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ABSTRACT

In the past decade, data science and analytics have evolved from vaguely understood technical concepts to well established fields significantly impacting our daily lives in areas such as social media, e-commerce, and increasing number of internet connected devices. The demand for analytic skill sets led to increased academic offerings mostly confined to departments such as computer science, statistics, engineering, and mathematics because these fields provide the technical foundation used by data science and analytics specialists. A key thrust of this paper is to make data science and analytics more accessible to students in liberal arts and humanities fields through sharing the case study of our unique partnership with a local organization (CARES, Inc.). Before our partnership, CARES used its data on homelessness spanning multiple years and locations within New York State primarily for periodic aggregate reporting (i.e., number of visits, average time at a project, breakdown of visits by gender and ethnicity). This paper describes our exploratory analyses that led to new insights and discoveries that demonstrate the usefulness of such data beyond periodic reporting of aggregate statistics. Our unique collaboration with local nonprofit addressing homelessness in New York State provides a suitable introduction of key concepts and applications of data science and analytics for social and humanitarian causes

INTRODUCTION

As we approach the third decade of the century, we are witnessing the evolution of information and how it is used in our daily lives. Companies heavily invested in technology like Google, Amazon, Facebook and LinkedIn were pioneers in using data and algorithms to collect large quantities of information and to utilize it in new service and product offerings. Amazon rolled out features like product recommendations through using large amounts of data. Amazon calls this practice, "item-to-item collaborative filtering," which uses individual and aggregated consumer data to provide a customized shopping experience to increase revenue (Mangalindan 1).
Outside of the technology sector, the application of analytics is transforming more traditional industries like logistics. Inside these sectors, improved decision making is being implemented through the application of the *Internet of Things,* which is simply giving more devices the ability to collect and send data through an internet connection. For example, UPS streamlines their operations using On-Road Integrated Optimization and Navigation (ORION) to measure speed, location, braking, and other performance indicators to increase daily performance through designing better routes and consuming less fuel (Davenport 6). General Electric spent over $2 billion in the San Francisco Bay area to develop a software and analytics hub to increase their ability to use the data from their sensors in devices like jet engines and medical-imaging devices with the goal to create more efficient and effective uses of the equipment (Davenport 6). To increase the speed of decision making thus influencing their strategy, Procter & Gamble incorporated 50 "business sphere" decision rooms and more than 50,000 "decision cockpits"

(Davenport 8). Data Analytics began its early existence through business intelligence focusing on making better decisions to improve performance, then it branched out into predictive analytics forecasting future conditions and lastly, analytics has become a prescriptive tool to influence behaviors (Davenport 10).

The Bureau of Labor Statistics (BLS) reports that analyst positions are growing higher than the average growth rate for all occupations of seven percent. The growth rate for analysts between 2014 and 2024 grows differently based on their respective discipline: Operations Research Analysts are growing at 30 percent, Research Analysts are growing at 19 percent, Information Security Analysts are growing at 18 percent, Management Analysts are growing at 14 percent and Financial Analysts are growing at 12 percent (BLS). Furthermore, according to the BLS, all of these analyst positions require a minimum of a bachelor's degree and provides no on the job training thus indicating the high demand for degree and certification programs in data analytics (BLS). The Business-Higher Education Forum reported that "an estimated 2.72 million new job postings in 2020 will seek workers with skills in data science and analytics" (Fain 1).

Universities are responding to this demand by offering degree programs in data analytics to satisfy businesses' desire to improve their operations, forecast future conditions and develop prescriptive behavior influencing tools for their customers. Some examples are cited here. Washington State University (WSU) offers an interdisciplinary Data Analytics major with opportunities for students to enroll in specialization tracks (Washington State University). On the east coast, the Florida Polytechnic University College of Innovation and Technology offers a bachelor's in Data Analytics degree program to prepare students for careers in Big Data Analytics, Cloud Computing, and Health Informatics (Florida Polytechnic University). The University of Maryland University College offers a dual pronged approach to educating students in data analytics by offering both a master's degree and graduate certificate program (UMUC).

The majority of the academic programs offered around the United States are concentrated in school of science, engineering and business schools. In these specific disciplines, case studies and datasets are quite abundant and easily accessible, but very little is currently focused on addressing society's needs using analytics. Students receive ample experience studying consumer credit, financial transaction and equipment failure data examples, but students are left without the training to analyze datasets on homelessness, food insecurity, criminology, and many other critical social sectors.

Applying analytics to the industry of social needs has lagged far behind business. Rob Kitchen summarized the potential of applying analytics in the social sciences (8). While the possibility to improve the current research process exists, the current structures in place are not flexible enough to rapidly change. Kitchen explains that the U.S. Census is an example of a difficult to change structure because once prepared, Census questions are nearly impossible to change (2).

This paper outlines how partnerships between academic institutions and the social sector can introduce students in liberal arts and humanities to data science and analytics. The goal of this paper is not to inform policy change or to draw conclusions on homelessness in the Capital Region of New York State, but rather to promote institutional change in academia to expose more students in liberal arts disciplines to learn data science and analytics in the classroom. By providing instruction and exposure to data, students studying the humanities will be equipped with the analytic skills that employers desire in employees.

BACKGROUND ON CARES

Located in Albany, New York, CARES, Inc. is an organization with the goal to provide long-term access to safe and affordable housing. CARES provides assistance with its partners in planning, data collection and reporting. Within New York State, CARES provides these services to nine Continuums of Care (CoCs) who report to Housing and Urban Development (HUD). A CoC Program is federal funding source which provides financial resources to CoC Projects providing services for the homeless or those at risk of being homeless (HUD 9). CoCs are comprised of representatives from nonprofit homeless providers, victim service providers, faith-based organizations, governments, businesses, public housing agencies, social service providers, and many other organizations that serve homeless individuals, those at risk and formerly homeless persons within the geographic area (HUD 6). In 1994, to provide more structure and to reduce the number of applications for funding, HUD required communities submit a single comprehensive application through the Continuum of Care (CARES). CARES assists nine CoCs with using their Homeless Management Information System (HMIS) to be in compliance with CoC Program interim rule 24 CFR 578 (HUD 4). As a locally-administered data system, HMIS records client, service, and project data to

understand the needs of the homeless population from the local to the national level (4). Each year, HUD provides Congress with the Annual Homeless Assessment Report (AHAR) generated through the aggregation of every local HMIS systems across the United States (HUD 4).

COMMUNITY PARTNER INSTITUTIONS WITH ACADEMIC INSTITUTIONS

Through connections between the Siena College Office of Academic Community Engagement (ACE) and CARES, Inc., a partnership was formed to develop a community engaged data research project focused around addressing homelessness. This project was housed underneath the Siena College Center for Undergraduate Research and Creative Activity (CURCA) and tasked to an interdisciplinary group of students and faculty called TeamBILD (Big Issues and Leading-edge Discovery). CARES supported this team by helping set the research questions, gathering the data and being a resource for the researchers. In early June 2017, CARES provided the TeamBILD researchers with a dataset including data from four local CoCs: These were:
- NY-503 - Albany City and County CoC,
- NY-507 - Schenectady City and County CoC,
- NY-512 - Troy/Rensselaer County CoC, and
- NY-523 - Saratoga-North Country CoC.

Throughout the duration of the project as the team made discoveries and had questions, CARES engaged the researchers in the interpretation of the data as well as defining the next steps to improve analysis.

PROJECT PROCESS OVERVIEW

Community engaged learning opportunities developed through partnerships between higher education institutions and community nonprofits leads to a plethora of learning experiences for nonprofit staff, educators and students. In this project an interdisciplinary group of faculty, students and staff from CARES worked toward a common goal of building tools to learn more about homelessness.

The Siena research team consisted of students and mentoring faculty from three academic departments:
- Accounting,
- Computer Science, and
- Physics and Astronomy.

Each discipline took on its own task in the data project, but all the disciplines collaborated with one another in order to further their own work. This paper focuses on the contributions of the accounting researchers to create learning opportunities for students in liberal arts and humanities disciplines through exploratory data analysis.

The Computer Science team developed an algorithm in Java to de-duplicate the HMIS data. When local CoC projects collect the data from clients and input it into the system, they may transpose numbers or receive different information like street names that would be entered into the HMIS system. When this happens, one person will be observed in the data as two separate people making analysis much more difficult. The De-duplication program performed tests to match Social Security Number (SSN), Date of Births (DOB), first names, and last names. After the new de-duplicated files were received from the Computer Science team, the files were merged by the Accounting team and sent to the Physics and Astronomy team to determine what variables to keep or eliminate while maintaining the most amount of data. Lastly, after the variables were received by the Accounting team, Exploratory Data Analysis (EDA) was performed on the dataset in order to develop some hypotheses about the data. The figure below shows the cyclical and collaborative relationships between all of the researchers and the community partner.

Figure 1 - Project Process Overview

Data Preprocessing

The Computer Science team's de-duplication program found 6,348 duplicate clients that could skew analysis if they were not discovered. The Accounting team merged data files containing information on Clients, Enrollments, Exits and Project Types to facilitate exploratory analysis of the data. The Accounting team derived some outcome variables as seen below in Table 1, and appended the new variables to the dataset.

Variable Name	Description	Formula
Age	Current age	=Now-DOB
EntryAge	Age at Project Entry	=EntryDate-DOB
ExitAge	Age at Project Exit	=ExitDate-DOB
DaysInProject	Number of Complete days in project	=ExitDate-EntryDate
MonthsInProject	Number of Months/Complete	=ExitDate-EntryDate
YearsInProject	Number of Years/Complete	=ExitDate-EntryDate
TotalProjects	Give the highest value of the number of times you see the same NewPersonalID	Maximum of (CumProjectEntry)
CumProjectEntry	Count the total number of times a unique	Count and group by NewPersonalID

	NewPersonalID appears	

Table 1 - Data Preprocessing Derived Variables

Data Cleaning

Table 2 below explains the complete set of rules used to clean the data for EDA. Of the original 34,618 rows of data, 23,390 rows remained after the data cleaning.

Remove Ages > 101
Remove Entry Dates prior to 7/1/2007 (~10 years of data remain)
Remove Blanks from: Race, Gender, Ethnicity, Veteran Status, Relationship To HoH, Residence Prior, Disabling Condition, Destination
Remove answer 8, 9, and 99 from: Ethnicity, Veteran Status, Relationship To HoH, Residence Prior, Disabling Condition

Table 2 - Data Cleaning Rules

Xs and Ys

The process of analyzing data begins with defining the main outcome variables (also known as response variables, dependent variables or simply Y's) and input variables (independent variables or X's). Client demographics and information about their living situation were identified as the input variables driving the outcome of the client. A partial listing our outcome and input variables are below in Table 3.

Outcome (Y) variables	Input (X) variables	
- Days In Project - Number of Project Entries - Total Projects (per client)	- Ethnicity - Gender - Age - Veteran Status - Relationship to Head of Household	- Prior Residence - Prior Residence - Length of Stay - Project Type - Disabling Condition - Times Homeless Past Three Years

Table 3 - Input (X) and Outcome (Y) Variables

EXPLORATORY DATA ANALYSIS

Exploratory Data Analysis (EDA) is a process used to evaluate the data at a high level. Behrens (1997) described EDA as listening to the data in many ways until the researcher can piece together a story (132). The EDA process heavily relies on summary statistics and data graphs. The EDA is often the first step in analytics projects before more formal and mathematically based methods are entertained (e.g., multiple regression, logistic regression, clustering and classification, neural networks). We use EDA to learn about the patterns hidden within the data so we can tailor our approach in further analysis. EDA is used to generate hypotheses on specific topics of interest (e.g., trends in the youth). Such topics can be further explored through further and deeper analysis.
We followed these four steps in our EDA:

- Step 1 Statistical Characterization of Variables: The EDA process starts with finding where data is missing, then continues on by looking at the variables one at a time. When looking at each of the variables initial insights on the data distribution and outliers are noted, but the main goal is to look for patterns and find areas for deeper drill down analysis.
- Step 2 Study of Outcome Variables by Input Variables: The process goes on to comparing the associations between the main input variables and the output variables.
- Step 3: Study of Associations between Input Variables: Relationship between the independent input variables are examined to detect potential confounding.
- Step 4: Study of Variables over Time: Lastly, when working with time series data, it is plotted and examined to find patterns in that dimension.

After performing these four steps of exploratory data analysis, further analyses are conducted as needed by digging in deeper into findings from previous steps of the process.

The researchers from the Accounting Department at Siena College developed an R-script that completes this EDA on many of the key variables in our merged dataset. The R-script renames a number of variables to shortened versions of the variable code description, for example, for applicable variables 0 and 1 have been changed to no and yes. In addition, the script also takes all tabular and graphical output and places them in separate output files, one a .pdf and the other a .txt file.   We also used the JMP software for further study of interesting topics identified through an initial EDA.

A brief overview of EDA findings is provided below in Table 4.

Number of observations (project stats)	23,390
Number of unique Personal ID	18,280
Time range (entry dates)	July 2007 through December 2016

Table 4 - EDA Data Summary

EDA Step 1: Statistical Characterization of Variables

In this step, appropriate graphs are used to summarize the data for each variable. A sample assembly of these graphs is displayed in Figure 2.
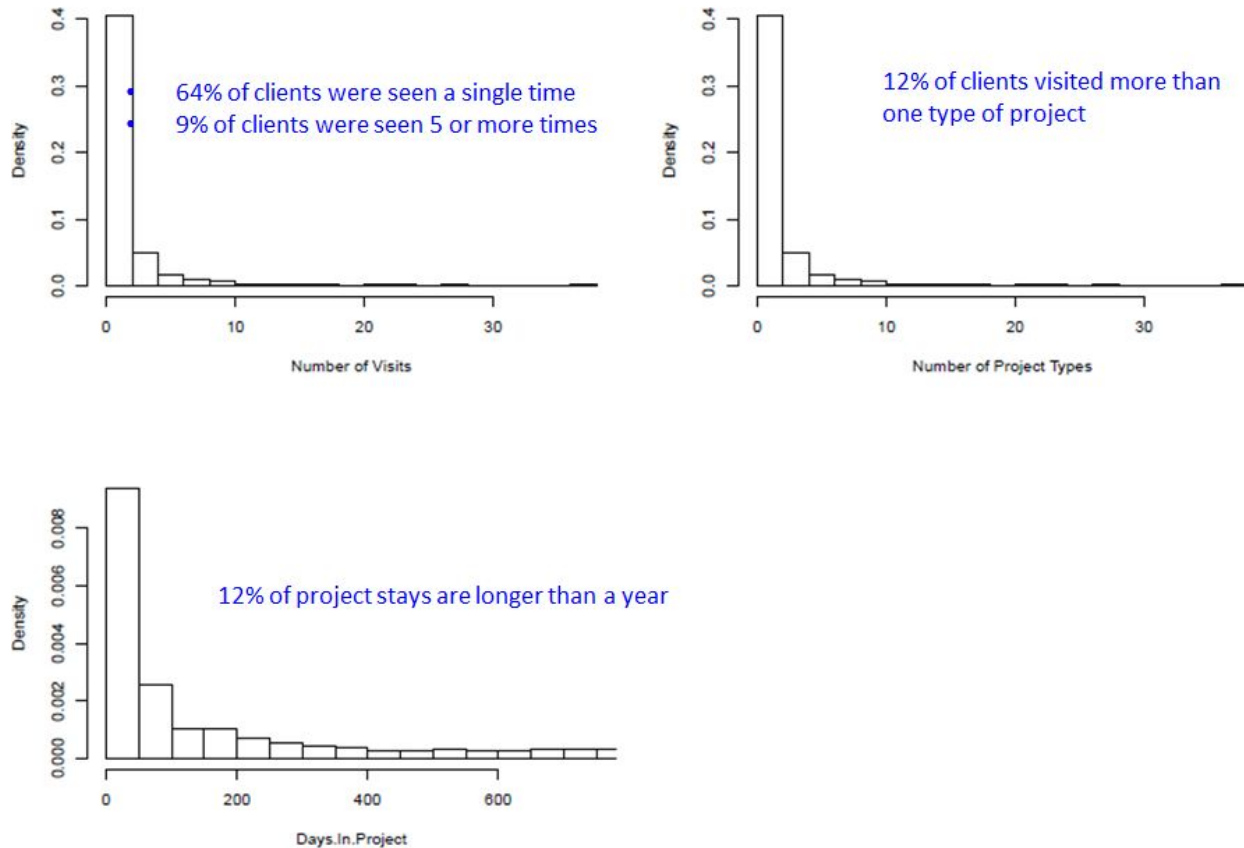
Figure 2 - Homeless Clients Usage Frequencies and Patterns Histograms

In EDA, a generally recommended practice is to take a brief note on key observations as one reviews the data graphs. These comments often lead to new insights that are helpful towards explaining certain patterns observed in data. In other cases, these observations could lead to further questions and focused analyses to address them.

In Figure 2, the graph on the top left row is for one of the key outcome variables (total number of project stays by client). This graph reveals that the great majority of the clients are associated with a single visit. A relatively small fraction of clients enter a project more than one time. Altogether, these three graphs show that about 10 percent of clients exhibit highly frequent visit patterns, visit more than one type of project and stay in projects for an extended period of time. From these graphs it is not clear if there is an overlap among these groups. This is a question for further study.
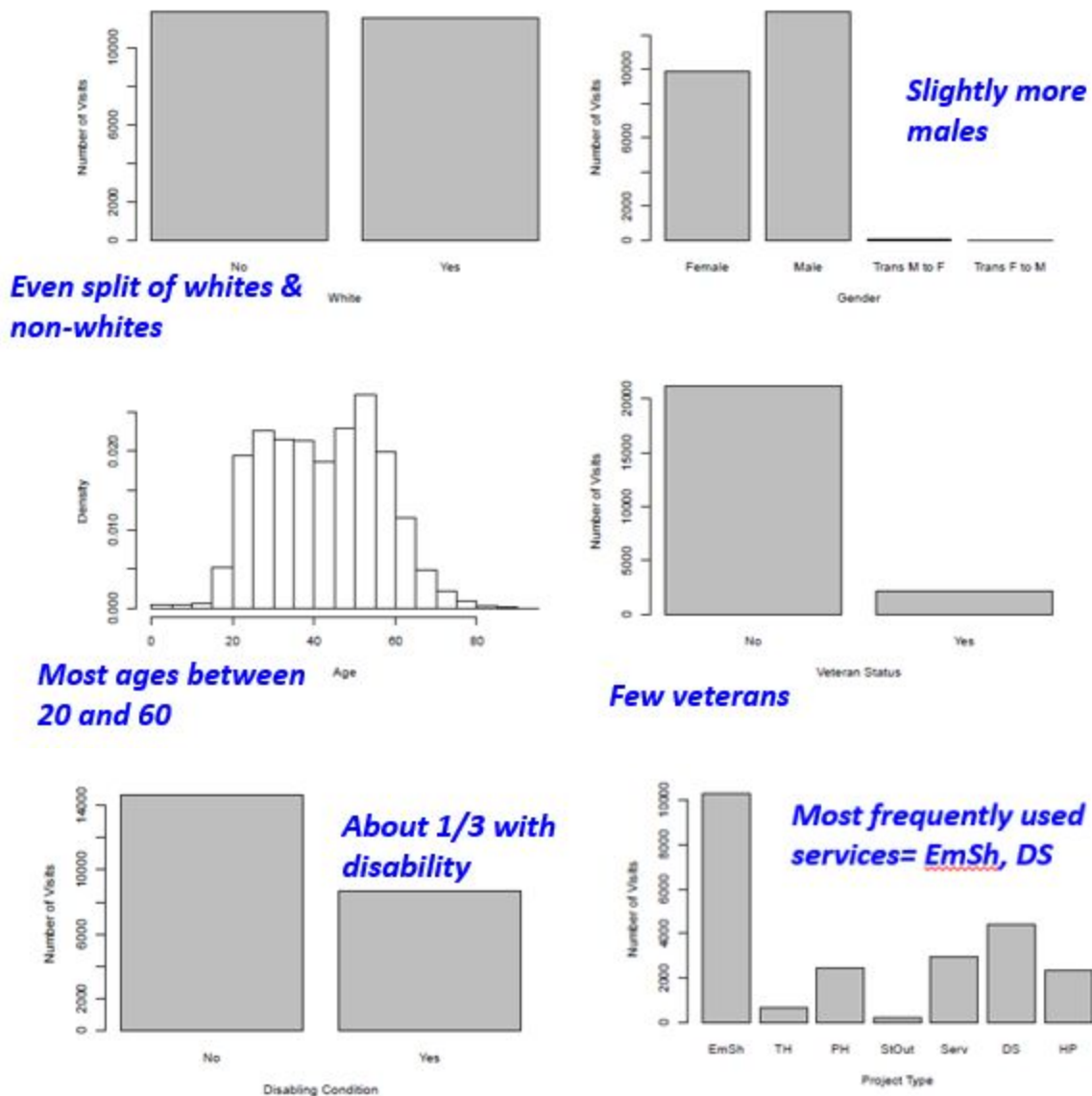
Figure 3 - Sample of Data Visualization in EDA Step 1 (One variable at a time)

The graphs in Figure 3 display various characteristics of the clients. It is worthwhile to note that there are relatively few veterans in the dataset. This will limit our ability to conduct a study of this client group even though there is a great deal of interest in homelessness patterns of this demographic.

EDA Step 2: Study of Outcome Variables by Input Variables

In this step, the associations between the input (# project visits) and the outcome variables are studied with the aid of appropriate graphs. For example, Figure 4 presents breakdown of total project stays (outcome variable) by gender (input). A review of this graph shows that high frequency visitors (5 or more visits) are generally male. Figure 5 shows that the rate of disability tends to be higher among the high frequency clients.
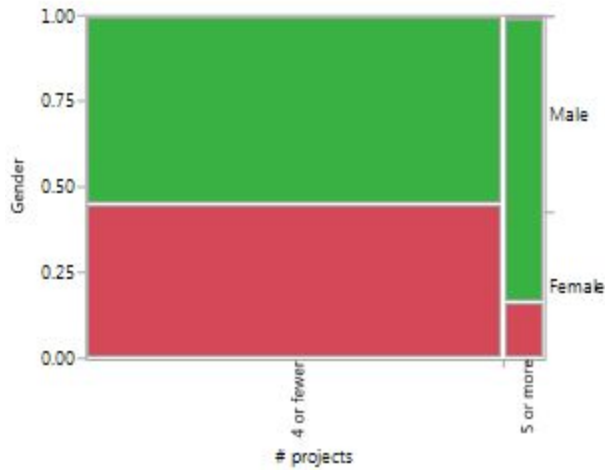
5+ visitors mostly male | 5+ visitors: Higher rate of disability
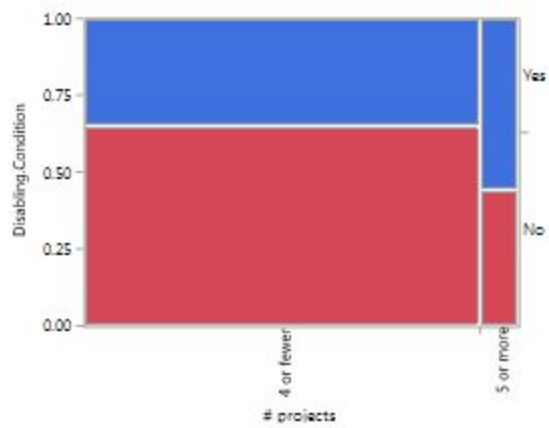
Figure 4 (left) - Breakdown of Number of Projects by Gender | Figure 5 (right) - Breakdown of Number of Projects by Disability

EDA Step 3: Study of Associations between Input Variables

This step helps understand potential confounding between input variables. For example, the boxplot in Figure 6 shows that the veteran group, on average, is older than the non-veteran group. This observation needed to be factored into our interpretation of analyses involving these variables. For example, a pattern observed in senior clients will be prominent among the veteran clients as well.
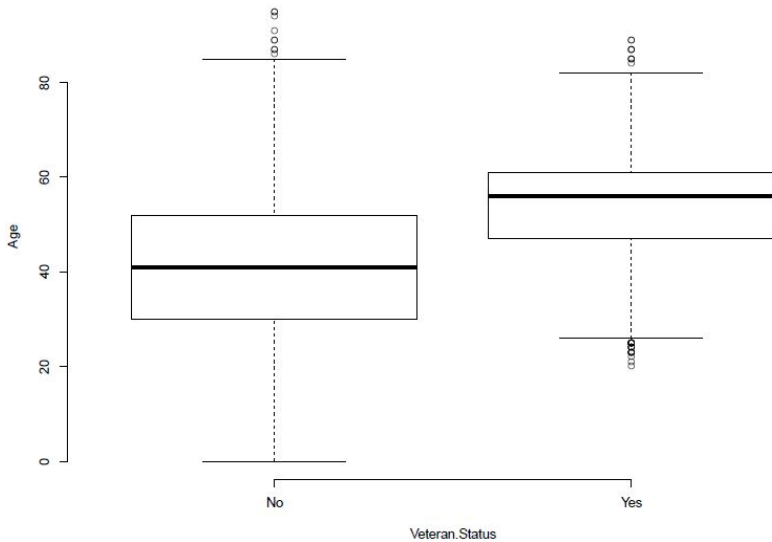
Figure 6 - Age by Veteran Status

Another example is provided in Figure 7. The mosaic chart of this figure breaks down Veteran Status by Project Type. It is seen that a high fraction of Temporary Housing clients are veterans. This finding is also confirmed by the partitioning tree on the right.

