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# GO GO GO LOCAL

*Karl Appel, Siena College*

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## **ABSTRACT**

*3GoLo (also known as Go Go Go Local) is a business idea for a social media oriented website where travel agents can reach out to their clients who have interest in group day trips or those who want to visit great local destinations. Users on the website will have the ability to create or join trips that exist in their nearby area. Those who invite friends and get them to sign up for trips will receive a discount based on the number of friends they get to join the trip. These users will have a variety of tools that will allow them to interact with social media sites like Facebook or Twitter to promote and share their experiences. Overall, users will be able to have fun with like-minded people by experiencing and supporting local points of interest, recreation and entertainment.*

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# SWIFT THRIFT

*Meredith Baade, Siena College*

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## ABSTRACT

*SwiftThrift is a mobile thrift store that will be the most unique, convenient, and fun clothing exchange for college students in the Capital Region. Operating via refurbished school bus, SwiftThrift will circulate the 10 colleges in the region and provide a location for students to buy and sell lightly-used clothing. With a price range below retail stores and just above average thrift stores, SwiftThrift is sure to be a popular entity and a financial success. SwiftThrift is committed to raising the prominence of resale items and enforcing the "reuse" ideal of environmental sustainability.*

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# THE GOTTA GO BUTTON: A NEW WAY TO TRAIN YOUR DOG

*Chad Bingo, Siena College*

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## ABSTRACT

*The Gotta Go Button is a pet training device that allows owners to teach their dog to signal that they wish to go outside. Similar in size to the Staples Easy Button, the Gotta Go Button sits next to the door that the owner's pet routinely leaves the house from. With my copyrighted training instructions, dog owners can teach pets of ANY age to push their button in about 3 weeks. Once pushed, the Gotta Go Button will say one of three programmed responses that will sound loud enough for the owner to hear. These three responses are "I Gotta Go!", "I Really Gotta Go!", and "I Gotta Go Now!" For a demonstration of this product I suggest going to [www.Dogstarpp.com](http://www.Dogstarpp.com). The Gotta Go Button that you see in the video is the first prototype I made. The final product will say the three responses, have a yellow and black color set, have a raised logo, and be slightly shorter than the Staples Easy Button. Based on market research, I estimate it to sell for approximately \$14.99 in stores and \$12.99 online.*

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# **TOFF**

*Vincent Crocitto, Siena College*

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## **ABSTRACT**

*Toff is a mobile social media app, designed to allow users to express and share their own personal fashion with their friends and the world. It's simple and mobile format will let the users be able to use the app and network with from anywhere with ease. A user can receive feedback on outfits, search for inspiration, and even engage in commerce with other users.*

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# THE AFFORDABLE CARE ACT: NOT SO AFFORDABLE

*Audrey Sabatini, Siena College*  
*Jordyn Torchia, Siena College*

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## ABSTRACT

*The purpose of our research was to analyze the implications of the Affordable Care Act (ACA) on both the uninsured population and, more importantly, health care costs in the U.S. The U.S.'s complex health care system has left approximately 48.6 million citizens without health insurance in 2012, and health care costs currently make up an unsustainable percentage of our GDP. Although the ACA will successfully decrease the number of uninsured, its policies will not combat the rising costs of health care in our country.*

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## INTRODUCTION

In 2010, the Patient Protection and Affordable Care Act (ACA) was enacted with the intent to reduce the number of uninsured Americans and to combat rising medical care costs. DeNavas-Walt et al. confirm that approximately 48.6 million Americans under age 65 currently are uninsured (2012). This percentage of the U.S. population has slowly risen from about 13% in 1999 to 16% currently. Health care costs made up approximately 18 percent of gross domestic product (GDP) in 2010, and are projected to increase to about 25 percent by 2025 (MacGillis, 2010). The program is projected to reform both the over-complicated insurance market in the United States, as well as the U.S. health care system. This act includes a mandate for all U.S. citizens to acquire a health insurance policy, else pay a fine to the federal government. The ACA also reforms Medicaid and creates state-based health benefit exchanges.

Although the ACA will like decrease the number of uninsured Americans over the next several years, it will not contain the rising costs of health care in the long run. The reform is estimated to save about \$140 billion of federal funding the first decade in which it is implemented and hopes to help contain the rising costs we are facing in this market. We will provide evidence that these savings are over-estimated and that expenditures will continue to rise at an alarming rate even with the ACA in place.

## OVERVIEW OF HEALTH CARE IN THE U.S.

The 16 percent of the U.S. population that remains uninsured lack health insurance policies for different reasons. Firstly, they have been denied health insurance coverage due to pre-existing conditions. A "pre-existing condition" constitutes any medical condition that a patient may have before they apply for a health care policy. About one in five non-elderly Americans with a pre-existing condition are uninsured because insurance companies use pre-existing conditions as reasons to deny coverage (U.S. Department HHS, 2013). Secondly, some believe insurance is not a necessity, or have failed to apply for public health coverage. The uninsured population tends to fall in the 19-34 year old age range and come from lower-income households (U.S. Department HHS, 2011). The younger generations may deem health insurance unnecessary because they are not as likely to fall ill or seek medical services. Lower-income citizens may find employer-based benefits to still be too costly; however 37% of all uninsured Americans have household incomes above \$50,000. Other reasons include: loss of job and benefits due to the recession, the employer does not offer health insurance packages, or the benefits for a government funded policy have stopped.

Even with 16 percent of the U.S. population uninsured, the country has a higher rate of health care spending than any other OECD country. The United States also tops the charts with the highest annual expenditure on health care per capita at about \$8,000 per person. (Norway is second at approximately \$5,000 per person- However; health care expenditures comprise only 10 percent of Norway's GDP (Bottom Line, 2012)). This rate of spending is unsustainable. The baby-boomer generation is causing the population to age at a high rate. The US Census Bureau confirms that the 65-and-older age group will increase by nearly 80% by 2025 (2010). The elderly



also require the most medical care than any other age group. This point, in combination with the increase in qualifying Medicaid patients, puts a strain on government funded programs.

Even worse, the U.S. population does not have exemplary health outcomes as a result of its high expenditure per capita. The United States is ranked 31<sup>st</sup> in the world for life expectancy, and 37<sup>th</sup> for infant mortality (The Staff of the Washington Post, 2010). The ACA hopes to close that gap in health outcomes in the United States and other countries by increasing the number of insured patients in the U.S. The more insured patients, the more medical services (both emergency and preventative treatments) will be consumed and, as a result, we will have a healthier population.

## COMPONENTS OF THE ACA AND THEIR IMPLICATIONS

Beginning in 2014, the ACA requires that all U.S. residents to have a health insurance policy. Those who neglect to acquire health insurance will be fined \$95, or 1 percent of their income, in 2014, \$325 or, 2 percent of their income, in 2015, and finally \$695 a year, or 2.5 percent of their income, from 2016 on (KFF, 2013). Illegal immigrants will be exempt from the fine; however they are not eligible to participate in state-run health “exchanges” either. We will discuss these exchanges in greater depth later on. Those lacking insurance for a short period of time (less than 3 months) are exempt, as are people with certain religious affiliations, veterans, and incarcerated people.

The main economic reason for mandating individuals to obtain health insurance is to increase risk pooling among insurances in the American Health Benefit Exchanges. State-run health insurance exchanges will be created as a replacement for the current open-market system. These self-funded exchanges are regulated markets where individuals that are ineligible for public coverage can purchase a health insurance plan. Participating insurance companies will be required to offer a minimum benefits package at an affordable price, and consumers will be able to seek information and reviews concerning the different companies and plans via an online database. Small businesses will also be able to participate, allowing them to mimic the behavior of larger firms in providing a variety of affordable health care plans to their employees. In order for these health insurances to function, they must charge their patients premiums that are calculated through a technique known as risk pooling.

Risk pooling involves taking the probability that someone will become sick and need treatment and averages it with a large group of people (the pool) to calculate a total expected cost of covering medical services for everyone in the pool. Once expected cost has been calculated the insurance agency distributes it to their clients in the form of premiums. The mandate for health insurance requires the young and healthy to have coverage so that their risk can be pooled with people with serious medical conditions. This is meant to decrease the premiums for the sick and make health care for them more affordable. We believe that the individual mandate will do nothing to decrease overall health expenditures due to a phenomenon known as moral hazard. Moral hazard occurs when people with health coverage become more likely to seek unnecessary or an excess of treatment due to the lower financial burden placed on them through co-payments instead of out-of-pocket expenditures. With health insurance, patients only need to pay a fraction of the true cost of their medical care in the form of co-payments. This lowers their out-of-pocket expense and, in most cases, the patient does not know the true cost of the care (or prescription) they are receiving. If a doctor prescribes a brand-name medication that costs over \$900 out-of-pocket, a patient with insurance may only have to pay a \$35 co-pay for all brand-name drugs. In this case, a prescription that would be very costly with no health insurance may now be affordable. Patients do not realize the full cost of the treatments they are seeking, so they have more incentive to demand more care.

Moral hazard is proof that, as more customers use third party payers, the demand for health services becomes more inelastic. In other words, since people are only paying a small percentage of the actual cost of the service, they will be more insensitive to changes in prices. This gives an incentive for doctors to increase their prices because they know patients will still go through with their procedures and the insurance companies will have no choice but to pay the higher price. Doctors will also strive to increase their revenue by offering their patients expensive procedures. There is asymmetrical information in the health care market and patients might not be aware that there is a cheaper procedure available, and since they are not the ones paying for most of it, they may not even notice how much a certain procedure might cost.

One of the goals of these health insurance exchanges is educating consumers and making information symmetrical. However, this availability of information comes with a price. We know that consumers make decisions based on personal preferences, costs, and benefits in that particular scenario. Cutler and Zeckhauser confirm in their research that when individuals expect high health costs and are charged higher premiums, they are more likely to consume more medical care. Those who expect lower costs will choose more moderate health insurance plans (1998). Another consequence is that they will seek more affordable coverage elsewhere. There is a domino effect, because when less risky people drop out of pools, the premiums of those still in the pool to increase

even more. Therefore, greater risk pooling can only be effective if information between insurance companies and the people they insure is symmetric, and if we mandate coverage to increase the number of individuals in the risk pools.

The ACA will also work to expand Medicaid coverage to a larger population. It is estimated that almost half of the 32 million currently uninsured patients will be eligible for Medicaid as of 2014. At that time, the federal government will be in charge of laying the regulations for the new Medicaid program. These new regulations will affect two groups in particular: adults without dependent children, and people with an income up to 133 percent of the federal poverty line. Along with expanding Medicaid, the plan will allow young adults to stay on their parents' insurance plan until the age of 26, which will help decrease the number of uninsured in that particular age group.

Figure 1 breaks down the U.S. population by type of health insurance in 2010, and further identifies the sub-division of those uninsured non-elderly patients based on income and family type. Over half of the nonelderly population receives health insurance through their employer, and the next largest sub-division receives insurance through Medicaid. When we observe the uninsured population, it is not surprising to see that approximately 54% of these patients fall below 138% of the poverty line. According to health reform policies passed in 2012, this income is now the new minimum Medicaid eligibility threshold (they disregard 5% of income). While we expect to see enrollment vary by state, a majority of the newly eligible will be low-income adults.

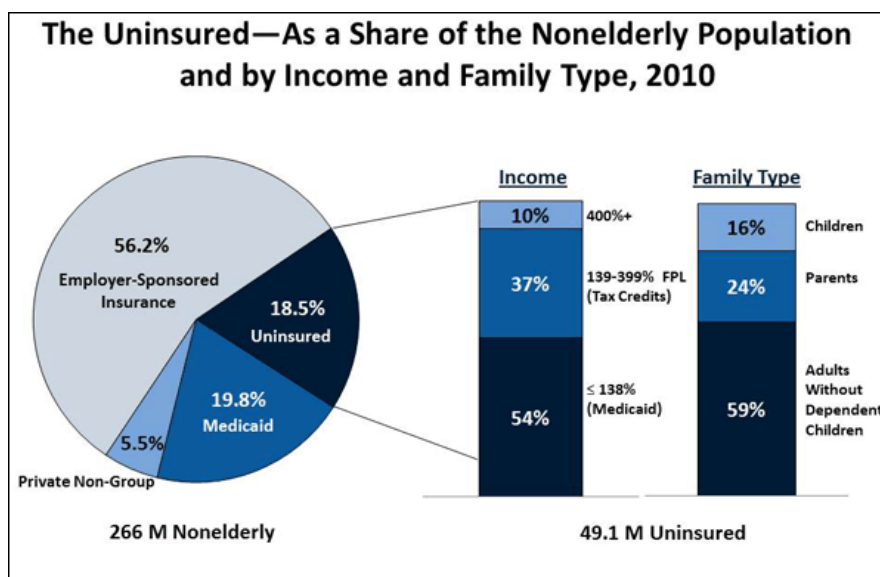


Figure 1. The Uninsured-As a Share of the Nonelderly Population and by Income and Family Type, 2010. Reprinted from The Henry J. Kaiser Family Foundation, n.d., 2012, Retrieved from : [http://www.kff.org/medicaid/quicktake\\_aca\\_medicaid.cfm](http://www.kff.org/medicaid/quicktake_aca_medicaid.cfm).

### ECONOMIC ANALYSIS: THE MASSACHUSETTS HEALTH CARE REFORM

The Affordable Care Act will work as both an Insurance and Health Care System Reform through the installation of individual mandates for all citizens, expanding Medicaid, and establishing health insurance exchanges. Although we have seen the idea of a national health care reform take shape during the Clinton presidency, nothing this extreme has ever been implemented. There are no comparable international programs to look to for suggestions or proof of outcomes either. In 2006, however, a similar plan was implemented on a smaller scale in Massachusetts. We can look to these results and try to project them on a national level.

One of the goals of the Massachusetts Health Care experiment was gradually change the mindset of citizens into thinking that having health insurance was the new norm. It did so by offering three possibilities for individuals seeking coverage through the Connector health care exchange. The MassHealth plan provided for those with incomes less than 100 percent of the federal poverty level, unemployed, and firm sizes less than 11 employees. The Commonwealth Care plan was for those with incomes between 100 and 300 percent of the FPL and small firms. Lastly, the Private Market or Commonwealth Choice was for incomes greater than 300 percent of the FPL and larger firms. Within the first year of the reform and mandate being in place, the state saw a near 50 percent reduction in the number of uninsured individuals from a 10.9 percent uninsured rate in 2006 to 5.5 percent in 2007 (KFF, 2012).

Although it lowered the number of uninsured, Richardson (2009) points out that the program gave

incentives for small firms to cancel health insurance so their employees could get cheaper state-subsidized plans, and enticed people to earn less so that they would be eligible for higher benefits. He admits that the plan has “not contained soaring costs in the health care system.” The costs had been partially offset by a \$250 million drop in state expenditures for the uncompensated care pool paid to the hospitals, but it could not take on the near \$700 million costs of the Commonwealth Care from 2006-2009. For that three-year time span, the state programs saw a 78.5 percent increase in health care reform spending (Richardson, 2009).

The Kaiser Family Foundation (2012) remarks that Massachusetts focused their health care reform on expanding coverage, and not on controlling costs. The state’s per capita health care spending is 15 percent higher than the nation’s average, and they have the highest individual market premiums in the country. These outcomes do not give us hope that the reform at a national level will give us different results, however we cannot assume this. The ACA is dealing with a much larger population with very different demographics from the Northeastern state. We must take into account factors such as unemployment, health care availability, and population make-up. For example, illegal immigrants are not penalized by the mandate and are not allowed to participate in the health exchanges or public programs. In 2007, the Health Connector Board in Massachusetts was forced to exempt about 20 percent of the uninsured from the individual mandate (Stark, 2010). While this did not carry serious implications for the state, it will have a bigger impact at the national level due to the greater number of illegal immigrants other states. These individuals will continue to seek care without insurance, or fail to get health care and create negative externalities for the insured. Just as we are facing now, hospitals are forced to participate in “cost-shifting.” This means that they shift the costs of uninsured patients by increasing what is charged to insured patients. The government does not provide enough in subsidies to cover the massive amounts of uninsured patients in the system, so the hospitals shift the costs from the uninsured to the insured.

Employment and income level are two of the key factors that dictate what sort of health insurance is available for a patient. The unemployment rate in Massachusetts is currently at 6.7%, which is a full 1% lower than the national average (U.S. Bureau of Labor Statistics, 2013). A greater percentage of the Massachusetts population, therefore, receives health insurance through their employers and does not have to purchase health plans on the open market. We must also consider that approximately 12% of the Massachusetts population fell below the poverty line in 2011 compared to the U.S.’s near 16% (Bishaw, 2012). A higher percentage under the poverty line means more subsidies, and more government-funded health insurance plans. This is factored into total cost of health care which, for the U.S., is going to be drastically higher than Massachusetts.

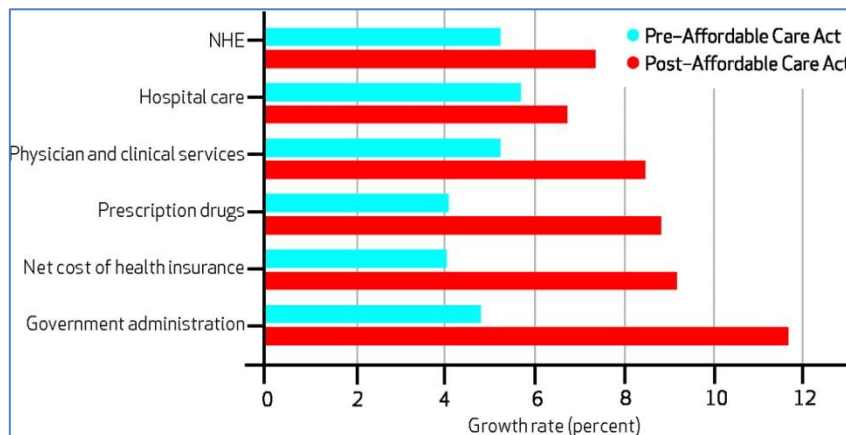


Figure 2. 2014 Growth Rates by Selected Sector Before and After the Impact of the ACA. Reprinted from Centers for Medicare and Medicaid Services, Office of the Actuary, National Health Statistics Group, n.d., 2012. Retrieved from: <http://content.healthaffairs.org/content/early/2012/06/11/hlthaff.2012.0404/F2.expansion.html>.

Figures 2 (above) and 3 (below) show the projected growth rates of national health care before and after the ACA is instated. Figure 2 shows these projections based on the different sectors of health care. It is clear that growth rate percentages post-Affordable Care Act are greater than those pre-Affordable Care Act, especially in the prescription drug and government administration sectors. The growth in all of these sectors is visible in Figure 3 by the National Health Expenditure (NHE) line graph. Although one may argue that the NHE growth rate (absent of the ACA) does in fact surpass the NHE from about 2016-2019, this does not hide the continually upward trend of health expenditure and downward trend of GDP.

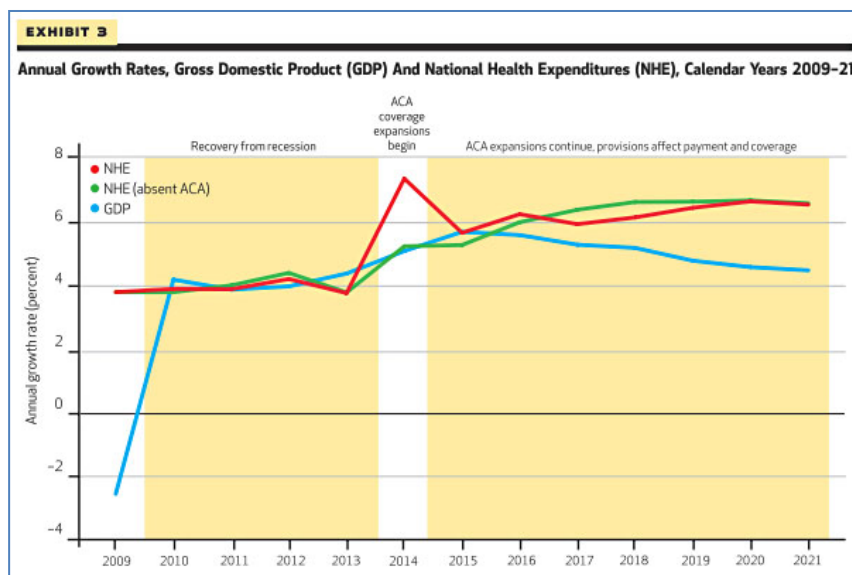


Figure 3. Annual Growth Rates, Gross Domestic Product (GDP) And National Health Expenditures (NHE), Calendar Years 2009–21. Reprinted from Centers for Medicare and Medicaid Services, Office of the Actuary, National Health Statistics Group; and Department of Commerce, Bureau of Economic Analysis, n.d., 2012. Retrieved from: <http://content.healthaffairs.org/content/early/2012/06/11/hlthaff.2012.0404/F1.expansion.html>

## RECOMMENDATION

In conclusion, we believe the Affordable Care Act will be ineffective in decreasing overall health expenditures in the long-run. In fact, based on the outcomes from the health care reform in Massachusetts, if expanded to the national scale, we are certain that the mandate will increase total spending on health care services. Increasing spending means an increase in costs that need to be funded either by the government or insurance companies. In reality, we are the ones paying for the increase in cost through our tax dollars or increases in our premiums.

The existence of both public and private insurance sectors in the U.S. health care market is the reason health care costs are growing out of control. In order for costs to become reasonable the market needs to become purely public; in other words: universal. After decades with these government services it would be impossible to take them away from the people who need them without a negative reaction among the population. Therefore, we feel that a universal health care system is inevitable. Also, once the ACA is fully enacted people will be paying a higher percentage of their income towards health care, either through their premiums, the penalty, or the increase in income tax. Increasing taxes to pay for a universal system would not seem so harsh once everybody is receiving the health care they need and the costs are gradual.

The main goal of our health care system should be to encourage consumers to seek medical care when it is necessary. Over-utilization and under-utilization are both factors that lead to poor health outcomes in our country when compared to other industrialized nations. Both of these outcomes can be directly related to how sensitive patients are to the price of the services demanded. The less patients have to pay out-of-pocket, or the more insurance companies cover, the more likely they are to over-treat themselves. Vice-versa, the more patients have to

pay out of pocket for treatment the more likely they are to under-utilize that care. Mandating health insurance is not the most effective way to create better health outcomes.

Though the ACA may not be the answer to our nation's high health care expenditure problem, it could be the first step towards a universal health care system. Once the mandate for insurance coverage is in place the number of insured should greatly increase. After a number of years, possibly decades, having insurance will be the "norm." People may start to view health care as a right instead of a privilege, and the cultural "norm" will completely shift.

Lastly, the mentality among the US population towards health care services needs to be reformed. This is a task that cannot be accomplished immediately. Over time, small policies should be enacted to gradually shape the mindset of Americans. For instance, the expansion of Medicaid and the ability of young adults to stay on their parents' insurance plan until they turn 26 are both policies that make certain population sectors view health care as a right rather than a luxury. Health care in the United States is treated as a good with an unlimited supply. In Europe, treatments are considered a scarce resource and only the patients who are in life-threatening circumstances and need that treatment immediately receive it. Doctors contracted by HMOs and certain public agencies should have stricter regulations on orders for unnecessary treatments and screenings. By controlling the amount of care physicians give and treating health care as a scarce resource, expenditures are likely to decrease.

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# THE ARRA AND THE RECOVERY OF THE US ECONOMY

*Joseph Abed El Latif, Siena College*

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## ABSTRACT

*The objective of this paper is to examine exactly what has led to the United States recovery from the Great Recession. To do this I evaluated the effects of the American Reinvestment and Recovery Act and demonstrated what positive impacts this fiscal policy had on the U.S. economy. The evidence from this paper leads to the conclusion that swiftly enacted fiscal policy is necessary in response to a downturn because it improves the confidence of the nation, which leads to consumption and investment. Lastly, I provide my recommendation on what needs to happen moving forward for the U.S. economy to reach prerecession levels.*

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## INTRODUCTION

The Great Recession was a brutal reality check for the United States economy. It was a time of economic despair that has hardships many Americans and citizens around the world still endure today. It was a catastrophe that was initiated by regulatory failures in the housing and financial markets that led to a full-fledged financial collapse that became the largest downfall in the U.S. economy since the Great Depression. This meltdown of the world's largest economy triggered nearly unprecedented effects that had only been seen in the 1930s. However, vigilant actions by the U.S. government and the Federal Reserve have led to an easing of this economic down turn and ultimately an improvement in the U.S. economy.

“The resilience of the American people who have held fast— even in the face of hardship—to an unrelenting faith in the promise of our country. It is that determination that has helped the American people overcome difficult periods in our nation’s history. And it is this perseverance that remains our great strength today” (Obama, 2010,3). This quote summarizes how important the American attitude has been to this recovery. The U.S. unemployment rate, once at 10% is now down to 8.2%. The gross domestic product was decreasing at a rate of nearly 6% per year, hit its trough in 2009 and is now increasing at a slow but steady pace. And the overall outlook of the economy is becoming more optimistic. My thesis is that the majority of these improvements can be accredited to fiscal action and specifically the American Reinvestment and Recovery Act.

The objective of this paper is to examine exactly what has led to the United States recovery from the Great Recession. To do this I plan to evaluate the effects of the American Reinvestment and Recovery Act implemented by President Obama and demonstrate what positive impacts this fiscal policy has had on the U.S. economy. Section 1 of this paper will answer the questions of what caused the Great Recession and why its impacts were unpredictably severe. I will be looking at data on the United States financial and housing crisis that arose from speculation and poor regulation. Section 2 will analyze the policies the government enacted in response to the downturn and evaluate the effectiveness of these actions. I plan to interpret what effect the increase in government spending during these times had on employment and investment and consumption expenditure. I also will examine the long run effects of the spending of the ARRA. I intend to look at the nature of the government spending and how this expenditure could affect the total factor productivity and lead to an increase in the overall standard of living in the U.S. Finally, Section 3 illustrates the relationship between the effectiveness of fiscal action and the role the confidence of the economy plays in a recovery. In this section a key argument I will propose is that monetary policy was a very limited tool during this time and would not have been effective without the use of fiscal policy. And since the severity of the economic downturn of the Great Recession has not been seen since the Great Depression, I feel that it is appropriate to compare the two crises and scrutinize the fiscal actions put in place throughout my discussion.

## SECTION 1

To begin to comprehend what policies were effective in aiding the United States economy we have to understand what led to that particular economic disaster. First of all, a recession is defined as a decline in economic

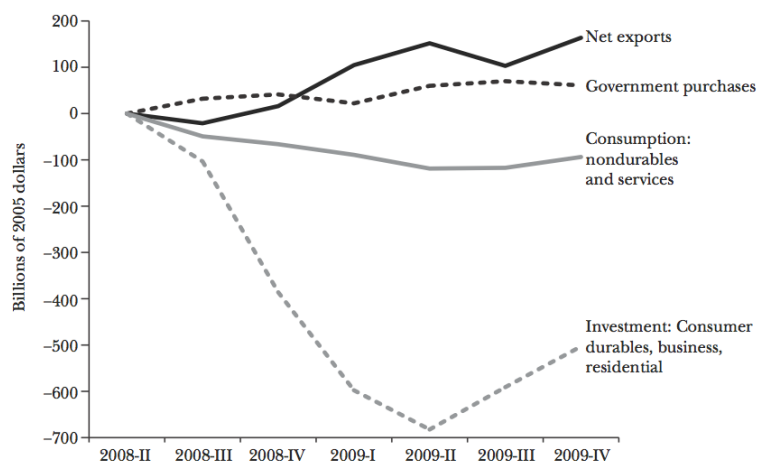
activity of a country lasting for more than a few months. This economic downturn is measured by negative growth of a country's gross domestic product. A recession can be a normal part of the business cycle controlled by the Federal Reserve, but in the case of the United States, the Great Recession was caused by a one-time financial crisis.

According to the National Bureau of Economic Research, the Great Recession officially started in December of 2007. The financial crisis started with a national boom in the housing market, which peaked around 2005 (Mishkin, 2011, 51). Although economists recognized the burst of the housing bubble, the severity of the recession was not foreseen. "Despite this disruption to financial markets, real GDP in the United States continued to rise into the second quarter of 2008, and forecasters were predicting only a mild recession" (Mishkin, 2011, 1). Irresponsible banks and lenders issuing and taking credit that was exorbitantly unaffordable was a key factor in amplifying the effects of this disturbance. In President Obama's speech to George Mason University in January of 2009 he declares, "No longer can we allow the unscrupulous lending and borrowing that leads only to disruptive cycles of bubble and bust" (Obama, 2009,3). Investors had been packaging these risky loans into mortgage-backed securities and trading them in the financial markets. As housing prices started to decrease, firms holding these high-risk mortgage-backed securities associated with these loans began to realize that they were in trouble. In the 2010 Economic Report of the President, Obama refers to the cause of the crisis as "irresponsible risk-taking and debt-fueled speculation—unchecked by sound oversight—led to the near-collapse of our financial system" (Obama, 2010, 4).

After the pop of the housing bubble, there was a worldwide financial panic that set off a disastrous chain of events. By mid-September 2008 the investment bank Lehman Brothers entered bankruptcy and the insurance agency AIG collapsed spurring massive negative economic ripples throughout the global economy (Mishkin, 2011, 49). \$13 trillion of wealth was lost due to severe declines in housing and stock prices (Romer, 2010, 3). Which then triggered a decrease in consumer and investment spending. Even before the collapse of Lehman Brothers, the U.S. economy had lost over a million and a half jobs and GDP had fallen by more than the average in the previous two recessions. The fall of such a giant firm sent credit availability plummeting, which multiplied the decreases in consumption and investment and massive job loss. These statistics alone exemplify the uniqueness and brutality of this economic recession.

One of Robert Hall's arguments in his paper, "Why Does the Economy Fall to Pieces after a Financial Crisis?" demonstrates that the reason the Great Recession was so severe was due to the influence the financial crisis had on the interest rate sensitive components of GDP. Figure 1 is a graph that shows that the separation of the consumption of durable goods like cars, appliances, and furniture out of consumption and couples it with the rest of investment. This provides a clear depiction that the fall in business and residential investment, and the purchases of investment-type goods by consumers was the most influential factor in the decline in real GDP. Hall goes on to conclude that the financial friction experienced by the U.S. institutions led to this drastic decrease in investment and employment (Hall, 2010, 4). In Figure 1, one can see that the increase in investment, and in essence GDP, was not until the second quarter of 2009, a short time after President Obama implemented the American Reinvestment and Recovery Act.

**Figure 1**  
**Changes from the Second Quarter of 2008 in Four Components of Real GDP during the Crisis**





Source: U.S. National Income and Product Accounts, Table 1.1.6.

## SECTION 2

In order to confirm the importance of the United States government's fiscal action in this time of economic despair I will be evaluating the American Reinvestment and Recovery Act. The American Reinvestment and Recovery Act was signed just one month after President Obama's inauguration and at \$787 billion, it was the largest countercyclical fiscal stimulus package in American History. The stimulus package provided funding through tax cuts and increases in government spending equivalent to roughly 2 percent of GDP in 2009 and 2 ¼ percent of GDP in 2010 (Obama, 2010, 51). To make a historical comparison the largest expansion of the budget prior to the ARRA was in 1936, when President Franklin Delano Roosevelt's introduced the New Deal, which was an increase in the deficit of about 1 ½ percent of GDP. Christina Romer, a member on the economic council of President Obama describes the Recovery Act as, "...large, well diversified, temporary, and fast-acting" (Romer, 2010, 5).

The American Reinvestment and Recovery Act is an extremely diverse fiscal plan that spread its funds throughout numerous programs and incentives thought to best aid the economy. This fiscal action was designed to compensate for the fall in aggregate demand caused by the collapse of the private sector. The American Reinvestment and Recovery Act was also turned to because of the lack of efficacy of the Federal Reserve's lowering of short-term interest rates. The plan was to have the Recovery Act spread over two years into many different programs. The reason a broad array of programs was needed was due to how the different types of stimulus would affect the economy. Each program commenced recovery at different velocities and there were various underlying economic conditions that influenced the success of each program.

<sup>1</sup>When the ARRA was finished, about one-third of the aid was allocated to tax-cuts. The majority of these tax cuts were targeted at the working class in hope of spurring consumption and triggering multiplier effects through the economy. Similar to the purpose of these tax cuts was the spending of approximately \$90 billion on direct relief to individual families that were negatively affected by the recession. In addition to the aid to individuals, there were large tax breaks for businesses. Specifically the Recovery Act provided businesses facing credit limitations with liquidity, which provided enticement for individuals to invest in these firms. A portion of the individual aid provided an extension of unemployment insurance benefits to help those who lost their jobs in the downturn.

<sup>1</sup>The impatient mindset of much of the public only evaluates economic policies in the short run. A major principal of the ARRA was the spending that aimed to address the long-term welfare of the economy. The Recovery Act included investment spending on government projects that will contribute to an increase in efficiency of the U.S. economy in the long run. The government invested a third of the act's funding into programs in transportation infrastructure, scientific research, electrical grids, and clean energy technology. These projects do not just provide direct employment but can potentially lead to an increase in the standard of living for the United States in the future. This piece of the ARRA was very similar to FDR's spending on public works in the New Deal. President Roosevelt focused much of the fiscal spending on putting America back to work. The New Deal created jobs building roads and improving infrastructure across the country. These programs led to a higher standard of living for the United States and revived the lost sense of hope to the average American. Obama and his counsel mimicked FDR in this sense, "we'll put people to work repairing crumbling roads, bridges and schools, by eliminating the backlog of well-planned, worth and needed infrastructure projects, but we'll also do more to retrofit America for a global economy" (Obama, 2009, 3). The investments of the Recovery act provided down payments towards renewable energy, advancements in healthcare, and higher quality in our education systems which all will lead to higher efficiency of the U.S. economy (Romer, 2010,5).

Christina Romer makes a claim in her paper "What Do We Know About the Effects of Fiscal Policy? Separating Evidence from Ideology", that evaluating the impact of fiscal actions can be extremely difficult. This truth can explain the unpopularity of the American Reinvestment and Recovery Act. What the majority of these people evaluating this policy neglect to do is consider where our economy would be without this fiscal act. Romer addresses this point in her paper as the counterfactual argument. Daniel Wilson, an economic researcher at the Federal Bank of San Francisco, concludes that the ARRA saved about 3 million jobs from being lost to the recession (Romer, 2010, 15). This estimate by Wilson is consistent with the President's prediction that the Recovery Act would raise employment by 3 ½ million, compared to what would have happened without the stimulus (Obama, 2010, 52). An additional reason it is hard to blatantly see the positive relief the ARRA has provided is because the funds are so widely spread out over many different programs. Many Americans do not directly see the aid, which makes it easy for them to neglect how the act has reaped large economic benefits (Romer, 2010, 5).

### SECTION 3

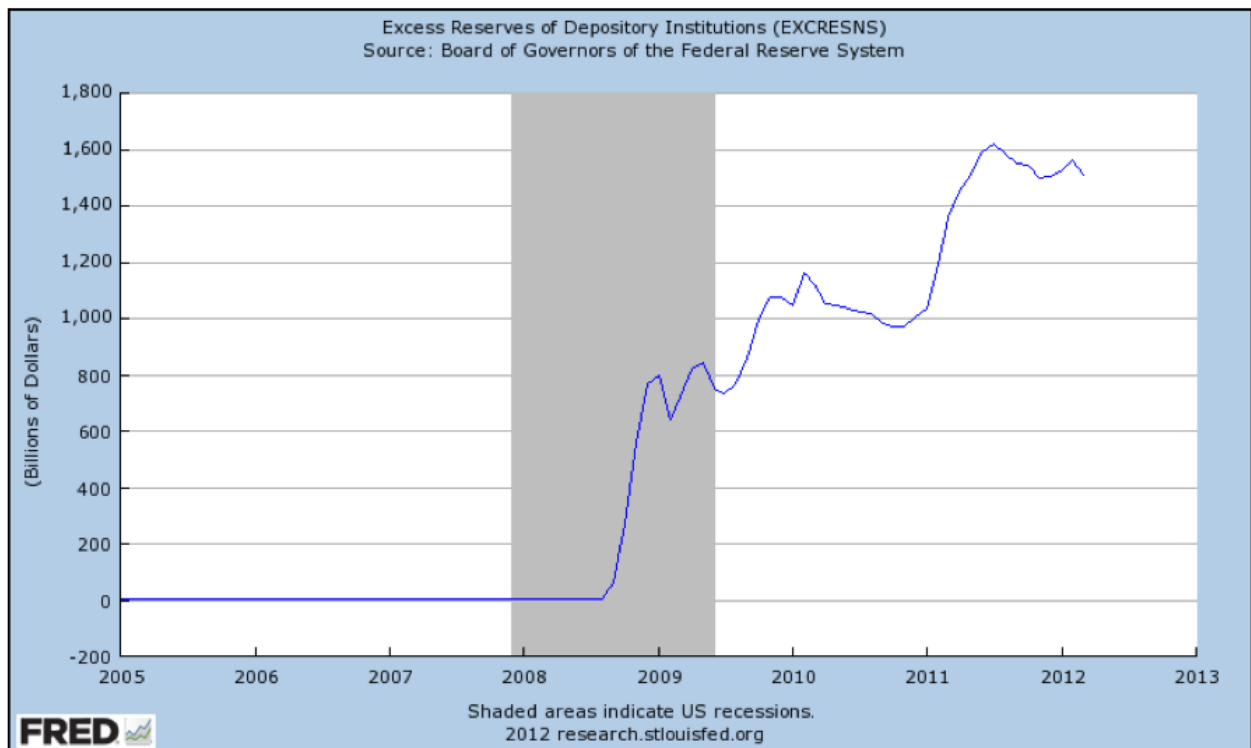
Qualitative data is often overlooked by economists when evaluating arguments. Most look to historical data and statistics to help understand the economy and measure effectiveness of policies. However, in the recent recession confidence played a large role in the effectiveness of the actions taken to relieve the turmoil. Confidence is a key role player in the recovery of an economy and yet it is a hard variable to measure. There are surveys used to measure the levels of confidence of consumers and studying these surveys, along with economic data from the recovery, provides compelling relationships.

First of all, there are two different types of confidence that are crucial to recovery. They are the confidence of investors and consumers, and the confidence of banks and other financial institutions. Although these are two separate variables they are closely related. The confidence of banks is needed to make credit available for consumers and businesses to borrow money. And without the confidence of investors and consumers the banks have no one to lend to. In the current crisis, the Federal Reserve tried to manipulate the amount of money being borrowed and lent by targeting low short-run interest rates. When this did not lead to an immediate rise in investment and consumption they enacted “Operation Twist”, which sought to pull down interest rates on 10-year treasuries. Both of these actions by the Fed were not as effective as predicted because of the lack of confidence in the economy.

Figure 2 shows the amount of excess reserves that banks have been holding since 2005. The graph shows a drastic increase in the amount of reserves banks were holding after the start of the financial crisis. Due to the poor regulation and unethical actions that led to this predicament, banks have been extremely hesitant to whom they lend money to. This lack of confidence in the banking system has neutralized the effects of any monetary actions that would regularly sustain demand and investment (Mishkin, 2011, 66). As long as banks are being paid interest to hold onto these reserves, there will be no hurry to start lending funds to businesses and consumers. Due to the nature of this crisis and the failure of low interest rates to stimulate the economy, the U.S. had to look to fiscal policy to pull the economy out the recession.

**Figure 2**

Source: Board of Governors of the Federal Reserve System



Fiscal policy is more unique than monetary policy in the sense that it has greater ability to increase the confidence of an economy. This can be proven by examining the effects the New Deal had on leading the U.S. out of the Great Depression. In Christina Romer's paper "What Ended the Great Depression" she claims that monetary policy was the main cause of the recovery from the Depression and that fiscal policy did not have an influence until 1942 (Romer, 1992, 781). However, Romer does not consider that changes in fiscal policy had an affect on the confidence of the people during the recovery. Instead, if we assume that fiscal policy led to an increase in confidence, which led to the increases in investment and consumption during the recovery, Romer's argument does not hold much weight. The main assumptions of my paper are that confidence has the power to shift consumption and investment curves and that fiscal policy has a significant affect on confidence. The New Deal, gave the United States hope because it created jobs when there were none. It was fiscal action that led to a positive outlook of getting out of the depression, which led to expenditure. The same is true with the American Reinvestment and Recovery Act.

Examining consumer surveys on confidence before and after the recession we can come to the conclusion that there is a significant relationship between the issuance of the ARRA and an increase in consumer confidence. In addition, there is a strong correlation between the increase in consumer confidence seen in 2009 and the turn around and increase of real GDP. This data proves that the implementation of a fiscal stimulus like the Recovery Act can immediately boost the confidence of the economy. Unfortunately, when running a regression on data from 2007 to 2011 from the University of Michigan's consumer sentiment survey, there are many omitted variables that skew the results of the analysis when looking at the affect confidence has on real GDP. Nevertheless, the results in Table 1 show that there is a positive relationship between confidence and GDP.

**Table 1**

Y Variable- Real GDP	Coefficients	Standard Error	t Stat
Intercept	12649.73629	416.2022598	30.39324269
X Variable 1- Confidence	5.997689554	5.789200211	1.036013497
R Square	0.059387192		

## CONCLUSION

For an unemployed American who lost their financial welfare during the Great Recession, the recovery of the economy might feel drawn out and daunting. Nevertheless, the United States of America is still the most prosperous nation on Earth and our unyielding ability to overcome adversity is the greatest principle that the United States is founded upon. What is going to lead this nation out of these times of despair is increases in investment and consumption and the American Reinvestment and Recovery Act has opened the door to this hope.

Today the argument of many Republican politicians is that we need to cut back on government spending and that the ARRA was a waste of money. However, the research in this paper has proven that when government spending is used in the correct way it can have many positive impressions on the economy. A possibility that these politicians do not dare to propose is that the increase in government spending is being off set by the decrease in investment and consumption, which will increase the savings rate of the economy. On top of the programs funded by the ARRA that contribute to an increase in efficiency, this new frugal attitude of the U.S. economy could lead to a higher standard of living for the nation in the long run.

The ARRA did not focus on “trickle down” economics that provide large benefits to the wealthiest Americans. It focused its aid to the middle class and made sure that the income inequality of this country did not grow wider due to this crisis. Similar, to the New Deal, it focused its funding on programs that would directly boost employment and provide means of raising consumption and investment. Not only did the Recovery Act stimulate the failing economy in the short run, but many of its programs aimed at bringing the United States to a higher standard of living and out of this looming decline.

The evidence from this paper leads to the many conclusions. Foremost, the ARRA was successful in reviving the U.S. economy. It proves that without a change in the confidence of the economy monetary policy is ineffective in leading a recovery, especially when the nature of the crisis is due to a diminished financial system. Furthermore, it exemplifies that fiscal policy can immediately change the confidence of the economy and lead to profound positive economic impacts. Lastly, it portrays that confidence is key to increases in investment and consumption, which are both vital for the triumph of a recovery.

Although the American Reinvestment and Recovery Act was very successful in its purpose, there are many exogenous factors that have led to such a lethargic recovery. Economic stability abroad and the Euro crisis have hindered the ability of fiscal policy to spur confidence. Fears associated with financial instability in countries like Greece, Italy, and Spain have questioned the economic outlook of the future for many businesses and has discouraged investment. Due to the United States’ vast economy and strong economic ties to Europe, there will not be an accelerated recovery until there is improvement in the financial situations overseas. The ARRA was a small step in the right direction to returning the U.S. economy back to its pre crisis levels. Realistically the economy needs a great deal more fiscal spending to continue the improvements seen with the introduction of the Recovery Act. Contritely, due to political factors and the stubbornness of legislation, I predict that there will not be another stimulus action as great as the ARRA for a long time, though the country is in need of it. Another key change we need in this country before we see a sweeping recovery is a change in nationalism. The major wealth holders and politicians in the United States and of the world have become part of a global class who are loyal to no nation. We are going to need a nationalistic surge in the United States that leads to major corporations and businesses caring that there are American citizens on the streets looking for work. Where business owners want to hire Americans over saving money outsourcing labor. These issues have become damaging to the confidence of our nation and consequently, its recovery. I conclude that these prevailing problems will need to be solved before the United States returns to the affluent nation it was before the Great Recession.

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# DOES MONEY AFFECT THE OUTCOME OF ELECTIONS?

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## ABSTRACT

*Conventional wisdom with most political elections in the United States claims that “money buys elections.” Each year this concept arises as a reason for victory and with the recent presidential election having taken place, I was interested in testing this idea. Many laws and regulations have been put in place to prevent the amount of campaign financing a candidate receives. The lawmakers wish to make the election as fair as possible for each candidate, however it is possible that the amount a person spends on an election has little to no significant impact on the amount of votes they receive. This paper aims to find an answer to how money directly affects the outcome of congressional elections. It uses regression analysis to look for relationships between several explanatory variables and the dependent variable.*

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## VARIABLE DEFINITIONS AND EXPECTATIONS

To answer this question, I chose to take cross-sectional data from each state’s gubernatorial elections from the years 2006 to 2009. States hold different governor elections each year and so all 50 elections were spread out over four years. I have decided on the following variables to explain the percent of votes each winning governor received in the election, the percent of money spent, the number of terms previously held, the political party of the winner was the same as the way the state voted in the 2008 presidential election, cost per vote, and the age of the governor.

$$\hat{Y} = \beta_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6$$

### 1. Percent of General Vote( $\hat{Y}$ )

*Data Description:*

To measure the percent of general votes each winning governor received, I imported the results of each from the Gubernatorial Campaign Finance Database. All of the data can be found in the appendix.

