..... 1  
 Very likely ..... 2  
 Somewhat likely ..... 3  
 Not very likely ..... 4  
 Not at all likely ..... 5  
 Already voted ..... 6  
 [DO NOT READ] Don't know/Refused ..... 9

#### HORSERACE:

If the general election for a Member of Congress from the <DISTRICT2> Congressional District of <STATE2> was being held today who would you vote for if the candidates were: [READ LIST][IF NEEDED: "If you had to decide today?"]

<DEM> <DEMP>, the Democrat ..... 1  
 <REP> <REPP>, the Republican ..... 2  
 [DO NOT READ] Don't know/Refused ..... 9

#### FAVD:

I'm going to read a few names of people in public life and I'd like you to tell me whether you have a favorable opinion or an unfavorable opinion of each person.

#### <DEM> <DEMP>

Favorable ..... 1  
 Unfavorable ..... 2  
 [DO NOT READ] Don't know/Refused ..... 9

#### FAVR:

I'm going to read a few names of people in public life and I'd like you to tell me whether you have a favorable opinion or an unfavorable opinion of each person.

#### <REP> <REPP>

Favorable ..... 1  
 Unfavorable ..... 2



[DO NOT READ] Don't know/Refused ..... 9

CONGRS:

Currently, the Republicans have a majority in the United States House of Representatives. Every seat is up for election in November. After the election, who would you like to see control the House of Representatives: [READ LIST]

the Democrats ..... 1

the Republicans ..... 2

[DO NOT READ] Don't know/Refused ..... 9

TRUMPAPP:

Do you approve or disapprove of the job that Donald Trump is doing as President?

Approve ..... 1

Disapprove ..... 2

[DO NOT READ] Don't know/No opinion ..... 9

SCALE:

Before we finish, I'd like you to rate your chance of voting in the general election either in person on November 6th or through early voting on a scale of 10 to 1. If TEN represents a person who definitely will vote and ONE represents a person who definitely will NOT vote, where on this scale of 10 to 1 would you place yourself?

One (definitely will NOT vote) ..... 01

Two ..... 02

Three ..... 03

Four ..... 04

Five ..... 05

Six ..... 06

Seven ..... 07

Eight ..... 08

Nine ..... 09

Ten (definitely will vote) ..... 10

[DO NOT READ] Don't know/No opinion ..... 99

PARTYID:

Do you consider yourself:[READ LIST]

Democrat ..... 1

Republican ..... 2

Independent (No party) ..... 3

or as a member of another political party ..... 4

[DO NOT READ] Refused ..... 9

BYR2:

And for statistical purposes, a couple of final questions. In what year were you born?

EDUC:

Please stop me when I say the highest educational level which you have completed:

Grade school ..... 1

High school ..... 2

Some college or trade school ..... 3

Bachelors' degree ..... 4

Graduate or Professional degree ..... 5

[DO NOT READ] Refused ..... 9

HISP:

Are you of Hispanic origin or descent, such as Mexican, Dominican, Puerto Rican, Cuban, or some other Spanish background?

Yes ..... 1

No ..... 2

[DO NOT READ] Refused ..... 9

CUBAN:

Would you consider yourself, Cuban or not?

Cuban ..... 1

Not Cuban ..... 2

[DO NOT READ] Refused ..... 9

RACE:

Would you consider yourself:[IF "Biracial" or "Multi-racial" ask: "What races would that be?"]

- Caucasian/White ..... 1
- African American/Black ..... 2
- Asian ..... 4
- [DO NOT READ] Other/Something else (specify) ..... 5
- [DO NOT READ] Refused ..... 9

Phase II Senate Questions

FAVD:

I'm going to read a few names of people in public life and I'd like you to tell me whether you have a favorable opinion or an unfavorable opinion of each person.

Jacky Rosen

- Favorable ..... 1
- Unfavorable ..... 2
- [DO NOT READ] Don't know/Refused ..... 9

FAVR:

I'm going to read a few names of people in public life and I'd like you to tell me whether you have a favorable opinion or an unfavorable opinion of each person.

Dean Heller

- Favorable ..... 1
- Unfavorable ..... 2
- [DO NOT READ] Don't know/Refused ..... 9

SENHR:

If the general election for United States Senate was being held today who would you vote for if the candidates were:

[READ LIST][IF NEEDED: "If you had to decide today?"]

- [Name], the Democrat..... 1
- [Name], the Republican ..... 2
- [DO NOT READ] [Name], the [Party] candidate ..... 3
- [DO NOT READ] [Name], the [Party] candidate ..... 4
- [DO NOT READ] [Name], the [Party] candidate ..... 5
- [DO NOT READ] [Name], the [Party] candidate ..... 6
- [DO NOT READ] Don't know/Refused ..... 9

SENC:

Currently, the Republicans have a majority - 51 of the 100 seats - in the United States Senate. Thirty-five of the 100 seats are up for election in November. After the election, who would you like to see control the Senate:[READ LIST]

- the Democrats ..... 1
- the Republicans ..... 2
- [DO NOT READ] Don't know/Refused ..... 9

GOVHR:

If the general election for Governor of [State] was being held today who would you vote for if the candidates were:

[READ LIST][IF NEEDED: "If you had to decide today?"]

