

A VIRTUAL VERSION OF WEB 3.0 BUILDING A LEARNING ENVIRONMENT FOR THE FUTURE

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ABSTRACT

This cross listed computer science and education class will present one vision of the look and feel of Web 3.0 (the Internet of the future) as it relates to virtual learning environments. The presentation will start with a description of Web 2.0 and how it is currently being used in education. We will then describe the virtual vision of Web 3.0 and how it can be used in education, including our research into virtual environments and the progress towards the development of a virtual blueprint for Siena College.

EGO DEPLETION AND SELF-FOCUSED CONSUMERS: PROPOSING THE EFFECTS OF A DEPLETED SELF ON GIFTING BEHAVIOR

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ABSTRACT

The self's ability to make sacrifices and guide behaviors in a goal-congruent manner necessitates the exertion of a specific, limited psychological resource. As consumer gift-searching processes provide a relevant example for potentially sacrificial behavior, we examine the extent to which the depletion of this finite resource may influence such behaviors herein.

INTRODUCTION

In shopping situations, consumers may be forced to ration the amount of time, effort, and psychological energy spent when searching for a product for oneself and searching for a product intended for a significant other. This would especially hold true during the holidays and among other select gift-buying occasions. In such instances, the consumer may experience a self-control dilemma that results from two conflicting goals: devoting a reasonable amount of time, effort and psychological energy towards finding a desirable gift for a significant other, and utilizing the residual resources on shopping for oneself (or vice-versa). For the consumer to persist in the gift-buying process, or to overcome the desire to change the focal recipient of the search behavior, some form of psychological effort would need to be exerted (Muraven, Tice and Baumeister 1998). According to the self-regulatory resource depletion phenomenon (Muraven et al. 1998; Muraven and Baumeister 2000) this specific form of psychological energy employed during acts of self-control is referred to as the self-regulatory resource (Baumeister, Bratslavsky, Muraven and Tice 1998; Muraven and Slessareva 2003). Similar to the performance of a muscle following a profoundly demanding workout, continuously drawing upon this limited entity can cause performance impairments on subsequent self-control tasks, thereby leading to a state of ego depletion (Baumeister, Muraven and Tice 2000).

Recent research has demonstrated that a variety of consumer choice making activities can weaken one's ability to self-regulate on future tasks of self-control (Vohs et al. 2008). Several specific consequences of ego depletion include a stronger focus on affective product features (Bruyneel, Dewitte, Vohs and Warlop 2006), an inability to control spending (Vohs and Faber 2007), greater reliance on simple, intuitive mental processing (Pocheptsova, Amir, Dhar and Baumeister 2009), and a heightened receptiveness to rewards (Muraven and Slessareva 2003). Of greatest interest to the current investigation is that depleted individuals exhibit a decreased willingness to help others (DeWall, Baumeister, Gailliot and Maner 2008) and further, when forewarned of an upcoming self-control task, these people become highly motivated to hoard their existing supply of self-resources for future uses (Muraven, Schmeuli and Burkley 2006). Taken together, such findings enable one to infer that people become more self-oriented following a taxation of their self-resource energy.

As previously mentioned, sacrificial behaviors tend to arise in consumer gifting, as the shopper's decision to exert and/or conserve self-regulatory energy can potentially impact two distinct parties: the consumer and the individual that a gift will be purchased for. However, while well researched in the areas of social and personality psychology, the impact that ego depletion has on consumer behavior, specifically gifting behaviors, has not been explored. What remains to be answered, then, is whether depleted individuals will conserve their limited supply of self-regulatory strength when the beneficiary of conservation efforts varies between self and significant other(s). Additionally, might the conservation of these highly valuable resources be moderated by situational relevance (e.g. purchasing a gift for a holiday, birthday or graduation)?

We contend that the consumer gifting sphere serves as a highly relevant domain for such queries to be answered. Moreover, recent research (Hagger, Wood, Stiff & Chatzisarantis 2010) has strongly recommended a further clarification to the resource conservation hypothesis. Therefore, the current paper presents several suggestions concerning the plausible interaction between self-regulatory resource capacity and its impact on consumer gift-buying behavior. Consistent with prior research (Baumeister 2002; Vohs 2006), the propositions developed herein contribute to the extant literature through conceptual arguments, bolstered by the implications derived from earlier as well as more recent studies on the effects of a depleted self.

EGO DEPLETION & CONSUMER BEHAVIOR

Self-control has been defined as the self's ability to override an impulse, urge or desire that may threaten a person's long-term interests (Mead et al. 2009). Further, people exert self-control in order to resist any thoughts, emotions, or actions that would undermine their goal-directed behaviors (Muraven and Baumeister 2000). Early research by Muraven et al. (1998) suggested that one's capacity to refrain from temptation-oriented behaviors is dependent upon a certain resource which the self consumes during acts of volition. Due to the limited capacity of this resource, an individual's performance on subsequent tasks of self-control will be negatively impaired, provided that an initial expenditure of self-regulatory strength had occurred. For instance, restraining oneself from consuming a cookie, as compared to not eating a radish, increases the likelihood of giving up sooner on a following self-regulatory task (Baumeister et al. 1998). Exercising self-regulatory strength is facilitated through active choice making (Bruyneel et al. 2006; Vohs et al. 2008), emotion regulation (Baumeister et al. 1998; Schmeichel et al. 2006), thought suppression (Muraven et al. 1998), resisting persuasion attempts (Janssen, Fennis, Pruyn and Vohs 2008) and controlling one's own attention (Schmeichel 2007).

