Volume 3, Number 1

Print ISSN: 2574-0369
Online ISSN: 2574-0377

GLOBAL JOURNAL OF BUSINESS DISCIPLINES

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SOCIAL MEDIA USAGE AND TROLLING: A LONGITUDINAL INVESTIGATION OF UNDERGRADUATE BUSINESS STUDENTS

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ABSTRACT

The rise of online social media participation and, in particular, its use as a source of news, has recently brought new light upon the problems associated with trolling. Because undergraduate business students will be the managers of social media in the near future, this two-year study was undertaken to empirically examine the trends relative to student trolling. Results demonstrate that although there are variances by social media provider, both the percentage of students being trolled and the quantity of trolling incidents per student are decreasing. In addition, both gender and minutes utilizing social media were correlated with the volume of trolls received. Males were more likely to be trolled and the more minutes that the student spent on social media, the more trolls he/she would receive. These findings suggest that although trolling may be trending down overall, there are opportunities for improvement both with respect to students and social media providers.

INTRODUCTION

At the end of 2017, Facebook achieved the level of 2.13 billion monthly active users (Kirkpatrick, 2018). This is noteworthy given the January 2016 Pew Research Center survey of 4,654 U.S. adults that found 62% get news on social media (Gottfried and Shearer, 2016). In particular, 66% of Facebook users get news on the Facebook site, 59% of Twitter users get news on Twitter, and 70% of Reddit users get news on Reddit. Overall, 52% of site news viewers were male and 48% were female.

Unfortunately, this aspect of social media is seeing the effects of trolling. The Merriam-Webster dictionary defines trolling as "to antagonize (others) online by deliberately posting inflammatory, irrelevant, or offensive comments or other disruptive content" (2018). Trolls, those who commit these acts, may be classified into several types. There are insult trolls, persistent debate trolls, show-off trolls, profanity trolls, grammar trolls, and so on (Moreau, 2018).

Trolling has been problematic both internationally and domestically for the U.S. For example, over 200,000 tweets were reportedly made by Russian trolls to infiltrate the conversations of millions of U.S. citizens prior to the 2016 presidential election (Popken, 2018). In February 2018, a troll farm in St. Petersburg, Russia, known as the Internet Research Agency, was indicted by the U.S. government (Chen, 2018). The IRA was charged with creating fake social media accounts and groups during the 2016 election using fabricated U.S. identities. Through

these accounts, the IRA organized hostile political rallies in various U.S. cities, purchased antagonistic political ads, and posted derogatory information about presidential candidates. The IRA's goal was to interfere with the political opinions of U.S. voters via social media. In addition, a March 2018 report from the U.S. House of Representatives Science, Space and Technology Committee found that between 2015 and 2017, more than 9,000 posts and tweets dealt with U.S. energy policy were produced by 4,334 Facebook, Twitter, and Instagram accounts controlled by the same troll farm (Timberg and Romm, 2018).

Moreover, a December 2016 Pew Research Center survey of 1,002 U.S. adults found that 64% believe that fabricated news stories cause a great deal of confusion about the basic facts of current issues and events (Barthel, Mitchell and Holcomb, 2016). Often published with the simple click of "Tweet," the same news stories can also cost investors and companies millions of dollars, with hackers infiltrating social media accounts to post false narratives. For example, in 2013, a hacked post on the Associated Press' Twitter feed exclaimed that President Obama was injured in an explosion at the White House (Cheo, 2018). The U.S. stock market responded with a $130 billion loss, which was subsequently recovered. In another instance, on January 29, 2013, messages were posted to Twitter falsely stating that the Department of Justice was investigating the computer hardware manufacturer Audience, Inc. (Melendez, 2013). Shortly thereafter, the company's stock value dropped by more than 25%. Similarly, two days later, faked tweets about a pharmaceutical company coincided with a sudden 9% drop in its value.

Interestingly, an Omnibus survey found that although only 45% of U.S. adults have heard of the term "troll," 28% admitted to malicious online activity directed at someone that he/she did not know (Gammon, 2014). Of those who have ever posted content, 23% acknowledge to having maliciously argued over an opinion with a stranger and 23% maliciously argued over facts. Overall, males were more likely to get into a malicious argument than females and millennials were twice as likely as those aged 55+ to engage in trolling behavior.

Twitter appears to be a popular vehicle for the troll. A study analyzing 134,000 offensive social media posts found that 88% occurred on Twitter, suggesting that it may be one of the worst social media platforms for online bullying and trolling (Fearn, 2017). Twitter, however, has been making adjustments. In 2017, Twitter updated the process for users to report abusive tweets, stopped the creation of new abusive accounts, implemented safer search results, collapsed abusive or low-quality tweets, and reduced notifications from conversations started by individuals that users have been blocked or muted (Ho, 2017). In addition, in April of 2018, Mark Zuckerberg, Chairman and CEO of Facebook, announced that 20,000 individuals will be working on security and content review at Facebook by the end of 2018 (Steinmetz, 2018).

However, individuals and organizations interested in using social media may be lacking in systematically assessing the vulnerabilities in social media technologies and development of a comprehensive set of best practices describing how to address those vulnerabilities (Chamales, 2013). As a result, this study was conducted to empirically examine the trends regarding the trolling of undergraduate business students, those individuals that will be using and managing social media upon his/her entrance into and during his/her career in the business world. This research was conducted to examine several questions. What are the primary social media sites utilized and are there trends? What is the incidence of trolling within each site both in terms of

the percent of students and volume of trolls? Is there a relationship between factors such as gender, academic class, and time spent on social networking relative to the volume of trolls received? Results are important given that business students are the future business professionals that will be entrusted in protecting organizational resources. Ultimately, these findings will be helpful in determining if students are adequately prepared to face these challenges when they enter the corporate workforce. Moreover, results may be useful for social media companies in better understanding their customers' behavior.

PREVIOUS RESEARCH

Previous research studies have examined the importance of social networking and the characteristics of online comments. In addition, researchers have conducted studies that relate to mood, empathy, and online video gaming.

As a baseline to better understand undergraduate business student online attitudes and behavior, the authors conducted an exploratory study. Results showed 65% of undergraduate business students felt that social networking is either somewhat or very important to them (Case and King, 2012). A much larger percentage of females versus males, 18% versus 12%, however, indicated that social networking is very important. Within each academic class, roughly one-half of the undergraduates indicated that social sites are somewhat important to them. Although 25% of freshmen indicated that social sites are very important to them, only 10% of seniors, however, felt that social networking is very important. In terms of behavior, nine of every 10 students indicated visiting social sites with freshmen spending 20.2 hours, sophomores spending 15.7 hours, juniors spending 10.6 hours, and seniors spending 15.4 hours each week visiting social sites. Facebook was used for an average of more than 2 hours per day or 15.3 hours per week per student. In terms of Twitter, students indicate spending 11.7 hours per week sending tweets (204 tweets per week) and 13.1 hours receiving tweets (554 per week).

Another study examined the characteristics of 40 million posts made by 1.7 million users of news (CNN.com), politics (Breitbart.com), and gaming (IGN.com) sites during a period of 18 months (Pullen, 2015). Users were classified as future-banned users (FBUs), also known as trolls, and never-banned-users (NBUs). Each FBU's behavior was monitored from the time he/she signed up until the time he/she was shut out. Results demonstrated that FBUs wrote differently than others, often going off-topic, scribbling posts that were more difficult to read, and making more comments. In addition, trolls made more comments per day, posted more times on each thread, often had the most posts in a particular thread, and made more replies to other comments. Longitudinally, although NBUs had posts deleted, only a small proportion got worse over the course of the study while the trolls, on the other hand, had an increasing amount of posts deleted as time wore on.

Interestingly, utilizing three methods of research, a team at Stanford University and Cornell University found that under the right conditions, just about anyone can become an Internet troll (Kubota, 2017). First, a two-part experiment utilizing tests with varying degrees of difficulty and subsequent commenting on an article found that 35% of individuals that completed the easy test and saw neutral posts subsequently posted troll comments of his/her own. This increased to 50%

if the subject either took the hard test or saw trolling comments and posting further increased to 68% for those exposed to both the difficult test and the troll posts. Second, an analysis of CNN's comment section discussions and posts indicated that time of day and day of week correspond with mood and trolling. Incidents tend to increase late at night and early in the week, which is also when individuals are most likely to be in a bad mood. Third, a machine-learning algorithm found that the flag status of the previous post in the discussion was the strongest predictor of whether the next post would be flagged. Mood-related features, such as timing and previous flagging of the commenter, were far less predictive.

March (2017), on the other hand, examined cognitive empathy, the ability to recognize and understand other individual's emotions, and affective empathy, the ability to experience and internalize other individual's emotions, with respect to trolling. Using a sample of 415 online participants, the relationships between both forms of empathy and common trolling behaviors (for example, "although some people think my posts/comments are offensive, I think they are funny") were assessed. Findings indicated that individuals who were more likely to troll had significantly lower levels of affective empathy and those with high levels of cognitive empathy and psychopathic traits were more likely to troll. Thus, for a troll, the high level of cognitive empathy indicates he/she is very good at understanding what hurts others and the high level of psychopathy means he/she simply does not care.

Finally, Thacker and Griffiths (2014) examined trolling in online video gaming. An online survey of 125 self-selected gamers found that trolls tended to play longer gaming sessions and that frequent trolls were significantly younger and male. The most common trolling types included griefing, sexism/racism, and faking/intentional fallacy. Moreover, the primary reasons for trolling included amusement, boredom, and revenge. With respect to self-esteem, witnessing trolling was positively associated and experiencing trolling was negatively associated. Finally, researchers found that experience with trolling was positively correlated with frequency of trolling.

RESEARCH DESIGN

This study employs a survey research design. The research was conducted at a private, northeastern U.S. university. A Student Internet Troll instrument was developed by the authors and administered to undergraduate students enrolled in a School of Business course. The courses included a variety of subjects such as Business Information Systems, Introduction to Financial Accounting, Introduction to Marketing, Macroeconomics, and Business Policy. A convenience sample of class sections and faculty members was selected. The surveys were collected each semester during a two-year, four-consecutive semester period (from Fall 2016 through Spring 2018) in academic classrooms. To ensure consistency, the same questions were asked during each of the semesters.

The survey instrument was utilized to collect student demographic data such as gender and academic class. In addition, the survey examined student Internet behavior regarding online social media sites. Students were asked to estimate the average number of minutes spent daily on fourteen social media sites and list any other social networking sites used by the student. Moreover, students were prompted to estimate the number of times that he/she had been trolled on

each site during the past six months. Results were summarized by social media site and correlations were calculated to determine potential relationships between study factors (i.e., gender, academic class, and social media usage minutes) and the quantity of trolling incidences.

Because of the sensitivity of the subject and to encourage honesty, no personally-identifiable data were collected and respondents were informed that surveys were anonymous, participation was voluntary, and responses would have no effect on his/her course grade. As a result, the response rate was nearly 100 percent.

RESULTS

A sample of 764 usable surveys was obtained. Table 1 indicates that 65% of the respondents were male and 35% were female. This 65/45 ratio has remained fairly consistent over the identified four-semester period.

Table 1. Gender Response Rate by Academic Semester

	Fall 2016	**Spring 2017**	**Fall 2017**	**Spring 2018**	**Total**
Male	64%	64%	66%	65%	65%
Female	36%	36%	34%	35%	35%
Count	238	205	171	150	764

The response rate by academic class is relatively equally distributed. Table 2 illustrates that 18% of respondents were freshmen, 31% were sophomores, 24% were juniors, and 27% were seniors.

Table 2. Academic Class Response Rate by Academic Semester

	Fall 2016	**Spring 2017**	**Fall 2017**	**Spring 2018**	**Total**
Freshmen	12%	30%	11%	20%	18%
Sophomore	35%	22%	27%	43%	31%
Junior	24%	24%	20%	25%	24%
Senior	29%	24%	42%	11%	27%

Responses were first examined with respect to the percentage of students using the various social media sites per semester. Although 14 sites were provided on the survey instrument, each respondent was prompted to list any "other" social media sites that he/she utilized. The "other" sites named included WhatsApp, Barstool, Wall Street Oasis, Tinder, Trello, and VSCO. Table 3 illustrates that in the Fall of 2016, 94% of students used Snapchat, 89% used Instagram, 82% used Facebook, 76% used Twitter, 67% used YouTube, 24% used LinkedIn, 20% used Pinterest, 10% used Google+, 6% used Reddit, 5% used YikYak, 3% used Tumblr, 3% used Other, 1% used 4chan, and zero students used 8chan or Voat. In terms of social media site utilization percentage of students by semester, four social media providers decreased. Snapchat decreased from 94% to 89% of students, Facebook decreased from 82% to 68% of students, Pinterest decreased from 20%

to 14% of students, and YikYak decreased from 5% to 1% of students. Nine social media sites increased in percentage of students. Instagram increased from 89% to 90% of students, Twitter increased from 76% to 78% of students, YouTube increased from 67% to 72% of students, LinkedIn increased from 24% to 35% of students, Google+ increased from 10% to 13% of students, Reddit increased from 6% to 9% of students, Tumblr increased from 3% to 7% of students, Other increased from 3% to 4% of students, and 4chan increased from 1% to 2% of students. Overall, nearly all respondents indicated using at least one social media site during each of the study semesters.

Table 3. Percent of Students Using Social Media by Semester

Social Media Site	Fall 2016	Spring 2017	Fall 2017	Spring 2018
Snapchat	94%	91%	94%	89%
Instagram	89%	84%	89%	90%
Facebook	82%	83%	78%	68%
Twitter	76%	73%	78%	78%
YouTube	67%	72%	73%	72%
LinkedIn	24%	35%	29%	35%
Pinterest	20%	20%	15%	14%
Google+	10%	13%	11%	13%
Reddit	6%	9%	9%	9%
Tumblr	3%	5%	4%	7%
YikYak	5%	3%	1%	1%
Other	3%	1%	4%	4%
4chan	1%	1%	1%	2%
8chan	0%	0%	0%	0%
Voat	0%	0%	0%	0%
Overall Average	100%	99%	100%	99%

Table 4 presents the volume of minutes per day that a student indicated he/she used each social media site for each of the study semesters. In the Fall of 2016, for example, users of each of the social media venues reported spending 42 minutes per day on Snapchat, 43 minutes on Instagram, 32 minutes on Facebook, 44 minutes on Twitter, 38 minutes on YouTube, 12 minutes on LinkedIn, 30 minutes on Pinterest, 24 minutes on Google+, 30 minutes on Reddit, 17 minutes on Tumblr, 10 minutes on YikYak, 36 minutes on Other, and 10 minutes on 4chan. By the Spring of 2018, the number of minutes per day on Snapchat increased by 20 minutes, Instagram increased by 7 minutes, Facebook decreased by 2 minutes, Twitter increased by 4 minutes, YouTube increased by 9 minutes, LinkedIn increased by 2 minutes, Pinterest decreased by 6 minutes, Google+ remained the same, Reddit increased by 1 minute, Tumblr increased by 1 minute, YikYak decreased by 10 minutes, Other increased by 55 minutes, and 4chan increased by 23 minutes. Overall, the average minutes per day increased from 176 minutes (nearly 3 hours) to 210 minutes (3.5 hours), an increase of 19%.

Table 4. Minutes Per Day Utilizing Social Media by Semester

Social Media Site	Fall 2016	Spring 2017	Fall 2017	Spring 2018
Snapchat	42	50	50	62
Instagram	43	40	42	50
Facebook	32	37	26	30
Twitter	44	44	41	48
YouTube	38	47	39	47
LinkedIn	12	10	9	14
Pinterest	30	22	18	24
Google+	24	35	31	24
Reddit	30	30	42	31
Tumblr	17	16	10	18
YikYak	10	21	0	0
Other	36	40	56	91
4chan	10	60	100	33
8chan	0	0	0	0
Voat	0	0	0	0
Overall Average	176	190	177	210

Next, the percentage of students receiving trolls at each social media site was examined by semester (Table 5). In the Fall of 2016, the highest percentage of site users being trolled included YikYak (42% of users) and Twitter (31% of users). Lesser trolled sites included Instagram (19% of users), Facebook (14% of users), other (14% of users), and Snapchat (13% of users). The least trolled users included YouTube (7% of users), Reddit (7% of users), Google+ (4% of users), and LinkedIn (2% of users). All other users reported not being trolled. By Spring of 2018, Snapchat increased to 18%, Instagram decreased to 15%, Facebook decreased to 13%, Twitter decreased to 27%, YouTube decreased to 5%, LinkedIn decreased to 0%, Pinterest remained the same, Google+ decreased to 0%, Reddit increased to 15%, Tumblr remained the same, YikYak increased to 100%, Other increased to 17%, 4chan remained the same, 8chan remained the same, and Voat remained the same. Overall, the average of students receiving any troll decreased from 41% to 35% of students.

Table 5. Percent of Students Trolled by Semester

Social Media Site	Fall 2016	Spring 2017	Fall 2017	Spring 2018
Snapchat	13%	13%	16%	18%
Instagram	19%	14%	16%	15%
Facebook	14%	15%	17%	13%
Twitter	31%	23%	23%	27%
YouTube	7%	3%	3%	5%
LinkedIn	2%	4%	4%	0%
Pinterest	0%	8%	8%	0%
Google+	4%	8%	6%	0%
Reddit	7%	21%	19%	15%
Tumblr	0%	10%	14%	0%
YikYak	42%	67%	0%	100%
Other	14%	100%	0%	17%
4chan	0%	100%	100%	0%
8chan	0%	0%	0%	0%
Voat	0%	0%	0%	0%
Overall Average	41%	33%	35%	35%

The quantity of trolls received for only those individuals that were trolled is presented in Table 6. In Fall of 2016, the social media sites that individuals were most actively trolled included Snapchat (5.8 incidences per user during the semester), Instagram (5.8 incidences per user during the semester), Facebook (5.7 incidences per user during the semester), YouTube (5.4 incidences per user during the semester), Twitter (5.3 incidences per user during the semester), and Reddit (5.0 incidences per user during the semester). The lesser trolled sites included YikYak (3.2 incidences per user during the semester), Google+ (2.0 incidences per user during the semester), LinkedIn (1.0 incidences per user during the semester), and Other (1.0 incidences per user during the semester). There were no incidences for users of Pinterest, Tumbler, 4chan, 8chan, and Voat. By Spring of 2018, Snapchat increased to 15.2, Instagram increased to 8.4, Facebook decreased to 3.6, Twitter decreased to 5.2, YouTube increased to 8.4, LinkedIn decreased to 0, Pinterest remained the same, Google+ decreased to 0, Reddit increased to 26.0, Tumblr remained the same, YikYak increased to 5.0, Other increased to 10, 4chan remained the same, 8chan remained the same, and Voat remained the same. Overall, the number of incidences per student decreased from 19.9 to 16.7 during the study period.

Table 6. Quantity of Trolls for Only Students Trolled by Semester

Social Media Site	Fall 2016	Spring 2017	Fall 2017	Spring 2018
Snapchat	5.8	10.0	5.7	15.2
Instagram	5.8	6.3	4.8	8.4
Facebook	5.7	12.6	3.2	3.6
Twitter	5.3	8.6	6.8	5.2
YouTube	5.4	24.6	2.3	8.4
LinkedIn	1.0	3.7	10.5	0.0
Pinterest	0.0	18.0	3.5	0.0
Google+	2.0	5.0	3.0	0.0
Reddit	5.0	3.0	36.0	26.0
Tumblr	0.0	0.0	5.0	0.0
YikYak	3.2	25.5	0.0	5.0
Other	1.0	33.7	0.0	10.0
4chan	0.0	50.0	100.0	0.0
8chan	0.0	0.0	0.0	0.0
Voat	0.0	0.0	0.0	0.0
Overall Average	19.9	24.7	13.6	16.7

Finally, Spearman Rho correlations were calculated to determine if there are correlations between study factors (gender, academic class, and social media usage minutes) and the quantity of troll that each student received. As indicated in Table 7, gender and user minutes spent using social media each had a statistically significant correlation (significant at the .01 level) to the quantity of trolls that one receives. In other words, males were more likely to receive trolls and the more time spent on social media increased the likelihood of being trolled. There was no significant correlation regarding academic class and trolling volume.

Table 7. Spearman Rho Correlations Between Study Variables and Troll Volume Per Student

Study Factor	Troll Volume
Gender	.140**
Academic Class	-.015
Minutes Using Social Media	.110**

* Correlation is significant at .05 level (2-tailed).

** Correlation is significant at .01 level (2-tailed).

CONCLUSIONS, IMPLICATIONS, AND LIMITATIONS

Results illustrate that for every semester of the study, there are five sites that are used by most students. These include Snapchat (89-94% of students per semester), Instagram (84-90% of students per semester), Facebook (68-82% of students per semester), Twitter (73-78% of students per semester), and YouTube (67-73% of students per semester). LinkedIn and Pinterest are used by considerably less students, 24-35% per semester and 14-20% per semester, respectively. The remaining sites were not commonly used by undergraduates. The least utilized social media sites

are Google+ (10-13% of students per semester), Reddit (6-9% of students per semester), Tumblr (3-7% of students per semester), YikYak (1-5% of students per semester), Other (1-4% of student per semester s), 4chan (1-2% of students per semester), 8chan (0% of students per semester), and Voat (0% of student per semester). Overall, the percentage of students using social media each semester was between 99-100% of students.

The time spent using social media was relatively consistent among social media platforms. However, minutes per day varied by semester for Snapchat (42-62 minutes), Instagram (40-50 minutes), Facebook (26-37 minutes), Twitter (41-48 minutes), YouTube (38-47 minutes), LinkedIn (9-14 minutes), Pinterest (18-30 minutes), Google+ (24-35 minutes), Reddit (30-42 minutes), Tumblr (10-18 minutes), YikYak (0-21 minutes), Other (36-91 minutes), and 4 chan (10-100 minutes). Overall, the average minutes per day increased from 176 minutes to 210 minutes from Fall 2016 to Spring 2018.

An examination of trolling finds that in terms of the percent of students that were trolled, Snapchat had 13-18% of users per semester trolled, Instagram had 14-19% of users per semester trolled, Facebook had 13-17% of users per semester trolled, Twitter had 23-31% of users per semester trolled, YouTube had 3-7% of users per semester trolled, LinkedIn had 0-4% of users per semester trolled, Pinterest had 0-8% of users per semester trolled, Google+ had 0-8% of users per semester trolled, Reddit had 7-21% of users per semester trolled, Tumblr had 0-14% of users per semester trolled, YikYak had 0-100% of users per semester trolled, Other had 0-100% of users per semester trolled, and 4 chan had 0-100% of users per semester trolled. Relative to trolling volume per semester, Snapchat users had 5.7-15.2 incidences, Instagram users had 4.8-8.4 incidences, Facebook users had 3.2-12.6 incidences, Twitter users had 5.2-8.6 incidences, YouTube users had 2.3-24.6 incidences, LinkedIn users had 0-10.5 incidences, Pinterest had 0-18 incidences, Google+ had 0-5 incidences, Reddit had 3-36 incidences, Tumblr had 0-5 incidences, YikYak had 0-25.5 incidences, Other had 0-33.7 incidences, and 4 chan had 0-100 incidences. Overall, the percentage of student trolled decreased from 41% to 35% and the quantity of trolling incidents decreased from 19.9 to 16.7 from Fall 2016 to Spring 2018.

Moreover, a correlation analysis suggests that gender and minutes using social media are related to the quantity of trolls received. Males were trolled more often than females and the more minutes that one spent on social media, the more trolls one received. The gender correlation is consistent with the Omnibus study that found males were more likely to engage in malicious arguments and engage in trolling.

Implications

There are two important implications from these findings:

1. One implication is with respect to the trends in trolling. Although it is troubling that more than one-third of undergraduate business students are being trolled, the percentage of students trolled and volume of trolls received per student are both declining. Chart 1 illustrates for four of the five primarily utilized social media sites, only one platform, Snapchat, increased as a percentage of students trolled. Overall, the percentage of students that received trolls decreased by 15% during the two-year study. Given that there is a

correlation between minutes spent on social media and the likelihood of trolling and that total social media minutes are increasing per student but the percentage of students being trolled is decreased, several conclusions may be surmised. It is possible, for example, that students may be exhibiting more responsible social behavior thus not inciting another user to troll him/her. Moreover, students may be exercising more self-control when prompted to engage in a trolling war. And, students may be becoming less perceptive, numb, or ignorant to being trolled. If ignorance is found to be the issue, as may have been a factor in the 2016 U.S. presidential election, further education may need to be implemented to combat this dangerous problem.

2. A second implication relates to differences with respect to trolling volume per social media provider. Chart 2 illustrates that for three of the five primary social media sites, the quantity of trolls has increased. Snapchat troll volume increased by 162%, Instagram increased by 62%, and YouTube increased by 35%. However, the overall troll quantity for all sites decreased by 15%. On the other hand, Facebook and Twitter troll volume decreased by 33% and 2%, respectively. This suggests that trolling is platform specific and that owners of several sites need to be more vigilant. As previously described in the introduction, both Facebook and Twitter have been actively addressing negative user behavior. This study provides evidence that these efforts may be working. Consequently, there may be opportunities for other providers. Snapchat management, for example, may want to consider implementing more effective trolling policies and better enforcing controls given that the percentage of students trolled increased by an astounding 38% and the quantity of trolls received per student nearly tripled in two years.

Chart 1. Percent of Students Trolled Trends

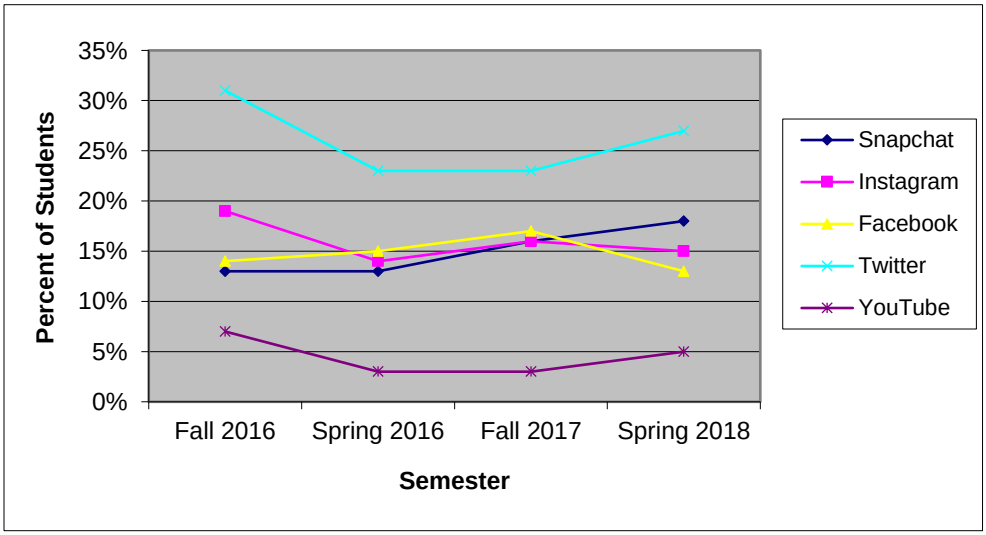
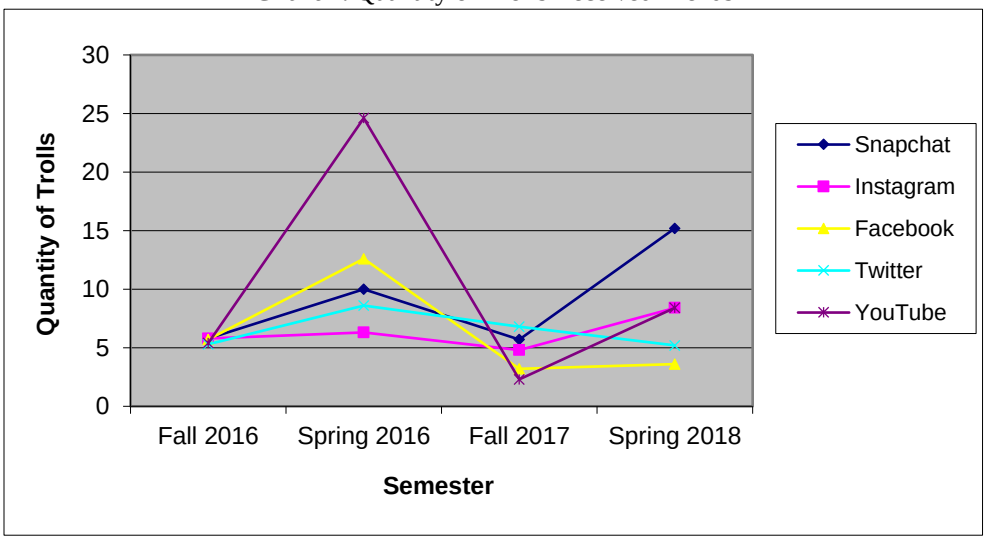


Chart 2. Quantity of Trolls Received Trends



LIMITATIONS

The limitations of this study are primarily a function of the sample, sample distribution, and type of research. The use of additional universities and more equal distribution among academic class and gender would increase the robustness of results. Another limitation relates to the self-reported nature of the survey. Future research is needed to explore how gender affects behavior and to explore which measures in the education process may be most effective in promoting positive online social network behavior. Overall, however, the study provides rich insight into social media trolling trends.

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APPENDIX (SURVEY INSTRUMENT)

This survey is designed to study the incidence of trolling. A troll is a person who sows discord on the Internet by starting arguments or upsetting people, by posting inflammatory, extraneous, or off-topic messages in an online community with the deliberate intent of provoking readers into an emotional response. It can be equated with online harassment. All responses are anonymous and will be used solely for research correlation purposes. ***You may choose not to answer any questions in the survey*** that you do not feel comfortable answering, although your full response to this survey is appreciated. By filling in this survey, you are giving your consent to act as a respondent. You must be 18 years of age or older to participate and ***you may opt out of the survey at any time***.

Class: ___ Freshman
___ Sophomore
___ Junior
___ Senior
___ Graduate

Gender: ___ Male ___ Female

School of Major: ___Business ___Education, ___Arts/Sciences, ___Comm, ___Franciscan Studies

	Average **minutes per day** using	# of times "**you**" have been trolled in past 6 months
Facebook		
Twitter		
Instagram		
Pinterest		
Snapchat		
Tumblr		
Reddit		
Google+		
LinkedIn		
Voat		
YikYak		
4chan		
8chan		
YouTube		
Other Social Media (specify)		

THE ACCEPTABILITY OF ONLINE DEGREES FOR OBTAINING ENTRY-LEVEL EMPLOYMENT IN THE ACCOUNTING PROFESSION: A THEORETICAL FRAMEWORK

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ABSTRACT

Current research shows employers at the pinnacle of the accounting profession, certified public firms, show a disinclination to hire graduates of online programs, even when they possess the Certified Public Accountant (CPA) credential. Institutional theory is ideally suited to explain the tendency of accountants to restrict hiring to graduates of traditional face-to-face programs rather than online programs because of its consideration of legitimacy concerns and normative pressures to do things in an accepted and traditional fashion. Institutional theory attempts to explain how organizations gain and keep legitimacy to survive and prosper by adhering to normative structures. However, it does not attempt to explain how institutions emerge and evolve. Therefore, the system theory of professions serves to provide a stronger theoretical framework than institutional theory can provide alone when studying the acceptability of online degrees for obtaining entry-level employment in the accounting profession.