### 2. Percent of Money Spent( $\beta_2 X_2$ )

*Data Description:*

This variable is a percent of money the winner spent compared to the total amount of money every candidate spent in each state. To record this, I took the total amount of money the winner spent and divided it by the total amount of money every candidate who was running in the general election. This will give me the percent of money the winner spent on the election. This information was gathered from the Gubernatorial Campaign Finance Database and can be found in the appendix.

*Regression Prediction:*

My prediction for this variable will be that the percent of money a candidate spends on the election compared to his or her competitors will have an effect on the percent of votes they receive. It should be positively sloped because the larger the percent of money spent on the election will have a positive effect on the percent of votes the candidate receives. I believe that the total dollar amount of money spent on elections does not have much significance however, because each state is different, a candidate in New York and a candidate in Wyoming would obviously spend different amount of money on elections. Also if one particular candidate is spending a large amount of money others may follow just to keep up with their competitors. Therefore I believe the dollar amount alone will not be an effective way of measuring campaign financing effecting elections, but the percent of money a candidate spends compared to the total will have more of an impact.

**3. Number of Terms Previously Held( $\beta_{hat_3}X_3$ )**

*Data Description:*

The number of terms previously held is simply the term number each winning governor will be serving after winning the election. The number of terms for candidates varies between one and four and the data for this was recorded from the database, National Journal Online and can be found in the appendix.

*Regression Prediction:*

I believe the number of terms the candidate will have a very significant relationship with the amount of votes they receive. The relationship will be a positive slope because the more terms a person has previously should lead to more votes being cast in their favor. Although governors have term limits, the longer they have been in office, I believe, will have a very large impact on the percent of votes they receive. A significant amount of governors get reelected to multiple terms and since they were already in office, their popularity usually increases. Also after being in office, the candidate is able to campaign for themselves since they will be the governor of the state, usually proving their worth to the voters.

**4. Is the party of candidate the same as the state( $\beta_{hat_4}X_4$ )**

*Data Description:*

This is a binary variable which measures whether or not the political party of the candidate was the same as the political party of the president that the state voted for in the 2008 election. 1 is assigned to those candidates with the same political affiliation with the way their respective state voted during the 2008 presidential election. 0 is assigned to those with a different political affiliation as their respective state. The data collected can be found in the appendix.

*Regression Prediction:*

I believe this variable will have an effect on the outcome of elections because it shows which states tend to vote democratic or republican. If the state usually votes democratic then a democratic governor is likely to be elected because they hold similar beliefs with the population. The opposite is also true where republican states can be expected to elect republican governors. With binary variables, since each data point is either a 0 or 1, the slope will always be positive. I believe however, the slope will be greater than 0.5 because those candidates with a 1 for this variable mean they are the same political party as their state and therefore should gain more votes than their opponent who would be of another political party.

**5. Cost per Vote( $\beta_{hat_5}X_5$ )**

*Data Description:*

The cost per vote for each winning governor by state is calculated by taking the total amount of money spent by the candidate and dividing it by the total number of votes received by the candidate. This gives the cost per vote for each winner which shows exactly how much money was spent on a single vote for each governor. The data can be seen in the appendix.

*Regression Prediction:*

This variable measures the cost that the candidate incurred when running for office. The higher the number, the more money they had to spend which is a direct measurement of campaign financing. I believe this variable will be positively sloped however I do not think it will prove much. The whole idea behind this project is that campaign finances do not have a large effect on the outcome of elections. When adjusting for population, this variable measures that fact and I believe this variable will not prove to have a significant effect on the percent of the general vote a candidate receives.

**6. Age at the time of the election( $\beta_{hat_6}X_6$ )**

*Data Description:*

This variable is the age of the winning governor at the time of the election. The data collected was from the database National Journal Online. The data can be found in the appendix.

*Regression Prediction:*

The age of a politician is often a source of conversation between political analysts and can resemble the politician's experience. Experience is a large factor in all elections and since age represents experience to a certain extent, I chose it as one of my variables. I have confidence in saying the older a

person is, the more votes they will typically receive because those voting perceive them as a better candidate. It is like reverse age discrimination, believing the older candidate is the better suited they are for the position.

**Regression 1:**

**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.622 <sup>a</sup>	.387	.317	7.112	.387	5.546	5	44	.000	2.193

a. Predictors: (Constant), Age, Party = State, Cost per Vote, # of Terms, % Money

b. Dependent Variable: % General Vote

The R-Square for this regression is 0.387. This number is interpreted to mean 38.7% of the change in the percent of the general vote the winner receives in gubernatorial elections can be explained by *the percent of money spent, the number of terms previously held, if the candidate's party affiliation is the same as the state's, cost per vote, and age.*

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
(Constant)	46.716	8.091		5.774	.000					
% Money	.252	.054	.614	4.701	.000	.592	.578	.555	.817	1.224
# of Terms	1.669	1.715	.125	.973	.336	.237	.145	.115	.838	1.193
Party = State	-.194	2.035	-.011	-.095	.924	-.081	-.014	-.011	.984	1.017
Cost per Vote	-.173	.258	-.089	-.671	.505	.053	-.101	-.079	.802	1.246
Age	-.118	.143	-.100	-.824	.414	.031	-.123	-.097	.948	1.055

a. Dependent Variable: % General Vote

The regression equation would be written as follows:

$$\hat{Y} = 46.716 + 0.252X_2 + 1.669X_3 - 0.194X_4 - 0.173X_5 - 0.118X_6$$

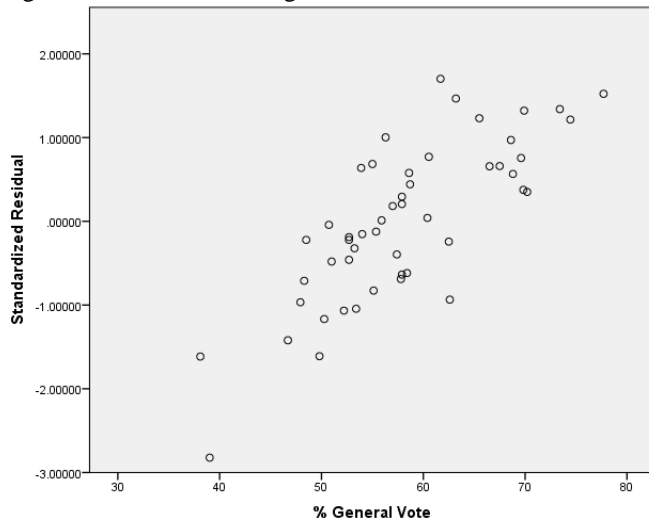
After reviewing the results of my regression, the only statistically significant explanatory variable is the percent of money the candidate spent.

The percent of money the winner spent in the election has a t – statistic of 4.701 and a p value of 0.000 and therefore it is significant at both the .05 level and the .01 level. This indicates that if we reject the hypothesis that the slope (βhat) of the variable, percent of money, is zero we would be wrong zero percent of the time. If the slope was zero, it would mean a change in the percent of money a person spent would have no effect on the percent of general votes they receive in an election. However this is not the case and the t-stat and p value show this variable is significant in its relationship with the percent of general votes the candidate receives. The βhat for percent of money can be interpreted as follows: a 1% change in the percent of money a governor spends in the election increases the percent of general votes by 0.252. This explanatory variable is mutually statistically significant and practically significant. Based on this information I conclude that the percent of money as an explanatory variable does have an impact on the percent of general votes a governor receives. This stays relatively consistent with my hypothesis in

that money does have an effect in elections. However you must control for the differences in each state and by taking a percentage of the total money spent in the race compared to each candidate, the ones who spent more won more often. It isn't a direct one to one ratio though which should help not to discourage those candidates running without large amounts of campaign finances.

The number of terms previously held by the winner of the election has a  $\beta$ hat of 1.669 which is interpreted to mean a 1 unit change in the number of terms a person has increases the percent of general votes they receive by 1.669%. However, the t-stat and p-value are 0.973 and 0.336 respectively. This means if we rejected the hypothesis that the true  $\beta$ hat of number of terms to be zero, we would be wrong 33.6% of the time and the highest acceptable rate at which we are willing to be wrong is 5%. Therefore we must accept that this variable's  $\beta$ hat is zero and does not explain the percent of general votes a candidate receives. This is contrary to my initial prediction; I thought the number of elections would have a significant effect on the percent of general votes someone would get. One possible understanding of this could be that governors of states in the United States have term limits. Each state able to choose the number of term limits and once a person reaches this they are not allowed to run again. Some states had all candidates without previous terms served because the previous candidate reached the term limit. This could skew the data somewhat and on possible way to correct for this would be to record the amount of government offices each candidate served and not just the amount of governor's terms they served at the time of the election.

The other three variables, political party of the winner compared to the party of the state, cost per vote for each winning candidate, and age we also all insignificant explanatory variables. Political party of the winner compared to the party of the state had a t-statistic of -0.095 and a p value of 0.924. If we rejected the hypothesis that the true slope of this variable was equal to zero, we would expect to be wrong 92.4% of the time. Cost per vote had a t-statistic of -0.671 and a p value of 0.505 meaning we be wrong 50.5% of the time if we rejected that the slope was equal to zero. Age had a t-statistic of -0.824 and a p value of 0.414 and therefore when rejecting that the true slope is zero, we would be wrong 41.4% of the time. The lowest acceptable rate at which we are willing to be wrong for this project is at 5% all three variables do not meet this requirement. All three variables also had a negative  $\beta$ hat but since no variable had a p value lower than 0.05, we claim that the slopes of those variables cannot be disproved to equal zero. Consequently, whether or not the political party of the candidate is the same as the state, the cost per vote and age have no influence on the percent of votes governor might be expected to receive. This runs contrary to my initial prediction as I thought all three, especially cost per vote, would have significant influence on the percent of general votes the winning candidate would receive.



This chart graphs the Y value, Percent of General Vote, with the standard deviation associated with each point. This graph shows that all my points are within 3 standard deviations, the default number of deviations SPSS uses. The only possible outlier in this data set would be the Texas election with Governor Rick Perry winning the election with only 39 percent of the general vote. There were multiple candidates running and although rare, it is possible to receive this low of an amount and still win the election. Every other data point falls within two standard deviations and therefore I conclude that no outliers need to or should be removed from this regression.



## TESTS FOR MULTICOLLINEARITY

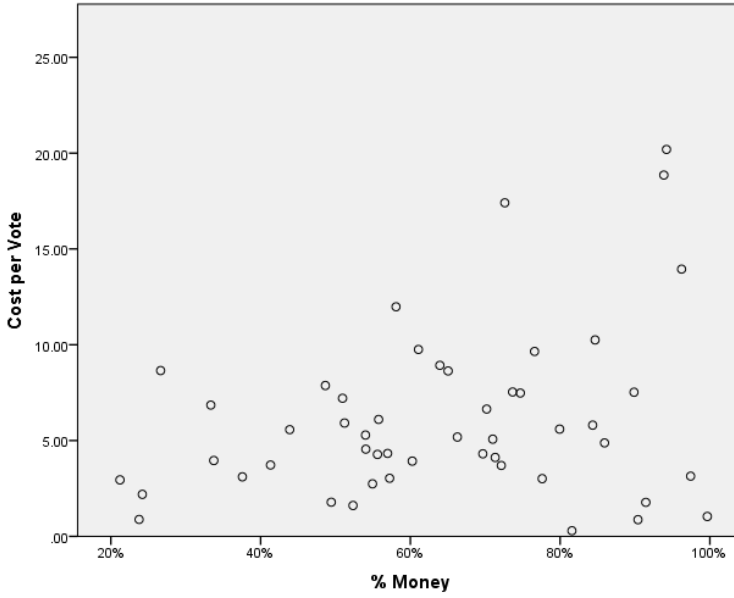
Multicollinearity is a problem in economics that is more likely to occur than not and it only occurs when there are multiple explanatory variables. Although this problem does not affect R-squared, it does have an effect on the t-stats and p values in the regression. Multicollinearity happens when two or more variables move together (one goes up the other goes up or down). The standard error of the slopes will be bigger than they are actually supposed to be which leads to the smaller t stats and larger p values. It will make the total regression look more insignificant than it really is and in my case, with only one significant variable, multicollinearity could have an effect on my data. Just by looking at the R-squared and t-stats for my regression I see there could potentially be a problem because the R-squared is .387 with only one significant variable. This is a relatively high R-squared provided only one statistically significant explanatory variable.

**Correlations**

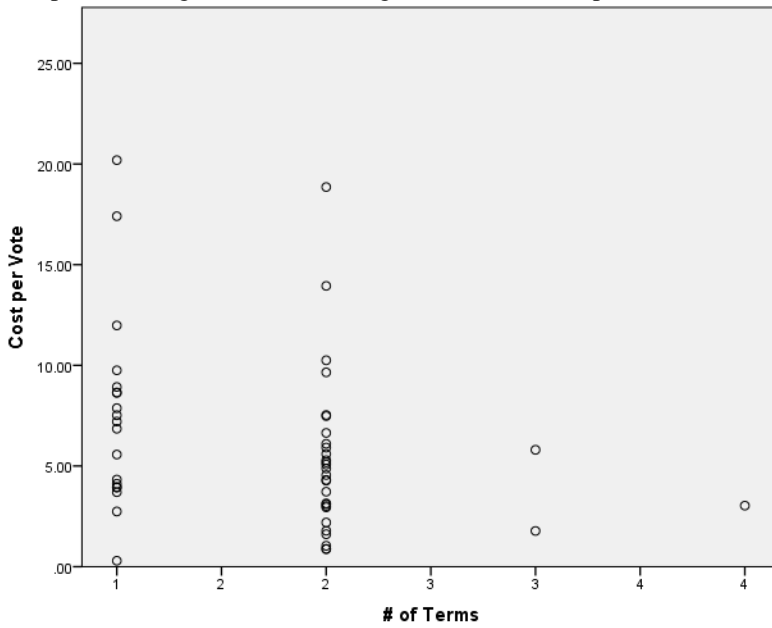
		% General Vote	% Money	# of Terms	Party = State	Cost per Vote	Age
Pearson Correlation	% General Vote	1.000	.592	.237	-.081	.053	.031
	% Money	.592	1.000	.167	-.112	.292	.184
	# of Terms	.237	.167	1.000	.006	-.278	.161
	Party = State	-.081	-.112	.006	1.000	.005	.007
	Cost per Vote	.053	.292	-.278	.005	1.000	.029
	Age	.031	.184	.161	.007	.029	1.000
Sig. (1-tailed)	% General Vote	.	.000	.049	.289	.358	.416
	% Money	.000	.	.123	.219	.020	.100
	# of Terms	.049	.123	.	.483	.025	.131
	Party = State	.289	.219	.483	.	.487	.480
	Cost per Vote	.358	.020	.025	.487	.	.422
	Age	.416	.100	.131	.480	.422	.
N	% General Vote	50	50	50	50	50	50
	% Money	50	50	50	50	50	50
	# of Terms	50	50	50	50	50	50
	Party = State	50	50	50	50	50	50
	Cost per Vote	50	50	50	50	50	50
	Age	50	50	50	50	50	50

One test for multicollinearity is the Pearson Correlation, which show the relationship between each explanatory variable. Ignoring the first column, which is all the explanatory variables run against the dependent variable, will give you a decimal number which is the correlation coefficient for the two variables. According to Dr. Trees, if the absolute value of the correlation coefficient is less than 0.3, you most likely do not have multicollinearity. Between 0.3 and 0.6 and there may be multicollinearity and about 0.6 and there is probably a significant problem. After reviewing the numbers, I have picked two correlation coefficients that may have a slight problem with multicollinearity and need further examination. Cost per vote and percent of money have a correlation coefficient of 0.292 which is close to 0.3 and cost per vote and number of terms has a correlation coefficient of -0.278 which is also close to 0.3.

Another test for multicollinearity it to graph two explanatory variables together and decide if the pattern of the scatter plot shows any type of relationship. I've decided to graph the variables that showed the highest Pearson correlation numbers to further examine if they have multicollinearity.



Here is the graph of cost per vote, on the y-axis, and percent of money, on the x-axis. This graph, in my opinion, does not show significant multicollinearity because although it appears slightly upward sloping, the points seem to be dispersed enough to not show a significant relationship.



This is the graph of cost per vote, on the y-axis, and number of terms, on the x-axis. I believe this graph also does not show multicollinearity to be a problem because a large percentage of the numbers fall in between one term and two terms. They seem to be evenly distributed over the cost per vote as well.

A third test for multicollinearity is the regression test which involves running a regression between two explanatory variables. If the R-squared in this regression is high then the test would show multicollinearity between those two explanatory variables.

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.167 <sup>a</sup>	.028	.008	20.864%

a. Predictors: (Constant), # of Terms

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.112 <sup>a</sup>	.013	-.008	21.029%

a. Predictors: (Constant), Party = State

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.292 <sup>a</sup>	.085	.066	20.243%

a. Predictors: (Constant), Cost per Vote

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.184 <sup>a</sup>	.034	.014	20.801%

a. Predictors: (Constant), Age

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.006 <sup>a</sup>	.000	-.021	.654

a. Predictors: (Constant), Party = State

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.278 <sup>a</sup>	.077	.058	.628

a. Predictors: (Constant), Cost per Vote

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.161 <sup>a</sup>	.026	.006	.645

a. Predictors: (Constant), Age

### Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.005 <sup>a</sup>	.000	-.021	.509

a. Predictors: (Constant), Cost per Vote

### Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.007 <sup>a</sup>	.000	-.021	.509

a. Predictors: (Constant), Age

### Model Summary

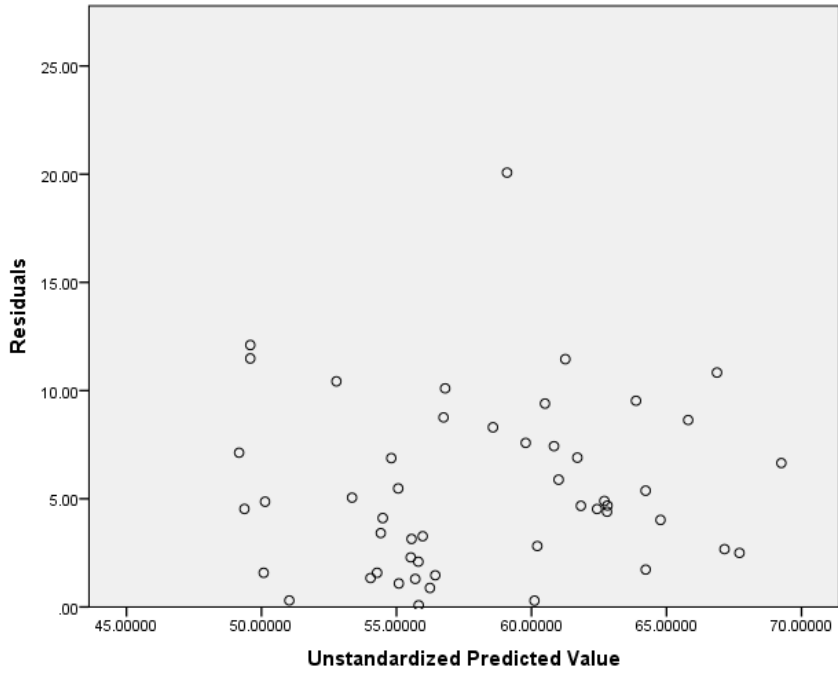
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.029 <sup>a</sup>	.001	-.020	4.43900

a. Predictors: (Constant), Age

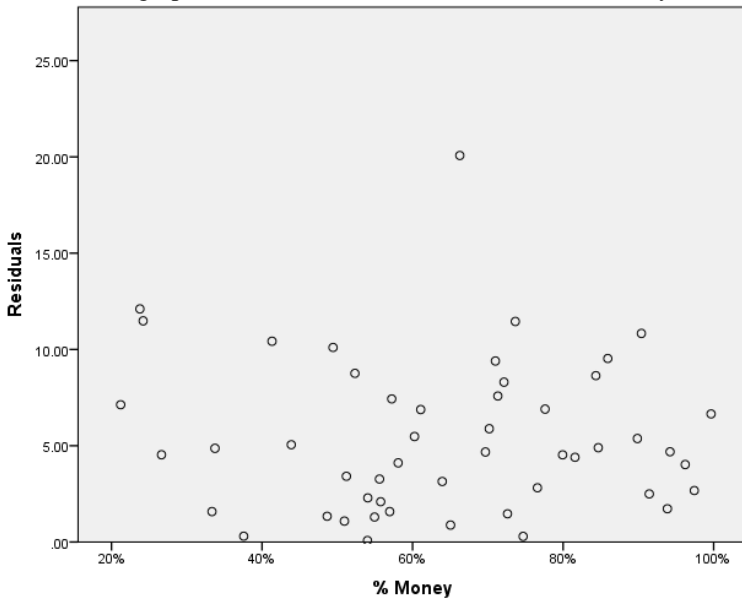
Here are all the explanatory variables run against each other to produce an R-squared. The highest R-squared between any two variables in my regression was 0.085. A high R-squared would indicate multicollinearity exists between those two variables. All these R-square numbers are significantly low and do not show any signs of that my regression has multicollinearity. After reviewing this test and my previous test I conclude that little to no multicollinearity exists in my regression and I do not need to correct for it. If multicollinearity did show in this data, there would be a few options to correct for it. One option would be to see which variable carried the worst multicollinearity and drop it from the data. Another option to alleviate this problem would be to transform the data and this can be done a number of ways, for example changing a number to a percent could help reduce the problem. However data transformation must be documented and once the data is changed your hypothesis and analysis will also change and you must be aware of this.

### HETEROSCEDASTICITY

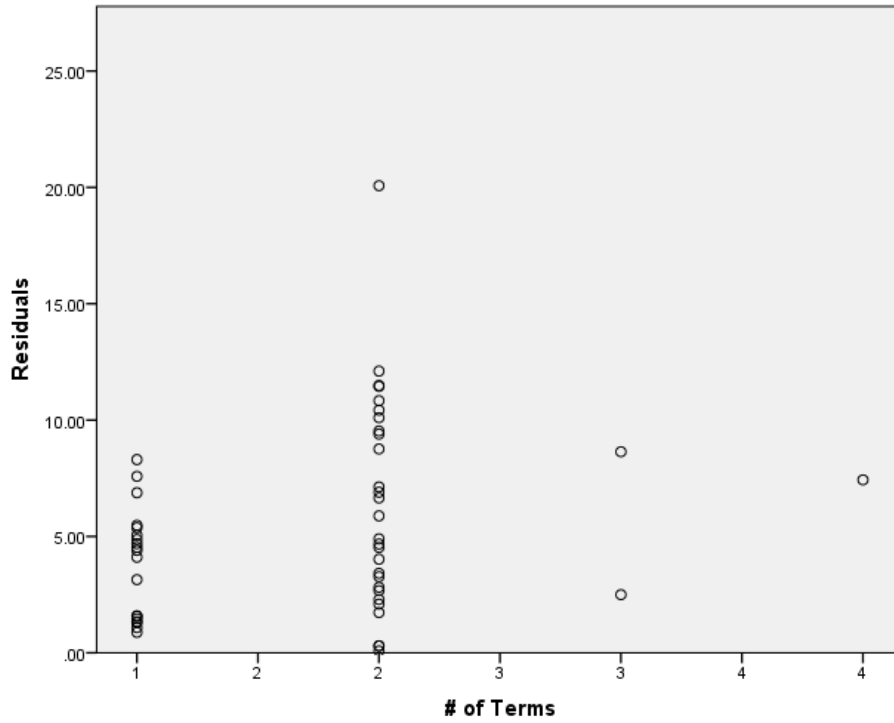
An initial test for heteroscedasticity would be a visual graph of the unstandardized predicted values against the unstandardized residuals. You must also take the absolute value of the residuals because we do not care if the miss is above or below the line of best fit. Also I graphed the unstandardized residuals against every explanatory variable and if a visual relationship shows in any of these graphs, that would indicate heteroscedasticity exists in the data.



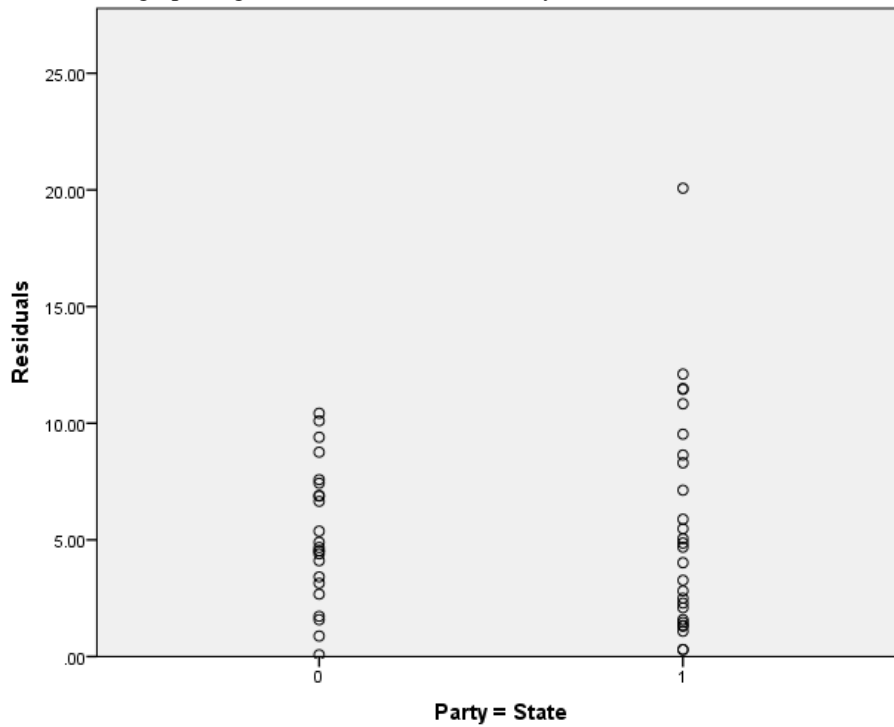
This graph does not seem to indicate heteroscedasticity



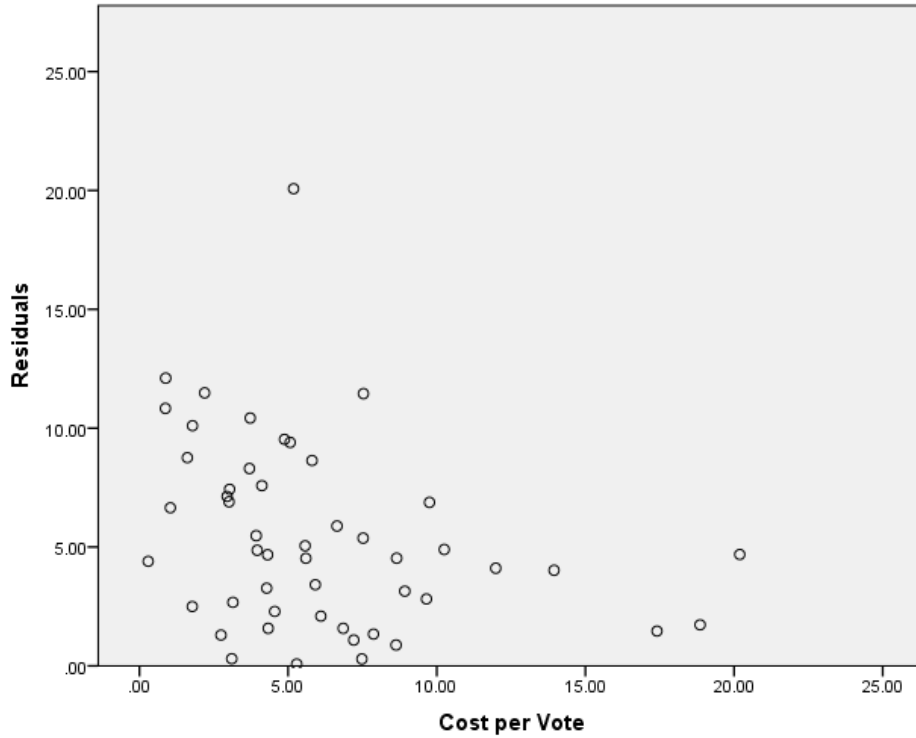
This graph does not seem to indicate heteroscedasticity.



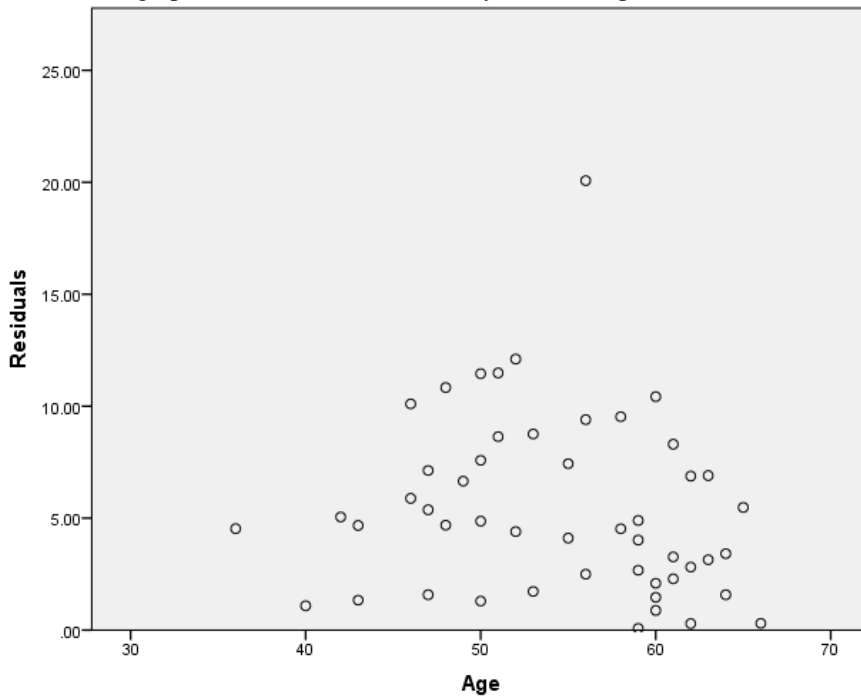
This graph might indicate heteroscedasticity.



This graph might show heteroscedasticity exist in this variable.



This graph indicates heteroscedasticity could be a problem for this variable.



This graph shows heteroscedasticity may be a problem for this variable.

**GLEJSER TEST FOR HETEROSCEDASTICITY**

To perform the Glejser test on each explanatory variable, you must run a regression using the absolute value of the residuals as the dependent variable and each explanatory variable individually. This test involves interpreting the t-stats and p values for each regression. In this case, a high t-stat and significant p value indicate heteroscedasticity can exist in the variable that was tested. Also to show no heteroscedasticity exists, the R-squared would also show a low number.

Glejser Test1:

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.040 <sup>a</sup>	.002	-.019	3.99582

a. Predictors: (Constant), % Money

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.890	1.834		3.212	.002
	% Money	-.008	.027	-.040	-.281	.780

a. Dependent Variable: Residuals

This tested the heteroscedasticity in the explanatory variable percent of money. It showed a very low R-squared and a low t-stat. The p value was much higher than the 0.05 level which means we cannot reject that the slope of  $\beta_2$  hat is zero. Percent of money, therefore, does not show any indication that heteroscedasticity is a problem.

Glejser Test2:

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.266 <sup>a</sup>	.071	.051	3.85503

a. Predictors: (Constant), # of Terms

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.633	1.547		1.702	.095
	# of Terms	1.628	.851	.266	1.912	.062

a. Dependent Variable: Residuals

This tested heteroscedasticity in the variable number of terms. The R-squared for this regression is relatively low. However, the t-stat and p value indicate that heteroscedasticity may be a problem. The t-stat is 1.912 which is close to 2 and the p value is 0.062. This means we still do not reject that the slope of  $\beta_3$  Hat is zero, but this p value is much closer to the 0.05 level of significance that is used in the test.



Glejser Test3:

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.042 <sup>a</sup>	.002	-.019	3.99564

a. Predictors: (Constant), Party = State

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.223	.833		6.270	.000
	Party = State	.327	1.134	.042	.288	.774

a. Dependent Variable: Residuals

This is the test for the variable, if the political party of the winner was the same as the state, and the R-squared was very low at 0.002. The t-stat is very low at 0.288 and the p value is at 0.774. This test shows that heteroscedasticity is not prevalent in this explanatory variable.

Glejser Test4:

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.319 <sup>a</sup>	.102	.083	3.78989

a. Predictors: (Constant), Cost per Vote

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.148	.921		7.760	.000
	Cost per Vote	-.287	.123	-.319	-2.334	.024

a. Dependent Variable: Residuals

This tested the variable cost per vote, which has an R-squared of 0.102 a t-stat of -2.334 and a p value of 0.024. These results show that heteroscedasticity could be a problem in this variable because the t-stat is above 2 and relatively far away from zero. The p value is below the 0.05 level of significance and therefore this test shows heteroscedasticity can exist. Possible corrections of this problem include transforming the data by a number of ways, for example square rooting the data or the log of the variable.

Glejser Test5:

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.154 <sup>a</sup>	.024	.003	3.95160

a. Predictors: (Constant), Age

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.922	4.234		2.343	.023
	Age	-.083	.077	-.154	-1.077	.287

a. Dependent Variable: Residuals

This tested for heteroscedasticity in the variable age. The R-squared was very low, the t-stat was 1.077 and the p value was 0.287. This indicates that heteroscedasticity is not a problem for the variable age because the t-stat is relatively close to zero and the p value is above 0.05 by a significant amount.

It appears that one of my variables, cost per vote, showed to have heteroscedasticity in the Glejser test and therefore I will conduct more test to decide if in fact there is a problem with heteroscedasticity in that variable.

Another test for heteroscedasticity is called the Park test which I will use to check if my explanatory variables. This variable may have a problem and therefore I decided to test it again to see if the problem continues to show itself.

Park Test1:

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.214 <sup>a</sup>	.046	.026	2.08255

a. Predictors: (Constant), Cost per Vote

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.261	.506		6.441	.000
	Cost per Vote	-.103	.068	-.214	-1.520	.135

a. Dependent Variable: ResidualPark

For the Park test, if you do not reject the hypothesis that the slope of the  $\beta$ hat is equal to zero, then it can be interpreted as giving the value of the common, or homoscedastic variance. In this test, the t-stat was -1.520 and the p value is 0.135. This means the hypothesis that the slope is equal to zero is not rejected and heteroscedasticity does not seem to be present for this variable.

After reviewing the all the tests ran for each variable, I have concluded that heteroscedasticity is not prevalent in the data and therefore does not need to be corrected. The graphical tests showed no heteroscedasticity in the percent of money and for the residuals vs. the predicted values. The Glejser tests showed no heteroscedasticity for four variables; percent of money, number of terms, party = state, and age. Although heteroscedasticity showed it may be a problem in cost per vote, after more tests, I concluded that heteroscedasticity is not significant enough in the variable. Therefore, I assume no heteroscedasticity exists in the data.

**Auto-Correlation:**

Auto-correlation happens when one observation, in particular, time affects the values of succeeding observations. A regression with this problem has an R-squared that is too big, instead of too small. This over-estimates the significance of your results and can lead to falsely based decisions. In time series data, auto-correlation is almost always a problem; however this data is cross-sectional and therefore will not have the problem of auto-

correlation. I will still use a test to prove that auto-correlation is not a problem and therefore is not impacting my R-squared.

### Model Summary<sup>b</sup>

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.622 <sup>a</sup>	.387	.317	7.112	.387	5.546	5	44	.000	2.193

a. Predictors: (Constant), Age, Party = State, Cost per Vote, # of Terms, % Money

b. Dependent Variable: % General Vote

When conducting a Durbin-Watson test, you must create a chart which contains a number line from zero to four, and centered on two. You must also calculate the upper and lower limits on this chart and if the Durbin-Watson falls within the upper limit, there is no auto-correlation. If it falls in the lower limit, there may be auto-correlation and if it falls outside of the limits, there is auto-correlation. To calculate dU and dL for this test, I used the chart in the back of the textbook with a  $K^1$  of 5, because there are 5 explanatory variables in the regression. To construct the limits you use the dU as the first lower limit and subtract 4 from it to get the first upper limit. The dL is the second lower limit and to get the second upper limit you also subtract 4 from dL. The dU is 1.771 and  $4 - dU$  is equal to 2.229 and the dL is 1.335 and  $4 - dL$  is 2.665. The Durbin-Watson number calculated in my regression was 2.193 and is shown above. This number falls in the first limit area and therefore shows no auto-correlation exists in this regression. This helps prove that auto-correlation is not possible for cross-sectional data.

After performing all of the regressions, tests, charts, and analysis I have found an answer to my initial question. My hypothesis was to see if money, age, political affiliation, and the number of terms a candidate has would influence how many votes they would expect to receive. The one main point I saw from my results is that money in fact does have a significant effect on the percent of votes a winning governor received. The results showed nearly 40% of the variation in the percent of general votes the winner received can be explained by the percent of money a candidate spent in the state, the number of terms previously served, if the political affiliation of the governor was the same as the state, the cost per vote in each state, and the age of the person. However only one variable turned out to be statistically significant, the explanatory variable percent of money and this means the other variables have no statistical and practical significance. The main focus of my argument was to test if money had an impact on the number of votes a person receives and therefore the nonmonetary variables being insignificant do not have a large impact on the analysis of my hypothesis. Percent of money turned out to have a four to one relationship with the percent of votes a candidate receives. This tells me that the money spent in an election does have meaning and if a candidate increases their spending by 4% out of the total amount of money spent in the election, they can expect to receive a 1% increase in the percent of votes they get. This can happen because as more money is spent compared to the competition, the more name recognition the candidate receives and the more advertising they get. The old saying “money buys elections” may not have much truth, but money does play a large factor in governor elections when you take into account the total amount of money spent on the election. If a race is close and a candidate wishes to get a larger percentage of votes, increasing the amount they spend compared to the competition could help them gain a larger percentage of votes.

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# GLOBAL LITERACY RATES AND INTERNET USAGE: AN ECONOMETRIC ANALYSIS AND WHY IT MATTERS

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## ABSTRACT

*This cross-sectional econometric analysis explores the effect that literacy rates have on internet usage throughout the globe. Controlling for Urbanization, Electricity, Manufacturing and Income per Capita, I have hypothesized that literacy rates are statistically significant in determining internet usage. I found that changes in literacy rates explain 65% of changes internet prevalence with t stat of 2.297 and a Sig. t of .026, exhibiting statistical significance and validating my hypothesis. Highlights include the elimination of electricity-rich outlier Iceland within the data and omitting Income per Capita for multicollinearity in the final regression analysis. The end of the paper explores other regressions utilizing the chosen data and my insights. In a discussion of developmental economics my results are substantial because if literacy affects internet usage, the importance of literacy becomes even more accentuated since the internet is a portal for individuals to communicate, capitalize, learn, and contribute to the global economy. All data is found at the World Bank.*

## INTRODUCTION

The internet has irrefutably impacted the world in a unique and revolutionary way. Access to the internet has given individuals exposure to trillions of bits of information, enhanced the way companies do business, and created a platform to connect with others around the globe. Essentially, the internet provides opportunities to individuals and organizations alike. Though there are billions of internet users globally, there are billions still without the internet too. Those without the internet are also without the opportunities that the internet brings offers. The question I face is what determines internet usage? While the internet provides a platform to learn, there are some prerequisites to reap its benefits. It requires rudimentary knowledge of navigating computer (or tablet, smartphone, etc.) programs and more importantly, the ability to read and comprehend the output on the screen. I am chiefly concerned with the following question: does the ability to read and write impact internet usage on a global scale? Unlike decades ago, attaining literacy is more than learning how to read and write. Now it means being equipped with the necessary skills to access the web. Of course there are other significant structural factors to consider. However, if literacy rates bare an impact on internet usage within a country, the power of literacy becomes even more accentuated. If literacy means internet use, the literate have access to a new world of opportunities that the internet brings. With literacy will come increases in personal productivity, additional sources of personal enjoyment, and augmented knowledge on any subject in the world.

## VARIABLE DEFINITIONS

As part of my analysis, I will control for other explanatory variables that would impact internet usage across countries. In addition to internet use (INT) and literacy rates (LIT), the other variables I chose are urbanization (URB), electricity (ELEC), manufacturing (MANU), and income per capita (INC). Ultimately, the equation for my regression is:

$$INT = \beta_1 + \beta_2 LIT + \beta_3 URB + \beta_4 ELEC + \beta_5 MANU + \beta_6 INC$$

Variable Name	Definition	Source	Effect on INT	Practical Significance
Internet Users (INT)	People with access to the worldwide network, per 100 people in 2010*.	World Bank		
Literacy Rate	Adult (15+) literacy rate (%). Total is the	World	+	High

(LIT) <i><math>\beta_{hat_2}LIT</math></i>	percentage of the population age 15 and above who can, with understanding, read and write a short, simple statement on their everyday life. Generally, 'literacy' also encompasses 'numeracy', the ability to make simple arithmetic calculations. This indicator is calculated by dividing the number of literates aged 15 years and over by the corresponding age group population and multiplying the result by 100. 2009 data**.	Bank		
Urbanization (URB) <i><math>\beta_{hat_3}URB</math></i>	Urban population refers to people living in urban areas as defined by national statistical offices. It is calculated using World Bank population estimates and urban ratios from the United Nations World Urbanization Prospects.	World Bank	+	High
Electricity (ELEC) <i><math>\beta_{hat_4}ELEC</math></i>	Per capita consumption of electricity during the given year, counted in kilowatt-hours (kWh).	International Energy Agency	+	High
Manufacturing (MANU) <i><math>\beta_{hat_5}MANU</math></i>	Manufacturing as a % of GDP. Manufacturing refers to industries belonging to ISIC divisions 15-37. Value added is the net output of a sector after adding up all outputs and subtracting intermediate inputs. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources. The origin of value added is determined by the International Standard Industrial Classification (ISIC), revision 3.	World Bank	+	Low
Income per Capita (INC) <i><math>\beta_{hat_6}INC</math></i>	Gross Domestic Product per capita by Purchasing Power Parities (in international dollars, fixed 2005 prices). The inflation and differences in the cost of living between countries has been taken into account.	Compiled by Gap-minder	+	Low

\*2010 figures were used for most regression variables since they were the most recently estimated by the World Bank.

\*\*2009 data used since it is the most recent year with the most data recorded. 2010 contains significantly less observations. I do not foresee this as detrimental to my regression results, since it is not likely that literacy rates will skyrocket or plummet from one year to the next. From 2008 to 2009, the average change in literacy rates was .221% and from 2007 to 2008 the average change in literacy rates was -.059%.

### HYPOTHESIS

In order to conduct the most comprehensive analysis possible, I will be performing a cross-sectional econometric analysis utilizing relevant, available data from all 213 countries in the world recognized by the World Bank. I will be examining the effect of literacy rates on internet usage and controlling for other structural features of a country which include electricity usage, urbanization, manufacturing as a portion of national output, and income per capita. I hypothesize that increase in literacy rates will be statistically significant at explaining increases in internet usage. My hypothesis can be symbolized by the following  $H_0$  equation, and the alternative hypothesis can be explained by the following  $H_A$  equation:

$$H_0 = \beta_2 > 0$$

$$H_A = \beta_2 \leq 0$$

The first equation indicates that the effect of literacy rates on internet usage should be positive. The second displays the outcome if my hypothesis is wrong, that higher literacy rates have no effect or have a negative effect on internet use.

My predictions for other variables are as follows:

**Urbanization –  $\beta_{hat_3}URB$**

Prediction I chose to control for urbanization because the more people that are condensed into a geographical area, the more people there are utilizing businesses, facilities, and institutions. This can range from schools to internet cafés to office buildings. I predict this will have a significant and positive effect on internet usage. In other words, the more urbanized a country is, the higher its internet usage will be.

**Electricity –  $\beta_{hat_4}ELEC$**

Prediction Because possessing electricity is a prerequisite for accessing the internet, I predict that the more electricity per capita consumed in a country the higher internet rates will be, and that the effect will be statistically significant. Contrarily, it may be said that electricity consumption is susceptible to being *affected* by internet rates, meaning that the more internet usage there is the higher electricity per capita there will be. However I contend that my prediction will hold on the basis that consuming more electricity means there is more electricity available to be consumed, some of which may be the internet.

**Manufacturing –  $\beta_{hat_5}MANU$**

Prediction Modern-day manufacturing employs technologies to improve the speed and efficiency of producing goods. Much of the technology used in the production necessitates the internet usage, specifically within the hi-tech manufacturing realm. I predict this variable to have some positive effect on changes in internet usage. Because some countries may be more advanced in employing hi-tech manufacturing techniques than others, I do not predict that the positive effect of this variable will be strong in explaining variations in internet usage.

**Income per Capita –  $\beta_{hat_6}INC$**

**REGRESSION I**

**OUTPUT**

The data was entered into a regression analysis tool and yielded the following results:

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.804 <sup>a</sup>	.646	.613	12.933

a. Predictors: (Constant), MANU, ELEC, URB, LIT, INC

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	-24.135	11.143		-2.166	.035
	LIT	.338	.149	.244	2.261	.028
	URB	.131	.121	.128	1.080	.285
	ELEC	.004	.002	.442	1.976	.053
	INC	.000	.001	.078	.331	.742
	MANU	.544	.292	.159	1.864	.068

a. Dependent Variable: INT

## ANALYSIS

Given this output, my regression equation looks like the following:

$$INT = -24.135 + .338LIT + .131URB + .004ELEC + .544MANU + .000INC$$

First and foremost, I will examine the R square output in the regression. R squared is an indicator for the degree of explanatory power literacy rates have on internet usage. An R squared of .646 tells that about 65% of the variation in internet usage rates can be explained by literacy prevalence, controlling for urbanization, electricity, income per capita and manufacturing.