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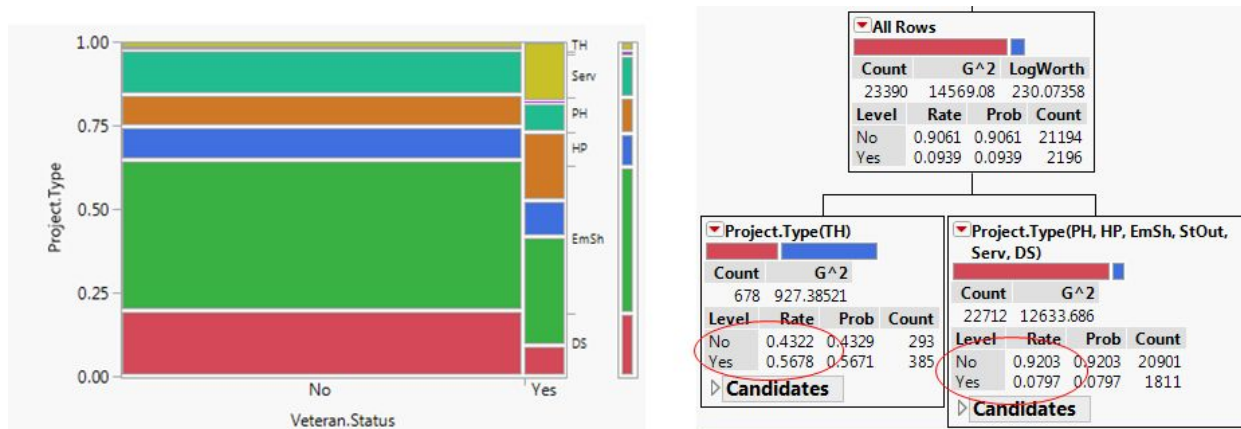
57% of TH users identified as veterans

Figure 7 - Project Type by Veteran Status

EDA Step 4: Study of Variables over Time

This step is important to understand key trends and patterns in variables over time. For example, Figure 8 shows daily total of project visits over time. The spike in early 2014 was further investigated at a subsequent phase of the project.
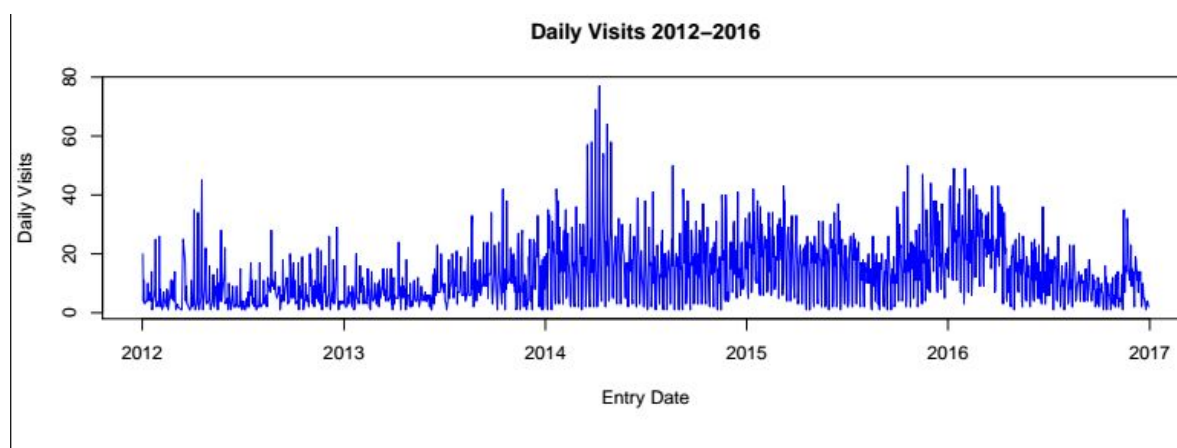
Figure 8 - Sample Time Series R-Script EDA Output

TEACHABLE MOMENTS IN HMIS DATA

Understanding homelessness and the systemic barriers to those affected was the first teachable moment in the HMIS data. The next teachable moment was working on team of diverse backgrounds to maximize each other's strengths to achieve a common goal through communication and collaboration. Lastly, the third teachable moment is performing the actual analysis on the data to find an interesting story that can both serve the nonprofit partner and students in the classroom. In this section, we provide several examples of data based findings and concepts to prepare students in humanities and liberal arts with experience applying analytics skills to real data in order to be more valuable to businesses and nonprofits after graduation.

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System Design and Performance

By performing EDA, the research team unexpectedly discovered how different project types have less stringent requirements which in turn cause understaffed projects to share the responsibility of data reporting among many of its employees rather than hiring dedicated staff to the role if the organization could afford to.
Below in Figure 9 are two visualizations that have Exit Date on the x-axis and number of clients exited in that period of time on the y-axis. The first plot shows that day shelters are discharging between 50 and 500 clients on a single day or within a week, and then they don't discharge anyone until another large batch weeks or months later. In comparison, emergency shelters discharge between one and 50 clients each day or week with little or no gaps between data entries.
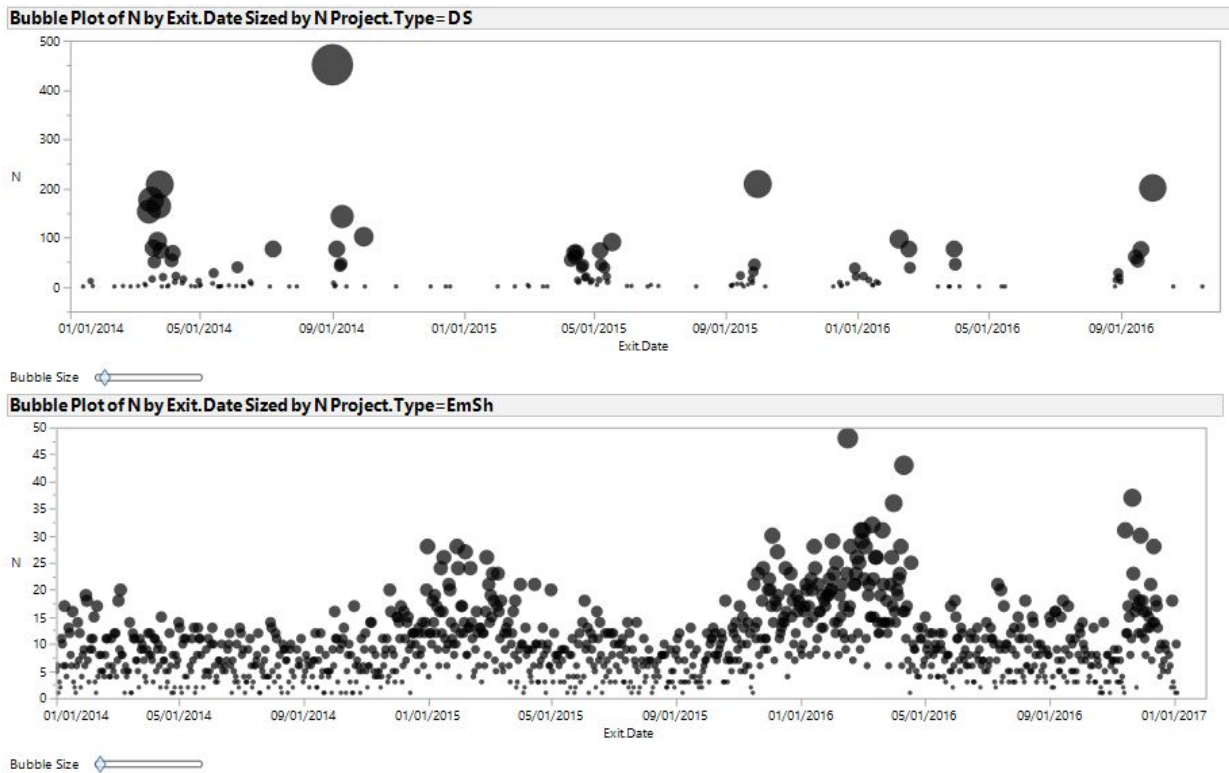
Figure 9 - Variation in Reporting Exits between Day and Emergency Shelters Over Time

The plots in Figure 9 reveal an important deficiency in the system for gathering and managing data on homelessness. Some context is needed to appreciate this point. Housing and Urban Development (HUD) developed many strict regulations and expectations for data quality from projects receiving HUD funds to accurately report to Congress each year on the state of homelessness in the United States.

In day shelters, the problem of accurate and regular data reporting is an impossible feat for the staff in these CoCs. Day shelters are often understaffed causing data entry to be lower priority when trying to provide clients in crisis the services they need. In addition, day shelters has a more transient population that comes and goes. If the understaffed day shelter employees tried to enter data into HMIS each day, thousands more records with no exit interview conducted would be included in HMIS. The day shelter data may have less stringent data requirements due to their inherent challenges, but at the same time policy makers struggle with decisions on data that is not necessarily representative of what is actually occurring in communities.

Number of Visits by Project Type

In certain project types that exits was slowing down to zero per day. Below in Figure 10, the visualizations show that reported exits of clients from certain project types are gradually declining to zero over time.
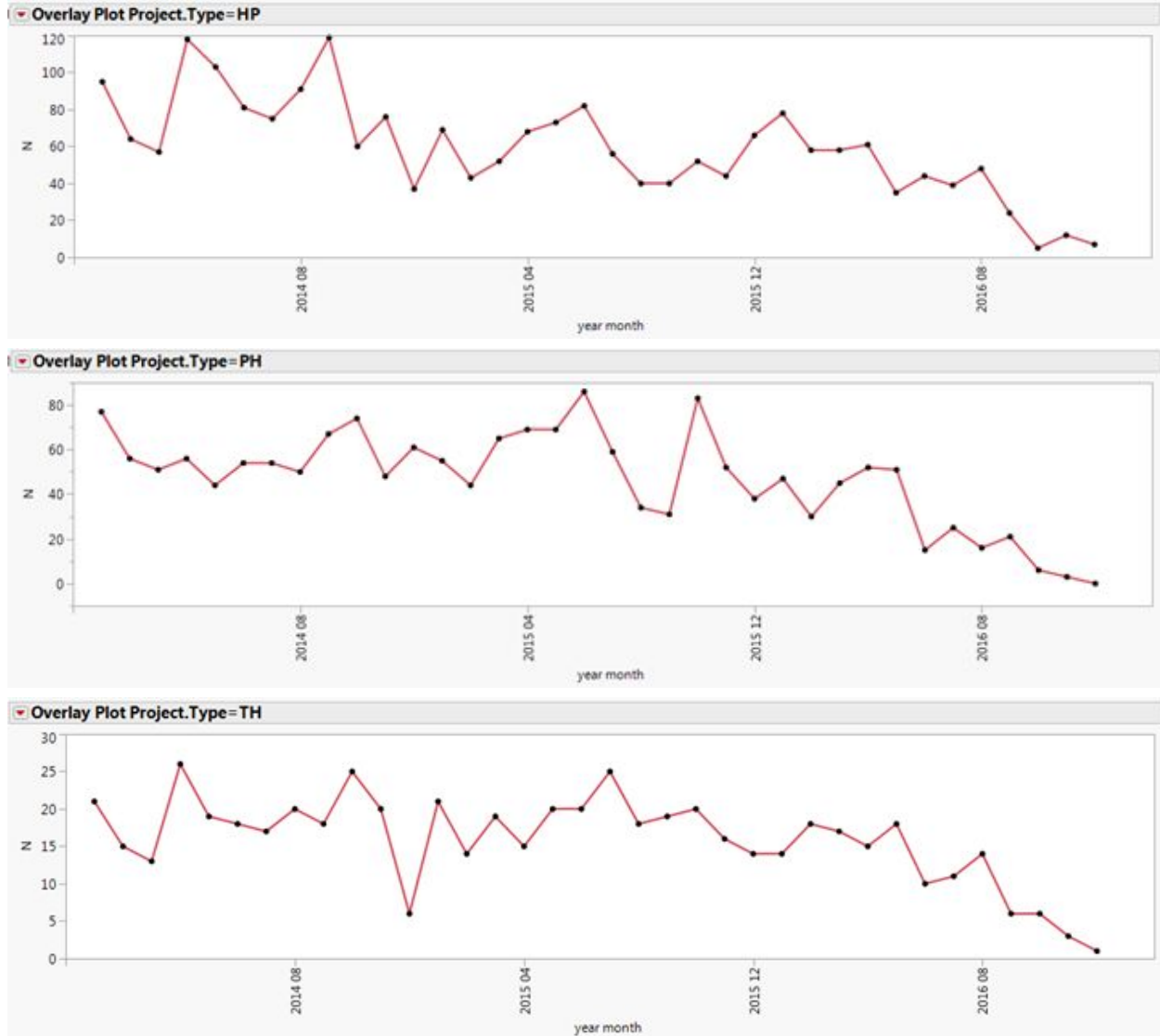
Figure 10 - Reported Exits by Project Type Over Time

Further investigation showed that the number of projects reporting admission had also been trending down. Figure 11 depicts both the declining number of client exits by project type and the declining number of projects reporting.
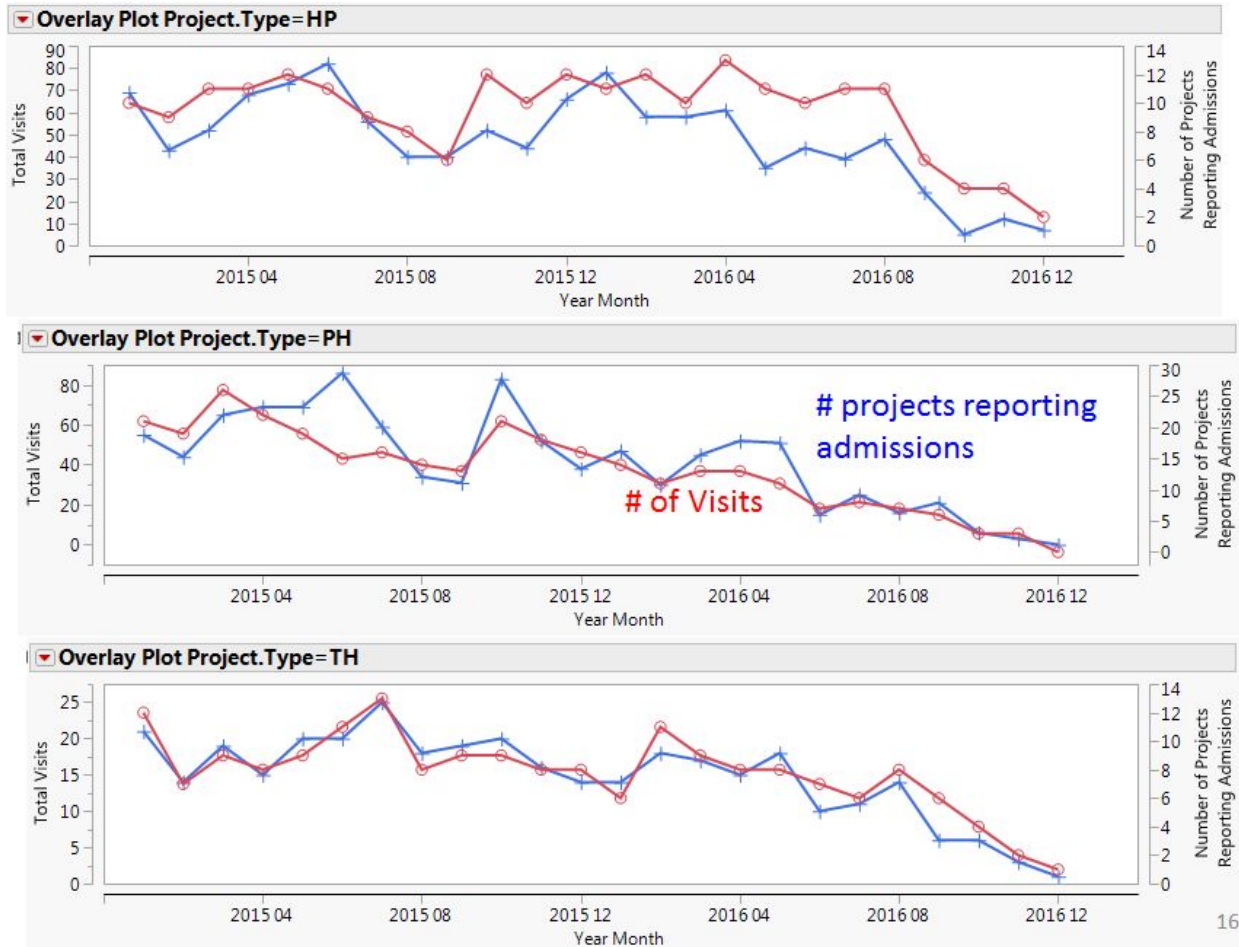
Figure 11 - Exits and Number of Projects Reporting by Project Type Over Time

One plausible explanation was that the non-reporting projects were at full capacity, but more analysis would need to be conducted before confirmed the hypothesis.

Lurking Variables Impacting Daily Visits

Another teachable moment in data science and analytics is to challenge students to think outside the box and look for other measurable variables that may not necessarily be within the dataset. In the classroom, students can be introduced to lurking variables in a meaningful context through analyzing the HMIS data. In Figure 12 below, the researchers looked at daily entries to projects by clients over time, but they noticed a spike in enrollment for a period of time that was not necessarily obvious in the data. The researchers found for about a quarter of 2014, daily enrollment of clients was nearly doubled of years before and after. At first, the researchers discussed the lingering impacts of the housing crisis and Great Recession, but found no connection to the four CoCs. Then, temperature was taken into consideration as possible variable that was not in the dataset, but could explain this behavior. Nevertheless, it was discovered that in 2014 there was an extreme cold weather wave event that caused Code Blue funds to be distributed to ensure that no homeless individual is outside in temperatures below freezing.

Daily Visits 2012−2016
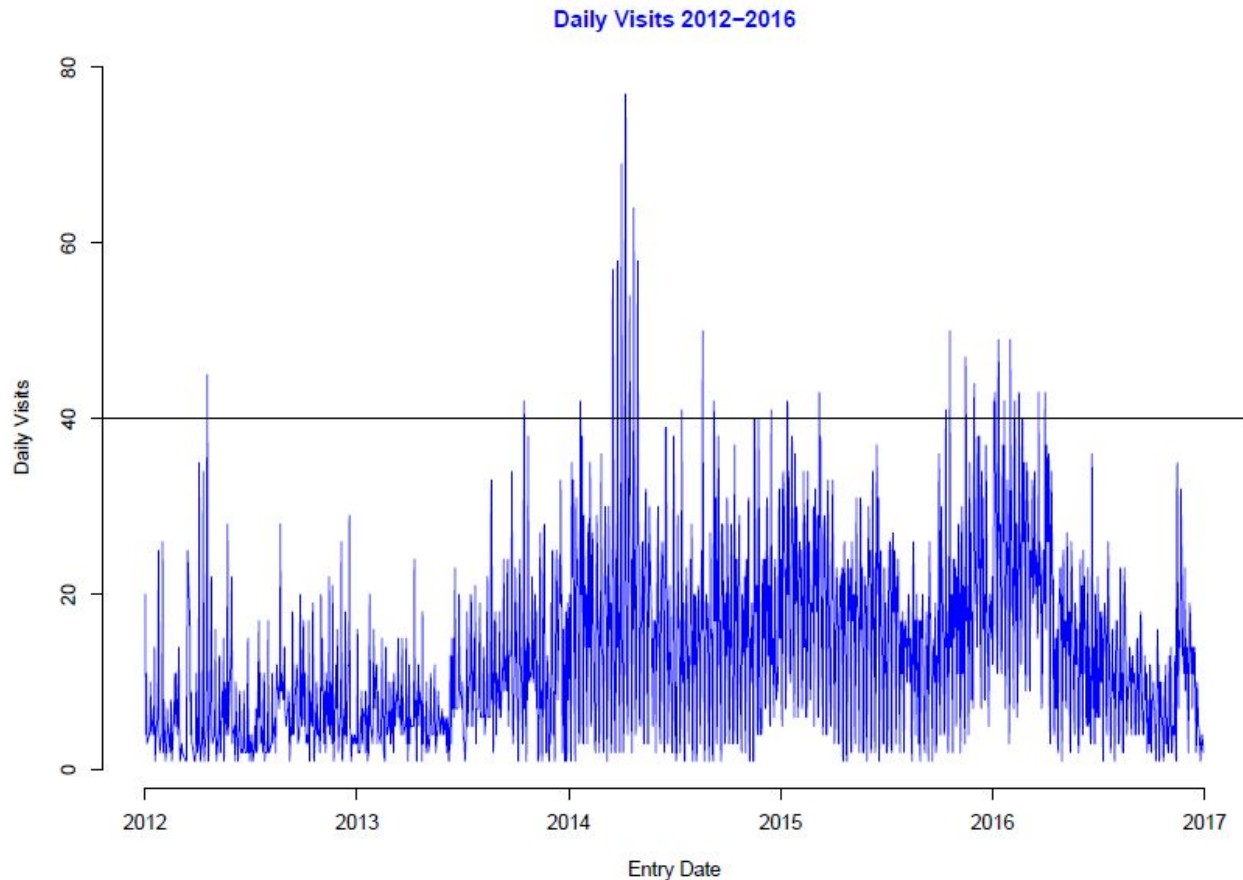
Figure 12 - Daily Visits 2012-2016 Impacted by Extreme Winter in 2014

Confounding Age and Veteran Status

The researchers observed that age and veteran status were two confounding variables as seen in Figure 6. Obviously, someone cannot be a veteran unless they are the legal age to enlist in the military. The team found that the minimum age of veterans started at 17 years, the max was 87 years and the average was 50 years old. This example provides a learning opportunity for students to search for confounding variables that could skew their analysis if not discovered.

Infants in a Project

There are 789 children less than the age of 1 year who are reported at a project in the HMIS data. When the research team approached CARES questioning the accuracy of the data, the team was surprised to find out that many clients give birth at projects since they cannot afford to give birth at a hospital. Students can discover this themselves by first plotting a histogram of age that would lead to deeper digging to discover that there is a much larger systemic problem besides being homeless, but also having no access to affordable health care. This puts the child and the mother at risk of medical complications without having the appropriate services available to them.

Distinguishing Data Quality

There are 7,239 instances of clients entering a project and not leaving for more than 300 days. Instructors can use this fact to challenge the students to develop hypotheses and to develop deeper analysis. After correcting for any bias caused by Permanent Housing projects, the researchers determined that the data quality to distinguish what was a mistake and what was actual data which reveals a reality of data collection in under supported sectors. Table

5 below shows the number of client entries that have more than 300 days in the project, in other words have not been exited in the HMIS system after 300 days, and their respective project type.

Project Type	Count of Client with more than 300 days in Project
Emergency Shelter	60
Transitional Housing	151
Permanent Supportive Housing (Disability Required)	947
Street Outreach	55
Services Only	2385
Day Shelter	2939
Homelessness Prevention	193
Permanent Housing - Rapid Re-Housing	509

Table 5 - Count of Clients in Projects with more than 300 Days between Enrollment and Exit

NEXT STEPS

In moving forward with this project, the first step is to continuously communicate and follow up with the community partner, CARES, Inc. This allows the established relationship to continue to grow and by building trust with the research team, more insight into the needs of the partner will be revealed and more opportunities for analysis will become available. In addition to conducting further drill down analysis on initial discoveries from EDA, the research team can take many routes in continuing their work with the community partner. This paper focuses on the learning outcomes from this relationship rather than trying to influence public policy that can be derived by further research.

There are a plethora of opportunities to expand the relationship with the community partner, while offering more chances for student learning to occur.   Drafting a report and reporting to the community partner on the findings is the first step outside of the classroom. To continue challenging their growth, students can submit to journals to publish their findings on the data which not only is in the interest of the student and the academic institution, but also the community partner. The research team can continue learning outside the classroom by developing predictive and prescriptive tools as well as review system modeling to search for avenues to end homelessness. Lastly, student programs can be developed to increase the depth of student engagement with the community partner. For example, a student led consulting team could continue to work regularly with industry and academic mentors to learn the needs of the community partner and to find solutions to the problems presented by the client. In this example alone, a student could be introduced to the data and the research project in the classroom through performing an EDA case on the data. The student then would find an interest to join the team as a researcher or to serve the nonprofit partner in a volunteer role. In either capacity or in another function, the student learning outcomes are nearly limitless. Whether it is building the student's analytical ability, presentation skills or connection with the community, the student's engagement in the project develops them in ways previously unattainable in the classroom.

DISCUSSION AND CONCLUSIONS

The technical skills of data analysis are in high demand by employers and industries, yet much of the instruction in this field has been limited to few disciplines in academia. This disproportion of analytics instruction limits the potential of using empirical and scientific methods to address very large social issues because students are not exposed to data relating to the social sector. Through the application of community engaged learning and exposure to data science, this barrier can be overcome which will benefit the students exposed by preparing them to apply analytics in humanitarian industries.

Through the analysis of real data collected by community partners, students in liberal arts and humanities disciplines have an opportunity to apply statistical methods to their respective fields. Academic institutions should

strive to work with organizations in the community to provide opportunities for all majors to apply and improve their skills. By developing these relationships, students have the ability to explore career interests prior to graduation and community partners are able to seek out future employees.

Exploratory Data Analysis is only the first step in discovering what lies beneath the data. By teaching EDA in the classroom, students gain real experience in searching for answers while learning about the broader concepts of the data. EDA only covers the surface of the data and exposes rich nodes for exploration. Deeper and further analysis outside the classroom becomes possible when students are interested in the question and the broader picture. Academic institutions should prioritize incorporating analytics into all of its academic programs to prepare students with the appropriate skill sets that are in high demand to employers. Regardless of the academic discipline a student takes, their understanding and application of data science and analytics should not be hindered. This paper serves as both a call to action and a model for academic institutions to incorporate analytics into relevant and actual examples that can be presented in the classroom to benefit students who have not traditionally applied analytics to their discipline.

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FOREIGN AID AND THE HUMAN DEVELOPMENT INDEX IN AFRICAN NATIONS

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OVERVIEW OF RESEARCH

Over recent decades, interest in emerging markets around the world has skyrocketed. Articles from research institutions across the United States and around the world bait subscribers with titles claiming to have found *"the new China"* in nations reaching the far edges of the globe. In this renaissance of development economics, few nations remain as under-studied as those of the continent of Africa.

Though nearly half of the continent contributes to the world oil economy, many nations in Africa face deplorable living conditions in war-tattered countries. Yet still other nations promise to herald the coming of a new age, where foreign direct investment paves the way to greater industrial capacity and manufacturing ability. Recently, the World Economic Forum published a report detailing the methods of unleashing Africa's economic potential through technological and infrastructural development, and international investment.[1] Meanwhile Barclays brushes off the crumbling BRICs hypothesis as marking the advent for a powerhouse African economy.[2] Still countless other publications recite the benefits of economic development as ushering in a new and higher standard of living for the people within the many budding nations of the continent. But as eager-eyed Western investors size up the promises of this new world, another factor presents itself. How sustainable is this consideration? Is the desire in supporting Africa's success truly born out of a best-of-both-worlds duality of profitable investment and human development for those residents of African nations? To what extent are westerners using the guise of humanitarianism to capitalize on imperial and financial desires?

In the following report, I seek to draw greater focus onto the relation between foreign aid and the human development index. Based on a variety of academic research, I have included similar studies positing the relevance of selected variables to human development in other developing nations around the world. In including these theories, I seek to draw greater understanding of the applicability of certain development factors to the nations of Africa. Through the measures of foreign aid, internal conflict index, public health expenditure, presence of democracy, infrastructural development, balance of trade per capita, and the role of the agricultural versus the industrial economy, I have analyzed 48 nations of Africa to determine to what end these economic measures truly support the betterment of the human condition and to what extent they may be relied upon for the future of life in the continent of Africa.

HYPHOTHESIS AND EQUATION

Equation

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[1] Gatare, Francis. "3 Ways Tech Will Unlock Africa's Economic Potential." *World Economic Forum*, 13 May 2016.
[2] "Global Spotlight Shifts to African Economies." *Factors Driving Africa's Economic Potential*, Barclays International Banking, 16 Sept. 2013.

$$HDI = \beta1 + \beta2FAID + \beta3WAR + \beta4HEALTH + \beta5GOVT + \beta6INFRA + + \beta7TRADE + \beta8AGRIND$$

Hypothesis

I postulate that the slope of foreign aid (FAID) will be negative, along with internal conflict (WAR). I also predict that public health expenditure (HEALTH), presence of democracy (GOVT), infrastructural development index (INFRA), balance of trade per capita (TRADE), and the ratio of agricultural economy to the industrial economy (AGRIND) will also be positive.