INTRODUCTION

Current research shows that employers at the pinnacle of the accounting profession, certified public firms, show a disinclination to hire graduates of online programs, even when they possess the Certified Public Accountant (CPA) credential (Kohlmeyer et al., 2011; Tabatabaei et al., 2014). Institutional theory supports this disinclination by employers at certified public firms because it suggests the survival and success of organizations depends on adhering to the rules and norms that facilitate its interaction with other organizations and gives legitimacy to its operations (Kilfoyle & Richardson, 2011). However, employment at certified public firms is but one option for accounting graduates. The accounting profession is not homogenous, as its members are employed in public accounting, business and industry groups, government, education, and not-for-profit organizations of various sizes. Unique clients with needs distinct to their particular trades compose each of these employment settings (American Accounting Association [AAA], 2012). The system theory of professions is the structure that links professions with specific work tasks. The classic study on the system theory of professions by Abbott (1988) supports the hypothesis that there will be differentiation within any given profession, such as accounting.

Employers at certified public accounting firms may have a reluctance to hire graduates of online programs but existing research is limited given it has not addressed the full range of employment settings (Bristow et al., 2011; Metrejean & Noland, 2011) even with the increasing numbers of students pursuing online accounting degrees (Kohlmeyer et al., 2011; Sellers et al.,

2012; Tabatabaei et al., 2014). While debate continues regarding the comparative quality of online and traditional learning, not enough is known about the likelihood of being recruited for entry-level employment based on education mode (Bristow et al., 2011) and whether this likelihood differs based on employment setting (Metrejean & Noland, 2011) and if any interaction exists between these two variables. Institutional theory is ideally suited to explain this tendency of accountants to restrict hiring to graduates of traditional face-to-face programs rather than online programs because of its consideration of legitimacy concerns and normative pressures to do things in an accepted and traditional fashion (Sellers, Fogarty, & Parker, 2012). Nevertheless, accountants fill a wide range of positions across all employment settings, and the desired qualifications differ across these roles (AAA, 2012). Such differences among employment settings, as supported by the system theory of professions (Abbott, 1988), may determine whether job applicants are scrutinized differently during the hiring process, particularly with regard to education mode. Due to increased demands by employers seeking accounting graduates and the continued growth of online programs, identification of the employment settings favorable to graduates with online accounting degrees is needed (Kohlmeyer et al., 2011; Metrejean & Noland, 2011; Tabatabaei et al., 2014) and can serve to examine internal differentiation within the profession.

THEORETICAL FRAMEWORK

Research in accounting is concerned with solving problems, investigating relationships, and building a body of knowledge. While the actual practice of accounting is generally of less theoretical interest, questions such as why organizations make particular choices are of theoretical interest because it is helpful to know the reasons underlying the choice (Wolk, Dodd, & Rozycki, 2013). Most theory in accounting research does not originate in the accounting literature. Rather, it emerges from economics, finance, behavioral, and sociology literatures. Accounting researchers look at developments in economics, finance, sociology, psychology, and organizational behavior for sources of testable theory applicable in an accounting environment (Smith, 2011).

Examples of theories borrowed from these disciplines include agency theory, signaling theory, stakeholder theory, legitimacy theory, institutional theory, and sociological and linguistic theories (Smith, 2011). Three popular theory streams exist in the accounting literature. The first is microeconomic theory, which researchers apply to financial accounting through agency theory, and to management accounting through production economics. The second is behavioral accounting theory, which researchers develop through the application of sociology, cognitive psychology, and decision theory. The third is organization theory, which researchers apply in the form of contingency theory and systems theory (Smith, 2011). Accounting researchers rarely recognize theories in accounting as "real" theories. Rather, they accept the adequacy of theories drawn from other disciplines (Malmi & Granlund, 2009).

Gong and Tse (2009) argued that researchers should not focus on developing all-purpose theories or one-size-fits-all integrative frameworks. Rather, they should acknowledge the existence of contradictions in organizations and use different theories to portray the whole picture from multiple perspectives. Therefore, this theoretical framework looks at the accounting

profession through two lenses by using institutional theory and the system theory of professions from the sociology of professions literature to gain insight into the educational preparation issues facing the profession. Institutional theory and the system theory of professions provide a useful framework for studying the acceptability of online degrees for obtaining entry-level employment across various positions in the accounting profession.

Institutional Theory

Institutional theory focuses on the establishment of institutions through interactions between individuals, organizations, and society. Institutional theory is a popular theory for explaining choices based on institutional pressures experienced by organizations. This theory explains the process of institutionalization by which rules, norms, or routines became guidelines for social behavior (Gong & Tse, 2009). Institutional theory attempts to explain how firms seek legitimacy from their stakeholders (Malmi & Granlund, 2009). Institutionalism ties the practices of organization leaders (e.g., accounting practitioner hiring decisions) to social norms and their need to interact successfully with other entities in society (Guerreiro, Rodrigues, & Craig, 2012). Institutional theory supports the hypothesis that the survival and success of organizations depends on adhering to the rules and norms that facilitate its interaction with other organizations and gives legitimacy to its operations (Kilfoyle & Richardson, 2011).

Legitimacy is important to achieve and preserve because it signals that the organization is a significant and trustworthy exchange partner. Legitimacy is vital to organizations, professions, and academic disciplines. Rynes and Brown (2011) offered several benefits associated with achieving legitimacy: (a) continued existence; (b) power, influence, and resource acquisition; (c) high-status association; and (d) receipt of societal support. A high level of institutional legitimacy provides better members, leaders, partners, resources, favors, and concessions (Rynes & Brown, 2011). Institutional theory, with a focus on legitimacy, could make appropriate interpretations of business activities. Because institutional theory is a system-oriented theory, it is especially useful in social contexts (Chen & Roberts, 2010).

Institutional theory suggests that decisions may be made for many non-profit maximizing reasons, such as tradition, prestige, university attended, or style of dress (DiMaggio & Powell, 1983). Employers are likely responding to norms and traditions regarding the preferred educational background of prospective employees. Failure to uphold such norms carries risks of sanctions from other members of the accounting profession. Institutional theory contends that to interact successfully with industry peers, firms must maintain a status of legitimacy (DiMaggio & Powell, 1983). Firms may be wary of hiring online accounting graduates because of the fear that their legitimacy may experience negative affects by having graduates of online schools with little prestige representing the firm to its customers and suppliers.

Early studies using institutional theory mostly included applications grounded in the public sector, such as public schools, hospitals, and the government. More recently, institutional theory has gained attention from the professions (Sellers et al., 2012). With its consideration of legitimacy concerns and normative pressures to do things in an accepted and traditional fashion, institutional theory is ideally suited to explain the tendency of accountants to restrict hiring to graduates of traditional face-to-face programs in preference to online programs.

Despite the widespread use of institutional theory, there is a significant unanswered question surrounding it that is important to investigate. Institutional theory attempts to explain how organizations gain and keep legitimacy to survive and prosper by adhering to normative structures. However, it does not attempt to explain how institutions emerge and evolve. Institutions cannot exist without prior rules or norms and institutional theory cannot explain the elemental norms themselves (Rynes & Brown, 2011). Institutional theory has a passive conception of how organizations adopt norms and rules. Human agency and resistance to institutional change is a relatively weak area for institutional theory (Rynes & Brown, 2011). Therefore, the system theory of professions serves to provide a stronger theoretical framework than institutional theory can provide alone.

System Theory of Professions

The sociology of professions literature is characterized by well-developed theory supported by extensive research (e.g. Caplow, 1954; Hughes, 1958; Van Maanen & Barley, 1984; Abbott, 1988) distilled into a system theory of professions that captures the essence of professional work (as cited in Somers, 2010). The system theory of professions is the structure that links professions with specific work tasks. Professions are exclusive occupational groups applying somewhat abstract knowledge to particular cases. The distinguishing characteristic of a profession is that its members possess a body of knowledge that establishes them as qualified to control a particular area of work tasks (Abbott, 1988). Accounting is a reputable profession with well-established regulatory bodies that sanction entry criteria. These criteria include passage of the standardized national uniform CPA examination, preceded by completion of a prescribed set of accounting coursework as well as other post-secondary coursework totaling 150 credit hours in most jurisdictions. The state boards of accountancy, charged with protecting the public interest in licensing CPA candidates, are responsible for deciding if students' education, experience, and examination success are sufficient for licensure (Mastracchio, 2008).

The classic study on the system theory of professions by Abbott (1988) supports the hypothesis there will be differentiation within any given profession, such as accounting. The development of internal differences is bound directly to the development of professionalism. Differentiation within the professions means that members of a profession do different things in different workplaces for different clients. The careers of professionals sorted in such ways follow different paths. Thus, the consequences of internal differentiation embody differences in status, clients served, work structure, and career paths. An example of differentiation within a profession based upon a training setting arose early in the twentieth century within the American bar. Night and non-elite day law school graduates dealt with individual matters of land and property jurisdiction. Elite full-time law school graduates, and the large legal firms who hired them, controlled the areas of big business practice as well as extensive areas of governmental practice (Abbott, 1988).

Abbott's (1988) approach directly focuses on differentiation within the professions as a source of occupational change over time, suggesting that the common simplifying assumption of internal homogeneity is problematic. The accounting profession is not homogenous, as its members are employed in public accounting, business and industry groups, government,

education, and not-for-profit organizations of various sizes. Unique clients with needs distinct to their particular trades compose each of these employment sectors. Accountants employed in each of these settings must respond to different challenges as they work to meet the needs of their unique clients, while continuously maintaining regulatory compliance in place for each specific trade (AAA, 2012). Such differences among employment settings, theoretically, would lead to other differences not yet fully studied in the accounting profession, such as whether job applicants are scrutinized differently during the hiring process.

Given the findings in previous studies (e.g. Adams & DeFleur, 2006; Columbaro & Monaghan, 2009; Jeancola, 2011; Kohlmeyer et al., 2011; Tabatabaei et al., 2014; Toppin & Pullens, 2010), it is possible that completion of traditional versus online degree programs constitutes a differentiation within the accounting profession. Varying levels of willingness to hire traditional versus online degree program graduates can establish evidence of this differentiation. The results of existing research (Kohlmeyer et al., 2011; Tabatabaei et al., 2014) inform online degree program graduates that their applications for employment at certified public firms are not likely to be as well received as applications from traditional degree program graduates. However, previous research has not surveyed a larger range of employers, such as those working in private business and industry organizations. Systems are dynamic and existing biases may eventually disappear. Therefore, it is important to test if differentiation exists within the accounting profession.

As online learning continues to experience strong growth, an opportunity exists to use the system theory of professions to examine internal differentiation within the accounting profession. Applying the system theory of professions to the accounting profession will lead to predictions regarding employers' attitudes and perceptions toward online learning. In accordance with the theory describing differentiation within professions as typical (Abbott, 1988), it stands to reason that employers other than certified public firms in the accounting profession may be more accepting of online degree program graduates. Practical benefits of identifying the employment settings most favorable to graduates of online accounting degree programs will be realized.

INSTITUTIONAL THEORY AS A CONCEPTUAL FRAMEWORK

Research in accounting is concerned with solving problems, investigating relationships, and building a body of knowledge. While the actual practice of accounting is generally of less theoretical interest, questions such as why organizations make particular choices are of theoretical interest because it is helpful to know the reasons underlying the choice (Wolk, Dodd, & Rozycki, 2013). Collin, Tagesson, Andersson, Cato, and Hansson (2009) documented two theories in the literature that explained both financial and nonfinancial decisions made by accounting professionals. First, positive accounting theory, which affects the wealth of stakeholders and has connections to agency theory, is a popular theory for explaining and predicting accounting choices intended to enhance efficiency. Second, institutional theory, a sociological theory focused on the establishment of institutions through interactions between individuals, organizations, and society. Institutional theory is a popular theory for explaining choices based on institutional pressures experienced by organizations. This theory explains the process of institutionalization by which

rules, norms, or routines become guidelines for social behavior (Gong & Tse, 2009). Institutional theory attempts to explain how firms seek legitimacy from their stakeholders (Malmi & Granlund, 2009).

Institutional theory focuses on the establishment of institutions through interactions between individuals, organizations, and society. Institutional theory is a popular theory for explaining choices based on institutional pressures experienced by organizations. This theory explains the process of institutionalization by which rules, norms, or routines became guidelines for social behavior (Gong & Tse, 2009). Frandsen and Johansen (2013) describe institutional theory as "a theory about the relationship between organizations and their social environment, and about how this environment in the shape of institutions penetrates, constrains, and changes the organizations" (p. 207). Scott (2008) defines institutions as follows: "Institutions are comprised of regulative, normative, and cultural-cognitive elements that, together with associated activities and resources, provide stability and meaning to social life" (p. 48).

Institutionalism ties the practices of organization leaders (e.g., accounting practitioner hiring decisions) to social norms and their need to interact successfully with other entities in society (Guerreiro, Rodriguez, & Craig, 2012). Institutional theory hypothesizes that the survival and success of organizations depends on adhering to the rules and norms that facilitate its interaction with other organizations and gives legitimacy to its operations (Kilfoyle & Richardson, 2011). Suchman (1995) defined legitimacy as "a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions" (p. 574).

Legitimacy is important to achieve and preserve because it signals that the organization is a significant and trustworthy exchange partner. Legitimacy is vital to organizations, professions, and academic disciplines. Rynes and Brown (2011) offered several benefits associated with achieving legitimacy: (a) continued existence; (b) power, influence, and resource acquisition; (c) high-status association; and (d) receipt of societal support. A high level of institutional legitimacy provides better members, leaders, partners, resources, favors, and concessions (Rynes & Brown, 2011). Yi, Davey, and Eggleton (2011) suggested that legitimacy theory explains the relationship between the organization and society in terms of a "social contract." For social and environment accounting purposes, Chen and Roberts (2010) suggested that institutional theory, with a focus on legitimacy, could make appropriate interpretations of business activities. Ultimately, the choice of theory is dependent on the study's focus. However, because institutional theory is a system-oriented theory, it is especially useful in social contexts (Chen & Roberts, 2010).

Institutional theory aims to explain important features of organizational life. One feature is the tendency for organizations to possess homogeneity of structure (DiMaggio & Powell, 1983). DiMaggio and Powell (1983) describe homogeneity of structure using the term *isomorphism*, borrowed from biology. Isomorphism posits that organizations working within a given environment (i.e., organizational field) tend to resemble other organizations working within the same environment. That is, organizations in similar fields begin to resemble one another over time (DiMaggio & Powell, 1983).

Scholars identified three mechanisms through which institutions influence decision-makers (DiMaggio and Powell, 1983; Collin et al., 2009). First, the *coercive mechanism* operates when

entities outside the organization, such as government agencies or suppliers of key resources, force the organization to adopt certain behaviors. If decision-makers in a target organization fail to structure themselves in a certain way, the organization may not have access to the resources it needs or may face other sanctions. The force exerted may be formal or less explicit and subtle. Second, the *mimetic mechanism* occurs when organizations are operating in an environment of uncertainty. Organizations will imitate other organizations that they perceive as successful and possessing legitimacy. The imitating organization adds to its repertoire behaviors seen as effective and acceptable. Third, the *normative mechanism* is effective primarily through the professions. Professions are subject to the same coercive and mimetic influences as organizations. In addition, professional knowledge can be a basis for organizational action. Professions have norms, which influence the behavior of members of the profession. Norms create obligations, provide a basis for evaluation, and engender feelings of obligation. While the criticisms of a profession are classic examples of the normative mechanism, institutional theory also includes all normative pressures on individuals as well (DiMaggio and Powell, 1983; Collin et al., 2009).

Institutional theory focuses on the establishment of institutions through interactions between individuals, organizations, and society. Institutional theory is a popular theory for explaining choices based on institutional pressures experienced by organizations. This theory explains the process of institutionalization by which rules, norms, or routines became guidelines for social behavior (Gong & Tse, 2009). Institutional theory attempts to explain how firms seek legitimacy from their stakeholders (Malmi & Granlund, 2009). Institutionalism ties the practices of organization leaders (e.g., accounting practitioner hiring decisions) to social norms and their need to interact successfully with other entities in society (Guerreiro, Rodrigues, & Craig, 2012). Institutional theory supports the hypothesis that the survival and success of organizations depends on adhering to the rules and norms that facilitate its interaction with other organizations and gives legitimacy to its operations (Kilfoyle & Richardson, 2011). This study looked at the accounting profession through the lens of institutional theory to gain insight into the educational preparation issues facing the profession.

INSTITUTIONAL THEORY IN PRACTICE

Institutional theory adds to the understanding of the acceptability of online degrees for obtaining entry-level employment in the accounting profession in that it helps to explain choices made by accountants. More specifically, institutional theory helps to explain hiring decisions. The practice of rarely hiring graduates of online accounting programs may cause hiring officials to overlook candidates who could make the most significant economic contributions to the firm. Institutional theory holds that decisions (e.g., hiring) may be made for many non-profit maximizing reasons, such as tradition, prestige, university attended, or style of dress (DiMaggio & Powell, 1983). When making hiring decisions, employers may be responding to norms and traditions regarding the preferred educational background of prospective employees. Failure to uphold such norms carries risks of sanctions from other members of the accounting profession.

Institutional theory contends that to interact successfully with industry peers; firms must maintain a status of legitimacy (DiMaggio & Powell, 1983). Firms may be wary of hiring online

accounting graduates because of the fear that their legitimacy may experience negative affects by having graduates of online schools with little prestige representing the firm to its customers and suppliers. With its consideration of legitimacy concerns and normative pressures to do things in an accepted and traditional fashion, institutional theory is ideally suited to explain the tendency of accountants to restrict hiring to graduates of traditional face-to-face programs in preference to online programs. In addition to its contribution to understanding the research topic of hiring decisions in accounting, institutional theory has added much to our understanding of other accounting decisions. The following studies demonstrate an addition to the literature regarding a better understanding of various accounting decisions.

When regulatory authorities mandate an accounting standards change, firms may not be prepared to adopt the new standards. In Portugal, when International Financial Reporting Standards were first required for unlisted companies, a study of a firm's readiness to adopt the new standards utilized the theoretical framework of institutionalism (Guerreiro, Rodrigues, & Craig, 2012). A descriptive study of the Swedish municipal accounting system used an institutional theory approach to explain the failure of audits to expose poor compliance with standards (Tagesson & Eriksson, 2011). Accountants employed by Swedish municipalities have largely ignored newer laws prescribing compliance with upgraded standards in the preparation of financial statements. The researchers attributed this failure to adhere to new standards to the institutional reluctance to change assumption in institutional theory.

Scholars explored the accounting decision of when to recognize asset impairment from the perspective of institutional theory and positive accounting theory (Broberg, Collin, Tagesson, Axelsson, & Schele, 2011). The study related profitability reducing asset impairments to independent variables suggested either by institutional theory or by positive accounting theory. A different study analyzed new accounting standards issued by The International Public Sector Accounting Standards Board (IPSASB) for use by public sector organizations worldwide in 2010. These new standards incorporated fair values for assets and liabilities along with the use of accrual accounting. The approaches were inconsistent with the existing public-sector accounting standards in Finland. A case study of the lack of acceptance of the IPSASB standards in Finland utilized the conceptual framework of institutional theory (Oulasvirta, 2012). This case study described how institutional forces in Finland stood against the acceptance of the IPSASB standards.

Scholars also applied institutional theory to help understand budgeting systems (Kilfoyle & Richardson, 2011). This study points out that, as with other institutional characteristics, the budgeting process is isomorphic (i.e., similar) across organizations. The scholars viewed budgeting as a means of securing organizational acceptance by external parties and conforming to societal norms, which institutional theory anticipates for elements of the accounting system. Institutional and positive accounting theory were compared in their ability to explain which of two accounting standards were selected by Swedish municipal corporations in a study by Collin, Tagesson, Andersson, Cato, and Hansson (2009). These corporations had a choice between a more conservative Swedish standard and accounting standards harmonized with the International Accounting Standards Board. Frequently, both theories predicted similar accounting standard

choices. The researchers found institutional theory to be more accurate than positive accounting theory in predicting the accounting choices of Swedish municipalities.

Sellers, Fogarty, and Parker (2012) employed institutional theory to study the unique organizational events surrounding the demise of the Arthur Andersen accounting firm. In 2002, the firm voluntarily surrendered its licenses to practice as Certified Public Accountants in the United States after being found guilty of criminal charges relating to the firm's handling of the auditing of Enron. Enron, an energy corporation based in Texas, filed for bankruptcy in 2001 and later went out of business. Although the Supreme Court of the United States later reversed the conviction, the impact of the scandal combined with the findings of criminal involvement ultimately destroyed the firm. Arthur Andersen failed to maintain the legitimacy that institutional theory recognizes as a prerequisite for organizational survival. Organizational success, in accordance with institutional theory, involves maintaining "social fitness" beyond mere economic success (Sellers et al., 2012).

Early studies using institutional theory mostly included applications grounded in the public sector, such as public schools, hospitals, and the government. More recently, institutional theory has gained attention from the professions (Sellers et al., 2012) and other business settings. Stephan, Uhlaner, and Stride (2015) studied institutions and social entrepreneurship with a focus on the role of institutional voids, institutional support, and institutional configurations. By applying institutional theory to social entrepreneurship, the authors attempted to develop new insights for both social entrepreneurship and institutional theory. The study contributed to institutional theory by advancing an integrative, configurational view of formal and informal institutions, and by clarifying the role of institutional voids versus institutional support. It was one of the first multilevel studies to examine the contextual drivers of social entrepreneurship and to provide an empirical test comparing the institutional void perspective to the institutional support perspective. The authors found strong support for the institutional support perspective, which purports that access to tangible and intangible resources from both government and private organizations is a key enabler of entrepreneurial activity (Stephan et al., 2015).

Researchers also used institutional theory as a theoretical framework to predict international market selection for the direct selling industry (Ragland, Brouthers, & Widmier, 2015). The purpose of the study was to use institutional theory to theorize and empirically examine how host country environments influence international market selection. The researchers selected elements of a country's formal and informal institutional environments to predict which international markets produce more successful performance outcomes in the direct selling industry. It was one of the first international market selection studies to use a theory to predict international market attractiveness for a given industry. Based on their theoretical approach, they found that the direct selling industry performs best in countries with certain institutional characteristics. The results provided empirical support for the notion that a theoretical approach can apply to international market selection research (Ragland et al., 2015).

Rottig (2016) examined the role of institutions in emerging markets by exploring the effects and implications of institutions for multinational corporations that are operating in the unique context of these markets. The study was conceptual in nature and provided an examination and interrelation of some of the key developments of institution-based research in the context of

emerging market studies. Institutional voids, the relative importance of informal compared to formal institutions, institutional pressures by local governments, as well as institutional change and transitions were examined. The paper discussed key effects and implications of the unique institutional environments of emerging markets for managers of multinational corporations, such as the relevance and importance of context, political, economic and social adaptability, as well as institutional arbitrage. The paper also discussed institutional legitimacy pressures in emerging markets for social performance, the relevance and importance of social institutions in these markets, as well as the need for social adaptation in order to successfully do business in emerging markets (Rottig, 2016).

In the tourism industry, researchers showed that institutional theory is still underused and they developed a series of propositions on how it can be helpful for analyzing destination image and the fit between destination image for tourists and for the local population. The central institutional concepts of legitimacy, isomorphism, hybridization, and categorization were studied to show how they influence the image strategies of destinations. The researchers used a bibliometric analysis to investigate the influence of institutional theory in tourism studies. Their main contribution was to propose a new field of study to further develop institutional theory (Falaster, Luis, & Guerrazzi, 2017).

RECOMMENDATIONS FOR FUTURE RESEARCH

As online course offerings and degree programs continue to grow in higher education, it only makes sense to continue investigating aspects of the delivery modality and the impact modality has on hiring decisions. Future research could investigate whether the age of the participant affects their perception of the acceptability of online degrees. The system theory of professions advocates that systems are dynamic and existing biases may eventually disappear. Therefore, online degrees may gain acceptance as older generations retire and younger generations move into upper-management positions and become responsible for hiring decisions.

To continue to further inform both institutional theory and the system theory of professions, future research could investigate differences in other professions beyond accounting. This theoretical framework addresses the accounting profession, but online degree offerings also exist for other professions (e.g., management, marketing, information systems). This theoretical framework confirms institutional theory and the system theory of professions are active in the accounting profession, but other professions may not operate under the same conditions. Therefore, institutional theory might be further extended by adding consideration of hiring decisions in other professions, and the system theory of professions might be further extended by testing if differentiation exists in other professions. The divide between the growing popularity of online degree programs and less than favorable employer perceptions of online degree recipients is an area of research that continues to be ripe for additional study.

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IMPACTS OF MINIMUM WAGE & EDUCATION SPENDING ON STATE ECONOMY IN THE U.S.

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ABSTRACT

This paper explores impacts of minimum wage & education spending on state economy in the United States. We propose two research hypotheses. States with higher minimum wages are expected to perform significantly better. States with greater spending on K-12 education are expected to perform significantly better. To measure the State economic performance, we employ the data envelopment analysis model, using three input variables (state government employee payroll, number of State government employees, state population) and two outputs (unemployment rate, & per capita income). The relative efficiency score by the DEA model serves as the State economic performance measure. Mann-Whitney test results on the 2012 economic data reveal no statistical significances on the first hypothesis (the minimum wage) while evidence supports the second hypothesis. We also discuss policy implications and practical applications.

INTRODUCTION

In December of 2007, the United States found itself facing the start of the Great Recession. A subprime mortgage and financial crisis sent the world's economies into a tailspin. Due to lack of revenue and capital for investment, corporate empires began to crumble. This in turn forced many organizations to lay off workers and put a freeze on hiring. Government tax revenue declined, putting a strain on budgets. The US unemployment rate rose from 4.4% in October of 2006 to 9.5% in April of 2010.

It has been almost a decade since the recession began, but today we still find ourselves reeling from its effects. Government policy makers pursued a variety of measures to deal with the causes and effects of the recession, both in the financial services industry and in the wider economy. Not surprisingly, lawmakers continue to question public policy decisions such as minimum wage and per pupil spending, and the effects that those decisions have on their state's economy, particularly their unemployment rate and per capita income. This paper focuses on those key variables. Using a Data Envelopment Analysis (DEA) Model, we hope to find answers to many of these questions, which can provide guidance to policymakers. We describe the DEA model in detail in the methodology section.

In July of 2009, the federal minimum wage went to $7.25 for all covered, nonexempt workers. However, states have the power to set their own minimum wage above that of the federal minimum. Today there are 28 states, plus the District of Columbia, that have minimum wages above the federal minimum wage level, although this number was lower in the specific years studied in our analysis. While minimum wage is always a significant public issue, in recent years it has emerged as a particularly important political issue, with many people arguing that an increase in minimum wage is needed to help people recover from the recession. While an increase in minimum wages should clearly increase per capita income, there is considerable debate about this, as well as its effect on unemployment. Some lawmakers have been arguing for years that an

increase in minimum wages will only result in an increase in company costs, and if consumers are not willing to pay for that company's increase in costs, then that company will ultimately end up having to lay off employees, thereby increasing the state's unemployment rate and lower per capita income. Through use of the DEA Model, we hope to address these arguments and provide a useful statistical framework for analyzing these issues.

In addition to the federal minimum wage and its effect on unemployment and per capita income, we also investigate the correlation between states' per pupil spending and its effect on unemployment and per capita income. It would seem to be a plausible hypothesis that states which invest in the education of their children would see some benefits in employment and income.

We are not aware of any DEA models addressing these four issues and their relationship to one another, and, as such, we hope our research provides new insight into these important public policy issues.

Using data from the United States Census Bureau, the Bureau of Labor Statistics, the Department of Labor and gathered white papers and articles, we plan to create a model assessing minimum wages and per pupil spending for each of the 50 states plus the District of Columbia, and their potential effects on each state's unemployment rate and their per capita income.

The next section contains a brief review of prior studies related to our analysis. In the third section, we provide the methodology followed by the statistical results from the DEA models in the fourth section. The fifth section discusses those results. We put our conclusions in the last section of this paper.

REVIEW OF PRIOR STUDIES

Minimum Wage

Policymakers, experts and people in general have been arguing about the effects of minimum wage hikes since the Fair Labor Standards Act of 1938 went into effect some 77 years ago. On June 24, 1938, just prior to signing the FLSA into law, President Franklin Roosevelt stated in one of his "fireside chats:" "Do not let any calamity-howling executive with an income of $1,000 a day, ...tell you...that a wage of $11 a week is going to have a disastrous effect on all American industry" (Roosevelt, 1938). While there have been countless studies related to what effect, if any, each increase in the minimum wage will have on industry, few, if any, studies have attempted to prove a correlation between higher minimum wages and lower unemployment/higher per capita income.

This quote from President Roosevelt upon the creation of a federal minimum wage raises an important issue which affects the study of criteria such as minimum wage and per pupil spending. These are high politicized issues. Many of the arguments made for or against increases in these variables are done so in the context of political arguments and there is considerable money and effort spent by private interests in trying to prove or disprove a correlation between things like increases in minimum wage and benefits to society. Our analysis will hopefully provide some useful information from a disinterested perspective.

Early on, almost all of the studies focused primarily on the federal minimum wage and what effect it would have on the national economy, but such an analysis today would almost be irrelevant considering the fact that most larger population states have laws that set minimum wages in excess of the federal minimum wage. Gitis (2014) conducted a study looking at the effects of minimum wage on unemployment rates and job creation. He performed an analysis of states' minimum wages and its effects on states' unemployment rates and job creation. He looked at

teenage unemployment rate specifically, since teens are the most likely to have a minimum wage job. He also examined education and the relationship between education and minimum wage. He used minimum wage data provided by the federal Bureau of Labor Statistics and education data provided by the Census Bureau. His results showed that a higher minimum wage had a negative impact on job creation throughout the US. Another conclusion reached by Gitis is that the teenage job market is the most effected by increases in minimum wage, with their unemployment rates above 20%.

Wolcott (2014), along with his colleagues at CEPR, utilized a study conducted by Goldman Sachs following minimum wage increases in 13 states in the beginning of 2014 to examine the effect on employment rates. They compared the minimum wage increases in the 13 states with the rest of the country. In a finding at odds with Gitis, they found that employment rose faster in the 13 states with increases in minimum wage.

Other studies have addressed the impact of an increase in minimum wage at the state level, even taking that further and taking into account the fact that an increase in minimum wage does not affect everyone. For example, Card (1992) commented on the effect of California's increase in minimum wage from $3.35 to $4.25 in 1988. During the previous year, 11% of workers in the state and 50% of California teenagers had earned less than the new state minimum. Using data from published sources and the Current Population Survey, Card compared changes in the labor market outcomes of California workers to the corresponding changes in states that did not increase in the minimum wage. The minimum wage increase raised the earnings of low-wage workers by 5–10%. Card's research showed that there was no decline in teenage employment, or any relative loss of jobs in retail trade, despite the many predictions to the contrary. Card and Krueger (1993) reported the effect of minimum wage on employment in the fast food restaurant industry.