Muraven et al. (2006) suggested and found that as an individual's self-resource inventory runs scarce, his or her motivation to conserve the remaining stock of self-resources will intensify as long as the person anticipates future self-regulatory behaviors. In their study, subjects who had exerted self-regulatory strength in an initial task and had anticipated a future resource demanding activity performed worse on an intervening task of self-control than depleted subjects who had not been expecting a future resource demanding activity. According to the authors, people will conserve their remaining supply of self-resources, thereby sacrificing their performance on an intervening task of self-control, in order to enhance their chances of success on a final, anticipated task of self-regulation. Based on Wheeler, Briñol and Hermann's (2007) findings, which suggested that forming counterarguments to a persuasive request leads to a state of resource depletion, a study conducted by Janssen, Fennis and Pruyn (2010) examined the impact that forewarning subjects of an upcoming persuasive message could yield on self-resource conservation efforts. They found that subjects who had controlled their own speech in an initial task and who were made aware of the upcoming persuasive message exhibited a greater tendency to conserve their remaining self-resources during the intervening self-control task than participants who had not been depleted and were not forewarned.

It is of interest to note, however, that the beneficiaries of self-resource conservation efforts in the aforementioned experiments were the actors themselves. Had participants been informed that their conservation efforts would promote the well-being of an outside party, the findings reported may have been different. In fact, Muraven et al. (2006, p.536) assert that "the more strength is depleted, the less people want to expend what strength remains." Along the same lines, DeWall et al. (2008) report that depleted subjects are less willing to help a stranger in need than are subjects whose self-resource capacity has remained intact. According to Janssen et al. (2010, p.9), "conserving our resources and putting them into action when it most benefits *us*, is an activity that is in line with *our* goal-directed human nature" (italics added). Taken together, one may infer that when self-resources run low, people show less concern for others and attempt to keep their own self-interests as the focal point of attention, thereby succumbing to self-oriented, impulsive behaviors (DeWall et al. 2008).

These examples demonstrate an opportunity to increase our understanding of how and why consumers fail to act in accordance with their long-term interests, by merging the existing literature on self-resource depletion with consumer behavior research. To date, there exists no empirical evidence on how resource depletion could influence one's gift-buying behavior (whether the recipient of the purchase is the consumer, that is self-gifting behavior, or a significant other). Therefore, the remainder of the article will integrate the extant literature on consumer gift-buying behavior and resource depletion, providing direction for future research concerning the nature of their interaction.

GIFT-BUYING & THE REGULATION OF SELF-RESOURCE CONSERVATION EFFORTS AMONGST SELF AND OTHERS

Gift-giving rituals, although varied, exist in all cultures. In the United States, we gift on holidays, both religious and secular, birthdays, anniversaries and other special occasions. The economic impact cannot be overlooked. In 2009, consumers spent \$41.2 billion during the Black Friday weekend, according to the National Retail Federation (Grannis, K. 2009). The reasons underlying gift-giving behavior do vary. Obligation, self-interest and altruism have each been cited as the few most powerful motives behind holiday gift-buying behavior (Rugimbana, Donahay, Neal and Polonsky 2002). However, sometimes the impact of gift-giving is negative. Respondents in a study by Sherry (1993, p.229) perceived gift-giving as an incessant “obligation,” whose associated protocols have become “too taxing” on both money and time.

According to the licensing effect (Khan and Dhar 2006), the formation of intentions to act in a righteous manner in an initial situation boosts an individual’s self-concept and therefore increases the likelihood of that individual engaging in an indulgent behavior subsequently. Specifically, individuals who had made a donation to a charitable organization in their first task showed a greater propensity to select a hedonic product (vs. a necessity) in a following task than subjects who had not provided an initial contribution. More importantly, subjects could not attribute their hedonic selections to the preceding generous behavior, illustrating that this effect can occur subconsciously. At the conscious level, however, people who engage in self-gifting or indulgent behavior maintain that their hedonic choices are more easily justified by their recent attempts to achieve a preceding goal, thus serving as a reward for their efforts (Mick, DeMoss and Faber 1992; Mukhopadhyay and Johar 2009). Self-indulgent behaviors such as those reported may depict the effects of ego depletion in that self-regulatory strength was exerted in a choice making activity, leaving fewer self-resources available for the ensuing purchase situation. DeWall and colleagues (2008) have asserted that the same resource utilized for overcoming impulsive behaviors and effective self-regulation is also employed for acts of helpfulness, as the helper must refrain from self-promoting tendencies for the sake of providing aid to others. Depleted subjects, as compared to their non-depleted counterparts, subsequently reported that they would be less likely to help a stranger in need. In their second experiment depleted participants were less likely to provide aid to a stranger than a family member, yet no differences existed between resource depletion condition and willingness to help a family member. Based on the preceding discussion, once an act of helpfulness has been provided one’s capacity for effective self-regulation thereafter will be considerably impaired. The remaining regulatory strength, however, can still be applied to the benefit of the actor or donated for the sake of helping others. What has yet to be examined, however, is the discrepancy which may exist between depleted individuals’ resource exertion efforts when the beneficiary of self-regulatory performance on a subsequent task of self-control varies.

Proposition 1: Depleted consumers will conserve more (less) self-regulatory strength on an intervening task of self-control when they anticipate a future self-gifting (other-gifting) situation. Consequentially, these consumers will perform worse on an intervening self-control task than consumers who anticipate a future other-gifting situation.

Additionally, situational factors may impact depleted consumers’ willingness to sacrifice their time, effort, and self-regulatory resources for the benefit of a significant other. As previously noted people may conserve a portion of their existing self-regulatory strength at the present with the intent of using these reserves for future resource demanding situations (Muraven et al. 2006). In the context of buying behavior, consumers may also conserve some of their self-resources when they anticipate exposure to marketing stimuli, which by all accounts seek to influence consumers’ purchase decisions. According to Wheeler et al. (2007), resisting persuasive messages requires the formation of counterarguments, and when self-resources have been temporarily exhausted, people are less effective at producing such defense mechanisms. Furthermore, depleted individuals exhibit a stronger tendency to hold positive attitudes towards ill-reasoned proposals than non-depleted people. Janssen et al. (2010) offer that consumers have become well aware of the attempts by hungry salespersons, late night infomercials and telemarketers to persuade their potential customers into making an unintended purchase and, in anticipation of this, consumers may use their stored knowledge as a form of forewarning. In line with the resource conservation theory (Muraven et al. 2006) discussed above, this forewarning would provide the consumer with an opportunity to conserve a portion of his/her self-resources. However, it remains to be answered whether or not depleted consumers will conserve more of their remaining supply of self-resources for the benefit of a family member when the gift-

buying situation pertains to a special gifting occasion (e.g. holidays and birthdays) than when the gift-buying situation is perceived to be less relevant.