$\beta_{hat_2}$  is the slope of the regression line, and dictates that for every one percentage increase in literacy rates, there is a .338% increase in the internet usage rate. The same figure for other  $\beta_{hat_i}$ 's should also be read as slopes. Something interesting to note is that Income per Capita yields a slope of .000, meaning that as Income per Capita changes at all, there is no change to internet use. My regression function could be rewritten altogether without + .000INC.

Both  $\beta_{hat_2}$  and R square support my hypothesis that literacy rates explain much of the variation in internet usage rates. Furthermore, to reinforce this claim I will look at the *t*-statistic and *Sig.* figures which show how confident I can be in accepting these regression results. The *t* figure gives an estimate of how far out from the mean the slope of my regression is, which indicates whether I can reject that the *true* slope of the population is equal to 0. The *t-stat* for the effect of literacy rates on internet usage is 2.261. Because this is greater than the generally accepted bar of + or - 2 standard deviations from the mean, I can be confident that the true slope of the population is not equal to 0.

The *Sig.* figure tells how often I would be *wrong* to say that  $\beta_{hat_2}$  is not equal to zero by specifying a *p*-value indicative of confidence. In other words, it tells how confident I can be that if I hypothesize  $\beta_{hat_2}$  as having some effect on internet usage rates, I will not be wrong. In this case, *Sig. T* is .028, meaning that if I reject that the true slope of  $\beta_{hat_2}$  is equal to zero, I will only be wrong 2.8% of the time. To put it another way, 97 times out of 100, if I construct a confidence interval with the given *t* statistic, the *true* value for  $\beta_2$  will be below the upper and lower bound. This is why a higher *t* statistic is desirable. My hypothesis has rejected that  $\beta_{hat_2}$  is equal to zero by stating it should be greater than zero, so I should only be wrong 2.8% of the time in saying that literacy rates have a statistically significant and positive effect on internet usage in a country.

Literacy rate is the only independent variable that shows statistical significance at the 95% level of significance, which partially supports my hypothesis.

## F-TEST

The F-test indicates that any of the independent variables explain the dependent variable with confidence. The purpose of conducting the F-test is to show that the explanatory variables do not simultaneously possess a slope of zero. Because I have demonstrated that saying the slope of literacy rates explanatory variable is not zero and only being wrong 2.8% of the time, I *could* rule out the need for an F-test.

However, because it is a quick test and I would like to test anyway just in case, I will calculate the F-test below and demonstrate mathematically how the test works:

$$F = ((n - k)/(k - 1))(ESS/RSS)$$

*n* is equal to the number of observations and *k* is the number of explanatory variables. ESS and RSS are given by the below Analysis of Variance table :

### ANOVA<sup>a</sup>

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	16202.857	5	3240.571	19.373	.000 <sup>b</sup>
Residual	8865.313	53	167.270		
Total	25068.169	58			

a. Dependent Variable: INT

b. Predictors: (Constant), INC, MANU, LIT, URB, ELEC

My calculated *F* value becomes:

$$F = ((58-5)/(5-1))(16202.857/8865.313)$$

$$F = 24.2166131$$

Because the ratio of my calculated F value is greater than one as my 24 is greater than 19, I have passed the F-test and can conclude that it is not the case that all explanatory variables do not simultaneously possess a slope of zero.

### AUTOCORRELATION TEST

Autocorrelation persists in a data set when observations are affected by preceding observations. This is especially an issue in time-series data and macroeconomic data where current year's figures are in large part determined by last year's figures. Because the data in this analysis is cross-sectional by country, it is unlikely that one country's figures will have any bearing on other countries' figures for the chosen variables. However, there is a chance that countries that are similar in location and/or characteristics like government type and population could affect one another. For example, a policy in Germany that has been successful could very well set an example for many other European countries. In addition, it could be that there are high levels of emigration from one country to another as in Mexico and the United States. So, though I still contend that autocorrelation will not be problematic, I will run a test anyway to rule out the possibility that it exists here.

This test for autocorrelation entails including a Durbin-Watson index within the regression output and comparing it to two Durbin-Watson limits to test whether the output index falls within or outside of the limits. Because of the nature of the test, the index that indicates the lowest possible of autocorrelation is 2. Determining the limits for a particular set of data requires the sample size  $n$  and the number of explanatory variables excluding the intercept, which is  $k'$ . I will observe the Durbin-Watson range values at the .05 level of significance. My  $n$  is 58 and  $k$  is 4.

Durbin-Watson limits can be found in a standard Durbin-Watson table. The below were found specifically in Gujarati & Porter's *Basic Econometrics* textbook. Because  $n = 58$  is not displayed on the table, I added 60% of the difference between the limits for 55 and 60 to the limit for 55 to arrive at an approximate limit for 58:

$$\text{Lower limit: } d_L = 1.414 + .018 = 1.432$$

$$\text{Upper limit: } d_U = 1.724 + .0018 = 1.7258$$

Given that 2 is the midpoint, the lower boundary is  $2 - 1.432$  or .568, and the upper boundary is  $2 + 1.7258$  or 3.7258. The Durbin-Watson index for my regression as displayed below *does* fall between these two boundaries. Therefore, I can conclude that autocorrelation is not present in my data.

**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.804 <sup>a</sup>	.646	.619	12.82620	2.367

a. Predictors: (Constant), ELEC, MANU, URB, LIT

b. Dependent Variable: INT

### MULTICOLLINEARITY TEST

Before concluding that my results are acceptable, it is necessary to conduct a few tests to ensure there are no problems with my variables that would detriment the results of my regression. The first of which is to test for multicollinearity. Multicollinearity exists when two explanatory variables move together in a positive or negative direction. Perfect multicollinearity would look like a 45 degree line when graphed on a scatter plot. Multicollinearity makes the *t-stat* figure for the corresponding multicollinear variables appear lower than they would ordinarily be in a regression. I may have multicollinearity, given that all but one of my *t-stats* is not above the absolute value of 2 benchmark that is generally accepted for *t-stats* to conclude with confidence that an explanatory variable affects the dependent variable.

The first test for multicollinearity that I will conduct can be extracted from the Correlations matrix from SPSS. I am looking specifically at the Pearson Correlation section to determine which combination of variables will yield multicollinearity. The values displayed are between 0 and 1, with 1 being multicollinear and 0 being non-multicollinear. Anything above .6 is generally considered to be highly multicollinear, above .3 and below .6 should be analyzed further, and below .3 indicates little to no multicollinearity.

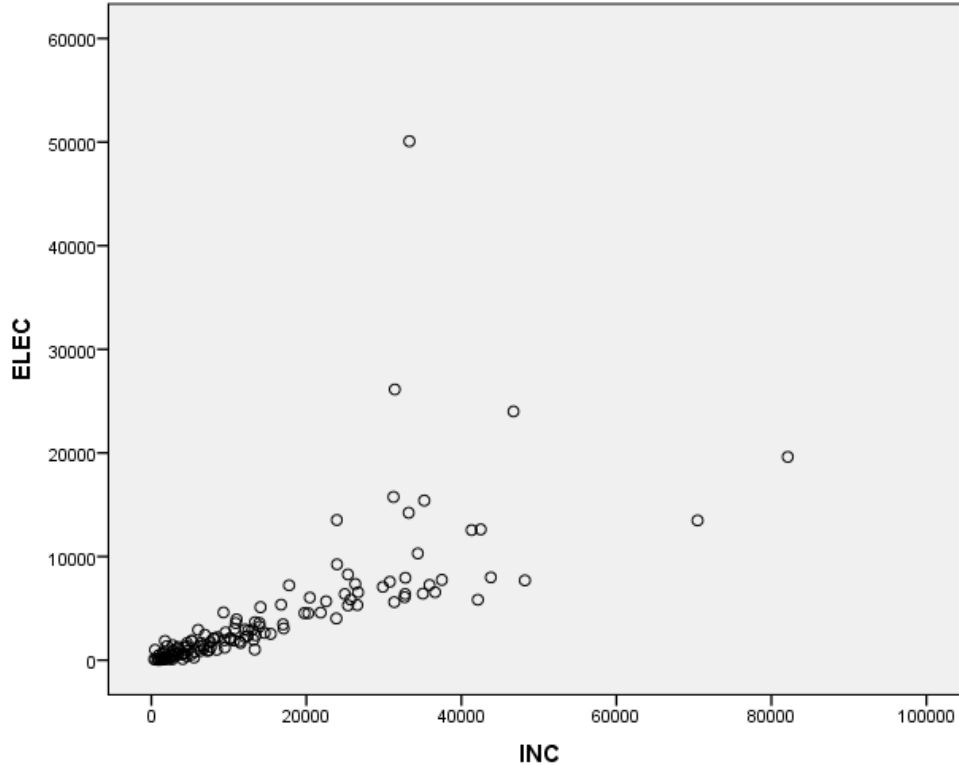


**Correlations**

		INT	LIT	URB	ELEC	MANU	INC
Pearson Correlation	INT	1.000	.614	.510	.729	.350	.691
	LIT	.614	1.000	.440	.542	.247	.444
	URB	.510	.440	1.000	.428	.244	.598
	ELEC	.729	.542	.428	1.000	.189	.899
	MANU	.350	.247	.244	.189	1.000	.196
	INC	.691	.444	.598	.899	.196	1.000
Sig. (1-tailed)	INT	.	.000	.000	.000	.003	.000
	LIT	.000	.	.000	.000	.029	.000
	URB	.000	.000	.	.000	.031	.000
	ELEC	.000	.000	.000	.	.076	.000
	MANU	.003	.029	.031	.076	.	.069
	INC	.000	.000	.000	.000	.069	.
N	INT	59	59	59	59	59	59
	LIT	59	59	59	59	59	59
	URB	59	59	59	59	59	59
	ELEC	59	59	59	59	59	59
	MANU	59	59	59	59	59	59
	INC	59	59	59	59	59	59

The combination of electricity and income per capita in my regression especially breaches the multicollinearity threshold. In fact, it is only .101 away from totally multicollinear.

Even without conducting other tests for multicollinearity, it is clear that my regression can't be reputable without removing either electricity or income per capita. I have included a scatterplot below to examine the relationship between the two variables:



There is an apparent linear relationship between electricity and income per capita. To further demonstrate how strongly collinear these variables are, I will run another regression to show how much of electricity is explained by income:

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.698 <sup>a</sup>	.488	.484	4402.96144

a. Predictors: (Constant), INC

For such a strong collinear relationship, I would have expected a much higher R squared result. However, it's apparent in the above scatterplot that there are a few outliers that may be skewing R squared lower. Iceland stands out in particular, with around 50,000 kWh per capita consumed per year. This is almost double the kWh of the next highest energy-consuming country, the United Arab Emirates at around 26,000 kWh consumed per year. Iceland is energy and electricity abundant, being the world's largest producer and consumer of geo-thermal energy. About 87% of the population lives in a home heated by geothermal energy, and prices are competitive. In addition, Iceland harnesses hydropower for electricity. Given this background on Iceland, I have decided to omit it because it is a sure outlier and rerun the regression between electricity consumption and income per capita:

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.833 <sup>a</sup>	.693	.691	2581.69841

a. Predictors: (Constant), INC

After omitting Iceland, R square jumps by 20.5%. An R squared of .693 much better demonstrates the linear relationship between electricity and income per capita. Though I would expect R squared to be much closer to 1 given how high the Pearson Correlation is, a .693 R squared is still high enough to justify that income and electricity may explain/be explained by one another. I will investigate this further when testing for heteroscedasticity.

At this point, I am certain that taking out one of these variables will boost the *t-stat* for the variable still remaining. My decision will be to take out the variable with the worst initial *t-stat* and *Sig.* values, which is income per capita with values of .331 and .742, respectively. This decision rests on the basis that income per capita is doing the worst job at explaining variation in changes in internet usage. In addition to its low *t* values, Income per Capita also has the relatively highest Pearson Correlation indices when paired with all other explanatory variables.

\*Additional Insights on electricity in Iceland provided by the following link:  
[http://www.icetradedirectory.com/english/industry\\_sectors\\_in\\_iceland/energy\\_in\\_iceland/](http://www.icetradedirectory.com/english/industry_sectors_in_iceland/energy_in_iceland/)

### REGRESSION II, LESS INC

Having made the decision to take out income per capita, I have run the regression again to see how much of an impact it's had on the explanatory power of my other variables:

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.804 <sup>a</sup>	.646	.619	12.826

a. Predictors: (Constant), MANU, ELEC, URB, LIT

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-23.883	11.025		-2.166	.035
1 LIT	.322	.140	.232	2.297	.026
URB	.155	.097	.151	1.602	.115
ELEC	.005	.001	.508	5.100	.000
MANU	.544	.289	.159	1.879	.066

a. Dependent Variable: INT

Taking out Income per Capita had significant results on my regression. As I may have expected with multicollinear variables, the *Sig.* value and *t* value soared in significance. Electricity now explains internet usage with by far the most confidence, exceeding the 2.00 *t* value benchmark by more than three standard deviations. The *Sig.* value is now .000, leaving open no possibility that I could be wrong by rejecting that the slope of electricity and internet usage is not nil.

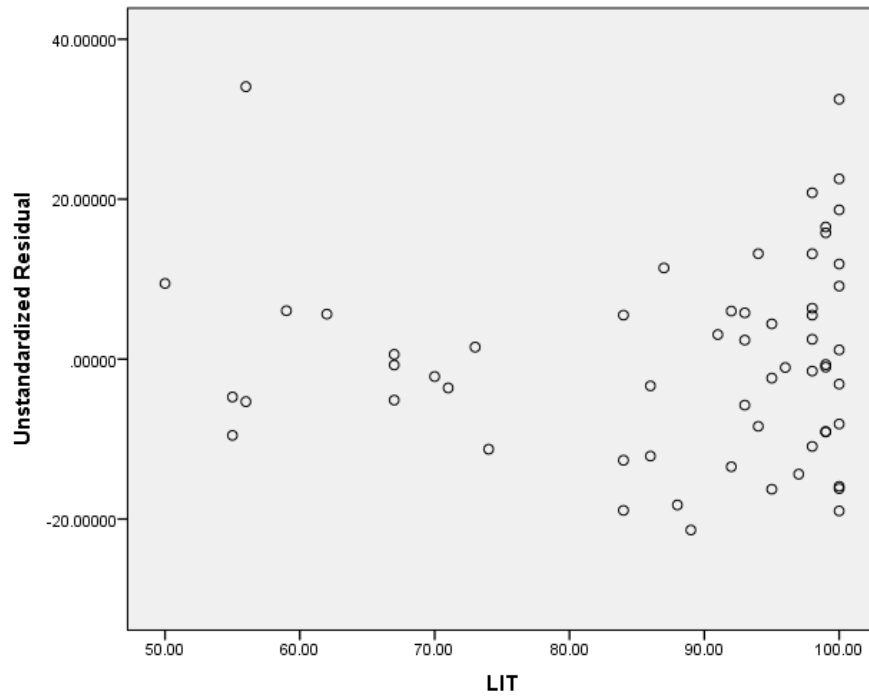
In addition, dropping income per capita has made my other variables more significant. Literacy, my main explanatory variable, is more significant in explaining variations in internet rates. The *Sig.* value became .2% lower and the *t-stat* became .036 standard deviations further from the mean. So, not only did the omission of income per capita cause its collinear cohort to soar in significance but it also increased the significance of literacy rates' effect on internet usage.

Lastly, R squared has remained unchanged. Adding a variable can only increase R squared, so taking out a variable should only decrease R squared. Actually, it is mathematically impossible to take out a variable without having R squared decrease, so I will accept that it may have dropped by decimal places in the thousandths and ten-thousandths. Even accepting this, because taking income per capita out of the regression yielded no change to the explanatory power of all other variables on internet usage across countries, it is deducible that income per capita had no effect on internet usage.

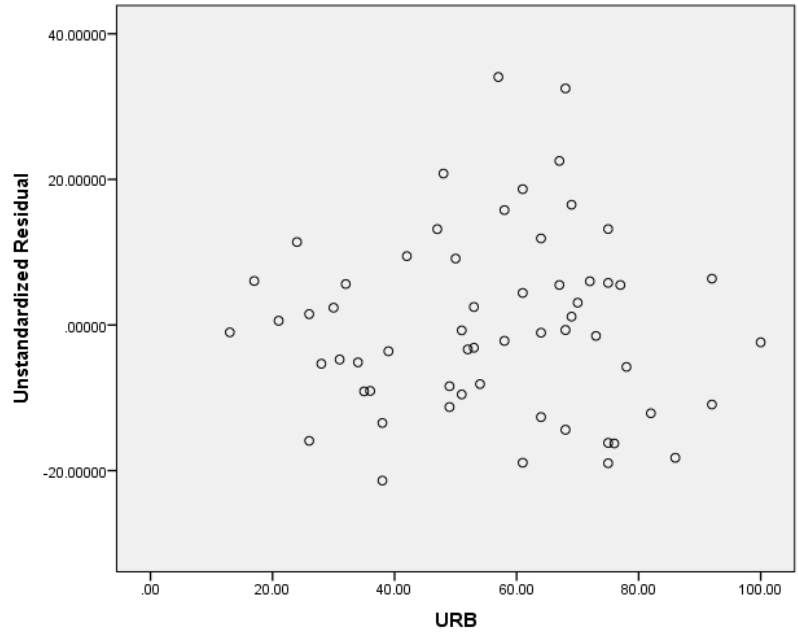
This outcome disproves part of my hypothesis, that income per capita would significantly affect internet rates in a positive way. Although I have chosen to accept the omission of income per capita, I am not convinced that it has no bearing on internet rates. I will revisit this point in a later section.

### HETEROSCEDASTICITY

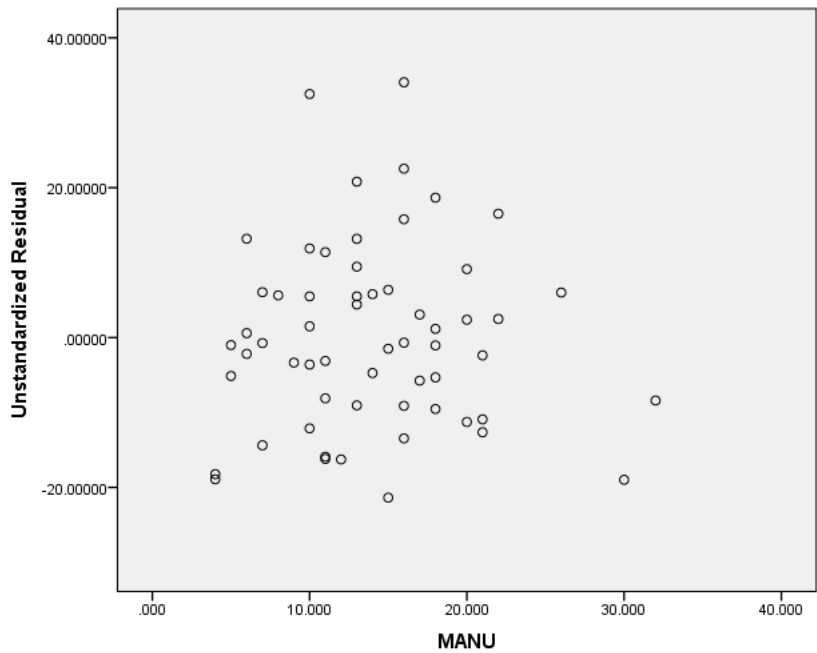
Heteroscedasticity, or “different spread”, persists when the variance of residuals in a linear regression model is not constant. In other words, observations are not evenly spread around a line. It has the effect of making *t*-statistics look worse than they are by allowing less confidence in the explanatory power of the heteroscedastic variables on the dependent variable, internet usage. It is especially prevalent in cross-sectional data such as mine. This creates problems for interpreting the results of regression analyses, since one variable may better explain another in only *part* of the observation set. In order to test for heteroscedasticity in my data, I will graph unstandardized residuals against each independent variable to distinguish if there is a pattern of inconstant residual spread.



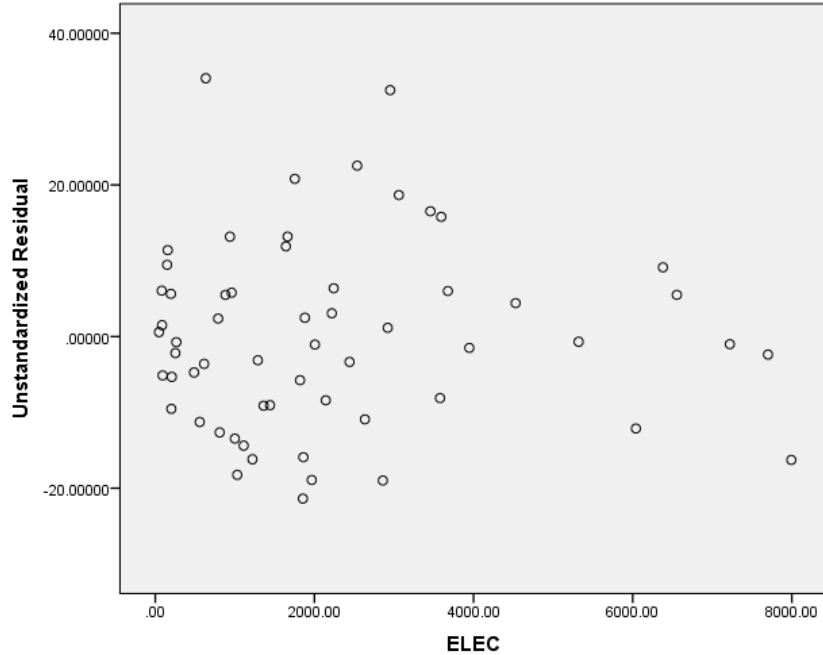
There is clearly heteroscedasticity prevalent among literacy rates, as a vast amount of the data points are at 95 and above.



There is clearly heteroscedasticity among urbanization rates.



There is clearly heteroscedasticity among manufacturing as a percentage of GDP.



There is clearly heteroscedasticity among electricity consumption per capita.

All of my independent variables depict some degree of heteroscedasticity. I will conduct other tests to see just how heteroscedastic each variable is and attempt to ameliorate it in my data if it does exist after conducting these tests.

### PARK TEST

I will conduct the Park test to test further for heteroscedasticity. This involves saving residuals from my most recent regression which omits income, squaring them and taking the natural log of them. I will also take the  $\ln$  for all of my explanatory variables and regress this on the  $\ln$  of the residuals.

### Literacy

#### Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.118 <sup>a</sup>	.014	-.003	2.02795

a. Predictors: (Constant), ln\_LIT

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

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.698	6.069		-.280	.781
	ln_LIT	1.224	1.361	.118	.899	.372

a. Dependent Variable: Residuals

The Park Test yields no statistically significant relationship between the natural log of literacy rates and the natural log of the residuals squared.

### Urbanization

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.237 <sup>a</sup>	.056	.039	1.98425

a. Predictors: (Constant), ln\_URB

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.551	2.355		-.234	.816
	ln_URB	1.093	.594	.237	1.839	.071

a. Dependent Variable: Residuals

The Park Test yields nearly significant *t* and *Sig.* statistics, but not enough to justify there being a statistically significant relationship between the natural log of urban population proportion and the natural log of the residuals squared, especially taking into consideration the very low R squared of 5%.

Manufacturing

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.162 <sup>a</sup>	.026	.009	2.01519

a. Predictors: (Constant), ln\_MANU

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.910	1.508		1.267	.210
	ln_MANU	.259	.208	.162	1.242	.219

a. Dependent Variable: Residuals

The Park Test yields no statistically significant relationship between the natural log of manufacturing rates and the natural log of the residuals squared.

Electricity

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.105 <sup>a</sup>	.011	-.006	2.03094

a. Predictors: (Constant), ln\_ELEC

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	2.622	1.442		1.819	.074
ln_ELEC	.446	.558	.105	.799	.428

a. Dependent Variable: Residuals

The Park Test yields no statistically significant relationship between the natural log of electricity per capita and the natural log of the residuals squared.

In sum, utilizing the Park Test yields that there is no statistically significant relationship between the absolute value of the residuals squared and the natural log of any of my explanatory variables. This means that heteroscedasticity is not an issue within my regression, which is contrary to my prior assessment of the scatter plots for each explanatory variable against the unstandardized residuals of the regression. This ambiguity leads me to conduct additional tests to test for and attempt to correct heteroscedasticity among all of my explanatory variables.

**GLEJSER TEST I**

I will conduct three variations on the Glejser test for each explanatory variable. I am looking to obtain consistent results among each of the three Glejser tests to help diagnose heteroscedasticity and abate the aforementioned ambiguity. The first test consists of taking the absolute values of the saved residuals used in the Park Test and regress them on the original observations for each variable, where the residuals will be dependent and observations will be dependent.

Literacy

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.133 <sup>a</sup>	.018	.000	7.607811111

a. Predictors: (Constant), LIT

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	3.782	5.912		.640	.525
LIT	.067	.067	.133	1.011	.316

a. Dependent Variable: ABSresid

Telling by an R squared close to 0 and insignificant *t* and *Sig.* statistics, it appears that there is no statistically significant relationship between literacy rates and the absolute value of the residuals. In other words, the residuals are not dependent upon literacy rates. This indicates no heteroscedasticity.

Urbanization

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.174 <sup>a</sup>	.030	.013	7.55844145

a. Predictors: (Constant), URB



**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	6.030	2.903		2.077	.042
URB	.065	.049	.174	1.335	.187

a. Dependent Variable: ABSresid

There appears to be no statistically significant relationship between urban population percentage and the absolute value of the residuals. This indicates no heteroscedasticity.

Manufacturing

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.036 <sup>a</sup>	.001	-.016	7.67074898

a. Predictors: (Constant), MANU

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	9.042	2.527		3.578	.001
MANU	.045	.166	.036	.274	.785

a. Dependent Variable: ABSresid

There appears to be no statistically significant relationship between manufacturing as a percentage of GDP and the absolute value of the residuals. This indicates no heteroscedasticity.

Electricity

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.016 <sup>a</sup>	.000	-.017	7.67483236

a. Predictors: (Constant), ELEC

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	9.806	1.471		6.664	.000
ELEC	-5.853E-005	.000	-.016	-.119	.906

a. Dependent Variable: ABSresid

There appears to be no statistically significant relationship between electricity per capita percentage and the absolute value of the residuals. This indicates no heteroscedasticity.

The first *Glejser* test yields that the absolute value of the residuals are not dependent upon any of the explanatory variables, therefore showing no signs of heteroscedasticity. My concern about heteroscedasticity within the data is diminishing, but certainly not gone. So, I will run a second *Glejser Test* to solidify these results.

### GLEJSER TEST II

Because I am still not convinced that heteroscedasticity is not an issue, I will perform a second Glejser test. This involves taking the absolute value of the residuals (used in *Glejser Test I*) and regressing them on the square root of each observation for each explanatory variable. This will indicate whether the residuals are dependent upon the square roots of each variable's observations and act as an indicator for or against heteroscedasticity.

#### Literacy

##### Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.125 <sup>a</sup>	.016	-.002	7.61544014

a. Predictors: (Constant), sqrt\_LIT

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

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.721	10.964		-.066	.948
	sqrt_LIT	1.115	1.171	.125	.952	.345

a. Dependent Variable: ABSresid

Telling by an R squared close to 0 and insignificant *t* and *Sig.* statistics, it appears that there is no statistically significant relationship between the square root of literacy rates and the absolute value of the residuals. In other words, the residuals are not dependent upon literacy rates. This indicates no heteroscedasticity.

#### Urbanization

##### Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.197 <sup>a</sup>	.039	.022	7.52482126

a. Predictors: (Constant), sqrt\_URB

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

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.089	5.088		.411	.683

sqrt_URB	1.036	.681	.197	1.520	.134
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a. Dependent Variable: ABSresid

Telling by an R squared close to 0 and insignificant *t* and *Sig.* statistics, it appears that there is no statistically significant relationship between the square root of urban population rates and the absolute value of the residuals. This indicates no heteroscedasticity.

### Manufacturing

#### Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.070 <sup>a</sup>	.005	-.013	7.657209

a. Predictors: (Constant), sqrt\_MANU

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

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.656	2.181		3.968	.000
	sqrt_MANU	.025	.047	.070	.526	.601

a. Dependent Variable: ABSresid

Telling by an R squared close to 0 and insignificant *t* and *Sig.* statistics, it appears that there's no statistically significant relationship between the square root of manufacturing rate and absolute value of residuals. This indicates no heteroscedasticity.

### Electricity

#### Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.036 <sup>a</sup>	.001	-.016	7.670797

a. Predictors: (Constant), sqrt\_ELEC

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

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.460	4.582		1.847	.070
	sqrt_ELEC	.333	1.224	.036	.272	.786

a. Dependent Variable: ABSresid

Telling by an R squared close to 0 and insignificant *t* and *Sig.* statistics, it appears that there is no statistically significant relationship between the square root of electricity per capita and the absolute value of the residuals. This indicates no heteroscedasticity.

Each of these tested explanatory variables exhibits no explanatory power over the absolute value of the unstandardized residuals in my regression. According to the rules of the second *Glejser Test*, my explanatory variables do not show heteroscedasticity.

## CONCLUSION ON HETEROSCEDASTICITY

My initial assessment based on plotting all explanatory variable observations against the unstandardized residuals led me to contend that heteroscedasticity is prevalent in my data. However, results from the *Park Test* and two versions of the *Glejser* test minimize this concern. Because these three tests did *not* show any signs of heteroscedasticity among any combination of variables, I can say with more confidence that heteroscedasticity within the data is not a major issue and should not profoundly affect my regression results. That being said, no test is infallible and it should be acknowledged that there may still be a chance that I am wrong.

## POST-TESTING REGRESSION ANALYSIS: ELECTRICITY

To reiterate, the results for my regression less income per capita are as follows:

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.804 <sup>a</sup>	.646	.619	12.826

a. Predictors: (Constant), MANU, ELEC, URB, LIT

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-23.883	11.025		-2.166	.035
	LIT	.322	.140	.232	2.297	.026
	URB	.155	.097	.151	1.602	.115
	ELEC	.005	.001	.508	<b>5.100</b>	<b>.000</b>
	MANU	.544	.289	.159	1.879	.066

a. Dependent Variable: INT

While my main explanatory variable, literacy rates, *does* significantly affect internet usage among countries, I would like to investigate the relationship between electricity and internet usage since its *t* and *Sig.* statistics are so high. So, I will run a regression just using electricity per capita as the independent variable and internet usage as the dependent variable:

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.735 <sup>a</sup>	.541	.537	18.601

a. Predictors: (Constant), ELEC

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	52142.533	1	52142.533	150.695	.000 <sup>b</sup>
	Residual	44289.844	128	346.014		
	Total	96432.377	<b>129</b>			

a. Dependent Variable: INT

b. Predictors: (Constant), ELEC

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	22.703	2.107		10.775	.000
	ELEC	.004	.000	.735	12.276	.000

a. Dependent Variable: INT

Taking *out* all other variables has caused electricity per capita to soar even higher than it was. Autocorrelation was not present because I tested for it earlier, and there is no possibility for multicollinearity with only one explanatory variable in action. The only thing I would *possibly* worry about is heteroscedasticity, since I was *almost* but not completely convinced that it was not an issue after conducting the *Park* and *Glejser* tests. So, with no doubt of being wrong by rejecting that the true slope of  $\beta_2$  is equal to zero, electricity per capita explains more than half, 54.1%, of the variation in internet usage. This makes logical sense. In order to access the internet, one must have access to electricity. Given this reasoning it would make sense that almost *all* of the variation in internet usage should be explained by electricity. However, this explanatory variable is measured *per capita* and not overall *access* to electricity.

Some other things to consider when looking at electricity per capita may be *where* the countries are located. Countries in the north probably use more electricity per capita to cover heating, whereas countries nearer to the equator have less demand for electricity in that regard. This would perhaps require additional analyses, like utilizing a binary variable to test whether distance from the equator (far versus near as determined by an exogenous qualification like the *Tropics of Cancer and Capricorn*) has an impact on electricity per capita and thus internet rates.

In addition, countries that are energy rich such as Iceland, Norway, United Arab Emirates, Qatar, Sweden, Saudi Arabia, Finland and the like are more likely to consume more energy per capita than would be needed to justify changes in internet rates. There may be some level where increases in internet rates plateau as electricity per capita increases. This would rather involve a research method like case studies to examine and evaluate this claim, rather than an econometric model which requires large data sets.

Even after presenting these possible theories for why electricity per capita does *not* explain any more than 54% of the variation in internet rates, it must be said that 54% is still impressive. I would also point out that the sample size is greater than 120, diminishing the effect of any biases in the data and being better representative of trends throughout the whole world.

**POST-TESTING REGRESSION ANALYSIS: LITERACY**

In evaluating my original claim that literacy rates have a significant impact on internet usage, I would like to examine the impact of literacy without controlling for any other variables. I have included a regression output below:

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.628 <sup>a</sup>	.395	.388	17.207

a. Predictors: (Constant), LIT

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	17967.299	1	17967.299	60.687	.000 <sup>b</sup>
	Residual	27534.132	93	296.066		

Total	45501.432	94			
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a. Dependent Variable: INT  
b. Predictors: (Constant), LIT

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-38.573	8.696		-4.436	.000
	LIT	.789	.101	.628	7.790	.000

a. Dependent Variable: INT

As we can see, there is a statistically significant relationship between literacy rates and internet usage. However, R squared is only .395 without controlling for other variables, where it was .646. *Not* controlling for other variables dropped the explanatory power of my variable by .251 or 25 percentage points. Still, *only* literacy rates explain about 40% of the variation in internet usage. This is impactful and supports my hypothesis.

### INCOME PER CAPITA REVISITED

Though I omitted Income per Capita as an explanatory variable for Internet Usage to specifically examine the effect of literacy rates, I am not fully convinced that it is insignificant. So, I will run a regression with income per capita as the explanatory variable and internet usage as the variable to be explained:

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.776 <sup>a</sup>	.602	.600	17.462

a. Predictors: (Constant), INC

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	83989.375	1	83989.375	275.433	.000 <sup>b</sup>
	Residual	55498.342	182	304.936		
	Total	139487.717	183			

a. Dependent Variable: INT  
b. Predictors: (Constant), INC

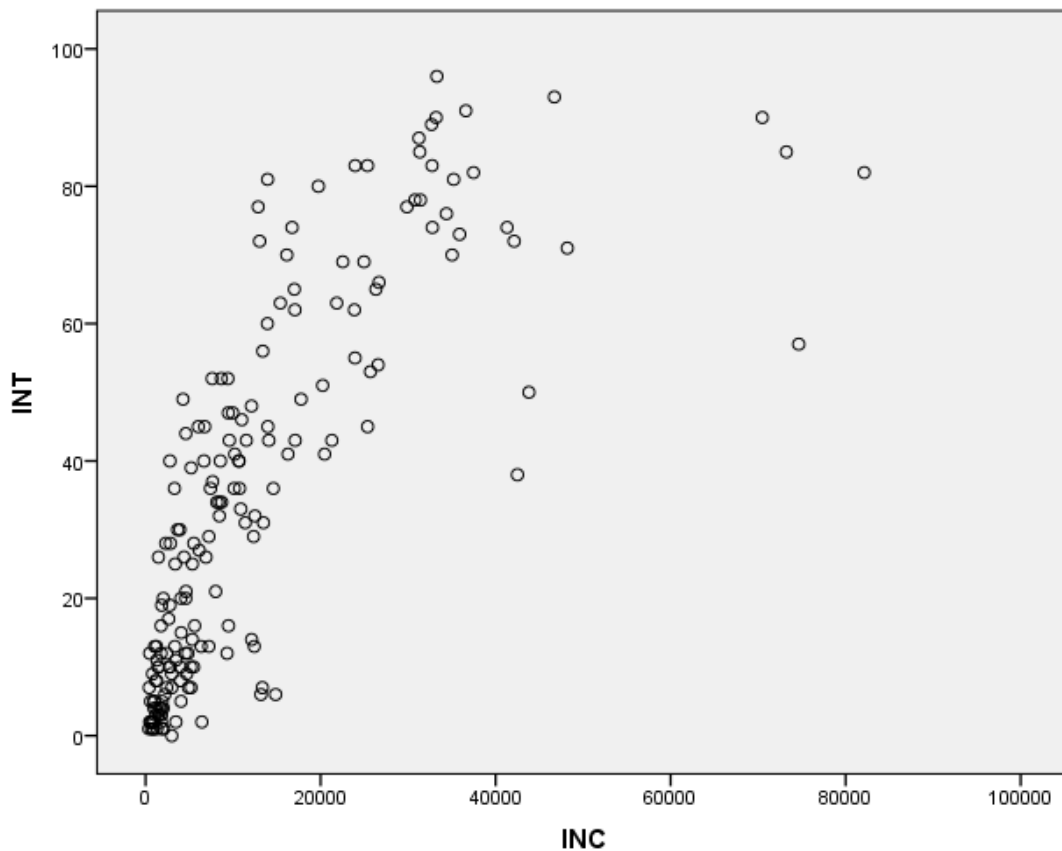
**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	15.831	1.702		9.300	.000
	INC	.001	.000	.776	16.596	.000

a. Dependent Variable: INT

Firstly, the sample size is the largest in any of the regressions I have run so far, leaving out the least amount of world data which is helpful in getting a broader scope to my regression. *t* and *Sig.* figures show huge statistical significance, as I thought. The regression yields that about 60% of the variation in internet usage is explained by changes in income per capita. A \$1.00 increase in income yields .1% increase in internet use rates. To countries where the dollar is *less* valuable, this number is perhaps exaggerated as explaining too much of an increase in internet usage. In countries where the dollar is *more* valuable, this figure may be underestimated if internet rates actually increase by a higher amount.

As I mentioned earlier, it is quite possible that internet usage per 100 people levels off at a certain point. Actually they *do* cease to increase when 100 of 100 people have access to the internet. A valid question to ask is whether the relationship is actually linear, which my regression exhibits output for, or if it takes on another shape, perhaps logarithmic considering the said plateauing. I have included a graph below of income per capita versus internet rates:



There is clearly a logarithmic relationship between these two variables. Had I regressed the two variables utilizing a non-linear model instead, I would have attained a higher correlation coefficient. Conversely, there is clear heteroscedasticity at work. This could have adverse effects on the *t* and *Sig.* figures. Ultimately, my results are a matter of which force is stronger in providing a clearer picture of how income per capita affects internet rates. This would require additional extensive analyses not to be covered in the depths of this paper. For now, it makes sense that internet usage is affected by income since income could very well increase the *demand* for the internet and for internet-accessing devices.

## CONCLUSION

I have demonstrated that, in accordance with my hypothesis, literacy rates *do* have

a statistically significant and positive effect on the prevalence on internet rates around the world. I was wrong in my hypothesis in saying that there would be any statistically significant relationship between internet prevalence and either manufacturing as a percentage of GDP and urbanization rates. Because of multicollinearity's residence in my data, I chose to omit income per capita as it was doing the worst job at explaining changes in internet usage. Because I was not completely convinced that this was the case, I retested it later and found that it really *is* significant, but just how significant it is requires further testing that I have not covered here. I also tested for heteroscedasticity four different ways, and found it using only one of the four methods. This makes me pretty confident that it did not affect my data, but I cannot be entirely sure.

My results are meaningful. The more people that are able to read, the more use the internet. From my results, internet usage is less-so a direct product of infrastructure and money and more-so product of being able to distinguish the words on a computer screen. Of course there are those that are literate but *choose* not to use the internet and reap all of the aforementioned benefits it entails. I am chiefly concerned with the others who *cannot* read or write and therefore are disadvantaged in accessing the internet. So much good comes of literacy, such as intelligence and personal autonomy, and, internet access is one of them. In fact, internet access can produce *more* good to complement literacy. Today, differently from decades ago, teaching people to read and write not only connects them to more people and information locally, but the effect of literacy extends *globally* by attaining the ability to access the internet.

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# **IMPACT OF THE GREAT RECESSION ON THE BOYS & GIRLS CLUB OF AMERICA: A STUDY OF THE FINANCIAL EFFECTS**

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## **INTRODUCTION**

The Boys and Girls Club of America was founded in 1860 and pioneered by three women, Mary Goodwin, Alice Goodwin and Elizabeth Hammersley in Hartford, Connecticut. They believed that boys who roamed the streets should have a positive alternative. By 1906, several other boys' clubs decided to affiliate and collaborate with the vision of the three women. The Federated Boys Clubs in Boston was formed with 53 member organizations. This marked the start of a nationwide movement and a national organization. In 1931, the boys Club Federation of America changed its name to the Boys Club of America. Due to continued growth and success, the Boys Club of America was able to celebrate its 50th anniversary in 1956. It was during this year that they received a U.S. Congressional Charter.

With the name brand on an accelerated incline, a potential club in the Capital Region came into vision. In March of 1965, the Boys Club of Albany came into existence. Their first building was at 711 North Jefferson Street. Because of its temporary state and unstable status, their first director, B.B. Rhodes, Jr. decided to launch a fundraising campaign. Hard work, ambitious employees, and innovative ideas helped the program to expand. The program instilled the mission statement "To provide a fun, safe, supervised environment for recreational and educational activities where all boys and girls, especially those who need us the most, can develop self-esteem and the qualities needed to become caring, responsible citizens." With high quality work at its forefront, the membership of the club reached 1,600 boys by 1969.

In 1972, the Albany Boys Club became a full member of the United Way of Dougherty County, now known as the United Way of Southwest Georgia. In January 1996, the Boys Club of Albany became the Boys and Girls Club of Albany. The change served as a perfect way to integrate both boys and girls into their work and made it a much more reputable program across the country. In 1997, executive director, Ed Deming and the Corporate Board of Directors decided to establish and renovate different units. Due to floods, the unit at Cedar Avenue was replaced and named the Jane Wilson Unit. This unit was open for girls and boys of South Albany. Renovation took place in the East Albany unit and the unit on Jefferson Street.

The mission statement of the Boys & Girls Clubs of Albany is "to provide a fun, safe, supervised environment for recreational and educational activities where all boys and girls, especially those who need us the most, can develop self-esteem and the qualities needed to become caring, responsible citizens". The Boys and Girls Club of Albany, located on Delaware Avenue has a variety of programs to make the children into well rounded people. These programs include summer programs and after school programs to keep the children active and productive. The Boys and Girls Club build character and leadership with programs such as the Torch Club, Keystone Club and Youth of the Year. With these programs the children develop a powerful self-image, sustain meaningful relationships with others and to respect their own and others identities and cultures. Education is a very important component in life. Education and career programs such as Career Launch, Club Tech, Money Matters, Power Hour, and Project Learn were created to enable the youth to become proficient in basic educational disciplines. Health and life skill programs were also designed to have the youth engage in positive behaviors that nurture their own well being, set personal goals, and live successfully as self-sufficient adults. Programs include Smart Moves and Healthy Habits. With all of these programs, the children not only have a great and enjoyable time, but they also learn things that will develop them into well-rounded respected adults.

## **FINANCIAL ANALYSIS**

Due to uncontrollable and unfortunate circumstances, we were only able to obtain financial information that dates back to 2008, a year after the “Great Recession” began. Despite the incomplete data, the information that we did gather was still very informative and gave us a valuable knowledge to make interpretations from. Although our data does not reflect information in the years leading up to the financial crisis; our group, along with the help of Mrs. Lisa Hunter and her staff, was able to paint a vivid picture of what happened to the organization during the most recent financial crisis. Additionally, and more importantly, the way the organization has bounced back since the crisis.

From what we have gathered collectively, the Boys and Girls Club of Albany was suffering substantially prior to the employment of Mrs. Lisa Hunter. Until her employment in October of 2010, the Boys and Girls Club of Albany was overwhelmingly mismanaged. For example, before her employment the club had difficulty making their weekly payroll as well as not having enough funds to pay for art supplies and the necessary equipment to participate in recreational activities. These restrictions made it extremely difficult for the organization to function properly as an outlet and resource for the children of Albany. Luckily, the positive changes that have been made within the management have been empirically shown in the data we obtained. Essentially, it is safe to conclude that the recent success and growth of Boys and Girls Club of Albany is directly correlated with the resurgence of the new management that has been put into place.