Neumark, Salas and Wascher (2014) commented on the debate over the effects of minimum wage on employment. They analyzed recent research on the topic and strongly disagreed with some of the methodologies used by other researchers, in particular how different groups were constructed. Overall, they disagreed with recent articles that found no negative effects on employment as a result of increased minimum wage. While recognizing the difficulty of studying heterogeneous groups, they came to the conclusion that increases in minimum wage do have a negative effect on employment, even though some workers benefit from the higher wages. They conclude that there is essentially a trade-off between benefits for some in the form of higher wages, and harm to others in the form of unemployment.

There do not appear to be any studies directly analyzing the impact an increase in minimum wage would have on per capita income. However, there have been studies conducted at the national level which provide some framework for approaching this topic.

Education Spending

Afonso, Schuknecht and Tanzi (2010) conducted a study examining the effects of income distribution on education in OECD countries. They looked at standardized testing scores and the value of public educational systems to see if higher income distribution resulted in better education. The US ranked 4th in their model in both the input and output categories. They used public spending as a percentage of GDP for their input data. They used the Gini coefficient, which represents the income distribution of a country, as their output data. Their DEA model showed that countries with a relatively equal income distribution had better public education systems. We anticipate a similar result on a state by state level within the US.

There do not appear to be any studies directly addressing whether states with higher per pupil spending realize lower unemployment or an increase in per capita income. Examination of per pupil spending as a variable has led to conflicting results. Coulson (2014) prepared a report for the Cato Institute that compared state spending with student achievement. This report concluded that "There has been essentially no correlation between what states have spent on education and their measured academic outcomes." In response to Coulson and others, Bruce Baker from the Albert Shanker institute then reported issued findings from his study entitled "Does Money Matter in Education" that completely contradicted that of the CATO Institute. Baker concluded that, "[o]n average, aggregate measures of per-pupil spending are positively associated with improved or higher student outcomes. In some studies, the size of this effect is larger than in others and, in some cases, additional funding appears to matter more for some students than others. Clearly, there are other factors that may moderate the influence of funding on student outcomes, such as how that money is spent – in other words, money must be spent wisely to yield benefits. But, on balance, in direct tests of the relationship between financial resources and student outcomes, money matters."

The National Education Association, which is the largest labor union in the United States produces periodic Rankings and Estimates through NEA Research. This is a combined report on resources committed to public education. The 2014 edition contained Ranking of the States for 2013 and Estimates of School Statistics for 2014, with data presented state by state, including government financing and public schools. The Estimates 2014 section of the report looks at projections of the finances related to public education. In the Rankings section of the report, it shows that the average expenditure per student for public schools was $10,938 for the 2012-2013 school year. On a state-by-state basis, the report shows the total personal income data, which shows a substantial effect on the resources available to schools through taxation. The report shows fairly stable government revenues over the last decade and increased federal schooling funding. They show that government funding can be seen as indicators of a state's effort to fund the public education system. The Estimates section of the report shows that expenditures per student were expected to rise by 4% to $11, 373 for the 2013-2014 school year. State governments were expected to hold the largest share of funding for the public education system at 46.4%; while the federal government's share rose to 10.5%. "The federal, state and local revenue contributions for public education for 2013-14 are estimated at $65.1 billion, $287.6 billion and $266.9 billion, respectively, totaling $619.6 billion." National Education Association, 2014.

The conflicting studies described above indicate the extent to which scholarship in this area is greatly affected by think tanks and organizations who may be seen as having a predisposition to certain findings. It seems safe to say that it remains unsettled whether increases in per pupil spending will yield higher test scores. By using a DEA model analysis, however, we hope to settle the question of whether increases in per pupil spending can result in an increase in per capita income.

A starting point for this analysis begins with Frohlich (2014) in which he analyzed and compared per capita income with per pupil spending. The report concluded that, "[t]he nation's highest spenders on education were disproportionately in the Northeast, while the states spending the least tended to be in the Southern or Western U.S." The report also stated that spending could be driven by a range of factors, including state size, labor costs, and geography, noting that rural schools can often incur higher transportation costs.

Household earnings appear to play a major role in determining statewide school spending. The states that spent the most per student also had some of the wealthiest households. Median

household income in all of the 10 top spending states was higher than the U.S. median. Among the states spending the least, only Utah households earned more than the national median of $51,371 in 2012, as reported by U.S. Census Bureau statistics. A major problem with this analysis is that it doesn't sufficiently explain a proper cause and effect analysis, i.e. does higher per pupil spending result in an increase in per capita income, or is higher per pupil spending just a byproduct of states that already have a higher per capita income?

The problem with these analyses are that there are so many other factors that are virtually impossible to quantify. For example, economic policies, development incentives, location, industry variations, etc. all play a role in per capita income. Perhaps student performance is the only true measure of predicting the ROI of per pupil spending? Our analysis uses these four criteria because they are some of the only examples of hard data available for each state that is collected using consistent methodologies.

METHODOLOGY

Variables and Hypotheses

For our analysis, we chose four commonly used benchmarks for comparing states. Our inputs are minimum wage and per pupil spending. Outputs are unemployment rate and per capita income. The inputs represent things over which state policy makers have some degree of control, and the outputs are goals that these same policy makers are trying to attain. We note that for use in the DEA software, the unemployment rate was converted to an employment rate (100% - Unemployment Rate) so that the data analysis would work correctly where a higher number is associated with a more desirable outcome. Also, we note that our data included the 50 states plus the District of Columbia, but for convenience, we will identify each of the decision making units as "states."

We also note that our designated independent variable inputs, in particular per pupil spending, cannot be expected to have an immediate same-year effect on the dependent variable outputs. Spending on a student's education today will not directly affect his income or employment opportunities until he reaches the workforce some years later. Rather, our inputs should be considered proxies for other data that is not so readily accessible. In this regard, per pupil spending can instead be seen as a proxy for the commitment that a state has to primary and secondary education. Similarly, minimum wage rates can be seen as a proxy for a state's concern about low wage workers.

As the literature discusses, there are ongoing debates about minimum wage and per pupil spending. Advocates for increases in each will often argue that such increases will in fact cause positive economic outcomes. Neumark, Salas and Wascher (2014) and others have argued that there are positive correlations between these two inputs and the two chosen outputs. Berger and Fisher (2013) maintained that a well-educated workforce was key to State prosperity.

Thus, we hypothesize that minimum wage and pupil education spending will make positive impacts on the State economy. We propose the two hypotheses as follows.

Hypothesis 1: If a State sets a higher minimum wage, the State will perform better economically.

Hypothesis 2: If a State budgets a higher per pupil spending, the State's economy will be better.

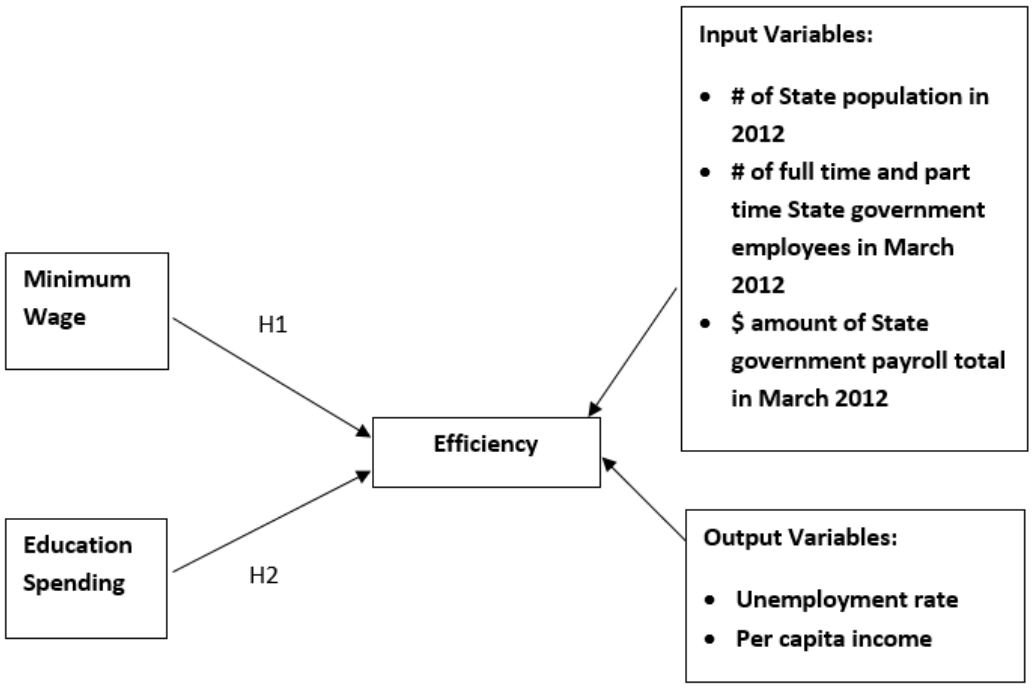
To test the first hypothesis, we categorize 50 States into two groups. 25 States with lower minimum wages will belong to the control group (Group 1). The remaining 25 States with higher

minimum wages will be put into the test group (Group 2). The economic performance of each State is measured by the data envelopment analysis model. The objective function value generated by the DEA model indicates a relative efficiency score of each State, given the inputs and outputs. The relative efficiency score serves as a proxy for the economic performance of each State. To conduct the hypothesis testing, we employ Mann-Whitney U test to compare the two groups in term of their rank mean.

Research Framework.

Our research involved assembling data on each of the five variables for each state for each of the years 2011 and 2012. We felt it would be useful to compare different years to further test whether increases in inputs positively affected outputs. The research framework is shown in Figure 1.

Figure 1. Research Framework



Data Envelopment Analysis Model

We employ data envelopment analysis (DEA) for measuring the comparative efficiencies of States in the U.S. The DEA model is a special application of linear programming based on frontier methodology of Farrell (1957). Since Farrell, major breakthrough for developing DEA was achieved by Charnes, Cooper, and Rhodes (1978) and by Banker, Charnes, and Cooper (1984). Data envelopment analysis is a useful approach for measuring relative efficiency among similar organisations or objects. An entity that is an object to be measured for efficiency is called a decision-making unit or DMU. Because DEA can identify relatively efficient DMU(s) among a group of given DMUs, it is a promising tool for comparative analysis or benchmarking (Mhatre, Joo, & Lee, 2014).

To explore the mathematical property of DEA, let E_0 be an efficiency score for the base DMU *0* then,

$$\text{Maximize } E_0 = \frac{\left\{\sum_{r=1}^{R} u_{r0} y_{r0}\right\}}{\left\{\sum_{i=1}^{I} v_{i0} x_{i0}\right\}} \quad (1)$$

subject to

$$\frac{\left\{\sum_{r=1}^{R} u_{r0} y_{rk}\right\}}{\left\{\sum_{i=1}^{I} v_{i0} x_{ik}\right\}} \leq 1 \text{ for all } k \quad (2)$$

$$u_{r0}, v_{i0} \geq \delta \text{ for all } r, i, \quad (3)$$

where

y_{rk}: the observed quantity of output r generated by unit k = 1, 2, …, N,
x_{ik}: the observed quantity of input i consumed by unit k = 1, 2, …, N,
u_{r0}: the weight to be computed given to output r by the base unit *0*,
v_{i0}: the weight to be computed given to input i by the base unit *0*,
δ: a very small positive number.

The fractional programming model can be converted to a common linear programming (LP) model without much difficulty. A major assumption of LP is a linear relationship among variables. Accordingly, an ordinary LP for solving DEA utilizes a constant returns-to-scale so that all observed production combinations can be scaled up or down proportionally (Charnes, Cooper, and Rhodes 1978). However, when we use a piecewise LP, we can model a non-proportional returns-to-scale such as an increasing, decreasing or variable-returns-to-scale (Banker, Charnes, and Cooper 1984). Depending on returns-to-scales and/or various modeling approaches, different types of DEA models are available (Mhatre et al., 2014).

Sherman and Ladino (1995) summarize the capability of DEA in the following manner:

- *Identifies the best practice DMU that uses the least resources to provide its products or services at or above the quality standard of other DMUs;*
- *Compares the less efficient DMUs to the best practice DMU;*
- *Identifies the amount of excess resources used by each of the less efficient DMUs;*
- *Identifies the amount of excess capacity or ability to increase outputs for less efficient DMUs, without requiring added resources.*

In this study, involving comparative measures of operational efficiencies for DMUs, a Charnes-Cooper-Rhodes (CCR) model, a Banker, Charnes, and Cooper (BCC) model, and a slack-based measure of efficiency (SBM) are employed. First, we measure the efficiency of DMUs using the CCR and BCC models respectively. Next, we apply SBM to data to evaluate the efficiency of variables with non-radial properties. Finally, we try to identify the sources of inefficiency by contrasting the results of three models. To address the validity and reliability issues on the sample data and DEA model, we aggregate the results of CCR, BCC and SBM models (Mhatre et al., 2014).

Data Collection

The data was all accumulated from public databases available from websites maintained by the United States government. Minimum wage rates were obtained from the Department of Labor. Per pupil spending figures are collected by the Census Bureau. Employment data comes from the Department of Labor. Per capita income also comes from the Census Bureau.

State employment and payroll data in March 2012 are collected from the U.S. Census Bureau in its website: 2012 Census of Governments: Employment.

http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk

RESULTS

Appendix 1 shows the sample data including the three input variables and two output variables per each State in 2012. Appendix 2 shows the sample data grouped by the minimum wage control variable. Group 1 indicates States with the federal minimum wage. Group 2 includes States with higher minimum wages than the federal minimum wage. Group 1 serves as the control group while we treat Group 2 as the test group.

Table 1 reports the results of bilateral DEA models using the minimum wage as a grouping variable. As the table shows, the 2012 economic data does not support the first hypothesis. All four bilateral DEA models (bilateral CCR-I, bilateral BCC-I, bilateral SBM-C, and bilateral SBM-V models) report no statistical significance ($p>0.05$). The higher minimum wage did not make significant impacts on the State economy. Indeed, the test group is worse than the control group. The rank means of all four models show the test group's rank mean is higher than the control group's rank mean, indicating the control group outperforms the test group. Appendix 3 shows the full report per each State.

Table 1
BILATERAL DEA MODEL RESULTS ON MINIMUM WAGE IN 2012

	Bi-CCR-I	Bi-BCC-I	Bi-SBM-C	Bi-SBM-V
# of States in Control Group (n_1)	32	32	32	32
Rank Sum of Control Group	770	782	787	796
Rank Mean of Control Group	24.0625	24.4375	24.5937	24.875
# of State in Test Group (n_2)	18	18	18	18
Rank Sum of Test Group	505	493	488	479
Rank Mean of Test Group	28.0555	27.3888	27.1111	26.1111
Mann Whitney U Test Statistic	-0.9297	-0.6871	-0.5861	-0.4042
p-value (one-tailed)	0.0881	0.1229	0.1394	0.1715
Note: Control Group includes 32 States at the federal minimum wage. Test Group includes 18 States with higher minimum wages than the federal minimum wage in 2012.				

To test the second hypothesis, we first computed the overall average of the pupil education spending amount of all 50 States. The 2012 data presents $10,966.65 as the overall average. Accordingly, we grouped the sample data by the pupil education spending amount. Group 1 (control group) is the States with lower pupil education spending than the overall average ($10,966.65) while Group 2 (test group) is the States with higher pupil education spending than the overall average. Appendix 4 reveals the full data.

Table 2 reports the results of bilateral DEA models using the education spending as a grouping variable. As the table shows, data supports the second hypothesis ($p<0.01$). Appendix 5 shows the full report per each state.

Table 2
BILATERAL DEA MODEL RESULTS ON EDUCATION SPENDING $ IN 2012

	Bi-CCR-I	Bi-BCC-I	Bi-SBM-C	Bi-SBM-V
# of Control Group (n_1)	25	25	25	25
Rank Sum of Control Group	758	870	751	889
Rank Mean of Control Group	30.32	34.8	30.04	35.56
# of Test Group (n_2)	25	25	25	25
Rank Sum of Test Group	517	405	524	386
Rank Mean of Test Group	20.68	16.2	20.96	15.44
Mann Whitney U Test statistics	2.3380	4.5111	2.2022	4.8798
p value (one tailed)	0.0048	0.0000	0.0069	0.0000
Note: Control Group includes 25 States with lower pupil education spending than the overall average, while Test Group includes ones with higher spending.				

We can determine a ranking of each State in terms of the relative efficiency scores from four bilateral DEA models. First, we compute the rank sum by adding the four ranks per each state. Then, we can sort the data by the rank sum. A State with the lowest rank sum is considered the top rank in the relative efficiency. State rankings are listed in the following table. As shown in the table, top 10 most efficient States are Wyoming, Vermont, Alaska, North Dakota, New Hampshire, Delaware, Rhode Island, South Dakota, Maine, Hawaii. Among the top 10 States, only South Dakota belongs to Group 1 (Low Education Spending), while the rest of nine States belong to Group 2 (High Education Spending). Table 3 reports the top 10 States which are ranked by the four bilateral DEA models. The bilateral DEA models used the 2012 data grouped by the education spending. Appendix 6 reports the rankings of all 50 States.

Table 3
TOP 10 STATES RANKED BY DEA MODEL RESULST ON EDUCATION SPENDING IN 2012

DMU	Group	Bi-CCR-I	Bi-BCC-I	Bi-SBM-C	Bi-SBM-V	Rank Sum	Total Rank
Wyoming	2	1	4	1	1	7	1
Vermont	2	2	4	2	2	10	2
Alaska	2	3	4	3	3	13	3
North Dakota	2	4	4	4	4	16	4
New Hampshire	2	6	4	6	6	22	5
Delaware	2	5	4	5	10	24	6
Rhode Island	2	8	1	8	9	26	7
South Dakota	1	7	3	7	18	35	8
Maine	2	10	2	10	16	38	9
Hawaii	2	11	4	13	12	40	10

The analysis uses data available from several agencies of the United States government. All 50 states and the District of Columbia were included as decision making units. For convenience, we will refer to the 51 DMUs as “states.” Minimum wage data was obtained from the Department of Labor. Per pupil spending data came from the Census Bureau. Employment data is from the Bureau of Labor Statistics. Per capita income data is also from the Census Bureau. Data for each variable was separately analyzed for the years 2011 and 2012 to provide some

comparable data. Employment rate data was modified. The Bureau of Labor Statistics produces an unemployment rate. For the purposes of DEA analysis, we converted the unemployment rate to an employment rate (100% – Unemployment Rate). This was necessary so that the more desirable output (lower unemployment) was a higher numerical figure.

Descriptive statistics show that, with the exception of the federal minimum wage which remained constant at $7.25 over the two years, all other minimums and maximums increased from 2011 to 2012.

DISCUSSION

Our DEA analysis clearly shows that the expected economic benefits of higher minimum wage and education spending are not shown by the data. The full explanation for this is obviously beyond the scope of this paper. There are many factors which effect income and employment. While education spending and minimum wage are certainly important, they are by no means the only major factors. However, although we recognize the limitations of this analysis, there still is much useful information to be taken from this study.

Specifically, many of the arguments in favor of higher minimum wage and education spending are based on the premise that they will result in increased income and employment. See Hanushek & Woessman (2007), and Neumark & Wascher (2014) as examples. Since those are common arguments made by policymakers and experts, the lack of data to confirm these arguments is significant as a policy matter.

An obvious point to be made here is that there is tremendous variation among the states (as we defined the term here) which are not considered in the data. From a statistical viewpoint, it is hard to correlate the unique economic conditions in the District of Columbia and a state like South Dakota. However, while we know that there will be outliers when comparing the data, our results still show overwhelmingly that there is simply no provable correlation to prove the initial hypotheses. In each instance, the Group 2 states (lower minimum wage, lower education spending) clearly performed better. The data did not show a large group of states affirming the hypotheses with a few outliers in opposition. Even in the case of states that have much more comparable characteristics, the hypotheses were proven wrong. One potential factor that could have an influence on the results might be individual income tax. For example, New Hampshire and Florida do not impose a state tax on individual income that is earned from salaries and wages.

CONCLUSION

Our analysis utilized Data Envelopment Analysis (DEA) to test whether the economic policies of a U.S. state (including D.C.) regarding minimum wage and per pupil education spending (the Inputs) are associated with higher per capita income and higher employment (the Outputs). Our hypotheses, which match the policy arguments that are made in favor increasing these Inputs, were that there would be a positive correlation.

As discussed above, there are numerous articles and studies on these topics. All states would consider higher per capita income and higher employment to be major goals. Education spending and minimum wage happen to be some of the few economic factors over which states have some degree of control. Many of the arguments for and against increases in these Inputs arise in highly contentious political arguments, and there is tremendous risk that the arguments are tainted by the political process and the desire to manipulate data to achieve a desired result.

We also acknowledge that there are obvious issues when comparing states since there is such variation among them in terms of demographics, population density, topography, climate, etc. However, while recognizing that there are enormous differences between particular states, if the initial hypotheses were correct, we would expect to see the positive correlations proven overall, even if there were a few outliers.

Instead, our analysis showed with surprising consistency that there is no positive correlation between these criteria. States with lower minimum wages and lower education spending clearly outperformed their sister states when it comes to income and employment.

The issues addressed in this paper are of tremendous significance to policymakers and the general population. We do not pretend that our analysis will somehow definitely resolve the debates over proper minimum wage and education spending, or their relation to income and employment.

However, this analysis does provide very useful information for policymakers and experts seeing to understand these issues. The results of our data analysis can also be used for more targeted analysis of this type of data. In particular, as we noted above, the correlation between education spending and income or employment is not something that has a direct cause and effect relationship within a one or two-year period. Analysis of this kind of data with a time lag of 20 years or so in particular might be of great benefit.

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Appendix 1 - Sample Data					
DMU	(I) Population 2012	(I) State Employees	(I) State Payroll Total	(O) Employment Rate 2012	(O) Per Capita Income 2012
Alabama	4,816,089	106,121	360,567,485	91.6	23587
Alaska	731,228	30,733	143,696,127	91.8	32537
Arizona	6,553,262	85,445	288,862,096	91.5	25571
Arkansas	2,949,499	74,133	244,671,849	91.7	22007
California	38,056,055	482,955	2,457,564,155	88.7	29551
Colorado	5,191,731	100,780	359,622,278	91.5	31039
Connecticut	3,593,541	77,974	342,263,173	91.4	37807
Delaware	917,099	31,843	113,301,806	92.4	29733
Florida	19,352,021	210,435	719,657,689	91.2	26451
Georgia	9,917,639	161,375	504,186,715	90.3	25309
Hawaii	1,392,641	72,093	235,935,060	93.5	29227
Idaho	1,596,097	28,142	89,881,587	91.5	22581
Illinois	12,875,167	156,362	667,271,954	90.4	29519
Indiana	6,538,283	116,850	354,315,088	91.0	24558
Iowa	3,076,636	66,981	258,203,484	94.0	26545
Kansas	2,886,281	59,406	209,923,024	93.7	26845
Kentucky	4,382,667	102,026	326,289,343	90.9	23210
Louisiana	4,603,676	94,022	334,944,475	92.7	24264
Maine	1,328,888	27,215	86,226,202	91.2	26464
Maryland	5,890,740	91,750	416,851,778	92.7	36056
Massachusetts	6,657,780	121,013	501,048,477	92.8	35485
Michigan	9,886,879	183,804	718,786,790	90.3	25547
Minnesota	5,380,443	101,644	407,615,032	93.5	30656
Mississippi	2,985,660	65,592	207,131,764	90.5	20670
Missouri	6,025,468	100,948	297,856,730	92.1	25546
Montana	1,005,157	26,401	81,493,066	92.8	25002
Nebraska	1,855,973	37,174	121,595,287	95.5	26523
Nevada	2,754,874	33,247	126,038,099	88.0	27003
New Hampshire	1,321,393	25,184	81,850,091	93.9	32758
New Jersey	8,874,893	164,125	842,455,521	90.3	35928
New Mexico	2,084,792	54,296	196,957,330	92.6	23749
New York	19,606,981	276,321	1,357,078,353	90.6	32104
North Carolina	9,747,021	177,290	633,035,884	90.2	25285
North Dakota	702,265	25,177	76,798,932	96.2	28700
Ohio	11,551,783	185,369	646,042,835	91.7	25857
Oklahoma	3,817,679	83,783	248,365,131	94.4	24046
Oregon	3,899,444	81,414	318,688,691	90.2	26702
Pennsylvania	12,772,789	205,993	763,132,567	91.8	28190
Rhode Island	1,052,393	23,961	102,415,447	88.5	30005
South Carolina	4,721,341	91,834	291,630,080	90.1	23906
South Dakota	834,631	19,350	60,914,948	95.0	25570
Tennessee	6,455,469	102,564	335,830,890	91.8	24294
Texas	26,089,741	362,858	1,373,033,407	92.9	25809
Utah	2,856,343	70,243	227,479,921	93.6	23794
Vermont	626,398	18,098	69,000,984	94.4	28846
Virginia	8,193,374	162,981	551,254,076	93.5	33326
Washington	6,897,292	138,526	495,370,332	90.6	30661
West Virginia	1,856,283	48,887	145,381,256	91.7	22482
Wisconsin	5,726,422	105,422	323,080,484	91.8	27426
Wyoming	577,080	15,962	57,238,163	94.0	28858

Appendix 2
SAMPLE DATA GROUPED BY MINIMUM WAGE IN 2012

DMU	(I) Pop. 2012	(I) State Employees	(I) State Payroll	(O) Emp. Rate 2012	(O) PCI 2012	Min Wage	Group
Washington	6897292	138526	495370332	90.6	30661	9.04	2
Oregon	3899444	81414	318688691	90.2	26702	8.8	2
Vermont	626398	18098	69000984	94.4	28846	8.46	2
Connecticut	3593541	77974	342263173	91.4	37807	8.25	2
Illinois	12875167	156362	667271954	90.4	29519	8.25	2
Nevada	2754874	33247	126038099	88	27003	8.25	2
California	38056055	482955	2457564155	88.7	29551	8	2
Massachusetts	6657780	121013	501048477	92.8	35485	8	2
Alaska	731228	30733	143696127	91.8	32537	7.75	2
Ohio	11551783	185369	646042835	91.7	25857	7.7	2
Florida	19352021	210435	719657689	91.2	26451	7.67	2
Arizona	6553262	85445	288862096	91.5	25571	7.65	2
Montana	1005157	26401	81493066	92.8	25002	7.65	2
Colorado	5191731	100780	359622278	91.5	31039	7.64	2
Maine	1328888	27215	86226202	91.2	26464	7.5	2
New Mexico	2084792	54296	196957330	92.6	23749	7.5	2
Michigan	9886879	183804	718786790	90.3	25547	7.4	2
Rhode Island	1052393	23961	102415447	88.5	30005	7.4	2
Alabama	4816089	106121	360567485	91.6	23587	7.25	1
Arkansas	2949499	74133	244671849	91.7	22007	7.25	1
Delaware	917099	31843	113301806	92.4	29733	7.25	1
Georgia	9917639	161375	504186715	90.3	25309	7.25	1
Hawaii	1392641	72093	235935060	93.5	29227	7.25	1
Idaho	1596097	28142	89881587	91.5	22581	7.25	1
Indiana	6538283	116850	354315088	91	24558	7.25	1
Iowa	3076636	66981	258203484	94	26545	7.25	1
Kansas	2886281	59406	209923024	93.7	26845	7.25	1
Kentucky	4382667	102026	326289343	90.9	23210	7.25	1
Louisiana	4603676	94022	334944475	92.7	24264	7.25	1
Maryland	5890740	91750	416851778	92.7	36056	7.25	1
Minnesota	5380443	101644	407615032	93.5	30656	7.25	1
Mississippi	2985660	65592	207131764	90.5	20670	7.25	1
Missouri	6025468	100948	297856730	92.1	25546	7.25	1
Nebraska	1855973	37174	121595287	95.5	26523	7.25	1
New Hampshire	1321393	25184	81850091	93.9	32758	7.25	1
New Jersey	8874893	164125	842455521	90.3	35928	7.25	1
New York	19606981	276321	1357078353	90.6	32104	7.25	1
North Carolina	9747021	177290	633035884	90.2	25285	7.25	1
North Dakota	702265	25177	76798932	96.2	28700	7.25	1
Oklahoma	3817679	83783	248365131	94.4	24046	7.25	1
Pennsylvania	12772789	205993	763132567	91.8	28190	7.25	1
South Carolina	4721341	91834	291630080	90.1	23906	7.25	1
South Dakota	834631	19350	60914948	95	25570	7.25	1
Tennessee	6455469	102564	335830890	91.8	24294	7.25	1
Texas	26089741	362858	1373033407	92.9	25809	7.25	1
Utah	2856343	70243	227479921	93.6	23794	7.25	1
Virginia	8193374	162981	551254076	93.5	33326	7.25	1
West Virginia	1856283	48887	145381256	91.7	22482	7.25	1
Wisconsin	5726422	105422	323080484	91.8	27426	7.25	1
Wyoming	577080	15962	57238163	94	28858	7.25	1