Consumers may expect to encounter persuasive elements during shopping trips, regardless of whether they are shopping for self or another. However the attention given to them and the impact that they have may differ in these varying buying situations. Consumers may be less influenced when shopping for a significant other. In fact, consumers may assume the goals of the gift recipient and temporarily set aside intentions to reach their own goals. Although salespersons and products may elicit temptations when consumers shop for themselves, these forms of influence agents may result in fewer defense mechanisms by the shopper. Further they may be perceived as less threatening to the consumer's own goals when the recipient of the overarching purchase is a significant other. In turn, the shopper may be more susceptible to an influence attempt, thereby increasing the likelihood that he or she will succumb to a temptation during or after the initial search process has been implemented. It is of interest to note that well over half of the shoppers in a study by Ward & Tran (2007) indicated that they would be inclined to make a purchase for themselves when buying a gift for others. Moreover, nearly half of all respondents reported that their decision to make a self-purchase during a gift-buying excursion had not been premeditated, allowing one to infer that the manifestation of some self-gifting behavior occurs spontaneously, or with the assistance of the shopping mind-set, and may be accentuated by lower levels of self-regulatory strength.

We maintain that when consumers engage in the gift-buying process, they are essentially regulating their behaviors in order to select the most desirable product for the gift recipient. As a result consumers' self-regulatory reserves are likely to be diminished, thus impairing their ability to defend against temptations in the purchasing environment.

METHOD

Participants

Participants were 81 undergraduate students from a local university in upstate New York who had been enrolled in an upper level marketing course. All candidates were informed that their decision to participate was not mandatory, but their willingness to volunteer would be greatly appreciated. Testing sessions took place in a large classroom setting, and each session lasted roughly 25 minutes.

Procedure

Upon entering the experimental setting, participants were asked to sign a brief consent form. This form informed participants of the tasks they would be engaging in during the study. The researcher then informed participants that the purpose of the experiment was to examine how college students' cognitive skills relate to their shopping behaviors.

Depletion Manipulation. Participants' initial capacity of self-regulatory resources was depleted through a thought suppression exercise adopted from Muraven, Tice and Baumeister (1998, study 2). One group of subjects was instructed to write down all of their thoughts on a sheet of paper and told to avoid thinking about a white bear (thought suppression condition); the remaining participants (no thought suppression) were told to write whatever thoughts came to mind. Participants in the thought suppression condition were instructed that should the thought of a white bear come to mind, they should place a check mark in the margin of their paper and redirect their thoughts. Indeed, overriding forbidden thoughts has been verified as a successful manipulation of self-resource depletion (Vohs and Schmeichel 2003). In line with previous studies (Muraven et al. 1998), subjects worked on this task for 6 minutes.

At the end of 6 minutes, participants were asked to stop working on the first task. The researcher then administered a brief manipulation check in which participants reported how much effort they had exerted on the thought listing task ("How much effort did you exert on the first task?" rated on a 9-point scale from "not much effort" to "a lot of effort").

Forewarning of future self-control shopping activity. Following, participants were informed of the second task, along with a hypothetical future gift buying scenario. One group of participants (self-benefit condition) read the following statement:

“Imagine that later today you will go shopping at a local mall. Your goal will be to purchase a new outfit for yourself to wear at a dinner party this evening. However, because you will be shopping at the mall during its peak traffic hours, it is certain that you will encounter rather long and slow moving waiting lines. Many shoppers believe that standing in long waiting lines can lead to feelings of frustration and anxiety. Since you must remain calm under such conditions, the upcoming shopping activity will require a great deal of self-control.”

A second group of participants (other-benefit condition) read the following statement:

“Imagine that later today you will go shopping at a local mall. Your goal will be to purchase a new outfit for your significant other to wear at a dinner party this evening. However, because you will be shopping at the mall during its peak traffic hours, it is certain that you will encounter rather long and slow moving waiting lines. Many shoppers believe that standing in long waiting lines can lead to feelings of frustration and anxiety. Since you must remain calm under such conditions, the upcoming shopping activity will require a great deal of self-control.”

In line with previous research on the resource conservation theory (Muraven et al. 2006, study 1), all participants completed a manipulation check which asked them to indicate how much effort they planned to exert on the future shopping activity (“How much effort do you plan to exert during the anticipated shopping activity?”), and how much effort they felt the shopping task would require (“How much effort do you expect the shopping task will require?”). Responses to these two questions were rated on a 9-point scale from “not much effort” “a lot of effort”. Participants were provided 3 minutes to complete this portion of the experiment.

Dependent measure. The researcher then administered the second task, which involved solving anagrams. This exercise requires one to continuously implement new letter configurations in order to form English words with a set of letters (Baumeister et al. 1998), and has been shown to consume self-regulatory strength. Following results from a pre-test (n=14), a total of 16 letter sets were included in the actual experiment. The purpose of phase two was to examine any differences in self-resource conservation efforts between participants in the self-benefit condition and participants in the other-benefit condition, as measured by the number of correctly generated words participants came up with using the given sets of letters. Overall, performance on the second task should indicate the extent to which differences exist between depleted participants’ conservation efforts when the beneficiary of such efforts varies between the participant and a significant other. All subjects were provided 6 minutes to complete the anagram exercise (Baumeister et al. 1998).

Final manipulation check. Participants were then asked to complete a series of questions which served as a final manipulation check (Baumeister et al. 1998; Muraven et al. 1998; Muraven and Slessareva 2003). These questions assessed participants’ desire to conserve self-regulatory strength for the future shopping activity (“How important was it to you to conserve strength for the anticipated shopping activity?”), and how much effort they exerted on task two (“How much effort did you exert to perform well on the anagram (task 2) task?”). All responses were measured on a 9-point scale. Lastly, participants completed a domain specific self-control scale adapted from Wilcox et al. (2009). After completing the questionnaire, subjects were debriefed and thanked.