Our financial analytical research began with the organization's income and operating expenses throughout the years, starting with the year 2008. In 2008, the Boys and Girls Club of Albany had a total income of \$920,226.00. As for their operating expenses for the year; they consisted of expenses for program services, management and general services expenses, fundraising expenses, and came to a total of \$1,022,827.00. Simple arithmetic depicted that Boys and Girls Club of Albany closed the fiscal year of 2008 with a deficit of \$102,600.36. As for 2009, the final year of the “Great Recession,” the club took in a total income of \$754,950.00 while having total operating expenses of \$889,931.00. Once again, the Boys and Girls Club of Albany was operating with a deficit of \$134,980.40. Despite this negative imbalance, the Boys and Girls Club of Albany persevered through it and found creative ways to begin operating within their income again during 2010. Coincidentally, this was the year Mrs. Lisa Hunter was employed as Chief Professional Officer of the program. With that in mind, we strongly believe that there is a direct positive correlation between the increase of the organizations income and her employment. We have substantial reason to believe that the previous failures of the company can be attributed to mismanagement and that the recent success of the company can be attributed to the renewed focus and concentration that came from the new management. During the year of 2010, the Boys and Girls Club of Albany took in \$889,937.00 of operational income while having total operating expenses equate to \$833,262.00. Ultimately, this gave the organization a \$56,675.79 to operate with. In 2011, the most recent year of financial data available, the Boys and Girls Club of Albany had total operating expenses reach \$795,793.00 while their income reached \$716,561, once again causing the organization to fall below the equilibrium mark. Operating with a deficit is never a positive sign for an organization, particularly when it has been three out of the past four years in regards to pertinent financial data available. Despite their shortcomings, when visiting the Boys and Girls Club of Albany, we were reassured by their staff that they are on the rise again. This is mostly due to the fact that there is currently a waiting list of children wishing to join the organization. From the data they presented, we can see substantial fluctuations in income throughout the years. In 2008, the Boys and Girls Club of Albany saw a \$14,823 decrease in total income from the year prior. In 2009, the club once again saw a decrease in total income. However, this time the total was much more staggering, reaching \$165,276. A change in this pattern took place in 2010 when the Boys and Girls Club saw a \$134,978 increase in total income from 2009 to 2010.

The Boys and Girls Club of Albany, a non-profit organization, receives their income from a variety of different sources. The organization receives a majority of its income from Government Grants, from Federal and State Government Grants all the way to Local Government Grants. Also, contributions from individuals and corporations are a vital source of income for the Boys and Girls Club of Albany. Although they are a non-profit organization, there is a \$75.00 upfront charge for each child as well as a \$10.00 monthly charge. These minimal fees add up to become a significant portion of the organizations income. Furthermore, since the United Way sponsors the Boys and Girls Clubs of America, they receive a portion of their income from the organization.

In 2008, the Boys and Girls Club of Albany received \$186,519.00 in grants from the Federal Government, making up 20.7% of the clubs operational income. The following year, 2009, the Boys and Girls Club of Albany saw this portion of their income increase by \$254,637.00, reaching a total of \$441,156.00 or 54.44% of their total income for the year. In 2010 they saw this portion of their operational income decline by \$231,204.00, reaching a total of \$209,952.00 making up 23.59% of their operational income. As for 2011, the boys and Girls Club of Albany took in \$121,095.00 from the Federal Government in the form of grants, making up 16.8% of their income during

the year. When receiving grants from the Federal Government, they are broken down from several departments of the Federal Government. They are not lump sums. Federal Government Grants come from the U.S. Department of Agriculture, U.S. Department of Housing & Urban Development, and the U.S. Department of Justice. The departmental breakdown of Federal Government Grants was only available for the years 2010 and 2011. In 2010, the Boys and Girls Club of Albany received \$94,360.00 from the U.S. Department of Agriculture compared to just \$15,361.00 in 2011, which represents a \$78,999 loss of income from this department for federal aid. The U.S. Department of Housing & Urban Development contributed \$63,092.00 to the Boys and Girls Club in 2010 and \$54,734.00 in 2011, representing an \$8,358 loss of income from this particular department. As for the U.S. Department of Justice, they contributed \$52,500.00 in 2010 and \$51,000.00 in 2011, representing a mere loss of \$500 from this department. Unlike the Federal Government Grants, State and Local government grants are not broken down by departments; they are merely representing lump sums of operational income. In 2008, the Boys and Girls Club of Albany received \$25,081.00 from the New York State Government. This contribution from the state made up 2.73% of operational income in the year. That same year, the organization received a total \$53,520.00 from the local Albany Government, which made up 5.82% of operational income for the year. As for 2009, New York State government grants totaled \$35,000.00, a \$9,919 increase from the previous year. This \$35,000.00 of New York State Government Grants made up 4.64% of their operational income for the year. The organization took a major hit from the Local Government in 2009 by receiving absolutely no income from this particular section of the government. In 2010, The Boys and Girls Club of Albany received \$23,569.00 of income from the New York State Government and \$28,321.00 from the local Albany Government. The \$23,569.00 received from the New York State Government represented 2.65% of total operational income while the contribution from the local government made up 3.18%. In 2011 the organization received a staggeringly high grant from the New York State Government, coming to a total of \$293,929.00. As for Local Government Grants, they dropped precipitously again to a meager \$6,700.00.

In addition to receiving income from the government, the Boys and Girls Club receives a large portion of its income from contributions. These contributions can take two forms, from either individuals or corporations. In 2008, the Boys and Girls Club of Albany received \$51,945.00 from individuals and \$3,600.00 from corporations. These figures represent 5.64% and 0.39% of their operational income respectively. In 2009, the contributions from individuals declined to \$19,522.00 while contributions from corporations increased over \$10,000.00 to reach a total of \$13,895.00. Contributions for this year represented 2.59% and 1.84% of operational income respectively. As for 2010, both contributions from individuals and corporations increased dramatically. The Boys and Girls Club received \$111,297.00 from individuals while collecting \$59,872.00 from corporations. Contributions during the year made up 12.51% and 6.73% of total operational income respectively. In 2011 the Boys and Girls Club of Albany saw these numbers drop once again. Throughout the year, they collected \$33,619.00 from individuals while only collecting \$5,105.00 from corporations. These contributions made up 4.69% and 0.7% of total operational income respectively.

The final outside source of income that the Boys and Girls Club of Albany receives are contributions from the United Way, whose main focus is to identify and resolve pressing community issues. In 2008, the Boys and Girls Club received \$48,174.00 from the United Way, making up 5.24% of its operational income. In 2009 this contribution from the United Way increased to \$61,762.00 making up 8.18% of its income. The following year, the United Way contributed \$33,433.00, making up 3.76% of the organization's income. In 2011, contributions from the United Way remained mostly stagnant and increased by only \$1,296.00 coming to a total of \$34,729.00. This 34,729.00 contribution from the United Way represented 4.8% of income for the year.

Although the Boys and Girls Club of Albany is a non-profit organization, they do receive a small portion of operating income from their members. Each family wishing to have their child participate in the Boys and Girls Club organization must pay a participation fee of \$75.00 as well as a \$10.00 monthly fee. These fees may seem miniscule, but when added up collectively they make up a considerable part of the organization's income. This method of offering low fees to potential clients has widened their target range in the community. They are now able to attract low-income families to their services due to the flexible pricing.

In 2008, program activity fees totaled \$58,631.00 making up 6.37% of their total operational income. The following year, the Boys and Girls Club of Albany collected \$85,185.00 from its members, a \$26,554.00 increase from the previous year. This \$26,554.00 increase represented 11.28% of their operating income for 2009. In 2010, program activity fees skyrocketed, reaching \$336,033.00 or 37.76 of their total operating income. However, the immense amount of money collected in 2010 through fees dropped dramatically in 2011. In 2011, the organization collected \$44,264.00 through program activity fees.

## **OVERALL CHANGES OVER TIME**

The Boys and Girls Club of Albany has made substantial changes over the years. Before the new management was hired, the club was understaffed and under-enrolled. The program was not making enough money to make their payroll and pay their employees. The children did not have art materials and sports equipment available due to low funds and poor management by the employees. Quite frankly, the Boys and Girls Club of Albany was on the brink of collapse. However, now that a more proactive staff is in place, the Boys and Girls Club is doing much better. The club serves anywhere from 60 to 100 children a day and has a large waiting list of children who want to join. They also have generated enough revenue to pay their employees and make their payroll. In order to encompass more children, they are planning to move into a larger and better-equipped facility during the upcoming months. Due to the influx of children who have enrolled in the program, this equates to more revenue for the club to use on a multitude of things including better schooling equipment, more employees, more resources, and healthier snacks. Conclusively, the Boys and Girls Club of Albany has positively transformed their program due to a stronger and more united new employment staff.

### **CASE STUDIES**

The changes that have been made have not only delighted staff workers but have excited the children as well. After a long day of school, the children come to the Boys and Girls Club with high levels of energy. They arrive and engage in recreational activities and sports. Afterwards, they are given a small snack and a drink to help them calm down and relax before they do their academic assignments. When snack time is concluded, the children are split up into different room relative to their ages and are closely observed and monitored while they do their homework. Excellent resources such as counselors, computers, and books are available to the children to help assist them complete their homework in a timely and accurate fashion. Once their homework is finished, the kids have the opportunity to do whatever they please. The Boys and Girls Club has an area where the kids can sit and watch TV or movies on a big screen, or they can play games on the computer. The children also have free access to arts and crafts, or the children can play games in the gym. To properly and smoothly end the day, the Boys and Girls Club asks that all of the children be picked up by 6 o'clock.

After watching the humorous interactions between the children during a normal day, it is safe to say that the children have plenty of fun. They enjoy each others company and enjoy having so many different activities available to them throughout their time there. Keith, a 9 year old boy from Albany, explained that "he loved playing basketball and eating snacks" while he was at the afterschool program. Kavon, another 9 year old boy from Albany, discussed that he "liked playing games on the computer with his friends" during his time at the Boys and Girls program. While observing the children, the boys displayed many amusing moments. They have elaborate handshakes with one another and laughable poses for pictures. Essentially, the atmosphere within the Boys and Girls Club was a very interactive but educational one as well.

### **CHANGES AFTER THE RECESSION: GOALS & ACCOMPLISHMENTS**

The Boys and Girls Club of Albany has moved forward in the right direction since the end of the Great Recession. Child enrollment is at an all-time high and funds are coming in at abundance due to grants and revenue through membership fees. They continue to sustain the appropriate number of employees to have the necessary balance between proper supervision while also not having wasteful spending on the payroll. This allows the program to run as smoothly and efficiently as possible. Basically, despite the Great Recession and by rectifying the poor management that was there beforehand, the new staff has been able to bring the Boys and Girls Club of Albany to new heights.

### **FUTURE OUTLOOK**

With this great amount of forward momentum, the Boys and Girls Club of Albany plans on expanding its grounds in order to accommodate more children. They have plans to move to a newer, bigger, and better-equipped place within the coming months. They feel that a potential move like this one is a great opportunity to increase exposure and add to the already-growing revenue. They also plan on hiring more workers in order to maintain the high-level educational and recreational environment that they have put into place.

## **SUGGESTIONS**

Evidently, the brand of the Boys and Girls Club is nationally known and quite reputable for all of the services they provide to children. Furthermore, the Boys and Girls Club of Albany already on the rise and looks as if the program is in good hands. With that in mind, many drastic changes would not be suggested to them in order to deviate from the current direction of the program. A smaller suggestion that we may make to the program would be to possibly increase the hours in which they operate on a daily basis. The children must be picked up by six o'clock sharp by their parents or guardians in order to remain in the program. To us, six o'clock may be a difficult time for some parents to make due to other commitments. We believe that extending the hours of the program by roughly another hour would give more flexibility to parents and their schedules. Extending their working hours can also serve as a way to set them apart from other similar after-school programs and stay a step ahead of their competitors. Furthermore, it can also serve as a way to advocate for a slightly higher membership fee, which would potentially lead to a slight increase in revenue. Despite this small loophole, the Boys and Girls Club of Albany still seems to be doing relatively well and we anticipate continued growth and success.

## **CONCLUSION**

In conclusion, we believe that the Albany chapter of the Boys & Girls Club of America, despite recent hardships, will be able to recover. The bulk of their problems were the result of shoddy leadership but now under the management of Lisa Hunter, the organization has a future bright future ahead of them. As with many organizations, the Boys & Girls Club of Albany was hurt during the recent recession, primarily in their areas of funding from individuals and corporations, as many people struggled to make ends meet and could no longer support non-profit organizations, such as theirs. They have done a great job in diversifying their areas of income and as the recession ended we began to see increases in these areas of income and we believe the trend will continue. It's been a hard road for this non-profit, but miraculously they were able to pull through and we believe that we will see them sticking around for years to come, serving the youth of Albany and their families.

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# STOCK PICKING STRATEGIES ON A SMALL-CAP STOCK

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## ABSTRACT

*Evaluating a small cap stock, Hanger, Inc. (NYSE:HGR), by calculating the intrinsic value of the stock and then comparing the value to the current stock price; along with an analysis of Hanger's industry, financial, growth, SWOT, and peer group analysis, in an overall evaluation of the target price of Hanger..*

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## PROJECT DESCRIPTION

This project is to use investment strategies learned from classroom and thus gain familiarity with the simulated trading platform. It is a simulated equity/trading platform that provides participants with a virtual one million U.S. dollars to fictionally trade preselected small-cap stocks. The project begins on February 11, 2013 and ends on April 26, 2013. One of the stocks I selected is **Hanger, Inc. (NYSE: HGR)**. After calculating the intrinsic value of the stock and then comparing the current market price, I find out this is an undervalued stock and a good candidate to be purchased. Then I performed a set of analysis including industry analysis, financial analysis, growth analysis, SWOT analysis, and peer group analysis to confirm my finding that it is a good stock to invest. Although the company has somewhat disappointing return on equity, my results show that the company's strengths can be seen in multiple areas, such as its solid stock price performance, impressive record of earnings per share growth, compelling growth in net income and revenue growth. I feel these strengths outweigh the fact that the company has had disappointing return on equity.

## INTRODUCTION

Founded in 1861 with the headquarters in Austin, Texas, Hanger Inc was formerly known as Hanger Orthopedic Group, Inc. which was changed to the current name in June 2012. Hanger, Inc. is on the larger size of a small-cap company. HGR is one of the top growing companies that is in the Healthcare sector that owns and operates orthotic and prosthetic patient care centers throughout the United States; there are over 700 O&P patient-care centers in 45 states.

HGR owns and operates over 700 patient-care centers that specialize in orthotic and prosthetic care. HGR's orthotics business designs, fabricates, fits and provides maintenance to standard and custom fitted braces that provide external support for the body. These braces are primary used for patient suffering from musculoskeletal disorders, such as ailments of the back, extremities or joints, and injuries from sports or any other extreme activities. The other half of the company is the prosthetics business that designs, fabricates, fits, and provides maintenance for artificial limbs for patients, which resulted from traumatic injuries, vascular diseases, diabetes, cancer, or congenital disorders.

## INTRINSIC VALUE ESTIMATION

To get a full valuation of Hanger Inc, I first use the free cash flow to equity method to estimate the intrinsic value, which is the true value of the price per share. The first part of calculating the value of the stock per share is finding the free cash flow to equity (FCFE). These financials can be found from many sites. I use the most recent year data from *Yahoo! Finance* to estimate the current intrinsic value of the stock. Taking the most recent past year, December 30, 2011, financial statements can do this calculation, which is seen below in Figure 1a. Starting with the net earnings from 2011, add the net noncash charges (depreciation and adjustments to net income, \$34.303M+\$40.38M, respectively), subtract the changes in operating assets and liabilities (changes in accounts receivables, changes in liabilities, changes in inventories, and changes in other operating activities, \$42.024M+\$14.4M+\$14.944M+\$3.02M, respectively), subtract the additions to property and equipment (\$25.3M), add the proceeds from sale of assets (\$25.0M), and finally add the net proceeds from payments of short-term borrowings

(interest expense, \$31.821M). This value, \$43.325M, results in the free cash flow to the firm (FCFF). Next, add the net proceeds from issuance of long-term debt (\$15.0M), and subtract the payments of long-term debt (\$15.0M), to get the FCFE of \$13.325M.

The next step is to use constant growth model which is common and simple approach to estimate the value of the stock. I assume the stock's earning growth is constant. I multiply the estimated FCFE by the sum of one and the FCFE growth rate divided by the difference between the required rate of return on HGR's common stock and the FCFE growth. The value of the stock is \$1332.85 Million. Some assumptions that were made are seen in Figure 1b. The required rate of return of HGR's common stock was calculated by  $R_F + \beta_{HGR} \times (R_M - R_F)$ .

12 months ended		Dec 30, 2011
Net earnings		55.019
Add: Net noncash charges	Depreciation	75.133
Less: Changes in operating assets and liabilities	Investment in NWC	-68.348
Less: Additions to property and equipment		-25.300
Add: Proceeds from sale of assets	Investment in FC	-25.000
Add: Net proceeds from (payments of) short-term borrowings	Interest expense	31.821
<b>Free cash flow to the firm (FCFF)</b>		<b>43.325</b>
Add: Net proceeds from issuance of long-term debt	Net borrowing	-15
Less: Payments of l		15.000
<b>Free cash flow to e</b>		<b>13.325</b>

Figure 1a: The breakdown for calculating FCFE

Assumptions			
Rate of return on LT Treasury Composite	$R_F$		2.74%
Expected rate of return on market portfolio	$E(R_M)$		14.19%
Systematic risk ( $\beta$ ) of 's common stock	$\beta_{HGR}$		1.09
<b>Required rate of return on HGR's common stock</b>	$r_{HGR}$		<b>15.22%</b>

Figure 1b: Assumptions and calculations for required rate of rate

retention rate	100%	N/A
ROE	14.08%	
$g =$	14.08%	

The final step of getting the value of the stock per share is to take

the value of the stock and divide it by the number of shares outstanding, which is seen below in Figure 1c. The value of the stock per share is \$38.68 per share, which the current price was \$31.90 on Friday, February, 15, 2013. This indicates that the stock is undervalued and I make a recommendation of a buy.

### INDUSTRY ANALYSIS

<b>Free cash flow to equity (FCFE)</b>		<b>13.325</b>
Value of the stock		1332.851
the number of shares outstanding		34.45
Value of the stock per share		38.68941957
current stock price		\$ 31.90
		Buy

With the current Healthcare industry, many of the healthcare stocks are undervalued and can see short-term and long-term growth. Even with the current healthcare reforms undergoing in Congress, the healthcare sector will still see strong returns for investors from the growing demand for healthcare services and products.

Under the current *Obamacare*, every American citizen has health insurance as of this past year, and this good for hospitals and for all companies in the healthcare sector because now these companies won't be carrying on debt from people that are uninsured. With this debt on their financials, these hospitals and companies will be able to reinvest in research or improving technology and equipment used.

Another factor that will be positively influencing the healthcare sector will be the retirement of the baby boomers in the next ten to twenty years. As the baby boomers get older, they're going to need more healthcare

services and will be using more healthcare companies and hospitals. This will continue on the growth for these companies, including HGR with one of the highest estimated long-term growth rate of 12.50% as compared to other sectors.

On the negative side for the industry, multiple healthcare companies will be affected by the current budget cuts from the government spending that went into effect this pasted March 1<sup>st</sup>. This means that many grants from the government or funding and financial aid from organizations and charities will be contributing less from the less funding they're receiving from the government.

## FINANCIAL ANALYSIS

HGR currently has the total revenue's growth continuing to increase slowly in the next forecasted years while the EBITDA margin percentage projections continues to grow stronger than the total revenue. This results with the cost of goods sold decreasing for HGR in the next forecasted years and also has the cash flow from operations increased \$19.5M to \$81.3M, from the \$61.8M of the year-end of 2011. This is seen in their current stock price, \$29.97 a share, which is relatively lower than their competitors, but HGR has one of the highest 1-yr total returns of 47.54%, when compared to their competitors' average of just 20.94%, and one of the highest EBITDA 1-yr growths of 12.15%, when compared to their competitors' average of 1.33%.

**Chart 1:**  
Fiscal period  
end Financials  
actual and  
estimated,  
Capital IQ

the strong EBITDA margin percentage projections, HGR has a higher current ratio and quick

Period Ending	12 months Dec-31-2008A USD	12 months Dec-31-2009A USD	12 months Dec-31-2010A USD	12 months Dec-31-2011A USD	12 months Dec-31-2012A USD	12 months† Dec-31-2013E USD	12 months Dec-31-2014E USD
Revenue	703.1	760.1	817.4	918.5	985.6	1,069.9	1,134.8
Operating Profit	244.6	267.2	285.7	328.1	363.3	393.3	414.8
Operating Margin %	34.8%	35.1%	35.0%	35.7%	36.9%	36.8%	36.6%
EBIT	94.9	105.8	122.2	162.0	165.8	184.9	201.4
EBIT Margin %	13.5%	13.9%	15.0%	17.6%	16.8%	17.3%	17.8%
Earnings from Cont. Ops.	26.7	36.1	21.4	55.0	64.1	-	-
Net Income	26.7	36.1	21.4	55.0	64.1	-	-
Diluted EPS Excl. Extra Items*	0.78	1.13	0.65	1.61	1.84	2.05	2.31
Growth Over Prior Year	22.5%	44.9%	(42.5%)	147.7%	14.3%	13.04%	12.90%

ratio than their competitors with similar market capitalization in the healthcare sector. Both of these ratios, seen in Chart 2, measure the liquidity of a firm, and higher the number, the stronger the firm is. In 2012, HGR has a current ratio of 3.63x, while the sector average was 2.94x; resulting that HGR has a strong position in paying back its short-term liabilities with its short-term assets than compared to their competitors. For the quick ratio, HGR has a strong ability to meet its short-term, obligations with its more liquid assets, which is seen with HGR having the quick ratio as 1.98x and the sector average for 2012 was 1.68x.

HGR is financially strong, with large levels of growth within the past year, in the next forecasted year, and for the next five years. The strengthen of the company can be seen in Chart 3, comparing come financials of HGR with the sector averages and with the S&P 500. The P/E ratio shares how both HGR and the sector have high P/E ratios than the S&P500, meaning that there are expectations of high earnings growth in the future. Another key ratio that helps investors spot out undervalued stocks is the P/B ratio with it being low, which HGR has 2.19 as compared to the sector average of 2.30. The last important financial to look at is the EBITDA margin for HGR because this provides a clear image of HGR's core profitability. HGR currently has 12.15% as compared to the healthcare sector average of -1.15%. When compared to the sector, HGR is experiencing large amounts of growth and still has increasing profitability. Both growth and profitability are key factors in having a strong financially stable company for investors to invest in, which HGR meets

Chart 3: 2012	HGR	SECTOR	S&P 500
P/E	16.40	19.12	14.16
P/B	2.19	2.30	2.14
P/Cash Flow	12.54	10.55	8.57
EBITDA Margin	12.15%	-1.15%	18.74
EPS	0.63	0.60	N/A
Beta	1.08	0.97	N/A



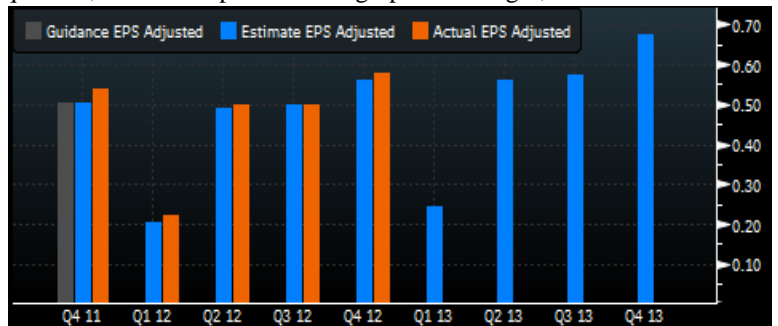
## GROWTH

HGR has a long-term growth of 12.50% and will continue to grow with high forecasted margins and returns for the company and in the healthcare sector. HGR is expected to have high revenue growth and net income growth in the next year to five years; while the company is expected to have large amounts of growth in the next five years with 496.63% for earnings per share (EPS).

GROWTH (%)		
	1 Yr.	5 Yr.
Revenues	9.72	9.77
Net Income	21.27	25.55
EPS	18.87	496.63

## SWOT ANALYSIS

A strength that HGR has would be the innovation within the company that sets them apart from other companies and the large increase in revenue the past year. Another strength that HGR has over their competitors would be beating the EPS estimates for the past five quarters, which is represented in graph to the right, from *Bloomberg*. This continuous trend of beating the estimates of analysts makes this stock largely attractive for investors and the forecasted estimated EPS for the next four quarters of 2013 are higher than the previous year's estimates, establishing continuous growth forecasted for the company. As compared to the other quarters of the year, the first quarter historically is lower, but still has been beating estimates. With every announcement of the estimates and actual EPS, there has been a change in the stock price, directly related to the announcement. This is seen in the graph above, from *Capital IQ*, that the actual EPS beat the high estimates for the fourth quarter for 2012, causing the stock price to begin moving upward.



Graph 1: Estimated EPS and Actual EPS for HGR, *Bloomberg*



Graph 2: EPS related to stock price, *Capital IQ*

While HGR has strong growth and innovation opportunities for the future, HGR also has some weaknesses that would be high selling, and general & administrative expenses, and high levels of debt. Both of these are weaknesses of HGR that make investors shy away from the stock. With this problem seen, the high debt levels have been decreased from 2011 to 2012, on the balance sheet, \$524.2 million and \$509.0 million, respectively.

HGR has the opportunity to continue with the strong growth in this sector with continuing their focus on improving the turnover within the company; and continue to leverage the company's costs. This ensures HGR a strong financial future, but the true future is innovation for HGR. The opportunity HGR needs to continue is innovation with prosthetics. In recent news, Haley Higdon, 16 years old, received a computerized hand, in which lost all her fingers in an accident a year ago. The accident made it hard for her to complete everyday tasks, but with

the new technologically-advanced microprocessor-controlled myoelectric hand, she'll be able to control her prosthetic hand by contracting the muscles in her arm. This type of technology and innovation for patient care has and will continue to put HGR on the map for being the top O&P patient care center. Along with increasing sales as in increasing the number of patients in wanting the best care and technologically educated professionals.

A strong threat for HGR is the current budget cuts from the government spending that started this past March 1<sup>st</sup>. This means that many organizations and charities that provide funding and financial aid for patients at HGR will have less money from the government, resulting in less financial aid available to help people in funding for their O&P care at HGR. This is a threat for the future sales growth of HGR for reaching out to the patients in need for O&P care.

## PEER GROUP ANALYSIS

HGR is one of the top company's in their sector, among their competitors with similar market capitalization amounts. HGR has one of the highest revenue growths for the forecasted one year period, EBITDA one year growths, and net income five year growth of 9.72%, 12.15% 25.55%, respectively. These growth percentages of revenue, EBITDA, and net income for the company share how the company has a strong growth in future for the next five years. The result of how the EBITDA percentage is growing faster than the revenue percentage shares how the cost of goods sold is continuing to decrease.

HGR competitors with similar market capitalization amounts would include PSS World Medical Inc. (NasdaqGS: PSSI) and Owens & Minor Inc. (NYSE: OMI). Both of these company's operates in providing medical products and supplies, and professional and consulting services throughout the United States. Both PSSI and OMI, have positive one year growth for revenue, 5.88% and 10.07%, respectively. While the one year growth of EBITDA for PSSI and OMI is -9.85% and -8.08%, respectively. Both of these companies are expecting to grow with their revenue, but they're foreseeing an increase in the cost of goods sold; the cost of their raw materials are increasing and becoming more costly.

**Chart 4:**  
Direct Peers  
Comparison

	<u>HGR</u>	<u>PSSI</u>	<u>OMI</u>	<u>Industry</u>
Market Cap:	1.08B	1.46B	1.93B	22.42M
Employees:	N/A	4,100	N/A	122.00
Qtrly Rev Growth (yoy):	0.10	-0.18	0.06	0.11
Revenue (ttm):	985.55 M	2.20B	8.91B	148.69M
Gross Margin (ttm):	0.36	0.32	0.10	0.34
EBITDA (ttm):	165.78M	166.67M	246.52M	1.40M
Operating Margin (ttm):	0.13	0.06	0.02	0.10
Net Income (ttm):	64.07M	64.37M	108.25M	N/A
EPS (ttm):	1.84	1.65	1.72	0.01
P/E (ttm):	17.03	17.59	17.95	17.94
PEG (5 yr expected):	1.02	1.92	1.75	1.42
P/S (ttm):	1.10	0.66	0.23	1.13

From the data table above in Chart 4, HGR is on the lower end for the capitalization amount for its sector competitors, but this company still has a strong EPS that is higher than its competitors which ensures the strong growth of the company for the future. Another factor that shows great strength in HGR would be the large difference between the revenue and gross margin, among HGR's competitors because HGR has a lot smaller value difference. This would conclude in HGR having cost of goods sold at a cheaper rate than their competitors; giving HGR more capital to reinvest into the company or eventually to build a quarterly dividend for shareholders.

## RECOMMENDATION

Based on all the analysis provided above, I rate Hanger, Inc. (NYSE: HGR) a **BUY**. I am confident about the large growth of the company in this current and next five years. In fact, HGR had the cash flow from operations increased \$19.5M to \$81.3M, from the \$61.8M of the year-end of 2011. Along with the growth percentages and the

margins, HGR has a strong one-year EPS growth as compared to the sector average, 18.87% and 11.34%, respectively. With the strong sales growth and for beating the EPS high estimates the past five quarters; this is why many of the analysis recommendation for this stock is a buy with a high 1-Year target price of \$36.00 and a mean ranging from \$33.67 to \$35.00, which is seen in the chart below. Once again I foresee the growth in HGR with a recommendation of \$36.39 per share, because HGR is continuing with innovating new ways of patient care in prosthetics.

Source	Number of Analysts	Actual Price	1-Year Target Price			Recommendation
			Low	Mean	High	
<b>Yahoo! Finance</b>	5B/0H/0S	\$29.68	\$33.00	\$35.00	\$36.00	BUY
<b>Siena</b>	1/1	\$29.68		\$36.39		BUY
<b>Bloomberg</b>	5B/1H/0S	\$29.68		\$35.00		BUY
<b>Capital IQ</b>	6/6	\$29.68	\$27.00	\$33.67	\$36.00	BUY

### RECENT NEWS

March 6, 2013: One of Hanger Inc's competitors, Stryker Corporation (SYK), has just successfully purchased Trauson Holdings Company in China. This purchase is supposed to increase SYK's continuous sales growth in an "on-going turnaround in the company's core reconstructive business". With this new announcement, Zacks Equity Research rated SYK as a strong HOLD, while HGR has been rated as a strong BUY (Yahoo).

March 4, 2013: Hanger Inc is one of the top healthcare stocks in the market with strong earnings. After



2010, HGR has the EPS growth improved for 2011 and 2012, resulting from the large improvements to the turnover and from the large jump in sales (Wallstcheatsheet).

February 14, 2013: Hanger Inc's CEO talked about the fourth quarter earnings results, the concluded in stating the strong sales growth and that the company continues to focus on leveraging their costs. In 2012, most of the sales were made within the fourth quarter, which the sales of the patient care segment were up 10% as of the previous year (Seekingalpha).

February 13, 2013: Hanger Inc has increased earnings per share by 24% to \$0.62 in this past fourth quarter, and the revenue also rose 9.72%. The mean EPS estimate was \$0.56, which the company killed by the actual \$0.62. HGR also killed the revenue earnings by increasing it to \$272.2 M from the estimated of \$265.55 M. These results share the strong growth and excellent financials of the company that the company is still focused on continuing in the years to come (Hoffman).

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# GOOGLE'S IPO – A MODIFIED DUTCH AUCTION

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## ABSTRACT

*Since the early 18th century, businesses have been offering shares of their ownership via initial public offerings. This process allows a company to raise needed growth capital. It also gives employees and business partners the opportunity to become partial owners of the company. Although there is incredible wealth transferred in initial public offerings, some companies feel cheated in the bargain. Since 1980, the first day price increase after an initial offer has averaged 18.8%. (Ritter 2002) The increase in price benefits early investors but represents market value not captured by the firm.*

*Some companies have fought against the traditional IPO system. One alternative method currently gaining in popularity is IPO auctions. Most IPO auctions had been small offerings until Google, the leader in the online search industry, announced its intention in April 2004 to auction its shares to the public. Google, a company not known for a physical product but a simple search engine, is one of the largest and most profitable companies in the tech industry. Even under normal circumstances, the IPO of such company would have drawn considerable media and investor attention. This IPO, however, would become one of the most talked about in recent history because Google chose to use unconventional method the Dutch auction to sell its shares.*

*Bullish investors believed Google could set off a string of successful IPOs following a lull in tech-offering activity since 2000. This paper will analyze Google's decision to shun the traditional process of IPO via an investment bank in favor of a modified Dutch auction. First, an overview of the typical IPO process and an analysis of its strengths and weaknesses are provided, followed by a discussion of Google's auction and its results. Finally, I will analyze auction IPOs for the industry as whole, discuss their infrequent use, and offer strategies for those involved in the auctions.*

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# THAT'S A TECHNICAL FOUL! SPORTS FAN IDENTIFICATION AND BUYER BEHAVIOR OF COUNTERFEIT SPORTS MERCHANDISE

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## ABSTRACT

*The current research investigates fan identification and its influence on buyer behavior of authentic and counterfeit sports merchandise. Past research in the area of counterfeiting and sports team identification provide the basis for hypothesis development. While previous research has explored the impact of fan identification on purchase behavior, the type of product purchased (legitimate or counterfeit) has not been evaluated. Using a sample of 261 individuals, the current research suggests that there are differences in the level of fan identification between those who purchase counterfeits both intentionally and inadvertently, as well as those who do not. Additionally, results suggest differences in fan identification across individuals with ranging levels of counterfeit and legitimate product purchase. Results, discussion and implications for future research are discussed.*

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## INTRODUCTION

The presence of counterfeit products in the market continues to be a serious problem for marketers worldwide. This reproduction of products has serious economic implications, as some experts have indicated that the “value of the entire counterfeiting industry at \$600 billion per year” accounts for “7% of international trade” (Burki, 2010, p. 586). Counterfeiting has in fact become one of the biggest crimes of this century, affecting a vast majority of brand-name companies at one point in time (Lambkin & Tyndall, 2009). This study makes a contribution to the consumer decision making literature by examining the decision to purchase counterfeit and authentic sports merchandise based on one’s level of sports fan identification. This current research is an extension of previous studies conducted by Walthers & Buff (2008) and Wann and Branscombe (1993). The Sports Spectator Identification Scale measures one’s identification with their favorite team, with research suggesting that fans that identify highly with their team “exhibit greater willingness to invest larger amounts of time and money” towards their team (Wann & Branscombe, 1993, p. 1). Moreover, Madrigal (2000) has gone even further to suggest that team identification predicts behaviors such as “the amount of money spent on team licensed merchandise” (Madrigal, 2000, p. 15). The current research seeks to combine elements of each study (Madrigal, 2000; Walthers & Buff, 2008; Wann & Branscombe, 1993) to examine whether a fan’s level of identification has any bearing on buying behavior when purchasing authentic or counterfeit products of a favorite sports team.

## COUNTERFEIT PRODUCTS: AN OVERVIEW

“Counterfeits are defined as reproduced copies that are identical to the legitimate articles including packaging, trademarks and labeling” (Ang, Cheng, Lim, Tambyah, 2001, p. 219). Economic research has shown that counterfeits account for “at least five percent of the world’s trade” (Carpenter & Lear, 2011, p. 1). Looking at the United States economy specifically, counterfeiting has resulted in “\$9 billion in trade losses, 750,000 American jobs and business losses of \$200 - \$250 billion annually” (Field, Bergiel, Bergiel, Balsmeier, 2008, p. 280). On a global scale, “the International Anti-Counterfeiting Coalition estimates the impact to be \$600 billion or 5 to 7 percent of world trade” (Field et al., 2008, p. 280). The growth and production of

counterfeits is an economic, social and political problem that can potentially harm consumers, create economic trouble for companies and tarnish the trust a consumer possesses for a specific name brand or manufactured product (Tom, Garibaldi, Zeng & Pilcher, 1998). In the early 2000s, Procter & Gamble estimated it spent approximately \$3 million each year in an effort to combat the problem of counterfeiting, including services from investigators and legal counsel (Field et al., 2008). The counterfeiting industry is rapidly growing around the world, especially amongst luxury products that carry recognizable brand names (Radón, 2012). In the sporting industry specifically, counterfeiting is a very concerning problem amongst the popular professional sports leagues. Since the 2008-2009 season, the amount of seized counterfeit NHL jerseys has quadrupled and in the 2010-2011 season, 3,200 counterfeit jerseys were seized and valued at \$1 million (Stubbs, 2011). In 2012, authorities seized counterfeits that were related to the NFL's Super Bowl, which totaled to about \$5 million (Cloherty, 2012).

### **FAN IDENTIFICATION/BUYING BEHAVIOR OF SPORTS MERCHANDISE**

The terms most commonly used to describe a fan's attachment to a sports team in the literature are "team identification, commitment and loyalty" (Wann & Pierce, 2003, p. 365). There are many causes of fan identification/commitment (I/C) to a team that have been explored by scholars. Some have argued that teams can increase the identification and commitment of their fans by improving their fans' group experience by making them feel like they belong. Teams also focus on creating a favorable atmosphere and habitual behaviors in a team's stadium to increase their fan base's level of identification and commitment. For example, at Fenway Park in Boston, Massachusetts, Boston Red Sox fans traditionally sing "Sweet Caroline" by Neil Diamond in the middle of the eighth inning which allows fans to join together and not only feel a part of a special group, but experience something to feel closer to the organization as a whole. In addition to these methods, teams continuously instill a sense of tradition in their fan base and remind them of the team's history to increase I/C (Wann & Pierce, 2003). Sport team identification can be directly related to various behaviors such as basking in reflected glory (BIRG), "in which sport consumers seek to enhance their self-esteem by displaying a relationship between a successful sport team and themselves" (Kwon and Armstrong, 2002, p. 154). Sports fans that bask in reflected glory exhibit this behavior to achieve a certain level of pleasure (Richardson, 2004, p. 88). The motivation for BIRGing causes individuals to strongly distinguish themselves as a member of a group that is perceived in a positive light and a group that experiences success (Richardson, 2004, p. 88). Past research by Wann and Branscombe (1993) and Madrigal (2000) has shown that the purchase of licensed sports merchandise can be identified as a fan identification behavior. Essentially, the consumption of products serves as a communication medium between fans and consumption of sports merchandise brings together fans that share a similar interest (Dionísio, Leal & Moutinho, 2008). Research suggests that by wearing their favorite team's logo or colors, individuals felt they were benefiting the team through their show of support (Roy, 2010, p. 4). In 2011, sales of licensed merchandise from sporting leagues and events increased from \$12.15 billion in 2010 to \$12.79 billion, an increase of 5.3% from the previous year (Mayer, 2012). Sports products not only indirectly promote a team's brand, but they create an emotional connection between a sports organization and their fans (Roy, 2010, p. 1).

### **RESEARCH QUESTIONS/HYPOTHESES DEVELOPMENT**

This research explores differences in buying behavior of counterfeit and authentic products based on a fan's level of involvement with their favorite team. Within fan involvement, past research has shown that there are apparent differences in the behavior of "high identifiers" and "low identifiers" (Richardson, 2004, p. 89). These high identifiers tend to view their association with a particular team as "a more important facet of their self-identity" and they tend

to pursue more individual association with their team when their team exhibits success (Richardson, 2004, p. 89). Studies by Wann and Branscombe (1993) and Madrigal (2000) have concluded that fans that become involved with their team in some way increase the amount of money they invest in that certain team by buying sports merchandise. In addition to these studies, past research has shown that a large majority of fans said that they felt more connected to the team by wearing apparel or clothing with the team's logo or color on it (Roy, 2010, p. 4). However, these previous studies did not examine the type of product purchase, namely legitimate versus counterfeit. The absence of a distinction between product types in previous studies has led the current research to examine whether and how fan identification and loyalty manifest itself in the type of product purchased. Further, it has led to additional questions about intentionality of purchase of counterfeit products. Because of the loyalty a high identifying fan shows for their team by bearing their team's logo, purchase intentionality for different product types are hypothesized below:

**H1a:** There will be a significant difference in the intentional purchase of counterfeit products associated with one's favorite team based on fan identification.

**H1b:** There will be a significant difference in the inadvertent or unintentional purchase of counterfeit products associated with one's favorite team based on fan identification.

Based on the research discussed above, additional hypotheses regarding fan identification and the number of products associated with one's favorite team that were purchased are proposed:

**H2a:** There will be a significant difference in fan identification across levels of legitimate products associated with one's favorite team purchased in one's lifetime.

**H2b:** There will be a significant difference in fan identification across levels of counterfeit products associated with one's favorite team purchased in one's lifetime.

**H2c:** There will be a significant difference in fan identification across levels of counterfeit products associated with one's favorite team purchased within the past year.

## **RESEARCH METHODOLOGY**

This research project was conducted at a college in upstate New York. An electronic survey was created through the use of the online survey software, Qualtrics, and distributed through the institution's email accounts. This survey was distributed to the college's community and an external audience of acquaintances via direct e-mail that encouraged respondents to forward the survey to individuals that might be interested in participating in the study. This survey is an extension of the research done by Walthers & Buff (2008) on attitudes towards



counterfeit products and the research conducted by Wann and Branscombe (1993) surrounding sports fan identification with their favorite team. For the purposes of this study, Wann and Branscombe's Sports Spectator Identification Scale (SSIS), consisting of seven items, was used to measure a sports fan's degree of identification with their team (Wann and Branscombe, 1993). The SSIS items were measured on an eight point, verbally anchored, Likert scale. One item on the SSIS was modified to make it more relevant to media usage habits today, essentially reflecting how some individuals might use current means of technology (i.e., the internet) to follow their favorite team. In the current research, the Sport Spectator Identification Scale performed very well, with a Cronbach's Alpha = .942. There was also data gathered on purchase behavior and buying intentions for legitimate and counterfeit products, involvement with sports in general, involvement with one's favorite sports team, as well as demographic characteristics. A total of 321 subjects responded to the survey. Incomplete records were eliminated resulting in a useable sample of 261. All of the data collected for this study was analyzed using SPSS.

## **DATA ANALYSIS**

### **Sample Characteristics: Demographics and Buying Behavior**

Respondents were asked to answer a number of demographic questions at the end of the survey. Of the 261 respondents, 257 individuals identified their gender, with 120 males and 137 females. Of those who identified their age, one individual was under the age of 18, 43 (17%) were between the ages of 18-22, 17 (7%) fell into the 23-29 age category, 90 (35%) were 30-45 years old and 106 (41%) of the respondents were 46 or older. For the purpose of data analysis, the under 18 and 18-22 categories were combined. Individuals were also asked to answer questions regarding their buying behavior of legitimate and counterfeit sports merchandise of their identified favorite team. When individuals were asked about the intentional purchase of counterfeit products associated with their favorite team, 217 (83%) responded that they have never intentionally purchased a counterfeit, while 43 (17%) indicated that they did. In terms of inadvertent purchases of counterfeits associated with their favorite sports team, 82 individuals or 32% responded that they did make an inadvertent purchase of a counterfeit.

## **RESULTS**

### **Purchase Intentionality: Counterfeits and Fan Identification**

Consistent with Wann and Branscombe (1993), a mean fan identification score was calculated for each respondent. This score was used to examine if there were any significant differences in purchase intention between those who indicated whether or not they purchased a counterfeit product associated with their favorite sports team intentionally or inadvertently. To test hypotheses H1a and H1b, a one-way ANOVA test was run in order to examine if there were significant differences in fan identification between those who indicated whether or not they actually purchased a counterfeit product before. Results from testing H1a suggested that there was a significant difference in fan identification between those who intentionally purchased a counterfeit product associated with their favorite team and those who have never purchased a counterfeit product associated with their favorite team ( $F = 19.127$ ,  $df = 1 \text{ \& } 258$ ,  $p = .000$ ). The mean fan identification for those who intentionally purchased a counterfeit was 6.5; those who did not have a mean fan identification of 5.1. Furthermore, individuals who unknowingly or inadvertently purchased a counterfeit product bearing their favorite team's logo differed significantly from those who did not purchase a counterfeit product associated with their favorite team according to the results from testing H1b ( $F = 12.565$ ,  $df = 1 \text{ \& } 254$ ,  $p = .000$ ). The mean fan identification for those who unknowingly purchased a counterfeit was 6.0 and those who did not have a mean fan identification of 5.0.

### **Purchase History: Counterfeits, Legitimate Products and Fan Identification**

In addition to purchase intention, one-way ANOVAs were run for hypotheses H2a, H2b and H2c which all surrounded purchase history and amount of counterfeit products or legitimate products purchased that were associated with one's favorite team. These tests examined if there were significant differences in fan identification based how many items were purchased. Results from testing H2a showed that there was a significant difference in fan identification between groups based on the number of legitimate products associated with one's favorite team that were purchased over the course of one's lifetime ( $F = 26.784$ ,  $df = 5 \text{ \& } 255$ ,  $p = .000$ ). Testing H2b showed that there was also a significant difference in fan identification between groups based on the number of counterfeit items associated with one's favorite team that were purchased over the course of one's lifetime ( $F = 7.981$ ,  $df = 3 \text{ \& } 254$ ,  $p = .000$ ). Finally, hypothesis H2c was structured very similar to H2b; however, H2c narrowed the time frame down to the past year instead of one's lifetime. The results from testing H2c showed that there was a significant difference in fan identification between groups based on the number of counterfeits purchased within the past year ( $F = 6.572$ ,  $df = 2 \text{ \& } 256$ ,  $p = .002$ ). Results for these hypotheses can be seen in Table 1.