Appendix 3
FULL RESULTS OF BILATERAL DEA MODELS BY MINIMUM WAGE IN 2012

		Bilateral CCR-I		Bilateral BCC-I		Bilateral SBM-C		Bilateral SBM-V	
DMU	Group	Score	Rank	Score	Rank	Score	Rank	Score	Rank
Washington	2	0.12277	41	0.14600	40	0.105941	39	0.13683	39
Oregon	2	0.18813	33	0.19606	37	0.164449	26	0.16445	31
Vermont	2	0.92519	4	0.97684	10	0.879270	3	0.94075	10
Connecticut	2	0.26819	23	1.00000	3	0.198143	23	1.04721	4
Illinois	2	0.10442	42	0.11208	42	0.076891	43	0.08457	42
Nevada	2	0.44946	15	0.48010	17	0.356818	13	0.35682	17
California	2	0.03384	50	0.03644	50	0.023410	50	0.02595	50
Massachusetts	2	0.16219	37	0.76596	14	0.121499	37	0.71462	11
Alaska	2	0.88980	6	1.74941	1	0.595497	7	1.04616	5
Ohio	2	0.08643	45	0.08860	46	0.069951	45	0.06995	46
Florida	2	0.07717	47	0.07954	48	0.058195	47	0.05819	48
Arizona	2	0.19288	31	0.19815	36	0.146274	32	0.14627	36
Montana	2	0.69340	9	0.70237	15	0.578664	9	0.57866	14
Colorado	2	0.17119	36	0.20956	33	0.146036	33	0.19681	29
Maine	2	0.64404	11	0.66381	16	0.529453	10	0.52945	15
New Mexico	2	0.28960	19	0.29398	24	0.257490	17	0.25749	22
Michigan	2	0.08342	46	0.08684	47	0.069058	46	0.06906	47
Rhode Island	2	0.69264	10	0.77936	11	0.584146	8	0.70012	13
Alabama	1	0.18569	35	0.19137	39	0.145541	34	0.14554	37
Arkansas	1	0.27395	21	0.28201	26	0.210385	21	0.21039	27
Delaware	1	0.70402	8	0.76743	13	0.622674	6	0.70860	12
Georgia	1	0.13091	40	0.13686	41	0.095238	40	0.09524	41
Hawaii	1	0.45573	14	0.45756	19	0.331661	15	0.34943	18
Idaho	1	0.74410	7	0.76769	12	0.520609	11	0.52061	16
Indiana	1	0.18773	34	0.19474	38	0.134249	36	0.13425	40
Iowa	1	0.26905	22	0.27020	28	0.236267	18	0.23627	24
Kansas	1	0.32626	16	0.32870	22	0.272292	16	0.27229	21
Kentucky	1	0.20363	28	0.21147	32	0.155402	31	0.15540	35
Louisiana	1	0.20230	29	0.20601	34	0.161461	27	0.16146	32
Maryland	1	0.24656	24	1.00000	3	0.171992	24	1.00239	8
Minnesota	1	0.18923	32	0.28467	25	0.158501	30	0.24642	23
Mississippi	1	0.31936	17	0.33313	21	0.223853	20	0.22385	26
Missouri	1	0.22601	25	0.23166	30	0.159350	28	0.15935	33
Nebraska	1	0.57408	12	1.00000	3	0.446939	12	1.00579	7
New Hampshire	1	0.95734	3	1.00000	3	0.719617	5	1.05265	2
New Jersey	1	0.13734	39	0.37246	20	0.094774	41	0.32596	20
New York	1	0.07289	48	0.10586	44	0.050946	48	0.07999	44
North Carolina	1	0.10415	43	0.10900	43	0.083919	42	0.08392	43
North Dakota	1	0.91559	5	1.00000	3	0.842157	4	1.00944	6
Oklahoma	1	0.27782	20	0.27782	27	0.199401	22	0.19940	28
Pennsylvania	1	0.08836	44	0.09042	45	0.073867	44	0.07387	45
South Carolina	1	0.22583	26	0.23660	29	0.167483	25	0.16748	30
South Dakota	1	1.13994	2	1.00000	3	1.046648	2	1.04756	3
Tennessee	1	0.19980	30	0.20546	35	0.144109	35	0.14411	38
Texas	1	0.04946	49	0.05025	49	0.038785	49	0.03878	49
Utah	1	0.30076	18	0.30333	23	0.234226	19	0.23423	25
Virginia	1	0.14461	38	1.00000	3	0.111159	38	1.00096	9
West Virginia	1	0.46105	13	0.47462	18	0.340832	14	0.34083	19
Wisconsin	1	0.20769	27	0.21357	31	0.158528	29	0.15853	34
Wyoming	1	1.20601	1	1.20975	2	1.139408	1	1.14183	1
Control Group (1) Rank Sum		770		782		787		796	
Test Group (2) Rank Sum		505		493		488		479	
Mann Whitney U Test Statistic		-0.9297		-0.6871		-0.5861		-0.4042	
p-value (one-tailed)		0.0881		0.1229		0.1394		0.1715	

APPENDIX 4
SAMPLE DATA GROUPED BY EDUCATION SPENDING IN 2012

DMU	(I) Pop	(I) State Employees	(I)State Payroll	(O) Emp. Rate	(O) PCI	Edu $ 2012	Group
Alabama	4816089	106121	360567485	91.6	23587	8562.06	1
Alaska	731228	30733	143696127	91.8	32537	17390.40	2
Arizona	6553262	85445	288862096	91.5	25571	7558.92	1
Arkansas	2949499	74133	244671849	91.7	22007	9410.62	1
California	38056055	482955	2457564155	88.7	29551	9182.89	1
Colorado	5191731	100780	359622278	91.5	31039	8547.66	1
Connecticut	3593541	77974	342263173	91.4	37807	16273.65	2
Delaware	917099	31843	113301806	92.4	29733	13864.57	2
Florida	19352021	210435	719657689	91.2	26451	8371.97	1
Georgia	9917639	161375	504186715	90.3	25309	9247.02	1
Hawaii	1392641	72093	235935060	93.5	29227	12053.78	2
Idaho	1596097	28142	89881587	91.5	22581	6658.57	1
Illinois	12875167	156362	667271954	90.4	29519	12015.02	2
Indiana	6538283	116850	354315088	91	24558	9719.10	1
Iowa	3076636	66981	258203484	94	26545	10038.28	1
Kansas	2886281	59406	209923024	93.7	26845	9748.05	1
Kentucky	4382667	102026	326289343	90.9	23210	9391.18	1
Louisiana	4603676	94022	334944475	92.7	24264	11378.51	2
Maine	1328888	27215	86226202	91.2	26464	12189.07	2
Maryland	5890740	91750	416851778	92.7	36056	13608.74	2
Massachusetts	6657780	121013	501048477	92.8	35485	14142.31	2
Michigan	9886879	183804	718786790	90.3	25547	10855.32	2
Minnesota	5380443	101644	407615032	93.5	30656	10795.89	2
Mississippi	2985660	65592	207131764	90.5	20670	8164.24	1
Missouri	6025468	100948	297856730	92.1	25546	9436.02	1
Montana	1005157	26401	81493066	92.8	25002	10464.49	2
Nebraska	1855973	37174	121595287	95.5	26523	11274.84	2
Nevada	2754874	33247	126038099	88	27003	8222.96	1
New Hampshire	1321393	25184	81850091	93.9	32758	13592.55	2
New Jersey	8874893	164125	842455521	90.3	35928	17266.24	2
New Mexico	2084792	54296	196957330	92.6	23749	8899.08	1
New York	19606981	276321	1357078353	90.6	32104	19552.22	2
North Carolina	9747021	177290	633035884	90.2	25285	8200.32	1
North Dakota	702265	25177	76798932	96.2	28700	11679.05	2
Ohio	11551783	185369	646042835	91.7	25857	11203.80	2
Oklahoma	3817679	83783	248365131	94.4	24046	7466.42	1
Oregon	3899444	81414	318688691	90.2	26702	9490.36	1
Pennsylvania	12772789	205993	763132567	91.8	28190	13339.94	2
Rhode Island	1052393	23961	102415447	88.5	30005	14005.09	2
South Carolina	4721341	91834	291630080	90.1	23906	9147.18	1
South Dakota	834631	19350	60914948	95	25570	8446.36	1
Tennessee	6455469	102564	335830890	91.8	24294	8294.44	1
Texas	26089741	362858	1373033407	92.9	25809	8260.66	1
Utah	2856343	70243	227479921	93.6	23794	6206.18	1
Vermont	626398	18098	69000984	94.4	28846	16039.81	2
Virginia	8193374	162981	551254076	93.5	33326	10655.91	2
Washington	6897292	138526	495370332	90.6	30661	9637.48	1
West Virginia	1856283	48887	145381256	91.7	22482	11444.82	2
Wisconsin	5726422	105422	323080484	91.8	27426	11041.66	2
Wyoming	577080	15962	57238163	94	28858	15897.00	2

Appendix 5
FULL RESULTS OF BILATERAL DEA MODELS ON PUPIL EDUCATION SPENDING $ IN 2012

DMU	Group	Edu $	Bi-CCR-I	Bi-BCC-I	Bi-SBM-C	Bi-SBM-V
Wyoming	2	15897.00	1.6323	1.0000	1.30851	1.31589
Vermont	2	16039.81	1.5031	1.0000	1.20033	1.20213
Alaska	2	17390.40	1.4524	1.0000	1.15080	1.17269
North Dakota	2	11679.05	1.3340	1.0000	1.11132	1.13159
New Hampshire	2	13592.55	0.9843	1.0000	0.79757	1.11527
Delaware	2	13864.57	1.0582	1.0000	1.01942	1.07327
Rhode Island	2	14005.09	0.9476	4.1505	0.76007	1.07452
South Dakota	1	8446.36	0.9496	1.0856	0.77302	1.00310
Maine	2	12189.07	0.7359	1.2503	0.67916	1.00761
Hawaii	2	12053.78	0.6850	1.0000	0.39695	1.05327
Connecticut	2	16273.65	0.3669	1.0000	0.25583	1.13127
Nebraska	2	11274.84	0.5399	1.0000	0.50070	1.00584
Maryland	2	13608.74	0.2974	1.0000	0.19174	1.08975
Montana	2	10464.49	0.8119	0.8303	0.75278	0.75278
Idaho	1	6658.57	0.6199	0.6368	0.45275	0.45275
Massachusetts	2	14142.31	0.2219	1.0000	0.15549	1.07486
Minnesota	2	10795.89	0.2282	1.0000	0.17834	1.00947
Nevada	1	8222.96	0.4495	0.4801	0.35682	0.35682
West Virginia	2	11444.82	0.4340	0.4496	0.38786	0.38786
New Mexico	1	8899.08	0.2896	0.2940	0.25749	0.25749
New Jersey	2	17266.24	0.1657	1.0000	0.10744	1.07301
Kansas	1	9748.05	0.2718	0.2727	0.23780	0.23780
Virginia	2	10655.91	0.1547	1.0000	0.12378	1.04713
Wisconsin	2	11041.66	0.2022	0.4889	0.17549	0.44577
Mississippi	1	8164.24	0.2660	0.2763	0.19522	0.19522
Utah	1	6206.18	0.2505	0.2516	0.20474	0.20474
Iowa	1	10038.28	0.2383	0.2383	0.20684	0.20684
New York	2	19552.22	0.0879	1.0000	0.05690	1.01687
Oklahoma	1	7466.42	0.2314	0.2448	0.17370	0.18567
Arkansas	1	9410.62	0.2282	0.2339	0.18402	0.18402
Louisiana	2	11378.51	0.2008	0.2058	0.18248	0.18248
Illinois	2	12015.02	0.1429	0.4836	0.09732	0.40321
Colorado	1	8547.66	0.1712	0.2096	0.14604	0.19681
Arizona	1	7558.92	0.1929	0.1982	0.14627	0.14627
Oregon	1	9490.36	0.1881	0.1961	0.16445	0.16445
South Carolina	1	9147.18	0.1881	0.1963	0.14584	0.14584
Missouri	1	9436.02	0.1883	0.1922	0.13830	0.13830
Pennsylvania	2	13339.94	0.1036	0.2743	0.08208	0.25767
Kentucky	1	9391.18	0.1696	0.1754	0.13569	0.13569
Tennessee	1	8294.44	0.1664	0.1704	0.12522	0.12522
Alabama	1	8562.06	0.1547	0.1587	0.12712	0.12712
Indiana	1	9719.10	0.1564	0.1615	0.11667	0.11667
Washington	1	9637.48	0.1228	0.1460	0.10594	0.13683
Ohio	2	11203.80	0.1056	0.1194	0.08920	0.11080
Georgia	1	9247.02	0.1091	0.1135	0.08271	0.08271
Michigan	2	10855.32	0.1052	0.1053	0.08912	0.08912
North Carolina	1	8200.32	0.0868	0.0904	0.07317	0.07317
Florida	1	8371.97	0.0772	0.0795	0.05819	0.05819
Texas	1	8260.66	0.0435	0.0440	0.03374	0.03374
California	1	9182.89	0.0338	0.0364	0.02341	0.02595
Control Group (1) Rank Sum			758	870	751	889
Test Group (2) Rank Sum			517	405	524	386
Mann Whitney U Test statistics			2.3380	4.5111	2.2022	4.8798
p value (one tailed)			0.0048	0.0000	0.0069	0.0000

Appendix 6
STATE RANKINGS FROM DEA MODELS ON PUPIL EDUCATION SPENDING

DMU	Group	Bi-CCR-I	Bi-BCC-I	Bi-SBM-C	Bi-SBM-V	Rank Sum	Total Rank
Wyoming	2	1	4	1	1	7	1
Vermont	2	2	4	2	2	10	2
Alaska	2	3	4	3	3	13	3
North Dakota	2	4	4	4	4	16	4
New Hampshire	2	6	4	6	6	22	5
Delaware	2	5	4	5	10	24	6
Rhode Island	2	8	1	8	9	26	7
South Dakota	1	7	3	7	18	35	8
Maine	2	10	2	10	16	38	9
Hawaii	2	11	4	13	12	40	10
Connecticut	2	16	4	17	5	42	11
Nebraska	2	13	4	11	17	45	12
Maryland	2	17	4	22	7	50	13
Montana	2	9	19	9	19	56	14
Idaho	1	12	20	12	20	64	15
Massachusetts	2	26	4	29	8	67	16
Minnesota	2	24	4	25	15	68	17
Nevada	1	14	23	15	24	76	18
West Virginia	2	15	24	14	23	76	19
New Mexico	1	18	25	16	26	85	20
New Jersey	2	36	4	39	11	90	21
Kansas	1	19	28	18	27	92	22
Virginia	2	38	4	37	13	92	23
Wisconsin	2	27	21	26	21	95	24
Mississippi	1	20	26	21	31	98	25
Utah	1	21	29	20	29	99	26
Iowa	1	22	31	19	28	100	27
New York	2	46	4	48	14	112	28
Oklahoma	1	23	30	27	32	112	29
Arkansas	1	25	32	23	33	113	30
Louisiana	2	28	34	24	34	120	31
Illinois	2	40	22	41	22	125	32
Colorado	1	33	33	31	30	127	33
Arizona	1	29	35	30	36	130	34
Oregon	1	31	37	28	35	131	35
South Carolina	1	32	36	32	37	137	36
Missouri	1	30	38	33	38	139	37
Pennsylvania	2	45	27	45	25	142	38
Kentucky	1	34	39	34	40	147	39
Tennessee	1	35	40	36	42	153	40
Alabama	1	39	42	35	41	157	41
Indiana	1	37	41	38	43	159	42
Washington	1	41	43	40	39	163	43
Ohio	2	43	44	42	44	173	44
Georgia	1	42	45	44	46	177	45
Michigan	2	44	46	43	45	178	46
North Carolina	1	47	47	46	47	187	47
Florida	1	48	48	47	48	191	48
Texas	1	49	49	49	49	196	49
California	1	50	50	50	50	200	50

ENTREPRENEURSHIP EDUCATION AS A TOOL FOR REDUCING UNEMPLOYMENT IN NIGERIA

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ABSTRACT

The recent times have experienced a geared interest towards entrepreneurship. This is because of its global capacity for socioeconomic growth and development. Developing countries are therefore focusing on entrepreneurship as a useful instrument for their economic development. Nigeria is not left out in this for the fact that it uses entrepreneurship education as a tool for inculcating entrepreneurial mindset in the youth. The Nigerian government has mandated a compulsory inclusion of entrepreneurship education into the curriculum of higher educational institutions and this is a step towards development. This paper hypothesizes that entrepreneurship education can serve as a useful tool for reducing unemployment in Nigeria and the effect of entrepreneurship education was tested using two variables (entrepreneurship attitude and intention). Test results show that entrepreneurship education is a viable tool for reducing unemployment in Nigeria.

***Keywords**: Entrepreneurship, Entrepreneurship education, Unemployment, Attitude and Intention.*

INTRODUCTION

Background to the study

Integrating the steps involved in the entrepreneurial process into the curriculum of higher educational institutions in Nigeria is a step towards sharpening students' entrepreneurial mindset. It has become the belief of some people that entrepreneurs are born and therefore, teaching entrepreneurship becomes unnecessary. Although entrepreneurship is partly a result of genetic features of the individual and the impact of social environment, an important part can still be enhanced, developed and articulated through education and training (Abari et al 2016). It should however be noted that for one to be a successful entrepreneur, he/she needs to learn the skills (Griffin and Hammis, 2001). Entrepreneurship education is designed to teach the skills and knowledge that are imperative to starting an entrepreneurial venture.

The reality of starting a business requires overpowering many challenges such as start-up capital constraints, penetrating into the market and sustainability of the business (Aliyu, & Bambale, 2016). The processes of emergence, behaviour and performance of indigenous entrepreneurs were separately and in combinations affected not by a single but multiple factors, in ranging degrees. These factors include economic, socio-cultural, ecological, managerial,

educational, developmental, experiential, technological, structural, ethical and innovative issues (Ogundele 2007). Many people have a clear intention of starting a business, but they failed to start because they could not overcome some of these challenges (Abubakar 2017). Entrepreneurship education therefore equips students with the necessary entrepreneurial competencies, knowledge and skills geared towards the pursuit of a career in entrepreneurship; Ooi, Selvarajah & Meyer, 2011). The skills and knowledge acquired from this education would be instrumental to their entrepreneurial pursuit.

Statement of the problem

All higher institutions in Nigeria have been mandated by the federal government to integrate entrepreneurship education into the curriculum of all students, irrespective of their courses of study. This is meant to inculcate in students the entrepreneurial mindset, the intention to start their own businesses, and to become job providers rather than job seekers. This leads to poverty alleviation and -economic development of the country. In line with the federal government policy directive which stipulated the introduction of entrepreneurship education into the curricula of all higher education institutions in the country with a view to re-orientating all graduates of Nigerian tertiary education system towards entrepreneurial self-efficacy, value creation and self-employment, University of Lagos Nigeria offers a compulsory general course in entrepreneurship, GST 307 to all her students in their third year of study. However, direct entry students take the course in their fourth year of study. This course is designed with the objective to equip students with the requisite entrepreneurial skills to positively transform the society through creativity and innovation.

It becomes imperative to assess the decision of the federal government of introducing entrepreneurship education into the curriculum of higher educational institutions in Nigeria and also to assess the extent to which the robust objective of UNILAG GST 307 has been achieved.

Objectives, significance and scope of the study

The objective of this study is to assess the potency of entrepreneurship education as a tool for unemployment reduction in Nigeria. This study was conducted on the undergraduate students of University of Lagos, Akoka, Lagos State, Nigeria, who have taken a course in entrepreneurship in the University. Results from this study would be useful in assisting policy makers in formulating relevant policies or updating already existing ones. Also, the results would be instrumental for the relevant stakeholders, such as the ministry of education, the curriculum developers and the lecturers who execute the teaching process to evaluate the present curriculum of entrepreneurship education in terms of relevance, content and method of delivery.

Research questions

This paper attempts to provide answers to the following two research questions:

i. Do the students possess positive or negative entrepreneurial attitudes?
ii. Are the students intending to become entrepreneurs after graduating?

Research hypotheses

This paper tests the following null and alternative hypotheses:

Ho: *Entrepreneurship education cannot serve as a useful tool for reducing unemployment in Nigeria*
H₁: *Entrepreneurship education can serve as a useful tool for reducing unemployment in Nigeria*

LITERATURE, MATERIALS AND METHOD

Entrepreneurship, entrepreneurship education and unemployment

Entrepreneurship rests on a theory of economy and society and innovation is its specific tool (Drucker 2015). Entrepreneurship is both economic and social application of innovation, that it, it is the practical implementation of innovation to serve socio-economic developmental purposes (Yomi-Akinola, 2016). Entrepreneurship is too risky, thereby making it a scarce resource that should be encouraged by giving some protection to reduce the risk entrepreneurs take (Imhonopi et. al. 2016). It is the capacity and willingness to develop, organize and manage a business venture along with any of its risks in order to make a profit. Traditionally, it is defined as the process of designing, launching and running a new business, which typically begins as a small business, such as a startup company, offering a product, process or service for sale or hire (Riitta et.al. 2012). It has also been defined as the process by which an individual (or team) identifies a business opportunity and acquires and deploys the necessary resources required for its exploitation e.g. developing a business plan, hiring the human resources, acquiring financial and material resources, providing leadership, and being responsible for the venture's success or failure. *(*Hisrich and Robert, 2011). Entrepreneurship is the process of discovering new ways of combining resources.

Human beings have behaviours that can be developed through learning, that is entrepreneurship education (Stokes et. al. 2010) and training. However, researches show that some authors have tried to distinguish between entrepreneurship education and entrepreneurship training, but Toit and Gaotlhobogwe (2018) submits that both entrepreneurship education and training complement each other in entrepreneurship development. They further opine that the process (developing learners' entrepreneurship knowledge and skills and helping them to realize the purpose and importance of entrepreneurship in society) is no less important than the result (having an enterprise or business). Entrepreneurship education can be defined as the field of education designed to inculcate innovation and enterprise in students as well as to arouse their intentions and attitudes towards entrepreneurship (Yomi-Akinola 2016). As cited in Toit and Gaotlhobogwe (2018), McGuigan (2016) defines entrepreneurship education as knowledge, skills and attitudes which contribute to entrepreneurial thinking and actions that learners can apply in their everyday lives. Entrepreneurship education in universities is aimed at inculcating entrepreneurial skills and attitudes in students to motivate entrepreneurial intentions or increased considerations of entrepreneurship as a career by graduates (Middleton, 2010). It also refers to the conscious effort of an educator targeted at inculcating entrepreneurial skills in learners (Ekpoh & Edet, 2011).

Unemployment, by default, is the difference between the labour gainfully employed at the wages and working conditions that exist in a country, and the amount of labour available in that country. However, Gbosi (2006) defines unemployment as a situation in which people who are

willing to work at the prevailing wage rate are unable to find jobs. The International Labour Organization (ILO) explains the unemployed in this manner, "the unemployed is a member of the economically active population, who are without work but available for and seeking for work, including people who have lost their jobs and those who have voluntarily left work (World Bank, 1998). The application of this definition across countries has been faulted, especially for the purpose of comparison and policy formulation, as countries characteristics are not the same in their commitment to resolving unemployment problems. (Douglason et al, 2006).

Entrepreneurship intention and attitude

Research indicates that attitudes and intentions are two constructs that have become yardstick in assessing the impact of entrepreneurship education on university students (Vestergaard, Moberg, & Jogensen, 2012). University level entrepreneurship education is of critical importance in fostering entrepreneurial intentions and attitudes among undergraduate and postgraduate students (Adedapo and Yomi-Akinola, 2017). A study of the impact of entrepreneurship education on students as a tool for reducing unemployment therefore requires an examination of their entrepreneurship attitude and intention. Understanding the intention and attitudes of the students could help in developing more vital and effective entrepreneurship education (Gibson et al., 2011). Attitude according to Pulka et al. (2014) is the degree or extent to which an individual likes or dislikes something. Hence attitude can either be positive or negative. It is the manner in which a person reacts after being confronted with certain stimuli.

According to Ajzen's Theory of Planned behavior, the immediate antecedent of behaviour is the intention to perform the given behaviour. Intentions capture the motivational factors that influence a behaviour. Intentions indicate how strong a person's willingness is to perform a behaviour (Ajzen, 1991). Entrepreneurship intention therefore is the willingness to become an entrepreneur. The stronger the intention to engage in a behaviour, the more likely should be its performance. Hence the bigger the success of behavior prediction or actual behaviour (Ozaralli and Rivenburgh, 2016). If entrepreneurship education actually contributes to entrepreneurial intention of students, then the sustainability of entrepreneurship education would be a meaningful activity and a way of achieving its sustainability is by identifying those factors contributing to it with a view to ensuring its enhancement (Abubakar 2017)

An overview of unemployment in Nigeria

Nigeria has the largest army of unemployed and under-employed youths in Africa. One out of every three Nigerian is either unemployed or under-employed. 54% of Nigerian youths were unemployed in 2012 while currently, 80% of our youths are without jobs (Source: Nigerian Bureau of Statistics). One of the greatest challenges facing the Nigeria economy is unemployment which has maintained a rising trend over the years. It is a great problem associated with both rural and urban communities of the Nigeria economy.

Statistics have shown that over sixty percent of Nigerian population is made up of young people below the age of 35. About eighty percent of these youths are either unemployed or under–employed and this made many observers to predict that the Nigerian Youthful Population is like a time bomb waiting to be detonated (Source: Nigeria Bureau of Statistics, 2016).

Linking Entrepreneurship and Unemployment

The relationship between unemployment and entrepreneurship can best be described from two broad psychological perspectives. A summary of this is drawn from the work of Asad, Ali and Islam (2014):

These two perspectives are called the Schumpeter and Refugee effects. The Schumpeter effect relates to a negative relationship between entrepreneurship and unemployment while the Refugee effect describes a positive relationship between unemployment and entrepreneurship. The Refugee positive relationship occurs when increased rate of unemployment pushes or motivate people to generate innovative and creative ideas in solving identified problems thereby nurturing these ideas into successful enterprises. This leads to an increase in the number of enterprises established and hence increased entrepreneurship activities. The Schumpeter negative effect on the other hand occurs when entrepreneurship activities increase in the economy (this could be as a result of springing newly springing up enterprises or an expansion in existing ones through innovation), entrepreneurs would need employees to work for them or to join their workforce. This reduces the number of unemployed in that country by forcing or pulling down unemployment rate. Simply put, the Refugee positive relationship is experienced when unemployment increases and it causes entrepreneurship activities to increase, while Schumpeter negative relationship occurs when increased entrepreneurship activities lead to reduced unemployment.

Materials and method

This study adopts the descriptive research design. Data was collected using questionnaires. This study was carried out on 150 randomly selected students of University of Lagos, Nigeria who have taken entrepreneurship courses at either their third year or fourth year of study in the University. Two variables (entrepreneurial attitude and intention) were tested using research questions. Statistical Package for Social Science (SPSS 20) was used to analyze data. Descriptive analysis of the research questions and analysis of research hypotheses using chi-square were carried out respectively. Also, comparative analyses were carried out on entrepreneurship attitude and entrepreneurship intention between the two genders.

RESULTS:

Table 3.1 Gender Distribution of Students

Sex	Frequency	Percent
Male	92	61.3
Female	58	38.7
Total	150	100.0

Source: Field Study, 2017

The table 3.1 above shows that more than half, 92(61.3%) of the students are male, while the others, 58 (38.7%) are female.

Answering research questions

Research question one: Do the students possess positive or negative attitudes towards entrepreneurship?

Table 3.2 Descriptive analysis of entrepreneurship attitude

Items	1	2	3	4	5	6	7	8	9
Starting my own business sounds attractive to me	6	6	1	57	18	30	32	4.95	1.57
%	4.0	4.0	.7	38.0	12.0	20.0	21.3		
I can spot a good opportunity long before others can	2	1	4	38	32	24	49	5.43	1.38
%	1.3	.7	2.7	25.3	21.3	16.0	32.7		
To start my own company would probably be the best way for me to take advantage of my education	2	9	4	12	16	58	49	5.70	1.27
%	1.3	6.0	2.7	8.0	10.7	38.7	32.7		
I excel at identifying opportunities		3	6	14	35	24	68	6.76	8.29
%	0	2.0	4.0	9.3	23.3	16.0	45.3		
I am confident that I would succeed if I start my own business	0	0	2	19	24	48	57	5.92	1.08
%	0	0	1.3	12.7	16.0	32.0	38.0		
I personally consider entrepreneurship to be highly desirable career alternative for me	4	1	7	5	43	31	59	5.74	1.39
%	2.7	.7	4.7	3.3	28.7	20.7	39.3		
It would be easy for me to start my own business	4	7	11	35	35	58	0	5.76	1.30
%	2.7	4.7	7.3	23.3	23.3	38.7	0		
Nothing is more exciting than seeing my ideas turn into reality	3	2	17	8	17	36	67	5.73	1.56
%	2.0	1.3	11.3	5.3	11.3	24.0	44.7		
I would rather found a new company than be the manager of an existing one	2	11	14	20	31	20	52	5.23	1.69
%	1.3	7.3	9.3	13.3	20.7	13.3	34.7		

Source: Field Survey, 2017

1= strongly disagree, 2=disagree, 3=slightly disagree, 4=neutral, 5=slightly agree, 6=agree, 7=strongly agree, 8= Mean, 9=standard deviation. Weighted mean=4.0, Grand mean=5.69

Table 3.2 above shows items used to test students' attitude towards entrepreneurship. A 7-point Likert scale was used and the result shows that the students have positive attitude towards entrepreneurship. This is evident in the result of the grand mean (5.69) which is greater than the weighted mean (4.0).

Table 3.3 Comparative analysis of entrepreneurship attitude

Gender		Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8	Item 9
	X	4.8913	5.3152	5.5652	7.1848	5.8696	5.7935	5.9130	5.7717	5.0870
Male	N	92	92	92	92	92	92	92	92	92
	Sd.	1.60669	1.46707	1.30346	10.55069	1.04005	1.58661	1.38002	1.61111	1.76444
	X	5.0517	5.6207	5.9310	6.1034	6.0172	5.6552	5.5172	5.6724	5.4655
Female	N	58	58	58	58	58	58	58	58	58
	Sd.	1.52663	1.24008	1.19740	1.19487	1.14695	1.03537	1.15836	1.50307	1.55840
	X	4.9533	5.4333	5.7067	6.7667	5.9267	5.7400	5.7600	5.7333	5.2333
Total	N	150	150	150	150	150	150	150	150	150
	Sd.	1.57300	1.38746	1.27204	8.29524	1.08124	1.39717	1.30913	1.56585	1.69253

Table 3.3 above shows result from the comparative analysis of male and female entrepreneurship attitude. With a weighted mean of 4.0, grand mean for male responses to all items is 5.71 while that of female is 5.67, male respondents have greater positive attitudes towards entrepreneurship. Consequently, the entrepreneurship course taken by the students have greater positive impact on the entrepreneurship attitude of male than on the female students.

Research question two: Are the students intending to become entrepreneurs after graduating?

Table 3.4 Descriptive analysis of entrepreneurship intention

Item	1	2	3	4	5	6	7	8	9
My professional goal is becoming an entrepreneur	4	0	1	19	13	56	57	6.06	1.216
Percent (%)	2.7	0.0	.7	12.7	8.7	37.3	38.0		
I will make every effort to start and run my own firm	5	0	8	18	19	27	73	5.88	1.32
Percent (%)	3.3	0	5.3	12.0	12.7	18.0	48.7		
I'm determined to create a firm in the future	2	4	5	28	16	38	57	5.79	1.54
Percent (%)	1.3	2.7	3.3	18.7	10.7	25.3	38.0		
I've got the strong intention to start a firm some day	0.0	6	11	38	23	32	40	6.31	8.36
Percent (%)	0	4.0	7.3	25.3	15.3	21.3	26.7		
I'm ready to make anything to be an entrepreneur	0	4	2	5	33	18	33	5.22	1.46
Percent (%)	0.0	2.7	1.3	3.3	22.0	12.0	22.0		
To start my own company would probably be the best way for me to take advantage of my education	0.0	8	7	2	29	23	46	5.52	1.52
Percent (%)	0.0	5.3	4.7	1.3	19.3	15.3	30.7		

I would rather found a new company than be the manager of an existing one.	0.0	10	4	4	21	14	34	5.33	2.01
Percent (%)	0.0	6.7	2.7	2.7	14.0	9.3	22.7		

Source: Field Survey, 2017

1= strongly disagree, 2=disagree, 3=slightly disagree, 4=neutral, 5=slightly agree, 6=agree, 7=strongly agree, 8= Mean, 9=standard deviation. Weighted mean=4.0, Grand mean=5.73

Table 3.5 Have you ever seriously considered becoming an entrepreneur?