- [Name], the Democrat..... 1
- [Name], the Republican ..... 2
- [DO NOT READ] [Name], the [Party] candidate ..... 3
- [DO NOT READ] [Name], the [Party] candidate ..... 4
- [DO NOT READ] [Name], the [Party] candidate ..... 5
- [DO NOT READ] [Name], the [Party] candidate ..... 6
- [DO NOT READ] Don't know/Refused ..... 9

TXHORSERACE:

If the general election for United States Senate was being held today who would you vote for if the candidates were:

[READ LIST][IF NEEDED: "If you had to decide today?"]

- Beto O'Rourke, the Democrat ..... 1
- Ted Cruz, the Republican ..... 2
- [DO NOT READ] Don't know/Refused ..... 9

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***AAPOR CODE OF PROFESSIONAL ETHICS & PRACTICES***

1. The research study was developed by a partnership developed between Siena College and the New York Times Upshot. The New York Times sponsored the study with financial backing. The data was collected by the Siena College Research Institute and its call center partners: Reconnaissance Market Research, M. Davis and Company, the Institute for Policy and Opinion Research at Roanoke College, the Survey Research Center at the University of Waterloo, the University of North Florida and the Siena College Research Institute.
2. List of questions and respective responses attached.
3. The population under study is likely voters in competitive House and Senate races dispersed across the United States. See the complete listing of the 96 races included in the dataset. The sampling frame was obtained from L2 and the voter files were stratified by age, region, gender, party, race, and turnout in 2014
4. Respondents included in the stratified voter file were contacted at their landline or mobile phone and asked for by name, only the named respondent could complete the survey. The probability of selection was inversely proportionate to telephone coverage in each stratum and the probability of response and the probability of selection was weighted from a turnout score based off the voter’s previous voting history.
5. The New York Times Upshot developed estimates for the composition of the likely electorate and weighted the sample to match those estimates. The exact categories used for weighting varied from poll to poll depending on the available data from L2 and target interaction of variables. The final weight adjusts the likely voter weight to incorporate respondents’ self-reported likeliness to turnout. Based on a model of validated turnout from previous Upshot/Siena polls, the final turnout score and self-report score are 56 percent and 44 percent respectively.
6. The overall sample size of the data being evaluated is 48,326 respondents. If you visit the New York Times Upshot “Polling in Real Time: The 2018 Midterm Elections” webpage, the sample sizes, precision, design effect, and weighting procedures are all documented on each poll’s page.
7. Below is a table with the number and percentage of variables with the respective n. In the appendix is a more detailed table that shows the number of values and missing values by each variable which is used to inform the respective sample sizes for different calculations.

<b>Min</b>	<b>Max</b>	<b>No. Variables</b>	<b>% Variables</b>
0	500	5	6%
501	1000	7	8%
1001	2500	12	14%
2501	10000	27	33%
10001	25000	6	7%
25001	35000	1	1%
35001	50000	25	30%

8. Methods described in the Methods section of this paper.
9. The data collected from the New York Times Upshot website does not include any internal system data. That being, the number of calls recorded under each disposition codes. On the other hand, in order to get 48,326 responses, the website recorded 2,822,889 calls. If we divide the number of responses by the number of calls we get a ratio of 0.017119 indicating a response was recorded every 827 calls or responses make up only 1.71% of all calls made.

# INTRODUCTION TO BLOCKCHAIN: INCORPORATING EMERGING TECHNOLOGIES IN THE CLASSROOM

*Travis Brodbeck, Siena College  
Dr. Doganaksoy, Siena College*

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## **ABSTRACT**

*Students embark on their academic journey through colleges and universities to prepare themselves with the necessary skills and knowledge to be effective in the workplace. Often times, academic institutions prepare their students for the current needs of the market rather than the future needs of employers. Preparing students for the needs of the past is not a purposeful decision but rather a problem of resources, complexity, and expertise. Blockchain technology is a relatively new concept that is in its early beginnings of being adopted in the classroom although its adoption by businesses is ever increasing. This presentation focuses on bridging the gap of the knowledge of current students and needs of future employers by taking a complex concept like Blockchain and breaking it basic properties down into hands on exercises that build a foundation for students to deepen their understanding through future research and application.*

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## **INTRODUCTION**

If you walk into any college or university classroom across the United States and survey the students on why they are enrolled in their degree program or why they are taking a class, then you will hear the answer, “to get a job”. It goes without saying the plethora of benefits a student receives when pursuing a college degree, but many students are so focused on what boxes they need to check to get that entry level job. This unyielding focus on prospective careers is explainable from data analyzed by Mark Kantrowitz, the U.S. Federal Reserve, and the Federal Reserve Bank of New York, where the findings show that 69 percent of last year’s graduating class took out private and federal student loans, amounting to an average debt of \$29,800 by the time of graduation (2019).