**Table 1. Fan Identification and Purchase History of Sports Merchandise**

<b>Type of Product</b>	<b>Time Frame</b>	<b>Number of Items Purchased</b>	<b>Number of Respondents</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>F</b>	<b>Sig</b>
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Counterfeit	Lifetime	0	150	4.8	2.1	7.981	.000
		1-3	82	5.9	1.7		
		4-6	14	6.1	1.5		
		7+	12	6.5	1.0		
Legitimate	Lifetime	0	28	3.1	2.2	26.784	.000
		1-3	44	4.0	2.0		
		4-6	45	5.4	1.2		
		7-9	29	5.4	1.6		
		10-12	30	5.8	1.4		
		13+	85	6.5	1.4		
Counterfeit	Past Year	0	229	5.2	2.0	6.572	.002
		1-2	25	6.6	1.5		
		3+	5	6.2	1.2		

\*Significant at  $p < .05$

## DISCUSSION & MARKETING IMPLICATIONS

The results confirm the findings of Wann and Branscombe (1993) and Madrigal (2000) that the purchase of merchandise bearing a team's logo is indeed a behavior influenced by level of fan involvement. The current research also shows that fan identification doesn't necessarily result in behavior that totally benefits the sports marketer. In the current study, there was a significant difference in the purchase of counterfeit products associated with one's team based on the level of fan identification. Those who indicated that they purchased a counterfeit associated with their favorite team ( $n = 43$ ) actually possessed a higher mean fan identification score than those who indicated they never purchased a counterfeit product ( $n = 217$ ). To marketers, this could indicate that those who highly identify with their team might be more inclined to take action to prove their loyalty to their team even if it means buying a product that is not officially licensed. Rabid fans often take their fan identification to the maximum level, which may result in intentional bad behaviors such as purchasing a counterfeit. This suggests that marketers need to find a way to communicate with their target market and develop a strategy that harnesses a fan's urge to act in ways that have a negative overall impact on the sports marketer. Organizations can try to transform their customers' loyalty into a positive behavior by supporting the organization and its legitimate products instead of those individuals and organizations that illegally manufacture counterfeits. Getting consumers to buy the legitimate product over replications make fans feel as if they are truly identifying with their favorite team. Stressing the importance of owning the authentic product may further reinforce the idea that counterfeiters are just looking out for their bottom line and their own profits, with no regard or affiliation with the actual sports organization itself.

It is important to point out some discrepancy in reporting and action. Roughly 83% of respondents specified that they have never intentionally purchased a counterfeit product before; however, when asked how many counterfeit items they have purchased in their entire life, 58% indicate that they have purchased zero counterfeits, with the remaining 42% indicating a range of purchase quantities. This could indicate that respondents are not being totally truthful about a behavior that is frowned upon by many, hence the self-report bias. Furthermore, when looking at the amount of legitimate item purchases, a significant difference in fan identification is noted. As the number of items purchased increased, the mean fan identification for that group also increased. This result confirms the findings of Wann and Branscombe (1993) and Madrigal (2000) relating to the purchase of legitimate merchandise, that sports fans with higher levels of fan identification increase the amount of money they spend on their favorite team. This information to sports marketers could indicate that those fans that are purchasing more of their team's officially licensed products are remaining loyal to their team that they consider to be very important or special to them. Despite this result, one's identification does not necessarily result in behavior that is entirely desirable to these sports organizations. The results surrounding the number of historical counterfeit purchases show that the people who have bought more counterfeits in the past year and in their lifetime have higher levels of fan identification than those who bought less. Sports organizations would hope that as identification increases, a fan's loyalty increases and there is a desire that exists to act ethically and exhibit positive behaviors. However, as sports franchises try to stress the importance of team commitment through traditions and creating a positive fan atmosphere, their encouragement of positive behaviors falls short as people still behave negatively through the purchase of counterfeit merchandise. Sports organizations must be aware that their committed fans are breaking the moral allegiance that exists with their favorite team and are willing to do whatever it takes to identify themselves as a fan of their team. Altering marketing strategies could become a priority for sports teams if this trend continues in the future.

## **FUTURE RESEARCH**

Future research should examine if purchasing counterfeit or legitimate products is influenced by following and watching sports in general. Also, an exploration of the relationship of fan identification and following and watching sports in general will be tested as well. Furthermore, the question of fan identification influencing the purchase of merchandise associated with any team will be tested. The current research only examines the differences in purchase behavior of sports merchandise, but an opportunity exists to examine how attitudes affect the purchase of counterfeits. Hypotheses will be formed surrounding the questions of attitudes towards counterfeiting to see its impact on the purchase of sports counterfeits. The attitudes towards counterfeiting scale can partially examine some of the moderating factors that justify the purchase of counterfeits and the moral reasoning behind purchasing these goods as well. Furthermore, there is also an opportunity for future research to examine if there are differences between demographic groups in regards to gender, age or education level.

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# PRELIMINARY EXAMINATION OF CONSUMER SELF-HANDICAPPING IN PURCHASE DECISIONS

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## ABSTRACT

*Psychology literature defines self-handicapping as the choosing of impediments and obstacles to put blame on if things do not go well. The goal is to maintain a higher self-image and self-worth (Cantor and Norem, 1986). Studies on whether self-handicapping is a positive or negative process are mixed (Debus, Marsh, & Martin, 2001). Two components have been identified in psychology literature: the “thinking through” process of deliberation, and defensive pessimism. Deliberation is a means of thinking through a situation, whether optimistically or pessimistically, to view all possible outcomes. Defensive pessimism is the setting of unrealistically low expectations and thinking through many different outcomes to avoid an increased let down amidst a negative outcome (Debus et. al, 2001). In order to further understand how to provide their customers with satisfaction and delight, marketers must first examine these main psychological components of consumer decisions, however, they have received no formal attention in marketing literature.*

*Our research will investigate the possibilities created by these new constructs. Of particular interest will be the difference in amount of satisfaction experienced when using different types of self-handicapping strategies in purchase decisions (deliberation and defensive pessimism). Currently, there are no theoretical models that directly link these important psychological concepts to consumer decision making. We propose to create a theoretical framework that makes the investigation of such constructs possible. How do self-handicapping strategies assist or hinder the purchasing process for consumers? Many interesting insights can be drawn from an investigation of this subject. We performed an exploratory research study to build and develop a consumer decision model that accounts for the role of deliberation and defensive pessimism in pre-purchase, purchase, and post-purchase consumer decisions.*

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## INTRODUCTION

Tali Sharot (2011) takes a tour of the human brain and discusses how the general public is wired to be optimistic about most issues. Through many scientific studies and anecdotes, this contemporary neuroscientist writes about how humans develop an optimism bias and are satisfied with great life events, yet prepared when it comes to death, disease, etc. But what about when it comes to making purchases? We began to ponder the idea of how the brain works in relation to consumer buying habits, and whether or not satisfaction can occur in consumers who are not optimistic (therefore, pessimistic). Does the brain react with satisfaction or dissatisfaction because that is, “how we are wired?” Is there more to the equation than simply being optimistic

or pessimistic? After an extensive literature search in hopes of attaining answers to these questions, we found many interesting studies pertaining to self-handicapping, defensive pessimism, deliberation, and many other constructs. However, we found no significant input by those in the marketing field, whether it be private sector, marketing education, and other academia. We saw this as an opportunity to both add to the extant psychology literature, as well as open up a new avenue for marketers and educators alike. Our study focuses primarily on the consumer behavior aspect of marketing, the state of minds in which consumers will buy certain products, as well as the amount of satisfaction gained from said products dependent on level of optimism or pessimism in the consumer. We have conducted preliminary studies to develop a theoretical framework of consumer self-handicapping in purchase decisions to be tested further in the near future. We accomplished this through 2 separate focus groups, 3 personal interviews, as well as distributing a small amount of preliminary surveys to merely test our scale for future use.

## **LITERATURE REVIEW**

At Pennsylvania State University, Gasper, Lozinski, & Lebeau (2009) examined two properties - pessimism and reflection. Pessimism is the state of mind in which a human being discounts their ability to perform well in particular tasks (Norem, 2001a). A practice commonly used by those with low self-esteem or self-worth. Reflection is the process that has been proven to churn pessimism into an acceptable and even beneficial brain function. The reflection process is not discounting one's ability, yet is the planning for the task at hand while closely examining the potential euphoric results, as well as the potential let downs. Separated, pessimism may cause bleakness, where reflection may or may not. However, one thing is for certain - together they form defensive pessimism, "The setting of unrealistically low expectations and thinking through many different outcomes to avoid an increased let down amidst a negative outcome" (Debus et. al, 2001). In today's society, defensive pessimism is grossly underutilized. Sharot, Riccardi, Raio, & Phelps (2007) point out that, "people tend to make overly confident, positive predictions about the future, which are often inaccurate." This can cause a high level of dissatisfaction in the person who has set the expectations. The state of mind a human being is in when making any sort of decision or when forming an opinion is vital to not only the outcome, but the amount of satisfaction and delight gained from the experience. Let us think about the above statement in the opposite manner - using defensive pessimism may be beneficial to the subject. For example, meteorologists may claim that there will be a very large storm which will soon hit Albany, New York. The storm is seen one week ahead of time and the city must be evacuated. The time comes for the storm to hit, and nothing happens - the storm flat out misses New York's capital. Undoubtedly, this causes a massive amount of relief and delight in those who reside in Albany. However, since the city was prepared for the storm to hit, if it had landed in the city the residents would have been safe. Although devastation would be unfortunate, the amount of damage would be less significant, and the amount of satisfaction and delight would sky rocket, all because of people's states of mind.

Deliberation is the process of systematically eliminating options as information is gathered toward decision making. Dijksterhuis and Nordgren (2009) explore the process of

deliberation through five similar experiments which aim to determine if the effect that deliberation has on both simple and complex decisions. They found that, "Conscious thought often undermines the quality of people's judgments... people who deliberated on their preferences were less consistent than those who made nondeliberative judgments." This proves that deliberation can be a means of distraction. Dijksterhuis and Nordgren do not speak of the state of mind in which participants underwent these experiments. Therefore, because of the work of Sharot et al. (2007), we can only assume that the subjects were optimistic.

Although it was found that deliberation can be a means of distraction and cause confusion in the decision maker, this is coupled with an optimistic state of mind. What would happen if deliberation was coupled with someone who is currently in a negative state of mind?

## STUDY 1

Study one was a focus group setting, closely examining the aforementioned buying behaviors of those in the baby boom generation (ages 41-55). Of the eight participants, four were male, four were female. Six participants indicated their age to be between 41-55, while the other two were 55 or older. All participants had some form of higher education, five obtaining a bachelor's degree, and the other three obtained an associate's degree. All but two participants indicated their annual household income to be in excess of \$100,000.

Participants were first prompted to identify items which they believe have a negative connotation surrounding them. Responses included cigarettes, chewing tobacco, and funerals. This information was then presented to convey that although we are in a negative state of mind (pessimistic) when we buy these types of products, we still have the expectation of a good product experience and are able attain a level of satisfaction or dissatisfaction from the product.

Next, we began to uncover the level of deliberation utilized by the participants, and prompted them to indicate what types of products they spend the most time collecting information about, from online reviews, reading a magazine, asking around, etc. Responses included cars, electronics, and overall high ticket items. Respondents were asked if they have ever purchased products where the reviews were poor, confusing, or not affirmative enough. One participant pointed out that, "it is very difficult to trust reviews this day and age because there are always a lot of positive and negative reviews from so many different people."

Throughout this study, each participant's main means of deliberating seemed to be based predominately on the price of a product or service. Responses of this nature came when the moderator asked, "When considering many different brands of a product, do you ever become uncomfortable?" One participant responded by stating, "Smaller items, no. Bigger ticket items, yes. When we go to buy the bigger things (car, etc), for me it's overwhelming because it is a lot of money. And with those things, it's about longevity. I go crazy when something breaks in the first few months of having it. We just spent \$100 on a new coffee pot and my husband turned it on last night and it is having issues brewing. It irritates me because that is a lot of money." When responding to a similar question, another participant shared a story about a spray tanner that had been purchased and used that left the subject with blotchy skin and rashes. After looking at reviews on different brands of spray on tanner, this participant determined the best option and was expecting a fantastic tan within minutes. In this situation, the consumer did not get what they were expecting and was very dissatisfied by the whole situation. This begs the question, what if this consumer was expecting a great product, but was aware and actively imagining that this sort



of event could occur? What if the expectation was lowered ever so slightly, just by examining the potential downfall?

## **STUDY 2**

Study two was conducted under the same format as study one, but with a very different demographic. This small focus group was conducted with four male college students from the ages of 18-24. All income levels were under \$25,000. The goal of the differing demographic was to provide us with information and insight into the relationship between varied demographics and their level of deliberation, as well as the amount of optimism or pessimism in these participants.

The same question was asked in this study that was asked in the first - what kinds of products do you spend a lot of time collecting information about? The majority of responses were similar to that of group one, being high ticket items. Yet, there were responses that indicated brand as a very large determining factor, almost trumping price. In fact, one participant indicated that they spend the most time deciding on the purchase of shoes, rather than anything else. When asked why, they said it is a hobby to collect and sell new, name brand sneakers. This is an occurrence that would certainly not be prevalent in the 41-55 age groups. Upon hearing this information, the moderator offered an ultimatum, asking what aspect of a product or service was more important - price or brand name. One participant stated that he would save money no matter the product, service, or brand. Another stated that, "you get what you pay for, so price." The two others felt very strongly about moving toward the brand name. A participant went so far as to say, "name brand, no matter what."

## **PERSONAL INTERVIEWS**

Personal interviews were conducted in an attempt to confirm the information provided by the two focus groups - they did exactly that. An interview was conducted with a 25 year old male who works in the private sector. His annual income lies between \$50,000 and \$74,999. This participant has attained a bachelor's degree in the business field.

The question was once again raised, what kinds of products and services do you take a lot of time thinking about before the purchase? This participant stated, "I take lots of time when purchasing more expensive stuff, obviously because if I make the wrong decision after paying a lot of money for it, I am not going to be happy."

Having been a relevant topic with the 18-24 year old group, brand name was an obvious topic to delve into. When asked, "What does the brand of a product or service mean to you?" The following conversation transpired. "It means a lot. Having just recently graduated college, I can tell you that I always wanted to have the newest, brand name things." Is there a cost limit associated with this desire for a brand name? "It really depends on what type of product it is. If I am looking for a car, I'm not looking for luxury. I will go with the cheapest car possible, as long as it is presentable... because I just need to get from point A to point B. Those types of things are too expensive to be worrying about a brand name."

## **SUMMARY OF FINDINGS**

Our preliminary studies serve as tests to examine the validity of our survey and hypotheses on a small scale. These studies were qualitative in nature and captured the overall essence that will set the stage for future research. Two focus groups were conducted, and 3 personal interviews were gathered. A brief survey using a five point Likert type scale was developed and distributed to participants. A summary of the information provided can be found in figures 1, 2, and 3 (n=15). Questions were designed to ascertain the role that peer pressure, deliberation, and expectations play in consumer's level of satisfaction, post product consumption. One set of questions was prompted with the statement, "When I go shopping..." (Figure 1). The same set of questions was asked with the prompt, "When purchasing a high ticket item (\$1,000 or more)..." (Figure 2). The two different prompts help to determine the role that price plays in this construct. The remainder of the survey (Figure 3) gathered information about participants overall tendencies.

**Figure 1**

<i>When I go shopping...</i>	<b>I usually spend a considerable amount of time making purchase decisions</b>	<b>I value the opinions of my peers</b>	<b>I rely heavily on advertisements in making purchase decisions</b>	<b>I shop at multiple locations before coming to a purchase decision</b>	<b>I read product reviews</b>
<b>Male Average</b>	3.67	3.33	2.78	3.22	4.11
<b>Female Average</b>	3.33	2.83	2.67	2.83	2.50
<b>Baby Boom Average</b>	3.63	3.25	3.00	3.50	3.25
<b>Gen Y Average</b>	3.43	3.00	2.43	2.57	3.71
<b>Overall Average</b>	3.53	3.13	2.73	3.07	3.47

**Figure 2**

<i>When purchasing a HIGH TICKET ITEM (\$1,000 or more)...</i>	<b>I usually spend a considerable amount of time making purchase decisions</b>	<b>I value the opinions of my peers</b>	<b>I rely heavily on advertisements in making purchase decisions</b>	<b>I shop at multiple locations before coming to a purchase decision</b>	<b>I read product reviews</b>
<b>Male Average</b>	4.44	3.11	2.78	4.33	4.67
<b>Female Average</b>	3.33	2.67	2.83	3.50	2.50
<b>Baby Boom Average</b>	4.00	2.88	3.17	3.83	3.50
<b>Gen Y Average</b>	4.00	3.00	2.57	3.86	4.29
<b>Overall Average</b>	4.00	2.93	2.80	4.00	3.80

**Figure 3**

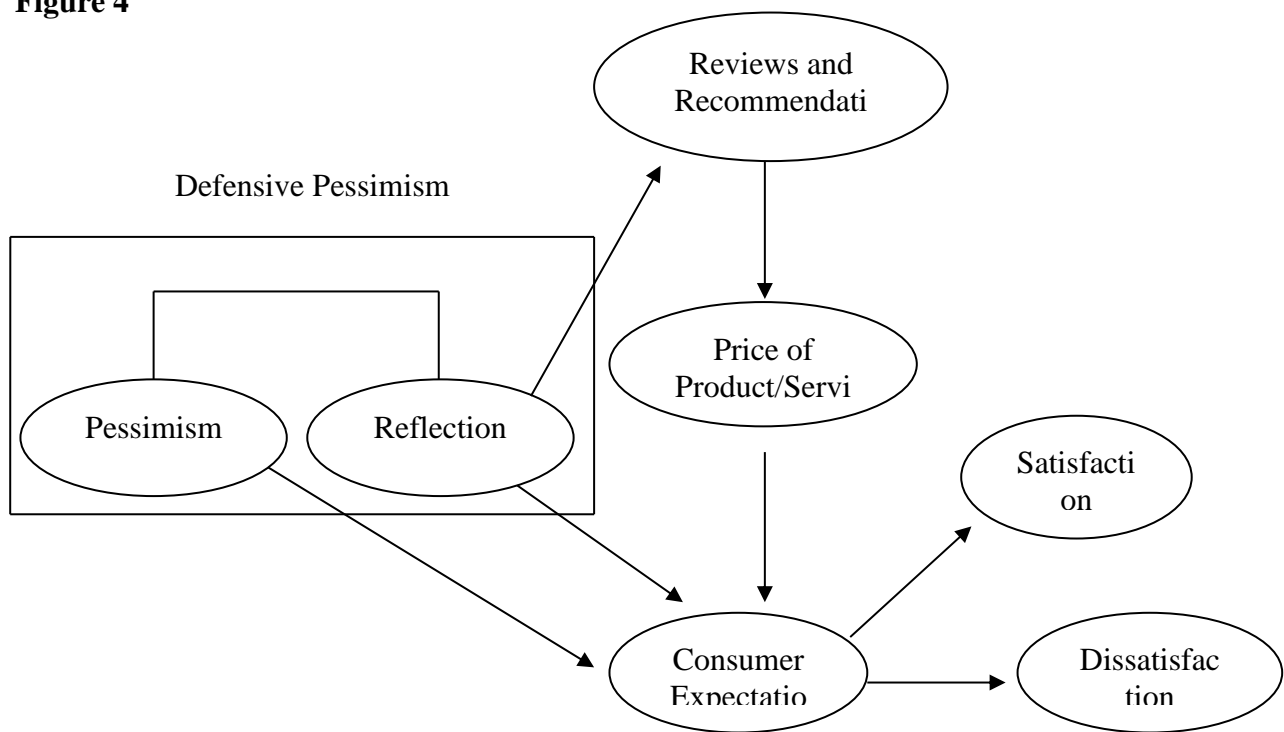
	<b>When making purchase decisions, I have high expectations from the product</b>	<b>After consuming the product, I am generally satisfied</b>	<b>Overall, I consider myself an optimistic person</b>
<b>Male Average</b>	4.44	3.78	3.78
<b>Female Average</b>	4.33	3.83	4.50
<b>Baby Boom Average</b>	4.00	3.50	4.00
<b>Gen Y Average</b>	4.57	3.86	4.14
<b>Overall Average</b>	4.40	3.80	4.07

## **THEORETICAL MODEL**

After carefully analyzing our results, the pictorial model below (Figure 4) has been developed. We believe that defensive pessimism (pessimism & reflection) has a significant impact on consumer expectations, which has a direct impact on the level of satisfaction and delight, or dissatisfaction. We also believe the defensive pessimism (specifically, the reflection factor) has an impact on the amount and type of deliberation, which determines the price range of the product under examination. As indicated in both focus groups, the price of this product or

service then has a very significant impact on the consumer's expectations, which then directly correlate with the amount of satisfaction or dissatisfaction of said consumer. The future findings using this working pictorial model are sure to be exciting and groundbreaking.

**Figure 4**



### CONCLUDING REMARKS

With support from our preliminary findings, we plan to utilize our newly created marketing construct to its fullest extent, by first developing and testing a survey that will capture each aspect of our construct, followed by engaging in a full empirical study and analysis of our hypotheses. Surveys will be distributed to hundreds of people, stretching across many different demographic, as well as geographic areas. Our goal will be to expand our research far beyond the theoretical framework provided in the extant paragraphs, as well as to provide marketers and academia alike with a new realm of exploration in the marketing world.

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# FROM FACEBOOK TO FEARFUL: PROPOSING A SCALE TO MEASURE THE FEAR OF MISSING OUT

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## ABSTRACT

*For many individuals, viewing social media causes them to relate their own lives to what they are seeing or reading, resulting in feelings that they are somehow missing out. When individuals (particularly college students) feel they are missing out, they are experiencing feelings of irritability, anxiety, and inadequacy. Currently, there are no known methods to measure the fear of missing out as a construct. Accordingly, this paper provides the rationale to develop a scale to measure the fear of missing out. Factor analysis was performed on 37 scale items (n=200) resulting a 10-item, 3-factor solution.*

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## INTRODUCTION

As social animals, people tend to have a strong desire to belong to social groups. According to Maslow's hierarchy of needs, people first and foremost need to meet their basic physiological needs (i.e., oxygen, food, etc). After this need is met, individuals move on to crave safety needs such as security and protection. People then have social needs and desire a sense of belonging. At the fourth level of needs, individuals want to have their esteem needs met. This need, for example, might include recognition from others or gaining status (Maslow, 1954). The concept that people care deeply about what others do and think ties into feeling left out, fearing what others may think of our lives (JWT Marketing Communications, 2012). The fear of missing out is defined as the "uneasy and sometimes all-consuming feeling that you're missing out-that your peers are doing, in the know about, or in possession of more or something better than you" (JWT Marketing Communications, 2012, p. 4).

Social exclusion and ostracism also play key roles in the fear of missing out. Considerable research has been conducted in the area of ostracism (Eisenberger, Lieberman & Williams 2003; Williams, 2001, Williams, Cheung & Choi, 2000; Zadro, Williams, & Richardson, 2004), and social exclusion (Twenge, Baumeister, Tice, & Stucke, 2001; Twenge & Campbell, 2003; Twenge, Catanese, & Baumeister, 2003). According to Baumeister and Leary's (1995) belongingness theory, social exclusion causes anxiety because it signals an actual loss of belonging. William's need-threat model of ostracism (Williams, 2001) notes that being excluded and ignored can hinder desires of belonging, self-esteem and meaningful existence. The fear of social exclusion and the fear of ostracism may motivate people to conform to groups largely in an attempt to avoid either or both social exclusion and ostracism. Another consideration is social comparison theory. To understand where humans fit in, they engage in social comparisons. According to Festinger (1954), social comparison theory states that people decide their own personal worth based on how they compare to others (Festinger, 1954). Especially in situations of uncertainty, people constantly comparing themselves to others, and evaluating themselves based off of the result (Festinger, 1954).

While the fear of missing out is not an entirely new concept, the intensity of the fear of missing out has significantly increased with the rise of technology-namely social media. A recent study done by JWTIntelligence Communications found nearly 70% of adults admit to experiencing feelings of missing out (JWTIntelligence, 2012). Wortham (2011) suggests that the fear of missing out has been present throughout history in any communication channel that would allow individuals to gain knowledge of their friends, family, or even strangers' lives. A few popular communication channels include newspapers, letters, pictures, annual holiday newsletters and emails (Wortham, 2011). Improvements in technology, as well as simpler access to technology, have made receiving information easier and as such arguably more addictive than ever. Instead of reading the news about parties or events every once and a while (i.e., in a weekly or even daily newspaper), we have the ability to receive electronic information instantaneously through the tool of our choosing (a smartphone, tablet, laptop, etc.). Simple access to this information via technology can potentially motivate individuals to easily compare their own lives to the lives

they read about through postings online and observations through pictures on social media sites-causing them to feel less satisfied with their lives and behaviors.

## **SOCIAL MEDIA**

Social media's presence in our lives is becoming inescapable. It seems that regardless of where you go, you are bombarded with it. Communicating through social media may be one of the most popular methods of communication electronically. Social media sites and blogs dominate American's time online, now accounting for nearly a quarter of their total time spent on the Internet (Nielsen, 2011). American's spend more time on Facebook than on any other website (Nielsen, 2011). Not surprisingly, companies constantly bombard people with information about "liking" or "following" them on some social media platform. In social settings, it can be even more challenging to go more than a few hours without hearing a friend or other individual talk about what they posted, saw, or read on a social media site. For many college students in particular, checking social media is a habitual and arguably addictive behavior. Social web sites can mean a new means of communication, a new source of knowledge, a new source of entertainment, and even a new venue for self-expression (Kim, Jeong, & Lee, 2010).

The most popular social media or social networking sites today include Facebook, Pinterest, Twitter, and LinkedIn (Jain, 2010). These social media sites are the most influential for the current research, as they are the most popular amongst college students in the United States and have the greatest number of users. Individuals have various motivations for using social media sites. Each of these social networks has unique capabilities; all of which encourage their members to disclose personal information and share it with others. For instance, members of Facebook have the ability to join a brand community page, a hobby they share-perhaps based off a celebrity or musical interests). Since it's creation in 2004, Facebook now has 955 million users (Taylor, 2012). As of June 2012, Twitter claimed a position in the top 10 list of most viewed websites in the world- it became the 9<sup>th</sup> most viewed website globally (Top 10 Most Viewed Websites, 2012). Pinterest, as of June 2012, had 31.2 million users (Pinterest opens site to all, stops invite-only policy, 2012). As of July 2012, Twitter had over 140 million users in the United States and half a billion worldwide (Twitter reaches half a billion accounts-SemioCast, 2012). In comparison to these big sites, LinkedIn and Google+ are fairly small. In 2012, LinkedIn reached 175 million users (LinkedIn: Press Center, 2012) and Google+ hit 250 million users (Wasserman, 2012). Both of these sites are viewed in a different light than Twitter, Facebook, and Pinterest as they are both used mainly for professional purposes.

Social media sites play an essential role in the fear of missing out. While it is possible that the fear of missing out has existed for as long as communication channels have existed, there is no doubt that social media's presence in our lives has amplified the need and desire to know what other people are doing and saying at all times. Because this information is more readily available than ever before (now people don't even need to be at their computers to access this data, so many of us access social media on our phones and tablets that are constantly with us), it is my belief that people have become more addicted to reading and always having this information. Social media gives people opportunities to easily share information with others and provides them the constant opportunity to check what other people are doing and saying. While these opportunities are present, it cannot necessary be stated at this point in time that social media has amplified the intensity of fear of missing out. Rather, I believe that the fear of missing out has increased in terms of the percentage of the population experiencing it because of the opportunities social media provides. It may be possible that the intensity of the fear of missing out has increased with the increased use of social media, but evidence for that would need to be found which is outside of the scope of this current research.

Having the ability to easily access information makes some people susceptible to the fear of missing out. It is possible that there are two likely scenarios for the increased susceptibility for the fear of missing out. From one point of view, it is possible that someone with a higher degree of fear of missing out is more likely to feel the need to check social media, which causes their feelings of missing out to intensify. On the other hand, it is also entirely possible that someone with a greater desire to check social media for other reasons will then be susceptible to higher fear of missing out because they're viewing social media more frequently. Again, while other situation is entirely possible, further research would need to be conducted to determine which is the case. Arguably, others may feel better about themselves with access to information about other people's lives. Most people post "highlights" of their lives (the fun they are having, great things they are doing, etc.) possibly to construe a more positive impression of their lives. Consistent with social comparison theory, this may help promote a sense of inferiority in other individuals reading and viewing this information.

## **INADEQUACY, IRRITABILITY, ANXIETY & SELF-ESTEEM**

Past research has indicated that the fear of missing out is comprised of irritability, anxiety, and feelings of inadequacy, with individual's feelings of irritability, anxiety, and inadequacy intensified when they view social media (JWTIntelligence 2012; Wortham, 2011). The psychological traits, states, and factors that are present when one is viewing social media are the fundamental building blocks in helping us to understand the fear of missing out.

Inadequacy, frequently viewed as shame and incompetence, is the experience of being exposed to a situation where the self is seen as lesser in some regard (Seu, 2006). Feelings of incompetence exist on a continuum from inadequacy through insecurity to complete incompetence (Seu, 2006). According to Solomon, the feeling of inadequacy can lead to the feeling of inferiority (Solomon, 1928). Feeling inadequate is especially common during times of stress (Solomon, 1928). Business research exploring feelings of inadequacy is limited, yet it is not difficult to imagine how this concept might contribute to the proposed fear of missing out. When an individual hears or reads about an event they were not invited to, or sees someone in possession of a product they wish they had, it is plausible that they would start to feel inadequate about themselves wondering, for example, why weren't they invited? Why couldn't or didn't they purchase that product?

An individual with a higher level of irritability would have the tendency to assume a more hostile attitude, act impulsively or rudely at the slightest frustration or at the smallest disagreement (Caprara et al., 1985). Buss and Durkee (1957) described it similarly as an inclination to explode with negative feelings at the slightest aggravation, including a quick temper, grouchiness, and rudeness (Buss & Durkee, 1957). Both concepts describe an individual who, in a provoking situation, is prone to negative thoughts and outbursts (Godlaski & Giancola, 2009). Here again, limited research in the business literature is noted. Considering irritability in the present contest, when an individual begins to feel fearful, apprehensive, and uneasy upon checking social media sites, their anxiety may temporarily increase. Anxiety research has typically divided anxiety into two categories based on whether researchers are interested in long-lasting or transient anxiety: trait anxiety and state anxiety. Trait anxiety refers to either an individual's general disposition to become anxious or their typical level of anxiety, whereas state anxiety is usually defined as a person's level of anxiety over relatively short periods of time frames (seconds, minutes, and hours) (Wilt, Oehlberg, & Revelle, 2011). It is proposed that state anxiety is most relevant to the fear of missing out, as it is most likely that individuals with this fear after viewing social media will temporarily become more anxious when unable to do so.

The concepts of inadequacy, anxiety, and perhaps, irritability might be related to self-esteem. Together, all of the aforementioned concepts may impact the fear of missing out. Self-esteem represents the affective, or evaluative, component of the self-concept; it signifies how people feel about themselves (Leary & Baumeister, 2000). Low self-esteem has been found to be a risk factor for social anxiety and depression (Sowislo & Orth, 2012). According to DeJong et al. (2012), there are two major facets of self-esteem: implicit and explicit self-esteem (De Jong et. al 2012). Explicit self-esteem entails conscious reflective self-evaluation whereas implicit self-esteem deals with an individual's ability to evaluate themselves in an unconscious fashion (De Jong et. al 2012). DeJong et al. (2012) report an association between low implicit self-esteem and social anxiety, especially for females. Specifically, this study noted that this association was most evident for females. There is extensive literature providing evidence that there is a positive correlation between low self-esteem and high levels of anxiety (De Jong, Sportel, de Hullu & Nauta, 2012; Hulme, Hirsch, & Stopa, 2012; Schriber, Bohn, Aderka, Stangier, & Steil, 2012). It is not difficult to imagine situations where feelings of being satisfied and/or dissatisfied with oneself would be amplified after viewing social media.

### **FEAR OF MISSING OUT (FOMO)**

As mentioned, past research indicates the "fear of missing out" is comprised of irritability, anxiety, and feelings of inadequacy, with these feelings tending to worsen when an individual logs on to social media websites (Wortham, 2011). Intense feelings of one "missing out" have the power to influence buying decisions; an individual could chose to buy a better or more expensive product than their friend because they don't want to miss out on the possibility of having something better or missing out on an opportunity to "fit in." In situations like this, people may change what they typically do or purchase because of social pressures and fear of being excluded (Dykman, 2012). We may not always consciously realize that we're participating because we're afraid of missing out on something, but we can all relate to considering going to a party or event because other people thought that we **should** go instead of going because we truly wanted to (Dembling, 2011). People enjoy being "in the know"; according to a recent survey done by JWTIntelligence, 83% of survey respondents stated they feel their lives are in overdrive-that there is too much to do, read, buy, and watch, to the point that it is overwhelming. Despite feelings that there is simply too

much data out there to consume and understand, people still continue to try to absorb as much as possible. This constant connection to information through social media can cause people to feel worse about not staying up to speed on what their others are saying, doing, and even buying.

Today, FOMO can feel like an overwhelming urge to be in two or more places at once, fueled by the fear that missing out on something could put a dent in your happiness (JWTIntelligence, 2012). Social media is “like kerosene on FOMO’s fire” (Miller, 2012, p. 2). Now that any individual has the ability to see other’s updates on their lives in real time, social media and technology enable consumers to have constant access to what they are missing out on (i.e., a party, a dinner, a new career, or any other opportunity). Being constantly connected to social media and always being able to view the things you’re missing out on can cause individuals to begin to experience feelings of dissatisfaction, anxiety, and unworthiness (Miller, 2012). Individuals have a tendency to become more anxious, irritable, feel more inadequate and have temporarily lower self-esteem after viewing social media (JWTIntelligence, 2012). With the younger generations’ constant connection to their friends’ social media updates, it is almost impossible not to know what other people are doing and saying at all times.

According to a recent survey by JWTIntelligence (2012), roughly 40% of individuals from 12-67 say that social media has increased their fear of missing out. Only 8% of this survey’s respondents had heard of FOMO. Once FOMO was explained in the study, 70% of adult millennials (18-34 year olds) said they could completely or somewhat relate to the concept. FOMO has the potential to drive spending, since it heightens participation on social media platforms and motivates consumers to do more (JWTIntelligence, 2012). The JWTIntelligence (2012) study exposed how prevalent the understanding and feelings of FOMO are.

Of note are the results related to adult millennials, ages 18-34. Seventy percent of adult millennials admitted that they could relate to the idea of FOMO (the highest percentage out of any generation). Similarly, 36% of adult millennials acknowledged that they experience FOMO often or sometimes. Most notably, 46% of adult millennials noted that any fear of missing out they do have has been amplified by their social media use (JWTIntelligence, 2012). Nearly 8 in 10 people believe that people use social media to brag about who they are and what they do (Laird, 2012).

## SCALE DEVELOPMENT

While the fear of missing out is not an entirely new concept, currently there are no methods to measure an individual’s fear of missing out. As previously noted, JWT Intelligence administered a survey to assess the prevalence of FOMO in U.S. and European individuals. In their study, they first asked respondents how well they could identify with the fear of missing out without providing them with any definition or formal definition of the fear of missing out. After this initial response, respondents were then given an informal explanation of the fear of missing out and asked how well they could identify with these feelings. While this explanation isn’t specifically stated in their study, it is believed that the explanation they provided to their respondents was very informal and focused on feeling badly about their activities and other choices after viewing social media, and how strongly they feel FOMO in a given situation. As such, a scale is proposed that measures the fear of missing out as a construct.

Following Churchill and other marketing scholars’ guidelines to scale development, the first step was specifying the domain of the construct, the fear of missing out (Churchill, 1979; DeVellis, 2003; Netemeyer, Bearden, & Sharma, 2003; Williams, Ponder & Autry, 2009; Wood & Winston, 2007). It was decided that the construct would be determined using extant scales (Wood & Winston, 2007). As mentioned above, the psychological components that have been identified as most relevant to the fear of missing out are inadequacy, anxiety, irritability, and self-esteem. While Churchill (1979) and others (DeVellis, 2003; Netemeyer, Bearden & Sharma, 2003; Williams, Ponder, & Autry, 2009; Wood & Winston, 2007) recommend generating a sample of items in order to capture the domain as specified, as mentioned, our focus was on extant scales. A number of scales were reviewed and evaluated based on intended use and past research results associated with its use. Ultimately, four existing scales were selected as a starting point.

Scales used include the Feelings of Inadequacy Scale created by Janis and Field (1959), a shortened 6 item version of the State Trait Anxiety Inventory, created by Spielberger et al. and shortened by Abed, Hall, and Moser (2012), and the Irritability Questionnaire by Craig, Hietanen, Markova, and Berrios (2006). Since the current study focuses on explicit self-esteem, the Self-Esteem Scale by Rosenberg (1965) was used (Rosenberg 1965).

In scale development, once the researcher generates a sample of items, experts in the respective area review the initial item pool (Churchill, 1979; DeVellis, 2003; Netemeyer, Bearden, & Sharma, 2003; Williams, Ponder & Autry, 2009; Wood & Winston, 2007). With the current research, these steps were intentionally omitted as the item pool was already established from the extant scales listed. Rather than have an expert panel review the scale items, all items from each scale were combined and evaluated (n=73) by the authors, with redundant items deleted.



Additional modifications were made to items in an effort to modernize the item wording and to incorporate a social media focus. This resulted in a FOMO scale with 37 items. Keeping consistent with the verbal anchors from the Feelings of Inadequacy Scale (the dominant scale in the overall FOMO scale), the FOMO scale items are assessed using an 8-point Likert Type scale, verbally anchored with “never” to “always”.

## METHODOLOGY

Using four tested psychological constructs (inadequacy, irritability, anxiety, and self-esteem), a new scale was created to measure the fear of missing out. As mentioned, items from these scales were modified in an effort to modernize the wording and to relate each construct to social media usage. Once the scale was finalized, it was pre-tested with a sample of college students from a private college in the Northeast (n=30). In addition to the scale items, questions to assess how frequently individuals view social media, self-reported degree of fear of missing out, and the urge to check social media were included. Based on qualitative feedback and the quantitative results of the pre-test, students do identify with the concept of the fear of missing out, although they may not fully understand the term without a definition or scenario provided.

Results from the pre-test indicated that a majority of respondents checked social media between 10 and 19 times per day. Additional results can be found in table 1 below.

Table 1. *Frequency of checking social media.*

Frequency	Percent of Respondents
1-4 times a day	26.7%
5-9 times a day	26.7%
10-19 times a day	30%
20-29 times a day	10%
More than 30 times a day	6.7%

Additionally, it was found that when respondents choose to use, view, participate in, contribute to, or encounter social media, the greater majority spent between 5 and 9 minutes on their preferred social network. Most notably, 80% of respondents stay on social media between less than 5 minutes and 9 minutes. Further data on duration of use can be seen in table 2 below.

Table 2. *Average time spent when respondents use, view, participate, contribute, or encounter social media.*

Duration of use	Percent of Respondents
Less than 5 minutes	20%
5-9 minutes	60%
10-19 minutes	10%
20-29 minutes	3.3%
30 minutes- an hour	6.7%

\*Respondents were asked to indicate how strong their urge to check social media was in various situations. Overall, most respondents felt the strongest urge to check social media when they're alone. Responses for the strength of the urge in additional scenarios can be found in table 3 below.

Table 3. *Strength of urge to check social media*

Category	% Indicated weak*	% Indicated strong*
When you're with others	66.7%	16.6%
When you're alone	3.3%	86.7%
When you're unable to log on	20%	53.3%
When you're in class	46.7%	26.7%

\*Respondents who indicated their urge in the above situations were very weak, weak, or somewhat weak were all grouped together. Similarly, respondents who indicated their urge in each situation was very strong, strong, or somewhat strong were all grouped together.

In order to explore college student's social media use, respondents were asked to indicate how frequently they check the most popular social media sites. Facebook, Twitter, and LinkedIn have been cited as the most popular social media sites to date (Jain, 2010). Pinterest, Google+, Instagram, and MySpace were added to this list of

popular sites based on word of mouth and popular press articles stating their popularity. Not surprisingly, Facebook and Twitter are the most popular among college students, with the majority of students checking both these sites most 1-4 times per day. Further results on each respective social network can be found in table 4 below.

Table 4. *Frequency of checking social networks*

Frequency	Facebook	Twitter	LinkedIn	Pinterest	Google+	Instagram	MySpace
Never	6.7	30	76.7	86.7	76.7	60	100
1-4 times/day	46.7	33.3	7	10	3.3	10	0
5-9 times/day	30	13.3	0	0	13.3	13.3	0
10-19 times/day	10	13.3	0	0	3.3	6.7	0
20-29 times/day	3.3	0	0	3.3	3.3	0	0
More than 30 times/day	3.3	10	0	0	0	10	0

Respondents were asked to indicate their feelings on social media in relation to the fear of missing out. The verbal anchors for these two questions varied from the questions explained above. For these questions, a 6-point likert-type scale was used with the verbal anchors ranging from never to always. Specific data on these questions can be found below in table 5 and 6.

Table 5. *Feelings toward missing out after viewing social media*

Frequency	Percent of Respondents
Never (1)	23.3%
- (2)	10%
- (3)	23.3%
- (4)	16.7%
- (5)	20%
Always (6)	6.7%

Table 6. *General feelings about missing out after viewing social media*

Frequency	Percent of Respondents
Never (1)	26.7%
- (2)	23.3%
- (3)	13.3%
- (4)	20%
- (5)	6.7%
Always (6)	6.7%

Changes were made to the survey based on the results of interviews with survey participants, comments respondents added to their completed survey, and quantitative results. These changes were minor and dealt primarily with question wording and order. The most significant change that was made was to add a definition of the fear of missing out to the survey before inviting individuals to participate in any additional questions on the subject.

Final changes have been incorporated into the survey and an updated version was finalized in the online survey tool, Qualtrics. We recently began survey distribution through college email and various social media platforms including Facebook and LinkedIn. Additionally, all individuals who receive the survey link are encouraged to share it with others. Current efforts are focused on reaching a sample size that is appropriate for scale development.

## RESULTS

The final sample was appropriately sized for scale development with 200 respondents. As suggested by DeVellis, the sample contained more than 5 participants for each proposed scale item (DeVellis, 2003). Principal components analysis was used as well as an orthogonal rotation using varimax to evaluate 37 scale items. Items with factor loadings below .5 were reduced from the final scale. Additionally, items were assessed based on what factors

they loaded onto, with the goal of having each item load on one component. Initially, factor analysis revealed a 9-factor solution. By eliminating items that loaded strongly across multiple components, the final analysis resulted in a 3-factor solution, which explained 74% of the overall variance. Specifically, component 1 explained 34% of the variance, component 2 explained 22% of the variance and component 3 explained 18% of the variance. The final component matrix can be found in table 7 below.

Reliability analysis was performed on the resulting 3 components. Consistent with suggestions from Nunnally (1978, p. 245), factors with a Cronbach's alpha above .70 were accepted (Nunnally, 1978). Initially, a 4-factor solution was believed to be the final solution. Despite this factor containing high loading items, this fourth component performed poorly with a Cronbach's alpha of .68. Due to this, the fourth factor was deleted from the final scale. The resulting proposed scale contains 10 items and can be found in table 9 below.

**Table 7. Component Matrix**

	<b>1</b>	<b>2</b>	<b>3</b>
I take a positive attitude toward myself	.89		
On the whole, I am satisfied with myself	.89		
I am inclined to feel that I am a failure	.76		
I feel that I have a number of good qualities	.76		
I feel that I do not have much to be proud of	.74		
Do you feel uncomfortable meeting new people?		.89	
How frequently are you troubled by shyness?		.84	
When in a group of people, do you have trouble thinking of the right things to talk about?		.81	
Assume you are unable to check social media when you want to...how frequently do you feel frightened?			.92
Assume you are unable to check social media when you want to...how frequently do you feel nervous?			.91

**Table 8. Reliability Analysis**

	<b>Cronbach's Alpha</b>	<b>Number of Items</b>
Component 1: "Sense of Self"	.89	5
Component 2: "Social Interaction"	.82	3
Component 3: "Social Anxiety"	.85	2

**Table 9. Fear of missing out proposed scale**

Never - - - - - Always

1. I take a positive attitude toward myself
2. On the whole, I am satisfied with myself
3. I feel I have a number of good qualities
4. All in all, I am inclined to feel that I am a failure\*
5. I feel I do not have much to be proud of\*
6. Do you feel uncomfortable meeting new people?\*
7. How frequently are you troubled by shyness?\*
8. When in a group of people, do you have trouble thinking of the right things to talk about?\*
9. Assume you are unable to check social media when you want to. Generally, how frequently do you feel frightened?
10. Assume you are unable to check social media when you want to. Generally, how frequently do you feel nervous?

\*Indicates reversed scored item

## DISCUSSION

It is proposed that the above 10-item scale measures the fear of missing out (FOMO) as a construct. In the final proposed scale, each of the resulting components was categorized based on the items that loaded on each

factor. Specifically, component 1 was labeled “sense of self”, as it measured individual’s perception of himself or herself. For example, items that loaded onto this factor assessed respondent’s feelings regarding how positively they viewed themselves, if they feel that they are a failure, if they have numerous positive qualities, and if they feel they have a lot to be proud of. Component 2 was classified as “social interaction” as the items present in this component assessed individual’s feelings toward interacting with others, their issues with shyness, and comfort level on talking with other members of a group. The third component measures social anxiety with a specific focus on anxiety caused by social media usage. Overall, these three components indicate that the fear of missing out scale is comprised of psychological elements mainly assessing at how individuals view themselves and their achievements, how they interact with others, and their level of anxiousness specifically related to their social media usage.