Status	Frequency	Percent
Yes	125	83.3
No	25	16.7
Total	150	100.0

Source: Field Study, 2017

Table 3.4 above shows items used to test students' entrepreneurship intention. Also, a 7 point Likert scale was used and the result shows that the calculated mean of each item is higher than the weighted mean, which reveals that students possess positive entrepreneurship intention. Also, item one has the highest mean which implies that many of the students intend to become entrepreneurs in life. Furthermore, table 3.5 reveals that majority (83.3%) of the students are seriously considering becoming entrepreneurs while the remaining (16.7%) are not.

Table 3.6 Comparative analysis of entrepreneurship intention

Gender		Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7
	X	5.9130	5.5761	5.5109	5.1630	5.4891	5.0000	5.2717
Male	N	92	92	92	92	92	92	92
	Sd	1.31477	1.73036	1.50088	1.48455	1.51545	1.77900	1.92784
	X	5.8276	6.1379	5.8103	5.3276	5.5690	5.5172	5.9310
Female	N	58	58	58	58	58	58	58
	Sd	1.33952	1.11526	1.41987	1.44353	1.55724	1.39223	1.47330
	X	5.8800	5.7933	5.6267	5.2267	5.5200	5.2000	5.5267
Total	N	150	150	150	150	150	150	150
	Sd	1.32057	1.54267	1.47255	1.46616	1.52703	1.65477	1.78997

Table 3.6 above shows result from the comparative analysis of male and female entrepreneurship intention. With a weighted mean of 4.0, grand mean for male responses to all items is 5.42 while that of female is 5.73, female students have greater positive entrepreneurship intentions despite the fact that male respondents were more than female respondents. Consequently, the entrepreneurship course taken by the students have greater positive impact on the entrepreneurship intention of female than on that of male students. By implication, this paper establishes that more female students are intending to become entrepreneurs than the male students.

Hypotheses Testing

This section presents results of the hypothesis testing. The null and alternative hypotheses were tested at 0.05 level of significance using Chi-square Analysis. As a decision rule, a hypothesis is regarded as significant if the p value is less than 0.05, otherwise it is not significant.

Ho: *Entrepreneurship education cannot serve as a useful tool for reducing unemployment in Nigeria*
H₁: *Entrepreneurship education can serve as a useful tool for reducing unemployment in Nigeria*

Table 3.3 Summary of Chi – Square Analysis for Testing Hypotheses

Chi square	Value	Degree of freedom	P value
Pearson Chi-Square	176.199	30	.000

Source: Authors Compilation using SPSS 20

The table 3.3 above shows the chi square value from hypotheses testing. The Pearson's chi-square statistic value used in testing the hypotheses reveals that the hypothesis was significant (χ^2= 176.199, P value = 0.000 <0.05).

The null hypothesis - entrepreneurship education cannot serve as a useful tool for reducing employment in Nigeria - is hereby rejected, while alternative hypothesis - entrepreneurship education can serve as a useful tool for reducing employment in Nigeria is accepted.

DISCUSSION

It could be inferred from the foregoing that the compulsory entrepreneurship course which University of Lagos students have taken have motivated quite a large percentage of them towards being entrepreneurs. Rather than looking forward to becoming job seekers, they rather prefer aspiring to become job providers, thereby putting into use the skills acquired through entrepreneurship education received. The results from the questionnaire items reveals that due to the entrepreneurship education received at University of Lagos, a large percentage of the students have positive attitudes towards entrepreneurship, prefer entrepreneurship as their career option and are planning to practice it. This corroborates the work of Eburu (2015) who did a study on the factors affecting entrepreneurial intentions of students in some selected Turkish universities. The study confirms a positive correlation between the students' success level in entrepreneurship classes and their entrepreneurial intentions. In the same vein, results from this work complement the findings from the study conducted by Yomi-Akinola (2016) on the impacts of entrepreneurship education on students of University of Ibadan, Nigeria. The study finds out a positive relationship between entrepreneurship education which students of University of Ibadan, Nigeria received and their attitudes towards entrepreneurship. This also is in line with the results of findings made by Adedapo and Yomi-Akinola (2017) which reveals that entrepreneurship education can positively affect the attitudes of University of Ibadan students.

In addition, this research has proven that entrepreneurship education has the capacity to significantly reduce unemployment. Using the Pearson's chi-square statistical tool in testing the

hypothesis, the result reveals that the hypothesis was significant (χ^2= 176.199, P value = 0.000 <0.05). Furthermore, results from comparative analysis establish that the positive entrepreneurship attitude found in the students is more concentrated in males than in the female. This means that the male students have greater tendency to practice entrepreneurship (Banu cited in Pulka et.al, 2014) if being given more doses of entrepreneurship education. Albeit the greater tendency for entrepreneurship found in male students, the female students possess more willingness to actually practice entrepreneurship. Comparative analysis of students' entrepr eneurship intention reveals that the female students have stronger intentions to engage in entrepreneurship, hence the bigger the success of predictions that they will actually become entrepreneurs (Ozaralli and Rivenburgh, 2016).

CONCLUSION

Entrepreneurship has been viewed as the pillar for 21st century socioeconomic development around the world. It is a step in the right direction for the government to embed entrepreneurship education into the academic curriculum of Nigerian higher educational institutions. It cannot be overstated the role entrepreneurship education has played in impacting into students the entrepreneurial mindset. We also cannot overemphasize the potency of entrepreneurship education in instilling into students the creative and innovative problem solving capability to combat the rapidly growing rate of unemployment in the country. In addition to the hard skills learnt in their various individual departments of study, entrepreneurship education supplies students with the soft skills they need to function effectively in the real world of work. Even though entrepreneurship is not a cure for youth unemployment, several studies have linked entrepreneurship education to reducing unemployment through skills development and the creation of opportunities for self employment (April, 2015; Ekpe, Rasak, Ismail and Abdullah, 2016 as cited in Toit and Gaotlhobogwe (2018). By implications, these authors suggest that educational systems should include teaching entrepreneurship skills into their curricula. This study validates the compulsory inclusion of entrepreneurship courses into the curriculum of Nigerian higher educational institution. However, to ensure its effectiveness, it is important for the government to rise up to the task of making funds available to these educational institutions so as to put in place the necessary facilities to execute effective entrepreneurship education.

RECOMMENDATIONS

Following the findings of this work the author make bold to recommend as following:

- There should be a working partnership between industry and the universities. This could be in form of mentoring and internship provision.
- Universities should be mandated by policy to pattern their entrepreneurship development and entrepreneurial education after the model that works out creativity in the students and not just theoretical practices of entrepreneurial development.
- To seriously combat the menace of unemployment in the country, government should strategize on how to strengthen entrepreneurship education in existing public universities

and other higher educational institutions, rather than creating more. This is a valid measure as posited by UNESCO, International Bureau of Education, (2016), countries struggling with high levels of unemployment may choose to give precedence to skills development or entrepreneurship education to address that particular need of their society.

- With the assistance of large enterprises, government in collaboration with the higher institutions should make funding provision at very low cost available to students who are ready to establish their own business on graduation.

ACKNOWLEDGEMENTS

To all our respondents, we are very grateful for your sincere responses to items on the questionnaire. We are also grateful to all persons concerned who gave us access to the our respondents.

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WORKFORCE TURNOVER AND ABSENTEEISM IN THE MANUFACTURING SECTOR

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ABSTRACT

The manufacturing sector in the United States is simultaneously enduring record-low unemployment rates and record-high growth. These economic conditions underscore the vital role that managing human capital plays in an organization's success. Effective recruitment and retention programs are particularly key to helping manufacturing organizations perform optimally under these competitive labor market conditions. This study explores the relationships between pay practices, benefit programs, location characteristics, absenteeism, and turnover using survey data from human resource management professionals representing over 350 manufacturing organizations in the southeast. Responding organizations represented both rural and metro areas, ranged in size from 2-6,000 employees, and reported average annual sales ranging from $150k to $850k. The findings can help organizations and human resource managers develop better strategies for recruiting and retaining the skilled labor that is vital to their organizations' effectiveness.

INTRODUCTION

The United States economy has been experiencing unprecedented growth across a broad range of industries and geographic regions (U.S. Bureau of Economic Analysis, 2018a). In 2017, the real gross domestic product (GDP) in the U.S. increased by 2.3% with 20 of 22 industry groups adding to the increase (U.S. Bureau of Economic Analysis, 2018b). Likewise, the District of Columbia and 47 states experienced increases in real GDP (2018c) as did 312 of 383 metropolitan areas (2018d).

The manufacturing sector, in particular, has found renewal in this thriving economy. Manufacturing represents the sixth largest employer in the U.S. with an average weekly wage of $1,046 (Thomas & Campbell, 2018), making up nearly 11.5% of the economy (Dmitrieva, 2018; Thomas & Campbell, 2018). In September 2018, the U.S. Bureau of Labor Statistics (BLS) reported that employment in the manufacturing industry grew by 2.2% over the past 12 months (2018a), reflecting the addition of 278,000 jobs (2018b). In fact, the growth from July 2017 to July 2018 was the highest since the April 1994 to April 1995 period (Franck, 2018). Consequently, manufacturers continue to report that being unable to recruit high-quality workers is their biggest business threat (The Manufacturing Institute, 2018; 2019).

Low unemployment is a significant contributor to the shortage of skilled workers. The unemployment rate may be defined simply as the number of unemployed divided by the total number of people in the workforce (Kenton, 2018) or conceptualized as a metric showing the demand versus the supply of labor. The national unemployment rate dropped to 3.7% in September 2018 (BLS, 2018a), which was a 17-year low. While there were 488,000 job openings in manufacturing in August 2018, there were only 372,000 hires, leaving over 100,000 positions

unfilled (BLS, 2018c). In August 2019, the national unemployment rate for the manufacturing industry was 3.2% (BLS, 2019).

When the unemployment rate is low, recruiting and retaining high quality employees is even more challenging (Gardner, 2002). The influence of unemployment rates on voluntary turnover, also called quit rates, or employees leaving by their own choice, has been studied for decades (see Eagly, 1965; Carsten & Spector, 1987; Hom & Kinicki, 2001; Berry, Lelchook, & Clark, 2012). Logically, turnover may increase when unemployment is low because employees are more likely to have job alternatives. Additionally, low unemployment rates may lead to drastic strategies among competing firms, including "talent raiding" (Gardner, 2002, p.225), where all of a competitor's employees are considered fair game, not just one or two (Gardner, 2002).

While some minimal level of turnover is healthy for an organization, excessive, unhealthy turnover can be very expensive. Fitz-enz (2000) reported that turnover costs an organization a minimum of 6 months of the pay and benefits for a non-exempt employee while replacing a professional or managerial employee will cost at least 12 months' pay and benefits. The Society for Human Resource Management (SHRM) reported that the average cost per hire was $4,425 per employee in 2016 (SHRM, 2017). Using that average, 10% turnover in a firm with 100 employees would cost the organization $44,250 just in advertising and recruiting fees to find replacements for the 10 separated employees. Further, SHRM.com shared insights from the 2018 Retention Report, completed by the Work Institute. The report stated that employers in the United States will pay $680 billion in turnover costs in 2020 (Fox, 2018). Typically, human resource management professionals are heavily involved in helping organizations combat unwanted, expensive turnover.

Turnover research often also includes absenteeism as both are considered to be withdrawal behaviors by many researchers (see Berry, Lelchook, & Clark, 2012; Hom, Mitchell, Lee, & Griffeth, 2012; Sheridan, 1985). Absenteeism is also very expensive for organizations. SHRM (2014) reported that absenteeism costs organizations between 20.9-22.1% of payroll when considering direct costs, such as wages/salary, overtime, replacement workers, and indirect costs, such as lost productivity. Absenteeism is often regarded as a correlate (Mitra, Jenkins, & Gupta, 1992) or a predictor of turnover (Berry et al. 2012; Sheridan, 1985; Steel & Lounsbury, 2009).

With plenty of job alternatives available during periods of low unemployment, employees may use a variety of factors to help them decide whether to stay or to quit. For the purposes of this paper, the study is limited to factors related to pay, benefits, and other organizational characteristics, such as location. Absenteeism and turnover are the dependent variables. This paper serves two purposes. The primary goal is to assist human resource management professionals with development of recruitment and retention policies and practices that will help them maintain the skilled labor that is vital to their organizations' effectiveness. The secondary goal is to help management scholars learn more about absenteeism and turnover in the manufacturing sector.

LITERATURE SUPPORT

Despite the size and economic contributions the manufacturing sector provides – sixth largest employer in the U.S. (Thomas & Campbell, 2018), making up nearly 11.5% of the economy (Dmitrieva, 2018) – academic research on the manufacturing workforce is scarce. As discussed in the introduction, our current economic conditions are equally promising and concerning for U.S. manufacturers. The low unemployment rate, the challenge of recruiting high-quality workers, and the number of unfilled jobs create a perfect storm of sorts, and the potential costs associated with turnover and absenteeism only serve to increase the urgency with which we study these issues.

While several theories could be used to support the current study, we rely on human capital theory (Becker, 1964) to highlight the investment organizations make in their workforce and to justify exploring the different contextual variables (such as the labor market, location characteristics, unionization, etc.) that may influence the productivity of the workforce or the gains on those human capital investments. We also find theoretical support through the resource-based view (Barney, 1991) as the study aims to help manufacturers find ways to sustain competitive advantage in especially challenging labor market conditions.

RESEARCH QUESTIONS

We sought to answer five research questions using data collected from 355 human resource management professionals in the Middle Tennessee region as part of a larger wage and benefits survey. The data and methodology are explained in detail in the next section.

1. Which location characteristics, if any, correlate with turnover and absenteeism?
2. Which pay practices, if any, correlate with turnover and absenteeism?
3. Which benefit practices, if any, correlate with turnover and absenteeism?
4. What were the most common factors reported for turnover and absenteeism?
5. Which demographic variables, if any, correlate with turnover and absenteeism?

DATA AND METHODOLOGY

The majority of the data used in this paper came from a 2017 wage and benefit survey, created by the Business and Economic Research Center at Middle Tennessee State University in partnership with the Middle Tennessee Industrial Development Association. This project launched first annual survey of its kind for middle Tennessee manufacturing. The survey responses were captured using Survey Monkey software. The survey was separated into two general sections: one that asked about wages in specific job categories and one that asked institutional-level pay and benefit practices. The survey was sent out to manufacturing HR managers in middle Tennessee, resulting in a data set with 355 respondents.

The institutional-level portion of the survey relevant to this paper included 73 questions, which had various responses types (open-ended, range, and yes/no). The dependent variables are the binary questions (1) *Is absenteeism a problem for your company?* and (2) *Is turnover a problem for your company?* Using responses for these two questions as a basis for non-response exclusion, 243 observations remained for use in our models out of the original 355. Connected with our dependent variables are two other questions: (1) *What is your approximate average annual employee absentee/turnover rate?* and (2) *What are the three most important factors for employee absenteeism/turnover?* The first question group is a range, and the second is open-ended.

While the survey reports the average absenteeism and turnover rates, the responses are a mix of actual numbers and ranges. The actual numbers entered were from 1% to 10%, and the range categories' ceiling was 30%, meaning that any number above 30% was included in the 30% range category. This approach skewed the numbers downward and led us to use only the binary absenteeism/turnover variables as dependent variables to test for this paper. The ranges, however, still represent important information about what level of absenteeism or turnover would induce a company to label these issues as problems for the company. Figures 1 and 2 show the box-whisker plot of rate ranges for companies that reported a problem or no problem. To determine the box-

whisker plots, we used the same sample used in the regressions (initially n = 243) and sorted the two dependent variables separately. For example, the box-whisker plot of the turnover rates was for companies that reported no problem for turnover, regardless of if absenteeism was a problem. We examined the joint ranges (e.g. rates for companies that reported both as a problem), but they did not vary visually and thus added no new information.

Figure 1: Rates for Companies that Reported No Problem

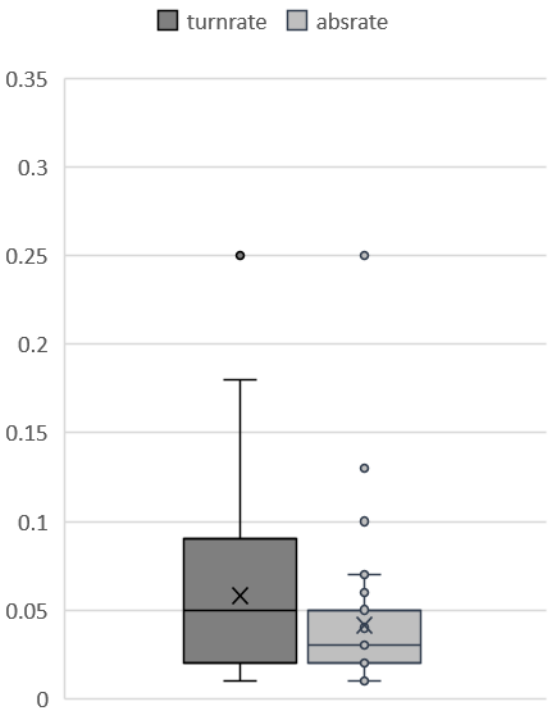
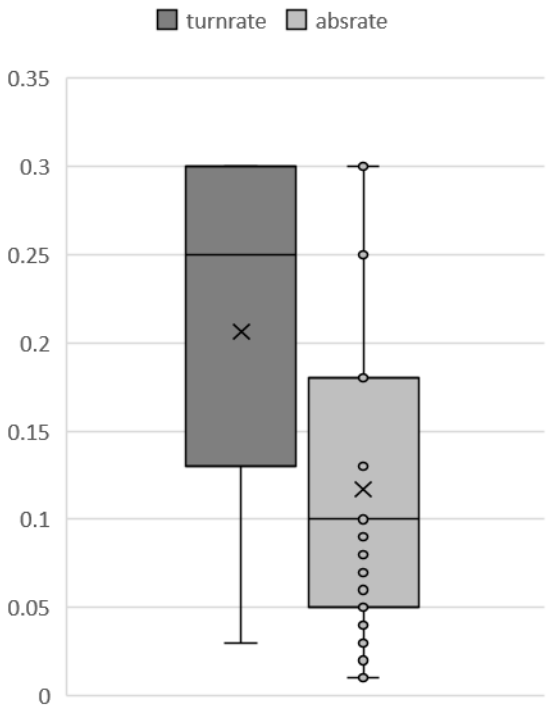


Figure 2: Rates for Companies that Reported a Problem



In addition to the company-level information from the survey, we used county-level data in our research to examine the county-level characteristics' effect on the problems of turnover and absenteeism. Table 1 reports the additional county-level data used in the study, gathered post-survey from varying sources.

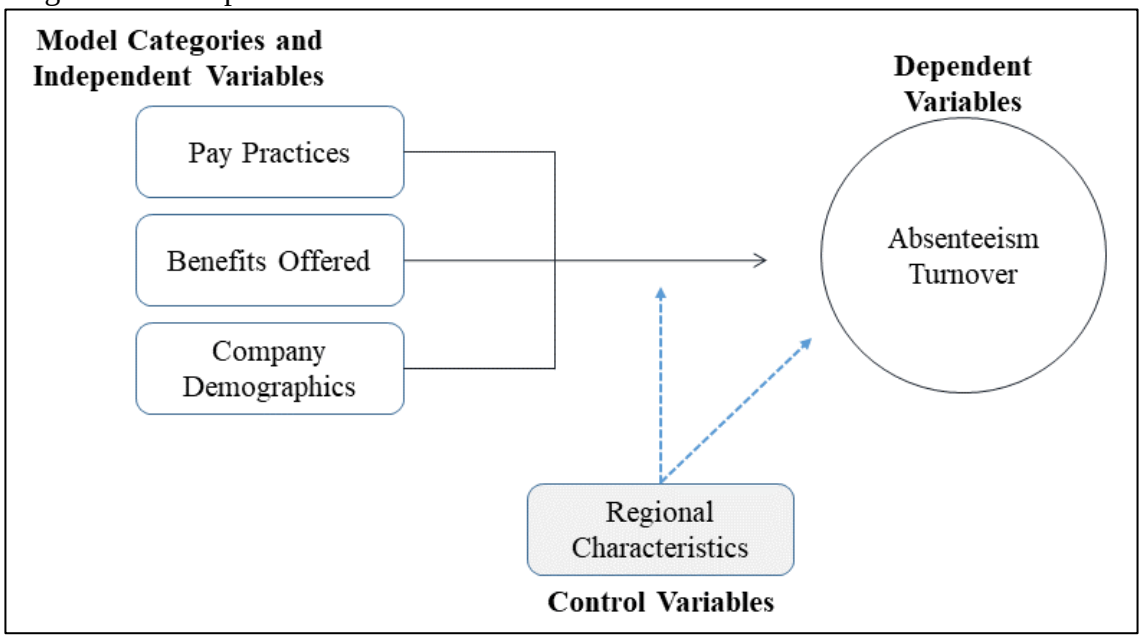
Table 1: Additional County-Level Data

Data ID	Description	Source
copop2016	County population in 2016	Census.gov
perrural2010	Percent of population living in rural areas by county in 2010	Census.gov
econdiv2016	The Shannon-Weaver Index of economic diversity in 2016	IMPLAN.com (calculated from the IMPLAN data files for each county)
unemp2016	Average annual unemployment rate in 2016	Bureau of Labor Statistics (bls.gov)
babove2016	Percent of population with bachelors and higher degree by county	Census.gov (ACS-2013-2017 five-year average estimates)

Conceptual Model

Figure 3 outlines the conceptual model followed by this paper. We hold that pay practices, benefits offered, company demographics, and regional characteristics play a part in determining whether companies consider absenteeism or turnover to be a problem. We first tested the regional characteristics' effect on absenteeism, using the county-level data and the indices mentioned in the next section. For each of the four categories, we constructed and discussed correlation tables due to the lack of observations for some of our data. Then we tested each category of independent variables separately for both absenteeism and turnover, with regional characteristics entered into each of the three model categories as controls. From the model categories, we then combined the significant variables into a full model for both dependent variables.

Figure 3: Conceptual Model



Indices

We utilized the county-level data in our models to attempt to capture the effects of environmental factors on whether absenteeism and turnover are considered problems by manufacturing companies by county. A priori, we constructed two indices using the county-level data with the thought that relative regional vitality and relative regional economic resilience would be able to explain the dependent variables. Taking the five county-level variables in Table 1, we used their respective means and standard deviations to transform each variable's values into normally distributed values, allowing the variables to be added and averaged together. Each index was calculated using the following formula:

$$f(Variable, \mu, \sigma) = \frac{1}{\sqrt{2\pi\sigma}} e^{-[\frac{(Variable-\mu)^2}{2\sigma^2}]}$$

where Variable is the variable of interest, μ is the average value for the variable of interest, and σ is the standard deviation for the variable of interest.

The first index created is the relative regional vitality index (RRVI) and includes the county's population, the percent of the county's population living in rural areas, and the percent of the county's population with bachelor's degrees or higher. Not knowing the effect of each of these three variables, we weighted them equally. RRVI evaluates the labor force characteristics of the counties. We postulated that a higher RRVI number would correlate with a lower probability that absenteeism or turnover is a problem.

The second index created is the relative regional economic resilience index (RRERI) and includes county's economic diversity and the county's unemployment rate, initially weighted equally. A county's economic diversity was calculated using the following formula:

$$EDI = \sum s_i X ln(s_i)$$

where EDI stands for Economic Diversity Index, $s_i$is the employment share of each sector, and ln(s_i) is the natural log of s_i (Shannon and Weaver, 1949). The RRERI on the whole assesses the institutional characteristics of the countries. As with RRVI, we hypothesized that higher RRERI numbers would correlate with lower probabilities that absenteeism or turnover are problems for the companies.

Methods

Due to the binary nature of the dependent variables, this paper uses a logit model for all regression models, following Campione (2015). With the mfx package in R, logit model outputs can be directly interpreted as marginal effects. Unfortunately, large number of missing responses for many variables of interest prevent the use of logistical regression for some interest categories. The logistic regression model for both absenteeism and turnover is specified as:

$$Abs\ or\ Turnover = \alpha_1 + \beta X_i + \varepsilon_i$$

where Xi represents the independent variables, which includes indicators for *Pay Practices*, *Benefits Offered*, *Company Demographics*, and *Regional Characteristics* as control variables.

To determine correlations apart from regression methods, we create correlation tables using the Pearson method using the Hmisc package in R. These correlations use pair-wise deletion, which preserves some data lost due to row deletion in the logit models. However, the results, unlike the logistic regression results, cannot be directed interpreted as causal marginal effects, only as correlations with varying levels of significance.

We began determining the relevant independent variables by choosing indicators for the four categories mentioned above that could affect our dependent variables – pay practices, benefit offerings, company demographics, and location characteristics. Each category's model separately tests the two dependent variables, and independent variables for pay, benefits, and demographics models are shown in Table 2. The regional characteristics are not from the survey and the regional characteristics model uses the county-level variables shown previously in Table 1.

Table 2: Models and Variables

Variable Name	Survey Question	Response Type	Used in Model?
Pay Practices Model			
secshdif9	If you have a second shift, what differential do you pay?	Forced choice range	
thrshdif11	If you have a third shift, what differential do you pay?	Forced choice range	
profshar37	Profit-sharing?	Yes/No	X
col49	Do you pay an annual cost of living increase?	Yes/No	X
Benefit Offerings Model			
benperwag48	On average, what is the value of benefits as a percent of annual wages?	Typed number as percent	
pdhol12	Number of annual paid holidays (Christmas, Thanksgiving, etc.)	Typed number of days	X
pddays1718	Annual number of paid vacation days plus annual number of paid sick days	Typed number of days	X
retirescore	Traditional pension plan? 401K or 403b plans? Profit-sharing? Employee stock ownership plan?	Index of yes/no (max=4)	X
med19	Does your company offer MEDICAL insurance benefits?	Yes/No	X
medempper20	Ratio of what employer pays for employee's individual medical benefits	Ratio	
medfamper21	Ratio of what employer pays for employee's family medical benefits	Ratio	
medperall	Average of individual and family employer medical ratios	Ratio	
den24	Does your company offer DENTAL benefits?	Yes/No	X
denempper25	Ratio of what employer pays for employee's individual dental benefits	Ratio	
denfamper26	Ratio of what employer pays for employee's family dental benefits	Ratio	
denperall	Average of individual and family employer dental ratios	Ratio	
vis27	Does your company offer VISION benefits?	Yes/No	X
visempper28	Ratio of what employer pays for employee's individual vision benefits	Ratio	
visfamper29	Ratio of what employer pays for employee's family vision benefits	Ratio	
visperall	Average of individual and family employer vision ratios	Ratio	
cardev40	Career development?	Yes/No	X
tut41	Tuition payment?	Yes/No	X
childc42	Child care assistance?	Yes/No	X
pdjur43	Paid jury duty?	Yes/No	X
pdvot45	Paid time off to vote?	Yes/No	X
Company Demographics Model			
numemp2	Number of employees	Typed number of people	X
pttime3	Part-time employees (% of total)	Typed number as percent	
avhours4	Total hours worked during the average week	Forced response number of hours	X
union6	Is your workforce unionized?	Yes/No	X
avansale5	Average annual sales	Typed number in dollars	
resico7	What percentage of your current employees reside in the county where your business is located?	Typed number as percent	X

Source: MTIDA 2017 Wage and Benefit Survey

Table 3: Means, standard diviations, and correlations for location characteristics, turnover, and absenteeism.

	M	SD	1	2	3	4	5	6	7	8
1 Absenteeism problem	0.55	0.5								
2 Turnover problem	0.46	0.5	.63**							
3 Absenteeism rate	0.14	0.1	.54**	.41**						
4 Turnover rate	0.07	0.07	.47**	.71**	.42**					
5 Purrual2010	53.7	25.7	.10	.17*	.00	.15*				
6 Econdiv2016	0.7	0.03	-.10	-.19*	-.05	-.18*	-.76**			
7 Unemp2016	0.05	0.01	.05	.08	-.03	.06	.67**	-.69**		
8 Babove2017	0.2	0.08	-.11	-.11	.04	-.12	-.88**	.59*	-.65**	
9 Copop2016	107,628	133,664	-.07	-.08	.06	-0.05	-0.79**	.56**	-0.55**	0.82

Notes: N = 183 for the Pearson correlations. *p < .05, **p < .01

RESULTS AND DISCUSSION

Location Characteristics

For research question 1, we explored which location characteristics, if any, correlated with turnover and absenteeism. As shown in Table 3, strong correlations exist among the five location characteristics variables, as well as among the rates and binary variables. Rurality and economic diversity both correlate with whether turnover is a problem in a company. Economic diversity, as expected, correlates negatively with a company's turnover problem. Economic diversity represents the number of industries present in a specific county, with the assumption that increased diversity leads to increased economic resilience. Diversity's negative correlation with turnover suggests that counties with many industries may represent places that potential employees want to move to, which cuts out length of commute as a reason why an employee would quit. Additionally, diverse counties which have many different types of jobs could lead to people choosing for which company they want to work, which would lead to less turnover.

Rurality is the percentage of a county's population that lives in rural areas. Rurality's positive correlation with turnover suggests that those companies located in counties with larger rural populations could institutionally differ from those companies located in counties with higher urban populations (e.g. manufacturing plants could be larger due to less urban area codes and restrictions). Another reason for rurality's positive correlation with the problem of turnover could be in the type of worker that lives in a rural versus an urban area. Rural populations might find commuting long distances difficult and thus the turnover problem could rooted in inconvenient commuting distances in those counties.

In addition to correlations, we ran logit regressions on regional characteristics' effects on the problems of turnover and absenteeism, presented in Table 4.

Table 4: Regional Characteristics Logistic Regression

	Absenteeism				**Turnover**			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
RRVI	-0.1872		-0.1909		-0.0865		0.6016	
RRERI	-0.0413	-0.1057			-0.2945	-0.2823		
perrual2010		0.0000		-0.0017		0.0051		0.0026
econdiv2016			-1.4523	-2.5568			**-5.01595 ***	**-4.8396** .
unemp2016			-3.8421	-4.8044			0.3126	-6.9656
babove2017		-0.7230		-1.2420		0.4470		-0.3036
copop2016		0.0000		0.0000		0.0000		0.0000
AIC	241.4000	245.4507	242.8993	246.5489	239.6985	241.1966	238.2598	241.1470

Notes . p < .10, * p < .05, ** p < .01

As noted in the discussion on the created location indices, the location characteristics were a priori considered to jointly and equally affect the problem of absenteeism and turnover. The results for Model 1 for both absenteeism and turnover prove that the indices are not good indicators of whether turnover or absenteeism is considered a problem by companies. The results for Model 2 show that no component of the RRVI index correlates with problems with absenteeism or turnover. The results for Model 3 show that economic diversity has a negative effect on whether turnover is considered a problem, and the same results are mirrored in the full model (Model 4)

and in the previous correlation table (Table 3). Models in the following sections will include some or all of the regional characteristics mentioned above, with the exception of the the variable measuring percent of bachelor's degree-holding population. Table 3 shows that the variable correlates above the 0.80 threshold with the variable measuring the percent of rural population and with the variable measuring county population; we removed the bachelor's variable to avoid collinearity in our models.