Today, students are paying more for education than any previous generation and there appears to be no sign of this trend stopping anytime soon. For the large investment of assets by the students and their families they are banking on a well-paying job to get the highest return on their investment. If you embarked into a time machine and went back 119 years you would notice that classrooms have not changed much in the past century unlike the price of education. The most significant differences you would notice would be the absence of chalkboards and the substitution of white boards and screens. Higher education institutions have a duty to embrace change thus challenging the status quo, adopting an appetite for uncertainty, and always looking to the next horizon to best prepare their customers for the changing economic landscape and labor market. Students should not be educated with the goal to prepare them to get a job today, but instead to be ahead of the competition when emerging technologies and disruptive forces challenge some of the traditional pillars of our workforce and economy. Emerging technologies like artificial intelligence, biomedical advancements, and blockchain hold the potential to rapidly further progress in business, science, and medicine, but the key multiplier to how fast this change can happen depends on how prepared students are to utilize these tools when they enter the workforce.

This paper explores the use of hands-on exercises to explain difficult and abstract concepts to students with a focus around teaching emerging technologies. This paper argues that a student’s success in their industry relies on the ability of the educator to equip the future worker with the skills and knowledge to lead companies as the emerging technologies are adopted in the years after students are first employed.

## **BACKGROUND ON PROJECT BASED LEARNING (PBL)**

Ted Winnowski ’63 Student Conference in Business  
April 5<sup>th</sup>, 2019

The traditional classroom model is not a one-size fits all method to education. In schools across the United States, not every student thrives in a primarily lecture based environment. Some students learn best visually, others prefer to be hands on, and while others are a mix. Students experience academic difficulties for a variety of reasons, but even though the status dropout rate decreased a total of 4.8 percentage points since 2000 and falling to a low of 6.1 percent in 2016, there are still millions of students between the ages of 16 and 24 who are left behind and often will find fewer opportunities in the labor market (National Center for Education Statistics 2018). The immense focus on standardized examination scores limits teachers in K-12 classrooms to tailor and customize their teaching approach which can cause students to disengage from the lesson (Layton 2015). If the student is not learning according to their preferred learning style, then their lack of understanding of the content can snowball over time and cause the student to fall significantly behind their peers or cause the student to drop out. If students are not learning the skills and techniques they need in K-12, then upon entering college they will find themselves at a disadvantage that can be very difficult for the student to overcome. While schools experience immense pressure to change and adopt new practices, the economic reality shows that education budgets are decreasing while costs are increasing causing gaps to arise. Educators can overcome some of the barriers of student engagement by adapting the traditional approach and augmenting their teaching with more hands-on exercises and projects that are more representative of a work setting.

The main difference between traditional classroom education and project-based learning is the multiple components of education that goes into a project. A student practices their research skills learning more about their topic, they get hands on experience working with the concept at hand thus making the lesson more tangible and less abstract, and the student practices their written and oral communication skills to inform an audience (Gonzalez 2016). Rather than memorizing facts, formulas, and narratives, students develop processes to solve the problem and pull together knowledge and skills from a variety of sources and disciplines. Project based learning prepares students to solve real-world problems in a controlled classroom setting and can build critical skills like collaboration, time management, and critical thinking. While students enjoy the benefits of an impactful teaching approach, their instructors exert less energy into getting the students engaged into the topic and redirect that time to assessing the learning and assisting the students.

Project based learning does not necessarily cost more money for an educator to incorporate into their lesson plan, but it does take more time to develop, test, refine, and grade projects than it does tests and more traditional assessment instruments. Project based learning is a well-known method of instruction, but its adoption is an obstacle for all educators. One could hypothesize the variety of reasons why educators are not adopting PBL over traditional lecture and standardized assessment based teaching, but instead this paper focuses on how to bring more hands on learning into the classroom especially in emerging technologies.

## ***PREPARING CAREER AND TECHNICAL EDUCATION STUDENTS FOR FUTURE CAREERS***

For some of the reasons already stated, education advocates are also continuing to call for more support for job training programs, trade schools, and other hands on learning education. Career and technical education (CTE) are educational programs that prepare a student for a specific trade, skill, or career. CTE is typically more hands-on and project based than most high school and college curriculums. CTE programs carry a troubled past of targeting students based on racial and income demographics, but the rising cost of education and the number of students who do not finish their degrees shines a light on some of the benefits of CTE programs (PBS NewsHour 2016). CTE programs can help students who normally struggled to focus in a classroom by allowing them to work with their senses and allow their own curiosity to guide the learning. In addition, CTE programs are much shorter and significantly more affordable than college programs. Lastly, CTE programs typically help students acquire job placements and apprenticeships allowing them to gain real world experience where a significant amount of learning occurs.

Just like colleges and universities, CTE programs should also be educating the students to thrive in the market in ten years and not just the following year. CTE programs are also gaining popularity because their definition has expanded to include more STEM careers, so students learn robotics, aerospace, and computer science that requires the same if not more advanced education in mathematics than the average college student receives (Tennessee Department of Education 2019). Although, everyone is still going to need a plumber, training future workers to use robotics and drones to inspect and clear pipes should be the vision that CTE programs should have.

Just like colleges and universities and K-12 schools, CTE programs should adopt a forward looking outlook on curriculum develop to help students advance in their career as technology and other factors change the landscape.