To confirm the validity of the proposed scale, the next step is to perform a confirmatory factor analysis to validate the above results. Additionally, the survey should be administered cross nationally to further validate the current results. For future research, responses from the scale will be analyzed to determine if the scale items are indeed related to social media usage habits (as mentioned previously).

Identifying which elements define the fear of missing out and applying the measurement of the construct will help marketers understand how to use FOMO in their marketing analyses. For instance, many individuals form their opinions and feelings on a brand or product based on what they hear their friends say and what they consume through social media. By harnessing this power and further understanding FOMO, marketers may be able to utilize these feelings to drive purchase intentions. Once the relationship between social media habits and a consumer’s degree of FOMO is understood, marketers may have the ability to incorporate consumers’ desire to belong as a motivational tool to purchase a product or seek out additional information.

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# THE PERSON BEHIND THE SPORT FAN

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## INTRODUCTION

In 2012, the entire sports industry in the United States generated an estimated revenue of \$ 435 billion. Most of this money is generated through television rights, ticket sales, and sales of sports memorabilia. The demand for these things is created through the followers of sports. Our rationale for picking this topic was that as student-athletes we have a general interest in this field. The following research focuses on identifying the person behind the sports fan. We, Team Car Ramrod (TCR), based our research upon a theory of experts who divided them into five different types: temporary, local, devoted, dysfunctional and fanatical. However, the assumptions being made were not based on research but more on theoretical ideas. That is why we aimed to identify demographics, psychographics, and personality traits of the different types of sports fans. So that we are able to further substantiate what characteristics the sports fans are made of. We do not only want to identify those traits, but we also try to find out whether classifications can be made about whether certain groups of sports fans follow specific types of sports. Research questions derived from these ideas are as follows:

1. Are there certain demographics that can be attributed to certain types of sports fans?
2. Are there certain psychographics that can be attributed to certain types of sports fans?
3. Are there certain personality traits that can be attributed to certain types of sports fans?
4. Do certain types of sports fans follow specific types of sports?
- 5.

The need for this research derived simply from the fact that it is based upon theoretical assumptions by a group of experts, which have not been scientifically researched before. In general, there has not been a lot of research aiming specifically at identifying these characteristics of different types of sports fans. By being able to identify demographics, psychographics, and personality traits of different types of sports fans and specific sports that are being followed, it can provide the sports industry, especially its marketers, with valuable insights. Marketers will be able to further segment their markets and identify potential customers more specifically. With a better understanding of its customers the sports industry will be able to increase sales of tickets and merchandise. Not only can they identify who is supporting their team, but they can target ticket sales, merchandise sales and other promotional activities. A practical example is that the degree to which one is fanatical or devoted fan is strongly driven by emotional attachment. Sports franchises can target these types of fans by using inspirational appeals in their advertisements. Gaining insights helping to increase revenue will not only benefit the sports industry but also the economy as a whole, since consumer spending will increase.

## LITERATURE REVIEW AND SECONDARY DATA

- *A Conceptual Approach to Classifying Sports Fans* by Kenneth A. Hunt, Terry Bristol, R. Edward Bashaw

The authors of this article believe that five different types of sports fans exist: local, temporary, devoted, fanatical and dysfunctional. We used these classifications in our own research study.

- *Customer retention in sports organization marketing: Examining the impact of team identification and satisfaction with team performance* by Grodon T. Gray

This study examines customer retention in sports marketing by considering the impact of team identification and satisfaction with team performance on four fan consumption behaviors. Results suggest that both team identification and satisfaction with team performance impact multiple consumption behaviors, as represented by fans' intention to engage in future consumption. This article was helpful in identifying who, when, where and to what extent fans follow and support their team.



- *Influence of personality traits on parasocial relationship with sports celebrities: A hierarchical approach* by Tao Sun and Guohau Wu.

This study develops a three-level hierarchy personality traits predictive of fans' parasocial relationships with sports celebrities. The finding shows that parasocial relationships with sports celebrities are determined positively by materialism, negatively by self-esteem and positively by interest in sports spectatorship.

- *Factors influencing the purchase of team licensed merchandise: comparison of high-and-low-involvement groups* by Donghun Lee

This study proposed and examined a structural model in an attempt to explain consumption of licensed team merchandise. The empirical findings of the study suggest that consumers' intention to purchase licensed team merchandise is affected by various factors including personal values, team identification, brand attitude, past expenditure, perceived product attributes, expectancy disconfirmation, and satisfaction.

- *Handbook of Marketing Scales, Multi-Item Measures for Marketing and Consumer Behavior Research* by Bearden, William. Netemeyer, Richard. Haws, Kelly.

We used the following scales from this work and partially adapted them to the world of sports: Style of Processing Scale: SOP, Analytic/Holistic Thinking Scale: AHS, and Consumers' Emotional Attachments to Brands.

## **RESEARCH DESIGN AND SAMPLING**

In order to answer the research questions we used a descriptive research design. As mentioned earlier, the research looked to answer questions regarding who, when, where and to what extent fans follow and support their team. Primary data was collected by Team Car Ramrod. Our target population consisted of males and females over the age of eighteen. The rationale behind surveying individuals of a certain age was that we wanted them to be at a maturity level where they can answer the survey accurately. We did not put any restrictions regarding a maximum age or gender because we were interested in everybody who follows sports and do not want to limit the target population.

## **SCALES AND VALIDATION**

Five different scales were used to find out who the person behind the sports fan is. The first scale was created by us based on the previously mentioned article "A conceptual approach to classifying sports fans" by Bashaw et al. It was used to classify respondents into the five different types of sports fans. We also created our own scale in order to rank different sports to each other, where respondents were asked to pick their top 5 favorite sports.

Our three remaining scales were all picked from the *Handbook of Marketing Scales*. We used a scale titled "Consumers' Emotional Attachments to Brands" by Thomson, MacInnis and Park from the Handbook of Marketing Scales. It was created in 2005 with an overall alpha value of 0.77. We modified this scale so that it would measure the emotional attachment to sports instead of consumer brands. The scale includes three different factors (Affection, Passion and Connection). For all three factors the Chronbach's alpha was above 0.60, which was our permitted minimum level. Affection items had an alpha value of 0.609, passion items had a value of 0.791 and connection items had a really strong value of 0.900.

The second scale, developed in 1985, taken from the Handbook of Marketing is called "Style of Processing: SOP" by Childers, Houston and Heckler. The alpha value for the initial scale was at a high level of 0.88. We separated our style of processing scales into two groups, one measuring the mental visualization and the other measuring the process of instructions. Factor analysis was performed with principal components extraction using varimax rotation and factor loadings of 0.60 and above where permitted. The factors loaded correctly, however the overall Chronbach's alpha was below expectations. It resulted in an alpha of 0.489. This was the reason why we decided to split the style of processing scale into two groups. The scales were modified and adapted in a sports marketing context. Therefore we believe that the alpha value is acceptable.

The last scale, published in 2007, used from the Handbook of Marketing Scales is called "Analytic/Holistic Thinking Scale: AHS" by Choi, Koo and Choi. This scale had an alpha value of 0.74. As for the other scales, a factor analysis using varimax rotation was performed. We received an alpha value of 0.414 which was below

expectations. As mentioned above, since the scale was modified to sports marketing we believe that the alpha value is acceptable.

## **SURVEY DESIGN**

Our survey was designed by having the first 16 questions determine the different types of sports fans; local, temporary, devoted, fanatical and dysfunctional. We needed that number of questions to be able to separate between the different types of sports fans. The questions are strictly related to sports and easy to understand. For that reason we decided to put them first, so that respondents would not drop out of the survey right away.

After that, we had the respondents rank their five favorite sports out of a list of 16 individual and team sports by dragging these into a box allowing them to express the relative magnitude between sports. We figured that this was a fun and effective way to rank, and it is easy for the respondents to understand.

Next, the items referred to holistic thinking, emotional attachment and style of processing. This section of the survey required the respondents to put in more thinking to the answers. That is why we decided to put them in a later stage of the survey so that it would be more likely for respondents to continue the survey because they already had to answer a fair amount of questions. Our last section referred to demographics which, once again, are fairly easy for the respondents to answer.

The items were developed in order to find out who the person behind the sports fan is by mostly using a 7-point Likert scale. These are all interval scales, and the reason why we are using this type of scale is that we wanted to be able to demonstrate the absolute difference between each scale point. We are however also using one 5-point Likert type scale where the anchors are “clearly does not describe my feelings” to “clearly describes my feelings.” This is also an interval scale. However we decided to change the anchors from a normal Likert scale, because in these statements we are trying to measure the emotional attachments respondents may have to their favorite sport or athlete. In order to do so, these anchors work better. The reason for only having five scale descriptors is that we thought it looked better and it would be just as useful as a 7-point scale for these specific statements.

We also have one section in which we are using an ordinal scale where respondents are asked to rank their five favorite sports. This can be done by dragging the specific sports from a list of various sports into a box on the right where they will be ranked. We chose this type of ordinal scale because we wanted to know which types of sports our respondents prefer and we wanted them to be able to express the relative magnitude between different kinds of sports that are their favorites.

For the demographics section we are using nominal scales where respondents simply have to check the box that applies to them regarding gender, education, age, race, income and residency. The nominal scales are used because there is no level of intensity in the answers.

## **IMPLEMENTATIONS**

In order reach our target sample size we used various ways. We put up statuses on Facebook asking our friends to take the survey and we also asked professors to send out e-mails with the survey to students. In addition we had the athletic academic advisor send out an e-mail to all athletes and finally we also send out e-mails to different groups of students ourselves. When sending out e-mails and putting up statuses we made sure that we did so at a time when we believed that people would be able to take the survey, such as at free-period on Mondays and Wednesdays. Word-of-mouth marketing was another tool we used. We told all of our friends and family about the survey and then hoped that they would tell others about it. Due to our foreign background we were able to distribute the survey internationally enabling us to get a more diverse sample. Since we managed to get over 400 responses, our implementations were very successful.

## **SAMPLE PROFILE**

Our average respondent was a white, male or female (almost 50% of each), college student within the age group of 18-25 years old. The income of our average respondent is \$ 1-20,000. Also, our average respondent currently resides in the state of New York (For exact numbers, see Appendix 7, p. 48).

## **DATA ANALYSIS AND FINDINGS**

Scales were modified into a sports marketing context, which caused the previously mentioned alphas to be low. We should have split the scale for analytical vs. holistic thinking into multiple ones but decided not to because of time and space constraints. It is possible that this could have influenced the data output with regards to the analytic scale. We are using a confidence interval of 90%, therefore a significance level of equal or less than .10 was acceptable.

## **TYPE OF SPORT FOLLOWED**

When it comes to the degree to which one is a local fan, there is no statistical significance between supporting an individual sport or a team sport. However for temporary, devoted, fanatical, and dysfunctional fans there is a significant difference between supporting an individual or a team sport.

## **LOCAL FANS**

In contrast to income where no statistical significance was found one can say that as age increases the degree to which one is a local fan decreases ( $B_1 = -.222$ ). Three percent in variation of being a local fan is explained by age. There is a statistical significant difference within gender, age and whether respondents are college students or not. There is a statistical significant difference between the strength of a respondents' level of connection he or she feels towards their favorite sport/athlete but none were found for affectionate or passionate items. In our analysis 3.5% of the variation in the degree of being a local fan is driven by the followers' emotional attachment (passionate items 1.4% and connection items 2.1%). Also, mental visualization as a component of style of processing drives the degree to which a respondent is a local fan by 4.5%. Based on our analyses we accept the alternative hypothesis that there is a relationship between the local type of sport fan and the following: style of processing with regards to mental visualization, age, and emotional attachment towards an athlete/sport.

In addition we fail to reject that there is no relationship between the local type of sport fan and the following: analytical thinking of fans, income, and style of processing with regards to the processing of instructions. Additional and detailed output can be found in Appendix 7 starting on page 58.

## **TEMPORARY FANS**

There is a statistical significant difference between males and females and also the age groups of 26-34 years old compared to 65+. The  $R^2$  value of passion items in comparison to temporary fans is .059. As one unit of the degree of passionate connection increases, the degree to which you are a temporary fan decreases by almost half a unit ( $B_1 = -.457$ ). The same holds true, but to a lesser degree, for connection items. Here, the  $R^2$  is .031 and has a negative slope of  $-.272$ . Although style of processing measuring mental visualization and holistic thinking items were significant, they were not major drivers of the variation of the degree to which a respondent is a temporary fan. Based on our analyses we accept the alternative hypothesis that there is a relationship between the temporary type of sport fan and the following: emotional attachment towards an athlete/sport, style of processing with regards to mental visualization, and analytical thinking of fans. In addition, we fail to reject that there is no relationship between the temporary type of sport fan and: age, income, and style of processing with regards to the processing of instructions. Additional and detailed output can be found in Appendix 7 starting on page 48.

## **DEVOTED FANS**

There is a statistical significant difference within the groups of gender, race, and whether you are a college student or not. There is also a statistical significant difference between the age groups of 18-25 and 65+. It was measured that 4.5% of the variation in the degree to which one is a devoted fan is explained by a difference in age-groups. As age increases by one unit, the level to which one is a devoted fan decreases by  $-.210$ . The degree of overall emotional attachment has a major impact, where affection items showed an  $R^2$  of .091, passion items .187, and connection items .182. This leads to a total of 46% variation in the degree of being a devoted fan explained by emotional attachment. As expected, an increase in emotional attachment will lead to large increases in the level of being a devoted fan (see Appendix 7, p. 74). In addition 12.6% of variance in the degree of being a devoted fan is explained by mental visualization. Based on our analyses we accept the alternative hypothesis that there is a relationship between the devoted type of sport fan and the following: age, income, emotional attachment, and style

of processing with regards to mental visualization. In addition, we fail to reject that there is no relationship between the devoted type of sport fan and: style of processing with regards to the processing of instructions and analytical thinking of fans. Additional and detailed output can be found in Appendix 7 starting on page 67.

### **FANATICAL FANS**

There is a statistical significant difference within each of the groups of gender, education level and race. As in the analysis for devoted fans there is a statistical significant difference between the age groups of 18-25 and 65+. It was measured that 4.8% of the variation in the degree to which one is a fanatical fan is explained by a difference in age-groups. As age increases by one unit, the level to which one is a devoted fan decreases by -.290. There is a fairly strong relationship between emotional attachment and the degree of being a fanatical supporter. Affection items showed an  $R^2$  of .147, passion items .203, and connection items .230. This leads to a total of 58% variation in the degree of being a fanatical fan explained by emotional attachment. In addition, an increase in emotional attachment will lead to large increases in the level of being a fanatical fan with a  $B_1$  for passion items of .736. Also, the difference within levels of styles of processing are statistically significant and it is a significant driver of being a fanatical fan. Based on our analyses we accept the alternative hypothesis that there is a relationship between the fanatical type of sport fan and the following: age, income, emotional attachment, style of processing. In addition, we fail to reject that there is no relationship between the fanatical type of sport fan and analytical thinking of fans. Additional and detailed output can be found in Appendix 7 starting on page 78.

### **DYSFUNCTIONAL FANS**

There is a statistical significant difference within each of the groups of gender, educational level, income, and country of origin. There is also a statistical significant difference between the age groups of 18-25 and 35-54. A regression for age resulted in an  $R^2$  value of .087 and a  $B_1$ -slope of -.353. The degree of overall emotional attachment has a smaller impact than it did for devoted and fanatical yet it is still significant (see Appendix 7, p. 98). Here, style of processing drives the variance of being a dysfunctional fan significantly with an  $R^2$ -value of .241. In addition 24.1% of variance in the degree of being a dysfunctional fan is explained by mental visualization. Based on our analyses we accept the alternative hypothesis that there is a relationship between the dysfunctional type of sport fan and the following: age, emotional attachment, and style of processing. In addition, we fail to reject that there is no relationship between the dysfunctional type of sport fan and income or analytical thinking. Additional and detailed output can be found in Appendix 7 starting on page 90.

### **CONCLUSIONS**

One of our major, but expected findings is that a difference in gender and age is statistically significant for all different types of sports fans. It was expected based on our experience. If one looks at followers of sports or athletes, different people of different age groups follow those with different degrees of intensity. Our finding supports this, and also adds depth to the statements made by the authors of the article "A conceptual approach to classifying sports fans," which formed the foundation of our theories about types of sports fans.

In addition to that, it was found that there is a negative relationship between the different types of sports fans and age. Based on Bashaw et al.'s theories, it was determined that as one progresses through the different stages of fan types, the degree of intensity of followership increases as well. The negative relationship between age and the degree to which one is a certain type of sports fan implies that as one gets older the lower the degree gets to which one is a certain type of sports fan.

There are also differences within different racial groups for fanatical and devoted fans and the same holds true for income groups. A weak negative relationship was found. In addition, there is a statistically significant difference within different education levels with regards to fanatical and dysfunctional fans. Lastly, only for dysfunctional fans a difference within the groups of countries of origin could be found. It seems that country of origin only mattered for this type of sports fan.

Another finding is that the degree of emotional attachment has a major impact on the type of sports fan a person is. There is a positive relationship between emotional attachment and different types of sports fans. This was also expected, since, as defined earlier, intensity of emotional attachment is a subcomponent of intensity of followership. It was more important in devoted and fanatical fans, in which over 50% of the variance in each of these fan-types could be explained solely by intensity of emotional attachment (see Appendix 7, p. 74 & 83). In contrast to that, as expected, emotional attachment accounts for a lot less in temporary ( $R^2 = .103$ ) and local fans ( $R^2 = .035$ ). Interestingly, however, we expected to see the highest value for emotional attachment as a driver of variance in dysfunctional fans. There, it only explained 37.3% of the variation. This can lead one to the conclusion, that other components strongly drive the degree to which one is dysfunctional fan. It is possible that other major drivers can be identified in future research. Overall, these findings were expected. However, the goal was to add statistically proven depth to the theories of Bashaw et al., which has been achieved.

With regards to style of processing, it was found that it had the biggest impact on the degree to which one is a dysfunctional fan in comparison to the other types of fans. Also, the degree to which style of processing drives the variation within the different types of sports fans is a lot higher for fanatical and dysfunctional fans than in temporary and local fans.

Another interesting finding with regards to the type of sport followed was made: We divided the types of sport into individual and team sport. It was found that, as expected, the type of sport followed mattered when it comes to being a different type of sports fan. However, that difference did not matter for local fans. This was interesting and made sense at the same time, because local fans mostly follow a sport or athlete on the basis of where the fans were born, used to live or currently live. This supports Bashaw et al. in their theory that location is the main component of being a local fan and not necessarily the type of sport.

Overall one can come to the conclusion, that many of the findings done in this research support Bashaw et al. in their theories about the five different sport fans. We were able to find support that with the degree of emotional attachment, the level to which one is a certain type of sport fan increases. We were able to identify distinctions between different types of sports fans and discovered ground for future research discussed in the latter section.

## **RECOMMENDATIONS**

We would recommend to other people doing research in this area to develop or use scales with a high enough alpha value so that they can be used as one. As mentioned earlier we had to adjust scales because we ran into issues with the ones measuring analytical vs. holistic thinking and the one for style of processing. In addition, we recommend thinking about using different types of scales within one survey before conducting it due to possible issues regarding later data analysis. We faced issues with performing regression analyses with the ordinal scale used to identify different types of sports followed. We recommend keeping scaling consistent.

Another suggestion is to be cautious about developing surveys that are fairly long and have quite complicated questions without giving out incentives. Many respondents did not complete the survey and we accounted that to its length and level of difficulty of the questions.

## **MANAGERIAL IMPLICATIONS, FUTURE RESEARCH AND LIMITATIONS**

There is a lot of knowledge that managers can gain from the information that has been drawn from this research. Managers can use this information to gain a better understanding of their target's demographic and then implement marketing schemes that will help them increase their profit. Some information that we at TCR feel managers should know is as follows: Age matters when it comes to what type of sports fan one is, so managers should be aware of whom they are targeting. Also, since gender matters for all types of fans separate marketing schemes should be implemented for males and females to better reach each demographic. Some suggestions that we have for managers are as follows: Marketing campaigns should appeal to sport fans' emotional attachment because we found that it has a major impact on all types of fans except for temporary fans. Since temporary fans are only fans for a limited period of time, we think that they should not be a manager's main priority anyways. An example of how managers can appeal to a fans emotional attachment could be a commercial that shows the happiest moments of a sport's franchise.

We at TCR decided that it could be beneficial for managers to further research dysfunctional fans because they have the potential to be a problem for a sport/team. Dysfunctional fans engage in violent and destructive behavior and can be a nuisance to others. If for example you are a sports franchise and have too many dysfunctional fans, managers should be aware that they cannot solve this problem by solely addressing the fans' love for the

sport/athlete. There might be another factor that enables managers to reach out to these dysfunctional fans and could be a possible topic of future research.

When conducting our research we were faced with several limitations. We wanted to use complete scales but the alpha values for our style of processing and holistic/analytic scales were too low. This forced us to separate them into multiple scales, although due to space and time limitations we still treated the holistic scale as one scale. Another limitation that we faced was that our ranking system for "Types of Sports" did not allow us to run regressions for the types of sports followed. Therefore we were not able to look at each individually.

We would suggest future research in these areas in order to add more depth to our findings: Find or develop a scale that allows you to run regressions for the types of sports followed and also gives you a high enough alpha value. Also, further research regarding what drives a dysfunctional fan, holistic thinking, psychographics, and how race impacts the types of sports fans is recommended. Additionally, we came to the conclusion that there was a difference within groups of education level, country of origin and age and we would suggest further research to clearly identify these.

Based on our findings we conclude that this research was a first step in what could be groundbreaking information regarding sport fans, impacting not only the sports industry but the economy as a whole. If one would be able, with our research as the foundation, to further look into what other factors mainly drive the degrees to which fans support their favorite team/athlete very cost efficient and well- targeted marketing strategies can be developed. In addition we were able to statistically substantiate the theories Bashaw et al. developed.

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# THE RELATIONSHIP BETWEEN CONSUMER PSYCHOGRAPHICS AND ENTERTAINMENT CHOICES

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## ABSTRACT

*Media entertainment is one of the top sources of leisurely fun. Television, movies, music, video games, and books provide choices to consumers as they consider entertainment options. Over the course of one semester, data has been collected to figure out what exactly has an effect on the choice of which source of media anyone decides to utilize.*

*Entertainment plays a large role in today's society, being a massive industry and one of present day's top revenue generators. Psychographics and demographics relation have always been factors in decision making, and this test is no different. Consumer choice brings changes within an industry, whether it is a change to a product or changes that demand industry adaptations. With this in mind, entertainment is no different, as we see the industry constantly grow and change by day. Psychographics and personality type play a large role in this decision because finding the distinction between a person who is "type a" versus someone who is "type b" will be an important finding. Deviations occur within psychographics and demographics; essentially the decision to watch a movie versus reading a book is heavily influenced by the consumer's background and personality.*

## LITERATURE REVIEW

Previous research on the topic was limited but there were correlations found between demographics and certain entertainment choices. Most of the findings were demographic related, which was undoubtedly helpful in assuming relationships between the respective media and demographic variable being tested.

Reviewing past works gave more direction in what this study was hoping to accomplish. This review provided insight on which scales are most commonly used and provided examples of limitations that past researchers have encountered.

*Lifestyle of Online Gamers: a Psychographic Approach* by Seounmi Youn. This research wanted to see if there were differences between online gamers and non-gamers in relation to demographics and psychographics. This research was extremely beneficial to this study because video games was one of the main subjects of entertainment choices being examined.

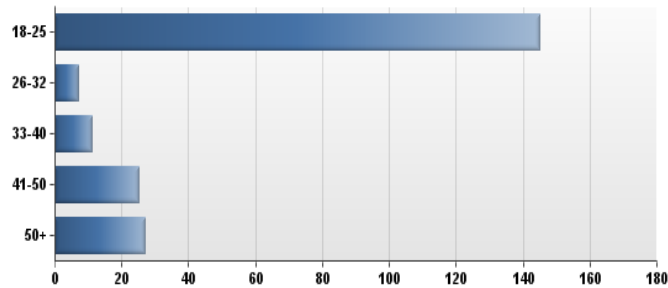
Having focused on multiple entertainment options, as stated previously, this article limited the direct information able to be utilized without transcribing and outside application. This led to more qualitative findings rather than concrete statistical evidence for hypotheses in this study.

The article was good because it prepared a step by step description of what the research entailed for this particular case. It also shows each hypothesis that the researchers wanted to test and showed charts of data providing evidence for and against the hypotheses.

Measuring psychographics to assess purchase intention and willingness to pay by Nelson Barber was another helpful article that was reviewed. This article chose to test if psychographics had an effect on intent to purchase, but this article only focused on environmentally friendly wine. The findings from this research show that there is a correlation between psychographics and intent to purchase.

The benefit of this article was that it showed a correlation in an area that was already assumed to be true. Having this background understanding gave confidence that results would be similar on a larger scale, measuring psychographics and media choices.

Personality Traits Drive Choices in Entertainment by Traci Pedersen was an article that was found on



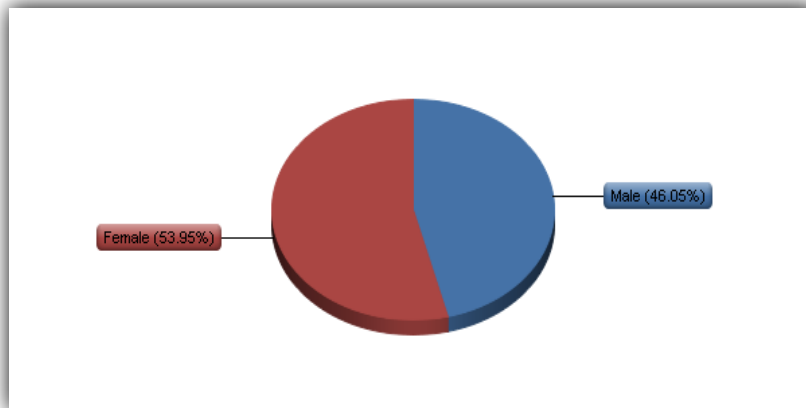
PsychCentral. This article talks about how personality traits affect entertainment choices but doesn't go into much detail. This was a good indication that this research needed to be done, seeing as it has not been completed previously.

## DEMOGRAPHICS

*H1: There will be a relationship between demographics and entertainment choice*

Demographics are a main topic in this study because they clearly classify different people by definitive characteristics, based on when the participant was born, and what gender they are. The first sub-hypothesis used to answer our H1 was:

*H1a: Gender will impact entertainment choices*



The diagram above shows that we had roughly 54% female respondents, and 46% male. To determine this hypothesis, we specifically looked at the main differences in entertainment choice.

The two main factors that we saw differentiating men from women were within books and video games. 43 males responded saying that they thoroughly enjoyed video games, compared to only 16 females. This says that for every 3 males that enjoy video games, roughly 1 female will also enjoy video games.

The other significant difference found was within books. 82 females responded saying that they enjoyed reading books, whereas only 42 males responded the same way. This shows that about half of the male population reads as much as the women population within Generation X and Y.

One similarity we found within both groups was that music was highly valued, with respondent rates of 85% for males, and 89% for females.



*H1b: Generation X and Generation Y will value entertainment differently.*

Within Generation X and Y, key differences were found leading to interesting conclusions. 70% of ages 26-32 enjoyed books, where only 54% of Generation X said the same. The most interesting factor in the findings was that 80% of Generation X agreed that music was more suitable than books were, as an entertainment choice.

This led us to believe that Music in that generation was an important role in their lives. The fact that nowadays Generation X is able to listen to live performances of bands that they listened to 40 years ago, is incredible, and has seemingly led to a higher value of music. This goes against the stereotype of older age leading to higher value in books, than any other entertainment.

*H1b.1: GenY will value music entertainment more than GenX.*

Testing this hypothesis, we found that 91% of Gen Y valued music highly where 85% of Gen X did. This proves the hypothesis to be correct, but not by a substantial amount. The other key point to note is that of the Gen X body, only 52% of respondents answered that they agreed strongly to valuing music, and the other 33% came from the moderate answer.

*H1b.2: GenX will value movie entertainment more than GenY.*

Generations X and Y had almost identical results in the Movies category. 86% of Gen X valued movies highly, and 84% of Gen Y answered the same. Breaking these numbers down further, both generations had similar results within 5% when testing moderate vs. strongly valuing movies. This being said, the hypothesis was rejected.

*H1b.3: GenY will value television entertainment more than GenX.*

This hypothesis was rejected, as 3% more people valued TV shows in Gen X compared to Gen Y.

*H1b.4: GenX will value book entertainment more than GenY.*

This hypothesis was accepted because 14% more people valued books in Gen X compared to Gen Y. This hypothesis was not surprising because stereotypically the older generation enjoys relaxation and reading where as the younger generation enjoys being out and about or watching movies and such.

*H1b.5: GenY will value video game entertainment more than GenX.*

34% of Generation Y said that they enjoy video games as a choice for entertainment. This is substantially higher than the 14% of Generation X who said the same thing. This hypothesis was accepted because of the clear difference in respondent's answers.

## **PSYCHOGRAPHICS**

*H2: There will be a relationship between psychographics and entertainment choice*

This hypothesis tested whether attributes to people's motives and mannerisms contribute to which entertainment they value over others.

This was a primary focus because of the interesting conclusions that would be derived through the testing; whether or not somebody's entertainment choice is driven by psychographics, or other factors.

*H2a: Being "Hard Working" will affect entertainment choice.*

This hypothesis was tested using regressions, where we found a direct correlation between hard working individuals and music as an entertainment choice. This correlation was an impact of 15.3%

We attribute this finding to the fact that students and others often enjoy listening to music while doing work, studying, or during breaks as well.

With this being said, the hypothesis was accepted because hard working as a psychographic has a clear impact on entertainment choice.

*H2b: Being “Sociable” will affect entertainment choice.*

After finding the previous results for hard working, we assumed that we would see similar trends in the data for sociable, but this was not the case. Sociable seemed to be quite insignificant with impacting entertainment choice, really only having anywhere from 1-2% of an impact on any given entertainment choice. This hypothesis was rejected although there was significant data it was not above reasonable levels.

*H2b: Being “Active” will affect entertainment choice.*

Being an active individual does not have any correlation to entertainment choice. After testing this field, the data shows that it is insignificant in every way. This hypothesis was also rejected.

*H2b: Being “Relaxed” will affect entertainment choice.*

One may think that being relaxed goes hand in hand with reading a book, but this is not the case. Instead, the data proves that video games are influenced fairly heavily by being relaxed. The impact level was 4% which is no 15% influence, but shows a clear impact in the same way.

*H2b: Being “Easily Stressed” will affect entertainment choice.*

Similarly enough, being stressed seemed to have around the same impact as relaxed. Stressing has an impact on entertainment choice, and is most notable in video games as well.

*H2b: Being “Open to Experience” will affect entertainment choice.*

The final psychographic test, being open, showed direct correlations with music, movies, and TV shows. We attribute this to the fact that people who are open are more likely to be open to new genres of entertainment. This hypothesis was accepted because openness to experience had a 7.4% impact on music, and a 3.5% impact on TV shows.

## **ENTERTAINMENT CHOICES**

The entertainment choices that were decided to be included in this research were movies, video games, books, television, and music. The entertainment choices being tested seemed the most popular, or most frequently used and enjoyed over others.

This research had quite a large number of stereotypes that were tested and proved right or wrong. Some of the obvious that were mentioned above are the effect of age and gender. These demographic stereotypes seemed to be accurate in certain senses, but in some cases simply the genre of entertainment was a clear trend, rather than the entertainment itself.

Psychographics offered the same scenario with hard working individuals, or individuals who tend to enjoy time alone. This effected entertainment choice and genre alike.

## **RESEARCH METHODOLOGY**

The research was constructed as a survey, delivered on-line. Once delivered, the data received was used and analyzed with the use of statistical analysis and online graphical instruments.

## **RESEARCH MEASUREMENT TOOLS**

Research was conducted via the qualtrics survey creator. This was the main tool used because it offered everything needed to build, administer, and analyze the survey and data required.

## ANALYSIS AND FINDINGS

### Sample Profile

<b>Age:</b>	18-25	67% of all respondents
<b>Gender:</b>	Female	54% of all respondents
<b>Ethnicity:</b>	White/Caucasian	86% of all respondents
<b>Relationship status:</b>	Single	45% of all respondents
<b>Country of residence:</b>	United States	99% of all respondents
<b>State in which you reside:</b>	New York State	72% of all respondents

## SCALES AND VALIDATION

Ten-Item personality Inventories (TIPI) was used for this research. The scale is meant to measure the Big-Five personality dimensions: Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness to Experiences. All items in the survey are answered on a 7-point scale; where 1=strongly disagree and 7= strongly agree. (Bearden, p.15)

Scale reliability is very important and can be a factor that greatly affects the confidence in any research. Many marketing researchers use internal consistency reliability because it is more timely than other options. Internal consistency is defined as the degree to which the individual questions of a construct are correlated. Through statistical analysis, we found the Cronbach's Alpha value for this research. This test measures internal consistency. A Cronbach value greater than 0.7 is satisfactory, but any value below 0.7 is un-satisfactory. This research's Cronbach alpha was 0.8 which means it has a high level of internal consistency (Devasagayam, p.155).

Managerial implications would be helping companies understand consumer insights on how they view said company's product or industry. The research also reveals the correlation between demographics and industry choice. This research is important to utilize so that there is no waste in company spending, specifically on advertising. Target market is essential to understand, and knowing the industry's sample profile is key.

## DISCUSSIONS

This study showed direct correlations between psychographics and entertainment choice. We accepted nine out of fourteen of our hypotheses which was conclusive enough as it stood.

We believe that for the most part, the general public understands many of these correlations already, be it that some are stereotypical. However, we believe that the trends, or lack thereof are very interesting and unique. As mentioned earlier, the sample size was a very large hindrance to us. It was crippling, and made us less effective overall than we really wanted, but we were still able to appropriately test with the results we received.

We felt the regressions were a strong tie in to what we were studying, showing what a direct relationship between the two variables was, and what was not significant. We ran our regressions on the different psychographics and the entertainment choices. This gave us the evidence we needed to conclude that there was a direct, positive correlation between these variables.

There were many factors that we found that explained why specific people enjoyed which type of entertainment.

As stated previously, our data was somewhat skewed with more women than men, as well as a small sample with a small variety of ethnicities. With this skewed data, we were still able to find obvious gender correlations, especially with books and video games.

The research results were conclusive evidence that psychographics and demographics alike can influence entertainment choice. We found direct correlations between entertainment choice and the independent variables,

being the psychographic entities. This being said, we believe that producers and designers should in fact take this into account when releasing products and advertising. If said producers and designers are able to take advantage of knowing and understanding the market, who wants their product, and what kind of product the consumers are looking for, they will be more successful.

## SUMMARY

Entertainment plays a large role in our lives. It is one of the largest industries in the world and one of the largest revenue generators. We wanted to look at how psychographics and demographics are related to entertainment choices. The focus was on TV, movies, video games, books, and music. Our research objective was to see if there was a relationship between the different psychographics and which entertainment they chose. We broke down the psychographics into different personality traits to see which constructs had the largest effect on entertainment choice and duration of use.

The methodology used while conducting this research began with a literature review along with a review of various secondary data. This literature review provided examples of different scales and research design options. Through the internet, we developed a survey and sent it out to students, faculty, and staff. The survey consisted of 25 questions with two questions using the Ten-Item personality Inventory scale (TIPI). The TIPI scale is a 7 point scale ranging from 1=strongly disagree to 7= strongly agree. The survey was sent out to family, friends, students, faculty, and staff via email, facebook, and twitter. We obtained 232 respondents but 213 respondents completed the survey as a whole.

Our key findings were that most hypotheses were accepted, therefore proving that psychographics, demographics, and personality type all effect entertainment choice. This report lays out which psychographics and demographics have the largest impact on entertainment choice. We believe that if businesses in the entertainment industry look at this report, they will find obvious correlations that can easily contribute to their success if they choose to accept them, and study them. Businesses who neglect these relationships will have a more difficult time understanding the market and target audience.

After conducting this research our recommendation to businesses, especially those in the Entertainment industry is to consider which personality types value which entertainment choice the most. This will allow marketing managers to better understand which type of person enjoys their entertainment, so they can effectively market and advertise themselves rather than wasting money and time where it is unnecessary.

## LIMITATIONS AND FUTURE RESEARCH

One of the largest challenges in this research process was getting enough responses. Although the target goal of responses was received, it was difficult to achieve and harder to surpass. Another difficulty was not being able to offer incentives. Being in a college environment, everything was moving very quickly and there wasn't enough time to get a certified survey with the allowance of incentives.

Further research on this topic would likely solidify the results found here. The results in this research are representable and will show similar results on a larger scale. However, one test in which we were unable to effectively test was the effect of ethnicity on entertainment choice. I feel as though ethnicity would have an impact because of cultural values, but due to the limitation of being on a college campus in New York state it was difficult to obtain a mix of ethnicities.

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# STOP ONLINE PIRACY ACT

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## ABSTRACT

*Since its introduction into Congress, SOPA has been a controversial piece of legislation. The intended purpose of SOPA is to stop online piracy and copyright infringement in order to protect businesses and those who have created the original content. Those opposed to the bill argue, for many reasons, that SOPA will not help businesses or certain industries but rather destroy the Internet as we know it today. Strict regulations, the oppression of freedom of speech, and the threat of shutting down websites for good, are just a few of the reasons why many believe SOPA should not be passed. Corporate entities and the public have reacted negatively to SOPA and have started worldwide uprisings against the bill. They believe many changes need to be made to SOPA in order for it to be beneficial to society. Not only would passing the bill change many lives it would drastically change the way people use the Internet.*

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## INTRODUCTION

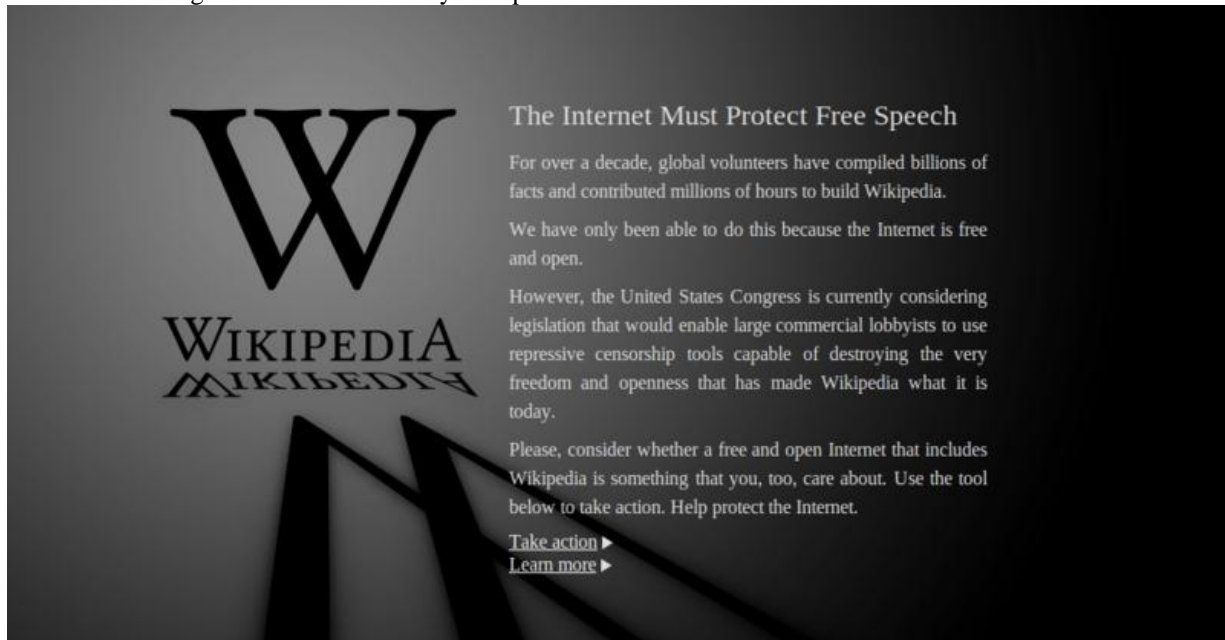
In recent years, various pieces of legislation have been introduced aiming at preventing Internet piracy. SOPA, ('Stop Online Piracy Act'), was introduced in 2011 with the intention of limiting Internet access. If passed, SOPA would require the US Attorney General's office to target any website that is primarily designed or operated for the purpose of, has only limited purpose or use other than, or is marketed by its operator or another acting in concert with that operator for use in, offering goods or services in a manner that engages in, enables, or facilitates theft of U.S. property (national review online). The arrival of SOPA in the House in late October 2011 brought opposition from engineers, entrepreneurs, Internet users, developers, student groups, and legal scholars (Naughton, pg. 1).

## SUPPRESSION OF HUMAN RIGHTS

One of the most controversial issues that arose with the introduction of SOPA was the potential violation of Human Rights. SOPA opponents call the bill "The worst Internet law in American legislative history" (Doctorow, pg. 1). They argue that the bill will conflict with Article 19 of the Universal Declaration of Human Rights that provides: Everyone has the right to freedom of opinion and expression: this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers. "The Internet is a medium in which millions of people are creating art and advancing science every single second, participating in a cultural community" (Scrom, pg. 1). Therefore, the Internet is a type of media that should be protected by Article 19. SOPA would limit the freedom to receive and impart information on ideas through the Internet and therefore violate this particular human right.

2011 has proven to show how the Internet and the quest for human rights are inextricably linked. The Internet enables free speech encouraging innovation and should never undermine human rights. SOPA would distort this innovative structure of the Internet because it will cripple its capacity and opportunity for open participation on the Internet. What's worrying is possibility of SOPA leading to the same censorship as China's and Iran's. SOPA's power could eventually lead to intern censorship that would regulate speech in order to "suppress dissidence and sure control through fear." The SOPA Blackout in 2011 demonstrated how censorship would produce a world without free knowledge and the destruction of the decade long effort of building the largest encyclopedia in human history.

The image below was created by Wikipedia:



Wikipedia and its users have created an opportunity for the Internet community to have access to knowledge they wouldn't have elsewhere. "The U.N. characterizes access to the Internet as a human right, and government research in the U.K. and in the U.S. shows the enormous humanitarian benefits of network access for poor and vulnerable families: better nutrition, education, and jobs; more social mobility and opportunity; and civic and public engagement"(Doctorow, pg. 2). SOPA would have negative effects on social media sites such as Facebook and YouTube which are engines of free speech and provide the bulk of the benefits of the Internet. It would impinge upon the rights of others to enjoy the very freedom of expressing and holding opinions as well as hold information resulting in a complete disregard for the humanitarian consequences. The SOPA Act argues that these site enable and facilitate infringement, however, the existence of the Internet itself enables and facilitates infringement. In able for many sites to continue to exist to satisfy SOPA they would have to shut off the public's ability to contribute their opinions.

The risks created by the potential effects of SOPA are too great to justify the benefits, from a human rights perspective (Scrom, pg. 2). "SOPA doesn't just arrogate these unconstitutional powers for government-- it hands them over to entertainment giants" (Doctorow, pg. 2). The world's ability to communicate freely about anything they want to will not satisfy the desire of the entertainment industry's desire to secure its business model. SOPA has the right intentions but the wrong effects due to the undermining of human rights.

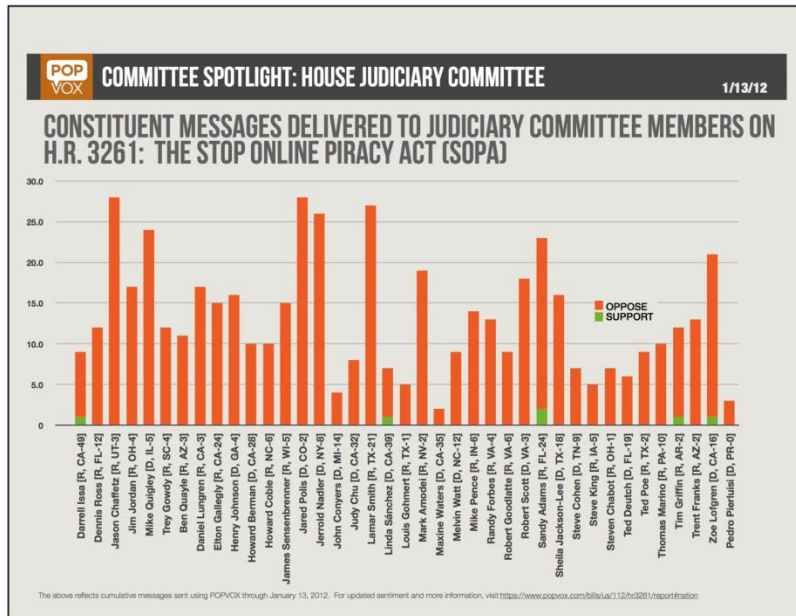
### **PUBLIC AND CORPORATE REACTION**

The majority of the reactions from the public as well as corporate entities regarding SOPA were negative, although some did support the act. Most of the public experienced their first negative opinions about the act when the "blackout", dubbed "Black Wednesday", occurred on January 18th, 2012. During this blackout, Wikipedia shut down for an entire 24 hours in order to protest against the act and make it aware to Internet users what would happen in the event that the bill was passed by legislation. Not only did Wikipedia participate in this blackout but other websites including Google, Facebook, and Twitter had full page ads reading "We stand together to protect innovation" listed in the New York Times Newspaper (Sweeney, pg 1).