RESULTS

Depletion Manipulation Check

Results from an independent samples t-tests revealed that participants in the no thought suppression condition rated the thought listing task as requiring significantly more effort than did participants in the thought suppression condition (M = 6.0000, SD = 1.63299 vs. M = 5.1803, SD = 1.9018 respectively, $t(78) = -1.693$, $p < .10$). This finding is inconsistent with a prior studies employing the thought suppression task as a measure of self-regulatory resource depletion (e.g. Muraven, Tice and Baumeister 1998; Vohs and Schmeichel 2003; Vohs and

Faber 2007), in which thought suppression participants rated the task as being more difficult and requiring significantly more effort than did participants in the no thought control condition.

A similar pattern was found amongst participants in the other-benefit condition, as those subjects who had been suppressing the forbidden thought of a white bear reportedly exerted significantly less effort on the thought listing task than did participants in the no thought suppression group, $t(36) = -1.781$, $p < .10$. Interestingly, there were no significant differences in the amount of effort exerted on task one between thought suppression and no thought suppression participants in the self-benefit condition, $t(40) = -.687$, n.s.

Dependent Measure

Independent samples t-tests were conducted to identify any differences in anagram performance between depleted participants in the two gifting conditions. We anticipated that being forewarned of a future resource demanding activity that would either benefit the consumer him/herself or a significant other would lead depleted participants in the self-benefit condition to solve fewer anagrams correctly than participants in the other-benefit condition, as individuals in the former group would be conserving a larger portion of their self-regulatory strength for the subsequent gifting activity.

Findings indicate that depleted participants in the self-benefit condition solved nearly as many anagrams correctly as depleted participants in the other-benefit condition ($M = 4.7059$, $SD = 3.0103$ vs. $M = 4.8571$, $SD = 2.4901$, $t(60) = -.213$, n.s.). Additionally, no significant differences were found on anagram accuracy scores between depleted and non-depleted participants in the self-benefit condition, nor when comparing scores between depleted and non-depleted participants in the other-benefit condition, $F(3,80) = .560$, n.s.

Motivation to Conserve

Additional independent samples t-tests were run to test for differences in both depleted and non-depleted participants' willingness to conserve self-regulatory strength for the future shopping activity. Results indicate that depleted participants in the self-benefit condition mean rating for importance to conserve energy for the future shopping task ($M = 3.4706$, $SD = 2.0186$) did not differ significantly from depleted participants in the other-benefit condition mean rating for importance to conserve energy ($M = 4.1071$, $SD = 1.9877$), $t(60) = -1.244$, n.s. Regardless of who the recipient of the future gifting behavior was going to be depleted participants indicated that it was only slightly important to them to conserve their residual self-regulatory strength.

Finally, depleted and non-depleted participants in the other-benefit condition felt that it was significantly more important to conserve their energy for the future shopping task than did depleted and non-depleted participants in the self-benefit condition, $t(79) = -1.888$, $p < .10$.

Additional Findings

Further independent samples t-tests were conducted to examine differences on the remaining key factors. Overall, depleted participants reportedly expected to exert significantly less effort on the future shopping activity, as compared to non-depleted participants ($M = 5.6230$, $SD = 1.8363$ vs. $M = 6.6842$, $SD = 1.6347$), $t(78) = -2.254$, $p < .05$).

Of the participants who had been anticipating a future other-gifting situation, those who had been depleted of their self-regulatory energy reportedly planned to exert significantly less effort on the future task as compared to their non-depleted counterparts, $t(35) = -1.727$, $p < .10$.

Of greatest intrigue from the analyses is that depleted participants in the self-benefit condition did not differ significantly from depleted participants in the other-benefit condition on any of the key factors: amount of effort planned to exert on the future shopping task, $t(59) = .533$, n.s.; amount of effort they thought the future shopping task would require $t(59) = -1.112$, n.s.; number of anagrams solved correctly $t(60) = -.213$, n.s.; importance to conserve energy for the future shopping task $t(60) = .937$, n.s.; or amount of effort exerted on the anagram solving activity $t(60) = .937$, n.s.

CONCLUSION

More recent conceptual research in the consumer behavior literature has integrated the effects of self-regulatory resource depletion into the realm of buyer behavior (Baumeister 2002). Though a number of studies have made contributions to what is currently known about ego depletion and its impact on consumer behavior, none thus far have sought to explore the plausible effects of self-control failure in the context of consumer gifting behavior.

The number of products and services available in today's marketplace can severely influence the amount of effort one wishes to expend on the searching process. Mick and colleagues (2004) offer that exposure to such an extensive variety of choices may facilitate a stronger focus on the self and less concern for others. Accordingly, this may be more pronounced following the depletion of one's self-regulatory energy. Additionally, past research indicates that resource depleted individuals are more likely to select a passive role when the decision to refrain from a resource demanding situation requires an active response (Baumeister et al. 1998). Thus, if resource depletion increases the likelihood of engaging in self-promoting tendencies, consumers who are currently shopping for themselves may be more inclined to select their significant other's gift from the store in which they are currently patronizing, so as to not deviate from their own self-focused shopping routine. Accordingly, a consumer who has just engaged in a decision making task, and who therefore has exhausted a portion of his/her self-regulatory strength, may defer the option of visiting other stores and choose to purchase a gift from the store he or she is currently patronizing.

Finally, and with regard to the impact that such resource exertion/conservation efforts may yield on the shopper, we suggest that shoppers' long-term goals may be diverted by temporary allurements within the purchasing environment (in-store, online, etc.), as their limited supply of self-resources has been exerted for the benefit of a significant other. As a result, consumers who choose to regulate their own limited supply of self-resources in the best interest of their significant other will be more susceptible to falling short of their own long-term goals. The propositions suggested herein extend the prior research in this particular domain (Baumeister et al. 1998; Janssen et al. 2010; Muraven et al. 1998; Muraven and Slessareva 2003) and results are currently in the process of being analyzed.