### ***INTRODUCTION TO THE BASICS OF BLOCKCHAIN***

When Bitcoin, a digital currency built on a blockchain database, was first revealed to the world, people took notice because it was a first of its kind digital database for financial transactions built with an almost incomparable architecture giving it unique features that offered promise to solve current and future business problems. Unfortunately, the public's understanding of blockchain technology and one of its applications, cryptocurrency, a digital borderless form of currency, was misguided and caused individuals and companies to make large investments in technology they did not understand. The negative growth of retailers who accept cryptocurrencies distributed on blockchain databases is a sign that the hype around this technology led to uninformed or at least not well thought out business decisions (Katz 2017). Preparing students in colleges and universities and in CTE programs with the ability to separate hype from reality is a critical skill for the 21st century economy where technology brings about spectacularly rapid advancement and change.

### ***BLOCKCHAIN'S DATA INTEGRITY AND LINKAGES***

Blockchain is a technology and Bitcoin is an application build on the technology just like how email is built to work on the internet, Bitcoin is built to operate on Blockchain. Blockchain's ledger is formed through the collection of transactions or data entries that are hashed, combined, and hashed again to be packaged into an object known as a Block. The Block is just a collection of the most recent transactions that are verified and packaged and if correctly assembled, the block will be added to the chain of previous blocks (Savjee 2017). Every transaction from the recent block to the first transaction is traceable and can be followed easily through an audit trail. The immutable ledger is an append only ledger, that means you cannot delete transactions, but you can reverse them with another transaction, so nothing is ever lost. In addition, the ledger of blocks made up of transactions are linked through their transaction hashes so if a malicious actor tried to change the old data, the chain would break and users on the network would know that that copy of the ledger has been interfered with and should not be trusted or accepted.

Blockchain is a distributed decentralized digital database that uses cryptography in the form of hashing algorithms to collect, verify, and add data to an immutable ledger of data that traces back to the original data entries. Blockchain was developed to solve the problem of third-party trust or requiring a middle-man for all kinds of transactions. For example, if someone wanted to send money to another person, they would need to trust a bank to broker the transaction whether by check or electronic transfer. Other examples of trusted third parties include notary publics and lawyers who can verify legal documents and processes contracts.

Blockchain is a distributed ledger which means rather than it being located on one central computer server, each computer in the network connected to the blockchain database has a local copy of the ledger that is compared with other user's copies to ensure data integrity.

### ***HASHING AND CREATING A MERKLE ROOT AKA ROOT HASH***

A hashing algorithm is simply a mathematical formula that takes an input and produces a fixed length repeatable one-way output. Let's suppose the hashing algorithm was a physical box with two ends, one for an input slot and one for an output slot. If I put my resume through the input slot, I will get a fixed length output of what appears to be random letters and numbers. If I change even one single character, space, or punctuation on that document and put that new copy into the input slot, then I will get a completely different output that looks nothing like the previous output of the resume without changes, but the length of the output is the same. The length is measured in the form of bits or bytes, the digital binary code that represents digital data. Now, let's suppose I put the entire English dictionary through the hashing box's input slot, I will then get again a jumble of characters that is the same length as the resume output even though a resume is only one page and the dictionary is hundreds of pages long. Let's say I came back a week later and looked at my output printouts and forget what the input was, I would not be able to take the output in pass it through the hashing algorithm to reverse engineer the original input. Hashing is repeatable, but not reversible, meaning that if you put the same input in through the same formula, then you will get the same output, but you cannot put that output in the formula to get the input.

A Merkle root is the root hash of multiple transactions and is used as part of the input to create a new block (Chainthat 2016). To understand how the root hash of multiple transactions is formed, let's explore another example where we have four transactions. The first transaction's data is placed into the hashing algorithm to get a fixed

length output of characters, then the next transaction is placed into the algorithm to get its own output, and the same occurs for the third and fourth transactions. Next, you combine the hash output of transaction one and the hash output of transaction two and place that new combination of data into the hash algorithm to get a new output. You repeat the process for transactions three and four. Finally, you combine the hash output of the two newest hashes, the ones formed by hashing the combined hashes of the transactions. That final output would be your Merkle root that is an input for the next block to be formed, that block would contain the four transactions used to create the root hash.