#### **Writing to Members of Congress**

One of the most effective things that the public did in order to protest the act was writing to members of congress. According to Forbes, one of the best ways to make your case is to meet with your Members of US

Congress. The graph shows that almost all of the constituent messages delivered to the Senate Judiciary Committee members on the SOPA Act were primarily opposing the Act. Having the public protest the SOPA Act contributed a large part in one of the reasons why the Act was not passed.



### Electronic Frontier Foundation

Another thing that the public and corporate entities did to counteract SOPA was that they supported the Electronic Frontier Foundation. This foundation, founded in 1990, is a non-profit digital rights group based in the United States. The Electronic Frontier Foundation is the first line of defense when it comes to our freedoms being denied in the networked world. From the beginning, the Electronic Frontier Foundation has championed the public interest in every critical battle affecting digital rights. The Electronic Frontier Foundation opposed SOPA because they felt as though it would “balkanize the Internet” (Editorials, pg1). This means that the Internet would be divided into smaller mutually hostile groups, and that it would take away a person’s freedom of speech. The Internet is a trusted system that people rely on. If SOPA had been passed, it would no longer be a trusted system. Websites could be easily shut down by the government for being offensive and derogatory.

### MODIFICATION OF SOPA

SOPA contains many regulations that would increase responsibility of websites but also push responsibility to intermediaries such as search engines, payment sites, and Internet service providers. According to the Act, if the court finds that a website is breaking copyright laws, the intermediary site such as Google or PayPal would be required within five days to shut down access to the site. ISP’s would have to deny access to the violating site or face legal charges. It will also limit access to foreign sites, which many US companies do business with regularly (Band, 4-5).

### Impact on Web Site Access and Freedom of Speech

Initially, SOPA received positive support from many pharmaceutical companies, luxury goods manufacturers, and the music industry. Those opposed to SOPA, including ISPs and search engine websites, have many legitimate reasons for their opinions. First, although supporters argue that the bill would attack only rogue websites violating US copyright laws, it would also hurt websites which host these sites. For example, if a website has a link to another site which happens to be a rogue site, that website will be forced to comply with SOPA or face the threat of being shut down. SOPA would cause a ripple effect among websites and hold many liable for what is



on their websites. Many of the sites affected will include blogs and sites which rely on users to share information. These sites are an essential way for Internet users to collaborate and share information (Band, 5-6).

The second reason for the large opposition to the bill is the impact it will have on US and non US based websites and business sites. If SOPA were to limit access to foreign websites it would hurt the validity of US based websites to the rest of the world. Traffic to US based sites would decline and revenues would be lost. On the other hand, non US sites will also suffer. If ISPs and search engines are obligated to block non US sites, then users cannot access these sites, causing a major decline in revenue for non US sites. Non US sites would also be subject to SOPA laws if they use copyrighted US material, even if their host country's laws do not prohibit it. (Band, 9).

The third reason for the opposition to SOPA is issue of human rights and freedom of speech. Many feel that SOPA crushes our right to freedom of speech and that the government will have too much control over the Internet. Internet user's privacy will be in jeopardy because ISP's will be forced to monitor users more closely for fear of violating SOPA regulations (Band, 8).

### **White House Involvement**

Although the bill was widely supported initially, there were two major reasons which helped push SOPA out of the US Congress. First, the White House put out a statement which sided with ISP's and confirmed their suspicions about SOPA. A public statement from the White House stated that "We must avoid creating new cybersecurity risks or disrupting the underlying architecture of the Internet." (Band, 10). This statement confirmed the fears of ISP's and search engines who were concerned that enacting new legislation would cause a serious disturbance in the way the Internet works. The White House also commented on the fact that they did not support any bills which contained "legislation that reduces freedom of expression, increases cyber security risk, or undermines the dynamic, innovative global Internet." (Band, 11)

### **SOPA Modifications for Approval**

Although many would like to see the bill thrown out forever, there are some changes which could be made to help gain more approval for SOPA. First, the terms of SOPA are very vague. Virtually any website can be shut down because they are allowing rogue sites or what may seem like rogue sites do business on their website. The terms in SOPA do not set specific guidelines or violations but state that search engines and payment processors will be responsible for cutting off sites that have "reasonable belief" of infringement. It is hard to define "reasonable belief" and the courts can interpret that any way they would like. It also calls for ISPs to take "reasonable measures" to cut off these sites or within 5 days. (SOPA Bill). These terms are very broad and can cause issues with false allegations. Many companies will be subject to false allegations and can be forced to shut down which will disrupt business and possibly lost revenue. Michael Petricone, Senior Vice President of Government Affairs at the Consumer Electronics Association, which strongly opposes the measure said, "It's becoming abundantly clear by the hour that the extreme solutions in PIPA and SOPA are not politically viable," It is clear that there are many discrepancies about SOPA and how the law handles copywriters (Martinez and Hart, 1).

Another way which lawmakers could make SOPA more effective would be to not penalize websites who host pirate sites. For example, if someone has a blog and users post copyrighted or illegal material on the site, the host site can be shut down if they do not cooperate within 5 days. This seems very harsh as many small websites do not have the time or manpower to watch their websites on a regular basis. The law should provide more time for sites to cooperate and not shut them down if they do not. There needs to be a warning process and a more reasonable amount of time for host sites to take down the copyrighted material.

### **CONCLUSION**

SOPA, introduced in 2011, was an Act that was intended to stop online piracy. There were many reasons why it did not end up getting passed by Congress, but one of the main reasons was the reactions from the public and corporate entities. People felt that that if the bill was passed, that they would not be entitled to their freedom of speech. If SOPA had been passed, there would be many new restrictions on the Internet and many different websites would be blocked and possibly even shut down. There are many ways to modify the act that would make the bill arguably less strict. SOPA does have the right intentions, but if passed it would likely have the wrong effects. Just because the bill was passed, does not mean that it will not be reintroduced in the near future.

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# MOBILE IT AND BRING YOUR OWN DEVICE

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## ABSTRACT

*In today's ever evolving workplace, identifying and taking advantage of the latest technology and trends is a must. Success or failure is dependent on which organizations can gain a competitive advantage or their rivals. Over the last several decades, technology has been a driving force in helping to create competitive advantage. This is especially true of the last decade. Mobile Information Technology, or mobile IT, has come to play a significant role in the way companies conduct business. Mobile IT is the use of portable computing devices such as laptops, smartphones, and tablet computers to carry out business operations. This is a newer trend, which has resulted from society's increasing dependence on personal mobile devices. Several well know companies such as Apple, Samsung, IBM, and Motorola have become heavily involved in this trend. One trend that has resulted from the increased use of mobile IT is "Bring You Own Device", which is when employees use their own personal, not company provided, mobile device, to complete work related task. This has had both positive and negative effects. Some positive effects include increasing employee satisfaction, and lowered cost of the employers. Some negative aspects include security issues, such as lost or theft, and misuse of important business data. The following report provides additional details in regards to each of these aspects.*

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## INTRODUCTION

In the 21<sup>st</sup> Century business environment, having the latest technology and adhering to the latest trends is critical to success. With the explosion in use of personal computing devices over the last decade, new ways of conducting business operations have emerged. Employees are increasingly using and relying on their own personal devices to complete work related task. Many well know companies are beginning to adapt and support this new way of conducting business. This has resulted in many positive and negative effects on employers, employees and the parties they interact with on a daily basis.

## MOBILE IT DEFINITION

The world of information technology is rapidly increasing, following suit with the progression of Moore's law. Technology has evolved in a short decade; from being a stationary device on a home desk to being as mobile as the user is today. Following in the same progression of technology, mobile devices have, in some cases replaced the desktop and laptop. Mobile IT can be identified as the spread and exchange of information via wireless networks or cell phone communication to various sources. As in the home, mobile IT has become the accepted norm, and in some respects, the preferred method to exchange information in business settings. (Quinn) This is quickly replacing and refining the way offices are structured, even the way hospitals are operated and treatment services rendered. Mobile IT is becoming the way business is conducted worldwide in the new century.

## BRIEF HISTORY

Pre 2000, an office or place of work would be described as having a desk, for one individual with a computer set-up, consisting of a monitor, tower mouse and keyboard. Around the desk would have the respective employee's files or folders, documents and personal pictures, making that desk their own. Post 2005, this is considered inefficient and costly. Employees now go to a desk that is empty. The only visible aspects of the desk are the chair, a docking station, a monitor and a few electrical plugins and Ethernet cables. A desk is no longer a personalized entity of an office. It becomes a rotating workstation (Korth).

Mobile IT has made it possible where an employee can sit at any desk in an office; connect their laptop or tablet to the network and get files or folders they were accessing in an office across the world in real-time. Not only is it widely used by traveling business professionals, but Mobile IT innovations are being used in all public sectors,

perhaps more widely in health care. A patient's file are no longer stored in a manila folder, but uploaded to a centralized location that is accessible across the world. (Marvin) While this may seem like a fix for an accessibility issue, it opens up the doors for a solution greater than that. Soldiers in the field during engagements are now able to receive, for example, treatments in remote bunkers during war with the physician knowing their exact blood type, medical allergies and existing conditions.

### **COMPANIES INVOLVED IN MOBILE IT**

An industry leader, Welch Allyn has been at the head of the medical mobile IT progression for over a decade. Providing solutions that can record and file information, as minuscule as the blood pressure on a monitor, Welch Allyn has create solutions that revolve around the "cloud" and uploading patient files to a centralized location. Coupling with the processing power that is available in today's mobile phones, Welch Allyn has again pushed the limits on the boundaries of Mobile IT and healthcare administration. (Sheller) Just within the past year, they have released a Patient monitoring system, which can monitor the vital signs of a patient and upload that to a location monitored by a large- end system.

IBM, another leader and innovator in the Mobile IT industry had recently come up with a solution for managing IT services. Again, with heavy concentration on cloud based computing, their new solution allows for a smoother, more automated way of tracking and creating customer engagement. Displayed at CES show in 2012, IBM demonstrated how a conversation and an introduction can then be uploaded to a cloud server and start the sales and development process, cutting down time from the manual labor and need of a team of individuals.

Mobile IT is a technology that can be widespread and used on platforms between many industries. This, of course, lends way to the manufacturing process to keep up with the software that demands and requires the heavy amounts of resources that is needed by these cloud based, mobile IT applications. Manufactures such as Motorola, Samsung and Intel race for contracts with larger nationwide companies to develop and implement devices that can provide the ease of access to these mobile Information servers. While it may be hard for everyday consumers to decipher how competitive this is, this report will briefly analyze competition and engagement in the current telecommunications markets.

### **MOBILE IT COMPETITION**

In the past year, rivalries have risen between Apple and Samsung, manufacturing cell phones that perform head to head in providing the customer with the information needed in a much quicker manner. (Goggin) These cellphones implemented technology and hardware that was evident in laptops only six years ago, providing the user with the access to the Internet, files stored in a remote location and access to the satellites, eliminating the need for a standalone GPS device. Mobile IT also allows for the rapid growth in technology and healthy competition to implement the concept of centralized location of information into these consumer devices.

Mobile Devices known to the public, such as Apple, Samsung, IBM and Motorola have been industry leaders for quite some time. Motorola has dominated in the field of software applications for companies such as Verizon and Time Warner, which allow for handheld devices to access databases at the home office. Apple has provided end users and consumers with devices that provide their users with information in a quick and organized manner, whether it uses a wireless connection or from the cell phone towers. (Rieser) Samsung has revolutionized the way the American living room is structured, with their invention of the Samsung Smart TV, which can display news updates, social media trends as well as traffic updates, right on the living room TV. IBM has made significant strides in the research and development of artificial intelligence, which also connects to a mobile device that provides access to information stored on a remote server. While all companies and inventors have made noteworthy contributions to the involvement and implementation of the Mobile IT platform, it will be hard to decipher which one is truly leading in this technology.

### **BRING YOUR OWN DEVICE**

Bring your own device, or BYOD for short, is a policy where employees bring their own personal mobile computing devices to work, and use those devices to carryout work related activities. There are several reasons why both employers and employees prefer to use their own devices at work. The obvious advantage would be that employees know how to operate the device, and employers do not have to bear the costs associated with providing these devices. As with most new trends, several problems and issues have resulted. One of the main concerns related to BYOB is security issues, including breaches and loss of important business data (Wikipedia).

Although the term is relatively new, developed by Intel in 2009, the practice of employees using their own devices at work has been occurring for much longer. Today roughly sixty percent of workers use their own mobile devices such as laptops, cellphones, tablet computers to some degree, to perform work related tasks. BYOD is part of a trend known as IT Consumerization, which occurs when consumer hardware and software are mixed with business hardware and software.

The trend is a result of a younger workforce, who is familiar with using technology in all aspects of their lives. This has resulted in users coming to rely heavily on their mobile devices to conduct their day-to-day activities including the workplace. Employees will bring their personal mobile devices, such as smartphones, laptops, tablet computers and USB Drives, and connect to their employer's network. (Wigmore)<sup>i</sup> Today, more and more companies are beginning to support personal mobile devices as part of their overall Information Technology package. In a recent survey, forty-one percent of organizations have stated that they have developed and implemented some sort of BYOB policy (ProofPoint).

### **BENEFITS TO EMPLOYERS AND EMPLOYEES**

BYOD has many benefits to the employees of an organization. One of the biggest is the fact that employee satisfaction increases. This is due to a reduction in stress levels, which occur due to the fact that employees are already familiar on how to use the device cutting down on training time. This allows employees to spend more time working on completing tasks, rather than talking to the IT Help Desk in trying to solve device problems. BYOD also gives employees more flexibility, because they can work from different locations, which is also a factor leading to higher employee satisfaction. (Donahue, 2012)

BYOD has benefits to employers as well. One of the largest benefits is cost containment, which results from not having to cover expenses related to the personal devices. This includes things such as updates and replacement cost. It also reduces the need to invest in computers. With employees using their own devices, the need to have traditional desktop computers decreases. This is an important factor today, when many organizations are facing budget cuts and reduced revenues (Donahue, 2012).

### **PROBLEMS WITH BYOD**

One of the biggest issues with BYOD is security. When employees conduct work on their own personal devices, they are often handling important data, such as social security numbers, and credit card information. Personal devices usually lack security features that are found on company owned devices. If the mobile device is lost or stolen, the data it contains is much more likely to fall into the wrong hands, which creates major problems for all parties involved. One solution to this issue is to have a security feature on the device, which limits access to important and secure data, once the employee leaves the company premises. This feature would also help ensure that employees do not access information that they are not entitled to, which reduces the risk of a security breach (Wiech, 2013).

Another issue for employers is attempting to support the different devices on the main network. Different devices have different operating systems, which makes it more difficult for the IT department to properly support all the devices. A way to help control this issue is to limit the type and brand of devices that can be used. Employees would only be able to register certain devices with the company's network. (Wiech, 2013) The chart below highlights some additional challenges in respect to BYOD.

## What are the main challenges you face with respect to BYOD?

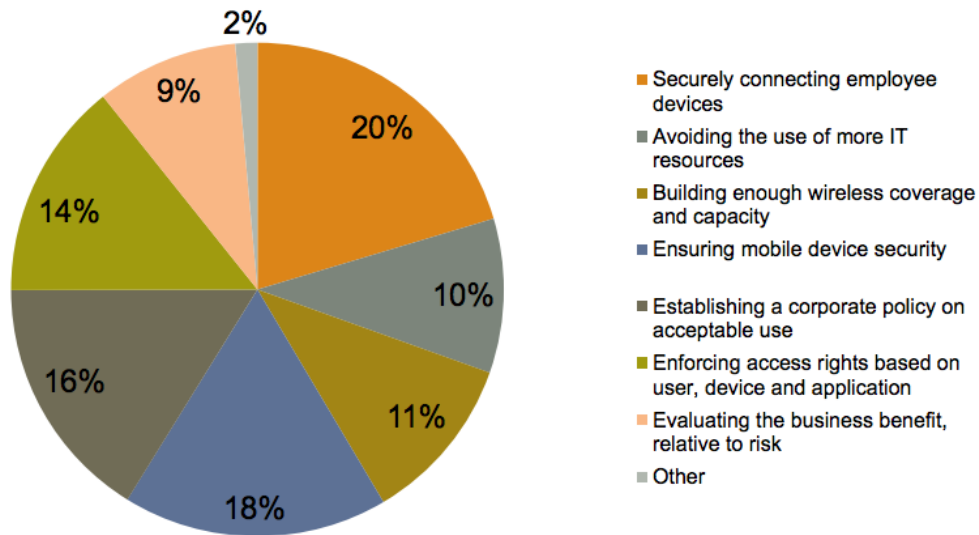


Image From: <http://www.zdnet.com/blog/btl/byod-inches-along-in-europe-middle-east-africa/77605>

### POSITIVE ASPECTS OF MOBILE IT IN THE WORKPLACE

When it comes to Mobile IT in the workplace, there are many positive aspects associated with this move. First is the overall increase in employee satisfaction that can be obtained, by creating a setting, where employees have the option of which device they want to work with. This increases employee loyalty and retention, because no employee wants to leave a job where they are happy and have the freedom to work in a way they want. This also increases employee responsibility. Not only do employees have to watch out for their own devices now, they are asked to do more to maintain them. Employees will get to know their devices better, which will take away stress and work from the IT departments in trying to troubleshoot device problems. The IT departments can then focus on more important issues facing the health of the company's information infrastructure (Kopytoff, 2012).

One of the biggest benefits to the Mobile IT in the workplace movement is the increased productivity that employers get out of this move. By having their own tablet or other device, employees are willing to check and respond to email more conveniently, timely and effectively after hours. This moves employee production from 9-5 to after hours as well. Instead of needing to carry around a big desktop, or even a smaller but still inconvenient laptop, employees can use their tablets or smart phones to finish that day's work from any location, significantly increasing productivity. Also, for sales people, or other types of employees who frequently travel, mobile IT can be the best way to keep them connected. It is much easier and quicker to look at a tablet than it is to pull out a laptop and boot it up and find needed information and "linking up devices may encourage people to connect together more frequently, leading to more collaboration and more effective communications." At a trade show, perspective customers can be handed a presentation on a mobile IT device and go through it themselves. This increases their interaction and their learning experience about what a company is all about (Stem, 2013).

An obvious advantage to any other program that encourages mobile IT in the workplace, such as BYOD, is the impact on the bottom line. Increased productivity results in increased revenue and profits. Also, by having workers bring their own devices to work and buy them on their own, or through a subsidy, cost is reduced for the company and expensive hardware does not need to be purchased from the company budget. Operating costs are then essentially paid for by the employees, through their salaries. Employees then can have an increased flexibility in where and what device they want to work with and can also purchase the most up-to-date product with the desired features that would they want (Wilson, 2012).

### NEGATIVE ASPECTS OF MOBILE IT IN THE WORKPLACE

In a recent article by Computer Weekly, author Cliff Saran discussed the negative aspects surrounding BYOD and mobile IT in the work place. One major issue is the overall fall in work satisfaction, if employees are

forced to buy their own hardware. This cuts into their income and can cause disgruntled employees, who feel that hardware for work should be supplied to them. In a recent survey, nearly 33% of workers responded that, in order for them to do their jobs, they had spent their own money on hardware and other devices.

One of the biggest fears for employers is the security breach, as a result of mobile IT in the workplace. Employees would have devices on them with sensitive information at all times. They would have this information going to and from work, at their homes or where ever else they might go. Information can be stolen in a variety of ways. The simplest way is through stolen hardware. A break in at home, in the car, or at a restaurant could result in valuable and delicate information falling into the wrong hands. Another possible way information could be stolen is by hackers. At an office, employers have more control and the ability to protect hardware from attacks. However, employees must take the proper steps on their own to protect their hardware once they leave the office. They must ensure that their personal firewalls and other modes of protection are up to date and ready to defend the device. A third way security is an issue is through employees taking advantage of the sensitive information that they may have. When employees all have their own mobile devices (such as in a BYOD program), employees have more access to “customer billing information, trade secrets and medical records.” To prevent information theft, it is important that companies strengthen and further enforce their information security rules. They must go further to ensure that access to private information is limited to only those who need it and won’t abuse it (Saran, 2012).

For Mobile IT in the workplace to run successfully, there are often increased costs associated with doing this. The Computer Weekly article cited Kraft Foods, which recently moved to a more BYOD and mobile IT in the workplace approach to business. For example, more devices mean more people using data, which may mean increasing servers or a slowdown of access to the Internet. Also, buying increased security software can be very expensive and time consuming. Although there are many advantages to this method, it is important, in any business decision, to know the costs and risks associated with that decision. It will help companies adjust and better prepare for the change.

## CONCLUSION

Over the last decade, Mobile IT has become an important factor in many businesses. It has had major effects on the way that businesses conduct their operations. Mobile IT is the use of mobile devices such as laptops, smartphones and tablet computers to conduct business operations. This makes the work environment more flexible and allows employees to work outside the office. One trend that has emerged from this is Bring Your Own Device, which is where employees bring their own mobile devices to the workplace, and use them to complete work related task. The positive outcome of these trends leads to increased flexibility, employee satisfaction and decreased expense for employers. The overall major negative affect is increase security issues which come with the use of personal devices. Overall, Mobile IT is a trend that has created many benefits and will likely be around for some time to come.

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# SOCIAL MEDIA AND NETWORKING IN UNITED STATES PRESIDENTIAL ELECTIONS

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## ABSTRACT

*Although social networking has not been around for long, it already plays a huge role in today's society especially in the United States. Social networking was originally designed as a simple way for people to keep in contact with each other and share photos. However, social media networking blossomed into a thriving industry that few foresaw. These sites allow for online communities to be built through things such as forum-like posting and commenting or instant messaging. The use of social networking has raised concerns that impact areas other than media networking. Research is ongoing that is investigating the different outcomes that social networking has on society as a whole. They are looking at effects on things such as intellectual property, education and privacy of personal information as a result of social networking. Research is turning up evidence on how social networking can have an impact on areas outside the primary intent of social networking. For instance, social media networking has importance in the presidential election in the United States. However, before this report discusses this important part of US history, it would be interesting to explore the history of social networking itself.*

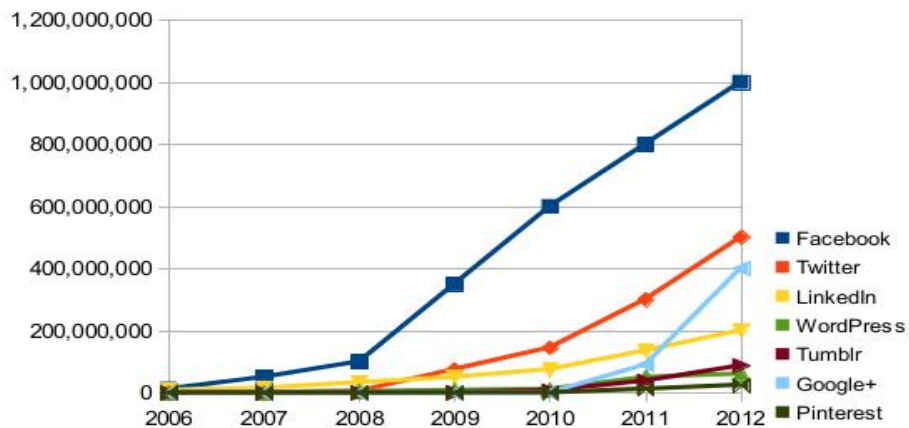
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## HISTORY OF SOCIAL NETWORKING

One of the web's first social networking sites called Geocities was established in 1994. Geocities was created for users to be able to design their own websites relating to specific cities with similar attributes. In 1995 theglobe.com entered the social media market and changed the game with options for users to share their own content and interact with other users with similar interests. Theglobe.com however lost all of its momentum and shut down within three years. In 1997 America Online released their instant messaging service. This AOL instant messenger gained steady popularity through into the 2000s. In that same year sixdegrees.com launched a newer social media networking site. It introduced the ability to create user profiles to interact with other friends through the site. The dot com bubble burst in 2000 and the stock market plunged making it necessary for programmers to develop content that would renew interest in internet based business. Friendster was the first social networking site which pioneered the idea of real world friends connecting through social media networking. This contradicted the previous social networking use of creating online friends. MySpace was introduced to the public in 2003. It was built as a Friendster competitor and was originally coded by an intern at a marketing firm. By 2004 Facebook was launched. Facebook's purpose was to connect college students in the US and originated at Harvard University. In 2006 Twitter entered the market as a way for people to send short messages to their friend. By 2008 Facebook had surpassed MySpace in the social media world. This is where the social media networking industry still stands today in 2013. As social networking grew through the 2000s, the amount of users using these four social networking sites was increasing at an interesting rate. In 2002 there were 90 million users on Friendster. By 2003 there was 260 million users registered on MySpace. In 2004 there were 600 million Facebook users and in 2006 there were 190 million Twitter users. The graph below from dstevenwhite.com shows the rapid growth of many social media sites in the past decade. These statistics indicate that social networking growth will continue for the foreseeable future.

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### Social Media Growth 2006-2012



### IMPACT OF SOCIAL MEDIA ON US ELECTIONS

With the prominence of social networking, it is also important to review the impact that it has had on presidential elections. One of the important tasks of being a presidential candidate is being able to reach the masses and tend to their interests. In the 2008 US Presidential election, social media networking was recognized as an important factor in the Presidential election process. President Obama's campaign team used social networking to socially offer themselves to the public. They did this through networks such as Facebook and Twitter, where they were able to raise money, fight smear campaigns and help potential voters get all the information they needed to make informed decisions. President Obama's election team has a database of millions of supporters who can be contacted through email about current events and campaigns. President Obama's election team quickly realized what candidates were capable of doing with social media networking. Ranjit Methoda from Methoda.com was quoted as saying that:

*"Thomas Jefferson used newspapers to win the presidency, F.D.R. used radio to change the way he governed, J.F.K. was the first president to understand television, and Howard Dean saw the value of the Web for raising money...But Senator Barack Obama understood that you could use the Web to lower the cost of building a political brand, create a sense of connection and engagement, and dispense with the command and control method of governing to allow people to self-organize to do the work."*

President Obama's ability to brand his campaign through social networking was a key to his success and defeat of Senator John McCain in 2008. Since voters experienced this new style of presidential campaigning, President Barack Obama had his work cut out for him in the 2012 election.

### IMPORTANCE OF SOCIAL MEDIA IN US ELECTIONS

With social media's increasing relevance in today's society and in the political arena, it is important to examine the effect it had on the 2012 presidential election. American politics today does not only consist of the conventional "kissing of babies" and meeting with citizens face-to-face with a handshake; political candidates can now join social networking sites in order to appeal to a much wider demographic. Many people have attributed President Barack Obama's recent electoral success (in 2008 and 2012) to his keen utilization of social media, and this could very well hold true. In November of 2012, when the presidential election was held, President Obama had nearly twenty and a half million Twitter followers, while Republican candidate Governor Mitt Romney's count paled in comparison, with only a little over one million followers. Likewise, President Obama's "like" count on Facebook exceeded twenty-nine million, while Romney came in with just under eight million "likes". Other social media websites such as YouTube, Pinterest and Instagram also showed President Barack Obama's dominance in the networking platform. President Obama had over ten times the YouTube subscriptions, nearly four times the Pinterest

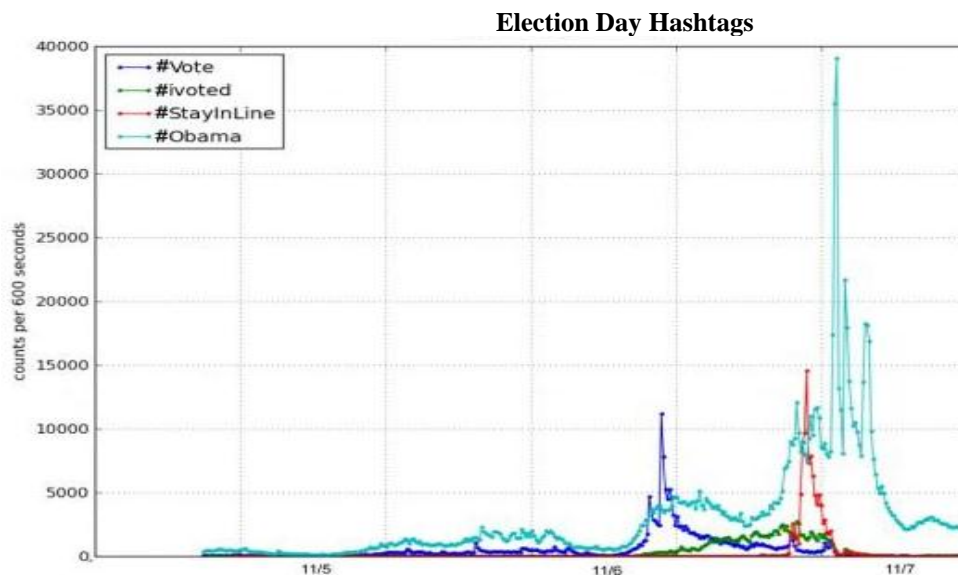
followers, and over thirty-five times the Instagram followers that Governor Mitt Romney had at the time of the election. Twitter played a large role in the outcome of the 2008 election, but since then, its use has multiplied by a factor of ten. It is a great way for political candidates to interact with the citizens of America, and also to solicit donations and disseminate information.

### FACEBOOK USAGE IN US ELECTIONS

Facebook is still the paramount social media website. Getting users of Facebook to like a page, respond to a proposition, or share content is a huge victory in reaching a new audience. Now, instead of simply appealing to television viewers or news article readers, candidates can reach a younger population, or one that is more connected with others via social media. Social media presence played a huge role in the 2012 elections. Ninety-four percent of social media users of voting age watched a political message on a social media website, and thirty-nine percent went on to share the video with an average of one-hundred-and-thirty other users. Not only can social networking help candidates to get in touch with more citizens, it can also be used to forecast future actions. For example, status messages and comments of Facebook users are now being put into an algorithm that helps to measure sentiment among voters, turning simple text into polling data. Facebook recorded over 9.6 million people who claim they voted on Election Day. Of these users, sixty-five percent were female voters, and thirty-one percent were between the ages of twenty-five and thirty-four.

### TWITTER USAGE IN US ELECTIONS

Twitter also recorded the highest spreading piece of content to ever be tracked on a social network: a tweet containing a photo of President Barack Obama hugging the First Lady with a caption that read “Four more years” received over three hundred thousand retweets within an hour. The following graph illustrates the use of various “hashtags” that were used at different points leading up to and during the election. At the beginning of Election Day, there is a clear spike in the use of the “#Vote” hashtag (seen in dark blue), encouraging others to go out and vote. As the day goes on, the “#iVoted” hashtag (green) gains more attention, and as the day winds down and votes were tallied, the “#Obama” hashtag (light blue) started being used by Twitter accounts at an incredible rate.

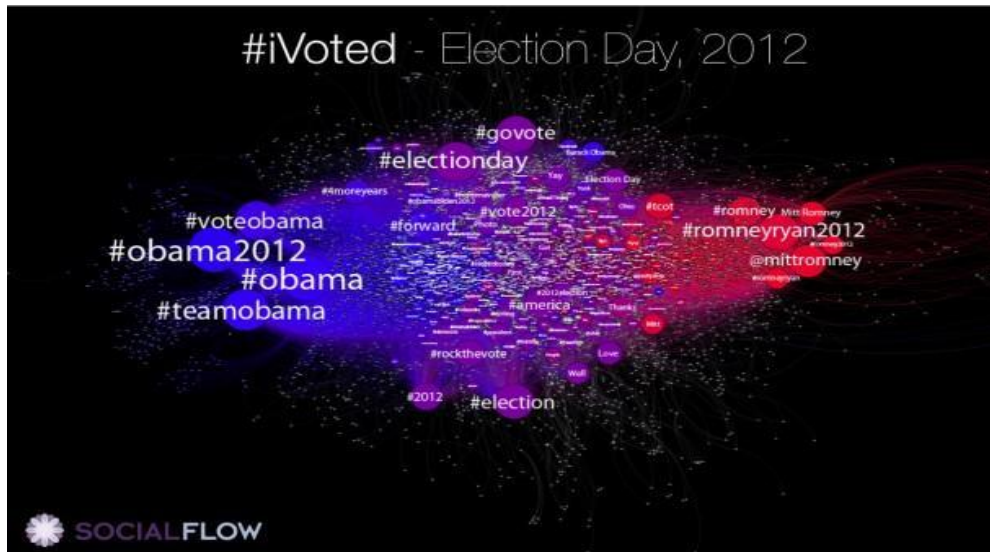


The following info graphic demonstrates the landscape behind the hashtags, phrases, and user mentions that were tweeted along with the “#iVoted” hashtag during the election. Essentially, this picture shows what else people had to say as they tweeted the fact that they voted. The larger one of the circles is, the more frequently it was tweeted about, and the closer the circles are together, the more times they appeared in the same tweet. Blue circles represent tweets that mention the Democratic candidate, just as red circles represent tweets about the Republican candidate; purple circles are those that were used in reference to both Governor Mitt Romney and President Barack

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Obama. This info graphic shows that hashtags are a great way for people to unite under a cause. This data could help political parties get a sense of the success of their campaigns and possibly improve the way campaigns target different demographics. Social media data mining can also lead to a better understanding of the characteristics of different populations of potential voters and what they expect from elected officials.

### TOP TWITTER TRENDS ON ELECTION DAY



### SOCIAL MEDIA UTILIZATION BY US POLITICAL PARTIES

Historically, Democratic Party members have utilized social media more than their Republican counterparts. Fifty-two percent of Democrats reported “liking” or promoting material related to politics, as compared to thirty-eight percent of Republicans. Also, Democrats are more likely to use social networking to encourage others to vote; forty-two percent of Democrats have done so, as compared to thirty-six percent of Republicans. Overall, sixty percent of adults report using Facebook or Twitter, with most being younger citizens, rather than those that are age fifty or above.

### WHITE HOUSE UTILIZATION OF THE WEB

The development of social media has had an important influence on how politicizations interact with citizens. As discussed earlier, virtually all political parties are now using social media to connect with citizens. One of the tools that the White House is using is wethepeople.com. This website was created in 2011 and allows citizens to create petitions that can possibly be heard by the White House. The criteria for a petition to be listed on the site for public viewing is that it reaches 150 signatures in 30 days, once that threshold has been passed then the petition must get to 100,000 signatures in 30 days. The thresholds for viewing by the White House have increased since the creation of the site. Initially the number was 5,000, but the number of petitions that met that criteria made it impossible to address every single one. The fact that they have had to increase the signature threshold attests to the popularity of the service. In fact wethepeople.com has recently exploded in popularity as seen in the graph below.



Although [wethepeople.com](http://wethepeople.com) has seen a tremendous level of success in the recent past it is not without criticism. Some have argued that the response from the White House has been insufficient, as usually they simply address each successful response with a paragraph in a blog post. However despite the lack of legitimate action, I feel that the site does serve a purpose in bringing important issues to light and allowing the citizens to raise the issues that they feel are most important. We discussed political campaigns earlier, but one of the most important tools of any political campaign is an understanding of what the issues are, and what better way to understand the issues than to get them directly from over 100,000 Americans at a time.

### **PRESIDENTIAL TWITTER ACCOUNTS**

The White House has also embraced other forms of social media. One of the most interesting forms of social media that is used regularly is Twitter. Both the President and Vice President have Twitter accounts, as do the First Lady and various other members of the White House staff. The White House as a whole has a Twitter account with around four million followers that they use for various announcements and promotional events. One of the things that Twitter brings to the table is the ability for average citizens to raise concerns directly to the highest ranking politicians in the country. The best example of this was “town hall” meetings sponsored by Twitter that took place in June 2012 that used the hashtag “#AskObama” and had users directly submit thousands of questions for the President to answer. This kind of connection with citizens is very appealing to the younger generation and we believe that it contributes to the success of the Democratic Party with younger voters.

### **POLITICAL SIGNIFICANCE AND PEOPLE POWER TO VOTERS**

Since we have discussed a few different ways in which citizens have more influence over the political process than in years past, it is also important to look at the changes that are happening to the political landscape as a whole as a result of this movement. Younger voters are trying to make a statement in society. A major example of this was the Occupy movement. The movement began with a small group of organizers on Wall Street trying to make a statement about the income inequality in the United States and evolved into a national trend. People across the country of all ages felt a connection behind a common message of change, and social media enabled the planning and organizing of these different movements. The idea behind the movements was a sense of connection between all the members of each movement and social media was the perfect glue to hold it all together.

### **USE OF SOCIAL MEDIA TO PROMOTE A NEGATIVE POLITICAL AGENDA**

Social media can also be used to promote a negative political agenda. The easiest example to focus on here is the Westboro Baptist Church. Although their primary method of promoting their agenda is through live protests, the buzz created on the social networks every time they have a protest is enough to get people to pay attention to their message. They have a Twitter page where they can promote their agenda directly to the thousands of people that

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follow them. The important takeaway is that people, regardless of their message, can now be heard because of social media and can develop a following that might not otherwise exist.

## **SOCIAL MEDIA AND THE FUTURE**

The increase in social media usage is a fascinating trend, and one can only imagine that it will continue to grow as technology evolves. One piece of technology that will be interesting for social media is Google's Glass. Basically they are tiny mobile devices that are placed into eyeglasses and designed to be worn all day. This has the potential to connect people to the Internet and therefore social media, all the time. The connectivity that a cell phone can provide is limited by people physically manipulating the device, but the eyeglasses would provide a simple and effortless way to access social media that would leave you connected at all times. The younger generation craves this connection and the success of Google Glass will rely on connections with social media.

In addition to shifts in technology, it will be interesting to see how social media services develop in the future. Now that Facebook has gone public one of the things that investors want to see is some way to generate revenue, but what has made these sites so popular in the past is that they were free services. One of the most appealing aspects for politicians was the amount of influence that they could have for such a small amount of money. This challenge is something that the bigger social media services will have to overcome and the evolution of these services from free services to revenue generating machines may change the way people use the internet. It will be important for politicians to keep up with the changes that these sites are making in order to maximize the impact that they have on young voters.

## **CONCLUSION**

The evolution of social media has changed politics in this country. People are now more connected than ever with their politicians and that connection is encouraging voters who would otherwise not be interested in politics to get involved. This change in the political landscape has proven to be influential in recent elections, and will continue to be important in the future. Almost all political movements today have some sort of major social media influence. Politicians now remain connected with citizens long after they are elected through direct social media contact. It is an expectation of the younger generation that politicians have an active social media presence. One can only assume that social media will allow citizens to hold politicians more accountable for their actions in the future. If a politician does not deliver on a campaign promise it is fair to assume that that politician will be called out publicly on social media and have to respond directly to citizen's complaints. Changes in how social media works will have a major impact on future political campaigns and the future of politics as we know it, both during elections and as a constant connection with citizens after the politicians are in office.

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# COMPUTER SECURITY/CYBER TERRORISM

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## ABSTRACT

*Over time, the use of cyber terrorism has become more evident not only in the United States, but also on a global level. Cyber terrorism is defined as terrorist activities intended to damage or disrupt vital computer systems. Attacks on USA's electricity grids, water supplies, and computer and cellphone network infrastructure are becoming a major concern (Sanger). These attacks are being made by other countries and groups against specific organizations and government agencies in order to seek precise information. Specifically, the group "Anonymous" has performed a number of different hacktivist acts. A hacktivist is a person who changes or manipulates information on the Internet in order to convey a political message. During the most recent years, the group Anonymous has taken strides to act upon certain events and make themselves known. In particular they have taken actions to provide personal information for the public knowledge. This group opposes Internet censorship and surveillance and in order to show their devoted efforts to eliminate them, they continue to hack various government websites in hopes to make this possible. Along with the threat of Anonymous, the US has also seen a rising number of attacks on various companies from the People's Republic of China. A report from US information security firm, Mandiant, identified a specific Chinese unit responsible for cyber-attacks on at least one hundred and forty-one companies spanning twenty major industries (Beijing). Because of this growing and alarming trend there have been a number of actions taken to increase the level of security to handle attacks from these dangerous groups.*

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## CHINESE CYBER-ATTACKS ON THE UNITED STATES

The People's Republic of China is an economic competitor and a crucial supplier and customer of the United States. The US and China traded four hundred and twenty five billion dollars in goods last year, and China remains to be a critical financier of the United States' debt. China is not, by any means, considered an outright foe of the US, although currently they pose the greatest cyber threat (Cyberspace).

### China's Cyber Force for Terrorism

Every day, hackers originating in China penetrate US networks compromising national security and economic competitiveness. Joel Brenner, a former senior counsel to the National Security Agency, states that the Chinese army has trained thirty thousand cyber spies and sponsored more than one hundred and fifty thousand private sector cyber experts whose mission is to steal American military and technological secrets and harm government and financial services (Hello).

An US information-security firm, Mandiant, identified a secretive Chinese military unit as the likely source of the hacking attacks against over a hundred companies around the world in a report made public in February, 2013. The report by Mandiant assesses that after hundreds of investigations, they are convinced that the groups conducting these activities are based primarily in China and that the Chinese government is aware of them.



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According to the report, a Shanghai-based unit of the People's Liberation Army General Staff Department, also known as "Unit 61398" is staffed by hundreds and possibly thousands of people specially trained in network security, digital signal processing, covert communications and English linguistics. Since 2006, Mandiant has observed attacks from this unit against at least one hundred and forty-one companies over twenty major industries, including four of the seven strategic emerging industries that China has identified in its current five-year plan.

### **Chinas Attacks on US Companies**

The New York Times hired Mandiant to investigate China-based cyber-attacks against its news operations after a four-month-long cyber-attack. Chinese hackers were infiltrating its computer systems and getting passwords for its reporters and other employees. The timing of the attacks coincided with the reporting for a Times investigation, that found that the relatives of China's Prime Minister had accumulated a fortune worth several billion dollars through business dealings. Mandiant concluded that the attacks against The New York Times had come from a different Chinese source (Perloth).

Although Mandiant said that it could not prove that the attacks came from within the military building that was identified, they concluded that this was the most plausible explanation for its findings. The founder and chief executive of Mandiant, Kevin Mandia, said that "Either they are coming from inside Unit 61398, or the people who run the most-controlled, most-monitored Internet networks in the world are clueless about thousands of people generating attacks from this one neighborhood" (Hello).

### **Internet Control in China**

Since its founding in 1949, China has often been accused of manipulating the flow of information and prohibiting the dissemination of viewpoints that criticize the government or stray from the official Communist party view. The introduction of Internet technology in the mid-1990's presented a challenge to government control over news sources, and by extension, over public opinion. The Chinese government employs increasingly sophisticated methods to limit content online, including a combination of legal regulation, surveillance, and punishment to promote self-censorship, as well as technical controls. Information or objective reporting on subjects such as China's human rights record, Tibetan independence, Falun Gong, Taiwan, or the 1989 Tiananmen crackdown, among other topics, are largely absent in China (Lau). China is constantly blocking websites from their citizens; in 2009 China blocked Facebook, Twitter, YouTube and thousands of other Web sites (Research).

An often cited empirical study by the OpenNet Initiative collaboration between Harvard Law School, University of Toronto Citizen Lab, and Cambridge Security Program) found that China has the most sophisticated content-filtering Internet regime in the world. Compared to similar efforts in other countries, the Chinese government effectively filters content by employing multiple methods of regulation and technical controls. The PRC-sponsored news agency, Xinhua, stated that censorship targets "Superstitious, pornographic, violence-related, gambling and other harmful information" (Lau). However, many observers are concerned about the pervasive filtering of any content that the Communist Party of China views as politically objectionable. Informational websites, including that of the BBC, Voice of America, and the public encyclopedia, Wikipedia, have been blocked in China (Lau). According to some experts, the Chinese government has even gone as far as trying to require manufacturers to install Internet filtering software on all new computers (Research).

### **ANONYMOUS**

There are a number of groups that have taken part in terrorist actions in recent years. Specifically, the cyber terrorist group, Anonymous, is one of the most popular hacktivist groups. In 2012, Time named Anonymous as one of the most influential groups in the world (Anonymous). The group originated in 2003 and is known for opposing Internet censorship and surveillance. The underlying actions taken by this group is to make it possible for

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a member of a group to sign messages anonymously so that outsiders and other group members cannot see which member signed the message (Groth). This allows complete confidentiality from outsiders for the individual who has posted the message or information.

### **Anonymous' Activist Agenda - Revenge**

One of the more recent attacks included the release of personally identifiable information on the Internet for over four thousand bank executives. They did this by posting information such as phone numbers, computer logins, and other private data. The reasoning behind this attack was revolved around revenge from policies in which were revealed to have led to a suicide of an Internet activist (FoxNews.com). Aaron Swartz was a brilliant computer programmer who has contributed life-changing content to the Web. At only fourteen, he had aided in the creation of RSS and later went on to obtain Web files for free and provide them to the public. In 2011, he was charged with a number of crimes including acts such as computer and wire fraud. The reasoning behind this was due to the actions of gaining illegal access to JSTOR, a subscription-only service for distributing scientific and literary journals, and downloading 4.8 million articles and documents. The punishment that was pending on these actions was thirty-five years in prison as well as \$1 million in fines (Schwartz). In this situation, the group believes that a fierce prosecution and outdated computer crime laws may have contributed to Swartz's suicide (FoxNews.com). In addition, the group successfully turned MIT's website into a memorial for Aaron Swartz after his death and took down a reported six hundred Israeli Web sites to protest the unfair treatment of the Palestinians (Dewey). In order to reveal this to the public, anonymous made all of the personal information available as well as posted a video, which was viewed by over one million people (FoxNews.com). By doing this, it allows the group to gain publicity and influence the public opinion.