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EFFECTS OF OFFSHORING ON DOMESTIC WAGES AN INTEGRATED ANALYSIS

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ABSTRACT

This paper explores wage growth of offshorable and non-offshorable jobs from 2000-2009 using annual data in 2009 dollars. It tests the hypothesis that real wages for offshorable jobs have decreased over the past decade while those of non-offshorable jobs have increased. Bureau of Labor Statistics data is used to measure and compare wage growth of twelve job classifications. Data suggests that neither type of profession, offshorable or non-offshorable experienced a significant increase or decrease in real wages over this time period. The qualifications constituting an offshorable job and a brief background on offshoring are discussed.

UNDERSTANDING THE CONTROVERSY

The controversy over offshore outsourcing hit its peak in the 2004 Presidential election. Each of the two candidates, George W. Bush and John Kerry advocated against the offshoring of services that US businesses were increasingly practicing and attacked each other for supposedly supporting it. Lauded economist Gregory Mankiw was widely criticized after the release of the 2004 Economic Report of the President, in which he took a moderate stance suggesting that offshoring may not be so bad in the long run (Mankiw and Swagel 3.2). The main foundation for this controversy is rooted in the public's view of international trade. Mankiw and colleague Phillip Swagel wrote in a follow-up paper that "according to the public's worldview, exports are good, because they create jobs, and imports are bad, because they allow foreigners to steal our jobs" (2.6). Since the US has been increasingly offshoring services such as computer programming and payroll accounting, the jobs are being displaced as well.

Focusing my research. Clearly, the main controversy is that offshore outsourcing has a direct correlation with unemployment. Whether or not this is true, what most people do not focus on is the pressure that offshoring may put on domestic wages. The focus of my research is to determine whether or not the offshoring of services has put downward pressure on wages of certain jobs that have typically been offshored. I hypothesize that offshoring of service occupation within the past decade will result in decreased wages of occupations that are more susceptible to being offshored to another country. The ability of firms to offshore services to countries with lower wages gives them bargaining power over their employees. The lack of bargaining power for workers means less ability to demand higher wages for fear of losing their jobs to offshoring. Thus, workers in certain occupations will have seen decreased wages over the past decade.

DEFINING OFFSHORING

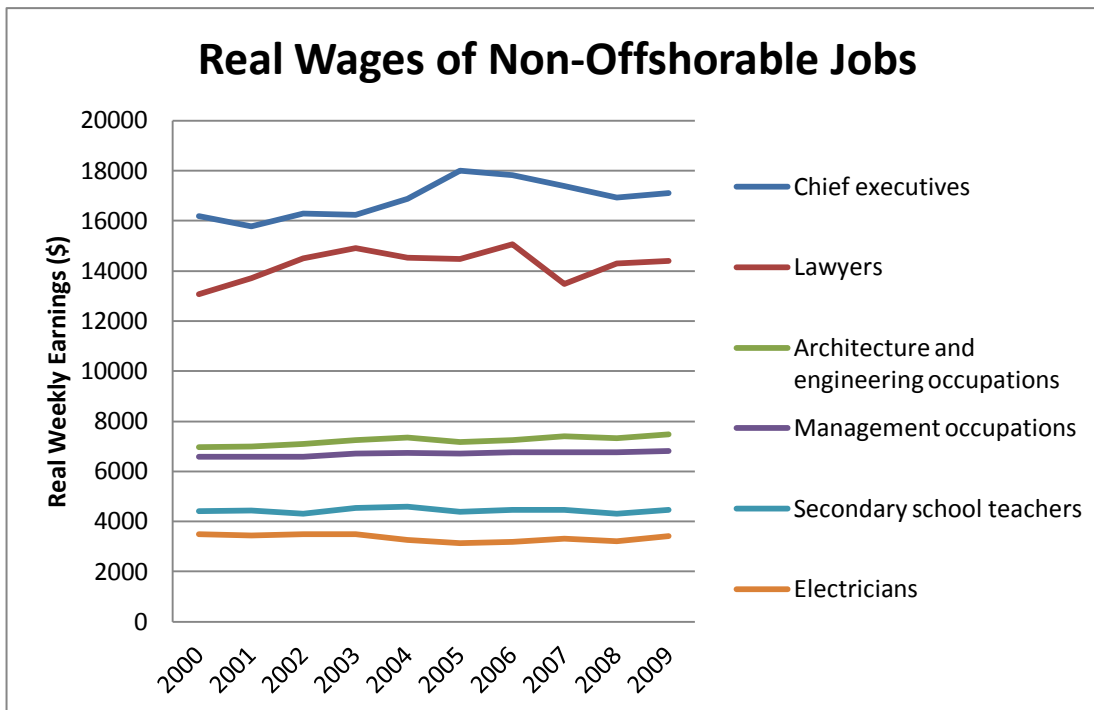
The term "outsourcing" is used denotes "acquiring services from an outside (unaffiliated) company or an offshore supplier" (Organization for Economic Cooperation and Development, "Outsourcing"). The term of offshoring stems from the practice of outsourcing, but more specifically "is used to describe a business's (or a government's) decision to replace domestically provided service functions with imported services produced offshore" (OECD, Offshoring"). The Organization for Economic Cooperation and Development has provided the comprehensive differences between the two, primarily that offshoring is segment of outsourcing. Historically, the United States has engaged in the offshoring of manufacturing production. In recent decades as the US has shifted from a manufacturing-based economy to a service-based economy, the country has been increasingly engaged in the offshoring of services.