Variable	Variable Definition	Slope	Statistically Significant (Y/N)	Practical Significance
FAID	Total foreign aid per capita	Negative	Yes	Large
WAR	Recent Internal Conflict Index (Scale of 1-10)	Negative	Yes	Medium
HEALTH	Public Health Expenditure (% GDP)	Positive	Yes	Large
GOVT	Presence of Democracy (Scale of 1-10)	Positive	No	Small
INFRA	Infrastructural Development (Scale of 0-100)	Positive	Yes	Medium
TRADE	Balance of trade per capita	Positive	No	Medium
AGRIND	Ratio of agricultural sector to industry. Measured as percent of GDP.	Positive	Yes	Large

NOTES ON VARIABLES

Before continuing to the methodological details of the variables selected for regression, it is worth explaining why many of the whole number variable values have been converted to "per capita" status. This is to account for the fact that the population of nations across the continent varies widely, with each nation facing different metrics of population density and varying prevalences of contagious illness. With this being said, it is necessary to take into account trends of national health, with a particular focus on infectious disease. These projections have been accounted for in the population values found in the appendix A table, and in turn render themselves useful in weighing the scope of each nation with respect to human life within this regression.

- Total foreign aid per capita is measured from the sum of all foreign aid received within a nation, divided by the population of that nation. This variable is the principle focus of this analysis because of recent academic discourse suggesting that, as was the case with South Korea in the early 1960s, African nations might develop and attain a higher general quality of life more rapidly with channeled foreign financial assistance.[3] Nations with higher foreign aid per capita are expected to be more likely to have a high HDI value, supporting the principle that international financial support may pave the way for improvement in the human condition.
- Recent internal conflict is measured through an index rather than a dummy (binary) variable to account for the varying forms and severity of combat within national borders. For example, a declaration of war may hold different implications than a conflict with a non-nationalized extremist group. This variable has been included to investigate the applicability of the McGillivray and Noorbakhsh study that posited that conflict is negatively associated with HDI levels.[4] Nations with higher levels of recent internal conflict are therefore expected to have lower values of HDI.
- Public health expenditure is included as a percentage of GDP to reflect the varying definitions and practices of medical professionals and infrastructure across nations. Based on a 2013 study from the United Nations Development Program, nations with a higher public health expenditure and education are expected to have higher values of HDI.[5] In this regression analysis, however, the focus has been drawn exclusively to public health expenditure as a percentage of GDP given the fact that HDI already comprises some measures of educational expenditure.
- Presence of democracy is included in this analysis to test the hypothesis stated by Gerring, Thacker, and Alfaro that that democratically inclined nations have better quality of life for its citizens.[6] Presence of democracy is expected to be statistically insignificant given the alternative variables in the regression.
- Infrastructural development Index accounts for four key indicators: (i) Transport, (ii) Electricity; (iii) Information and communication technologies (ICT), and (iv) Water and Sanitation. This variable is included to test the hypothesis presented in a similar academic study in Odisha, India that infrastructural development is a requisite for human development.[7] With this in mind, nations with a higher index value, on a scale of 1-100, are expected to have higher levels of HDI.
- Balance of trade per capita is presented to examine the hypothesis that economically-extroverted nations are more likely to facilitate a higher quality of life for its citizens. This variable is included to investigate a similar finding from the 2006 International Trade and Human Development Report for Laos PDR that increasing international trade has benefited both the quality of life of citizens and national development.[8] This variable is expected to be positively-sloped.
- The ratio of agricultural economy to industrial economy is included to analyze the role of the sector of the economy producing agricultural commodities (e.g. palm oil, cocoa, or sugar) relative to the sector of the industrialized economy (presumably construction or manufacturing products). Although industrial economies may indicate more technological sophistication, they may frequently come at a trade off with production and/or immediate availability of food. Therefore, as larger agricultural sectors are predicted to be more favorable to high HDI rankings, a positive slope is predicted for this fractionated variable. (That is, if the assumption that availability of agricultural commodities supports the sustenance of individuals producing such commodities).
- As the dependent variable in this regression, the Human Development Index (HDI) takes a more comprehensive approach to assessing development rather than measuring economic growth alone. Inclusive to

[3] Cumbo, Peter. "Foreign Aid: Good for America, Good for the World." *Public Policy Initiative*, Penn Wharton University of Pennsylvania, 9 July 2017.

[4] McGillivray, Mark, and Farhad Noorbakhsh. "Aid, Conflict and Human Development." *Working Papers 2007-03, Department of Economics*, University of Glasgow, 2007.

[5] Malik, Khalid. "Human Development Report 2013." *United Nations Development Programme*, United Nations Development Programme, 2013

[6] Gerring, John, et al. "Democracy and Human Development." *The Journal of Politics*, vol. 74, no. 1, Jan. 2012, pp. 1–17.

[7] Mohanty, Amar Kumar, et al. "Does Infrastructure Affect Human Development? Evidences from Odisha, India." *Journal of Infrastructure Development*, vol. 8, no. 1, 2016, pp. 1–26.

[8] Sisouphanthong, Bhounthavy, and Charles N Myers. "National Human Development Report - Lao PDR 2006 ." *National Human Development Report*, Nov. 2016, pp. XXII-XXIII.

HDI are the life expectancy index, education index, and GNI index which are measured through six economic indicators of general human well-being.[9]

Note: All monetary amounts depicted have been converted to US Dollars, for ease of analysis. Furthermore the nations of Sao Tome and Principe, Somalia, Seychelles, South Sudan, Reunion, and Cape Verde are all omitted due to remote data unavailability. In the cases of Somalia and South Sudan, extreme internal conflict and political upheaval have rendered most any recent data collection impossible.

ANALYSIS

The following tables comprise the results of a linear regression of the model:
$$HDI = \beta_1 + \beta_2 FAID + \beta_3 WAR + \beta_4 HEALTH + \beta_5 GOVT + \beta_6 INFRA + + \beta_7 TRADE + \beta_8 AGRIND$$

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.786[a]	.619	.552	.072767

a. Predictors: (Constant), Agricultural sector/industry (% of GDP), Internal Conflict Index, Infrastructural Development Index, Balance of Trade per Capita, Public Health Expenditure, Presence of Democracy, Foreign Aid per Capita

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.343	7	.049	9.266	.000[b]
	Residual	.212	40	.005		
	Total	.555	47			

a. Dependent Variable: HDI

b. Predictors: (Constant), Agricultural sector/industry (% of GDP), Internal Conflict Index, Infrastructural Development Index, Balance of Trade per Capita, Public Health Expenditure, Presence of Democracy, Foreign Aid per Capita

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[9] "Human Development Index (HDI)." *Human Development Reports*, United Nations Development Programme, hdr.undp.org/en/content/human-development-index-hdi.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.363	.058		6.224	.000
	Foreign Aid per Capita	-4.538E-5	.000	-.019	-.137	.892
	Internal Conflict Index	.002	.004	.062	.502	.618
	Public Health Expenditure	2.501E-5	.008	.000	.003	.997
	Presence of Democracy	.031	.008	.496	3.887	.000
	Infrastructural Development Index	.001	.000	.261	2.492	.017
	Balance of Trade per Capita	-8.012E-5	.000	-.379	-3.413	.001
	Agricultural sector/industry (% of GDP)	-.025	.009	-.397	-2.799	.008

a. Dependent Variable: HDI

Summary of Results

   Based on the former regression, the hypothesis is supported with the independent variables explaining 78.6% of the changes in the Human Development Index. However, contrary to expectations, neither total foreign aid nor public health expenditure as a percentage of GDP were significant variables. Still more surprising is the fact that the relationship between recent internal conflict and HDI was statistically insignificant. Presence of democracy (GOVT), Infrastructural development index (INFRA), Balance of Trade per capita (TRADE), and agricultural sector/industrial sector as percentage of GDP (AGRIND), were all statistically significant though the latter two

shared negatively-sloped values when plotted against the dependant variable, HDI. The t-stats for the significant variables of GOVT, INFRA, TRADE, AGRIND, are above 2 (or less than -2) and thus satisfy the 2-t rule of thumb, allowing rejection of the null hypothesis and that the coefficient is significant with >95% confidence.

The practical implications of these results support several possible conclusions. First, based on the p values (significance level), the measured foreign aid does not have a clear relationship with the dependent variable. As the p value is only significant at the .892 level, there is little support for any relationship at all. Therefore, it is unlikely that the FAID explains HDI values for any given nation in Africa. Second, and most intriguing, are the facts that the remaining four variables are all statistically significant with correspondingly favorable t-stats. The presence of democracy and the infrastructural development index both confirm the hypothesis that democratic governments and presence of transport, electricity, information and communication technologies (ICT), and water/sanitation are all key developments for achieving a higher HDI value. These findings confirm the hypothesis tested by Gerring, Thacker, and Alfaro that in many developing nations the democratically-inclined countries have better quality of life for their respective citizens. Additionally, the significance of INFRA corroborates a similar result in Africa as was found in the Mohanty, Nayak, and Chatterjee study from India that infrastructural development does indeed explain augmentation in quality of human life.

The lattermost variables (TRADE and AGRIND) have a negative relationship with HDI. (I.e. First, that the larger the balance of trade per capita, the lesser the value of HDI. Second, the larger the ratio of AGRIND, the lower the level of HDI). One possible conclusion to be drawn between the negative B2 value of balance of trade per capita is that there is a dearth of information regarding the exact nature and quality of imports and exports. A nation importing large quantities of food and medical supplies might face a comparable balance of trade to a nation importing large quantities of artillery and iPhones. While this analysis does not support a similar result as findings of the National Health Development Report in Lao PDR, there is considerable ground for further study of this variable as the nations of Africa continue to grow and change with foreign presence and independent development alike.

The AGRIND variable's β2 has particularly meaningful results because it supports the hypothesis that, in fact, the greater the industrial sector of an economy (placed in the denominator), the higher the likelihood of an elevated HDI. Contrary to the original hypothesis, it appears that a subsistence ethic of food provision leading to higher HDI levels is not supported, but that it is rather a higher GDP percentile of the industrial sector that explains HDI. This could be due to a number of factors, but one explanation is likely to be found in the amount of foreign direct investment currently in place in many African nations. According to a 2015 study published by the World Economic Forum, the average budget of African countries depends on corporations based in other countries for 14% of their funding.[10] Among the leading industries supported by inward flows of foreign direct investment (FDI), the top categories were finance, transportation, storage, communications, and business activities-- with an overall increase of $105 billion dollars across all of these categories. Another explanation for this result is the potential overlap in the agricultural and industrial sectors, for example the crude oil or coffee industry. Producing, harvesting, refining, packaging, and potentially exporting goods such as these would clearly fall into both agricultural and industrial sectors at different points of the process, yet may constitute only one of the designations in the reporting of the original data . As the dataset stands presently, no explanation is offered to explain the potential crossover existing from this phenomenon.

For convenience, reproduced below is an updated table from the original hypothesis with disproved hypothesis highlighted in blue and bolded.

Reproduced Hypothesis Table

Variable	Variable Definition	Slope	Statistically Significant (Y/N)	Practical Significance
FAID	Total foreign aid per capita	Negative	*No*	Large

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[10] Mwiti, Lee. "10 Trends on Foreign Investment in Africa." *World Economic Forum*, 9 July 2015

WAR	Recent Internal Conflict Index (Scale of 1-10)	*Positive*	*No*	Medium
HEALTH	Public Health Expenditure (% GDP)	Positive	*No*	Large
GOVT	Presence of Democracy (Scale of 1-10)	Positive	*Yes*	Small
INFRA	Infrastructural Development (Scale of 0-100)	Positive	Yes	Medium
TRADE	Balance of trade per capita	*Negative*	*Yes*	Medium
AGRIND	Ratio of agricultural sector to industry. Measured as percent of GDP.	*Negative*	Yes	Large

Items shown in italics above reflect refute of original hypothesis, non-italicized reflects support of original hypothesis

TESTS FOR MULTICOLLINEARITY, AUTOCORRELATION, AND HETEROSCEDASTICITY

Multicollinearity

Before examining the multicollinearity of the regression, it is important to first satisfy that micronumerosity is not a concern because the sample size (48) significantly exceeds the parameters estimated (7). Proceeding from this fact, we can observe if the variance of an estimator is inflated by the presence of multicollinearity by calculating the variance-inflation factor (VIF). Through the formula $(1/1-R^2)$, we obtain a VIF of 4.67, which satisfies the less than 10 VIF rule of thumb, therefore indicating multicollinearity is not a significant concern. Furthermore, the square root of the VIF explains how much larger the standard error is compared to if the predictor was uncorrelated with any other predictor. The value of the square root is 2.14, which indicates that the standard error is 2.14 times as large as if the predictor was uncorrelated with any in the model, which is not a tremendous change. Additionally, as shown in appendix B, the Pearson Correlation shows values consistently well below 0.6. Therefore, it suffices to state that there is no significant multicollinearity.

Autocorrelation

Using the Durbin-Watson test for autocorrelation, we obtain a value of 2.365 which falls into the normal range of no autocorrelation.

Heteroscedasticity: Graphic and Glesjer tests

Given the adjacent graph, the regression of standardized residuals has a roughly normal distribution with a clear peak and two tails. For robustness of testing, I have also included on the following page a p-p plot of the regression of standardized residual in figure 2, which shows a great fit between the expected cumulative probability and the observed cumulative probability. Furthermore, the scatterplot shown below in figure 3 shows a fairly consistent "bird's nest" shape indicating low likelihood of heteroskedasticity.

For a more quantitative approach, the Glejser test calculates the variance in the spread for each of the variables. Here, I have regressed the absolute residual value of the independent variables with the regression equation. The result obtained is that the value of all explanatory variables have a value greater than 0.05. Therefore it satisfies the Glejser test, and shows that there is no heteroskedasticity.

Figure 2 - p-p plot
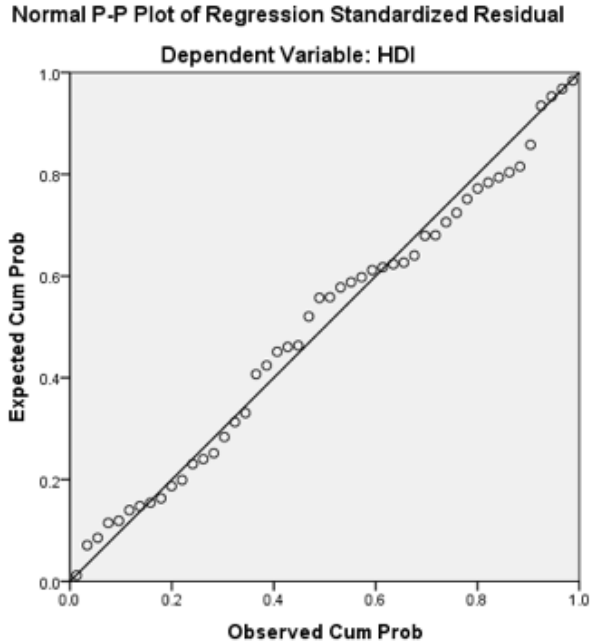
Figure 3 - Scatterplot
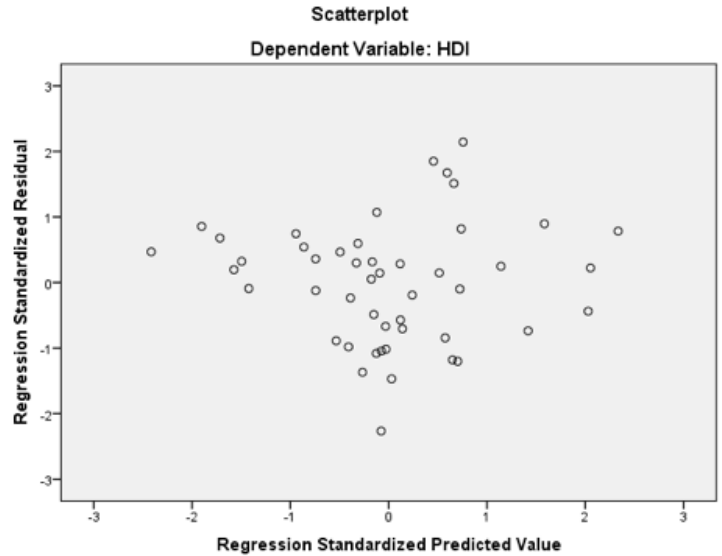
CONCLUSION

Contrary to the original hypothesis, foreign aid has no statistically significant relationship with the human development index. In a similar tone, internal conflict and public health measurements were also found to have no statistically supported relationship. However, what is most remarkable about these results is the fact that presence of democracy, infrastructural development, the balance of trade, and the ratio of the agricultural to industrial sector of the respective economies of each nation were not only significant in explaining changes in the human development index, *but also* were significant at or beyond 95% certainty.

Fascinating as these results are, it is important to pause and consider the multitude of invisible contributing factors that may come to relevance in future research on foreign aid and the human development index. Namely among these is the role of corruption in potential appropriation of foreign aid, and manipulation of self-reported data. While there is a corruption *perceptions* index, there is not yet any definitive indicator of misuse or embezzlement of funds taken specifically from foreign aid or the variables observed in this study.[11]Additionally, another severely understudied and data-deficient avenue in the area of finance and human development is the role of microfinance institutions in promoting a higher standard of human development. From the variables presented above, however, one thing remains very clear: the future of human condition in Africa depends on the resilience of her industrial ports, her highways, and the ideals of her governments. Electricity, water, sanitation, and communication together with democratic integrity hold the key to realization of the dream that economic prosperity and human well-being may go hand in hand.

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[11] Transparency International. "Corruption Perceptions Index 2016." *www.transparency.org*, Transparency International , 25 Jan. 2017.

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      www.cia.gov/library/publications/the-world-factbook/geos/xx.html.

APPENDIX AND GRAPHS

Appendix A

Correlations

		Foreign Aid per Capita	Internal Conflict Index	Public Health Expenditure
Foreign Aid per Capita	Pearson Correlation	1	-.233	.178
	Sig. (2-tailed)		.112	.225
	N	48	48	48
Internal Conflict Index	Pearson Correlation	-.233	1	-.341[*]
	Sig. (2-tailed)	.112		.018
	N	48	48	48
Public Health Expenditure	Pearson Correlation	.178	-.341[*]	1
	Sig. (2-tailed)	.225	.018	

		Presence of Democracy	Infrastructural Development Index	Balance of Trade per Capita
Foreign Aid per Capita	Pearson Correlation	.077	-.131	.075
	Sig. (2-tailed)	.602	.376	.614
	N	48	48	48
Internal Conflict Index	Pearson Correlation	-.495**	.186	-.026
	Sig. (2-tailed)	.000	.206	.863
	N	48	48	48
Public Health Expenditure	Pearson Correlation	.146	-.121	-.157
	Sig. (2-tailed)	.322	.411	.288
	N	48	48	48
Presence of Democracy	Pearson Correlation	1	.040	.312*
	Sig. (2-tailed)		.785	.031
	N	48	48	48
Infrastructural Development Index	Pearson Correlation	.040	1	-.083
	Sig. (2-tailed)	.785		.575
	N	48	48	48
Balance of Trade per Capita	Pearson Correlation	.312*	-.083	1
	Sig. (2-tailed)	.031	.575	
	N	48	48	48
Agricultural sector/industry (% of GDP)	Pearson Correlation	-.157	.072	.193
	Sig. (2-tailed)	.287	.627	.188
	N	48	48	48

		Agricultural sector/industry (% of GDP)
Foreign Aid per Capita	Pearson Correlation	.589**
	Sig. (2-tailed)	.000
	N	48
Internal Conflict Index	Pearson Correlation	.055
	Sig. (2-tailed)	.709
	N	48
Public Health Expenditure	Pearson Correlation	-.214
	Sig. (2-tailed)	.144

Appendix B

Nation	Foreign Aid per Capita	Internal Conflict Index	Public Health Expenditure	Presence of Democracy	Infrastructural Development Index	Balance of Trade per Capita	Agricultural sector/industry (% of GDP)	HDI
Algeria	2.19	7.0	5.2	3.56	53.39	-653.44	0.34	0.745
Angola	18.84	6.0	2.1	3.4	16.46	-206.52	0.166123779	0.533
Benin	40.05	0.0	2.3	5.67	15.78	-57.25	0.919678715	0.485
Botswana	29.68	0.0	3.2	7.87	35.63	996.74	0.060402685	0.698
Burkina Faso	51.10	5.0	2.6	4.70	16.52	-47.05	1.490825688	0.402
Burundi	33.02	0.0	4.0	2.40	14.62	-48.29	2.678362573	0.404
Cameroon	27.24	10.0	0.9	3.46	19.03	-43.18	0.691558442	0.518
Central African Republic	88.42	8.0	2.1	1.61	11.86	-28.87	4.957264957	0.352
Chad	51.19	10.0	2.0	1.50	66.37	-74.67	4.140625	0.396
Democratic Republic of Congo	31.96	9.0	1.6	1.93	81.63	-22.50	0.634069401	0.435
Republic of Congo	18.32	5.0	4.2	2.91	14.46	-467.81	0.070200573	0.592
Cote d'Ivoire	27.52	5.0	1.7	3.81	19.06	-32.60	0.902564103	0.474
Djibouti	200.26	3.0	6.8	2.83	23.92	-640.14	0.139423077	0.473
Egypt	26.28	8.0	2.2	3.31	85.66	-197.11	0.315642458	0.691
Equatorial Guinea	9.89	1.0	2.9	1.70	17.92	-2644.02	0.122733612	0.592
Eritrea	15.69	6.0	1.5	2.37	82.65	-0.51	0.410169492	0.420
Ethiopia	31.59	7.0	2.9	3.60	75.57	-70.39	2.129411765	0.448
Gabon	56.81	6.0	2.4	3.74	27.75	-735.67	0.096982759	0.697
Gambia	53.67	5.0	5.0	2.91	27.61	-48.27	1.371794872	0.452
Ghana	65.72	0.0	2.1	6.75	26.09	-103.46	0.8125	0.579
Guinea	44.52	6.0	2.7	3.14	14.23	-69.38	0.522546419	0.414
Guinea Bissau	54.05	5.0	1.1	1.98	13.41	17.62	3.383458647	0.424
Kenya	52.87	10.0	3.5	5.33	24.37	-81.68	1.816666667	0.555
Lesotho	42.57	0.0	8.1	6.59	15.68	-90.11	0.234726688	0.497
Liberia	254.53	0.0	3.2	5.31	12.42	-123.26	6.573529412	0.427
Libya	24.09	10.0	3.7	2.25	77.79	-2062.08	0.043981481	0.716
Madagascar	27.71	0.0	1.5	5.07	84.47	-9.13	1.521472393	0.512
Malawi	56.51	0.0	6.0	5.55	18.44	-45.72	1.828571429	0.476
Mali	68.73	7.0	1.6	5.70	15.05	-64.12	2.204301075	0.442
Mauritania	86.51	5.0	1.9	3.96	16.19	-208.03	0.692528736	0.513
Mauritius	56.78	0.0	2.4	8.28	74.07	-384.95	0.180995475	0.781
Morocco	40.67	6.0	2.0	4.77	62.40	-119.44	0.439597315	0.647
Mozambique	70.00	5.0	3.9	4.02	11.60	-169.15	1.277777778	0.418
Namibia	58.45	0.0	5.4	6.31	28.79	-488.00	0.189655172	0.640
Niger	46.46	10.0	3.2	3.96	53.36	-61.91	1.972972973	0.353
Nigeria	13.07	10.0	0.9	4.50	20.60	14.08	1.087628866	0.527
Rwanda	83.28	8.0	2.9	3.07	20.45	-93.62	2.291390728	0.498
Senegal	61.40	5.0	2.4	6.21	24.70	-73.81	0.647302905	0.494
Sierra Leone	157.24	5.0	1.9	4.55	93.87	-127.43	9	0.420
South Africa	26.16	6.0	4.2	7.41	75.51	-177.24	0.075342466	0.666
Sudan	24.50	10.0	1.8	2.37	14.67	-148.87	1.328502415	0.490

IS RESTORATIVE JUSTICE AN EFFECTIVE ALTERNATIVE FOR CRIME?: EVIDENCE FROM A RECENT CASE STUDY

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ABSTRACT

This presentation summarizes the evaluation and findings of the Albany Community Accountability Board (CAB) completed by students enrolled in Economics of Crime in Fall 2017. CAB is a diversionary program for first-time, nonviolent offenders. We employed three methods: a qualitative evaluation of case files; a quantitative evaluation of program participant and in participant recidivism rates; and a preliminary cost analysis. Criminal history data were acquired from the New York State Division of Criminal Justice Statistics. Our findings highlight the efficacy of the CAB at reducing recidivism and suggest the program may be less costly than the traditional court system.

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INCOME INEQUALITY AND ECONOMIC GROWTH
SOME PRELIMINARY RESULTS

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ABSTRACT

In this paper, we examine the relationship between income inequality and economic growth, while controlling for six other variables. OLS estimates on a pooled data of 51 countries for 25 years from 1990 to 2014, show that inequality, measured by the Gini coefficient, is not a significant determinant of economic growth. Later, we will employ dynamic panel data techniques to account for heterogeneity and endogeneity.

INTRODUCTION AND LITERATURE REVIEW

Income inequality and economic growth are two concepts that have been widely researched throughout time. Income inequality can be defined as "the extent to which income is distributed in an uneven manner among a population" (Inequality.org). Economic growth, on the other hand, is typically defined as "an increase in real GDP per capita" (Acemoglu et al, 2015) or the increase in the production of goods and services from one year to the next. A reflective of both growth and inequality, recently, Mlachila et al (2017) define a "good quality growth" as one which is not only measured in terms of just high rates but also one that is "durable and socially-friendly" p.2.

The impacts that income inequality has on economic growth are different depending on the circumstances, data and time frame used in research (Halter, Oechslin, Zweimuller, Herzer, Vollmer, Henderson, Qian, Wang). Higher inequality can help growth in the short run but is harmful on the growth rate of GDP per capita over the longer periods of time (Halter, Oechslin, Zweimuller). Increased inequality is a result of technological advancement rather than globalization (Jaumotte, Lall, Papageorgiou). Neves and Silva in their *Survey Article: Inequality and Growth: Uncovering the main conclusions from the Empirics* present that the impact of inequality to economic growth is negative and significant when data on a cross section of developing countries and inequality of wealth rather than income is taken into consideration (Neves, Silva, Cingano, Henderson, Qian, Wang). In the Middle East and Central Asia, the Western Hemisphere and emerging markets, there is a significant negative effect (Grigoli, Paredes, Di Bella, Henderson, Qian, Wang). On the other hand, Neves and Silva propose that the relationship between inequality and economic growth is insignificant and positive when a panel data of developed countries, with regional dummies and income distribution are taken into consideration. Additionally, evidence shows that a stronger control for corruption, rule of law, and government effectiveness can decrease the negative effect of income inequality on economic growth (Grigoli, Paredes, Di Bella).