### **Anonymous' Activist Agenda – SOTU Address**

Another recent activity involving Anonymous was their threat to hack the State of the Union (SOTU) address. With their technical experience, Anonymous has threatened to take down all live streams of the SUTO address that took place on March 13, 2013. After taking them down, they declared they would then replace the event's hash tags with protest tweets on Twitter. Twitter is a social media website in which millions of users express and share their personal opinions and reactions regarding daily subjects. By using hash tags, these users can connect with others that share a common interest. Therefore, by negatively representing the SUTO address it could potentially influence the public's opinion of the event. Specifically, Anonymous opined that National Defense Authorization Act was "An act of outright tyrannical legislation." Since there are so many individuals viewing these negative comments, they have a very powerful influence in the public opinion (Dewey).

### **THE UNITED STATES RESPONSE (COUNTER TERRORISM)**

Counterterrorism (CT) is defined as, "Actions taken directly against terrorist networks and indirectly to influence and render global and regional environments inhospitable to terrorist networks" (Brennan). Cyber terrorism occurs in cyberspace which is an environment that CT professionals must simultaneously dominate, and effectively deny access to these shadowy groups in order to defeat cyber terrorism. CT cyber strategies, law, and policies provide the framework through which CT professionals execute their assigned operations. However, the current US CT cyber policies are not necessarily completely sourced in domestic or international law. For example, the 2011 National Strategy for Counterterrorism professes that the US is at war with al-Qaida, which would imply that military computer network operations (CNOs) should be governed by the same policies, laws, and rules of engagement as operations in other domains, such as war on the land, sea, or in the air, but this is not the case (Brennan). In other words the current domestic and international laws that we abide by are not up to date and do not include the threat of a war in cyberspace. This is a problem for US CT professionals because it inhibits them from

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implementing the very strategies that they are expected to execute. In particular these restrictive and hierarchical CT cyber policies impede the ability of strategic and operational-level military commanders who are deployed in support of the “Global War on Terror” to manipulate cyberspace to their greatest advantage.

### **PRIVATE COMPANIES RESPONSE TO CYBER TERRORIST ATTACKS**

Not only is the US facing problems due to lack of domestic and international laws to combat cyber terrorism, but they also face the problem of not knowing the timing of cyber terrorism attacks. Often times when a company or organization is attacked by cyber terrorists they are hesitant to report for fear of the general public’s perception. The reason being is that they do not want to ruin the company image as well as allow other cyber terrorists to know that they are vulnerable to attacks. To address this issue, in February, 2013, President Obama signed an executive order that aims to encourage information sharing about cyber threats among financial firms, utility operators and others who own critical infrastructure. His hope is that the collaboration of these organizations will help the US to identify where these cyber-attacks are coming from and then implement a strategy to protect these companies and our country (Browdie).

The Internet has become such an essential tool for business success that few can afford not to have a Web presence. But the Internet has done more than change the way people work; it changed the way criminals commit crimes. Criminals today do not have to step foot in a business or even the city, state or country in which it is located to steal information or damage equipment. Today companies are taking many steps to protect themselves from cyber-attacks. According to an article in Small Business Digest there are some simple steps that business are taking to decrease the likelihood that they will become the next victim of cyber terrorism (Simple).

Making sure to install and update security software - It should come equipped with anti-virus, anti-phishing, anti-spyware and intrusion prevention software to keep out malicious people and programs. The security software also should come with backup and restore ability so that the company can recover any information it might lose.

Not opening unknown e-mails, visiting unknown Web sites or clicking on suspicious links or attachments - If people are even slightly unsure about a link or attachment, they should not open it. It is not worth the risk to the business or customers.

Creating smart passwords - All passwords should be at least eight characters long and should incorporate both letters and numbers. Use different passwords for each account, and change them regularly. Do not share passwords or write them down where other people could access them.

- Educating employees - The biggest risk to the security of a business can be an employee who does not have a basic understanding of cyber security. Implement regular training sessions for employees so that they become familiar with security measures they can take.

Creating a contingency plan - The company should have a contingency plan prepared in case the business becomes the victim of a cyber-attack.

Simplifying the Process. - Time is money, so companies should work with a provider that offers a full portfolio of security options instead of purchasing products and services separately from different vendors (Simple).

### **THE SECRECY ASSOCIATED WITH CYBER TERRORIST ATTACKS**

When talking about cyber terrorism it is also important to remember that much information is kept confidential. In particular, information concerning the United States’ response to cyber terrorist attacks. The US must keep this information classified or else they can expect a response from these dangerous groups. However, as mentioned in the text above, Mandiant recently released a comprehensive report stating that in the last seven years, there were one hundred and forty one organizations in the US that were attacked by a massive hacking campaign linked to the Chinese military. Mandiant released this report because they are almost certain that the attacks are coming from China and they hope that the US will take appropriate action to safeguard US businesses.

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## THE WHITE HOUSE RESPONSE TO CYBER TERRORIST ATTACKS

Since the report was released in early March 2013, the White House has called on the Chinese government to halt its alleged program of cyber intrusions on U.S. business and to discuss diplomatically what constitutes tolerable conduct for both countries in a digital age (Browdie). The U.S. has stated that they have repeatedly raised concerns at the highest Chinese government levels about the cyber Terrorist Attacks with senior Chinese officials, including in the Chinese military. According to Tom Donilon, the National Security Advisor to the President, the US would like China to take three constructive steps. Firstly, recognize the threat cyber-attacks pose to international trade and its relationship with the U.S. Secondly, put a stop to these activities, and thirdly, engage in a constructive direct dialogue to establish acceptable norms of behavior in cyberspace (US).

## THE CHINESE RESPONSE TO CYBER TERRORIST ATTACKS

In response to the recent allegations by the US, the Chinese government have denied involvement in the cyber-attacks tracked by Mandiant. The Chinese Foreign Ministry has responded by saying that China is also a victim of hacking and said in turn that the US is responsible for cyber-attacks on them (Baldor). According to China's Foreign Minister Yang Jiechi, "Anyone who tries to fabricate or piece together a sensational story to serve their political motive will not be able to blacken the name of others or whitewash themselves." Jiechi told reporters, "We hope the relevant parties will stop irresponsible attacks or accusations" (Browdie). The US has responded by denying that they are involved in similar attacks or stealing information from Chinese companies.

## CONCLUSION

At the moment the responsibility of these cyber-attacks is questionable – since this may be a case of the United States' word vs. China's word. The writers of this report concur that both countries are keeping information confidential. In the near future major and decisive steps will be taken by the US before something catastrophic happens. Cyber terrorism is a not only a threat to the United States, but a global threat. As the world moves from paper to electronic storage of information to the Internet cloud, the potential for information theft continues to grow. Groups such as "Anonymous" and China's "Unit 61398" do not pay heed to the demands of the US and this report feels that a new strategy needs to be implemented by the U.S.. Since everyone is at risk, it will be proactive to stay vigilant. This report has discussed that attacks can occur across diverse targets, such as Fortune 500 Companies, tech startups, Government agencies, news organizations, US Embassies, universities, law firms and anything else with intellectual property to protect (Portrait). However the threat these cyberterrorists pose is huge and more needs to be done to make sure that we are safe.

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24 Mar 2013.



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# CYBER STALKING

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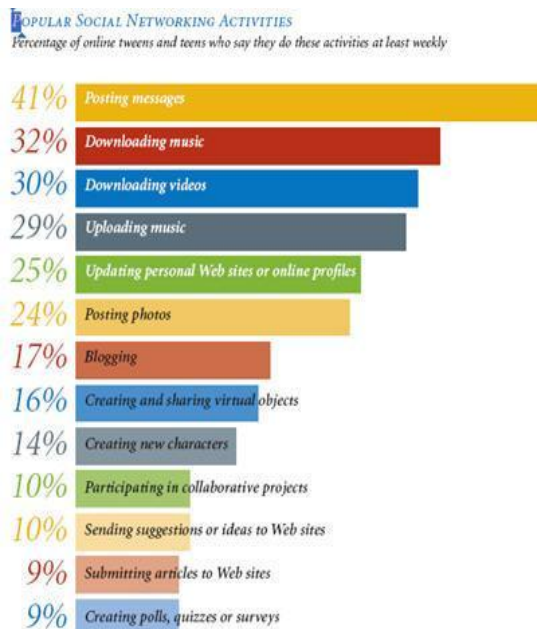
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## ABSTRACT

*In today's society there is very little that is kept private with technological advancements like social media and the Internet. While many individuals believe that they are safe when they use the internet, the truth is in fact the total opposite. Anyone can obtain information about a person with a few keystrokes and clicks of a mouse. Just turning on a computer can expose a person to harassment or unwanted attention. With technology being so readily available and with loads of different sources, stalking has taken a new form. Predators have turned to technology to aid their behaviors. Cyber stalking is using the internet, email or other electronic communications to stalk, and generally refers to a pattern of aggressive or cruel behaviors. With over 78% of North America using the internet, it leaves online predators with many diverse targets that they can manipulate. While the internet is such an astounding tool to the world, it is a very powerful device and when misused it can be destructive to and for many individuals.*

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## CYBERSTALKING ON SOCIAL MEDIA AND DATING WEBSITES



Cyber stalking occurs all over the Internet, however two types of websites are known for making their users highly vulnerable to this type of attack. Social media and dating websites both provide the Internet world with a great deal of personal information including one's date of birth, and one's current address. These sites allow people to easily research other users, and in today's society there is no limit to the number of users on the web. Due to the rapid increase in Internet usage, cyber stalking has now become more common than face-to-face stalking. Cases involving cyber stalking can be difficult to prove in a court

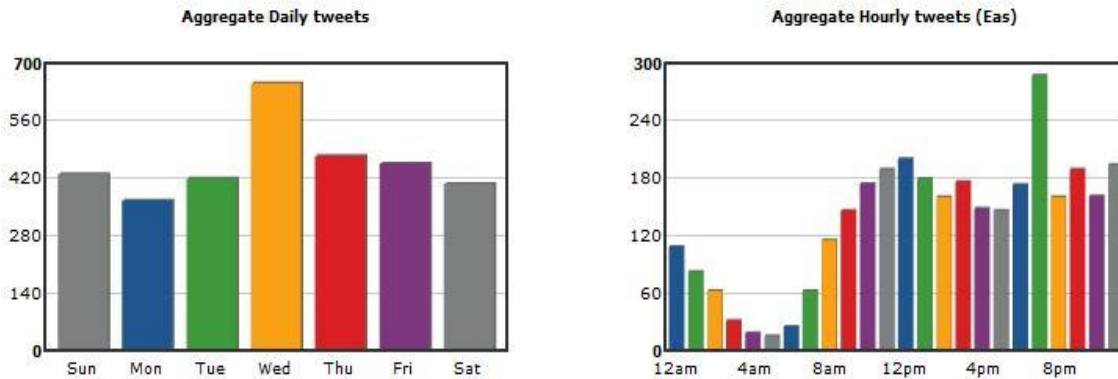


of law because it is extremely difficult to gather evidence or how to use the law to protect the victims. The article “Cyber stalking ‘Now more common than face-to-face stalking’” written by Karen McVeigh discusses a case about a male teacher who was followed through Internet chat rooms where the abuser claimed he met the male teacher on a child pornography site. The male teacher never found out who the abuse was, or what their intent was (McVeigh). Even though there was no obvious physical harm, was there psychological damage? In past cyber stalking cases, there have been threats to kill, impressions are given that they know where their victim lives, and that if they had the desire to, they could physically contact them (McVeigh). Overall, cyber stalking is known for being hard to track down the users, and difficult to use current laws in order to defend cyber stalking cases.

### SOCIAL MEDIA WEBSITES

As internet social media sites continue to expand they are ultimately creating an environment that allows cyber stalking incidents to continue to increase. Internet Social media sites specifically, allow anyone who is interested to access information such as one’s age, address, email, phone number, friends and family member names and information, and even provides the user with the current physical location. Over the past few years, sites like Facebook, Twitter, and LinkedIn are continuing to attract more and more users. Since there is no filter on the Internet, a user is restricted in the control of personal information. Once something is placed on the Internet, it will exist somewhere in cyberspace forever. As pictured in the diagram to the left, posting messages is one of the most popular Internet activities. This shows that it is extremely simple for people to misuse and abuse personal information. Since tweens and teens are the most prone social group to cyber stalking this graph is essential in assisting with prevention of cyber stalking.

One of the newest and most popular social media tool is Twitter. This “micro-blogging” tool allows participators to update friends, family, and more importantly strangers, with what they are currently thinking or doing. Twitter is a Smartphone application that has been known to be used “on-the-go” (Harry). Ayana Harry’s article “Twitter: Social Networking? Or Cyber stalking” discusses whether Twitter is invasive or just intimate. She asks whether this site is “part of the nonstop streaming of our lives” and whether or not it is safe or solely enabling people to follow others. Twitter’s co-founder, Stone, defends the social media tool by stating that he feels that Twitter is “small and intimate within a group of friends” (Harry). With more than 200,000,000 active members, it is obvious that Twitter is rapidly growing. Not only are these sites growing individually, but they are also beginning to work together in order to simultaneously update at the same time, with the same message. This means that when a user posts a status on Facebook, these tools have the capability to then update Twitter at the same time. This demonstrates the never-ending cycle of over sharing personal information. The statistics depicted below represent the amount of activity that takes place on twitter on a daily basis. We can also see that a lot of activity is at night typically when people are home right after dinner time. It is also interesting to see that many of the higher tweets are during the middle of the day when teens are typically in school. The daily tweets chart shows us that many times people tweet as the weekend approaches. The beginning of the week we can see that many times people are not using twitter as consistently. Since twitter is actively used by tweens and teens for the most part, it is evident that once they get to the hump day of the school week their activity increases



### DATING WEBSITES



Social media websites are not the only sites that are considered dangerous. Dating websites are also very intimate and revealing. Today, there are more than 40 million Americans using online dating websites in search for intimate relationships. Even though these sites make it easier for networking among members of these websites, it also opens the door to those who do not have the best intentions (Peters). As websites such as Match.com, and eHarmony.com become more and more popular, experts are frantically trying to warn the world that this “Internet romance is fraught with peril”. Even though there are some people who are correctly using these provided services, you can never be certain whom you are socializing with. Users on these websites range from “liars to sexual predators and even murderers, who hide their motives behind seemingly innocuous virtual identities” (Peters).

Users on dating websites are easily targeted for a few different reasons. The first one being that users “develop a false sense of familiarity” with people that they meet (Peters). This creates an unsafe environment because an online user may not have met the online person even though the user feels like they know them. Peters states that “meeting [someone] in a bar, you might immediately feel the hair on the back of your neck stand up, with internet dating you have let your guard down by the time you interact face to face”. The second reason is that online dating users are easily targeted in that they provide information that immediately attracts predators. For example, when one posts pictures of their children stating that they are looking for someone who is good with kids, they are sending an invitation to pedophiles and other sexual offenders. Lastly, users have, in the past, been led to believe that they are being more protected than they actually are. True.com is one of the only online dating sites that run background checks on its members; however, people are led to believe that all dating sites run background checks (Peters). This causes many issues because dating websites tend to consist of “easy prey” or users who are insecure, depressed, recently divorced, and eager to find companionship.

### **SOCIAL MEDIA WEBSITES VS. DATING WEBSITES**

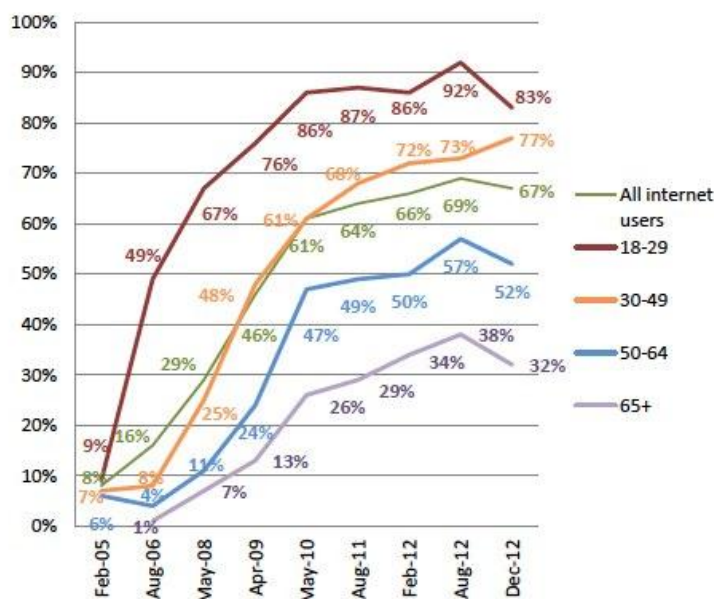
The Huffington Post recently wrote about a study that was conducted in order to determine what type of websites in which cyber stalking is most prevalently found. This study identified key differences between physical stalking and Internet stalking. The type of relationship that the stalker has with the victims tends to vary. People reported that their stalkers tended to be acquaintances and sometimes even strangers with no clear motives or intentions. Researchers found that stalkers commonly used social networking websites as opposed to dating websites to find and pursue their victims. The statistics show that 20% of victims were followed through the social networks, while only 4% reported being stalked through dating websites. Most specifically, teens stated that they felt they were most likely being targeted through their social networking tools.

Why are Internet social networking sites more attractive to cyber-stalkers? One key reason is that Internet Social Media sites are used by users of all ages while dating websites are for only those looking for a relationship. The graph to the left clearly shows that over the years the numbers of members have increased within all age groups (Smith). Not only are Internet Social media sites known for being very intimate because people are allowed to share as much information as they want, but sites such as Facebook, Twitter, and Google+ have also recently been identified as being some of the most visited and used websites.

### **RULES, REGULATIONS, AND PREVENTION**

## Social Networking Site Use by Age Group, 2005-2012

% of internet users in each age group who use social networking sites



Source: Pew Research Center's Internet & American Life Project surveys, 2005-2012

Cyber stalking specialists argue that “new technology inevitably leads to new forms of deviant behavior that arise in order to exploit new opportunities. Cyber stalking encompasses a wide range of new behaviors that are not associated with offline stalking” (Bocij). With the rising trend of cyber stalking occurring around the world, new regulations and prevention protocols are needed to protect those that are being targeted. Currently, there are 37 states that have a law or code that protects the residents from the predators that use the internet to stalk victims.

Many of these regulations and laws overlap and coincide with cyber harassment laws. A few states in fact have the exact same clause that punishes those who harass or stalk an individual. One of the most powerful laws against cyber stalking comes from the state of Massachusetts. Their General Laws states,

*“The conduct, acts or threats described in this subsection shall include, but not be limited to, conduct, acts or threats conducted by mail or by use of a telephonic or telecommunication device or electronic communication device including, but not limited to, any device that transfers signs, signals, writing, images, sounds, data, or intelligence of any nature transmitted in whole or in part by a wire, radio, electromagnetic, photo-electronic or photo-optical system, including, but not limited to, electronic mail, internet communications, instant messages or facsimile communications” (NCSL).*

This law prevents anyone from being harassed over an extended period of time and allows the state to charge a predator with several penalties including five years in state prison, a \$1,000 fine, or probation for two and a half years. It also states that if a criminal is convicted for a second time they are guaranteed at least two years in prison and could serve up to 10 years depending upon the severity of the case.

While not every state has a specific clause in the laws about cyber stalking, every single state has either a cyber-harassment law or a cyber-stalking law. According to the National Conference of State Legislatures, cyber harassment differs from cyber stalking in that it may commonly be defined as not involving a credible threat. Cyber harassment usually pertains to threatening or harassing email messages, instant messages, or to blog entries or websites dedicated solely to tormenting an individual. Some states approach cyber harassment by including language addressing electronic communications in wide-ranging harassment statutes, while others have created stand-alone cyber harassment statutes.

Shortcuts are offered for police officers attempting to uncover the identity of a cyber-stalker, such as conducting an Internet search of newsgroups with the harassers e-mail address to see if the harasser has posted their

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name or telephone number with any Web sites (Hitchcock). The anonymity that currently exists with the internet allows for the cyber stalkers to hide and makes tracing the suspects difficult for those attempting to catch predators.

### PREVENTION METHODS

To prevent being cyber stalked, users should keep personal information private. Users should not offer any personal information over the internet. One of the most important things to do is to save and retain any messages or information sent by a stalker. This will help the law enforcement authorities attempt to track down the harasser. Being cautious about meeting an online acquaintance in person is a crucial strategy. If there is a need to meet with another Internet user make sure that it is in a public place with other people around to ensure one's safety. It is always safe to use neutral-gender names when online so that other users are unable to determine a user's specific gender. Users should also change passwords often and edit online profiles as much as possible. This will prevent a stalker or harasser from gaining too much information on certain individuals. Lastly, chat programs that do not permit tracking of the user's Internet service provider should be used. Users should remember to always log off and use the Internet for other websites.

### CONCLUSION

Cyber stalking has recently been defined as "an escalated form of online harassment directed at a specific person that causes substantial emotion distress and serves no legitimate purpose" (Clark). If this is the state that our society is currently in, what does the future of the Internet hold for its users? As technology continues to advance, the growth of cyber stalking and many other Internet threats will expand and become even more sophisticated. One can only imagine what technological developments will come about within the next 10, or even 20 years. One can be sure that with advancing technologies, there will also be an increase in cyber stalking incidents. Overall, cyber stalking is an issue that is not completely under control within the cyber world, and it continues to be a hot topic in the news, and will continue to increase.

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# APPLE VS. SAMSUNG - THE PATENT WARS

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## **SYNOPSIS**

*Over the past several years there have been numerous lawsuits between Samsung and Apple regarding patent rights. The "Patent Wars" began when Apple sued its component supplier Samsung, alleging in a 38-page federal complaint on April 15, 2011 that several of Samsung's Android phones and tablets infringed on Apple's intellectual property; specifically its patents, trademarks, user interface and style. Not only has this been a cause for debate in the United States, but it has also spread to several countries throughout the world. By August 2011, Apple and Samsung were litigating 19 cases in nine countries. As a result, different markets and users have been affected by the outcomes of these cases. To understand how this patent war began, a general understanding of each company is needed. Then, by reviewing the results of some of these settled cases, this report will establish who was affected and how. Finally, knowing how the current case is being handled may throw a light on how future patent disputes could be addressed.*

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## **BRIEF OVERVIEW OF APPLE**

### **APPLE'S ESTABLISHMENT**

On April 1, 1976, two high school friends, Steve Wozniak and Steve Jobs, founded Apple Inc. Their product was the Apple I. It was a personal computer (PC) kit. The kit came with a motherboard, CPU, RAM, and basic textual-video chips. Wozniak hand built all of these kits. By today's standards, this would barely qualify as a PC. Computer enthusiasts did not consider the Apple I to be a serious product and sales floundered. In 1977, the Apple II was introduced to the public with several important upgrades; a plastic case, color graphics display, larger ROM (Read-Only Memory) and two game paddles. On December 12, 1980, Apple went public with a price of \$22 per share. With Wozniak's technical skills and Jobs' entrepreneurship, Apple was on its way to success (Cruikshank).

### **TOP MANAGEMENT**

In today's global economy and information economy, management is extremely important. One of the driving factors of Apple's success is contributed to their founder and CEO Steve Jobs. Since his death in 2011, Tim Cook has taken over as CEO. Under Tim Cook there are nine other Vice Presidents; Eddy Cue, Craig Federighi, Jonathan Ive, Bob Mansfield, Peter Oppenheimer, Dan Riccio, Phillip W. Schiller, Bruce Sewell and Jeff Williams. Steve Jobs has been quoted saying, "Picasso had a saying, 'Good artists copy, great artists steal.' We have always been shameless about stealing great ideas." This quote is ironic because Apple is now accusing Samsung of stealing Apple's ideas. In addition, similar quotes about imitation versus stealing is attributed to three different people; Pablo Picasso, Igor Stravinsky and T.S. Eliot. So, even the quote itself has been stolen (Governance). See appendix 1 for a look at top management.

### **PRODUCTS**

Apple offers several products to their customers; Mac laptops/desktops, iPad, iPod, iTunes and iPhones. Many of these products use technology that was not developed by Apple. In some cases, Apples has admitted to stealing technologies and has refused to reimburse the original creators. In other cases, Apple used design ideas that

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existed in other devices. Now that Apple has created a strong brand and developed many of their own products, they seem to have changed their position.

The Mac computers, laptops and desktops, have stolen technology. Thirteen years before Wozniak created the Apple I, the mouse was invented in 1963 by Doug Engelbart and patented in 1970. Jobs also borrowed technology from Xerox engineers from 1979. The Xerox engineers are said to have inspired the window interface and the design of Apple's mouse. Apple's OS (Operating System) has also borrowed ideas from Microsoft Windows; screen sharing, forward and back buttons and ALT + TAB (White).

The iPod was released on October 23 2001 (iPod). The iPod is Apple's version of the mp3 player. To date Apple has sold over 300 million units, making the iPod the most successful portable media player in the world. However, the success of this product was built on technology that Apple did not produce or purchase. Apple paid Creative \$100 million in a settlement for their wheel technology. Also, Apple admitted to stealing Kane Kramer's 1979 music player concept. Apple refused to reimburse Kramer for his work. The overall design has also been compared to Braun's 1950's pocket radio (White).

Apple's iTunes was launched on January 9th 2001 (iTunes). iTunes has over 400 million active users. iTunes is a media library application and a music/video player. Apple designed iTunes after the first online music store, Ritmoteca.com. The way music was contracted and sold is extremely similar. In 2000 Apple had purchased SoundJam and used a design setup that was very similar, compare them for yourself in appendix 2 (White).

Apple's iPhone have sold over 250 million units. They were originally released on June 29th, 2007 (iPhone). This is where the seeds of dispute between Samsung and Apple may have taken root. Samsung claimed that Apple had stolen technology shown to Apple engineers in 2003. Samsung's Pinch to Zoom was featured in Diamond Touch during this showcase. Also, the Samsung F700 and iPhone 3 were released within 6 months of each other. The general design of these phones is rather similar, see for yourself in appendix 3. Apple had acquired FingerWorks in order to use their multi-touch technology in 2005 (White).

The first generation iPad was released on April 3rd, 2010. As of October 2012, Apple has sold over 100 million units (iPad). The iPad is Apple's version of a tablet computer. The iPad is by no means the first tablet. Roger Fidler claims that Apple stole his idea and design for a tablet from his 1981 prototypes. Microsoft created and released their version of a tablet in 2002, almost a decade prior to the iPad. Even the name of the iPad isn't original. The Fujitsu iPad was a Japanese product that encrypted numbers.

## **SALES**

Apple has been extremely successful over the past several years. Apple has increased its annual sales from \$65 billion in 2010 to over \$108 billion in 2011. This success is largely due to the success of Apple's iPhone and iPad (AAPL). The recent litigation between Apple and Samsung is fueled by fear of market share loss in these markets and sales revenue. They are rightfully fearful. In the first quarter of 2012, Apple sold 1.9 million less smartphones than the previous quarter. In the second quarter Apple sold fewer iPods, iPhones, iPads and Mac compared to the previous quarter (Samsung). Further evidence is available in appendix 5.

## **BRIEF OVERVIEW OF SAMSUNG**

### **SAMSUNG'S ESTABLISHMENT**

On March 1, 1938 Samsung was founded by Byung-Chull Lee in Taegu, Korea with 30,000 won. Samsung primarily focused on trade export, selling dried Korean fish, vegetables, and fruit to Manchuria and Beijing. It wasn't until 1969 when Samsung entered the electronic manufacturing industry. They started with production of black and white televisions in 1970. Soon after, they started to manufacture other electrical devices. In the 1980's Samsung entered the global market. In 1977 Samsung Telecommunications business unit was founded (About Samsung).

### **TOP MANAGEMENT**

Samsung believes that the key to success depends on the quality of their top level managers. Dr. Oh-Hyun Kwon was officially appointed Chief Executive Officer of Samsung Electronics Co. by the company's Board of Directors on June 8, 2012. Dr. Kwon has been working with Samsung since 1985 and has been in a management position since 1992. He also serves as a Vice Chairman. The President and CFO is Ju-Hwa Yoon. Yoon has been

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managing at Samsung since 1998 (About Samsung). Another Vice Chairman of Samsung is Gee-Sung Choi. He was Samsung's CEO until 2010. In his early career with Samsung, he Lead the chip division in Europe. Samsung's Chief Financial Officer, Ju-Hwa Yoon, is a young and ambitious man.

## PRODUCTS

Samsung's telecommunications business unit offers five main product lines; Mobile phones, Smartphones, Telecommunication Systems, MP3 Players and Laptop computers. Until a few years ago Samsung was mainly a low cost provider. Recently they have changed their strategy to pioneer the digital age. They are known for reacting to the market very quickly. They observe what features are successful in their own products as well as competitors. Samsung strived to build upon successful products in the market and implement those features in their own products. However, they are now creating differentiation in their products. One of the most attractive feature in the Samsung Galaxy 3 and 4 is the large screen. (About Samsung).

Smart phones are the main driver of Samsung's recent success. In China, Samsung holds a 24.3% market share in smart phones, more than tripling Apple's market share (Graziano). Currently, Samsung offers their products on all three cell phone carriers in China, including the largest provider in the world, China Mobile. Due to Samsung's business model to re-create successful products, they found themselves in a legal battle with Apple.

In the third quarter of 2011, Samsung increased their global market share of laptops to 6.5% from 1.4% in 2007. This placed them seventh overall and placed them ahead of Apple and Sony (Pop).

## SALES

"Were you ever afraid that the Samsung Group could have gone bankrupt during the currency crisis of 1997-98?" Antoine van Agtmael asked CEO of Korea's Samsung Electronics. "Yes, in July 1998..." . The financial crisis referred to was the Asian financial crisis of 1997. However, Samsung was able to turnaround their financial ship and become extremely successful by 2005. Samsung was able to increase their net profit margins to almost eight times that of their rival Sony in 2005. They did so by generating of \$56 billion in revenue and netting of \$7 billion (Agtmael 64). Samsung was able to make this transformation because they transformed from a "brand sheep to a brand shepherd." (Haig). As of 2011, Samsung has \$165 billion in sales revenue (About Samsung).

## DECIDED CASES

Lawsuits between Apple and Android device manufacturers are not uncommon. As previously mentioned the most recent "Patent Wars" have been between Apple Inc. and Samsung Electronics. By July 2012, the two companies were engaged in over fifty cases worldwide. Even though the facts of each case were generally the same, since the disputes spanned over at least ten countries, each court case had varying outcomes. Due to the differing results, the effects on consumers and within each individual market place are often inconsistent as well. By researching and evaluating multiple completed cases within different sectors of the world, an individual can determine trends and commonalities between the facts in order to draw conclusions about how both the companies and their consumers will be affected into the future.

Before divulging into the specifics of each case, it is important to understand the claims behind the lawsuit. Apple considers seven utility patents, three design patents, and trademarks on several trade dress registrations, app icons and the iOS system their protectable intellectual property (Patel). Ultimately, when filing the lawsuit, Apple made sixteen claims against Samsung, blaming them with trademark infringement and copying patents that protect user features. They believed their most pertinent and strongest case against the Samsung products was focused around the trademark infringement. Unlike other lawsuits which were developed on technical patent infringements, Apple was able to charge Samsung with these more subjective claims. More specifically some of these hardware and software trademark claims included:

- a rectangular product shape with all four corners uniformly rounded;
- the front surface of the product dominated by a screen surface with black borders;
- a display of a grid of colorful square icons with uniformly rounded corners; and
- a bottom row of square icons (the "Springboard") set off from the other icons and that do not change as the other pages of the user interface are viewed.



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While packaging infringement claims included:

- a rectangular box with minimal metallic silver lettering and a large front-view picture of the product prominently on the top surface of the box;
- a two-piece box wherein the bottom piece is completely nested in the top piece; and
- use of a tray that cradles products to make them immediately visible upon opening the box.

In addition to these trade dress or design patent infringements, Apple also accused Samsung of stealing technology within their software. A few of these claims included:

- Method and apparatus for displaying information during an Instant Messaging Session, which includes a communication session displayed in a cartoon-bubble chat interface; and
- Method and apparatus for displaying a window for a user interface, which covers a display window automatically disappearing after a predefined amount of time (like the volume control).

(Source: Patel)

Once the violations were identified, each country had to draw their own conclusions while keeping in mind the affect their decision would have on the marketplace and its consumers.

#### **U.S. DISTRICT COURT: US - AUGUST 24, 201**

Since the lawsuits announcement on April 11, 2011, lawyers tirelessly collected data in order to support or disprove the accusation of Samsung's patent infringement on Apple phones and tablets. Unfortunately for Samsung, they were always viewed as the underdog in this case. Not only was Apple's headquarters located just ten miles from the courthouse, but the jurors for the case were selected from Silicon Valley, where Apple's founder Steve Jobs is recognized as a technological pioneer (Apple wins Lawsuit). In order to counteract the claims against them, Samsung argued that many of Apple's innovations were either stolen concepts or ideas from Sony Corporation. However, Apple fired back by providing internal documents from Samsung that showed they copied Apple's design factors to achieve the same "look and feel" of their products (Apple wins Lawsuit). Throughout the trial jurors ruled largely in Apple's favor for all software infringements as well as for all but one design patent (Apple wins big). However, Apple was only able to prove trade dress protection on the iPhone 3G. All other models of the iPhone and the iPad are not protected (Apple wins big). Even though Apple did not win everything, in late August of 2012, the jury in the United States trial of Apple Inc. vs. Samsung Electronics finally came to a verdict, forcing Samsung to pay \$1.05 billion to their competitor in order to compensate for lost profits and research and development costs (Apple wins Lawsuit).

#### **CENTRAL DISTRICT COURT: SOUTH KOREA - AUGUST 24, 2012**

Similarly to the way that Apple won the court case in the United States, Samsung won in their home country of South Korea. Not only did the jurors in Seoul come to the conclusion that Samsung did not copy the "look and feel" of Apple products, but they went even further in determining that Apple infringed on Samsung's wireless technology (Lee). However, in addition to the overall win for Samsung, jurors did find the company guilty of violating Apple's "bounce-back" scrolling technology (Lee). As a result of these rulings, changes within the South Korean market were made. Apple products such as the iPhone 3GS, iPhone 4, iPad1 and iPad2 were ordered to be removed from shelves, while Samsung's products that used the "bounce-back" technology were also taken off the market (Lee). In addition to the new market regulations, both companies were ordered to pay their competitor as a source of monetary compensation. The goal of the South Korean ruling was to affirm the country's position that "one single company cannot monopolize generic design features." (Lee)

#### **TOKYO DISTRICT COURT: JAPAN - AUGUST 31, 2012**

A victory for Samsung in Japan came just days after their large defeat in the United States. Even though the Japanese market makes up much less of the sales for both companies, the Tokyo ruling ensures the fact that neither company is completely dominant over the other (Tabuchi). The final ruling in Japan was that "Samsung's Galaxy smartphones and tablets did not violate an Apple patent on technology that synchronizes music and videos between devices and servers" (Tabuchi). Although Samsung won this initial case many other lawsuits are still pending in

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Japan. Other ongoing lawsuits within the country include Apple suing Samsung for stealing the “bounce-back” scrolling feature and requesting an injunction prohibiting Samsung to ship Galaxy smartphones to Japan (Tabuchi). Samsung is also waiting for results pertaining to the patent infringement charges they claimed against Apple’s iPhone and iPad (Tabuchi).

### **HIGH COURT OF JUSTICE, CHANCERY DIVISION: UK - NOVEMBER 10, 2012**

In July of 2012, the High Court in London made the final ruling that Samsung’s Galaxy tablets were not too similar to the registered designs of Apple’s iPad (Apple loses UK Tablet). Ultimately the judges found that Samsung’s tablets were not as sleek and simple as Apple’s products. After the ruling, Apple requested an appeal in order to have the court reconsider their decision. However, in October of 2012 Apple lost the appeal and was ordered by the court to publish a notice on their UK website with the verdict (Goddard). Even though the company complied, they also added a number of misleading statements in order to induce confusion among consumers (Goddard). Due to the “false and misleading” information on their website, it was ruled that Apple would have to pay the legal fees that Samsung had incurred during the lawsuit (Goddard). Even though the costs Apple will incur will not make a lasting impression on the company’s financial situation, the judgment was mostly made to humiliate the company during the on-going international lawsuit battle.

### **ONGOING CASE**

Although last summer’s trial between Apple and Samsung resulted in a \$1.05 billion victory for Apple, many issues are still currently unresolved between the two companies. In December 2012, the two tech giants went back to court in the U.S. to continue their battle over intellectual property (Pachal). Since the previous trial found many specific Samsung products to be an infringement upon Apple’s patents, Apple requested a ban to be placed on those products. Some of the products included: the Galaxy S 4G, Galaxy S II (on AT&T and T-Mobile), Galaxy S II Skyrocket and many additional Galaxy products. Apple also demanded an extra \$707 million from Samsung; they believed that the infringements which Samsung was previously charged with could be found on many of their other cellular devices (Pachal). Samsung countered this by demanding a new trial on the basis of jury misconduct. During the first trial, the jury foreman had failed to disclose that he was sued once by his former employer, Seagate, which has a strategic relationship with Samsung. The foreman, Velvin Hogan, said he did not mention the matter because it occurred 20 years ago and he was only asked to disclose information regarding the past 10 years (Pachal). In addition, Samsung requested that the damages be reduced since many of the charges were ridiculously priced.

On March 1, 2013, Judge Lucy Koh of the United States District Court for the Northern District of California cut damages on some Samsung products found to infringe Apple's patents. She ended up reducing the original judgment by \$450.5 million and called for a new trial on the damages to recalculate them (Sherr). Apple has also filed another patent-infringement lawsuit in the U.S. against Samsung over its newer products such as the Samsung Galaxy S III. That trial isn't due to begin until 2014. Therefore these two companies have numerous ongoing cases in the months to come.

In addition to the battles concerning cellular devices, there have also been cases regarding tablets as well. Tablets are seen as the next big project for tech companies, so of course disputes will continue to transpire (Sherr). One of the additional issues centers on the Samsung Nexus tablet and the Apple iPad. Since the iPad generates more than half of Apple’s revenue, Apple will undoubtedly continue their patent debate in order to ensure their safety in the tablet market.

### **MARKET POSITION - APPLE VS. SAMSUNG**

In 2005, the cell phone market was highly diversified, allowing the current industry competitors to almost equally divide the market share between them. However, starting in 2008, during the rise of smartphones, Google’s Android and Apple’s iOS began to dominate the market. As seen in Appendix 4, by 2012, the two companies held nearly 80 percent of the industry’s market share and continue to battle for supremacy over the industry.

Apple’s primary objective during the “Patent Wars” was to try to capture some of the mobile market share from the current industry leader, Samsung. However, according to a study completed by Forbes, Samsung’s global market share increased by 7 percent from quarter four in 2011 to quarter four in 2012, while Apple’s market share

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decreased by 1 percent over the same period of time (Jones). Amidst the worldwide lawsuit disputes, both Apple and Samsung introduced new products to their line. At the close of the fourth quarter Samsung reported shipping 63 million smartphones and Apple sold 47.8 million iPhones (Ciaccia). Even though Apple reported growth within the United States market, their share price continues to fall (Ciaccia). Ultimately, the lawsuits and court cases did not have enough of an impact on the individual markets to dethrone Samsung from their number one international market position.

## **MARKETPLACE EFFECT & USER EFFECT**

### **SOUTH KOREA**

The Seoul ruling was a rare victory for Samsung in its arguments that Apple has infringed on its wireless technology patents. The ruling will likely have an impact on Apple's presence in South Korea since Apple was told to remove the iPhone 3GS, iPhone 4, iPad1 and iPad2 from store shelves (Lee). The court also banned sales of Samsung products using the technology of the screen bounce-back feature. Both companies had to pay a price; however, Samsung was strongly favored in this case. South Korea is not a big market for Apple; however, some industry speculators expressed concern over the South Korean ruling to protect industry standard patents. They say the decision could invite a trade war by giving Samsung and fellow South Korean company LG more room to block rivals' entrance into South Korea if they do not agree to licensing terms (Lee). "It would mean that foreign companies would either have to bow to Samsung and LG's demands...or stop selling in Korea," said Florian Mueller, a patent expert in Munich, Germany. This will cause an interesting twist in South Korea's market.

### **JAPAN**

For both companies, Japan makes up a far smaller proportion of sales than the all-important American market. The Tokyo District Court ruled that Samsung's Galaxy smartphones and tablets did not violate an Apple patent on technology. In August 2012, Hiroko Tabuchi and Nick Wingfield of the NY Times claimed that Apple hardly needs a lift in Japan. The iPhone was the top-selling smartphone there in 2011, while Samsung's Galaxy series trailed in the No. 5 spot, according to the MM Research Institute, based in Tokyo (Tabuchi). Globally, however, Samsung is the largest smartphone maker. Even in Japan, the operating system most commonly used by Samsung and other smartphone makers, Android from Google, has grown steadily, posing a challenge to Apple. Android captured 58% of the Japanese market in the first quarter of 2012, compared with the 38% market share claimed by Apple's mobile operating system, iOS, according to the research firm Nielsen (Tabuchi). Meanwhile, Japanese electronics makers have figured little in the smartphone patent wars, underscoring how little of a threat they now pose to either Apple or Samsung in the sector. Japanese smartphone makers like Sharp and Fujitsu have little presence beyond Japan's shores.

### **UNITED STATES**

On the other hand, Apple is highly favored in the United States. America is where Apple makes most of its money, and so that is where Apple decided to build its fiercest team of lawyers. Apple's headquarters are just 10 miles from the San Jose courthouse, and jurors were picked from the heart of Silicon Valley, where Steve Jobs is a revered technological pioneer (Apple wins Lawsuit). Although Apple clearly won in the United States, Samsung still maintains a substantial market share. However, this judgment, and the ones to continue, will inevitably decide Samsung's fate. Even though Apple has had some victories around the world, none of them really match up to the impact that the U.S. case will have (Grandoni).

### **EUROPE**

In Europe Samsung won their case, which is a welcomed change; especially after their defeat in the United States. The courts felt that there was plenty of variation between the Apple and Samsung products that were in question. Apple was asked to pay Samsung's court fees because they issued a "false and misleading notice" in the wake of the lawsuit (Apple loses UK Tablet). In England, losers in legal cases are generally expected to pay the fees

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of their opponents. This payment was also used to embarrass Apple, which will likely help Samsung gain more market share in England.

### **CONSUMER EFFECT / CHANGES**

The numerous lawsuits between Samsung and Apple, and the lawsuits still to come, will have a major impact on consumers all around the world. Samsung will not disappear, but a ruling against Samsung might cause them to discontinue some older product lines found to violate Apple's patents (Grandino). This will give rise to fewer choices and less variety for the consumer. It's not only potentially fewer choices in the electronics aisle that will hurt consumers. If Samsung loses, it may be in the position where it cannot incorporate certain "Apple" features into future phones or tablets, which would cause them to dedicate countless resources into ways to reinvent, or design around, the patents already established (Grandino). For example, Android makers have already revamped the way phones are unlocked. This repetitive engineering could cost money that might otherwise go into developing new products. Since more money will have to be spent on new innovation, the prices of smartphones and tablets will likely increase as well. When companies fight in the courtroom, it is mostly the consumers that get hurt rather than the marketplace.

### **CONCLUSION**

#### **UNKNOWN FUTURE**

The patent wars between Apple and Samsung have set off a debate about the future of technological innovation - one that has intensified since the jury in California ruled in Apple's favor (Tabuchi). Some experts say such rulings will force smartphone makers to focus on innovating rather than copying, while others say designers could now be stifled by the need to constantly second-guess whether new designs or functions violate other companies' patents (Tabuchi). If cell phone developers become more innovative, the end user may benefit from better designed products that meet users' changing needs. However, this innovation comes with a cost, research and development. This increased cost will either be passed onto the consumers, increasing the cost of phones, or other expenses may be cut and compromise the quality of the products or ethics of the company.

#### **POSSIBLE CHANGES**

"This is going to go on and on and on," said Barney Loehnis, head of mobile for Asia at public relations firm Ogilvy. "This will never change because the sorts of patents that they're fighting over are such a fundamental essence of using these devices that they're always going to be leapfrogging one over the other" (Lee). Without change to the patent global laws, these types of cases will continue. Currently, there is not a single global patent system.

In fact, there are numerous organizations and regulations that regulate different types of patents globally; Patent Cooperation Treaty, Patent Law Treaty and Substantive Patent Law Treaty (Grain). The Patent Cooperation Treaty (PCL) established in 1970, is an international patent law treaty... This was a major step toward a globally unified patent system. Patents are submitted through the Receiving Office and then reviewed and examined by the International Preliminary Examining Authority. Currently, this treaty includes 146 countries. However, international firms have the option to file an international patent or a regional patent. The Patent Law Treaty (PLT) subsequently followed the PCL. It was formulated on June 1, 2000. The goals of the PLT were to create a more uniformed filling procedure. The PLT only had 59 signatory countries (Patent). This was another step towards a global patent system, but it still fell short. The Substantive Patent Law Treaty (SPLT) was ratified in 2000. The SPLT was similar to the PLT; with an objective to unify patent law procedures (Surhone). Although organizations have been formed to combat patent issues, there is still a need for concrete global patent laws and many countries are aware of this concern..

The patent wars between major technology companies, including Apple and Samsung, may lead to the restructuring of global patent laws and possibly the creation of a single global patent system.

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