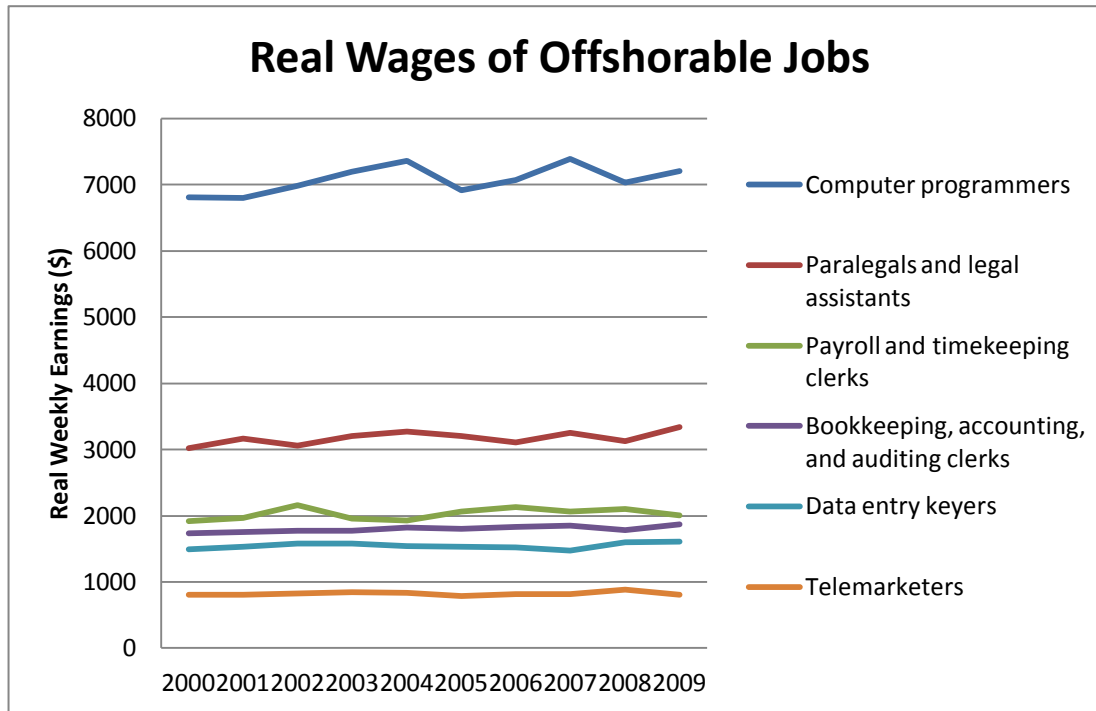
DEVELOPING THE DATA

It is necessary to distinguish an “offshorable” job from a “non-offshorable” job. What provided a basis for my choice of jobs deemed offshorable came from a paper written by Bardhan and Kroll of the University of California, Berkeley (4). Attributes of jobs commonly outsourced include the existence of high information content, no face-to-face customer servicing requirement, and work process being telecommutable and internet-enabled. With these characteristics in mind, I chose six appropriate occupations to research from the Bureau of Labor Statistics: Data entry keyers, payroll and timekeeping clerks, bookkeeping/accounting/auditing clerks, telemarketers, paralegals/legal assistants and computer programmers. Each of these occupations can be performed virtually, outside of the central business office. Conversely, non-offshorable jobs were those that are unlikely to be sent overseas because they had opposite characteristics. Another factor that went into my choosing certain non-offshorable jobs was that these occupations are likely to be affiliated with some interest group or union. Employees band together in unions to increase their bargaining power with a firm and demand higher wages. From the Bureau of Labor Statistics I chose: management occupations, chief executives, architecture and engineering occupations, lawyers, secondary school teachers and electricians. Teachers, electricians and architects are particularly affiliated with unions. It’s important to note that each of these occupations is either medium to high-skilled and requires some sort of degree.

DATA ANALYSIS

Holding all other factors constant, I retrieved the median weekly earnings for each occupation from 2000 to 2009. This is annual data retrieved from the Bureau of Labor Statistics which I converted from nominal to real figures. My original intent was to include data from 1995 to the present, but the Bureau of Labor Statistics posed some restrictions. However, the time period that is the past decade will be conducive simply because this is the time period when outsourcing and offshoring have become more prominent. In addition, the height of the controversy persisted during the middle of this time period. The independent variables in this case were the non-offshorable job wage levels, since they’re presumably unaffected by outsourcing, and the dependent variables were the offshorable job wages levels. The following graphs depict real wages with a base year of 2009 in each type of profession:



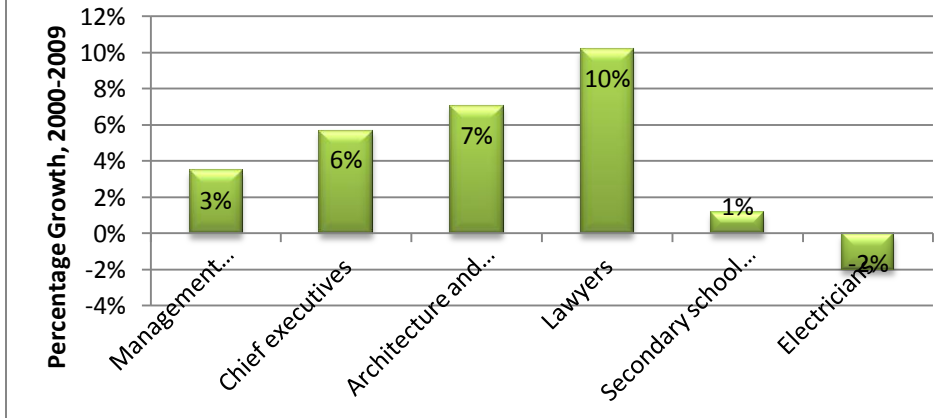


The most important thing to pay attention to is the wage growth, i.e. whether the slope is positive or negative. Within every single profession, the *nominal* wages are increasing. This immediately suggests that my hypothesis was wrong, that offshorable professions actually saw an increase along with non-offshorable professions. Looking at *real* wages, though, gives a more accurate idea of the change in earnings over the past decade. As shown in the above graphs, no profession shows any significant increase or decrease – regardless of whether it is offshorable. This too, refutes my hypothesis due to the lack of change (let alone increase) in real wages.