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Neves and Silva talk about the idea that inequality in wealth distribution has a stronger negative effect on growth than inequality on income distribution. Norris, Ricka and Tsounta in their paper also advocate the similar idea that inequality in wealth has more extreme effects than when using income inequality. This could be from the fact that inequality in wealth is more severe than inequality in income. It is estimated that the top 1 percent of the world's population owns half of the wealth of the world (Norris, Ricka, Tsounta).

The Poverty Manual by the World Bank gives us an understanding of the different ways that income inequality can be measured, and which way is the most appropriate depending on the kind of research we are conducting. The most commonly used measurement is the Gini coefficient. The Gini coefficient measures how notable the income inequality is within a country. The index varies from 0, perfect equality, to 1, perfect inequality. Another measurement is Theil's T and Theil's L. This decompose inequality in the parts that is due to inequality within areas such as rural and urban, and the differences between areas such as the rural-urban income gap. The World Bank suggests that the Gini coefficient is more accurate since it satisfies four of the six main criteria, discussed below, that make a measurement for inequality appropriate to use (World Bank, Ravallion).

Mean independence, which means if income is doubled inequality would not change. Population size independence, which is similarly and implies that if population changes, inequality would not change. Symmetry, which means that if two individuals swap income inequality would once again not be impacted. Lastly, the Pigou-Dalton Transfer sensitivity, which is when you transfer income from the rich to the poor measured inequality is reduced. The two criteria that the Gini coefficient does not satisfy are decomposability and statistical testability.

Neves and Silva mention four transmission channels through which inequality impacts economic growth. The credit market imperfections channel explores the implications of the inequality on investment in human and physical capital in the presence of borrowing constraints. Both restrictions on borrowing and investment in physical and human capital are associated with significant fixed costs, which makes inequality harmful for growth (Neves, Silva, Quintana, Royuela, Cingano, Herzer, Vollmer). Quintana and Royuela in their research have found that credit market imperfections have a negative impact on growth.

The fiscal policy channel, has to do with two different mechanisms. The political mechanism has to do with the taxation and distribution in the economy. The taxation and redistributive government expenditure increase as inequality increases. The second mechanism is the economic mechanism, which claims that taxation and redistribution are harmful to growth because of distortionary effects on investment incentives (Neves, Silva, Cingano, Jaumotte, Lall, Papageorgiou).

The socio-political instability channel has the strongest and consistent empirical support and works through two links/steps. First, initial inequality (wealth or income) generates political instability. Second, the resulting instability negatively affects both investment and future growth. (Neves and Silva, Quintana, Royuela, Cingano). (Quintela and Royuela, Neves and Silva)

The saving channel, on the contrary, supports the classical theory. The saving channel supports that the relationship between inequality and growth is positive. It is based on the idea that the marginal propensity to save by the rich is higher than that of the poor and higher inequality increases aggregate savings, thereby fostering investment and growth (Neves, Silva, Cingano, Grigoli, Paredes, Di Bella). The fact that inequality affects growth differently in developing and developed countries suggests that the transmission channels are different in different types of countries. (Neves and Silva, Quintana and Royuela)

The main approach that Quintana and Royuela introduced in their research was the control function approach. There are four basic problems associated with one model regressions: all cross-country heterogeneities are assumed to be fully captured by the control variables, they are subject to endogeneity bias; there is no clear distinction between short-and -long run dynamics; and nonlinearities are not considered (Quintana and Royuela).

There are two strategies to try and solve the basic issues. The first one is to treat each channel independently. The second has to do with hat the negative effect of the exogenous instruments, however in this case the positive effect was not the same as the previous one. The authors suggest that to find the positive impact would be first to identify the negative but then figure out the positive. Additionally, the impact of inequality and growth depends on the stage of development of the countries (Quintana and Royuela).

During the 20th century there were many differences in global inequality as well as within the country inequality. Fleurbaey and Klasen mention four stylized facts that highlight the differences in inequalities. The first one mentioned in the article was "Great Escape" which means that the gap between developed and developing countries increased drastically. The "Great Escape" was the reason why in the 20th century there was a bimodal distribution of the income in the world. The unimodal model that our society is in today was due to the rapid

economic growth that developing countries in Asia experienced towards the end of the 20th century due to globalization (Fleurbaey and Klasen).

The second fact has to do with the idea that the shift back to a unimodal pattern was due to a decrease in the inequality between countries rather than the inequality within countries. The per-capita income gap between the world's richest and poorest countries is at the highest level that has ever been recorded (Fleurbaey and Klasen).

The third highlight was about the fact that in the world the greatest inequality in living standards has to do with the location and not the socio-economic status. The migration flows are high from poor to rich countries which in the future could be associated with large income gaps in the world. Social stability faces challenges as the within-country inequality sees an increase. The geographical circumstances fact is also mentioned by Quintana and Royuela in their research. They have found that location plays a significant role in inequality (Fleurbaey and Klasen, Quintana and Royuela)

The last one mentioned by the authors has to do with the recent economic changes in the world and who they have affected the most. The most negatively affected group has been the upper middle-class of the world, which is mainly lower-income groups in developed countries (Fleurbaey, Klasen,Cingano, Lo Prete). The most benefited by the economic changes has been the elite, because with globalization and technical progress have been enabled them to become even more powerful (Fleurbaey and Klasen).

Fleurbaey and Klasen mention three disadvantages that inequalities have in the societies. The first one is that higher inequality makes the decrease in poverty much harder (Fleurbaey, Klasen, Ravallion). Norris, Ricka and Tsounta have also talked about the fact that poverty sees a decrease in developing and emerging markets, however that is not the case in advanced economies (Fleurbaey and Klasen, Norris, Ricka and Tsounta). Poverty and inequality also decrease when financial development and economic literacy are higher (Lo Prete). The second point is that "inequalities lead to social disintegration, unrest and violence." The last one mentioned is that it is impossible for one to justify the unequal opportunities that are presented to the children (Fleurbaey and Klasen).

The authors also present three stylized scenarios on how the previous trends mentioned can evolve in the 21st century. The first scenario is business as usual (BAU), which keeps the same policies intact. With BAU inequalities within countries will increase in most developed nations, but the world inequality would remain stable. It is impossible for this scenario to work as projected because it uses both sources of instability (Fleurbaey and Klasen).

The second scenario, referred to as the social scenario is where many take drastic actions against inequality within their countries. The social scenario would work best in protecting national societies against social unrest, however, it cannot solve the migration issue (Fleurbaey and Klasen).

The last scenario was the geographic scenario, which indicates that national politics remain the same, but globalization and technical transfers keep simulating the catch-up process. This scenario could solve the migration and refugee process; however it could also be detrimental for the population. Lastly, the two authors present their ideal scenario in which they would combine internal and coordinated international action against inequalities (Fleurbaey and Klasen).

BACKGROUND ON MAJOR VARIABLES

GDP per capita growth

In this paper, we look at the impacts of income inequality on economic growth. As the dependent variable, we use the growth of real GDP per capita. Gross Domestic Product (GDP) is identified as the monetary value of all goods and services produced within a country in a specific period. This variable measures the growth of GDP change between two periods. For this research, we are using the yearly GDP per capita growth. In figure 1, we can see how the world's GDP per capita growth has been fluctuating throughout the years. From the graph, we can also see the impact that the global financial crisis of 2008 had on the world's GDP per capita growth where the decline in was almost 6 percent. Other than the period, 2008-2010, growth has been mostly positive, which indicates that economic growth is overall positive in the last 25 years. To control for the business cycle effects, we take the average of five years starting 1990 all the way through 2014 and this is true for all the variables used in the analysis.
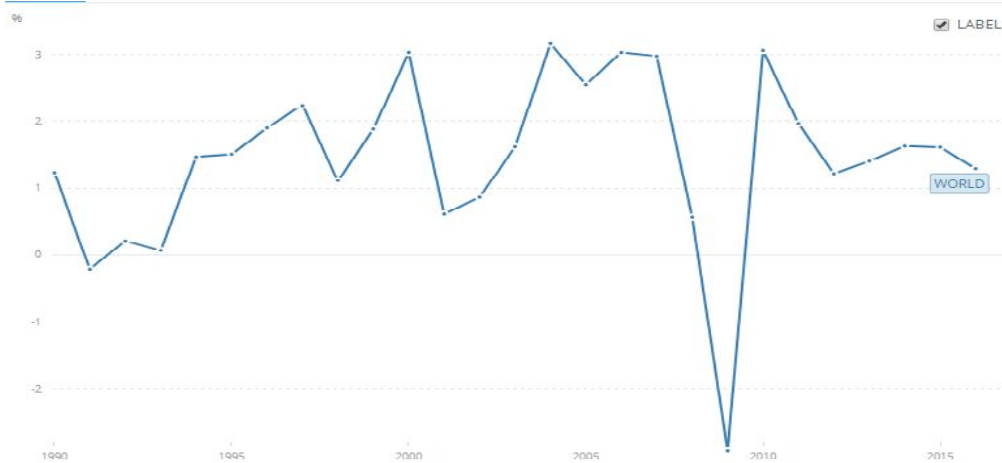
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Figure 1. GDP per capita

Gini Index

       To measure the main independent variable of interest for our regression, we use the Gini index. The Gini coefficient is a statistical measure of distribution of income. The index ranges from zero to one, with zero representing perfect equality and one perfect inequality. The lower the coefficient in the country the more equally the distribution of income in that country. The Lorenz curve is the graphical representation of the Gini index. It shows income distribution by plotting the population percentile by income on the horizontal axis and cumulative income on the vertical axis. The Gini coefficient is equal to the area between the line of perfect equality and the Lorenz curve divided by the area below the line of perfect equality. For this research, we use the Gini coefficient to see the effects of income distribution on the economic growth in countries. The results may be different if, instead of using the income Gini coefficient, we use the wealth Gini coefficient. As mentioned previously, the impact of income inequality on growth depends on the data, period and the specific circumstances of countries used in the analysis. We expect the parameter estimate to have a negative sign. This means that as income inequality increases the economic growth decreases. When income inequality increases the opportunities in the low-income population decrease as well. These people have fewer chances to succeed in life and contribute on the economic growth of the country. As can be seen from figure 2, inequality has seen an overall increase in the last 35 years. In most regions, inequality has seen as steady increase over the years with the exception of Russia in the early 90s that experienced a drastic increase and is experiencing a slight decrease in the last 5 years. This is explained by the fact that higher inequality can reduce the professional opportunities available to the most disadvantaged groups in society and therefore decrease social mobility, limiting the economy's growth potential (World Inequality Report). In particular, a higher level of inequality can result in less investment in human capital by lower-income individuals if, for example, there is no suitable state system of education or grants.
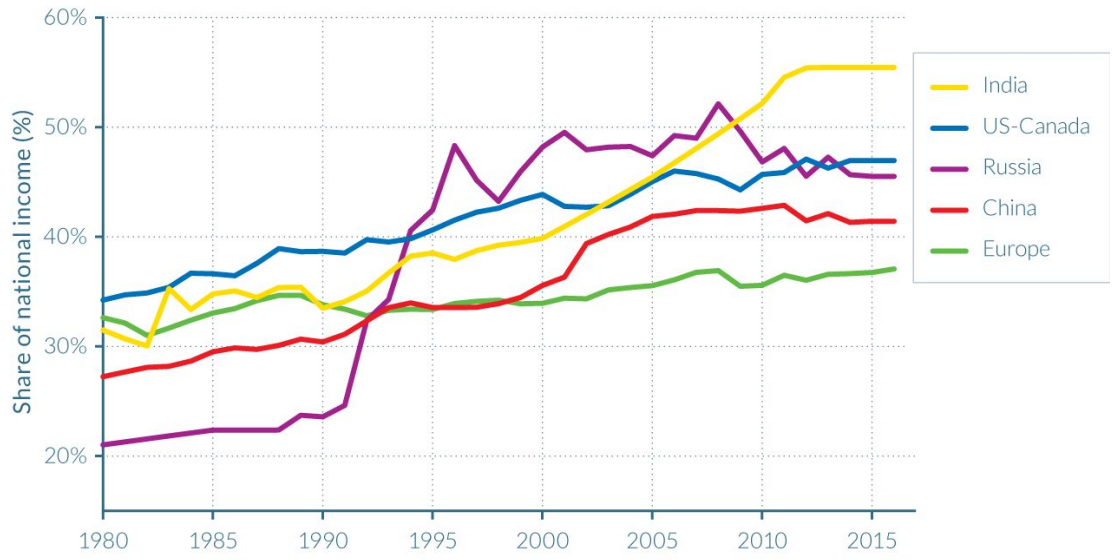
Figure 2. Top 10% income shares across the world, 1980–2016 (Adopted from World Inequality Report, 2018): We observe rising inequality almost everywhere, but at different speeds.

Investment as percent of GDP

The variable shows the value of investment (Gross Capital Formation) as a percentage of GDP at market prices. The larger the percentage, the larger the value of investment relative to GDP. This indicator refers to the share of investment in total production. It is obtained by calculating gross capital formation as percentage of gross domestic product. For this research, we expect the parameter estimate sign to be positive. This means that with an increase in investment the economic growth would also see an increase as predicted in traditional growth theories. As we can see from Figure 3 the investment in developing countries has increased over time. When looking at both panels in figure three, we see that the increase in investment in the developing world goes along the increase in the world's GDP per capita growth.
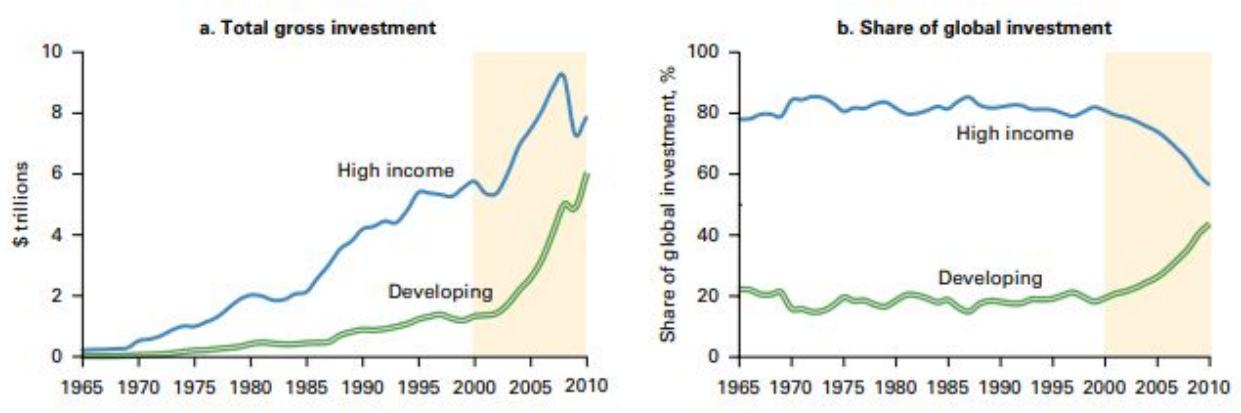
Figure 3: Adopted from World Bank Development Indicators

Inflation Rate

The annual percentage increase of the cost of living as measured by the consumer price index. Consumer price indices are based on a representative basket of goods and services purchased by consumers in an economy. Composition and relative weights of the basket are reviewed periodically. For this research, we expect the parameter estimate sign to be negative. High inflation is a sign of macroeconomic imbalances and instability. This means that high inflation often reduces economic growth, due to the uncertainty that it creates. High inflation that is unexpected often creates unwanted distributional issues (United Nations). On the other hand, low inflation does not always guarantee high economic growth. In Figures 4 and 5, we see the comparison of the inflation rate in 1990 and 2018. One thing we notice is that, in figure 4, we see some Sub-Saharan African countries to have low inflation, however in Figure 5 we see that most of them have high inflation rates.
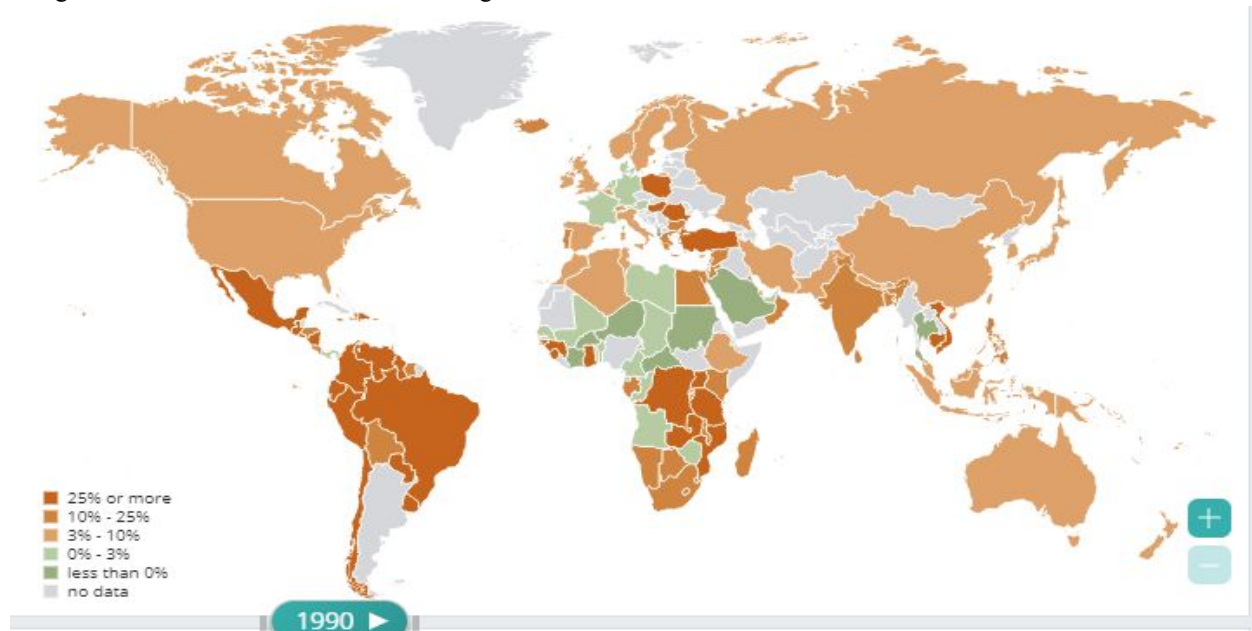
Figure 4: 1990 Inflation World Map. Source
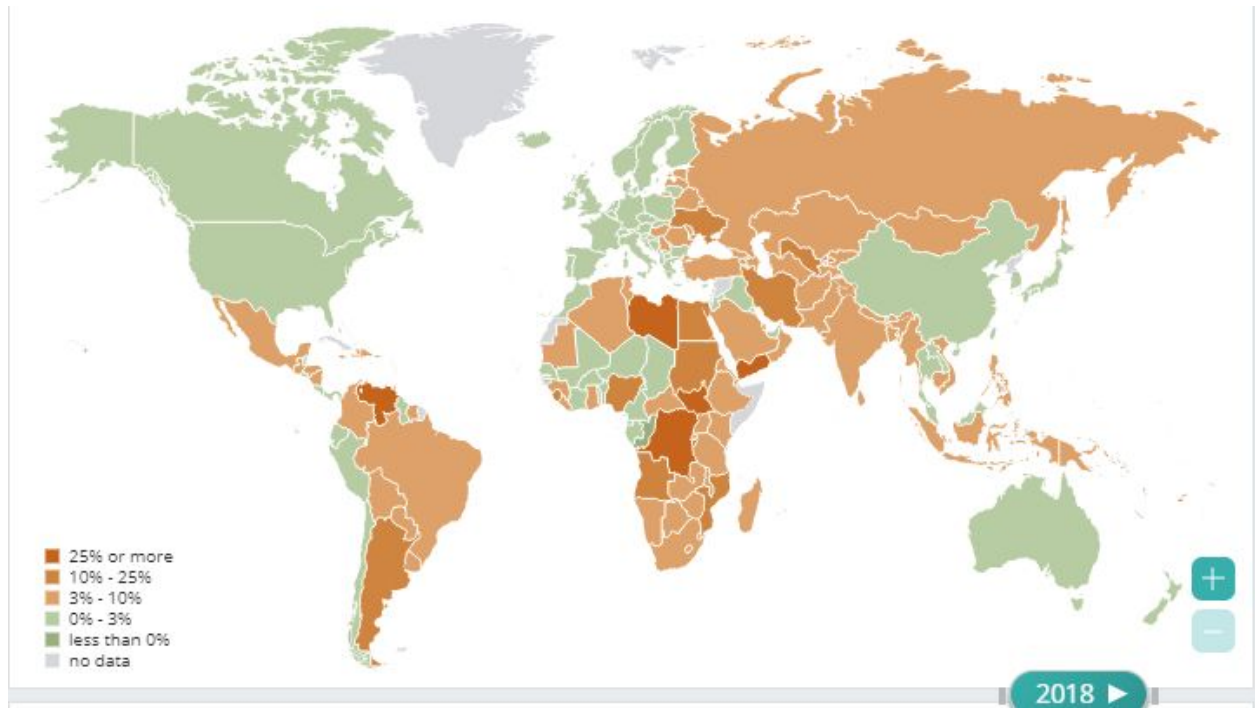
Figure 5: 2018 Inflation World Map. Source

Government Expenditure

Government spending goes, among others, to the nation's defense, infrastructure, health and welfare benefits. The expected sign for the parameter estimate is negative. The higher the involvement of the government and the amount spent by the government the slower the economic growth. Government spending is good for the economy if it is spent on creating productive assets. But, if the spending creates a huge fiscal deficit, it not good for the economy in the long run as taxes will have to be raised in future (Irving). It depends on how the government spending is financed. If government spending is financed by higher taxes, then tax rises may counter-balance the higher spending, and there will be no increase in aggregate demand. The impact of government spending also depends on the state of the economy. If the economy is close to full capacity, then higher government spending may cause inflationary pressures and little increase in real GDP. If the economy is in recession, and the government borrows from the private sector, it can act as expansionary fiscal policy to boost economic growth.

Population Growth

For the purpose of this research, we use the average of 5 years of population growth of each country. We are anticipating the parameter estimate for this variable to be negative. However, the sign could possibly go either positive or negative depending on the state of the economy in the particular country. In figure 6 we can see that clearly, although economic growth is more volatile than population growth, and both of course grow at vastly different rates, the trends are closely related for most of this period. In general, high population growth in the mid-1960s was matched by high economic growth, and lower population growth in the 1970s was matched by lower economic growth. Similarly, higher population growth from the mid-1980s onwards was matched by relatively high economic growth (with the exception of the early 1990s recession). However, the relationship between economic growth and population growth appears to have broken down, or loosened, from the early 2000s onwards. The population has continued to grow at an extremely fast rate, while the economy has experienced a severe recession in 2008 from the global financial crisis.
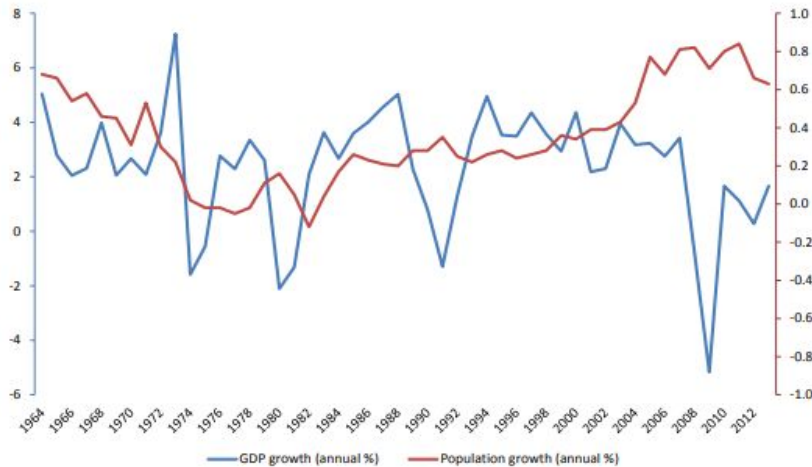
Sources: World Bank; Office for National Statistics.

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Figure 6: Population growth Vs. GDP growth

Percent of population completed secondary education

The percent of the population that has completed the second education variable is extracted from the Barro and Lee data set. It accounts for the percent of the population the age of 25 and over that the highest level of education attained is secondary education completed. We are expecting the parameter estimate sign to be positive. This means that higher percent of education results to higher economic growth. This is because higher education percent's indicate that more people have attain secondary education. When more people have completed higher education, they have the chance to pursue more opportunities that would lead to the capital increase, causing the economic growth to increase.

Trade openness

The trade openness variable measures the imports and exports as a fraction of the GDP. It could be argued that trade openness brings many economic benefits, including increased technology transfer, transfer of skills, increased labor and total factor productivity and economic growth and development (Ortiz-Ospina, Roser). With that taken into consideration, we are anticipating the parameter estimate sign to be positive. Increased trade brings a lot of positive economic benefits to countries. The higher technology and machinery often increase the human capital. Many papers that were included in the literature review have shown that increased human capital and technology lead to an increase in economic growth. Historically we have seen how protectionism and lack of trading was detrimental to the economic growth of South American and Caribbean countries.

Variable	Description	Source	Parameter Estimate sign
Y *GDP per capita growth*	The percentage that the Gross Domestic Product increased by country per capita over 1990-2014 years	World Bank World Development Indicators	
β_2 *Gini*	Growth of the Gini index of inequality in equalized household market income	United Nations Development Program	Negative

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β_3 **Inflation rate**	The annual percentage increase of the cost of living as measured by the consumer price index.	World Bank World Development Indicators	Negative
β_4 *Gov expenditure*	Percentage of GDP that is attributed to government spending.	World Economic Outlook	Negative
β_5 **Education**	Percent of the population the age of 25 and over that the highest level of education attained is secondary education completed	Barro and Lee	Positive
β_6 *Pop growth*	Change in the amount of people that inhabit an area at a certain time	World Bank World Development Indicators	Negative
β_7 *Investment*	The percentage of GDP spent on investment by country from 1990-2014.	World Economic Outlook	Positive

EMPERICAL ANALYSIS

In this paper, we try to understand the relationship between income inequality and economic growth. At this point, we run a linear regression model. For this regression, besides inequality, our variable of interest, we control for variables that affect the GDP per capita growth. Our control variables include: investment as a share of GDP, inflation, percent of government expenditure in the GDP, population growth, percent of the population 25 years old or older whose secondary education is the highest one attained, and trade openness. We compiled data on 51 countries spanning the years 1990- 2014. We use non-overlapping five year averages We have in total 255 observations.