Pay Practices

For research question 2, we sought to identify which pay practices, if any, correlated with turnover and absenteeism. As shown in the correlation matrix (Table 5), several significant correlations were found.

Table 5: Means, standard diviations, and correlations for location characteristics, turnover, and absenteeism.

	M	SD	1	2	3	4	5	6	7
1 Absenteeism problem	0.55	0.5							
2 Turnover problem	0.46	0.5	.58**						
3 Absenteeism rate	0.14	0.1	.53**	.4**					
4 Turnover rate	0.07	0.07	.48**	.71**	.45**				
5 Second shift differential	0.86	0.35	-.03	-.07	-.05	-.05			
6 Third shift differentia;	0.87	0.34	-.08	-.09	-.13	-.09	.58**		
7 Profit sharing available	0.23	0.42	.05	.02	-.04	.14*	.00	.18	
8 Cost of living raises given	0.47	0.50	.09	.11	.11	-.03	.00	-.02	.10

Notes: N ranges from 93 to 243 for the Pearson correlation pairs. *p < .05, **p < .01

Strong correlations were observed, as expected, between absenteeism being seen as a problem and turnover being seen as a problem as well as the absenteeism and turnover rates. There were two other significant correlations. First, the positive correlation between the second shift differential and the third shift differential is expected. Organizations that offer a second shift differential would likely also offer a third shift differential in an equal or higher proportion. The second significant correlation was unexpected: the existence of profit sharing programs (a yes/no item) was positively correlated with the turnover rate. We would expect that the existence of a profit sharing program would be negatively correlated with turnover, so this result warrants further investigation. Perhaps the profit sharing program was perceived negatively by employees, which would nullify the desired impact on turnover. We did not observe any significant correlations between shift differentials and cost of living adjustments and any of the turnover and absenteeism variables, which was unexpected. Future research on theses variables may be warranted.

Benefit Programs

For research question 3, we examined which benefit programs, if any, correlated with turnover and absenteeism. As shown in the correlation matrix (Table 7), several significant correlations were present.

All four turnover and absenteeism variables were negatively correlated with the percentage of medical insurance paid by the company for employees with individual coverage. These correlations ranged from -.16 to -.23. This result is not completely surprising given the high cost of medical insurance. Companies that contribute more toward their employees' medical insurance premiums may benefit from lower turnover and absenteeism. The average percentage of medical insurance paid by the company for individual and family coverage was negatively correlated with the absenteeism rate. This distinction is unexpected and is possibly due to the stronger correlation

of the percentage of medical insurance paid by the company for individual employees with the same absenteeism variable.

Both variables measuring the simple availability of dental and vision insurance had small, positive correlations with turnover being reported as a problem. This result is unexpected and does not align well with the other results. For example, the percentage of dental paid by the company for employees with individual coverage was negatively correlated with both absenteeism variables, which is the expected direction. A similar result occurred between the percentage of vision insurance paid by the company for individual coverage and absenteeism rate. These mixed results lead us to believe that by bearing some of the costs of individual medical, dental, and vision insurance, companies may be gaining some form of commitment from employees as demonstrated by lower absenteeism and turnover. However, the simple offering of dental and vision insurance without any financial support may have the opposite effect. One study using 200 organizations in Canada found that human resource management practices, such as promoting from within, fairness, flexible scheduling, health and insurance, and professional development, had a negative impact on voluntary turnover during times of substantially low, local, and industry-specific unemployment, which was defined as being one standard deviation below the mean (Schmidt, Willness, Jones, & Bourdage, 2018). The effect was not present when unemployment rates were higher. Thus, low unemployment rates could be moderating the relationship between medical, dental, and vision insurance contributions and turnover as well as absenteeism.

Offering childcare assistance was negatively correlated (-.16) with turnover being reported as a problem for organizations. Around 2 percent of respondents offered some type of childcare assistance. Additional analyses could help us study these organizations in more detail to determine more precisely which benefits they are offering, the monetary value, etc. that are potentially shaping their turnover and absenteeism.

A number of other interesting correlations emerged. The number of significant correlations with benefits as a percentage of wages is not surprising as the more benefits that a company offers, then the more they are spending on benefits as a percentage of wages. Those correlations included every other variable except retirement offerings, the percentage of medical insurance paid by the company for individual coverage, offering career development, offering child care assistance, and paid time off to vote. However, the benefits as a percentage of wages did not correlate with any of the turnover or absenteeism measures despite some individual benefits having a significant correlation. We suspect that this result is due in part to companies not clearly communicating the value of the benefits package to employees, which is a common oversight.

Table 6: Means, standard deviations, and correlations for benefit practices, turnover, and absenteeism (continued on next page).

		M	SD	1	2	3	4	5	6	7	8	9	10
1	Absenteeism problem	0.55	0.5										
2	Turnover problem	0.46	0.5	.58**									
3	Absenteeism rate	0.14	0.1	.53**	.40**								
4	Turnover rate	0.07	0.07	.48**	.71**	.45**							
5	Benefits as percent of wages	0.22	0.13	-0.1	-0.06	-0.1	-0.08						
6	Paid holidays	8.43	2.41	0.03	-0.03	0.13	-0.08	.29**					
7	Paid vacation and sick days	11.76	6.7	-0.11	-0.04	0.04	-0.07	.30**	.18**				
8	Retirement options	1.14	0.78	0.07	0	0.03	0.09	0.09	.28**	.15*			
9	Medical insurance offered	91.80%	0.28	0.01	0.09	0	0.05	.31**	.27**	.20**	.33**		
10	Medical paid by company (individual)	68.60%	0.27	-.16*	-.16*	-.23**	-.19*	0.11	0.08	-0.01	-0.02	NA	
11	Medical paid by company (family)	55.50%	0.3	0.05	0.05	-0.08	0.05	.28**	.31**	.17*	.35**	NA	.51**
12	Average percentage of overall medical paid by company	61.40%	0.27	-0.1	-0.09	-.19*	-0.13	.18*	.16*	0.08	0.13	NA	.88**
13	Dental insurance offered	84.70%	0.36	0.11	.14*	0.1	0.12	.40**	.29**	.13*	.40**	.64**	0
14	Dental paid by company (individual)	39.50%	0.41	-.17*	-0.1	-.18*	-0.11	.23*	.21**	0.11	0.13	0.08	.31**
15	Dental paid by company (family)	35.30%	0.38	-0.1	-0.04	-0.1	-0.02	.38**	.32**	.18*	.25**	0.08	.20*
16	Average percentage of overall dental paid by company	36.80%	0.38	-0.13	-0.06	-0.16	-0.07	.30**	.29**	.16*	.19*	0.08	.27**
17	Vision insurance offered	78.70%	0.41	0.05	.13*	0	0.13	.32**	.23**	.16*	.36**	.57**	0.01
18	Vision paid by company (individual)	23.20%	0.37	-0.14	-0.08	-.20*	-0.07	.21*	.22*	0.06	0.05	NA	.22*
19	Vision paid by company (family)	19.10%	0.33	-0.02	-0.06	-0.11	0.01	.30**	.22*	0.07	0	NA	.21*
20	Average percentage of overall vision paid by company	21.20%	0.34	-0.07	-0.05	-0.14	-0.01	.28*	.22**	0.07	0.01	NA	.22*
21	Career development offered	46.50%	0.5	0.02	-0.02	0.1	0.11	0.11	.25**	.15*	.30**	.23**	-0.11
22	Tuition reimbursement offered	39.90%	0.49	0.07	0.03	0.09	0.03	.35**	.41**	.17*	.28**	.24**	0.02
23	Child care assistance offered	1.60%	0.13	0.01	-.16*	-0.07	-0.08	0.04	.15*	-0.03	.25**	0.06	-0.04
24	Paid jury duty	85.80%	0.35	0.09	0.08	0.12	0.04	.26**	.22**	0.12	.25**	.22**	0.1
25	Paid time off to vote	41.00%	0.49	-0.1	-0.09	0.04	-0.02	0.07	0.06	.25**	-0.03	.15*	0.04

Notes. N ranges from 91 to 243 for the Pearson correlation pairs. *p < .05, **p < .01.

Table 6 (cont.)

		M	SD	11	12	13	14	15	16	17	18	19	20	21	22	23	24
12	Average percentage of overall medical paid by company	61.40%	0.27	.91**													
13	Dental insurance offered	84.70%	0.36	0.03	0												
14	Dental paid by company (individual)	39.50%	0.41	.36**	.40**	NA											
15	Dental paid by company (family)	35.30%	0.38	.58**	.48**	NA	.86**										
16	Average percentage of overall dental paid by company	36.80%	0.38	.49**	.45**	NA	.97**	.96**									
17	Vision insurance offered	78.70%	0.41	0.14	0.06	.72**	-0.09	0.04	0								
18	Vision paid by company (individual)	23.20%	0.37	.39**	.35**	-.24**	.56**	.53**	.57**	NA							
19	Vision paid by company (family)	19.10%	0.33	.39**	.34**	-.22*	.46**	.55**	.53**	NA	.86**						
20	Average percentage of overall vision paid by company	21.20%	0.34	.40**	.35**	-.27**	.53**	.57**	.58**	NA	.97**	.96**					
21	Career development offered	46.50%	0.5	.16*	-0.02	.27**	.17*	.21*	.17*	.30**	0.07	0.1	0.1				
22	Tuition reimbursement offered	39.90%	0.49	.30**	0.12	.28**	0.13	.30**	.21**	.27**	0.04	0.13	0.09	.52**			
23	Child care assistance offered	1.60%	0.13	0.11	0	0.08	-0.05	0.02	0.01	0.1	0.04	.21*	0.12	.15*	.21**		
24	Paid jury duty	85.80%	0.35	.17*	0.14	.35**	0.01	0.08	0.06	.22**	-0.03	0	-0.04	0.08	.15*	0.01	
25	Paid time off to vote	41.00%	0.49	-0.04	0.02	.13*	0.09	0.05	0.08	0.09	-0.01	-0.03	-0.01	.15*	0.09	-0.05	0.11

Notes. N ranges from 91 to 243 for the Pearson correlation pairs. *p < .05, **p < .01.

Table 7: Means, standard deviations, and correlations for demographic variables, turnover, and absenteeism.

		M	SD	1	2	3	4	5	6	7	8	9	10	11
1	Absenteeism problem	0.55	0.50											
2	Turnover problem	0.46	0.50	.58**										
3	Absenteeism rate	0.14	0.10	.53**	.40**									
4	Turnover rate	0.07	0.07	.48**	.71**	.45**								
5	Number of employees	166	257	.13*	.13*	.14*	.15*							
6	Part-time employees	8.1%	0.17	.01	.01	.16	-.06	.20						
7	Average hours per week	41.06	5.11	.16*	.14*	.01	.15*	-.01	-.16					
8	Unionized	0.05	0.22	.10	-.01	.16*	-.04	.20**	-.02	-.03				
9	Average annual sales	$55.6 million	$109.4 million	.06	.14	.12	.17*	.45**	-.04	.02	.28**			
10	Employees live in county	64.6%	0.23	.06	-.01	-.01	-.08	-.20**	-.12	.00	-.07	-.07		
11	Economic diversity (2016)	0.70	0.03	-.05	-.09	-.07	-.10	.02	-.11	.11	.02	.06	-.03	
12	County unemployment (2016)	0.05	0.01	.00	.04	-.01	.06	.04	.14	-.01	-.02	-.06	.17**	-.58**

Notes. N ranges from 77 to 243 for the Pearson correlations pairs. *p < .05, **p < .01.

Reasons for Turnover and Absenteeism

For research question 4, we asked open-ended questions to determine what the common factors for turnover and absenteeism were from the perspective of the human resource management professionals. Specifically, the questions were "What are the three most important factors for employee turnover? (i.e., dissatisfaction with the job, age, gender, education, tenure, pay rate, lack of advancement opportunities, lack of training, organizational commitment, job opportunities in the market, job-hopping, etc.)" and "What are the three most important factors for employee absenteeism in your company? (i.e., bullying and harassment, burnout, stress and low morale, children and elder care, depression, disengagement, illness, injuries, job hunting, etc.)."

Human resource management professionals from 236 companies responded with at least one factor on the turnover question for a total of 612 factors. Because respondents were given some choices, we were able to sort the majority of responses alphabetically. We then sorted through the remaining responses to find which category was the best fit. As shown in Figure 3, eight factors emerged as most common. Job opportunities and job hopping was the most common factor with 139 responses followed by dissatisfaction with job, supervisor, company, and/or work environment (88), pay rate (85), and absenteeism or attendance (79). The next most common factors were substantially lower and consisted of advancement opportunities (28), motivation (26), schedule (24), and discipline/poor performance (23). The remaining responses including factors such as retirement, transportation, age, benefits, personal/family issues, relocation, and drugs, medical, or legal issues. All but one of the top four responses (absenteeism/attendance) were prompted in the question. An argument could be made that all four of the top factors are at least partly related to the employee-friendly labor market conditions and the ease with which employees can change jobs.

The next four factors were smaller but are still relevant. While career advancement was prompted through the question, the remaining three factors were not available in the question: Motivation, work schedule/hours, and discipline/poor performance. Yet, 26 respondents indicated that motivation was one of their top three. The verbatim responses given on motivation included phrases like "Don't want to work," "Lack of work ethic," "Laziness," and "Unwillingness to

work." This factor may warrant further research, especially in the area of generational differences as 17 respondents identified age as one of their top three issues.

Human resource management professionals from 232 companies responded with at least one factor on the absenteeism question for a total of 583 factors. Because respondents were given some prompts, we were able to sort the majority of responses alphabetically. We then sorted through the remaining responses to find which category was the best fit. As shown in Figure 4, three factors stood out as most common: personal illness (184), child and elder care (117), and disengagement/morale (85). The next four most common factors were substantially lower, including burnout/stress (37), family issues (36), transportation (24), and personal issues (24). The remaining categories included company policy/tardies, drugs/legal issues, job/working conditions, job hunting, age/maturity, and other factors. Some verbatim responses provide contextual insight into the perceptions of human resource management professionals on this topic: "I wish I knew!" "Age-young-doesn't have desire to work" and "Outside interests conflicting with work schedules."

Figure 4: Most Common Reasons for Turnover

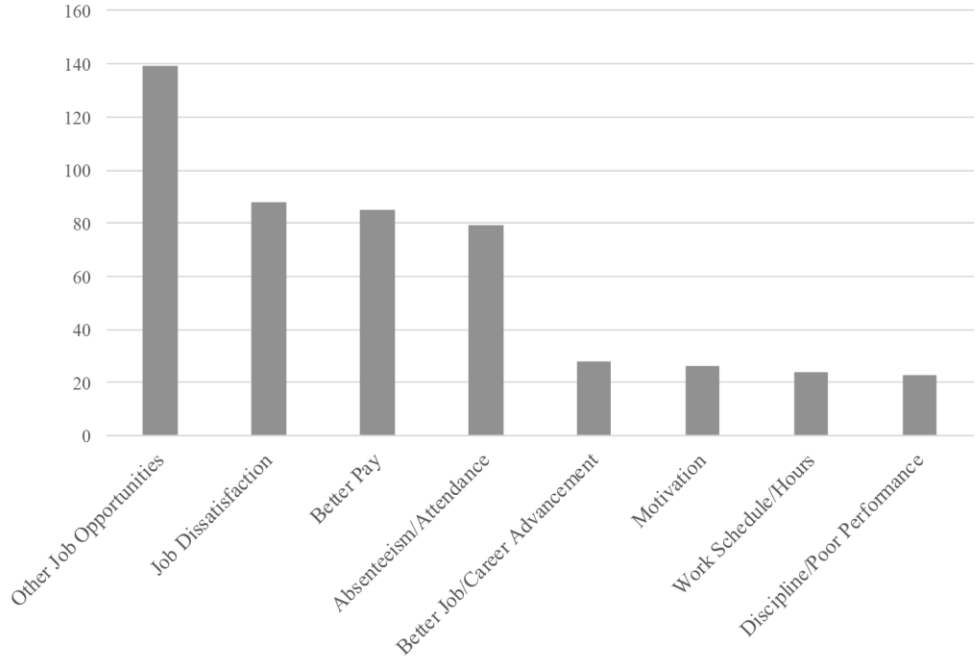
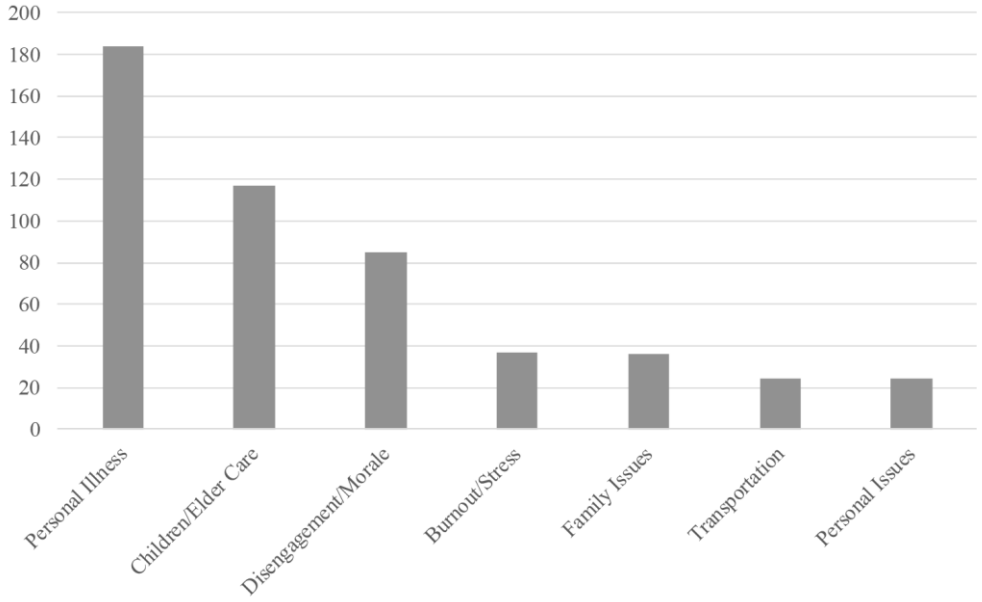


Figure 5: Most Common Reasons for Turnover



If we combined family issues with child and elder care, then the top two categories would be related to the employee's own health or caring for family members. These results are not surprising given what we know about the aging workforce and the generational differences in the workforce. Companies can implement wellness programs and have generous medical plans that help manage care. They could also offer dependent care benefits and child or elder care assistance to help with the second item. Disengagement and morale issues, including low commitment and

work ethic, were a strong third in commonality. This factor is the only top one that falls partly within management's control to change. The recruiting and selection procedures should select employees who can be motivated either internally or within the work environment. Their managers must be skilled in motivating and leading based on each employee's individual personality, strengths, and weaknesses.

Demographic Variables

For research question 5, we explored which demographic variables, if any, correlated with turnover and absenteeism. As shown in the correlation matrix (Table 7), several significant correlations were found. As observed previously, strong correlations were observed, as expected, between absenteeism being seen as a problem and turnover being seen as a problem as well as the absenteeism and turnover rates.

The number of employees was positively correlated to all four turnover and absenteeism measures. The average hours worked per week was positively correlated with both the turnover and absenteeism rates and with turnover being seen as a problem. However, the correlation with absenteeism being seen as a problem was not significant. The presence of a union was positively correlated with the absenteeism rate and with the number of employees. This finding is interesting but not surprising as union members would likely have more generous paid time off benefits and may miss work without being penalized financially. Average annual sales was positively correlated with turnover rate, number of employees, and presence of a union. The number of employees has an obvious connection to sales as growth in employee numbers could be partly due to sales growth.

The percentage of employees residing in the same county as the company was negatively correlated, as expected, with the total number of employees. As a company's workforce increases, the need to increase the geographic reach of recruiting efforts also increases. Economic diversity was not significantly correlated with any other demographic variables, which is unexpected. Further research should examine this variable in more detail. The county unemployment rate was positively correlated with the percentage of employees who live in the same county as the company. County unemployment had a strong, negative correlation with the economic diversity variable.

Table 8 reports the results for marginal effects from the logistic regression for each of the model categories and the full model that includes variables from each category. Each category had at least four model tested, with the best fitting model for each reported in Table 8. The full model similarly had four models tested, and only the best fit is shown. From Models 1 through 3, many variables had a significant marginal effect on the problem of absenteeism, and the initial full model included paid sick and vacation days (pddays1718), paid days for jury duty (pdjur), a measure of number of employees in a company (logged numemp2), average weekly hours (avhours4), the percent of employees that live within the county (resico7), and the economic diversity index number (econdiv2016). The final model chosen did not include the variable for paid jury duty and it did include the variable for available childcare (childc42). The childcare variable was added as a test, but that full model variation was validated as best fit by the Hosmer-Lemeshow goodness of fit test, the AIC, and an ANOVA chi-square test. Offering childcare has a strongly significant and negative effect on whether absenteeism is a problem, implying that having children is a major reason that people miss work (the second most commonly reported factor for absenteeism, see Figure 5).

Absenteeism Logistic Regression

Table 8: Logistic Regression — Absenteeism

Dependent Variable: *Is absenteeism a problem for your company?*

	Model 1	Model 2	Model 3	Full Model
Pay Practices				
profshar37	0.0008			
col49	0.0644			
incent46	-0.0369			
econdiv2016	-2.3848			
unemp2016	-1.2955			
perrual2010				
Benefits Offered				
pdhol12				
pddays1718		-0.0116 .		-0.0105
retirescore		-0.0152		
cardev40				
tut41		0.1172		
childc42				-0.4497 ***
pdjur43		0.2253 *		
pdvot45		-0.0371		
med19		-0.0073		
den24				
vis27				
perrual2010				
econdiv2016		-2.0046		
unemp2016				
copop2016				
Company Demographics				
log(numemp2)			0.1218 ***	0.1392
avhours4			0.0214 .	0.0220
union6			0.1635	
resico7			0.4059 *	0.3747
copop2016				
perrual2010				
econdiv2016			-4.3721 *	-3.0138
unemp2016			-5.2122	

Notes . p < .10, * p < .05, ** p < .01, *** p < .00. Values reported are marginal effects. Models of best fit for absenteeism were determined in the most part by the C-statistic from Hosmer-Lemeshow goodness of fit test for logistic regression. A clear best fit for the benefit offerings model was not apparent, so an ANOVA chi-square test was used to choose between the models. VIF statistics for the full model for each variable used were less than 2.

Other significant variables in Models 1 through 3 move in the expected directions. Increases in the number of paid vacation and sick days and increases in counties' economic diversity decrease the likelihood of absenteeism. The impact of economic diversity likely has to do with the people a diverse country draws to it. Increases in numbers of employees and average weekly hours both increase the likelihood of absenteeism. The significant effect of the numbers of employees is most likely due to the increased perception of a problem when managers see higher numbers even if the percentage is lower than a company with fewer employees. To see the difference, see Table 9, which shows the average employees for companies with problems versus no problems with absenteeism and turnover. In future papers, these numbers should be controlled for.

Table 9: Average employees for companies with:

Turnover problems	299.4	No turnover problems	183.7
Absenteeism problems	304.4	No absenteeism problems	162.9
Both problems	**296.1**	Neither problem	**117.0**
Average number of employees for entire sample (n=243)			228.1

Source: MTIDA 2017 Wage and Benefit Survey

The other two significant variables, those for paid jury duty days and percent of employees that reside within the county, have unpredictable effects. Paid jury duty days have a positive effect on the problem of absenteeism, meaning that when paid jury duty is offered, absenteeism is more likely to be a problem for a company. Similarly, the percentage of employees that reside within a county positively affects the problem of absenteeism. We would expect absenteeism to be less of a problem when more people reside within a county, as they would most likely have a shorter commute.

Turnover Logistic Regression

Table 10 reports the results for marginal effects from the logistic regression for each of the model categories and the subsequent full model. Each category had at least four model tested, with the best fitting model for each reported in Table 10. The full model similarly had four models tested, and only the best fit is shown. Using the significant variables from Models 1 through 3, the initial full model for turnover used the variables for cost of living raises (col49), tuition reimbursement (tut41), availability of childcare (childc42), paid days for jury duty (pdjur43), the number of employees (logged numemp2), average weekly hours (avhours4), and the economic diversity index variable (econdiv2016). The final best-fit full model dropped the variables for cost of living raises and paid jury duty days.

Table 10: Logistic Regression — Turnover

Dependent Variable: *Is turnover a problem for your company?*

	Model 1	Model 2	Model 3	Full Model
Pay Practices				
profshar37	-0.0449			
col49	0.1285 .			
incent46	-0.0159			
econdiv2016	-4.8662 .			
unemp2016	-7.3089			
perrual2010	0.0015			
Benefits Offered				
pdhol12		-0.0156		
pddays1718		-0.0068		
retirescore		-0.0133		
cardev40		-0.0599		
tut41		0.1959 *		-0.0149
childc42		-0.5430		-0.5648 ***
pdjur43		0.1898 .		
pdvot45		-0.1171		
med19		0.0091		
den24		-0.0294		
vis27		0.0879		
perrual2010		0.0027		
econdiv2016		-5.2586 .		
unemp2016		-8.9633		
copop2016		0.0000		
Company Demographics				
log(numemp2)			0.1363 ***	0.1509 **
avhours4			0.0262 *	0.0273 .
union6			-0.0850	
resico7			0.0852	
copop2016				
perrual2010				
econdiv2016			-7.5940 **	-6.7161 **
unemp2016			-7.1619	

Notes . p < .10, * p < .05, ** p < .01, *** p < .00. Values reported are marginal effects. Models of best fit for turnover were determined by the C-statistic from Hosmer-Lemeshow goodness of fit for logistic regression. VIF statistics for the full model for each variable used were less than 2.

As in the previous section, the availability of childcare had a strong negative effect on the likelihood of whether turnover is considered a problem, though it is not listed as a common factor (see Figure 3) for turnover. Also, like the models for absenteeism, the number of employees and the average weekly hours have positive effects on the likelihood that turnover is a problem, with

the explanations for these variables mirroring those for absenteeism. The more employees a company has, the same percentage of absenteeism or turnover will seem like a bigger problem. The more hours an employee works, the more likely he or she is to skip work or quit altogether. Offering tuition reimbursement has a significant positive effect on turnover in Model 2 but has a negative and insignificant effect in the full model, where the negative effect is expected as we assumed that employees would be more willing to stay with a company if that company offered the employee ways to better him or herself.

CONCLUSIONS, IMPLICATIONS, AND FUTURE RESEARCH

Effective management of human capital is as important now as it ever has been in manufacturing industries. This sector of the workforce is facing a shortage of labor that we have not seen in decades. We know that turnover and absenteeism exact a heavy cost on companies – an estimated $680 billion for turnover alone in 2020 (Fox, 2018). Thus, the impetus for effective recruiting and retention of a qualified workforce is clear. Manufacturers must be keenly aware of how their human resource management practices and programs could be impacting their ability to sustain their organizations.

To help with the labor shortage, states, technical schools, and companies have begun exploring innovative partnerships. For example, the Manufacturing Skills Institute (MSI) facilitates a partnership network among institutions ranging from middle schools to universities and workforce centers to facilitate a pipeline of skilled workers (Manufacturing Skills Institute, 2017). One MSI award-winning program encompasses a variety of potential workers, including local unemployed individuals, community college students, and soon-to-be released jail inmates, and provides several education and training paths, including industry-recognized certificates and credentials (Manufacturing Skills Institute, 2017).

The county-level location characteristic of economic diversity entered into many of the models as a significant variable in determining whether absenteeism or turnover represent problems to companies. The push for counties to become more diverse with respect to industry is a common theme in county-level and city-level planning. The negative effect of diversity on the problems of absenteeism and turnover for manufacturing has interesting implications, as manufacturing is considered a low-skill job. Comparing the effects of economic diversity on other industries' absenteeism and turnover problems could be informative. Does manufacturing behave the same way as other industries in this respect? Is Tennessee manufacturing unique in being affected by economic diversity in this way?

Pay practices should be studied in more depth in the next iteration of the survey. Compensation is expected, either directly or indirectly, to relate to turnover; however, no significant results were found in our correlations. Benefits programs provided some important insights, especially when viewed with the reasons for turnover and absenteeism. An average of 1.6% of the companies that we surveyed offer child care assistance. That item correlated with turnover being seen as a problem at -.16. Further, the second most common factor for absenteeism was children/elder care, and the fourth most common factor for turnover was absenteeism/attendance. This complex, interconnected relationship between child care assistance, children/elder care, absenteeism, and turnover warrants further study, especially given how so few of the organizations are offering child care assistance as a benefit. Providing child care assistance seems like a small investment to potentially help organizations with absenteeism and turnover. Companies should also recognize the importance of contributing meaningfully toward employees'

individual medical, dental, and vision insurance coverage as all of those variables were negatively correlated with one or more measures of turnover and/or absenteeism.

Average hours worked per week was positively correlated with both turnover and absenteeism being seen as a problem and with the turnover rate. The average hours per week for our respondents was 41. Working too few hours per week could worsen turnover and absenteeism if employees are not getting enough hours, while working too many hours could have the same effect depending upon what employees want. We need to collect data from employees to better understand the relationship between work hours, turnover, and absenteeism.

The respondents indicated that the top four factors affecting turnover were (1) other opportunities, (2) dissatisfaction with the job, supervisor, or company, (3) pay, and (4) absenteeism/attendance. While managers cannot limit the other opportunities that are available to employees, managers may influence the other three factors. Managers may help reduce dissatisfaction by first learning more about what causes it and then learning how to facilitate job satisfaction instead. The expression management professors like to say in class is often true: employees do not quit the job – they quit the supervisor. The management team is crucial to job satisfaction in the organization, and they need to be trained on this important topic and then held responsible for the associated outcomes. Regarding pay, when the labor market is highly competitive, it is extremely important for companies to monitor their pay structure for internal equity and external market competitiveness. Many human resource management professionals lack the expertise needed to execute this task, and outsourcing it can be expensive. Nonetheless, companies cannot afford to unknowingly fall behind the market in terms of pay and total rewards. Finally, absenteeism and attendance are obvious predictors of turnover. Managers should monitor attendance trends and consider implementing innovative retention strategies, such as conducting a stay interview a month or so before those points in time where employee attendance typically becomes a problem and when employees often quit. The stay interview opens a dialogue so that managers may be able to intervene before a small annoyance becomes a big enough problem to cause an employee to leave.

LIMITATIONS

One of the recurring limitations of this study is the small number of observations in the subset for the variables of interest. This limitation stems from incomplete survey data, where some respondents would answer the yes/no questions of interest but leave other selected questions blank, forcing the model to exclude them. Some variables of interest, such as the variable for benefits as a percent of wages, are not used due to the low number of responses.

Other limitations having to do with survey construction, as the 2017 Wage and Benefit survey was the first of its kind, will attempt to be addressed in the 2018 survey. One major limitation of this study was in the questions' use of ranges for answers for the turnover and absentee rates, in that the ranges have an upper bound of 30%. That means that while a company may have a turnover rate of 80%, the true value of the rate is obscured under the blanket range of "30% or above." This question modification should prove valuable to future studies on absenteeism and turnover using the MTIDA MTSU Wage and Benefit survey.