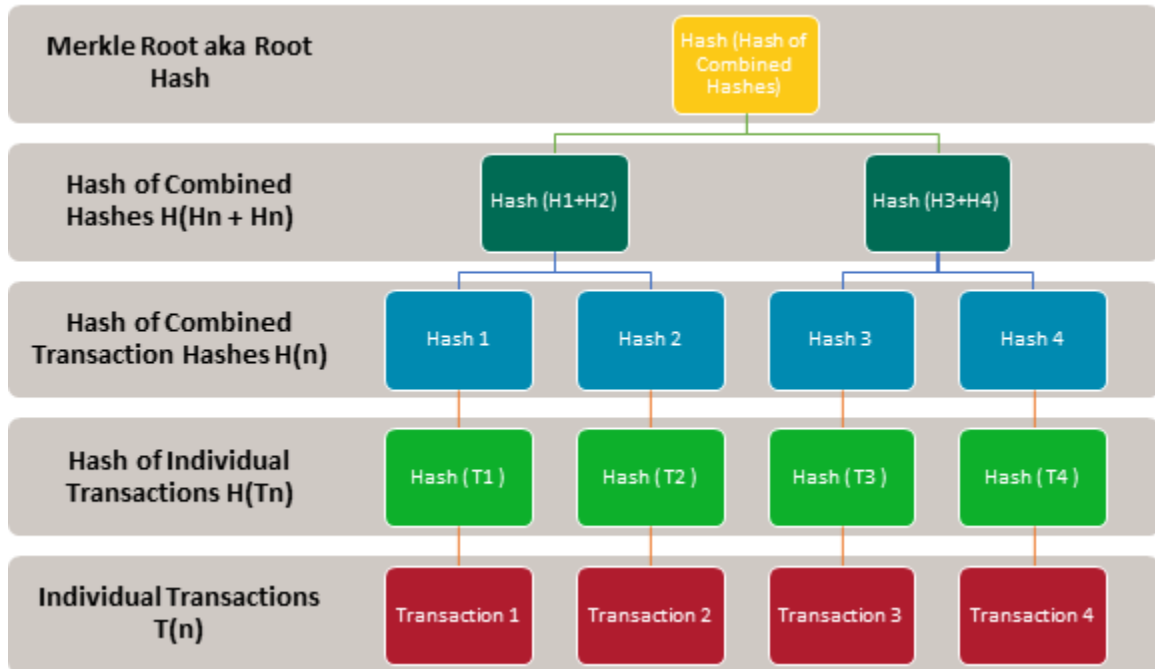


Figure 1 - Creating the Merkle Root from Transactions

### ***PROOF OF WORK VERSUS PROOF OF STAKE***

Currently, there are two ways a Blockchain database can be built, one is built through a system called Proof of Work (PoW) and the other is Proof of Stake (PoS) (Savjee 2018). In Proof of Work, there are a different type of users on the network, called miners. These are large scale industrial server farms and computers that compete with other large computing operations to solve a cryptographic puzzle first. The puzzle is formed by brute force guessing the nonce, an integer between 1 and 4,294,967,296 that when combined with the other inputs like the Merkle Hash, the previous Block Header Hash, and the Blockchain Version number will produce when combined and hashed an output that the system propose to the rest of the users on the network to verify and then accept. If 51 percent of the network agrees that the nonce and other combination of inputs produced the right desired output hash, then they will accept the block and it will be linked to the previous block in the chain. The miner created the block through combining and hashing the transactions, creating the Merkle root, guessing the nonce, and combining all of that to get the right target hash, for doing all of that, the Blockchain system would reward the user in the form of cryptocurrency or in the form of another asset. This whole process is very energy intensive and causes the network to be slow and difficult to scale.

On the other hand, when a Blockchain database uses the Proof of Stake setup, the system uses a combination of algorithms to randomly select a user, called a validator, to combine transactions and solve the cryptographic puzzle, but without competing against other users which consumes a fraction of the energy that mining does. In Proof of Stake, since no one is racing to the finish to get the right answer first, the validator must put up some stake of the asset on the network as a collateral for them if they tried entering false or improper data



into the database. Upon creating the block, the validator is rewarded with a percentage based on the amount of stake they placed on the line.