Our regression equation is the following:

$$\text{Growth}_{it}=\beta_1+\beta_2\text{Gini}+\beta_3\text{Inv}+\beta_4\text{GovExp}+\beta_5\text{PopGr}+\beta_6\text{Edu}+\beta_7\text{Inf}+ \beta_8\text{Open}+\varepsilon_{it}$$
$$(1)$$

can seen Table

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                       Model Summary
    Source |      SS        df       MS          Number of obs  =      255
-------------+--------------------------------    F(7, 247)      =      4.84
     Model | 207.446517      7   29.6352168       Prob > F       =    0.0000
  Residual | 1511.97859     247    6.1213708      R-squared      =    0.1206
-------------+--------------------------------    Adj R-squared  =    0.0957
     Total | 1719.42511     254   6.76939018      Root MSE       =    2.4741
```

Table 1.

squared is equal to 0.1206 which means that 12.06 percent of the variation in GDP per capita growth can be explained by the variation in the independent variables. Similarly, the variation explained by the right side variables is about 10% when we look at the Adjusted R square.

When observing the main independent variable, Gini coefficient, we find that at .05 level of significant the T-stat is not significant with a p-value of .595. This shows that inequality, measured by the Gini coefficient, does not have an effect on the GDP per capita growth. With an increase in GDP, we observe an increase in the Gini, which is not what we were anticipating. We were expecting the relationship between the two to be negative. We were expecting that higher inequality is a burden on economic growth and lower inequality is a benefit. As can be seen from table 3 the mean of the Gini coefficient is .5932, with the minimum be .2134 and maximum .9326. The great difference between the minimum and the maximum shows that inequality is diverse through the developing countries.

When looking at the rest of the independent variables we see that three out of six are at a .05 level. Investment as a percent of the GDP is significant at .001 level of significance with a p-value equal to .000. The parameter estimate for investment is .0696, which means that with a one percent increase in the GDP per capita growth the investment will also increase by .0696. The coefficient has the sign that we were expecting it to have. We anticipated that with an increase in investment that economic growth should also experience an increase.

Inflation is another variable that is significant also at .001 level. The T-stat is significant with a p-value at .000. The coefficient for inflation is -.0169, which aligns with what we were expecting. With one percent increase in GDP inflation would decrease by .0169. We were expecting a negative sign because higher inflation creates uncertainty in the market, which leads to a decline in economic growth. The great difference between the minimum and maximum of the inflation rate makes us question if there is an outlier that is shifting our data.

The last variable for which the T-stat is significant at .05 level of significance is the percent of government expenditure in the GDP with a p-value .004. The sign of the parameter estimate is also what we were anticipating it to be, negative. The coefficient is -.0396, which means that with a one percent increase in GDP per capita growth the government expenditure decreases by .0396. We were expecting a negative sign because of potential crowding out effect and for government spending to be effective, it has to be done under the correct circumstances in order to complement private investment

```
                                  Regression model

------------------------------------------------------------------------------
     avrgGDPpercapgrowth |     Coef.    Std. Err.       t     P>|t|     [95% Conf. Interval]
------------------------+-----------------------------------------------------
               avrgGini |   .9415469   1.767672    0.53   0.595   -2.540086    4.42318
         avrginvestment |   .0696414    .0191729    3.63   0.000    .0318781    .1074046
          avrginflation |   -.016926    .0047906   -3.53   0.000   -.0263616   -.0074904
       avrggovexpenditure | -.0396023    .0136196   -2.91   0.004   -.0664277    -.012777
          avrgpopgrowth |  -.0719421    .1887153   -0.38   0.703   -.4436385    .2997543
avrgpopcompletesecondarysch | -.0088695   .0239986   -0.37   0.712   -.0561375    .0383986
                avgopen |   .0060683    .0045947    1.32   0.188   -.0029816    .0151181
                  _cons |   1.025934    .9830912    1.04   0.298   -.9103766    2.962245
------------------------------------------------------------------------------
```

Table 2.