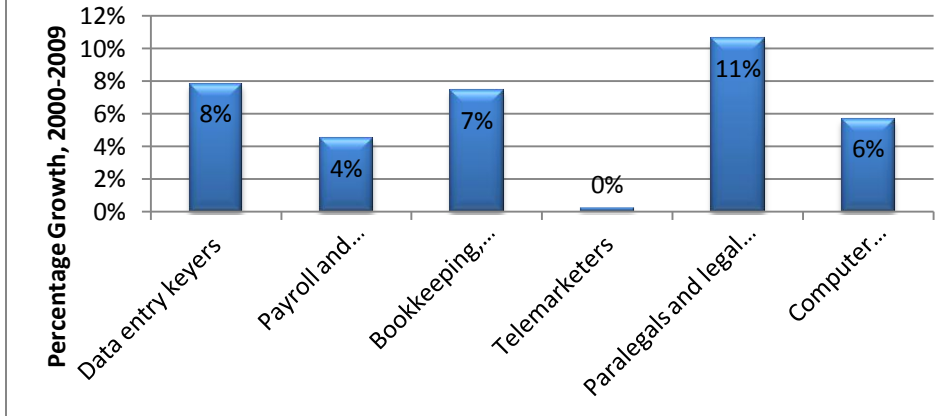
One specific offshorable occupation does catch one’s eye: computer programming. It’s interesting to note that in the years leading up to the outsourcing controversy of 2004, the wages of computer programmers was steadily increasing. In fact, they increased by 8.2% between 2001 and 2004. During these years, outsourcing and offshoring were rapidly growing, which would initially lead one to conclude according to theory that the wages would be decreasing not increasing. After the controversy arose and mainstream media frequented the subject of outsourcing, between 2004 to 2005 the real wages of computer programmers decreased by 6%. This could lead one to suggest that firms realized offshoring to be an opportunity to increase their own bargaining power over employees, thus leading to a decrease in real wages. There could, however be outlying factors that have had an effect on the real wages of computer programmers, but this seems a logical scenario.

Putting this into another perspective, I’ve graphed the rates of growth separately in two bar graphs. In each case, there were some professions that saw an increase and some that did not. There was no specific tendency among the offshorable jobs to have the same amount of growth.

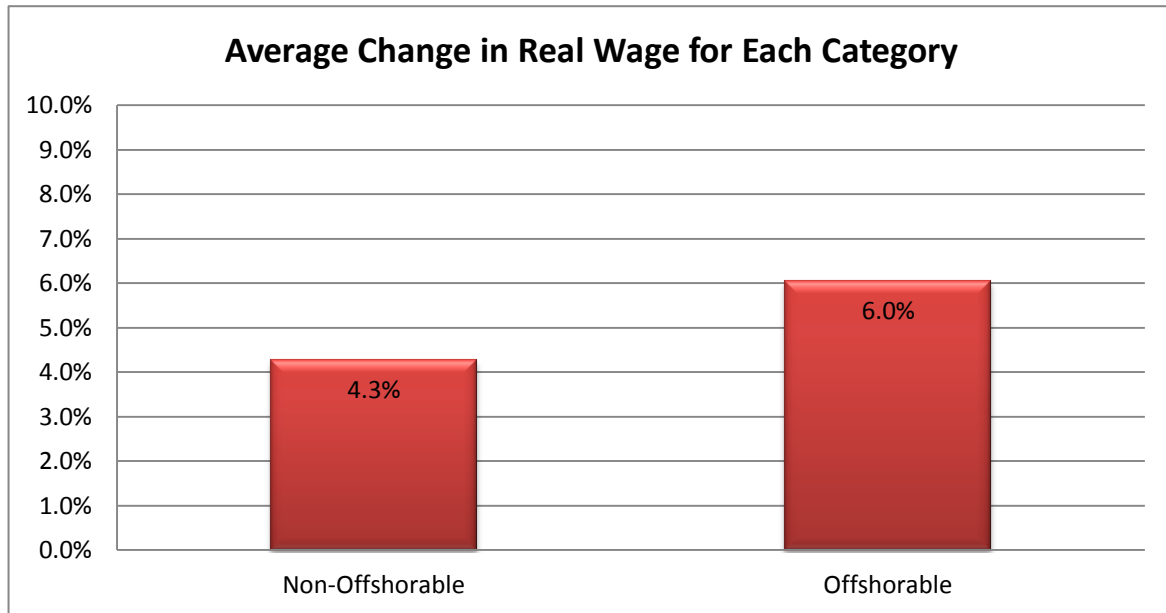
Percentage Growth in Real Wages of Non-Offshorable Jobs



Percentage Growth in Real Wages of Offshorable Jobs



Each of these charts depicts the first step in comparing offshorable to non-offshorable wage increases over the past decade. The above charts display the change in wages for each profession. Using this data, I took the average of all the occupations in each category and compared the two. They can be depicted by the following graph:



The difference in the average wage change for each category is very minimal. Those jobs that are offshorable saw an average increase of 6.0%, whereas those that are not offshorable saw a lesser increase of 4.3%. This further refutes my hypothesis. Not only did the offshorable job wages not decrease during the past decade as I'd originally predicted, they actually increased by amount than non-offshorable job wages did.

FURTHER INTEGRATED ANALYSIS

Labor economist Linda Levine acknowledges that some economists argue “offshoring will exert downward pressure on the wages of higher skilled workers” (19). However, she contends that studies suggest otherwise. She writes that “trade has had a fairly small effect on the U.S. wage structure” (19). In the future though, as other sources agree, this could change. Perhaps in future years as outsourcing and offshoring continue to grow, the theory behind my hypothesis may be realized.