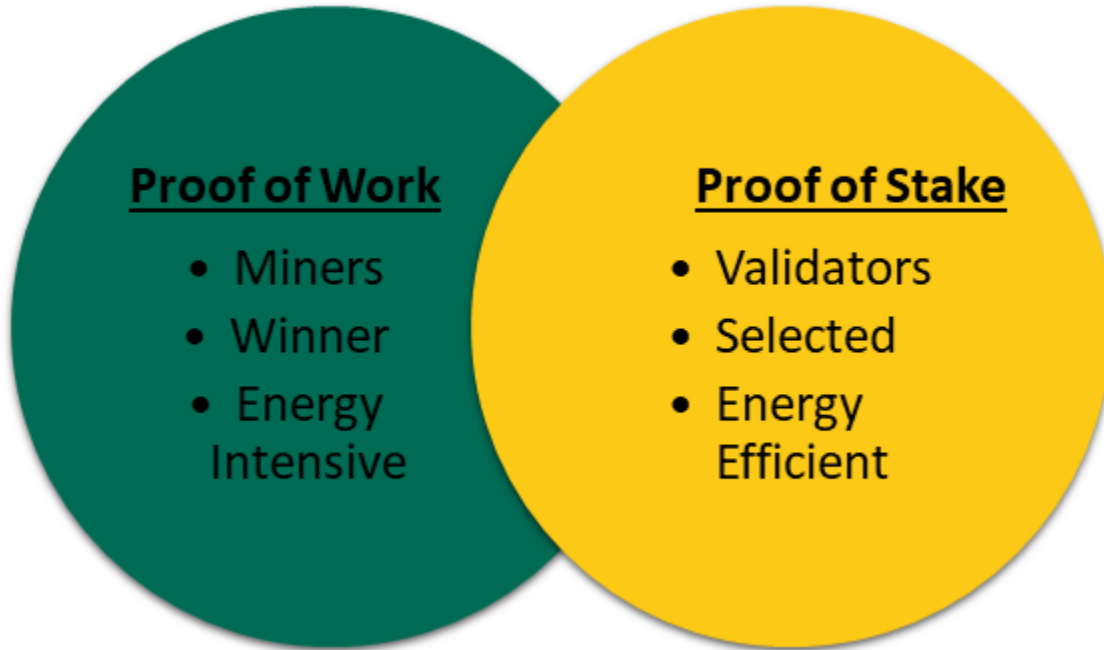


Figure 2 - PoW Versus PoS

***PROJECT AND ACTIVITY BASED LEARNING WITH BLOCKCHAIN***

To educate and engage a class of undergraduate and graduate students at Siena College on Blockchain, a lesson plan focused on teaching through hands on exercises was developed to make the material less abstract. In combination with a lecture and PowerPoint presentation, the basics of Blockchain was broken down into exercises inside an Excel Workbook that included data validation to guide the students through the assignment. The following sections are the activities included in the lesson plan.

***LEDGER***

First, students will understand that in a blockchain ledger, the total balances of the users are constantly updated even when transactions happen simultaneously. The key point to leave the students with is that when compiling the block, the Blockchain will check the balance of the user and if the balance does not meet the transaction needs, the transaction will fail and not be added to the block.

Ledger of Transactions					Account Balances				
Transaction ID	Timestamp	From_account	To_account	Amount	Transaction ID	Bob	Alice	Christie	Validation
0000000000	1/4/2019 14:24	Genesis Endowment	Bob	2000	0000000000	2000			
0000000001	1/4/2019 14:25	Bob	Alice	900	<b>Subtotal Balance</b>	2000	0	0	
0000000002	1/4/2019 14:27	Alice	Christie	300	0000000001	-900	900		
0000000003	1/4/2019 14:34	Bob	Christie	250	<b>Subtotal Balance</b>	1100	900	0	
					0000000002		-300	300	
					<b>Subtotal Balance</b>	1100	600	300	
					0000000003	-250		250	
					<b>Final Balance</b>	850	600	550	

Figure 3 - Hands On Activity – Ledger

## **IMMUTABLE LEDGER**

Students will put data into a ledger and then change the transaction values. The students will observe the blockchain code of that block and the block before and after it would be impacted. When a change is made, the change cascades throughout the chain and represents a broken chain being exposed to other users on the network.

TransactionID	TransactionAmount	Transaction Total	Transaction Code	Blockchain Code	Original Block Code	Block Difference
1	4	5	19686253			
2	6	8	12303908	12303908	12303908	0
3	11	14	7030805	19334713	19334713	0
4	15	19	5180593	24515306	24515306	0
5	7	12	8202605	32717911	32717911	0
6	9	15	6562084	39279995	39279995	0
7	23	30	3281042	42561037	42561037	0
8	7	15	6562084	49123121	49123121	0
9	20	29	3394181	52517302	52517302	0
10	19	29	3394181	55911483	55911483	0
11	22	33	2982766	58894249	58894249	0
12	21	33	2982766	61877015	61877015	0
13	4	17	5790074	67667089	67667089	0
14	12	26	3785818	71452907	71452907	0
15	13	28	3515402	74968309	74968309	0

*Figure 4 - Hands On Activity - Immutable Ledger*

## **HASHING TRANSACTIONS**

Next, students will practice using the hashing algorithm 256-ssh to hash individual transactions by concatenating all the data in the transaction to make one string that will serve as an input for the hash to get a 64-character result.

Timestamp	From_account	To_account	Amount	Input Data	Output Data: Transaction Hash	
1/4/19 14:24	Genesis	Endowment	Bob	2000	00000000043469.6002199074Genesis EndowmentBob2000	8288bf233b95a64a624ee24a1b6f44879e838a7fd364c3823efcd07cb0b76404
1/4/19 14:25	Bob	Alice	900	00000000143469.60091433198BobAlice900	d40380a6d33e149d4a572b33695e5cde1d3095e1e1be172de12add3db20ef07	
1/4/19 14:27	Alice	Christie	300	000000000243469.6023032407AliceChristie300	221865621b7de0be76a0ac6461dc045b17a23dec44635a39d2e261ad3623560	
1/4/19 14:34	Bob	Christie	250	00000000343469.60716435198BobChristie250	7adfc239904fa464725c80d1789212f0594a09fc80d919f71121894c3ae6b4	
Verification						
You got the correct Hash!						
You got the correct Hash!						
You got the correct Hash!						
You got the correct Hash!						

*Figure 5 - Hands On Activity - Transaction Hashing*

## **FINDING THE MERKLE ROOT**

Next, students will hash the four transactions that they hashed in the previous exercise to create a Merkle Root or root hash. Students will use the 256-ssh hashing algorithm to hash the combined hashes of the two transaction blocks, then students will hash the combined hashes of the previous transactions to form a Merkle Root.