```
                         Summary Statistics

   Variable |      Obs       Mean    Std. Dev.       Min         Max
------------+--------------------------------------------------------
CountryName |        0
CountryCode |        0
       Code |      465    46.9998   26.87444          1          93
       Year |      465       2000   7.078683       1990        2010
       Gini |      409   .5834963   .1548802       .212        .927
------------+--------------------------------------------------------
    avrgGini |      411   .5932798   .1544616      .2134       .9326
GDPpercapi~h |      465   2.097686   4.236918  -14.76516    36.9809
avrgGDPper~h |      465   1.830759   2.962441  -24.21447   11.68886
Investment~P |      425   22.67744   9.085174      3.918     94.241
avrginvest~t |      431   22.81654     8.7342      4.052    86.7164
------------+--------------------------------------------------------
Inflationa~c |      446   44.91191   408.2106    -31.522    7481.69
avrginflat~n |      451   47.90322   441.3984    -4.2372   6424.981
Generalgov~i |      381   26.43305   12.49443    -23.984     97.122
avrggovexp~e |      406   26.48684   13.62329   -93.5258     94.667
Population~h |      465   1.811438   1.054164  -2.659709   5.539102
------------+--------------------------------------------------------
avrgpopgro~h |      465   1.773298   1.057678  -3.673928   6.353326
avrgpopcom~o |      315   15.62708   10.91647        .79      54.98
     Exports |      455   36.92473    21.4786   4.021389   153.2555
     Imports |      453    40.5841   20.75294   .0658797   119.2065
        open |      458    76.8239    37.7677          0   220.4074
------------+--------------------------------------------------------
     avgopen |      459   77.38567   36.55176   13.33012   226.8713
```

Table 3.

CONCLUSION

Based on our preliminary results, we tentatively conclude that income inequality doesn't significantly affect economic growth in our sample countries of 25 during the period between 1990 and 2014. Among the control variables, only three variables have significant T-stats at 5% level. These variables are: investment, Inflation rate and government expenditure and all of them carry their expected signs.

Ted Winnowski '63 Student Conference in Business
April 13th, 2018

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THE EFFECTS OF INTERSECTIONALITY: WAGE DIFFERENTIALS BY RACE AND SEXUAL ORIENTATION

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INTRODUCTION

Until recently, data limitations have made it difficult for economists to conduct research into the labor market outcomes of gay and lesbian individuals. While the literature on the sexual orientation wage gap is growing, it has for the most part shunned explicit exploration of the gay and lesbian wage gap for racial minorities (Douglas and Steinberger, 2015). This study will look specifically at the reaction of the wage gap between married and unmarried cohabiting Black and White men to considerations of sexual orientation. This question is of particular interest because it explores intersectionality in a way that few papers on the racial or sexual orientation wage gap have (Douglas and Steinberger, 2015). I will begin with a brief review of the theoretical literature on discrimination and then relate it to the labor market experiences of gay Black men, before advancing to an overview of the sections to follow.

The field of economics has put forth two predominant theories of labor market discrimination. Gary Becker (1957) defined discrimination as the willingness to pay more for physical or social distance from a specific group of people. Considering the wages of Black and White people, a discriminatory employer would face a non-pecuniary cost to employing a Black person and would decrease monetary wages until the pecuniary wages of Black employees plus the perceived non-pecuniary cost to employing them is equal to the wages of White employees (Becker, 1957). Under Becker's (1957) model, it is not discriminatory to pay equally qualified people less if doing so is a profit maximizing decision. You might conclude, as Becker (1957) did, that market forces will drive discrimination out, because less discriminatory employers would have smaller non-pecuniary costs and would be able to take advantage of wage rates driven down by the discriminatory employers. It is important to note that this does not mean equal pay, it merely means that discriminatory employers will no longer be able to compete.

The second theory, known as statistical discrimination, suggests that in the absence of perfect information, employers will make decisions based on either statistical or perceived averages about the productivity of a given group (Phelps, 1972). A profit maximizing employer will discriminate if they believe the group they are discriminating against to be inferior and the cost of obtaining more accurate and complete information is excessively high (Phelps, 1972). Therefore, readily available traits, like skin color, are used as proxies for more relevant data (Phelps, 1972).

If Gary Becker (1957) is correct that Black people face labor market discrimination based on employers' perception of a non-pecuniary cost to employing Black people, because they desire physical or social distance, we would expect the wage gap between Black and White men to expand when we consider the effects of sexual orientation. To the extent that the employers are aware of potential employees' sexual orientation, it is not unrealistic to expect gay Black men to experience wage discrimination, because their identity intersects two groups that straight White male employers might want social distance from. If however, Black people experience statistical discrimination in the labor market, we might expect to see a wage boost. Economic theories of the racial wage gap have frequently suggested that discriminatory employers see Black men along the lines of socially reified stereotypes, as animalistic and unable to control themselves. If this is an accurate depiction of the employment decision, employers might be expected to have a more tempered perception of gay Black men because of the stereotypes against gay men. Particularly, gay men are perceived to be feminine, which may act as a countervailing force against the labor market discrimination that straight Black men experience, as feminine and animalistic traits may balance each other. Unlike race, sexual orientation is not a visible trait. It is therefore unlikely that sexual orientation will counteract racial discrimination at parity. The legalization of gay marriage could precipitate a number of effects. Married gay men may face greater discrimination because marriage is a more prominent indicator

of someone's sexual orientation. That is, if a gay man is married, potential employers may be more aware of their sexual orientation and therefore more likely to discriminate. Conversely, the legalization of gay marriage may give social capital to gay men, which we would expect to decrease wage discrimination.

LITERATURE REVIEW

Historically, data limitations have made it unnecessarily difficult to conduct economic research on the lives of gay and lesbian individuals. For long periods of time, the Census Bureau would systematically alter data that reflected the existence of same sex couples and there are still no explicit questions about sexual identity on the Census, ACS or CPS (Martell, 2017). Because of the data limitations, the current literature on the labor market outcomes of gay and lesbian individuals is small but growing (Douglas and Steinberger, 2015). Despite this growth, most empirical analyses of the sexual orientation wage gap use models that do not allow for an assessment of the unique labor market experiences of racial minorities. Among what little research has been published on the subject there is little consensus on the labor market experiences of gay men of color (Badgett, Gates and Saunders, 2005; Douglas and Steinberger, 2015).

In their "Census Snapshot" of Black lesbian, gay and bisexual individuals in California, Gates and Ramos (2008) found that while Black gay and lesbian men and women were more likely to graduate from college and have lower unemployment rates, Black gay men have a median household income of just $25,000, while their straight Black counterparts have a median household income of $45,000. The gap is reversed for lesbian women, who have a median household income of $45,000, $10,000 more than straight Black women.

Badgett, Gates and Saunders (2005) used a regression framework to explore the labor market outcomes of gay and lesbian couples in the 2000 U.S Census. Their model controlled for human capital, demographic and job characteristics to estimate the wage differences 2 between Black and White full-time workers in same and different sex relationships relative to straight White males. Their results showed that gay Black men made 10-16 percent less than White gay men and 5 percent less than straight Black men, which was mirrored by the results for lesbian women. Interestingly, the analysis found that the wage gap between straight and gay White men was similar to the wage gap between straight White and Black men.

In what is the most comprehensive study to date, Douglas and Steinberger (2015) use data from the 2000 U.S. Census to estimate several different models that look at the wage gaps that exist between gay and lesbian individuals of different races, between gay and lesbian individuals and straight people of the same race and finally, they look at the wage gap between minority gay and lesbian individuals and straight white men. Like Badgett, Gates and Saunders (2005), Douglas and Steinberger's (2015) analysis is limited to individuals who are married and unmarried cohabiting partners. Because the data was collected before gay marriage was legalized, all of the gay couples are cohabiting with an unmarried partner. They find that White and Asian same sex male couples earn less than married men but more than unmarried men of the same race. The significant result is that Black and Hispanic men experience higher wages than either married or unmarried straight men of the same race. The comparison between gay men of different races shows an earning structure that is similar to the population level: gay Asian men earn the most, followed by White men and ending with Black and Hispanic gay men. When comparing all groups to straight White individuals, there is no significant difference between the wages of lesbian Black and Hispanic women and married White women, but gay Black men make 18.1 percent less and gay Hispanic men make 10.5 percent less than straight White men. Gay Asian individuals make roughly the same as straight White men and lesbian Asian women earn considerably more (25 percent) than their straight White counterparts.

DATA

In order to capture the effects of the 2015 Supreme Court ruling that legalized same-sex marriage nationwide, this analysis uses data from the 2016 American Community Survey obtained from IPUMS. While the sample size is smaller than could be obtained using the Census or ACS 5-year data, the 2016 ACS data allows for a new ability to assess the wage structure with reference to married and unmarried men gay men.

The present study only addresses the wage gaps between Black and White gay and straight men between the ages of 25 and 64. After determining the relationship status of the men in the data set, I drop all observations where the sex is listed as female. Because gay men cannot be identified unless they are married or cohabiting with a man, this analysis only considers married and unmarried couples who are cohabiting. Moreover, this analysis does

not consider self-employed individuals because they are not affected by wage discrimination based on race or sexual orientation. Additionally, because of inconsistencies in the coding of early education data, we do not consider individuals that did not attend high school. As mentioned earlier, the ACS does not ask explicit questions about sexual orientation, but one member of each household must identify themselves as the owner or renter of the dwelling, or the head

of household, and other members of the household are identified based on their relationships to the head. Thus, sexual orientation can be inferred based on the sex of 3 spouse, or partner[12]A married household head is included in the gay sample if their spouse is of the same sex and in the heterosexual sample if they are a different sex.

I use a logged measure of total personal income as the dependent variable. To measure the unique effects of race and sexual orientation on people of color, I construct a series of dummy interaction variables that denote the individual's race, sexual orientation and marital status. These form the independent variables of the analysis. I also control for race, sexual orientation and marital status so that we can compare the effects of being gay and Black to the labor market effects of being gay or Black.

The OLS model used in this analysis controls for human capital, geographical and family variables. Educational attainment is assessed based on a series of dummy variables for degree attainment that are equal to 1 if the individual has earned a given degree. The study also controls for age, which gives us a crude measure of experience that assumes constant labor market participation and infrequent job or career changes and following the trend in lab. Following the trend in labor economics, I also include a wage squared variable that will capture any downward effects that may occur as workers age. Geographically, the model controls for region, metropolitan status and whether or not the state has an Employment Non-Discrimination Act (ENDA) that protects gay and lesbian employees from labor market discrimination. Martell (2012) shows that despite their shortcomings, ENDAs have shown to decrease wage differentials by roughly 20 percent. The analysis done by Martell (2012) also indicates that the wage differential is reduced because the discriminatory portion of the wage gap shrinks.

METHODS

This analysis seeks to estimate two wage differentials:
- Married and unmarried straight White men and married and unmarried gay Black men
- Married and unmarried straight Black men and married and unmarried gay Black men

To do so, I run an Ordinary Least Squares (OLS) regression model with White's correction for heteroskedastic data and the model detailed below:

$$\begin{aligned} \ln(income) = \beta_0 + \beta_1 B + \beta_2 G + \beta_3 M + \beta_4(B \times G) + \\ \beta_5(B \times M) + \beta_6(G \times M) + \\ \beta_7(B \times G \times M) + \beta_8 X_i + \epsilon \end{aligned} \quad (1)$$

where ln*(income)* is the natural log of total personal income, *B* is a *Black* dummy variable, *G* is a *Gay* dummy variable and M is a marriage dummy variable, Xi is a vector of additional explanatory variables and ϵ is the error term. The reference group is then straight, White unmarried men. The *gay and married* interaction variable is included because there is a well documented wage premium for married men. Due to the recency of gay marriage's legalization there is little to no research on a similar premium for married gay men.
1 (FOOTNOTE)Explicit questions about sexual orientation were set to be included in the 2020 Census, but have been removed since the 2016 election.

In the findings section, I observe the marginal effects of marriage, race and sexual orientation on labor market outcomes:

$$\frac{\partial \ln(inc)}{\partial B} = \beta_1 + \beta_4 G + \beta_5 M + \beta_7(G \times M) + \frac{\partial \epsilon}{\partial B} \quad (2)$$

where we assume that $\frac{\partial \epsilon}{\partial Black} = 0.$ Equation 2, suggests that the income of partnered Black men is dependent on their marital status and sexual orientation and an interaction variable that accounts for any intersectionality.

The relevant second derivatives are then:

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[12]Explicit questions about sexual orientation were set to be included in the 2020 Census, but have been removed since the 2016 election.

$$\frac{\partial^2 \ln(inc)}{\partial B \partial G} = \beta_4 + \beta_7 M \qquad (3)$$

$$\frac{\partial^2 \ln(inc)}{\partial B \partial M} = \beta_5 + \beta_7 G \qquad (4)$$

Additionally, the partial derivative of ln*(income)* with respect to G can be expressed as:

$$\frac{\partial \ln(inc)}{\partial G} = \beta_2 + \beta_4 B + \beta_6 M + \beta_7 (B \times M) + \frac{\partial \epsilon}{\partial G} \qquad (5)$$

where we again assume that the error term is not correlated with G, meaning that $\frac{\partial \epsilon}{\partial G} = 0.$ The income differentials of straight White men and gay married Black men can be calculated in a similar manner using the partial derivative of ln*(inc)* with respect to G, a dummy variable for sexual orientation.

The second partial derivatives of ln*(inc)* with respect to sexual orientation can be calculated as:

$$\frac{\partial^2 \ln(inc)}{\partial G \partial B} = \beta_4 + \beta_7 M \qquad (6)$$

$$\frac{\partial^2 \ln(inc)}{\partial G \partial M} = \beta_6 + \beta_7 B \qquad (7)$$

In the next section, I report the regression coefficient outputs and calculate the first and second order partial derivatives.

RESULTS

The results presented in Table 1 report the regression coefficients for two models. In addition to what is shown, Model 1 includes a series of regional dummy variables as well as rural, suburban and urban dummy variables. Model 2 regresses all of the variables included in Model 1 as well as a series of occupation and industry variables. The coefficients for the two models are on the same side of zero for all of the key variables.

Given the information presented in the regression table above, I can calculate the marginal effects of race on the natural log of total personal income discussed in the Methods section. Each derivative is written twice, the first using the coefficient from Model 1 and the second time using the coefficients from Model 2.

	(1)	(2)
	ln(Total Personal Income)	ln(Total Personal Income)
Black=1	-0.166***	-0.129***
	(-13.75)	(-11.03)
Gay=1	0.140***	0.113***
	(7.99)	(6.74)
Married=1	0.256***	0.209***
	(51.55)	(43.73)
Gay * Married=1	-0.218***	-0.182***
	(-9.04)	(-7.99)
Gay * Black=1	-0.122	-0.0874
	(-1.54)	(-1.21)
Married * Black=1	-0.0997***	-0.0865***
	(-7.68)	(-6.87)
(Gay * Married * Black)=1	0.0992	0.0176
	(0.92)	(0.18)
State Has an ENDA=1	0.104***	0.0970***
	(32.07)	(31.54)
High School Diploma=1	-0.158***	-0.0997***
	(-46.42)	(-30.56)
GED=1	-0.267***	-0.199***
	(-41.92)	(-32.22)
Associate's Degree=1	0.0452***	0.0174***
	(10.57)	(4.21)
Bachelor's Degree=1	0.335***	0.203***
	(94.79)	(55.36)
Master's Degree=1	0.467***	0.307***
	(100.57)	(62.78)
Doctoral Degree=1	0.594***	0.441***
	(61.15)	(45.05)
Age	0.0630***	0.0563***
	(59.28)	(55.13)
Age Squared	-0.000551***	-0.000478***
	(-46.69)	(-42.29)
Usual hours worked per week	0.0219***	0.0203***
	(123.56)	(118.76)
Constant	6.374***	6.499***
	(245.13)	(238.94)
Observations	260019	260019

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The first order partial derivative of the natural log of household income suggests that straight unmarried Black men make less than their White counterparts.

$$\frac{\partial \ln(inc)}{\partial B} = -0.166 - 0.122G - 0.0997M + 0.0992(G \times M) \tag{8}$$

$$\frac{\partial \ln(inc)}{\partial B} = -0.129 - 0.0874G - 0.0865M + 0.0176(G \times M) \tag{9}$$

Then, the second order partial derivative of the natural log of household income taken with respect to the Black and Gay variables points to an additive wage penalty for gay Black men, and a statistically insignificant wage bonus to marriage for gay black people.

$$\frac{\partial^2 \ln(inc)}{\partial B \partial G} = -0.122 + 0.0992M \tag{10}$$

$$\frac{\partial^2 \ln(inc)}{\partial B \partial G} = -0.0874 + 0.0176M \tag{11}$$

Next, the equation below suggests that there is an income reward to gay workers, which is extended in the next equation, to show that in addition to the premium, gay men see a large penalty to being Black.

$$\frac{\partial \ln(inc)}{\partial G} = 0.140 - 0.122B - 0.218M - 0.0992(B \times M) \tag{12}$$

$$\frac{\partial \ln(inc)}{\partial G} = 0.113 - 0.0874B - 0.182M - 0.0176(B \times M) \tag{13}$$

DISCUSSION

The figures presented above in Table 1 offer plenty to discuss. Several of the results match my initial expectations. There is a large wage gap between Black and White workers, which is consistent with the literature. Additionally, the regression analysis points to a rather large marriage premium for straight men. There are also some quite surprising results, most notably the large and statistically very significant wage premium experienced by gay workers. This result runs contrary to most of the existing literature on gay and lesbian labor market discrimination. Some have hypothesized that the legalization of gay marriage will serve to shrink the previously documented gay wage gap, but such a dramatic shift is certainly surprising. Most importantly, while statistically insignificant, GayandBlack coefficient is very economically significant. The rather large negative effect of being gay and Black suggests that the intersection of gay and Black identities has an additive wage effect. This rejects the notion that gay Black men make more than straight Black men as some theories suggested.

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CIVIE

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ABSTRACT

For years rising inequality has caused major gaps between the wealthiest individuals in America and those who are less fortunate. This effect is negatively impacting education, savings, and slowly decreasing the standard of living for a large portion of Americans. We see that financiers in particular have had great success when investing their money, increasing the income gap even in times of hardships. This is causing individuals to be less trusting of financial advisors and reinforcing a belief that they are too greedy, only using investors to make more money for themselves. Furthermore, overall investment knowledge has significantly decreased within recent years, people in other industries besides business and finance have become less attuned to ways of growing assets. For example, over 31% of millennials do not know who to trust with their money and 24% do not have enough knowledge to actual begin the fact finding process.

They believe that it is safer to keep their money in a low interest bank account and by doing so, forgo significant returns when investing. With over 75 million millennials living within the United States, the retail investment industry is missing a key market with individuals that could increase total investment on a large scale, but more importantly their own individual standards of living.

*To solve this issue Civie wants to overcome two major issues that affect the two thirds of Americans who are currently not investing. The first being the level of education needed to invest well and the next being the gap in income and/or net worth to be categorized as an accredited/qualified investor. For those that don't understand the market we want to offer them the ability to invest in durable goods (high-end art, rare expensive wines, valuable gems, exclusive real estate and exotic cars). Our firm will start with real estate and art when first opening. These two fields that have showed increasing growth in appreciated value and market size over long periods of time. These are industries that are relatively easy to learn about as opposed to the macro economy. Also in an effort to help close the education gap in retail investing, Civie offers the opportunity for
Individuals to purchase information reports, comprised of general information and data analysis.*

The reason why many people have difficulty investing in durable goods is because they carry with them a very high initial costs. Moreover, their ownership is sometimes complicated by unexpected costs even after the initial purchase. Civie will offer investable shares in individual durable goods, creating one time easy investments. This will help to decrease risk more than if an individual were to purchase the whole thing alone. Once the amount is invested there are no further costs and it allows for other opportunities to diversify.

Civie will connect investors to expensive durable good investments through online and application platforms. We will purchase the goods for the best price, advised by expert valuation teams and industry experts. After purchasing the good our firm will project costs for any repairs or maintenance required and then draw up plans to efficiently manage any ongoing costs so as to maximize the return on the good. Finally, after that has been accomplished an initial share price will be calculated covering all projected costs and those prices will be will be published on our various platforms. Once shares have been purchased investors watch as values appreciate over time. They will collect returns once our expert team sells the good for what they believe is the highest return that they can get. If an

investor in the pool disagrees over the timing of a durable good asset sale, then they would have the ability to sell their shares in the good on a secondary market to other interested investors. We will take an open innovation approach to the durable goods investment portfolios inviting investor's individual research into the process and allowing the work to influence purchase decisions. These funds will then be managed by our experts allowing customers to put their money in and watch it accrue appreciation with a more hands off approach.

In the end we hope to increase the amount of individuals investing their money. Allowing their bank accounts to grow, increasing their standard of living, and decreasing the income gap within the United States. Civie wants to change the alternative investment industry creating more opportunities for individuals who do not currently have the means to be certified as an accredited/qualified investor to create a more promising future. With this concept we hope to expand into more durable good industries, creating an investment firm where customers can educate and invest in a diverse range of durable goods investments. Far beyond the limited real estate and art markets.

GROUNDED MARKETING

Jacob Costello, Siena College
Courtney Baldwin, Siena College

ABSTRACT

Over the past few months, Courtney and I have created a marketing business and honestly, it was the last thing we expected to start. Before this business, Courtney worked at a small Italian restaurant for 3 years. This summer, we actually had the opportunity to work together and the owner even asked us to assist her with social media. We realized how enjoyable it is to work with small business owners and truly understood how much value we can create for them.

As a result, we are inspired to follow this new found passion and create Grounded Marketing. Our goal is to maintain this marketing business that focuses on relationships, while educating and working alongside our clients to ensure that they get the most value from our services. Typically, marketing businesses will take a check, complete the required work, and send their clients a report in the mail. We think this way of working is entirely wrong; instead, we view our clients as team members who work with us to achieve their goals.

We currently offer three main services but are flexible with our client's needs. These services are: Social Media Management, Social Media Audits, and Content Creation. Social Media Management is where we fully manage and grow the small restaurant's social media accounts. We create posts that incorporate the client's requirements and use specific techniques to help grow their following. Social Media Audits are quick, yet detailed reviews of all social media accounts which result in a detailed report filled with recommendations and key factors. Finally, content creation is how we develop content for clients; specifically blogs to help grow their sales and allow them to offer relevant and quality material to their customers. We believe these three services populate the best portfolio we can offer immediately while striving as a firm to become certified in other areas so as to benefit our clients.

We currently have two clients and are in the process of acquiring more. We have made great advances with our website and business structure and are eagerly looking forward to the future of our business. Our overarching goal is to create great relationships, to help small businesses succeed, and keep our clients grounded in their values.

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sNOw MORE

Yumi Kageyama, Siena College

ABSTRACT

Who loves shoveling snow? Who has ever slipped on ice? Every year, an average of 11,500 people are injured due to snow shoveling related accidents; not including injuries caused by slips and falls. In addition, 100% of fatalities caused by snow shoveling related incidents are cardiac-related episodes. The time, money, and energy spent removing frozen water particles can and should be more efficient, convenient, and safe. This is where sNOw More Driveway and Sidewalk mats come in to save the day (and backs)!

sNOw More Driveway and Sidewalk mats are the newest snow and ice removal alternative designed to revolutionize safety and convenience in winter weather. Our mission is to, "Save the lives, time, and energy of all our customers through innovative safety and green technology to eliminate winter weather hazards." This will allow for our customer to live our vision of dedicating time to themselves and their loved ones. We believe that in everything we do, we keep the customers' needs in the forefront and to better the world around us.

Snow plows, salt, shoveling, there are already so many alternatives to snow shoveling; so why sNOw More Mats? Because we are doing something our competitors are not. We believe that our stakeholders deserve a better alternative that protects them and their families, and the world we live in. There is no need to harm the Earth for our survival. By recycling old tires and harnessing the power of the sun, our mats will be a household staple across the nation; and the world.

TAURUS READY HEATER

Nicholas Darling, Siena College
Christian Zownir, Siena College

VISION

The winter creates many challenges and can make life difficult. One of the challenges in winter is snow and ice covering your car, more specifically your windshield. For most, this is problem solved by "warming up" their car. Warming up the car involves starting the car and letting it idle until the thermostat reads a warm operating temperature. People let the car idle for not only for warmth, but also to defrost any snow or ice on their front and rear windshields. In the warming process, cars idle on average, anywhere from 10-15 minutes. During that time period gas is used while the car idles high off the cold start in the range of 1500-2200 RPM's. This action is the same as pushing the accelerator and holding it at 2000 RPM's. Our product solves both the waste and the hassle of "warming up" your car.

COMPANY SUMMARY

With gas prices high and constantly fluctuating, consumers are often looking for ways to save on gas. This product gives them the opportunity to do just that. In an average four cylinder combustion engine .082 gallons of gasoline are consumed during 10 minutes of idle time. This may not seem like a significant amount of fuel, but over time it adds up. Consumers looking to save money on fuel costs will see the value in this product and will be motivated to invest in one. Creating a reliable and efficient defrosting unit will be important as we do not want purchasers to worry malfunctions or replacement. Our goal is to be able to provide these defrosters at a level that results in savings that exceed the initial cost of the product in a short period of time. Further experimentation and testing will give us the ability to build the most efficient version of our product and to continuously improve the performance over time.