The human resource management professionals who completed the survey took around 90 minutes to complete it. Issues related to the length of the survey, such as survey fatigue, could have introduced error or increased the incidents of missing data. In future iterations of the survey, we should separate collection of the company data, such as benefits, turnover, and absenteeism,

from collection of the occupational data, including wages. This approach would help with survey fatigue and may improve the completeness of the data.

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THE IMPACT OF THE FIRM'S FINANCIAL CHARACTERISTICS ON THE FIRM'S OUTSOURCING ANNOUNCEMENT MARKET RETURN IN THE 20TH CENTURY: THE CASE OF CONTRACT GRANTING FIRMS'

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ABSTRACT

This study investigates the effect of outsourcing contract announcement on the value of the contract-granting firm. Results are based on a sample of 38 publicly traded firms that outsourced parts of their operations between 1990 and 2000. Results obtained are consistent with the previous research. Evidences have shown that previous research did not give attention to the firm's financial characteristics, and determine whether other financial characteristics influenced the market to react differently to outsourcing announcements. This research further extends the previous research by investigating the impact of outsourcing contract granting firms' financial characteristics on the magnitude of the market returns.

1-INTRODUCTION

The definition of outsourcing is the exporting or the delegation of one or more of operations within a firm to an external firm that specializes in that operation. The firm that is outsourcing its operations is called the outsourcing firm, granting, client, or buyer and the firm that specializes in the operational process is called the receiving firm, the target, the vendor, or the seller. Automakers (granting firms), for example, depend on many suppliers (receiving firms) to produce tires, mirrors, and stereos that make up the parts of the automobile. Other firms outsource servicers such as information technology, customer services, maintenance, etc. While some firms outsource domestically, other firms may outsource internationally (referred to as a global outsourcing or off-shore outsourcing). Global outsourcing is defined as the exporting or the delegation of one or more of the operations within a firm from a particular country to other areas of the world.

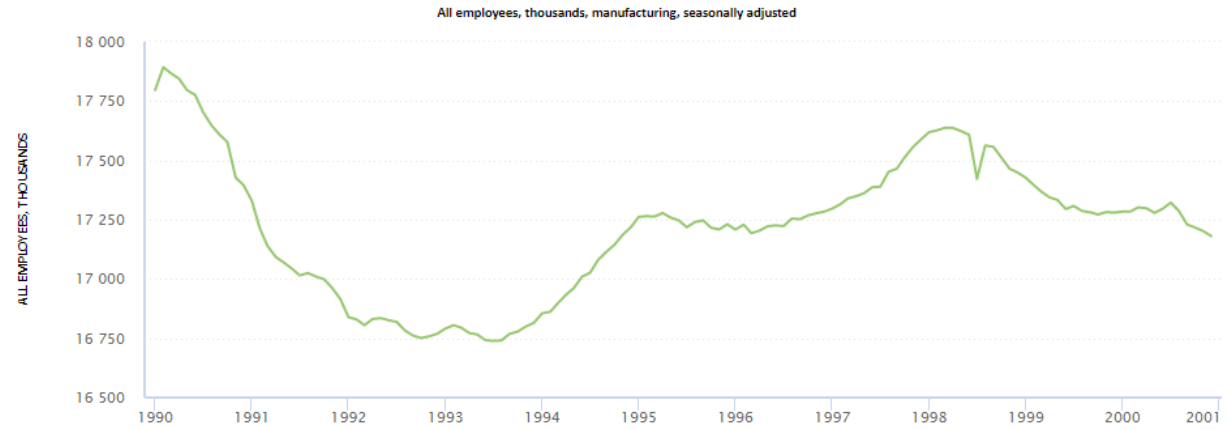
Advocates of outsourcing argue that the outsourcing activity helps the outsourcing firms by; (1)Providing them with the ability to focus more, (2)Providing them with the ability to lower costs, (3)Better anticipate future costs, (4)Take advantage of economies of scale. This implies that outsourcing firms become more profitable from outsourcing, thereby benefitting the shareholders. For example, in 2004 when president George W. Bush's chief advisor, Gregory Mankiw, released the Annual Economic Report of the President and praised the off-shoring of the U.S. service jobs, claiming that outsourcing are just a new way of conducting international trade. He added that the practice of off-shore outsourcing is the latest manifestation of the gains from trade that economists have talked about.[1] Also, Bahgawati claims that the savings from

[1] Otterman, S., February 2004. Trade: Outsourcing Jobs. Council on Foreign Relations, New York.

international outsourcing allow U.S. companies to stay afloat and expand in a highly competitive global market.[2]

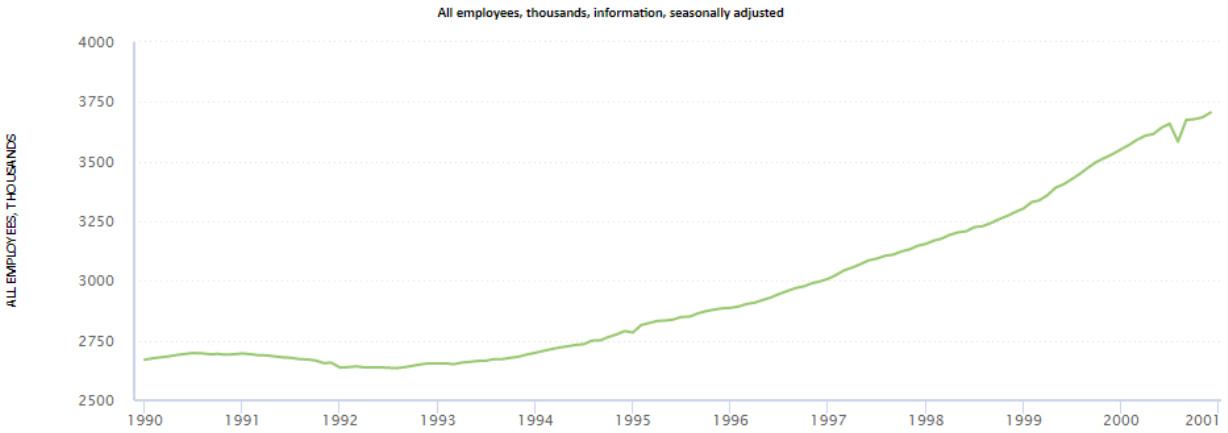
Opponents of global outsourcing argue that this activity leads to layoffs and dislocation of thousands of workers and reduce the quality of services provided. For example, The Nobel Prize laureate, Economist Paul Samuelson argues that the U.S. National income would be affected negatively if countries like China and India achieve higher productivity in exports. Also, in 2004 Senator John Kerry claimed that 3 million U.S. jobs been lost because of international outsourcing.

Figure: U.S. Employment in Manufacturing 1990-2000



Source: U.S. Bureau of Labor Statistics

Figure: U.S. Employment in Information 1990-2000



Source: U.S. Bureau of Labor Statistics

[2] Bahgawati, J., 2004. In Defense of Globalization. Oxford University, UK.

This study is empirically examining the impact of the firms' contract outsourcing announcements on the outsourcing (granting) firm's market value (stock price). The results are based on a sample of 38 publicly traded firms that outsourced part of their operations between 1990 and 2000. We use available data to test for the abnormal price return of the firm's stock as a reaction to the outsourcing announcement. We further examine if these abnormal returns are related to specific firm's financial characteristics, for both granting firms and receiving firms. This research makes contributions to the outsourcing practice literature by investigating the impact of outsourcing contract granting firms' particular financial characteristics on the magnitude of the market return.

2- LITERATURE REVIEW

Since the 1980's, outsourcing has become a useful management tool to firms and an expenditure device to many corporations. However according to the Oxford Dictionary, Outsourcing as a terminology first appeared in 1979, in an article in the Journal of Royal Society of Arts that pointed out the outsourcing of automotive design work to Germany consequent upon the shortage of British engineers. The first few outsourcing processes were services such as Designs, Information technology, payroll, customer services and management processes. Over the years, outsourcing processes thus included core processes such as manufacturing. Since late 1980's or early 1990's, outsourcing has been experiencing a huge growth. However, there is always a risk (Outsourcing Risk) involved with the outsourcing benefits (Outsourcing Advantages) (Beasley et al., 2004). There are many theories that are used to examine the decision of outsourcing. However, the three main theories that are adopted in the available outsourcing literature are; (1)the economies of scale theory, (2)the transaction cost theory (transaction cost economics), (3)the core competency theory.

Economies of scale are the cost advantages that the firm will obtain due to production size. The cost of the unit of output will decease with the increasing scale as the fixed costs are spread out over additional units of output. In spite of this, efficiency has been a source of cost reduction.

In their study, Ang and Straub (1998) argue that using the neoclassical theory; firms will outsource to achieve cost advantages from economies of scale. Furthermore, Levina and Ross (2003) averred that, large size firms outsource for other reasons apart from economies of scale. Considering that the outsourcing is done to achieve the economies of scale therefore outsourcing has nothing to offer the large firms, because these large firms can internally attain economies of scale adopting the receiving firms' (venders) methodology.

Transaction cost Theory or the economics of transaction cost is an important economic theory. Economics theory of the time suggests that "the market is efficient therefore those who are best at providing each good or service most cheaply are already doing so. However, Ronald Coase (1937) further explains that the cost of obtaining a good or service through the market instead of producing it in the house is more than just the price of the good because there transaction costs involved in using the market. These costs include operational costs (e.g. search and information costs) and contractual costs (e.g. bargaining costs, policing, and enforcement costs). Consequently, the decision to use the market will be based on the comparison between production costs in the house and the costs of using the market. Williamson (1975) argues further that since the free market transactions failed, the activities of the firm will need the existence of hierarchies and organizations to market-mediate and economize transaction costs. Therefore, the

theory of transaction costs suggests that the firm comprise a group of internal activities alongside with external market relations. Williamson (1985) further introduced the hold-up problem or fundamental transformation principle while referring to "the transformation of a large numbers bidding competition at the outset into a small numbers supply relations during contract implementation and at contract renewal intervals for transactions that are supported by significant investments in transaction specific assets". Therefore when the fundamental transformation problem is costly, the internal hierarchies become more attractive than the external market relationships. Thus, based on the theory of transaction costs, the firm's decision to outsource will be considered rational if the firm's decision is based on other factors such as asset designating, environmental risk, and other transaction costs (Ang and Straub, 1998). According to Gottschalk and Solli-Saether (2005), there are characteristics of business exchange that are positively related to transaction costs: (1) The investment in durable and specific assets is necessary, (2) The transactions are infrequent, (3) The tasks are complex and uncertain, (4)Measuring the performance of the task is difficult, (5)There are interdependencies with other transactions. Thus, according to the theory of transaction cost the firms' decision to outsource or not depends on the outsourcing transaction costs vs. internal production costs. The firm will engage in external market relationship (outsourcing) if and only if the internal production costs can be reduced through outsourcing.

The core competency theory argument is that the management has two choices either to produce in the house or to outsource. The management should choose to outsource non-core competency operations while concentrating on other core competency activities. Doing all these will improve and enhance core competencies. Prahalad and Hamel (1990) suggest the characteristics of core competencies that distinguish one corporation from another. Quinn (1999) takes the argument for outsourcing further by advocating extensive outsourcing strategies by suggesting that the firm can optimize the gain of outsourcing when the reason of outsourcing is to enhance core competency, and if it is combined with extensive outsourcing strategy that will lead to flexibility, Lower costs, and improved efficiency. In their study, Chundra and Kumar (2000) explain the importance of outsourcing non-core competencies considering that the responsibilities come with concrete arrangements. Hancox and Hackney (2000) further argue that outsourcing firms can obtain competitive advantage from designating and managing supply contracts. However, what is the definition of core competencies? In another way, which of the firms' operations are considered core competencies? Prahalad and Hamel (1990) suggest that core competency is a unique specific factor that; it is hard for competitors to imitate or copy, it is widely used for many products, and it must add or contribute to the customer's benefits. They also suggest that the firm must protect the core competencies for competitive success and these core competencies are the engine of the contemporary business developments.

There are some factors identified in the previous literature as the reasons behind outsourcing decisions. These are; the importance of core competency, flexibility, economies of scale and cost reduction. Studies such as Loh and Venkatraman (1992) summarize the argument of treating information technology outsourcing as an administrative innovation in which; (1) Outsourcing is a "significant shift in the model of governance" from control and coordination within the hierarchy to new hybrids model, (2) Outsourcing is "changes in routines dealing with internal arrangements", (3) Outsourcing is "changes in routines dealing with external alignments". Also, they find that the reducing cost and low economic return on the information technology are the main causes of information technology functions outsourcing decision.

In their study, Quinn and Hilmer (1994) argue that outsourcing will allow the firms' management to minimize the use of the firm' resources by; (1) Concentrating the effort on what

the firm knows how to do best, (2) Protecting the competitive advantages of the firm by allowing the firm to concentrate and develop the core competencies which will make entering the firms' core competencies area hard for the competitions, (3) Making the risk of research, development, and fast changing technology costs external instead of internal, by shifting the costs to the outsourcing contract receiving firm.

Also, Quinn (1999) argues that, outsourcing enhances core competencies and if core competency combined with an extensive outsourcing business strategy that will provide more efficiency and flexibility. Poppo and Zenger (1998) have equally identified that outsourcing allows more flexibility for the outsourcing firm. In addition, Deavers (1997) identified the outsourcing motivation factors based on a survey of more than 12000 firms that outsourced as; (1) Outsourcing will give an access to the global capacities, (2) Outsourcing will increase the firms' core competencies, (3) Outsourcing will split the risk between the outsourcing granting firm and the outsourcing receiving firm, (4) Outsourcing will free some of the firms' resources so that the firm can focus on the core competencies.

However, evidence has shown that market responses positive to the outsourcing announcements. For example; Hayes, Hunton and Reck (2000) study the effect of outsourcing all or part of the information system functions, using a sample of 76 firms, they publicly announced an information system (IS) outsourcing contract from 1990 through 1997. They find that there is no significant stock price change using an event study of two days window. However, when they use the day after announcement day as a one day event window, they argue that the announcement of a firms' information system function outsourcing is positively impact the market value of the outsourcing firm, and that positive response is higher for small firms and firms in the service industry due to higher information asymmetry. Dos Santos et al. (1993) Ahmad (2004) also admits that on average; outsourcing announcements driven by innovation have favorable market reaction than frequent or follow up announcements. Oh, Gallivan and Kim (2006) further argue that the market react positively to firm's outsourcing announcement if the intent from outsourcing is to reduce cost. Beasley et al. (2009) use a sample of 103 Information System announcements in the period between 1996 and 2003 to investigate the effect of the management's strategic intent for outsourcing and the firms' characteristics. They find that, the increase in the firms' value from the outsourcing announcement has a positive relationship with the firms' efficiency of the operating assets. Also, Isaksson and Lantz (2015) used Principal Component Analysis to identify four outsourcing strategies: Back office activities, Primary activities, Accounting activities, and Support activities. However, they did not find any significant relationship between these strategies and financial performance.

Still, there are some evidences showing the association of the outsourcing firm characteristics' and the market response to the outsourcing announcements. For example; Smith, Mitra, and Narsimhan (1998) stated that firms who outsource have higher debt and low cash reserve before the outsourcing announcement. Also, Farag and Krishnan (2003) study a sample of information technology (IT) outsourcing announcement between 1994 and 2001, they find that there is a positive announcement response to firms' outsourcing decision in the information system and service industry and the market response is more favorable if the outsourcing decision is related to cost reduction. However, Im et al. (2001) conclude that there is a negative relationship between the firm size and the market reaction; nonetheless this negative relationship turned to positive in the long run.

3-RESEARCH HYPOTHESIS

A key consideration of this research is to investigate the impact of the Granting firm's financial characteristics on the outsourcing announcement market return. Previous literatures found evidence that there is positive response from the market to the decision of outsourcing, and that responses differ across firms based on the size of the firms and the industry. This study contributes to the research by investigating previous literatures hypothesis regarding the firm size and industry and their impact on the market reaction to outsourcing decisions announcement. Also we add to previous research by examining granting firms' financial Characteristics that we believe may impact the magnitude of the market reaction to the outsourcing announcement.

Firm size: The argument is that, different sizes of firms imply different amount of information asymmetry because large firms have more news and analysis than small firms. This will lead to higher positive reaction to the decision of outsourcing for the smaller firms than the larger firms, as highlighted in Hayes, Hunton and Reck (2000).

Hg_1: The market reaction to outsourcing announcement will be positive and higher for the small granting firms than the larger granting firms.

Industry: The argument is that there is a positive market response for the firms' outsourcing decision in the information system and service industry due to information asymmetry also as expressesd in Farag and Krishnan (2003).

Hg_2: The market reaction to outsourcing announcement will be positive for the information system and the service industry granting firms.

Cost Efficiency: All previous researches suggest that the reason for outsourcing is the cost reduction which will lead to cost efficiency. This cost reduction process is a result of the access of the outsourcing granting firm to the more specialized, more experienced outsourcing receiving firm. This unique specialization and experience of the receiving firm will be expressed in unit cost reduction. For example a company that specializes in manufacturing auto mirrors for an automaker; would manufacture this product for other automakers, thus this company lowers the fixed cost per unit and reaches economics of scale. However on the other hand the outsourcing granting firm (Automaker) by outsourcing this operation concentrates its experience, economy and knowledge on the other core operations. Therefore, the outsourcing granting firm lowers or decreases its expenses. Consequently, it is expected that less efficient outsourcing granting firms will have higher positive response from the market to the outsourcing announcement more than the most efficient outsourcing granting firms. Investors will thus see the granting of the outsourcing contract as a method of increasing cost efficiency.

Hg_3: The market reaction to outsourcing announcement will be positive and higher for the less cost efficient granting firm than the more cost efficient granting firm.

Productivity: There is a positive relationship between rate of outsourcing and productivity growth as discussed in Ten, Raa and Wolf (2001). According to the Economics comparative advantage, firms will use their resources to produce the goods or the services that they have comparative advantages in. Thus, the outsourcing granting firms will utilize and allocate their resources to produce the good or service that they have advantages in and

outsource the production operations if they can obtain the same quality at lower or cheaper cost. The granting firm's productivity will consequently improve as a result of resources allocations. It is expected that more productive outsourcing granting firms will have higher positive responses from the market to the outsourcing announcement compared to the less productive outsourcing granting firms. However, investors will see the granting of the outsourcing contract as a method of increasing productivity.

Hg_4: The market reaction to outsourcing announcement will be positive and higher for the more productive granting firm than the less productive granting firm.

Profitability: In the older days when a business is successful and with the aim of reducing costs, management tends to hire more employees, expand their operations, and acquire more infrastructures. However, nowadays firms increase their profits by granting outsourcing contracts to other firms and by doing so the granting firms decrease employment and payroll, have more capabilities, and have access to additional facilities. The most important criterion for evaluating the performance of a firm is profitability as stated by Smith, Mitra, and Narsimhan (1998). Therefore, we expect that outsourcing granting firms, with less profitability, will have higher positive response from the market to the outsourcing announcement compared to the outsourcing granting firms with more profitability. Investors will thus see the granting of the outsourcing contract as a method of increasing access to profit.

Hg_5: The market reaction to outsourcing announcement will be positive and higher for the granting firm with less profitability than the granting firm with more profitability.

Liquidity: Liquidity measures the firms' ability to meet its debt obligations and the extent to which the firm uses debt financing. In their study, McFarlan and Nolan (1995) argue that one of the keys that drive outsourcing, especially for information systems outsourcing, is the need for cash. Also, Smith, Mitra, and Narsimhan (1998) state that "An important part of many information system agreements is an introductory cash payment by the vender for tangible and intangible IT assets of the client". As a result of this agreement the granting outsourcing firm will receive a cash payment from the receiving outsourcing firm. In the same vein, the granting firm can liquidate the tangible assets that did not get included in the agreement. Based on this, it is expected that the outsourcing granting firm with less liquidity will have higher positive response from the market to the outsourcing announcement compared to the outsourcing granting firms with greater liquidity. Investors will see the granting of the outsourcing contract as a method for increasing liquidity.

Hg6: The market reaction to outsourcing announcement will be positive and higher for the granting firm with less liquidity than the granting firm with more liquidity.

4- RESEARCH METHODOLOGY AND DATA:

Stock market prices processes follow a random walk if the capital markets are efficient. It is expected, therefore, that investors earn normal returns as a compensation for holding the stocks. Consequently, we consider the returns to be normal if there is no significant event.

However if there is a significant event, this may lead the stock to experience abnormal returns. The abnormal returns are observed when capital markets are efficient and can be calculated as:

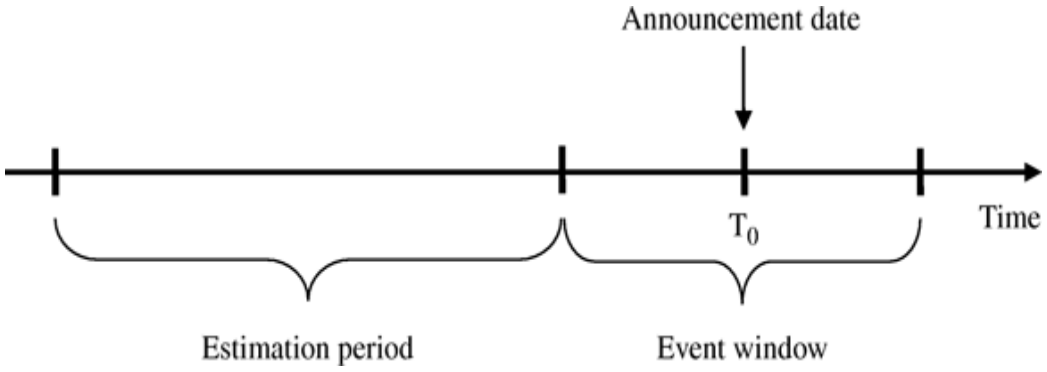
$$A_{iT} = R_{iT} - E(R_{iT}) \quad (1)$$

Where:
A_{iT} is the abnormal return for stock i at day T,
R_{it} is the return on stock i at day T,
$E(R_{iT})$ is the expected return on stock i at day T.

The above equation means that the abnormal return for any stock equals the difference between the actual realized return, and the expected normal return.

As in Gao (2009) Oh and Gallivan (2004), and Hayes, Hunton, and Reck (2000) we use Brown and Warner (1985) methodology to compute the abnormal returns around the day of interest to estimate the announcement of outsourcing impact on the short run return. The study, therefore, follow these event study methodology steps; (1)We have to identify the event, and define the event window which consists of the day of the event (day zero), some days before the event day (-T days), and some days after the event day (+T), (2)We select the sample of granting firms that we will analyze, (3)We exclude the firms that had another event simultaneously in the event window, (4)Normal return expectation if this event did not occur, (5)We estimate the abnormal return during the event window. We define the abnormal return as the difference between the actual return and the normal expected return, (6)Finally, we test the abnormal return and make sure it is significantly different from zero.

Figure 1: Event Study (Granting Outsourcing Contract)



Following the previous studies (e.g., Hayes, Hunton and Reck, 2000; Farag and Krishnan, 2003) we define the announcement date as day zero, the trading T days pre the announcement day as day –T, and the trading T days post the announcement date as day +T (i.e., -T,0,+T). Our event study analysis is based on a period of 161 days starting at day -150 and ending at day +10 (-150, +10). The estimation period is the first 140 days in this period (-150, -11), and the announcement period is the post 21 days after the estimation period (-10, +10). The abnormal return for a particular stock over each of the announcement period days (-10, +10) is defined as,

$$A_{iT} = R_{iT} - (\hat{\alpha}_i + \hat{\beta}_i R_{mT}) \quad (2)$$

Where:
eq.(2) is the market model,
A_{iT} is the abnormal return for stock i at day T,
R_{it} is the return on stock i at day T,
R_{mT} is the market return (CRSP) value weighted index at day T,
$\hat{\alpha}_i$ and $\hat{\beta}_i$ are OLS coefficients estimates from the regression of the return on stock i on CRSP value weighted index over the estimation period.

The cumulative abnormal return (CAR_i) between days -T and T around the outsourcing announcement of a stock i is defined as,

$$CAR_i = \sum_{t=-T}^{T} A_{iT} \quad (3)$$

T-statistic:

Our objective in using the event study methodology is to measure the stock price reaction to a significant event which is translated in the abnormal returns. We use test statistics to examine whether this realized abnormal returns event related or a coincidence. So, to test the statistical significance of calculated abnormal returns, we use t-statistic as follow.
For a one day event:

$$\text{t-statistic} = \frac{\bar{A}_T}{\hat{S}(\bar{A}_T)} \quad (4)$$

For cumulative abnormal return between days -T and T around the outsourcing announcement:

$$\text{t-statistic} = \frac{\bar{CAR}}{\sqrt{\sum_{t=-T}^{T} \hat{S}^2 (\bar{A}_T)}} \quad (5)$$

$$\bar{A}_T = \frac{1}{N} \sum_{i=1}^{N} A_{it} \quad (6)$$

$$\bar{CAR} = \frac{1}{N} \sum_{i=1}^{N} CAR_i \quad (7)$$

And

$$\hat{S}(\bar{A}_T) = \sqrt{\frac{\sum_{t=-150}^{-11} (\bar{A}_T - (\frac{1}{140} \sum_{t=-150}^{-11} \bar{A}_T)}{139}} \quad (8)$$

where:

N is the number of stocks sample,

$\hat{S}(\bar{A}_T)$ is the estimated standard deviation of the average abnormal return at day T.

Both one day event t-statistic and cumulative abnormal return between days -T and T around the outsourcing announcement t-statistic are distributed as a Student-t distribution.

To investigate our hypothesis to see whether the granting firms' financial characteristics are related to the stock price response to the announcement of outsourcing, we regress the cumulative abnormal returns on the firm's financial characteristics. The regression is as follow:

$$CAR_{gi} = \alpha + \beta_1 Size_{gi} + \beta_2 Industry_{gi} + \beta_3 Cost - efficiency_{gi} + \beta_4 \text{Pr}oductivity_{gi} + \beta_5 \text{Pr}ofitability_{gi} + \beta_6 Liquidity_{gi} + \varepsilon_{gi} \quad (9)$$

Where:

CAR_{gi}: The cumulative abnormal return for granting firm i,

$Size_{gi}$: The size of the granting firm i,

$Industry_{gi}$: The industry for granting firm i. Dummy Variable for industry,

$Cost - efficiency_{gi}$: The cost efficiency for granting firm i,

$\text{Pr}oductivity_{gi}$: The productivity for granting firm i,

$\text{Pr}ofitability_{gi}$: The profitability for granting firm i,

$Liquidity_{gi}$: The liquidity for granting firm i,

ε_{gi} : The error term.

For Size we use the log of the granting firm's total sale. We use Dummy Variable for industry; we use 1 for granting Service firms and 0 for non-service granting firms. We follow the previous research (Hayes et al. 2000) and (Beasley et al.2006) by identifying the firm's industry using the SIC code, service firms SIC code is $\geq$ 5000 and non-service firms SIC code < 5000. Following the previous research (Smith, Mitra, and Narsimhan 1998), we use (operating expenses/sales) to measure cost efficiency. We use the asset turnover (sales/assets) as a measure of productivity. We further, use the ROA and ROE to measure the profitability using assets and equity. Finally, we use the financial leverage (Total Liability/Total common Equity) as a measure of liquidity.

Table: Granting Firm Regression Variables

Dependent Variables				Definition
The cumulative abnormal return				CAR(-T,T)
Independent Variables	Measure	Definition	Units	
Size	Sales	Log (S)		S: sales
Industry	Dummy	1 = Service 0 = Non Service		
Cost Efficiency	Operating Expense/ sales	(COGS + SG&A)/S	Ratio	COGS: Cost of Goods Sold SG&A: Selling, General and Administration Expenses S: Sales
Productivity	Asset Turnover	S/TA	Ratio	S: Sales TA: Total Assets
Profitability	Return on Assets (ROA) Return on Equity (ROE)	NI/TA NI/CE	Ratio Ratio	NI: Net Income TA: Total Assets CE: Common Equity
Liquidity	Financial Leverage	TL/CE	Ratio	TL: Total Liability CE: Common Equity

The Outsourcing granting sample is for the period between January 1, 1990 and December 31, 2000 was obtained from articles in the Factiva Database that reported outsourcing announcements by the granting or the receiving firm for that period. Factiva Database combines Reuters Business Briefing, The Wall Street Journal, and the Dow Jones Newswires. We use keywords search using the terms (outsourcing Contract, and Outsource). Detailed review of the announcements revealed that there are non-outsourcing announcements or duplicated announcements. These non-outsourcing or duplicated announcements were deleted from the overall sample. To remain in the granting sample; outsourcing granting firms must be trading on the NYSE, AMEX or NASDAQ, and have stock returns available on the Center for Research in Security Prices CRSP. However, because we are interested in investigating the granting firms' characteristics effect on the response of the market, we have to have financial data available in COMPUSTAT and have data available in Compact Disclosure CD-Rom of the SEC filings. Also, we searched one year back from the announcement date to confirm that there was no earlier announcement. Consequently, the study concluded with 38 granting firms' sample. In our granting firms' sample there are 23 firms of mining, construction, manufacturing, communications, Electric, gas and Sanitary services which are identified by the SIC codes <

5000. The rest of the granting firms' sample is 15 firms of wholesale and retail trade, finance, insurance, real estate, services and non-classified firms are identified by the SIC codes $\geq$ 5000

Table: Distribution of Granting Firm Sample 1990 - 2000

Distribution of sample of 38 Granting outsourcing announcing firms during the period 1990 – 2000. The outsourcing announcements are identified from Factiva database.

Granting Firm Sample 1990 - 2000

Sample Size used:		**38**
Year	**Number Of Firms**	**Percent**
1993	2	5.26%
1994	1	2.63%
1995	6	15.79%
1996	6	15.79%
1997	6	15.79%
1998	8	21.05%
1999	4	10.53%
2000	5	13.16%
Total	38	100.00%

Major Industry Groups	**SIC Codes**	**Number of Firms**	**Percent**
Mining	10-14	2	5.26%
Manufacturing	20-39	18	47.37%
Communications, Electric, Gas, and Sanitary Services	40-49	3	7.89%
Wholesale Trade	50-51	1	2.63%
Retail Trade	52-59	2	5.26%
Finance, Insurance, and Real Estate	60-67	2	5.26%
Services	70-89	10	26.32%
Total		38	100.00%

To test our hypothesis for the impact of the firm characteristics and the response of the market to the outsourcing announcement we obtained the accounting characteristics of the granting firms from COMPUSTAT. Table presents summary statistics of the granting firm's financial characteristics.

Table: Summary Statistics of the Granting Firms' Financial Characteristics

Summary statistics of sample of; 38 Granting outsourcing announcing firms during the period 1990 – 2000. Outsourcing announcements are identified from Factiva database. Accounting data is obtained from COMPUSTAT.