Transaction ID	Transaction Hash	Hash Length
000000000	8288b1233b95a84a624ee24a8b644879e958e71d364c3823efc07cb0b76404	64
000000000	d40380a6d33e149d4a572b33695e5c8e1d3095e1e6be172de12add3deb20e07	64
000000000	221865627b7de0be76a0ac6461dc045b17a25dec44635a39d2e261ad3623560	64
000000000	7acfc239304fa464725c80d178321210594a0f9c80d19711218184c3ae6b4	64
<b>Hash: 00-01</b>		
000000000	8288b1233b95a84a624ee24a8b644879e958e71d364c3823efc07cb0b76404	64
000000000	d40380a6d33e149d4a572b33695e5c8e1d3095e1e6be172de12add3deb20e07	64
Combined	8288b1233b95a84a624ee24a8b644879e958e71d364c3823efc07cb0b76404d40380a6d33e149d4a572b33695e5c8e1d3095e1e6be172de12add3deb20e07	
Hash	cod91144bad27604dac2a1e5f1ec7b64e527a969395e301e3ba7a6e55e6d58c0	64
<b>You got the correct Hash!</b>		
<b>Hash: 02-03</b>		
000000000	221865627b7de0be76a0ac6461dc045b17a25dec44635a39d2e261ad3623560	64
000000000	7acfc239304fa464725c80d178321210594a0f9c80d19711218184c3ae6b4	64
Combined	221865627b7de0be76a0ac6461dc045b17a25dec44635a39d2e261ad36235607acfc239304fa464725c80d178321210594a0f9c80d19711218184c3ae6b4	
Hash	846e4c604fa7ceaa711c76938e2c972c63ec6dc09afce9590376ae2ad8b50642	64
<b>You got the correct Hash!</b>		
<b>Hash_root</b>		
Hash-0-01	cod91144bad27604dac2a1e5f1ec7b64e527a969395e301e3ba7a6e55e6d58c0	64
Hash-02-03	846e4c604fa7ceaa711c76938e2c972c63ec6dc09afce9590376ae2ad8b50642	64
Combined	cod91144bad27604dac2a1e5f1ec7b64e527a969395e301e3ba7a6e55e6d58c0846e4c604fa7ceaa711c76938e2c972c63ec6dc09afce9590376ae2ad8b50642	
Merkle Hash	9d4c00aa5e263dc2cd61bf1e5ae5dc15c6d491aa68cfa83e35b77142bad7b10c	64

Figure 6 - Hands On Activity - Finding the Merkle Root

### CREATING BLOCK 1 FROM NONCE AND BLOCK 0

Based on the dropdown list of Nonce options and the Merkle Root that the students created in the previous exercise, they will create Block 1 based on the data they get from Block 0, the genesis block. Just like before, the students will concatenate the inputs to enter into the hashing algorithm and test their result.

Summary		Hashes	
Number Of Transactions	4	Hash	5459a5ed6af0f6cb728d4674bdf77f7a10337fab997af62fba332c1f7d3c5881
Output Total	3450	Previous Block	000000000019d6689c085ae165831e934ff763ae46a2a6c172b3f1b60a8ce26f
Estimated Transaction Volume		Next Block(s)	
Transaction Fees		Merkle Root	ad4c00aa5e263dc2cd61bf1e5ae5dc15c6d491aa68cfa83e35b77142bad7b10c
Height	1	<b>Hash Input</b>	
Timestamp	1/4/2019 14:34	1282410489600000000000019d6689c085ae165831e934ff763ae46a2a6c172b3f1b60a8ce26f43469.607 1643519ad4c00aa5e263dc2cd61bf1e5ae5dc15c6d491aa68cfa83e35b77142bad7b10c	
Received Time	1/4/2019 14:34	<b>Hash Output</b>	
Relayed By	You	5459a5ed6af0f6cb728d4674bdf77f7a10337fab997af62fba332c1f7d3c5881	
Difficulty	5,618,595,848,853	<b>Validation</b>	
Bits	486604799	<b>Your output does meet the target parameters. You guessed the correct Nonce, you block is now created!</b>	
Size	0.545 kB		
Weight	0.977 KWU		
Version	1		
Nonce	2824104896		
Block Reward	15 BTC		

Figure 7 - Hands On Activity - Creating Block 1

By the end of the last exercise, students broke down the complicated process of Blockchain, dissected some of its individual elements and created their own block that they added to the example network all without any specialized knowledge of coding or advanced expertise. Students did not leave the classroom as experts, but rather as informed citizens who can build on their foundational knowledge through more advanced study and advanced training.

### DISCUSSION AND CONCLUSIONS

The world is changing faster now than it ever has before thanks to the internet and the rapid pace of technology growth across the world. This ever-changing world places an onus on educators in K-12 schools, CTE

programs, and at colleges and universities to incorporate more project and activity-based learning providing a hands-on approach to education that addresses multiple learning styles while using other skills and knowledge throughout the course of the project.

This paper not only argues for more activity- and project-based learning, but also simultaneously provides a lesson plan, a resource handout, presentation, and activity guide for other educators to adapt and utilize in their own lessons. This fulfills two goals: first to provide educators the tools to teach on emerging technology and two encourage more activity-based learning. As technology is emerging at a rate faster than ever previously recorded, the question that should be on everyone's mind, will I be able to keep my job in ten years?