PRODUCT

Our team has come up with a product that defrosts and warms a car completely during winter months without having to start it up. This product relies on a heater core which will in turn heat a coolant that will retain heat. The defroster will have a blower which will force warm air to the car windshield. The car is warmed and exterior ice and snow is melted. The product will be sized accordingly, so that it fits in the car without getting in the

way of the driver or any passenger. The product will be the most efficient in the first 20 minutes of heating and isn't meant to be an alternative for heat, but a substitute for cold and snowy days. The unit is charged in the home and then brought out to the car for use.

MARKET SUMMARY

The market we are entering consists of products that are specifically used instead of heat. These products include fans and blowers that are turned on after the car is running for the primary purpose of warming the cabin. These products are used if the car's heating system is not working whereas our product is meant to defrost and warm a car's cabin before starting the car.

STRATEGIC IMPLEMENTATION

The initial price will be very important for our team. We do not want to underprice the product and lose out on potential profits. It's important for us to offer a quality product price will not be the primary concern. As demand increases we will anticipate the need to scale manufacturing through the acquisition of a small plant that offers the potential to manufacture 100+ units a month. Our plan is to spend 3% of sales on marketing efforts within the first 9 months of operation.

TRI-ERASE

Quinton Gardner, Siena College
Solomon John, Siena College

ABSTRACT

Throughout our academic careers, we've witnessed teachers struggling with the inconvenience of carrying multiple dry-erase markers. During our research we learned that dry-erase markers have three major issues. First and foremost, teachers have to pay for their own dry erase markers which is a financial burden. Secondly, dry erasers markers are a hassle since you must carry multiple markers in order to have more than one color. Lastly, dry erase markers have a negative environmental impact since they can't be recycled due to the polyester fabric inside.

Tri-Erase solves these issues by being economically & environmentally friendly since it is refillable. We incorporated three markers into one by designing a marker body that separates the ink cartridges. Tri-Erase is unlike regular makers that you dispose of after the ink runs out. This lowers the environmental impact of markers by allowing the user to keep one marker and simply changing the ink cartridges. Tri-Erase simultaneously lowers the lifetime cost of purchasing markers since the same marker is repeatedly used.

In the United States of America there are currently 4,582,700 teachers and professors with a growth rate of 9.5%. We plan on validating our concept by testing in the New York area. Initially we will distribute Tri-Erase markers to prominent faculty at Siena, UAlbany, and RPI. We anticipate that faculty will discuss the marker with their colleagues which will generate awareness. Through our website we will take pre-orders during the summer of 2018 and sell the marker as well as ink cartridge refills in the fall.

FACTORS INFLUENCING SCHOOL CHOICE:
A COMPARATIVE STUDY FOR [SCHOOL NAME]

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EXECUTIVE SUMMARY

Independent school leaders are continually faced with the task of demonstrating and communicating the value provided for the cost of their school's education. Stagnant wages, lingering effects of the 2008 recession, improved public schools, and increased availability of charter schools all had a negative influence on student enrollment in independent schools. Some independent schools were thriving, while others found the challenges daunting. We believed that developing a better understanding of the factors that influenced parents' re-enrollment choices might help school leaders address these challenges. This study was conducted with the participation of five independent schools in the Albany, NY area.

We explored the value proposition for [school name] as explained by members of its board, administration, faculty and parents. Fifteen themes emerged that differentiated [school name] from its competitors. These included affordability, teacher quality, child safety and security, disciplined environment, developmental growth, continuity/friendships, student comfort, espoused values, community, diversity, reputation, extracurricular activities, location, education quality, and facilities. We found 5 (five) of these themes were clearly and effectively articulated on the website and in the school's communication materials. The school website provided a comprehensive and easily accessible source of information for parents and guardians of students.

Based on interviews with parents and guardians across all five schools, we identified fifteen factors that could influence re-enrollment decisions. We developed measures for each factor and conducted an internet-based survey with responses from 330 families. We assessed the validity and reliability for each measure and conducted a multiple linear regression to test the hypotheses. The survey provided enough data to evaluate the influence of all fifteen factors on re-enrollment choices. We confirmed that affordability, education quality, quality of teachers, consistency of school and family values, extra-curricular activities, geographic location, disciplined environment, sense of community, child development/maturity, continuity/friendships, reputation, diversity, and facilities/infrastructure/technology were statistically reliable predictors of re-enrollment intentions. One hypothesized factor, emotional comfort of students, was similar to physical safety and school security of students such that it was possible to merge them into a single factor.

We also compared the results for [school name] with the other schools. [School name] parents and guardians identified continuity as the most important factor for re-enrollment intentions. These were followed by education quality, child safety and security, and teacher quality. Diversity was the least important factor for re-enrollment. Parents and guardians of currently enrolled students were most satisfied with continuity and education quality, and were least satisfied with facilities and extracurricular activities.

The report categorized and summarized participants' comments for each factor to provide a greater sense of the variation in perceptions. The paper concludes with recommendations for next steps and an invitation to continue the partnership with Siena in the future.

Ted Winnowski '63 Student Conference in Business
April 13th, 2018

FACTORS INFLUENCING SCHOOL CHOICE: A COMPARATIVE STUDY FOR THE [LOCAL SCHOOL]

Gregory DiStefano, Siena College
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FACTORS INFLUENCING PRE-K TO SIXTH GRADE SCHOOL CHOICE

Independent school leaders are continually faced with the task of demonstrating and communicating the value provided for the cost of their school's education. Stagnant wages, lingering effects of the 2008 recession, improved public schools, and increased availability of charter schools all had a negative influence on student enrollment in independent schools. Some independent schools were thriving, while others found the challenges daunting. We believed that developing a better understanding of the factors that influenced parents' re-enrollment choices might help school leaders address these challenges. This study was conducted with the participation of five independent schools in the Albany, NY area.

We explored the value proposition for the [Local School] as explained by members of its board, administration, faculty and parents. Fifteen themes emerged that differentiated [Local School] from its competitors. These included [Local School]. We found that all fifteen of these themes were clearly and effectively articulated on the website and in the school's communication materials. The school website provided a comprehensive and easily accessible source of information for parents and guardians of students.

Based on interviews with parents and guardians across all five schools, we identified fifteen factors that could influence re-enrollment decisions. We developed measures for each factor and conducted an internet based survey with responses from 330 families. We assessed the validity and reliability for each measure and conducted a multiple linear regression to test the hypotheses. The survey provided enough data to evaluate the influence of all fifteen factors on re-enrollment choices. We confirmed that affordability, education quality, quality of teachers, consistency of school and family values, extracurricular activities, geographic location, disciplined environment, sense of community, child development/maturity, continuity/friendships, reputation, diversity, and facilities/infrastructure/technology were statistically reliable predictors of re-enrollment intentions. One hypothesized factor, emotional comfort of students, was similar to physical safety and school security of students such that it was possible to merge them into a single factor.

We also compared the results for [Local School] with the other schools. [Local School] parents and guardians identified child safety, facilities, traditional values technology as the most important factors for re-enrollment intentions. These were followed by affordability, proximity to the school, and a sense of community. Parents and guardians of currently enrolled students were most satisfied with quality of teachers, community, affordability, proximity to the school and friendships, and were least satisfied with the facilities and safety.

The report categorized and summarized participants' comments for each factor to provide a greater sense of the variation in perceptions. The paper concludes with recommendations for next steps and an invitation to continue the partnership with Siena in the future.

INCREASED RECRUITMENT EFFORT AND SUPPORT SERVICES CAUSES AN INCREASE IN EMPLOYMENT OPPORTUNITIES FOR THE DISABLED WORKFORCE

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ABSTRACT

This paper aims to identify potential causes of increases in employment opportunities for disabled people by examining national and local corporations and their initiatives. The data presented was extracted from: company websites, news websites, press releases, academic journals, and governmental agencies. After examining available resources, it is inferred that new government and corporate initiatives were effective and likely had significant impact on the increase in employment opportunities for disabled people in the past 5 years. By looking into hiring practices of companies, it was found that recruitment strategies as well as corporation's ability to accommodate are two major factors that affect hiring individuals with disabilities.

INTRODUCTION

Modern day, human resources employees work tirelessly to find candidates for open positions that will fit roles seamlessly. However, there is a body of candidates that previously had not been explored thoroughly and to a fair enough extent. This body of candidates are those with disabilities. In the United States alone, there are approximately 30 million citizens[131] that are disabled and of working age. In the capital region specifically, approximately 200,000 people[142] are disabled and of working age. Now, more than ever, employers are practicing inclusivity with those individuals with disabilities when it comes to hiring practices. The capital region is one of leaders in this movement. Specifically, when looking at the capital region, employment opportunities being presented to disabled citizens have grown significantly. An example of a company that has adopted inclusive hiring practices is Walmart. Overall, including disabled individuals in business practices begins with recruiting efforts and is aided by support services.

HYPOTHESES

H1: New opportunities for employees with disabilities (past five years)

H2: New incentives and regulations have caused increased in employment opportunities for retired workers.

BACKGROUND

Historically, it was no surprise that companies were exclusive of individuals with disabilities when it came to their hiring practices. Partially, this was due to unclear responsibilities when it came to making accommodations for individuals with disabilities. Even though what is considered a reasonable accommodation is highlighted by the Americans with Disabilities Act, or ADA, employers were still unclear about how to best make an accomodation happen in the workplace. Also, when it came to hiring individuals with disabilities, employers were hesitant to let a disabled individual interact with customers, or do any work that had a high level or risk attached to it. This being

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[131] Civilian, non- institutionalized disabled individuals, from the ages 16 years of age to 65 years of age
[142] Civilian, non- institutionalized disabled individuals, ages 16 and over

said, if businesses did hire a disabled person, that person was most likely doing lower level work. Taking all of this into account, hiring practices more often than not were exclusive to those with disabilities, both physical and mental.

LITERATURE REVIEW

McHugh, S., Storey, K., & Certo, N. (2002). Training job coaches to use natural support strategies. *Journal of Vocational Rehabilitation*. Retrieved from http://eds.b.ebscohost.com.ezproxy.siena.edu:2048/eds/pdfviewer/pdfviewer?vid=4&sid=c32a6973-7553-4f95-b2df -8ea88e8ff1a6@sessionmgr103

   Hiring disabled candidates seems daunting to some employers, however enlisting the use of job coaches can remove barriers of entry for the disabled candidate. Employers should be conscious that hiring a disabled employee may bring about the need of a job coach. However, a job coach that uses natural support methods when it comes to job coaching can improve the disabled employees job performance. Also, enlisting the current workforce to be open about hiring disabled candidates in imperative. Personnel should take on a supportive role and aid or train the disabled candidate, once they are on the job. Having an open culture in the workplace allows for corporations to open up their hiring pool to all candidates, even ones with disabilities, without fear of un-acceptance from their current workforce. Personnel training on the job and utilizing job coaches allows employers to expand their candidate pool to disabled candidates, without apprehension of pushback from their workforce.

Ameri, Mason, et al. "The Disability Employment Puzzle: A Field Experiment on Employer Hiring Behavior." *Sage Journals*, 2015, doi:10.3386/w21560.

   This article discusses the unemployment disparities within the community of citizens that are disabled. Previously, it was not uncommon to see the unemployment rate of disabled citizens to be significantly higher than that of non-disabled citizens. Also, even if people with disabilities were hired, they were commonly paid less, received less training, and other factors of employment. Laws, such as the Americans with Disabilities Act, or the ADA, are fundamentally supposed to prevent this type of discrimination from occurring in the workplace. However, the ADA's efforts seem to not make much of a difference, as unemployment and employment disparities continue to plague the disabled community.

   The issue in employment and hiring practices also contributes to the fact that many jobs that disabled people are taking part in are blue- collar jobs, or service jobs. This means that there are more barriers in the hiring process when it comes to corporate positions. Research suggests that there is more of a gap in the hiring practices for positions that require more experience. This could be due to the fact that because more experience is needed, the pay would be higher and the list of duties would be more extensive. This leads employers to be more apprehensive about hiring people with disabilities for more experienced roles. The only way to solve these disparities in the hiring practices of companies when it comes to hiring disabled people is to identify the barriers and create solutions to overcome them.

Mitchell, C. (2017). Assessing the Impact of the Americans with Disabilities Amendments Act of 2008: An Analysis of Litigation Efforts under Title I of the Act. *Employee Relations Law Journal,43*. Retrieved from http://eds.a.ebscohost.com.ezproxy.siena.edu:2048/eds/detail/detail?vid=0&sid=a3b399e9-7d2c-4135-a196-f4893ad 9f49b@sessionmgr4008&bdata=JnNpdGU9ZWRzLWxpdmU=#AN=125874512&db=buh

   Author Charles Mitchell delves into the many different aspects of the Americans with Disabilities Act, or the ADA, as well as The Americans with Disabilities Act Amendments Act, or the ADAAA. There were five different aspects touched on in ADA as well as the ADAAA. These five different areas of interest include employment, public service, public accommodation, telecommunications, as well as miscellaneous provisions. This article also goes on to explain why the ADAAA was necessary when the ADA was already enacted and put into place.

   It came about that the ADAAA actually covered more disabled people, which is why it was necessary to enact. The ADAAA expanded on different aspects of disabilities and cleared up potential confusing language from the ADA. This includes determining exactly what substantial limitations are and what exactly constitutes a major life activity. The ADAAA also forced the EEOC, or the Equal Employment Opportunity Commission, to revise its

regulations as well. The EEOC needed to be changed in order to focus on what discrimination against a person with disabilities entails, as opposed to having detailed accounts of who is covered by law.

Burke, J., Bezyak, J., Fraser, R., Pete, J., Ditchman, N., & Chan, F. (2014). Citation Title: Employers' attitudes towards hiring and retaining people with disabilities: A review of the literature. *Australian Journal of Rehabilitation Counseling, 19*. Retrieved from http://eds.a.ebscohost.com.ezproxy.siena.edu:2048/eds/detail/detail?vid=0&sid=9321573d-921d-4586-b522-73bab376354b@sessionmgr4008&bdata=JnNpdGU9ZWRzLWxpdmU=#AN=2014-32675-002&db=psyh

This article delves into explaining how employers regard people with disabilities. In general, employers have a positive outlook when it comes to disabled people. However, when it comes to actually hiring candidates with disabilities, their outlook turns negative. Employer outlook has a negative impact in creating an inclusive environment by affecting hiring practices. This negative outlook stems from the idea that employers may have to make reasonable accommodations for a disabled employee. Due to confusion of what actually entails reasonable accommodations, employers tend to get uncomfortable when dealing with a disabled candidate. This article suggests that employers should focus on matching up their demand for workers with the wide variety of supply of workers within the disabled community.

Chan, F. (2008, August). Demand-Side Employment Placement Models for Persons with Disabilities. Retrieved from http://www.apa.org/pi/disability/resources/publications/newsletter/2008/08/demand.aspx

Author Fong Chan investigates into the notion that rehabilitation and healthcare professions are more welcoming to disabled people when it comes to hiring practices. rehabilitation and healthcare human resources professionals reported that their company's diversity plan does not include disabled people. Hiring practices can differ not only from company to company, but also from industry to industry. Preconceived notions regarding a certain group of candidates can lead to exclusive hiring practices. Rehabilitation and healthcare is just an example of one industry that is not as inclusive to disabled candidates.

Mcmahon, B. T., Roessler, R., Rumrill, P. D., Hurley, J. E., West, S. L., Chan, F., & Carlson, L. (2008). Hiring Discrimination Against People with Disabilities Under the ADA: Characteristics of Charging Parties. *Journal of Occupational Rehabilitation,18*(2), 122-132. doi:10.1007/s10926-008-9133-4

When thinking about the Equal Employment Opportunity Commision, or the EEOC, and discrimination, most people think of those that are discriminated against based on gender, sex, race, or religion. Candidates discriminated against for having a disability are seldom thought of. However, the EEOC along with the Americans with Disabilities Act, or ADA, work to prevent discriminatory hiring practices in corporations that discourage hiring disabled candidates. Discriminatory hiring practices contribute to the diminished financial and social standing of disabled citizens. The EEOC and ADA are just two entities that aid disabled candidates in receiving fair treatment.

PRELIMINARY CONCLUSIONS

The amount of opportunities for people with disabilities has increased tremendously within the past 10 years in the United States, which has also been reflected in New York's Capital Region. In the past five years, the growth in the percentage of the disabled workforce employed has grown to outperform that of non-disabled employees. The growth in opportunities for disabled people reflects on state and federal initiatives, as well as an increase in corporate awareness.

Walmart is the biggest employer in the United States, employing 2.3 million people. Walmart takes pride in having a diverse workforce, which is evident on their website. Walmart earned a 100 percent rating on the the *American Association of People with Disabilities' Disability Index*. The index measures: culture and leadership, enterprise-wide access, employment practices, and community engagement and support services. Walmart has an internal disability advocate group which works to promote inclusion and equality. According to Walmart, their mission for disabled associates is "to create an environment that educates, engages, and empowers families, associates, and communities impacted by disabilities through inclusion, sharing ideas and resources, and

implementing best practices". Disabled employees historically have not done well in the traditional hiring process, so creating special programs for disabled employees give them a fair chance at employment.

Walmart has not been without criticism however; Walmart's size makes oversight incredibly difficult for upper-management. In January of 2018, the EEOC, or the Equal Opportunity Employment Commission, sued Walmart for discrimination under the ADA, or Americans with Disabilities Act. Walmart was accused of inappropriately terminating an employee with down syndrome, after failing to make a reasonable accommodation. Walmart's reputation as a strong employer of people with disabilities is essential for recruitment. While this blemish does not look good for Walmart, it likely will not have a significant impact on Walmart's recruitment process for people with disabilities.

The largest non-medical employer in New York's Capital Region is The Golub Corporation, or better known as Price Chopper and Market 32. Golub has earned a reputation of being amongst the best employers for disabled people in the region. Golub spends considerable time and resources developing strategic partnerships to recruit disabled workers. Golub has partnerships with: Liberty ARC, NY Ability Alliance, and the NY Business Leader Network. Golub works to prepare disabled people for the workforce through a program called " Hiring Advantage". The Hiring Advantage program collaborates with local disability advocacy groups to hold 3 hour informative workshops. The workshops cover: resumes, interviewing, and explaining job descriptions (Gazette). While these programs help disabled people prepare for the workforce, it also operates as a recruitment vessel for Golub. These workshops have been so effective that they have caught the attention of CVS, who may implement a similar program in the future (Gazette).

In the past ten years the Federal Government has introduced some initiatives to create more hiring opportunities for people with disabilities. One of three main initiatives taken by the federal government to increase inclusion of the disabled population in hiring practices is called Employer Assistance and Resource Network on Disability Inclusion, or EARN. EARN is a federal service that is provided free of charge in order to more thoroughly educate employers on how to recruit, hire, retain, and advance the disabled workforce. Another federal program program that focuses on aiding organizations in hiring people with disabilities is called the Workforce Recruitment Program for College Students with Disabilities, or WRP. WRP is again a free service provided by the federal government that helps private businesses and federal agencies find candidates for permanent and temporary positions in numerous different fields. Through WRP, employers can post positions that applicants who are "post secondary students and recent graduates with disabilities who are eager to prove their abilities in the workforce" ("Hiring People with Disabilities", 2018) can apply to. Lastly, a federal resource called the Job Accommodation Network, or JAN, is available to advise any employer on how to best meet reasonable accommodations that candidates may be looking for. This in turns will make employers feel more comfortable when hiring disabled individuals and will avoid uncertainty when making reasonable accommodations.

New York state has many recently created many initiatives targeted at increasing employment rates for people with disabilities. The main initiative for employing people with disabilities in New York is the creation of The Office for People with Developmental Disabilities or OPWDD. The office was originally created as a research department for people with mental illnesses. The focus of the OPWDD changed in 2010 to focus on advocacy and educational programs. These programs aim to train and prepare disabled people for work opportunities in New York. Some services include: educating employers on tax benefits of hiring disabled people, arranging job coaches, and career readiness training.

RECOMMENDATIONS AND IMPLEMENTATION

In order for the rest of the United States to obtain more inclusive hiring practices, many provisions should be put in place and steps need to be taken. First, companies should work alongside with job coaches. Pairing a job coach to two or three disabled employees that could use guidance when performing their job duties would be an effective implementation and use of job coaches. In already having job coaches available at the organization's disposal, hiring practices will in turn become more inclusive of disabled candidates. Many companies tend to be exclusive in their hiring practices when it comes to disabled candidates because employers may not know exactly what steps to take in order to provide the best work experience for their disabled employees. However, when organizations work with job coaches, they will already have a plan in place to cater to the needs of disabled candidates, which will in turn remove the employer's apprehension about accommodating the disabled individual and leave hiring practices open to the disabled community.

Secondly, recruiting is having an organization increase their diversity and hire individuals with disabilities as well. Companies should take advantage of programs, such as WRP and EARN as mentioned above, that will help an organization broaden their recruiting tactics to be more inclusive. WRP specifically connects businesses with individuals that are disabled and looking for employment. In essence, it is a job board specifically for those with disabilities. EARN, however, differs in the fact that it does not connect companies directly with candidates. EARN is a service that works with organizations to review their recruiting and hiring practices and make changes accordingly in order to include disabled candidates as well. Using federal resources, such as WRP and EARN allow for an organization to become more knowledgeable about how to effectively open up their hiring processes to a more diverse candidate pool at no cost to the company.

Organizations should also look into some federal financial incentives to hire disabled individuals, which will in incentivize inclusive hiring practices:

- The Disabled Access Credit
- Architectural and Transportation Barrier Removal Deduction
- Work Opportunity Tax Credit Program

CONCLUSION

Historically, hiring practices have been exclusive to individuals with disabilities. However, recently, there has been a shift and the United States has seen a shift in the growth of jobs that are inclusive in their hiring practices to those with disabilities. The growth of these jobs has actually outperformed the growth of jobs for individuals who do not have disabilities. This is due to awareness of the issue, and programs to fight against exclusive hiring practices. Federal Programs such as EARN and WRP are integral to creating an inclusive workforce climate. Federal programs also give federal laws, such as the ADA, more exposure. In conclusion, growth of jobs for disabled individuals has grown due to exposure of the issue, as well as federal programs to combat the issue of exclusive hiring practices.

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APPENDICES

Table 1:
Percentage growth of percentage of eligible workforce employed, disabled and non-disabled
table^1 with source label table 1

Percentage growth of Disabled and Non-Disabled workforce employed (Data from BLS.Gov)
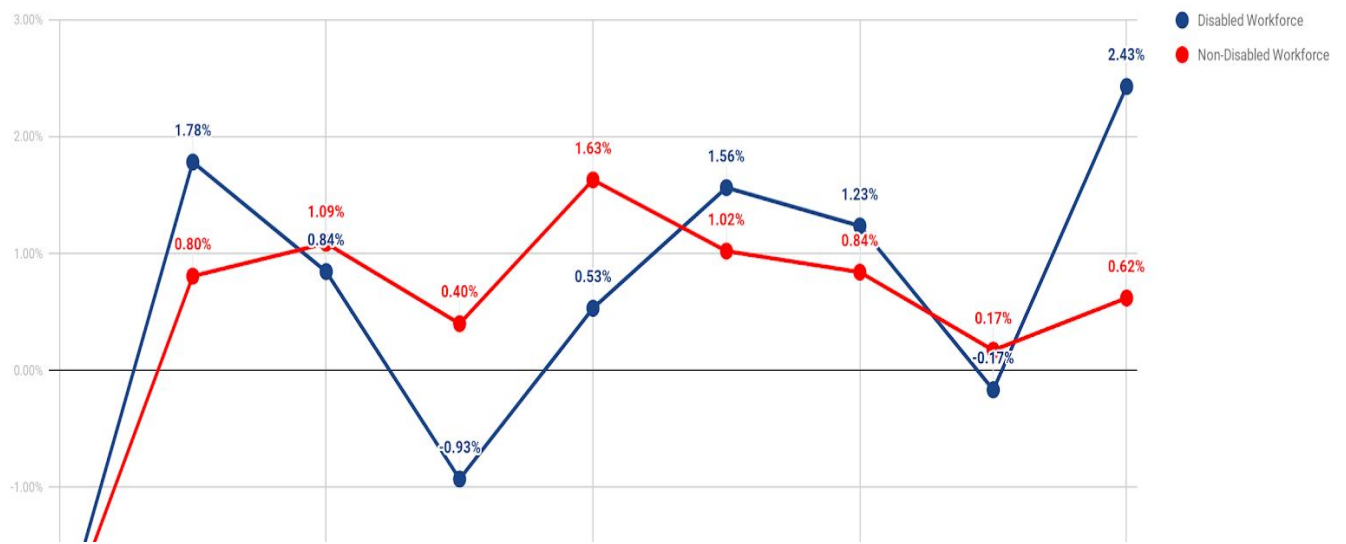
Exhibit 2:

Data Tables via BLS.gov

2a:

Labor Force Statistics from the Current Population Survey

Series Id: LNU01074597
Not Seasonally Adjusted
Series title: (unadj) Civilian Labor Force - With a disability, 16 years and over
Labor force status: Civilian labor force
Type of data: Number in thousands
Age: 16 years and over

Download: X.xlsx

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2008						5931	6376	6413	6543	6284	6222	6197
2009	6184	6141	6114	6179	6189	6172	6217	5989	5923	5839	5802	5847
2010	5877	5887	6054	5897	5930	5713	5603	5738	5698	5682	5784	5679
2011	5406	5592	5794	5699	5828	5903	5773	5774	5770	5802	5676	5652
2012	5502	5542	5671	5736	5821	5755	5791	5878	6060	6148	5990	5893
2013	5950	5929	5979	5985	5903	5768	5778	5884	6005	5722	5590	5345
2014	5190	5537	5634	5528	5649	5604	5648	5819	5971	5942	5881	5983
2015	5722	5806	5917	5704	5933	6032	5890	5833	5780	5811	5672	5660
2016	5650	5643	5907	6108	6186	6262	6150	6004	6027	6052	6023	6054
2017	5847	6134	6252	6166	6326	6335	6333	6276	6481	6360	6222	6211
2018	5987	6161										

2b:

Series Id: LNU01074593
Not Seasonally Adjusted
Series title: (unadj) Civilian Labor Force - With no disability, 16 years and over
Labor force status: Civilian labor force
Type of data: Number in thousands
Age: 16 years and over

Download: X.xlsx

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2008						149651	149924	148975	147966	148728	148402	148152
2009	147261	147663	147614	147654	148147	149749	150039	148907	147694	147796	147737	146845
2010	147079	147308	147607	148015	147936	149055	149668	148940	148156	147970	147914	147477
2011	147130	147043	147228	147199	147621	148635	149039	148570	148252	148286	148007	147721
2012	147983	148572	148645	148169	149177	150630	150735	149377	149015	149631	148963	149011
2013	148844	148798	148533	148754	149831	151321	151418	150087	149531	149195	149456	149062
2014	149190	149490	149994	149317	150192	151394	151924	150615	149932	150674	150416	149538
2015	150327	150407	150401	150850	151787	152251	152637	151557	150828	151502	151667	151585
2016	151697	152636	152948	152380	152614	153873	154555	153796	153609	153730	153428	152914
2017	152828	153348	153661	153652	153653	155001	155578	154587	154568	154105	154244	153668
2018	154050	155333										

Ted Winnowski '63 Student Conference in Business
April 13th, 2018

2c:

```
Series Id:          LNU02074597
Not Seasonally Adjusted
Series title:       (unadj) Employed - With a disability, 16 years and over
Labor force status: Employed
Type of data:       Number in thousands
Age:                16 years and over
```

Download: ☒.xlsx

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2008						5378	5715	5742	5840	5588	5529	5436
2009	5368	5282	5312	5381	5340	5290	5275	4978	4962	4875	4983	5042
2010	4987	5076	5215	4999	5060	4889	4684	4841	4854	4842	4945	4869
2011	4669	4730	4891	4873	4917	4903	4802	4842	4843	5037	4938	4889
2012	4792	4665	4810	5021	5068	4987	5004	5064	5241	5357	5230	5202
2013	5134	5198	5203	5215	5099	4950	4926	5053	5218	4988	4900	4711
2014	4502	4746	4819	4838	4934	4883	4962	5075	5235	5269	5245	5312
2015	5041	5153	5222	5136	5333	5470	5277	5237	5181	5199	4985	5076
2016	5039	4936	5269	5453	5583	5504	5467	5325	5502	5454	5423	5509
2017	5206	5508	5589	5509	5722	5773	5723	5750	5994	5877	5693	5690
2018	5460	5629										

2d:

```
Series Id:          LNU02074593
Not Seasonally Adjusted
Series title:       (unadj) Employed - With no disability, 16 years and over
Labor force status: Employed
Type of data:       Number in thousands
Age:                16 years and over
```

Download: ☒.xlsx

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2008						141271	141152	140166	139470	139955	139080	137914
2009	135068	134823	134521	135204	135023	135536	135780	135096	134117	134214	134148	132910
2010	131823	132127	132767	134303	134437	134993	135450	135078	134860	134907	134470	134290
2011	132930	133363	134071	134789	135111	135226	135581	135493	135659	135949	136132	135791
2012	135152	136019	136603	136974	137658	138214	138122	137495	138093	138682	138320	137858
2013	136480	137030	137495	138509	139333	139891	140186	139456	139432	139156	139875	139712
2014	139024	139388	140271	140929	141464	142221	142303	141572	141706	142667	142422	141878
2015	141511	141965	142413	143451	144016	144175	144445	143991	143799	144518	144781	144627
2016	143999	145125	145469	145622	146010	146486	146970	146479	146475	146881	146962	146289
2017	145321	146087	147039	147754	147685	148313	148747	147826	148499	148346	148487	147912
2018	147388	148775										

CELEBRITY EDNORSEMENTS AND DONATIONS: EMPIRICAL INVESTIGATION OF IMPACT ON PHILANTHROPIC GIVING

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ABSTRACT

This study investigates the effects of celebrity endorsers on donations and views of non-profits. Celebrity endorsers and their relationships with non-profits evoke a series of emotions that greatly affect how people perceive and donate to non-profit organizations. Past research demonstrates the tremendous growth in individual philanthropy, as well as, the importance of celebrities as influencers on social media. Data was obtained from a random sample of 277 individuals and subjected to statistical analyses. By studying two different celebrities that come from a different race, gender, and background, we found that our findings and significance values changed depending on which celebrity was tested. Overall, our findings indicated that ads that evoke positive emotions are more likely to convert to donations. Demographic characteristics such as, age, gender and income also effect donations. In some cases, the non-profit's cause and advertising message was powerful enough to override the impact of the celebrity. Our findings can help marketing managers style their ads to evoke certain emotions, by using celebrity endorsers that will help them increase donations. Furthermore, understanding what drives donors will help non-profits tailor marketing strategies through the use of a celebrity that will appeal to their desired donor base. It is expected that by targeting their donor base effectively, not-for-profits will then witness an increase in donations.

INTRODUCTION

There is something remarkable to be said about the overall impact celebrities have on the increase of donations for non-profits. In fact, there has been significant growth in philanthropic giving in recent years. Indiana University's *The Philanthropy Outlook 2017 & 2018*, reports a steady rise in philanthropic giving by individuals that is anticipated to follow an upward trajectory in foreseeable future. Empirically this growth is reported as an estimated 18.7% growth between 2011 and 2015. Some researchers claim the reason for this is because of a younger, more socially aware audience (Bivin, 2017). Taking a deeper look into the root cause, research was done by studying the advertising message that's put out by marketers.

When studying non-profit advertisements, it's easy to note the face of the known celebrity smiling, or looking serious front and center on the page. Paired with the celebrity is the person, place, or thing he/she is supporting. A notable feature of non-profit marketing is celebrity endorsement of their appeals for donations and celebrities acting as a "brand ambassador," for the charitable cause. Organizations that have successfully used celebrity endorsers include well recognized charities such as Make-A-Wish and Silver Lining Foundation in service of children that need medical care. For the purpose of this research, we used two non-profits that had two different and distinct agendas. First was St. Jude's Children's Hospital to measure the impact cancer research had on donors. By using St. Jude's as one of the measurements we hoped to evaluate emotions related to sadness, guilt, and empathy. The other non-profit measured was the Tiger Woods Foundation, whose mission is to give students the

tools they need to thrive in their education and beyond. Testing our hypotheses by using the Tiger Woods Foundation allowed us to measure the impact of celebrity endorsements of non-profits on a less emotionally-heavy topic.

Past research has established that celebrity endorses can influence how potential donors view and make contributions to a non-profit organization (e.g., Harris 2014). This research focuses on non-profits that utilize celebrity endorsers in their marketing messages. We investigate celebrity endorsements effects on the views of non-profits and likelihood of donating. Additionally, we examine how celebrity endorsers' past scandals, the donor demographics, and emotions that were evoked by advertisements that included celebrity endorsers affected donations. We tested our hypotheses using random sample of 277 respondents.

In the following section, we discuss past research in the area, use these to develop our hypotheses. Subsequent sections deal with our findings and a discussion of our findings. We conclude by reiterating some of the managerial implications of our findings.

LITERATURE REVIEW

Charitable Giving

Over the past 40 years, charitable giving has substantially increased in the United States (The National Philanthropic Trust 2017). The way in which people give is important for non-profits to understand. During this time of philanthropic growth, it is crucial that non-profits communicate effectively to their finite pool of donors. Between 2011 and 2015, there was a growth rate of 18.7%. American donors alone, contributed $373.3 billion to 1.2 million U.S. charities in 2015. Total giving in 2017 and 2018 is expected to increase by 3.6% and 3.8%, respectively (Bivin et al. 2017).

Philanthropy

The profile of a nonprofit's donor base can define who gives and how much they decide to give. It can also, establish the difference between corporate donors and individuals, as well as, high-income and low-income donors. The National Philanthropic Trust reports between 2014 and 2015 alone, philanthropic giving from the individual went up by 4.1%. It was also, reported that 98.4% of high net worth households give to charity (The National Philanthropic Trust 2016). According to the National Philanthropic Trust, 63% of high net worth donors cite "giving back to the community as a chief motivation for giving" (National Philanthropic Trust 2016). For millennials, donations are viewed as an investment. They look for returns on their donations, therefore reports featuring on what is done with their money is key for return donations (Bivin et al. 2017).

Celebrity Endorsers and Millennials

Studies show that traditionally celebrities bring attention to a product or service, especially on social media. Celebrities are often used as a way to break through the clutter, even though celebrity endorsements do not convert to purchasing. However, they can be strong assets when introducing a new or an unfamiliar product to the market (Knoll et al. 2017). In this new online age, celebrities can lend familiarity and credibility to new products and services on the internet (McCormick 2016). The millennial demographic not only has a strong online presence, but often use social media platform to express their views and beliefs. Millennials are often affected by the way celebrities portray their beliefs and views, thus they are more likely to follow what their favorite celebrities support (McCormick 2016).

Non-Profit Advertising

When creating a marketing strategy that focuses largely on persuading through affect (emotions) it is important for firms to know the foundational premise and framework behind such a message appeal. Emotions in promotional messages play an even more important role when trying to relate a not-for-profit to the audiences. Non-profit advertising is further complicated in its unique feature, marketers are trying to attract potential donors to donate money to causes that may not serve the donors themselves. While the majority of consumers can be swayed

based on the good of others, some might need more coaxing.

<u>Theoretical Framework</u>

Based on past research, key factors that formed the theoretical foundations of our hypotheses included emotional appeal used in an ad, and their relationship with demographic characteristics of the audience. The actual persuasive power of the appeal to generate donations is important. Whether the emotions in the message only focus on feelings of sadness and guilt, or emotions of joy and happiness. Lastly, we looked at the specific celebrity used in a non-profit advertisement. We wanted to see if their background and any scandals in their lives could cause donations to increase or decrease. Perceptions of the celebrity endorser and consequently the perceived impact of scandals attached to such an endorser is important as well. We examined this through a hypothesis that looked at the scandals of Tiger Woods and Jennifer Aniston, both powerful figures in modern society. We tested negative emotions, positive emotions, and finally, *all* emotions evoked by a message. It was believed audiences would not donate as much money when an ad used positive emotions to sway people.

Hypothesis 1: Ads that evoke positive emotions like hope, thankfulness, persuasion, and reflectiveness, will be less effective than negative emotions of guilt and shame in generating donations.

Since non-profits depend on donations from everyday consumers, it is natural to see if the level of income effects how much they donate. We predicted that more income is directly related to how much they donate.

Hypothesis 2: The higher the level of Income, the more likely a person is to donate.

When a marketer chooses a celebrity to represent the face of a campaign, they must take into account the celebrities past scandals and reputation. The way people react to the celebrity will decide if they donate or not. This is why we believe that the older the respondent the more awareness of celebrity and what they have done in their lives.

Hypothesis 3: The higher the age of a person the more likely they are to be aware of a celebrity's past scandals which results in the ad appeal to not drive the donor likelihood to donate.

Figure 1 provides a conceptual map of our framework and summarizes various hypotheses that we tested and hypotheses related to other demographic variables.
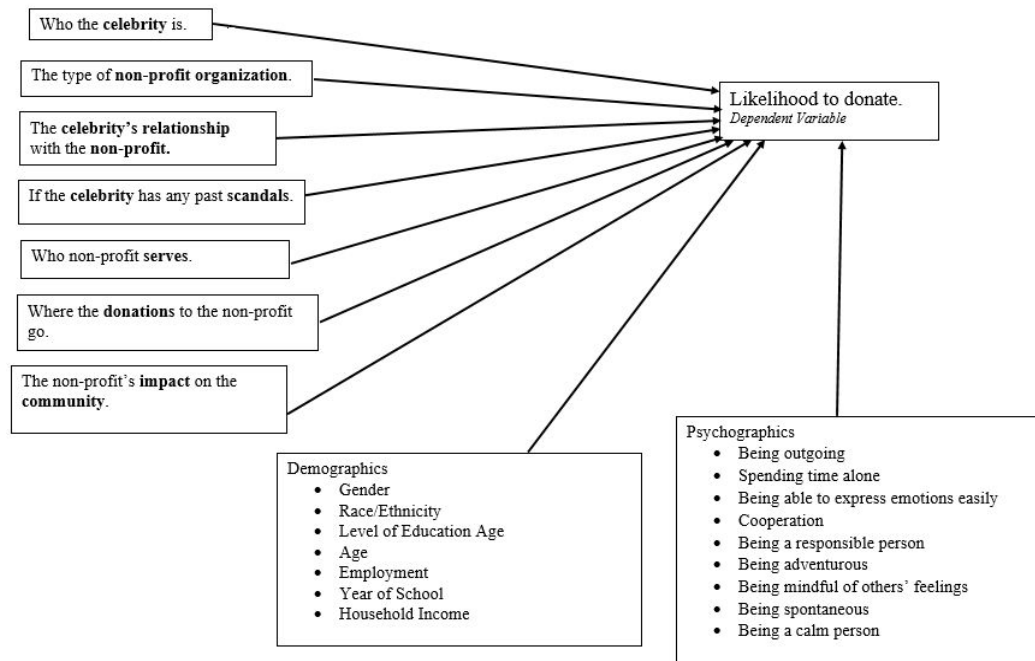
Who the **celebrity** is.

The type of **non-profit organization**.

The **celebrity's relationship** with the **non-profit.**

If the **celebrity** has any past **scandals**.

Who non-profit **serves.**

Where the **donations** to the non-profit go.

The non-profit's **impact** on the **community**.

Likelihood to donate.
Dependent Variable

Demographics
- Gender
- Race/Ethnicity
- Level of Education Age
- Age
- Employment
- Year of School
- Household Income

Psychographics
- Being outgoing
- Spending time alone
- Being able to express emotions easily
- Cooperation
- Being a responsible person
- Being adventurous
- Being mindful of others' feelings
- Being spontaneous
- Being a calm person

Figure 1. Conceptual Map

METHODOLOGY

Methodology Selection

Through the use of a descriptive research design, a quantitative study was created and used to collect primary data. A descriptive research design was used to collect primary data for a quantitative study on the effects that celebrities have on non-profit marketing. This design was selected because the questions that were being asked required respondents to answer using a 7-point Likert-type scale. The online survey method was selected as the vehicle for collecting the data because of its' ability to be sent to diverse respondents and ease of responding that it offers them. It also, allowed for easy and efficient data collection and analyses with the least amount of human errors.

We used past studies from the *Handbook of Marketing Scales: Multi-Item Measures for Marketing and Consumer Research* to develop our construct measures. An online questionnaire with six clear categories: demographics, psychographics, emotions associated with the advertisement, likelihood to donate, respondent perception of celebrity, and perception of the nonprofit, were used to collect data. These categories assisted us in evaluating two different advertisements with each having a different celebrity and non-profit. We measured the dependent variables that affect donations to non-profits with celebrity endorsers that included whether or not an ad with a celebrity endorser evoked positive emotions (hope, thankfulness, persuasion and reflectiveness) the level of income of potential donors and the ages of potential donors.

The online survey method was used to implement the study. This method gave us several advantages. First, it assured that respondents' answers would be recorded anonymously, this was crucial when asking respondents about sensitive topics such as donation habits, income, and race. The second advantage was that respondents were required to answer every question to complete the survey. The original distribution was done

through random sampling, but then was continued through snowball sampling, the survey was sent to family and friends and passed along after that.

Consequently, 277 fully completed surveys were used for further analyses. We used structured, matrix type questions, some included images of ads that required responses. The scale measurement used was an interval 7-point Likert-type scale in order to measure precise differences between scale points. The two extreme anchors ranged from 1 = "Strongly Disagree" to 7 = "Strongly Agree". Every question in our survey was a structured question, the respondent had to choose from the given, predetermined responses. The survey was kept under six minutes to avoid response fatigue and to ensure higher response rate, since we provided no incentives to the respondent.

Online Survey Method

The online survey method allowed for responses to be anonymous and required participants to answer every question. This method also, allowed us to evaluate how psychographics, demographics and emotional reactions affect other variables such as how people donate and their perception of what they are donating to. The online survey method allowed for the ads that were being evaluated to be presented with each scale with relative ease. There was no scrolling or constant flipping done by the respondent. This allowed respondents to easily evaluate the ads with how having to put in a lot of effort to respond the questions.

Scale

The scale that was used was a 7 point Likert-type scale. The scale was developed with 7 points to allow for respondents to select varying degrees of the two extremes given "Strongly Disagree" and "Strongly Agree". There was also, a neutral choice, allowing us to see what sorts of variables did not affect our respondents. If this scale had an even amount of points, then the respondents would be unable to select neutral. The Likert-type style of the scale allowed for respondents to answer questions based on agreeing or disagreeing. This style aligned with the way we wanted our data presented.

Our Sample consisted of 277 complete and usable surveys. The majority of our respondents, were female (68.2%), while 28.83% were male, the remaining 3.33% indicated transgender and other categories. For meaningful data analysis we measured the differences between the top two gender groups since the remainder categories had very small cell sizes. Above half (56.76%) of respondents were between 18 and 24 years old, placing them in the millennial generation. As anticipated due to student researchers being involved, the majority of respondents were students or students who were employed part-time totaling at 49.55% combined. An overwhelming number of respondents identified their race as white (81.08%). The largest income level of our respondents was greater than $100,000 (29.68%).

Table 4. shows the original scales and the corresponding Cronbach's Alpha used from previous research.

Table 4. Cronbach's Alpha

Original Scale	Original Scale Cronbach's Alpha	Our Adaptation to Scale Cronbach's Alpha	Sample Items
Positive and Negative Affect Scales (PANAS)	0.72	0.874	x
Feeling Towards Ads	0.93	0.803	x
Expertise, Trustworthiness, and Attractiveness of Celebrity Endorsers	0.80	0.795	x
List of Values: LOV	0.83	0.894	How important is sense of belonging to you?

Attitudes Influencing Monetary Donations to Charitable Organizations	0.93	0.659	My image of charitable organizations is positive.

The scales consist of Positive and Negative Affect Scales (PANAS) (Watson, Clark and Tellegen 1988), Feelings Towards Ads (Edell and Burke 1987), Expertise, Trustworthiness, and Attractiveness of Celebrity Endorsers (Ohanian 1990), List of Values: LOV (Kahle 1983), and Attitudes Influencing Monetary Donations to Charitable Organizations Webb, Green, (Brashear 2000). We modified aspects of each scale in order to more clearly reflect our research questions. All of our adaptations to the scales, except for Attitudes Influencing Monetary Donations to Charitable Organizations, had Alpha values of 0.70 or above, indicating consistency.

FINDINGS AND DISCUSSIONS

Table 5 summarizes our findings from ANOVA. All results were significant at the 0.10 level.

When evaluating our first hypothesis, we were testing to see if positive emotions were a main driver for people donating. We ran multiple regressions to better understand the relationships between our variables. We found with each regression the p value was significant at the 0.05 level. Meaning, regardless of the nature of emotion evoked (positive, negative, or mixed), the respondent was willing to donate, as long as the money went to a good cause. The reaction to emotional appeal was so strong that the prior actions of the celebrity would not impact likelihood to donate. This finding was a fact that shocked us, we expected see some sort of impact of donation when a scandalous celebrity was involved in the campaign. Taking it a step further, we compared the results of the emotions expressed towards a specific non-profit, and how it affects donations.

When studying the demographic findings, the p-value for gender and education was significant when we tested it with Jennifer Aniston. However, the p-value for gender and education was not significant with Tiger Woods. It would be interesting to conduct further research and see why it was significant for a female celebrity compared to a male celebrity.

When we measured income against the two celebrities and the two non-profits we found different results. The results had no significance when we tested the regression for Tiger Woods, but there was significance with Jennifer Aniston. The results were surprising since we thought level of someone's income would drive how much they donated. Looking further into the workings of both non-profits, it's easy to see the possibility that someone would be more likely to donate a bigger sum of money to a children's hospital, than to a community based organization. This would explain why the mean for Jennifer Aniston was at 20.755 while Tiger Woods's mean remained low at 9.529. Nonetheless, each organization was not affected by the amount of income a donator had, they were still likely to receive a donation.

Since using two celebrities with different demographics, it was important to see if the gender of the donor would have any effect as to whether or not they viewed the celebrity as being a good role model. Once running the ANOVA we concurred that the results of evaluating both celebrities were different. Jennifer Aniston's mean was higher when compared to Tiger Woods's mean. Meaning, more respondents believed Tiger Woods was a better role model when compared to Jennifer Aniston. There was expectation that the use of Tiger Woods and the controversy surrounding him in the late 2000s would cause donor push back. What would be even more enthralling to see is a retest of this research after Tiger Wood's DUI arrest in late 2017. However, both celebrities are classified as being role models for different reasons. Therefore, they are not in direct competition with each other because they each target different markets. While it's still important to note that both celebrities have faced scandals and controversies in their past. We chose to test them because of their well established careers in their fields.

Lastly, we looked to see if the higher the age of a person had any affect on whether or not they were aware of a celebrity's past scandal(s). Once we ran the ANOVA it became significant to both Jennifer Aniston and Tiger Woods. Notably, Tiger Woods was a little more significant most likely due to his more recent scandals in the past couple of years. When we made our hypothesis we suspected that Tiger Woods might be a little more significant. This is because of a timeline of events. When putting them on a timeline, Jennifer Aniston was extremely popular in the early 2000's, while Tiger Woods's rocket to stardom didn't come until the later 2000's. One thing that would be

interested to test now would be to see if the results for Tiger Woods increased in significance due to his most recent arrest for a DUI.

Table 5. Summary Findings (ANOVA)

Independent Variables	Dependent Variables	Mean	F Value	P Value
Positive Emotions	Likelihood to Donate			
Jennifer Aniston		40.377	46.857	0.001
Tiger Woods		289.808	111.594	0.001
Higher Level of Income	Likelihood to Donate			
Jennifer Aniston		20.755	6.12	0.014
Tiger Woods		9.549	2.506	0.115
Gender of Donor	Affects if Celebrity is Seen as a Good Role Model			
Jennifer Aniston		10.120	2.902	0.036
Tiger Woods		3.379	0.302	0.824
Higher the Age of a Person	Awareness of Past Scandals			
Jennifer Aniston		20.024	4.635	0.032
Tiger Woods		102.886	8.762	0.003
Being Mindful of Others	Believed if Celebrity Cared			
Jennifer Aniston		13.201	3.046	0.082
Tiger Woods		37.75	3.289	0.071

a. Agreement Scale: a seven-point scale ranging from 7 (strongly agree) to 1 (strongly disagree);
b. All mean differences results are significant at the 0.10 level of significance.

Table 6. Regression Analysis Results

Confirmed Hypotheses	Dependent Variable	R2	P-Value
Ads that evoke positive emotions like hope, thankfulness, persuasion, and reflectiveness, be a driver for people to donate.	Likelihood to Donate		
Jennifer Aniston		0.165	0.001
Tiger Woods		0.336	0.001
The higher the level of income, the more likely a person is to donate.	Likelihood to Donate		
Jennifer Aniston		0.027	0.014
Tiger Woods		Results Not Significant	

The emotions expressed towards a specific nonprofit affects donations.	Affects Nonprofit Donations		
Jennifer Aniston-St. Jude's		0.119	0.001
Tiger Woods-Tiger Woods Foundation		0.292	0.001
The higher the age of a person the more likely they are to be aware of a celebrity's past scandals.	Awareness of Past Scandals		
Jennifer Aniston		0.021	0.032
Tiger Woods		0.038	0.003
A person who is mindful of others feelings is more likely to donate regardless of the nonprofit or the celebrity does not drive the likelihood to donate.	Believed if Celebrity Cared		
Jennifer Aniston		0.013	0.082
Tiger Woods		0.015	0.071

CONCLUDING REMARKS

By conducting this survey on non-profits, celebrities and their donations patterns, we were able to obtain invaluable information about whether or not celebrity endorsers drive donations. Results revealed which type of celebrity endorsers do better with which type of donors. After further research we found that the particular celebrity used in a non-profit campaign had little effect on the donations received. While it's important to note that the popularity of the celebrity at the time of the campaign can affect how much money is donated. The overall consensus after completing this survey is that people are always willing to donate as long as it's to a good cause. However, this is not to say that using a particular celebrity can help increase how much each individual donates. There is always something to be said about the celebrity used in a non-profit advertisement; but this can be an uncontrollable factor. When testing how much is donated based on the particular celebrity it could be problematic. This is because there will always be changing preferences or appeal that a celebrity has on each respondent. The overall emotions portrayed in an advertisement has the power to move almost anyone to donate, regardless of the celebrity used. This is because non-profits, such as St. Jude's is much greater in an importance than any grudge or dislike a donor has on a celebrity.

There are limitations to this research and results should be viewed with caution. We did not have sufficient demographic variety (race, for instance). As past research suggests, one should not expect participants to be honest with us when we asked questions about how they feel about non-profits and donations. This dishonesty can come from participants being embarrassed about whether or not they donate. Age affects donations, if a potential donor is aware of a celebrity's past scandal, it can affect the perception of a non-profit organization. Advertisements with celebrities' and non-profits that evoke positive emotions do not affect how much money is donated.

A celebrity's future in their respective field may go through ups and downs. Scandals (real, alleged, or perceived) can occur at any time and without warning. Trying to predict this is challenging and something non-profits need to consider when working with celebrities.

In the future, more research should be done into celebrity endorsements cycles and scandal effects on donation patterns. There is lots of potential in this area of research. Donations are incredibly important to a non-profit's success. Most non-profits depend heavily on them, and by understanding how people donate will help non-profits serve their recipients more effectively.

Through our findings we did begin to observe celebrities' effects on whether or not a respondent would donate. Celebrities can bring awareness to a non-profit, just like a product in the for-profit world, thus effecting

donations (Knoll et al. 2017). It's helpful for businesses and marketers to use this information when creating a marketing and advertising plan for non-profits because of the celebrities they hire for the advertisement. When choosing a face to represent the non-profit a marketer or manager needs to be aware of the past scandals they've had. A celebrity's past and their unpredictable future has the chance to hurt their reputation as well as the organizations they work with. Trying to predict the future and choosing the appropriate celebrity that can be less of a risk can be further understood through future research. Our team believes the research conducted in this study is the first step in understanding more clearly what types of marketing tools can effect donations received. Therefore, the more study that is done on celebrities' effects on donations patterns will help non-profits leverage this information to increase their development. Further research that focuses on how and when people donate, as well as, how a company should choose the perfect celebrity.

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APPENDIX

Advertisements Used:

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Tiger Woods Foundation Ad

St. Jude's Children's Hospital Ad

EXPLORING SHAME IN BEAUTY ADVERTISING

Devon Geelan, Siena College
Dr. Cheryl Buff, Siena College

ABSTRACT

Are some more prone to the messages of shame in advertising than others? Most research done on the use of guilt or shame as a marketing tactic is focused on nonprofit organizations or public health, but few have been conducted on the use of shame in the beauty industry. This study seeks to see what impact, if any, one's shame proneness and vanity traits have on their response to beauty advertisements. The goal in this connection is to establish if shame as the negative emotion depicted in advertisements creates a feeling of self-degradation. Messages like "Battle Aging", "Fight Dark Circles", and "Destroy Impurities" communicate a message of war against one's

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body. While beauty may sell, this research seeks to find the implications of such terminology and a potential for change in the ethical understanding of such advertisements. The outcome seeks to better inform marketers their impact.

Negative emotional appeals are regularly applied in consumer marketing to sell products which appeal to consumers' needs to conform to social norms (Brennan 2009). These negative emotional appeals are typically used when social anxiety is deemed acceptable, including, anti-smoking advertising, security system advertising and other public safety messages. The shame induced following a beauty shame advertisement however holds a different message. Women are encouraged to "save themselves" from dangers of aging, for example, crows feet, under-eye bags and yellowing teeth. All of these "flaws" in fact carry no true health risks to society. Advertising does however pose these healthy signs of age as dangerous. One of the most widely cited conclusions from research on physical attractiveness is summarized by Dion, Berscheid, and Walster's (1972) claim that, in people's perceptions of others, "what is beautiful is good" (p. 285). This statement linking beauty and goodness suggests the existence of a stereotype whereby physically attractive individuals are believed to possess a wide variety of positive personal qualities.

In general, physically attractive people are viewed more positively than physically unattractive people, a phenomenon called the "physical attractiveness stereotype." Physically attractive people are, for instance, perceived as more sociable, self-confident, mentally healthy, and warm than physically unattractive people (A.P. 2011). Due to this, it is believed and practiced that beauty sells in advertising. While beauty may sell, pairing idealized models with shame invoking copy might bring about excessive negative emotion and verge on unethical.

Previous research focused on self-esteem issues explore unrealistic body shape but this research will focus on unrealistic *beauty* standards due to airbrushing, lighting and make-up techniques, which lead models to appear unrealistically beautiful. According to sociocultural theory, negative body images emerges as a result of perceived environmental pressure to conform to a culturally-defined body and beauty ideal (Clay 2005). Perceived pressure from idealized media models to conform to the culturally defined body and beauty ideal has been identified as a potent source of negative body image (Thompson et al. 2004a). Not only are the images portraying beauty ideals enticing consumers to try to change themselves, the combination of imagery with a content strategy of negative emotions of shame and guilt intensify their response.

RESEARCH QUESTIONS

- Connection between shame proneness and impact of beauty marketing campaigns.
- Are consumers being shamed to buy products? Is this ethical?
- Connection between vanity and shame
- Where the line is drawn between answering consumers desires and creating problems through shame.

METHODOLOGY

The online survey aims to reach a wide range of participants in a low risk environment, with the comfort of anonymity. Participants must self-identify as eighteen or older in order to participate. The survey begins with the Psychology of Shame or GASP scale which is proven valid in measuring participants level of shame proneness. The GASP's ability to distinguish negative self-evaluations from withdrawal action tendencies represents an important advantage of the scale over existing assessments (Cohen 2011). This scale is follows a seven-point Likert scale with an additional option for prefer not to respond. The seven-point scale allows for a middle, and two extremes. The questions ask participants to respond how they would be likely to feel regarding specific situations. The accumulating total of all scenarios establishes a level of shame proneness. Following the GASP scale, participants are asked questions of Vanity from the Vanity: Trait Aspects of Vanity Scale by Netemeyer, Burton and Lichtenstein (1995). This scale follows a similar seven-point likert scale but delves into the participant's importance on traits of vanity.

Lastly, a Feelings Toward Ads Scale by Edell and Burke (1987) is used to connect the data from shame and vanity to advertising itself. The ads used in this research were created for this project specifically to remove bias of branding. A randomization factor was added to create a two by two design increasing possibility for analysis of variance on models, phrasing and products. Two models, two sets of phrasing and two products were used amongst

the four ads. The phrasing used on each ad was taken directly from an existing ad. Two of four advertisements were for foundation makeup and two were for a face cream. Two models were used both of which were tested in a focus group of my target demographic to be representative of models in advertisements today (youthful, beautiful, and flawless) and resemble the acceptable standard of beauty in our society.

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APPENDIX

Advertising Image
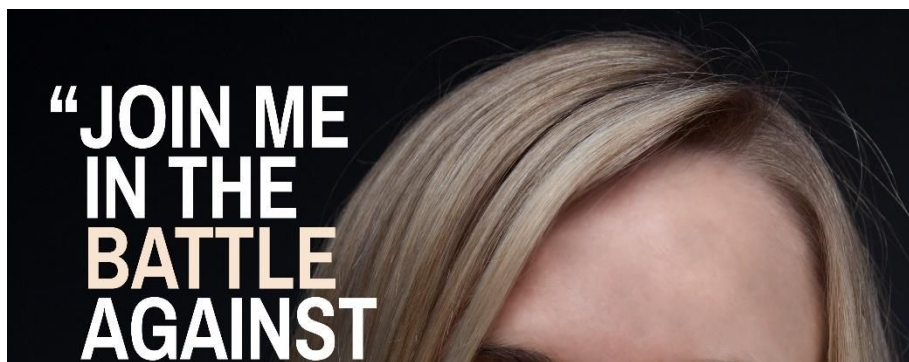
FEAR OF MISSING OUT: EXPLORING PERSONALITY INFLUENCES

Jennifer Secor, Siena College
Dr. Cheryl Buff, Siena College

Ted Winnowski '63 Student Conference in Business
April 13th, 2018

ABSTRACT

Social media has ingrained itself into the daily lives of many. As the role of social media continues to grow and change, there are behavioral and psychological implications that have resulted in a growing body of research. FOMO has been defined as the "pervasive apprehension that others might be having rewarding experiences to which one is absent, and is characterized by the desire to stay continually connected with what others are doing" (Przybylski, et al., 2013, p.1841). FOMO is characterized as an uneasy and all-consuming feeling that one is missing out (JWT Intelligence, 2012, p. 4). As the body of research in FOMO grows, continued research in the foundational influences of FOMO, including psychological underpinnings and personality influences, is necessary. The current research investigates the influence of personality characteristics/traits including self-presentation, self-monitoring, relative to fear of missing out. Theoretical models of self-monitoring and self-presentation are extended into online activity and social media consumption habits through the lens of FOMO. Of particular interest was exploring whether FOMO predicts self-presentation behavior. This will allow for exploration of various self-images manifested through presentation behavior as related to FOMO, which is new to the literature. Additional attention was focused on understanding how FOMO is related to social media posting activity (e.g., message content, social media platform(s), frequency of posting, and duration of social media usage) across a robust age distribution. As much FOMO research is based on a younger demographic, exploring FOMO across a wide age distribution is new to the literature.

An electronic survey was distributed via social media and email; of 285 responses, 249 were deemed complete and appropriate for data analysis. The survey contained items for 3 extant FOMO scales (Abel, Buff and Burr, 2016; Buff and Buff, 2017; Przybylski, Murayama, DeHaan & Gladwell, 2013), the revised Self-Monitoring Scale (Lennox and Wolfe, 1984), and a modified version of the Self-Presentation scale (Michikyan, Dennis & Subramanyam, 2015). In addition to scale questions, demographic and social media usage and preference questions were included. Reliability analysis was conducted, with all scales performing above the recommended $\alpha=.70$ (Nunnally, 1978). ANOVA was used to test the age and FOMO hypothesis that those who are older will manifest lower levels of FOMO. Significant findings are noted with each FOMO scale (Abel et al. scale, $F(6,225) = 4.535$, $p=.000$; Buff et. al scale, $F(6,224) = 8.799$, $p=.000$; Przybylski et al. scale, $F(6, 224) = 7.759$, $p=.000$). Regression analysis, using FOMO score calculated based on Buff et al. FOMO scale, was used to test hypotheses related to self-presentation. Results indicate that FOMO predicts self-presentation behavior across the various self-images (FOMO and False-Self, $R = .484$, $R^2=.234$. $F(1,223) = 67.73$, $p=.000$; FOMO and Real Self, $R = .352$, $R^2=.124$, $F(1, 221) = 31.11$, $p=.000$; FOMO and Exploration Self, $R=.302$, $R^2=.091$, $F(1, 219) = 21.92$, $p=.000$; FOMO and Compare/Impress Self, $R=.506$, $R^2=.256$, $F(1, 219)=75.04$, $p=.000$; FOMO and Ideal Self, $R=.324$, $R^2=.105$, $F(1, 221) = 25.873$, $p=.000$). Finally, to test hypotheses related to self-monitoring, K Means Cluster analysis was used to form two clusters, high self- monitors and low-self monitors. It was hypothesized that there would be a significant difference between FOMO scores for high self-monitors and FOMO scores for low self-monitors. ANOVA, using FOMO as measured by Buff et al. scale and self-monitor cluster, was used to test the hypothesis. Results were not significant ($F(1, 227) = 1.913$, $p=.168$. Post hoc analysis was conducted (Abel et al. FOMO, $F(1, 227) = 6.694$, $p=01$; Przybylski et al. FOMO $F=1, 227) = .063$, $p=.802$). As Abel et al. FOMO scale was initially designed with extant scales for inadequacy, irritability, anxiety and self-esteem, it is plausible that it is better equipped to capture the underlying relationship between FOMO and self-monitoring. Practical implications and directions for future research are presented.

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A NEW CHALLENGE TO THE ACCOUNTING PROFESSION: GENERATIONAL DIFFERENCES

Ted Winnowski '63 Student Conference in Business
April 13th, 2018

Michelle Hart, Siena College

ABSTRACT

Obviously, baby boomers and millennials are different; after all, they grew up in completely different worlds. One was shaped by the Civil Rights Movement, the Vietnam and Cold Wars and space travel. The other grew up on a schedule, influenced by terrorist attacks, increased school shootings and the fact that they can hold a computer in their hand. These factors have a huge impact on the way each generation approaches work, marriage and technology. From these general differences, can we conclude that baby boomers and millennials are psychologically different? Based on the results of an intergenerational experiment comparing the three psychological attributes: locus of control, growth need strength and need for achievement; how can modern day accounting firms hire, treat and motivate millennial accountants to be successful?

FRAUD CONTROL

Sabrina Rodgers, Siena College

ABSTRACT

The topic of fraud has been an increasing subject of conversation globally. With major scandals such as Enron and WorldCom, increased regulations have been imposed on public companies throughout the United States. I will be discussing how the Sarbanes Oxley Act has been trying to enforce strict laws for these public companies in an effort to reduce risk of fraud. Specifically, I will be discussing Section 404 of the Act and how the creators of this Act believe that by implementing these laws it will successfully contribute to these organizations to run in an ethical manner.

HOW WILL DATA VISUALIZATION AFFECT THE AUDIT?

Lexie Holmes, Siena College

ABSTRACT

Data analytics, specifically data visualization, is a fairly new concept being incorporated into the accounting profession. While this technique is affecting the profession as a whole, one of the most significant impacts it has had is on the audit process. As auditors are finding new ways to use data visualization in the audit to make the process easier, more understandable, and more relevant, many have concerns regarding data visualization. One of the most important questions is: will the audit standards and the objectives of the audit need to be reinvented as data visualization plays an increasing role in the audit?

OVERCOMING THE ACCOUNTING STEREOTYPE

Mario Bucciero, Siena College

ABSTRACT

This presentation explores the versatility of an accounting background, specifically in its application towards federal law enforcement. Accountants are not typically thought of as criminal investigators or law enforcement officials, but accounting has been, and will continue to be, the preferred applicant background for this line of work. The conception that agencies like the FBI are looking for criminology degrees is false. These agencies are looking for extraverted, courageous individuals with an extensive background in accounting. I depict what field work is like for a typical special agent accountant by examining the investigative process. I explore the fundamentals of forensic accounting to demonstrate how it's a useful tool for catching criminals. Finally, using cryptocurrency and blockchain management as examples, I demonstrate how the future accountant's skill set will need to adapt as purchase vehicles continue to divert from tangible paper money.

THE EFFECTS AND OPPORTUNITIES OF DATA ANALYTICS ON STUDENTS ENTERING THE ACCOUNTING FIELD

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INTRODUCTION

Data analytics is a new set of skills that will be integral in the development of the accounting field as we move forward in the twenty-first century. Data analytics is the ability to use big data to present conclusions based on both quantitative and qualitative measures. Data analytics provides the following solutions relevant to big data: descriptive, diagnostic, predictive, and prescriptive (Tschaker 2016). Statistics, machine learning, and the effective use of data visualization software tools are all components that will allow one to make business decisions based on effective interpretation of data analytics. Although many technological advancements have been made to help with the implementation of data analytics into the public accounting and industry practices, there is still need for the human element to aid in the communication of how big data will shape the actions a business takes to respond to the data. This provides many career opportunities for accounting students (and business students in other fields) entering the public accounting field and industry to take advantage of in order to grow throughout their careers. In this paper, we present an assessment of data analytics career opportunities in accounting based on review of relevant literature and our own experiences. The paper is organized as follows:

- Data analytics in the classroom,
- Career opportunities in public accounting,
- Relevance to accounting for industry,
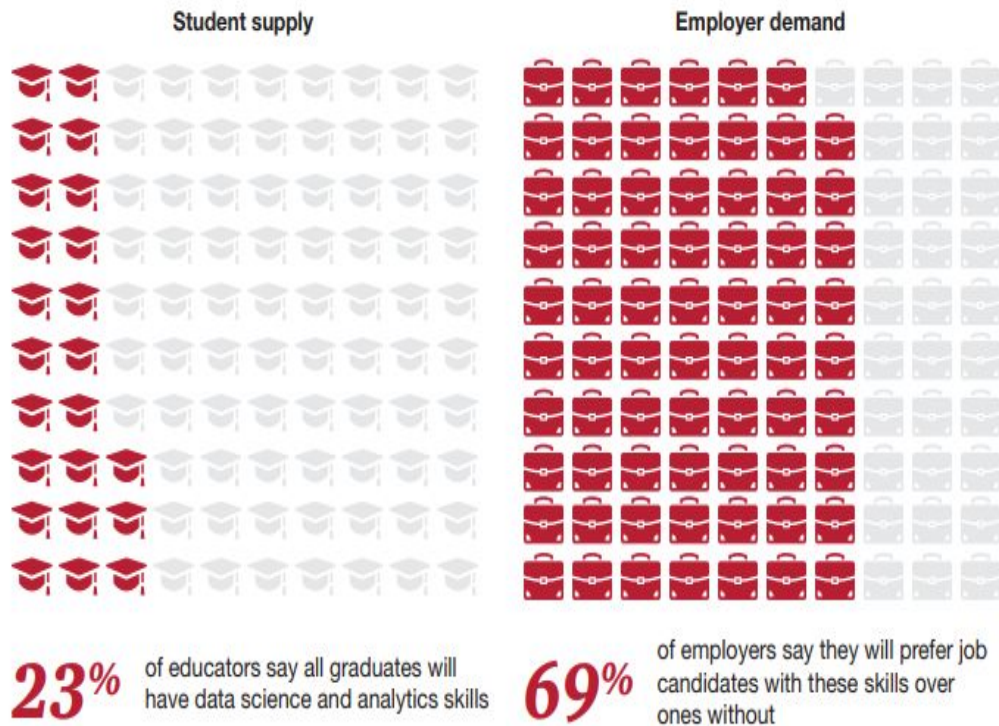- Conclusions.

DATA ANALYTICS IN THE CLASSROOM

With the accounting job market becoming saturated with young professionals, it is becoming increasingly more difficult for individuals to standout amongst their peers. When students enter the workforce, employers are now searching for a specific set of skills. These skills include thinking critically, problem solving, and smart decision making. The Big Four accounting firms, PricewaterhouseCoopers, Deloitte, Ernst & Young, and KPMG understand that the best way for professionals to develop this skill set is to expose them to these concepts in the classroom. Not only are the Big Four encouraging data analytics being taught in schools, they're leading the initiative.

By investing in students, the Big Four are investing in their organization's own future's. KPMG is partnering with Ohio State University's Max M. Fisher College of Business and the Villanova University School of Business to develop a master's degree program in data analytics for accounting. In addition, PwC created a 5 course program that grants a specialization certificate in data analytics offered through Coursera, an online learning

platform. The program focuses on data-driven decision making, problem-solving with Excel and advanced data visualization. PwC is also hiring students of varying majors including engineering, computer science, information systems and mathematics. Students with these backgrounds are hired in the STEM field "crucial" to the future of the U.S. We believe the Big Four companies are taking a smart approach to integrating data analytics. When students are taught these concepts in the classroom, they will apply these skills to the workforce upon hire and only build upon their initial understanding. This skill set will also enable professionals to adapt easier to new challenges and technological advancements.

CAREER OPPORTUNITIES IN PUBLIC ACCOUNTING

Data analytics will be integral to the field of public accounting in an increasingly greater capacity in the future in both audit and tax. The Big Four accounting firms have realized the trend and are working to be on the cutting edge of the use of data analytics in the field. According to a survey of KPMG employees, 99% of partners, directors, and managers believe that data analytics will be increasingly important to the firm's strategy moving forward. Although the Big Four is beginning to offer continuing professional education (CPE) opportunities, it has been found that the most effective way to train and prepare employees to be able to integrate data analytics skills into their professional work is to introduce data analytics courses in collegiate curriculums. Due to this, KPMG has introduced Master's programs in data analytics at Ohio State University and Villanova University to prepare a new class of certified public accountants (CPAs), specifically auditors, to be prepared for the changes coming to the field. KPMG is also recruiting both internally and externally for a specialized data analytics group called the KPMG Lighthouse. This Lighthouse team serves as internal experts for KPMGs engagements from all three service lines of tax, audit and advisory. In the event an engagement team requires an advanced data specialist to assist on a project, the firm has recruited individuals with multi-domain knowledge in various areas. Specialists with strong backgrounds in fields such as computer vision, law, and artificial intelligence can combine with CPAs in order to create greater value for their clients. Students can focus on improving knowledge in multiple domains, especially computer science and data analytics, which will be a smart career move that industry leaders are actively searching for. As the industry is increasingly recognizing the value in data analytics, the demand for students with these skills is skyrocketing, and supply is struggling to keep up (Figure 1).

Student supply

Employer demand

23% of educators say all graduates will have data science and analytics skills

69% of employers say they will prefer job candidates with these skills over ones without

Base: Higher education: 127; Business: 63
Source: Gallup and BHEF, *Data Science and Analytics Higher Education Survey* (December 2016).

Figure 1   Data science and analytics skills, by 2021 - The supply-demand challenge

As data analytics continues to evolve, the auditing profession will as well. Currently, the Big Four and other public accounting firms are structured like a pyramid, relying on many associates straight out of college to do field work and other lower-level audit work. As data analytics can be used to solve more anomalies in the audit field, the hiring process will change. Firms will look to hire recent graduates that have a greater educational background in analytics and computer science rather than accounting curriculum alone. On the tax side, analytics can help employees engage with the rest of the client's business better to help ensure the best data, insight, how to explain it more clearly. The sidebar discussion describes our own experiences as interns and job candidates at various accounting firms.

Sidebar: Benefit of background in data analytics in an interview

We have recently interned and interviewed for positions in public accounting firms at small, medium, and Big Four accounting firms. In interning at UHY Advisors, LLC, there were only four data specialists that had experience using a software that we used in our Computer Audit & IT Controls class called IDEA. The software helps auditors find anomalies to further research in the audit process. In interviewing for full-time positions at a smaller firm named Wojeski & Company, CPAs, the partner and the managers there were impressed that we had taken a data analytics course in the Master's program and that Siena College was going to be offering new data analytics concentrations to help better prepare its students for success after graduation. By taking data analytics and computer-applications-based courses in the Master's program at Siena, we are prepared to take advantage of opportunities in our professional careers in public accounting.

PricewaterhouseCoopers outlined the data analytics skills its employees in both tax and audit would need to acquire in order to be effective in their careers as data science becomes more applicable to public accounting. Career opportunities in auditing provided through knowledge of data analytics would allow an auditor to have a greater

understanding of the core skills needed to succeed within the firm. Data analytics would provide a better understanding of fundamentals of accounting, including financial accounting, managerial accounting, taxation, and financial reporting systems. An associate accountant could use data analytics to become more well-versed in their knowledge of generally accepted accounting principles, policies, procedures, and auditing standards. Data analytics would allow greater opportunity for a CPA to add value to their client by helping them illustrate how accounting needs tie back to regulatory requirements. Opportunities for audit employees having new data analytics skills include enhanced research of anomalies and risk factors, data mining to add value to clients and the business, a better understanding of relational and nonrelational databases, use exploratory multivariate statistics, inferential statistics, visualization tools, optimization methods, machine learning, and predictive analysis tools, and techniques to isolate and investigate specific processes that might have led to changes to the data/accounting ledgers.

Although the tax practice has lagged behind in adapting other new technological advancements over the past few years in comparison to its audit counterparts, data analytics is a skill that tax accountants will need to adapt to in order to have a successful career. With that being said, there are many new career opportunities available to tax accountants with CPA firms. PricewaterhouseCoopers will look for recent college graduates to have learned data analytics skills in their undergraduate and graduate coursework to help achieve the firm's core goals within the tax practice such as the ability to recall specific tax regulations regarding certain transactions that will impact whether or not a tax return is compliant. Data analytics skills can help an associate become more aware of trends and help better prepare a young accountant for opportunities for tax planning in their career in the future. Opportunities exist for data analytics skills to help make a tax department make better decisions in both tax planning and after tax implications. Data visualization tools can help a tax accountant analyze debits, credits, and tax thresholds. As many Federal tax regulations will be changing in the coming years, an understanding of data analytics will be necessary to evaluate whether tax calculations will be within compliance limits. By having a data analytics background, a tax accountant would have an opportunity to apply that knowledge to benefit the firm and its clients to help avoid tax accounting pitfalls. Having worked in state and local taxation for over a year in both industry and public accounting practices, we have noticed that state and local tax laws are always changing and that it can often be difficult to keep up with changes to laws or presentational requirements of a state tax return. One way to advance in the tax field would be to use data analytics to help stay on top of new tax laws that influence a client's compliance with those new laws. By using data analytics to identify how the changes to the tax law will impact a tax return, a team could use this to eliminate discrepancies and reduce the amount of notices a client receives, making the tax reporting process much simpler, more streamlined, and more effective than it is in its current state.

RELEVANCE TO ACCOUNTING FOR INDUSTRY

Data Analytics is no longer considered a fad. It is now a part of business and is integrated into almost every industry. Unfortunately, accountants in industry are falling behind in relation to other professionals. As processes become more automated and there is less need for manual intervention, the ways in which companies handle their financial information needs to keep up with those trends. According to the *Journal of Accountancy*, accountants typically fall into four quadrants. The first quadrant is the very old definition of an accountant as a "steward or controller." This accountant is responsible for reporting and transaction processing. The second quadrant is the role of the trusted reporter, which aligns more appropriately with the information above in the public accounting careers. The third role are more skilled and experience than the first two, in that they are more focused on specific business functions, have industry experience, and or experience such as activity- based costing or treasury management. The final quadrant is the one that data analytics will hopefully help unlock (Kogan 2017). This is the role of the strategic position in the company where an accountant has the ability to make the financial "big data," which usually lacks relevance, clarity, and accuracy, attainable to the everyday business user. This role is attainable by accountants due to the fact that information supplied by the accounting department is often highly trusted. It would make sense for a company's management to trust one of their most valuable assets, their data, with their most trusted department. As mentioned previously, accountants in industry need to remain relevant and up-to-date. The *Journal of Accountancy* suggests that in order to do this, accountants need to move away from the role of watchdog and into one of analytical insight.

In an Accenture study run in 2012, 28% of senior finance executives said that they had little or no predictive information for their 2013 business. Worse than that, 54% said that only half of the information that they did have was relevant to be able to provide visibility into performance. This shows how incapable the accounting

and finance fields were at keeping up with the demands that management is putting out now. We live in a world where answers are always at our fingertips, and it is becoming the role of accountants in industry to make financial "big data" accessible and predictive for their companies.

One of the issues that accountants are currently facing is the fact that internal and external financial reporting is trained using and relying on structured data, while the data of the future is mostly unstructured data. "Unstructured data represent the largest proportion of existing data and the greatest opportunity for exploiting Big Data," according to a recent editorial in the Journal of Information Systems (published by the American Accounting Association). The concern lies in the fact that with the amount and relevance of unstructured data, "reality is swiftly outpacing the ability of accountants to gauge it". Basically, unstructured data is becoming more relevant than the structured financial data. For example, the CFO of a Technology Solutions company, Nina Tran, recently did an interview with CFO, the Website (Katz, 2014). In this interview, Tran mentioned that she could use the structured data to create the standard reports, but she could incorporate the unstructured information to be able to drill down that overarching financial information into key performance indicators (KPIs). These KPIs ranged from employees' motivations aligning with company success, to peak and pit web visit times in different continents. Tran also mentioned that she feels as though the "finance is the natural gatekeeper of data, as information normally flows through that function", and suggests that accountants become more comfortable with statistics and decision science, in order to make themselves better at making the information attainable to their business counterparts. Due to these shortcomings, there is an opportunity for recent graduates to use their data analytics skills to advance within their accounting careers.

CONCLUSION

Overall, it is evident that we are in the middle of a huge shift in the accounting profession. Gone are the days of number crunching and Excel formatting, as there are computer programs that can handle all of that without human interaction. What we need now is to keep accounting relevant and accurate by staying at pace with industry. As technology is able to become more predictive, so should those who deal with the financing and/or auditing of that technology. As Siena students prepare to enter the field, whether it be into Public, Private or Governmental Accounting, they are now expected to have a background in information technology and data analytics. In our review of peer academic institutions, we were pleased to note that Siena is doing an effective job of being on the front end of that shift and incorporating information systems and data analytics into the accounting curriculum that will be applicable in the advancement of an accountant's career. The most overarching theme of all of the publication around accounting and data analytics is that accounting professionals need to expect to be more well-rounded members of the business community. Not only is it important to know financial statements and reporting, but also how that information strategically impacts the company as a whole. Both qualitative and quantitative information, structured and unstructured data, is becoming readily available and pertinent to companies going concern, and it is becoming the role of the accountant in every facet to make that attainable to the rest of their firm or company.

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To be the standard of educational excellence for a diverse learning community developing business minds for today and the future.

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