Time Period					1999-2000
	Total Assets (mil)	Sales (mil)	ROA	ROE	NI (mil)
No.	38	38	38	38	38
Mean	21275.08682	15927.186	0.036582	0.479352	722.608
Standard Deviation	41989.62231	23965.148	0.130311	1.722897	1419.228
Median	4253.805	6470.35	0.060565	0.174707	122.9
Maximum	230615	103160	0.201526	10.69435	4770
Minimum	2.68	5.759	-0.52463	-0.65122	-3219

5- EMPIRICAL RESULTS AND THE DISCUSSION OF THE RESULTS

Table presents the results (Univariate) of the market reaction for the granting firm's outsourcing announcement for the subsample from January 1, 1990 to December 31, 2000. The table provides the cumulative abnormal returns for the event windows (-1, 1), (-3, 3), (-5, 5), and (-10, 10). The average cumulative abnormal returns are 1.09%, .89%, 1.27%, and 1.31% for the event windows (-1, 1), (-3, 3), (-5, 5), and (-10, 10) respectively. No statistically significant Cumulative abnormal returns, however the cumulative abnormal returns are positive. It was also expected, if there are cross-sectional differences of the benefits that granting firms can achieve by outsourcing which is consistent with the findings of Hayes et al. (2000), Farag and Kirshnan (2003), and Gao (2009). In general, the results are consistent with the previous research that there are no statistically significant cumulative abnormal returns. This is expected if there are cross-sectional differences of the benefits that granting firms can achieve by outsourcing which is consistent with Hayes et al. (2000), Farag and Kirshnan (2003), and Gao (2009). Equally, Oh and Gallivan (2004) mentioned the absence of statistically significant returns for small event windows.

Table: Cumulative abnormal returns for a sample of 38 granting firms 1990-2000

Cumulative abnormal returns for a sample of 38 granting firms during the period 1990 – 2000. The outsourcing announcements are identified from Factiva database. Abnormal returns are calculated using CRSP value weighted index parameters estimated over a 140 days period ending 10 days before the announcement date. CRSP value weighted index is used to compute the coefficients. The cumulative abnormal returns are calculated in the intervals.

Sample Period				1990 - 2000
	CAR -1, +1	**CAR -3,+3**	**CAR -5,+5**	**CAR -10,+10**
Mean	1.09%	0.89%	1.27%	1.31%
StD	4.61%	4.69%	6.14%	11.05%
Maximum	12.74%	15.65%	14.02%	29.16%
Minimum	-11.44%	-6.85%	-9.82%	-40.05%
Positive	20	22	22	22
Negative	18	16	16	16
Total	38	38	38	38
Positive	0.526	0.579	0.579	0.579
t Statistic	1.461	1.172	1.278	0.728
G-Sign Test Statistic	0.324	0.973	0.973	0.973

*** Significant at 1% , ** Significant at 5%, *** Significant at 10 %**

Since none of the cumulative abnormal returns for the event windows is statistically significant and the (-3, 3) event window for the cumulative abnormal returns has the most positive to negative ratio with positive mean for the granting firms' sample for the period from January 1, 1990 to December 31, 2000. Thus, we run a cross sectional regression using cumulative abnormal returns for the event window (-3, 3) as a dependent variable and the firms' financial characteristics as independent variables to explain the association of the cumulative abnormal returns and the granting firms' specific financial characteristics for that subsample. Table presents the results for the cross sectional regressions for the event windows (-1, 1), (-3, 3), (-5, 5), and (-10, 10). However, our analysis will be based on the (-3, 3) event window as was explained previously. The regression has R-Square of 0.1146 and Adjusted R-Square of -0.0920. The F-statistic is .5547 (p= .7860) suggesting that the model is not statistically significant. We find that the control variable of Industry (dummy; 1 for Services, 0 for non-services) is positively associated with the cumulative abnormal returns. Suggesting that, the abnormal returns are more positive for the service industry versus the non-service industry. The control variable of size (log of sales) surprisingly is positively associated with the cumulative abnormal returns. Suggesting that, the abnormal returns are more positive for the large firms versus smaller firms. This is also inconsistent with the hypothesis tested and the previous research. The variable of cost-Efficiency (Operating Expense / Sales) is negatively correlated with the cumulative abnormal returns. Suggesting that the market identified outsourcing as a cause for additional expenses. This is inconsistent with our hypothesis. The variable of productivity (Asset Turnover) is negatively correlated with the cumulative abnormal returns suggesting that the less productive the firm is the more positive the market reaction is. We use two variables for profitability ROA and ROE. ROA (Net income / Total Assets) is negatively correlated with the cumulative abnormal returns suggesting that the less positive the return on assets is, the more positive the market reaction will

be. ROE (Net income / Common Equity) is negatively correlated with the cumulative abnormal returns suggesting that the more un-profitable the firm is, the more positive the market reaction will be, which is consistent with our hypothesis. Finally, the variable of liquidity (Financial leverage) is negatively correlated with the cumulative abnormal returns suggesting that the market does not identify outsourcing as a way of lowering debt for the granting firm. However the liquidity coefficient is -.0013 meaning that the impact is almost none.

Table: OLS regression to explain the association of Cumulative Abnormal Returns and Granting Firms' Specific Financial Characteristics for the period 1990-2000

$$CAR_{gi} = \alpha + \beta_1 Size_{gi} + \beta_2 Industry_{gi} + \beta_3 Cost - efficiency_{gi} + \beta_4 \Pr oductivity_{gi} + \beta_5 \Pr ofitability_{gi} + \beta_6 Liquidity_{gi} + \varepsilon_{gi}$$

OLS regression to explain the valuation effect of 38 outsourcing announcements by granting firms during the period 1990 – 2000. The outsourcing announcements are identified from Factiva. The dependent variable is the cumulative abnormal return during; the 3 days event window CAR (-1,1), the 7 days event window CAR (-3,3), the 11 days event window CAR (-5,5), and the 21 days event window CAR (-10,10). The independent variables are: Industry (dummy, 1 = service and 0 = non service), Size is the log of sales, Cost-Efficiency is the operating expense over sales, Productivity is the Sales over Total Assets, ROA is the Net Income over Total Sales, ROE is the Net Income over Common Equity, Liquidity is the Total Liability over Common Equity.

Independent Variables	Expected Sign	Coefficient	t-Statistic	Coefficient	t-Statistic	Coefficient	t-Statistic	Coefficient	t-Statistic
Intercept		0.0042	0.0544	0.0320	0.4122	0.0505	0.5237	0.0009	0.0053
Industry	+	0.0133	0.6192	0.0114	0.5323	-0.0093	-0.3492	-0.0005	-0.0098
Size	-	0.0098	1.1249	0.0118	1.3592	0.0137	1.2745	-0.0011	-0.0569
Cost -Efficiency	+	-0.0401	-0.4922	-0.0548	-0.6726	-0.0907	-0.8961	-0.0479	-0.2626
Productivity	+	0.0059	0.4450	-0.0105	-0.7908	-0.0033	-0.1976	0.0221	0.7414
ROA	-	-0.0169	-0.1852	-0.0885	-0.9722	0.0349	0.3081	0.4421	2.1675**
ROE	-	-0.0072	-0.6740	-0.0081	-0.7639	-0.0015	-0.1129	0.0203	0.8517
Liquidity	+	-0.0006	-0.2660	-0.0013	-0.6045	-0.0007	-0.2621	0.0037	0.7753
Dependent Variable		CAR	(-1,1)	CAR	(-3,3)	CAR	(-5,5)	CAR	(-10,10)
N		38		38		38		38	
R-Square		0.0836		0.1146		0.2011		0.2003	
Adjusted R-Square		-0.1302		-0.0920		0.0148		0.0137	
F-Statistic		0.3912		0.5547		1.0791		1.0734	
Model Significance		0.9001		0.7860		0.4008		0.4042	

* Significant at 1%, ** Significant at 5%%, *** Significant at 10%

6- CONCLUSION

Outsourcing is the exporting or the delegation of one or more of operations within a firm to an external firm that specializes in that operation. The firm that is outsourcing its operations is called the outsourcing firm, granting, client, or buyer. The granting firms engage in outsourcing contracts to lower costs, better anticipate future costs, focus more in the core operations, and take advantage of economies of scale the outsourcing can offer. By doing so the granting firms expect to increase efficiency, improve productivity, increase profitability and therefore lower debt.

Previous studies had found positive market reaction to the outsourcing announcement. Therefore, in this research, we empirically investigate the effect of outsourcing contracts announcement on the value of the contract granting firm (Outsourcing firm). Our results are consistent with the previous research; however none of the cumulative abnormal returns for our sample are statistically significant. Previous research did not give attention to the firms' financial characteristics, and whether these other particular financial characteristics cause the market to react differently to outsourcing announcements. In this research, we elaborate previous research by investigating additional firm's financial characteristics that may impact the market reaction to outsourcing announcement. We use a sample that covers time period from 1990 to 2000, to investigate the impact of outsourcing contract granting firms' particular financial characteristics on the magnitude of the market return.

We find that surprisingly service industry is negatively associated with the cumulative returns; equally, we find that the size (as measured by log of sales) is positively associated with the cumulative returns. Both results are inconsistent with the previous research. We find a negative association between cost efficiency (as measured by operating expense divided by sales) and the cumulative returns, suggesting that outsourcing will lead to the acquiring of additional expenses. We find a positive association between productivity (as measured by asset turnover) and the cumulative returns. However, the impact is too small to consider. We find a negative association between profitability (as measured by return on assets and return on equity) and the cumulative returns suggesting that the market reacts more negatively for profitable firms. Finally, the study identifies positive association between liquidity (as measured by financial leverage) and cumulative returns suggesting that the market identifies outsourcing as a way of reducing debt. However, we cannot generalize the results obtained because insufficient statistical evidence.

We present an analysis of the results by making effort to present a theoretical answer to the question of: How come outsourcing becomes so important or significant? If there is no much significant value added to firms as a result of outsourcing, how come that outsourcing becomes so important? Are there other reasons beyond the simple financial perception by the market reaction in the short periods? Sharpe (1997) states that "outsourcing did not emerge as consequence of a sudden technical breakthrough, nor did it grow out of a bestselling book by a well-known management guru. Rather it was a result of market forces that emerged in response to demands for more efficient ways to address organizational competitiveness." Also, Levina and Ross (2003) explain that, large size firms outsource for other reasons beside economies of scale. Considering, that outsourcing is done to achieve the economies of scale. Therefore, outsourcing has nothing to offer the large firms, because these large firms can reach economies of scale internally and independently adapting the receiving firms' (venders) methodology.

There are additional reasons behind the outsourcing decisions beyond reducing cost and economies of scale. For example; core competency. As the core competency theory argument stated that the management has two choices either to produce in the house or to outsource. The management should choose to outsource non-core competency operations and concentrate on core competency activities, as a result this will thus improve and enhance core competency. Quinn (1999) advocates extensive outsourcing strategies. Further suggests that the firm can optimize the gain of outsourcing when the reason of outsourcing is to enhance core competency and if this combined with extensive outsourcing strategy, this will ultimately lead to flexibility. Outsourcing will allow the firm's management to minimize the use of the firm' resources by; Concentrating effort on what the firm knows how to do best, protecting the competitive advantages of the firms by allowing the firms to concentrate and develop core competencies, that

will make entering the firm's core competencies area difficult for the competitions, and making the risk of research, development, external instead of internal (Quinn and Hilmer, 1994).

Loh and Venkatraman (1992) equally treat outsourcing as an administrative innovation in which; outsourcing is a "significant shift in the model of governance" from control and coordination within the hierarchy to new hybrids model, outsourcing is "changes in routines dealing with internal arrangements", and outsourcing is "changes in routines dealing with external alignments". Furthermore, outsourcing will provide an access to global capacities, will increase the firm's core competencies, will split the risk between the outsourcing granting firms and the outsourcing receiving firms, and outsourcing will free some of the firm's resources so that the firms can focus on their core competencies (Deavers,1997).

Outsourcing is a way of off-shoring hazardous waste. Most of hazardous waste processing is carried out on-shore (locally) however the disparities in environmental regulations and disparities in waste processing costs result in an increase in off-shore outsourcing in hazardous waste processing. The amount of hazardous waste traded globally increased from 2 million tons to more than 8.5 million tons between 1993 and 2001 (Toepfer, 2007). When a multinational firm involves in a foreign country, that firm has a responsibility toward the firms' labor in that foreign country to ensure that the working conditions are fair and humane. However Outsourcing is different. When a granting firm globally outsources a contract to a receiving firm, most often the work condition regulations required in the receiving firm's country is less than the work condition regulations required in the granting firm's country.

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THE U.S. GROCERY INDUSTRY IN THE 2020S: WHO WILL COME OUT ON TOP?

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ABSTRACT

The world of grocery retail is constantly shifting. Competition continues to intensify driven by two main players: Amazon and Walmart. The two American giants are dominating the brick-and-mortar and online realms. However, they are being challenged by a German underdog, Aldi. Aldi's business model is built around slashing cost without compromising quality. A typical Aldi store is 12,000 square feet, and carries a limited selection of mostly inexpensive private brands (1,000 SKUs). Merchandise is often stacked in the aisles and sold straight from the cardboard box it was shipped in. Basically, Aldi is a grocery store that's the size of a convenience store. Consequently, the deep-discount grocer has been able to appeal to a growing price-sensitive segment and continues to win over American consumers. Aldi U.S. has grown from one store in 1976 to almost 2,000 stores in 36 states in 2019, and has plans to expand to 2,500 stores by the end of 2022. There is no doubt the nimble "underdog" has disrupted the $700 billion grocery industry, and giants like Amazon, Kroger, and Walmart have no choice but to up their game. The retail behemoths are aggressively lowering prices and continuously refining online ordering and home delivery programs to respond to the threat Aldi poses. Selling groceries in America has never been harder. Can U.S. grocery retailers effectively stand up to the German hard discounter? Who will come out on top?

INTRODUCTION

Retailing includes the business activities involved in selling goods and services to consumers for personal, family, or household use. Retailing does not have to involve a store. Mail and phone orders, direct selling to consumers in their homes and offices, Web transactions, and vending machines are part of retailing. This definition includes products bought at stores, through catalogues, and over the Internet, as well as services like fast-food restaurants, airlines, and hotels. The retail trade sector encompasses twelve different subsectors of the US economy, from food and beverage stores to car dealerships. Retailers purchase merchandise from suppliers that is then sold through both brick-and-mortar establishments and non-store outlets. Retailing sits at the end of the channel of distribution where marketing meets the consumer. A marketing channel is made up of firms, such as manufacturers, wholesalers, and retailers, all (hopefully) working together to bring products and services to customers. Each of these firms forms a link in what is generally referred to as a value chain or the chain of activities that add value to a product on its way from manufacturing to an end user (Brown, 2004). Total retail sales in the United States amounted to approximately $6 trillion in 2017. Table 1 identifies the largest retailers around the world based on publicly available data for fiscal year 2017.

Table 1: Top Ten Retailers (FY2017)[i]

Rank	Retailer	Country of Origin	Revenue ($Billion)	Countries of Operation
1	Walmart	United States	500.3	29
2	Costco	United States	129	12
3	Kroger	United States	119	1
4	Amazon	United States	118.6	14
5	Schwarz	Germany	111.8	30
6	Home Depot	United States	101	4
7	Walgreens	United States	99.1	10
8	Aldi	Germany	98.3	18
9	CVS	United States	79.4	3
10	Tesco	United Kingdom	74	8

Source: Deloitte Touche Tohmatsu Limited. Global Powers of Retailing 2019

THE GROCERY INDUSTRY

The food retail sector comprises a decent share in the industry with $700 billion or about 12 percent. In 2017, average food at-home expenditure of U.S. households was almost $4,400. Retail grocers carry a broad line of fresh, frozen, canned, and other prepackaged foodstuffs. Many of these stores also sell a variety of nonfood items such as health and beauty products, paper goods, and cleaning supplies. However, food items constitute the majority of their product lines and sales volumes. On average, groceries are purchased five times per month. Traditionally, this meant visiting a brick-and-mortar store. However, a new trend that the market cannot overlook is that consumers are growing more comfortable ordering groceries online. During the five-year period leading up to 2019, industry revenue has grown at an annual rate of 16.5% to $33.4 billion. The online grocery industry consists of companies that are based online and those that have both a physical presence and also sell food products on the internet. Major players include Amazon, Kroger, and Walmart. The online grocery sales industry has grown rapidly as online shopping has increased and industry services has improved considerably. Revenues are expected to grow by 6% in 2020, meaning the industry is still in the growth stage. Steady employment rates will keep leisure time for consumers at a minimum, making online food shopping more convenient and desirable. Besides, per capita disposable income is anticipated to continue growing, further stimulating

industry demand by making online grocery shopping more affordable. However, larger competitors, such as Amazon's AmazonFresh service, will drive down prices in an attempt to crowd out the competition, hampering industry profit growth.

In an attempt to save both time and money, consumers are progressively choosing to shop online rather than visiting physical locations, prioritizing convenience over actually examining their items prior to buying them. Gen X consumers (those born between 1965 and 1978) are driving growth as they represent nearly 50% of the market. Meanwhile, sensing heightened demand for internet-based delivery services, major companies like Amazon and Walmart are scaling up their industry-relevant operations. In addition, a new group of highly focused online grocers, like Relay Foods, FreshDirect, Instacart, and Door-to-Door Organics, are targeting niche markets across the country by selling organic and other niche groceries online. The two companies dominating the online grocery industry are Amazon and Walmart.

Amazon.com, Inc., doing business as Amazon, is a multinational technology company focusing in e-commerce. The company was founded by Jeff Bezos in 1994 to sell books online but turned into the largest e-commerce marketplace and cloud computing platform in the world as measured by revenue and market capitalization. The trillion-dollar company has declared its adherence to four principles: customer obsession rather than competitor focus, passion for invention, commitment to operational excellence, and long-term thinking. These principles represent sources of Amazon's competitive advantage. To capitalize on this trend and continue to compete effectively, many companies that traditionally operated through physical locations now also operate websites that enable their customers to shop online. For example, the sector's largest operator, Walmart Inc., generated $318.5 billion through its Walmart US segment in fiscal 2017 (year-end January). $11.5 billion of this revenue stemmed from online sales, representing an increase of 44.0% from the year prior. The Sams Club segment operates membership-only warehouse clubs, offering two types of membership options: Plus and Club. These facilities consist of space ranging between 94,000 sq. ft. and 168,000 sq. ft. It provides specialty services such as travel, auto buying, pharmacy, optical, hearing aid centers, and tire and battery centers. The segment offers products under five categories - grocery and consumables; fuel and other; home and apparel; technology, office and entertainment; and health and wellness.

Walmart's dominance has been predicated on its reputation for low prices and its excellent distribution network to stores. That is, Walmart's famed logistics capabilities have allowed it to get products from distribution centers onto store shelves more efficiently than virtually any other retailer (Artz & Stone 2006). However, it lacks the skills and logistics ability to move those products from stores to customers' homes. Furthermore, its low price reputation is being challenged by Amazon too. Unscientific experiments show that the two retailers vary in which one offers the lowest price on any particular product (Huddleston; et al 2009). Amazon also changes its prices constantly, which makes a direct price comparison difficult. However, the overall notion that Walmart has long tried to develop—namely, that it would always be the place where consumers could find the lowest prices—no longer holds for many shoppers. Consumers might be able to find the lowest price at Walmart, but the substantial price transparency of the Internet means that they can always click around to see if they might find a better deal elsewhere—like Amazon.

Competition between the two titans is fierce due to the limited level of product differentiation and consumers' insignificant switching costs, combined with a challenging and

volatile market environment. A lack of switching costs and the limitations in product differentiation lead to buyer mobility, which forces larger retailers to maintain attractive pricing schemes. There is a rising pressure laid on players to adapt to fast changing consumer needs and the market leaders should be able to position the desirable product at a price suitable for customers and manufacturers. Whilst specialist, luxury or organic retailers do not feel the same price sensitivity, they are not able to secure a large volume of customers, and may have no choice but to commit to long term supplier contracts in order to secure a steady supply, quality, or specifically prepared products. The food & grocery retail market in the US is dominated by Walmart, which accounted for over a quarter of the US food & grocery market value in 2017 (Banker, 2019). Other large market players include Kroger, Target, Costco, and Ahold among others. These companies are large-scale, established retailers, with operating businesses that benefit significantly from economies of scale and the ability to employ aggressive pricing schemes that cannot be matched by smaller retailers, thus enjoying a significant advantage. Strong branding exercises and fast paced expansion deepens this market control.

Nevertheless, large retailers are not invulnerable to the threat of new entrants. Potential entrants may be encouraged by the relatively low entry and exit costs. There has been a rapid growth of health consciousness, plus an increasing number of consumers opting for a more ethical or organic range of goods. This forms attractive avenues for new entrants seeking to move into a niche area that offers inbuilt protection from pricing pressures and mainstream marketing (Goic; et al 2015).

ALDI

Aldi operates nearly 2,000 stores in 36 states and is on track to become America's third largest supermarket chain behind Walmart and Kroger, with 2,500 stores by the end of 2022. However, the "Aldi way" is not for everyone. Many customers are not that heavily price-conscious to accept the low frills store. Others are loyal to their national brands and are not eager to switch. Shoppers who are not willing to do the extra work of bringing bags and returning carts won't find Aldi attractive. Some shoppers may dislike the experience of shopping at an Aldi, which expects its customers to tolerate a number of inconveniences not typical at other American grocery stores. For instance, shoppers need a quarter to rent a shopping cart. Plastic and paper bags are available only for a fee. And at checkout, cashiers rush shoppers away, urging them to bag their own groceries in a separate location away from the cash register. Aldi will also struggle in metropolitan cities that expect prompt and sophisticated online delivery systems. Physical stores remain Aldi's competitive advantage, and the company has a lot of work to do in the online and home delivery realm. When Amazon and Walmart catch up to Aldi on the cost-effectiveness front, the company will have a big e-commerce problem on its hands.

How Aldi manages to keep its prices so low is no secret. The German discount grocer strips down the shopping experience in a blatantly efficient way. Specific reasons the company can keep its prices at rock bottom include:

- Relying on private (store) brands. Ninety percent of the merchandise sold at Aldi is exclusive to the store.
- Limited assortment of quality products. This translates into purchasing a higher volume of items. Because Aldi focuses on less SKUs, they are able to buy more of each SKU.

- Stores are small and energy efficient, with minimal decoration, and have reduced hours.
- Food items are displayed in the cardboard boxes in which they were shipped to the store, and stacked on wooden pallets (rather than neatly organized on shelves). This means employees need less time to restock shelves.
- Fewer workers (3-5 employees at any given time).
- Customers bring their own bags and bag their own groceries.
- A smart shopping cart rental system. Shoppers are expected to return their shopping carts saving employee costs.
- Relying on social media and word of mouth for advertising rather than expensive TV ads.

NATIONAL VS. PRIVATE BRANDS

National brands, also known as manufacturer's brands, are products designed, produced, and marketed by a supplier and sold to various retailers. The manufacturer is responsible for developing the merchandise, producing it with consistent quality, and undertaking a marketing program to establish a compelling brand image. Store brands (also called private-label brands, or house brands) on the other hand, are products developed by retailers. In many cases, retailers develop the design and specifications for their store-brand products and then contract with manufacturers to produce those products. In other cases, national-brand suppliers work with a retailer to develop a special version of its standard merchandise offering to be sold exclusively by the retailer. In recent years, as the size of retail firms has increased through growth and consolidation, more retailers have the economies of scale to develop store-brand merchandise and to use this merchandise to establish a distinctive identity. Also, manufacturers and national-brand suppliers are more willing to accommodate the needs of retailers and develop exclusive private labels for them.

Grocery retailers rank store brands as the most important factor that differentiates them from their competitors. Retailer competition should have a stronger impact on the more substitutable national brands than the more differentiated store brands. Grocery retailer store brands are imperfect cheap substitutes to national brands. According to Private Label Manufacturers Association (PLMA) data, total sales of store brands in U.S. supermarkets were $67.5 billion in 2018 (Larson, 2018).

When determining the mix between national versus store brands, retailers consider the effect on their overall assortment, profitability, and flexibility. Retailers examine their assortments to make sure they are providing what their customers want. They may introduce an innovative new store-branded product that isn't being offered by their national-brand vendors or a product that can be offered at a better value—or both. Stocking national brands is a double-edged sword for retailers. Many customers have developed loyalty to specific national brands. If a retailer does not offer the national brands, customers might view its assortment as lower in quality, with a resulting loss of profits. On the other hand, the consistency of national brands means that it is easy to compare the retailer's prices for national brands. National brands can limit a retailer's flexibility. Vendors of strong brands can dictate how their products are displayed, advertised, and priced.

Offering store brands has several advantages: (1) exclusivity boosts store loyalty, (2) well known, highly desirable store brands enhance the retailer's image and draws in customers, (3) relatively lower prices for consumers, (4) fewer restrictions on merchandise display, promotion, or pricing, and (5) potentially greater gross margin opportunities. However, there are drawbacks to store private brands. For example, retailers must make significant investments to design merchandise, manage manufacturers, create customer awareness, and develop a favorable image for the brand. In addition, if the store branded merchandise doesn't sell well, the merchandise cannot be returned to the supplier or sold at an off-price retailer.

WHO WILL COME OUT ON TOP?

Aldi's limited assortment of SKUs is a key competitive advantage. Today's shoppers are realizing that having 100,000 SKUs in a Walmart supercenter or even 50,000 SKUs in a traditional supermarket is too confusing and difficult to shop. Because Aldi's product selection is limited, stores are smaller, layouts are consistent from store to store, and it can be faster to find everything on a shopping list. Aldi has asserted its advantages over the warehouse-style stores by offering shoppers a less crowded and fast experience. A shopper can shop an entire Aldi store in 15-20 minutes. Aldi is also known for performing constant quality checks and frequent taste tests, so that even when the prices are ludicrously low, the quality of the products is enough to attract shoppers. About 90 percent of Aldi's products are private-label, which enables greater quality control and pricing flexibility for the supermarket chain. Consumers with less disposable income like Aldi because they can get what they need at a low price. And people with more income still shop there as well, because they can get exclusive brands not available elsewhere. Meanwhile, Aldi's "Twice as Nice Guarantee" policy is designed to ensure that customers are completely satisfied with their purchases. For example, if a customer buys a box of store-brand ketchup and ends up hating it compared to their usual national brand ketchup, they can simply return the product to receive a full refund AND a replacement item.

Aldi is a year into its five-year, $5 billion U.S. growth plan, which includes building approximately 800 new stores, remodeling older locations, and upgrading and expanding its product assortment. Aldi, however, has some vulnerabilities that will need to be shored up. Aldi's strengths lie in the brick-and-mortar area, while its online offering needs to be overhauled. Even though the company does have vulnerabilities, it has also proven itself to be a shrewd operator capable of moving quickly to close competitive gaps.

Amazon presents a significant threat to many other operators in the retail sector. Primarily, due to the width of Amazon's product lines, most products sold by other retailers can be purchased on the company's website, making the need to visit multiple brick-and-mortar establishments to complete one's shopping list obsolete. Additionally, Amazon offers its consumers quick shipping options, including the guaranteed two-day shipping offered through its Amazon Prime subscription service. Amazon Prime members pay a yearly fee to receive free two-day shipping on millions of products on Amazon.com, as well as access to video and music streaming and other membership benefits. This entices consumes to spend more on Amazon's website and has raised customers' expectations.

In 2017, Amazon acquired Whole Foods Market, one of the largest operators in the supermarkets and grocery stores industry, for $13.7 billion. The acquisition included 460 stores in the United States and an additional seven international locations. In summer 2019, Amazon's Whole Foods started offering grocery pickup within 30 minutes of placing an online order. This not only marked the company's first step into the food and beverage stores subsector, but also its first presence in the brick-and-mortar side of the retail landscape.

Walmart's dominance has been predicated on its reputation for low prices and its excellent distribution network to stores. That is, Walmart's famed logistics capabilities have allowed it to obtain products from distribution centers onto store shelves more efficiently than virtually any other retailer. However, it lacks the skills and logistics ability to move those products from stores to customers' homes. Walmart has a goal of reaching 40 percent of the country's population with its grocery delivery program by the end of 2019.

Furthermore, Walmart's low price reputation is being challenged by Aldi and Amazon. The notion that Walmart has long tried to develop—namely, that it would always be the place where consumers could find the lowest prices—no longer holds for many shoppers. Consumers might be able to find the lowest price at Walmart, but the substantial price transparency of the Internet means that they can always click around to see if they might find a better deal elsewhere—like Amazon. About 15 years ago, Walmart committed itself to Internet retailing. Back then, Amazon was just a small bookselling blip on the public's radar. Today however, Amazon has dominated the digital marketplace and has overtaken Walmart in terms of its stock market value. However, Walmart continues to seek a firm foothold in the online domain. Walmart certainly is not alone in struggling to compete with Amazon in cyberspace, but it is the largest and most prominent example of how Amazon has transformed the retail landscape. In addition to its long-standing advantages—low overhead, achieved because it does not need to invest in physical stores; vast inventory, unlimited by any reliance on square footage in stores; and a unique recommendation algorithm—Amazon continues to invest heavily in its fulfillment capabilities. By achieving the ability to offer same- and next-day delivery regularly, Amazon has become a primary source that consumers rely on to meet their immediate consumption needs.

Although Walmart has retained its throne for twenty-plus years, it cannot ignore the threat posed by Amazon. In 2001, Amazon was the 157th largest retailer. Today, it's closing in on Walmart. As shown in Teaching Note Table 2, Walmart is still in the lead with more revenues, assets, and profits. Amazon, however, is the third most valuable brand in the world. Amazon's brand equity grew by 56% in one year to hit $100 billion! Aldi and Walmart did not even make the top 100 (Interbrand, 2018).

Table 2: Rank, Revenues, and Employees (2018)

RETAILER	RANK	REVENUES ($M)	PROFITS ($M)	ASSETS ($M)	EMPLOYEES
Walmart	1	500,343	9,862	204,522	2,300,000
Amazon	4	177,866	3,033	131,310	566,000
Aldi	8	98,000	-	-	25,000

Source: Companies' Websites (Since Aldi is a privately held company, it is not obligated to share financial records).

The competition between Aldi, Amazon, and Walmart is evident and obvious. However, the platforms they use are different. Walmart is the world's leader in brick-and-mortar grocery sales with more than 3,500 supercenters in the United States. Amazon is undoubtedly the number one e-commerce marketplace. Amazon and Walmart lead in the grocery industry due to their exceptional fulfillment capabilities and massive marketing across platforms. Aldi is contending their leadership with its brutally efficient no-frills business model and is presenting an insurmountable challenge. Ultimately, the retailer which responds proactively to changing customer preferences and serves them in the best possible way will survive and thrive. Right now, it seems that the three firms have an equal shot of dominating America's groceries. Future research may look into how the underdog, Aldi, fares in this new cut-throat competitive landscape. Looking into motives of why millennials prefer smaller grocery stores compared to big box retailers could be a useful route as well.

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