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# MASTER OF SCIENCE IN ACCOUNTING PROGRAM TRACK

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## OVERVIEW

*Students in the Master of Science in Accounting Program are required to take MACC512: Seminar in Accounting Research and Communication. As part of the class, students complete a research project in an area of their choosing related to the Accounting Field. These research projects are at least 10 pages long and draw upon a variety of research sources. Students work closely with their Professor, the Writing Center, and a Research Librarian in researching and writing the report. While all related to the Accounting Field, topics vary tremendously as evidenced by today's four presenters.*

*Shane Beauchamp explores the benefits and risks of absorption costing from internal and public perspectives. This presentation will critically analyze the method of absorption costing and compare it to other costing methods.*

*Julianne Finnucan will discuss the convergence of IFRS and GAAP. The adoption of IFRS to replace GAAP has long been discussed but never realized. This presentation will explore the similarities and differences between the two reporting methods and discuss the potential for US adoption of IFRS.*

*Andrew Van Woert dives into the challenging complexity of blockchain technology and its uses to help prevent corporate fraud. This presentation will examine the current usage of blockchain, statistics on the usefulness of blockchain in preventing fraud, and types of fraud that can be prevented using blockchain.*

*Cody Shafer analyzes macroeconomic news. Specifically, he explores the impact of macroeconomic news on the foreign exchange market, identifying the challenges, impact, and advantages/disadvantages of these events in the marketplace.*

# THE BENEFITS AND RISKS OF ABSORPTION COSTING, FROM INTERNAL AND PUBLIC PERSPECTIVES

*Shane Beauchamp, Siena College*

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## ABSTRACT

*Management teams rely on managerial accounting models when making decisions that will best suit their companies' stakeholders. The investing public relies on results yielded from financial accounting, by leveraging financial statements to assess a company's past performance and future outlook. The two practices serve different roles, for different audiences. Yet, their principals often overlap, and will influence the financial narrative projected by firms. Costing plays a fundamental role in a firm's operations. There are different methods that can be utilized that derive variable outcomes. This presentation will critically analyze the method of absorption costing, the required method under the Generally Accepted Accounting Principles. It will include a comparative analysis of absorption costing versus other costing methods, and a critical assessment of the consequences of using absorption costing. The goal is to assess the benefit absorption costing brings to internal decision makers, as well as to the public, ensuring financial statement integrity.*

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# THE CONVERGENCE OF IFRS AND GAAP

*Julianne Finnucan, Siena College*

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## ABSTRACT

*The adoption of IFRS (International Financial Reporting Standards) to replace U.S. GAAP (Generally Accepted Accounting Principles) has long been discussed, but never realized. IFRS is currently the required method of accounting used by over 90 countries, establishing it as the most used standard. The AICPA (American Institute of Public Accountants) has gone so far as to test IFRS on the CPA Exam. Many public accounting firms in the United States perform services for international clients. In doing so they must follow the correct accounting standards. With over 90 countries using IFRS this means that employees of these public accounting firms must understand and apply the international standard.*

*The major difference between the standards is that IFRS is principle-based while GAAP is rule-based. This means that under IFRS companies have far more flexibility in what is allowed and rather than trying to adhere to rigid standards they make the best decision for their company and their industry. However, with GAAP, all companies are held to the same rules and therefore, the comparison of financial statements by the investors is much more seamless. This begs the question; which standard should matriculating accounting students learn? Should students learn IFRS in the classroom or can it be self-taught? Do teachers have a responsibility to educate U.S. students on international accounting policies? Will this educational burden fall on international accounting firms when the students start their first job? This presentation will examine these questions.*

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# IMPACT OF MACROECONOMIC NEWS ON FOREIGN EXCHANGE MARKET

*Cody W. Shafer, Siena College*

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## **ABSTRACT**

*This presentation attempts to measure the impact of current events on the foreign exchange market, while identifying the possible correlation between timing of the news and volatility in the marketplace. Under the efficient market hypothesis, current pricing in the market accurately reflects all available information to investors. The access to extended trading day hours allows investors to observe live market conditions and therefore the immediate response to the new information released to the public. In a truly efficient market, investors would not be presented with potential arbitrage opportunities resulting directly from influential news. However, after examining intraday data over the period between January 1, 1991 and May 17, 2016, there are indications of news based implied volatility (NVIX) having incremental and significant effects on the foreign exchange market depending on the origin, type and quality of the news. This research has found evidence through the relationship between exchange rates and macroeconomic fundamentals that there are indeed market reactions not only after, but also before news releases.*

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# **BLOCKCHAIN TECHNOLOGY AND THE FIGHT AGAINST OCCUPATIONAL FRAUD**

*Andrew R. Van Woert, Siena College*

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## ***ABSTRACT***

*This presentation will explore the use of blockchain technology to help deter and prevent occupational fraud at the corporate level. One subtopic that will be discussed includes examples of current deployments of blockchain technology today. This will encompass statistics about its usefulness in the fight against occupational fraud. A second subtopic includes the types of occupational fraud that can be prevented using blockchain technology. The final subtopic to be discussed includes the deployment of blockchain technology in uncovering fraud at an investigative level.*

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