Sources at Statistics Canada obtained results similar to mine, but the “domestic” country was Canada. They concluded that between 1998 and 2009, wages of offshorable professions grew by roughly 15%. Much like my own train of thought, this study then questioned if the increase in wages of offshorable professions were perhaps growing at a slower rate than their respective counterparts. The answer to this, they concluded was that it all depended on the job field. In particular, they noted that jobs in natural and applied sciences saw an increase that exceeded others by an average of 5 percentage points. Economists at Statistics Canada attributed this to the fact that these occupations “became increasingly concentrated in high-paying industries or in large firms over the past decade” which in turn results in increased wage growth (Yuqian and Morissette 11). They also noted that according to comparisons of wage growth “within broad occupational groups, wages in offshorable jobs did not systematically grow less than wages in jobs not susceptible to offshoring” (9).

CONCLUSION AND RELATED REMARKS

Through my research I've been able to conclude that within the past decade, offshoring has not resulted in decreased wages at all. Instead, wages of offshorable jobs have increased and even grew faster compared to non-offshorable jobs. These results spark other, related questions that may arise on the subject of offshoring. If I had chosen a greater number of professions, would those results have reflected the results I've obtained in this paper? Using a larger sample size may yield more accurate results, but I have narrowed my sample size here to provide a simpler projection and analysis of offshoring's impact on wages. I could also ask, what is the effect of offshoring and outsourcing on unemployment? Many suggest that offshoring increases unemployment, but others contend that there are indirect benefits of offshoring like increased demand for American products and firms' inclination to become more innovative and thus more productive and profitable. If workers are displaced due to offshoring, what

is the effect on their re-employment wages? Linda Levine suggests that 50% of those that are displaced find new jobs that pay as well or better than their previous jobs, attributed to these workers' high skill level⁹. A final question, touched on above, is whether my hypothesis will become true in the future. Is it possible for firms to realize their increased bargaining power of workers, or is there some alternative force at work? My research has not only given me increased insight into the field of outsourcing and offshoring, but has inspired valuable questions for future research and possible econometric analysis.

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A BALANCED CLIMATE CHANGE POLICY PROPOSAL

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Introduction

The following is a climate change policy proposal aimed towards helping reduce the United States' contribution to the worldwide problem and to better position the United States in the worldwide economy. Its structure intended to accomplish two broad goals. The first is to reduce emissions from light duty vehicles (LDVs), and the second is to reduce U.S. dependency on foreign petroleum. The proposal is composed of both a revenue neutral gasoline carbon tax to change consumer driving behaviors and to help less carbon dense fuels become more competitive on a price basis, as well as a feebate program that primarily aims to change the composition of the fleet of LDVs in the U.S. by providing an incentive to create and use more efficient cars and trucks. The following sections describe the goals of this policy in detail, outline how the proposal will actually work, and describe how the proposal will accomplish the goals I have set.

Goals

The policy aims to reduce emissions from the transportation sector and to reduce our country's dependency on foreign petroleum. Within those two broad goals, it also aims to have a balanced financial impact on the three major stakeholders that it will affect: consumers, fuel producers, and vehicle manufactures. In creating a balance as such, the policy is intended to be efficient by making the lowest cost reductions from several economic areas instead of overburdening particular stakeholders by imposing large reduction demands on them forcing them to incur more expensive abatement costs. The following sections outline these goals in detail and give reason why it is important to support accomplishing them.

Emissions Reductions from LDVs

Combustion of petroleum results in 37% of all U.S. CO₂ emissions (EPA, 2010 GHG Inventory Report 24). The transportation sector is almost 100% dependent on petroleum and is responsible for over 30% of the overall U.S emissions. Furthermore, since about 62% of the transportation sector's emissions come from LDVs (EPA, 2010 GHG Inventory Report), I can estimate that LDVs are responsible for close to 20% of all CO₂ emissions from the U.S. and about 4% of the overall world CO₂ emissions (EPA, 2009 Global Greenhouse Gas Data).

This policy is generally focused on gasoline powered vehicles versus diesel because light duty diesel vehicles represent less than 5% of all LDVs (EIA, 2009 Light Duty Diesel vehicles: Efficiency and Emissions Attributes and Market Issues). Because of this, it is fair to say that almost the entire 20% of U.S. emissions created by the

transportation sector come from gasoline powered vehicles. For this reason and the desire for simplicity, this proposal focuses strictly on reducing emission from gasoline powered LDVs. That being said, I do recognize that there are other areas of the transportation sector are equally important. Similar policies as the one I am proposing could target heavy duty trucks, public transportation, airplanes, trains, and most other types of transportation, but this proposal specifically targets LDVs.

Reduction of Dependency on Foreign Petroleum

64% of the petroleum used in the U.S. is imported (EIA, 2008 frequently asked questions about gasoline). Since it is often imported from less economically and politically stable countries, it is our interest to reduce our dependency on foreign petroleum. Instability in countries that supply the U.S. petroleum results in swift price changes which then create economic instability and political turmoil in the U.S.. Because of this negative effect of importing petroleum, the proposal in this paper aims to reduce our dependency by reducing the amount of petroleum the U.S. consumes.

Equity and Efficiency

These goals of reducing emissions and reducing dependency on foreign petroleum could quite easily be accomplished if factors such as the economic and political environment did not exist. However, these factors do exist and policies must be designed in a manner that acknowledges that. For example, a tax of \$5 per gallon of gasoline would likely accomplish both of the two goals I outline above, but it could conceivably have a serious negative impact on our economy by radically altering American's spending habits. It would likely be politically infeasible because of that. For these reasons, this policy aims to attain a high level of equity among the stakeholders it will affect as well as efficiency in the way that it targets the lower abatement costs of several areas instead of a full spectrum of abatement costs for one specific economic area. It aims to spread the financial burden among consumers, fuel producers, and vehicle manufactures as well as use the most effective price signals in order to accomplish the broader goals of the policy outlined in this paper, which are reducing emissions from the LDVs and reducing the U.S. dependency on foreign petroleum. Furthermore, it is designed to accomplish these goals over many years instead of creating an enormous burden just for a few years.

Literature Review

Neither revenue neutral carbon taxes nor feebates are original ideas by themselves. In 1993, President Clinton proposed a carbon tax with the intention of utilizing the revenue to pay down the countries deficit. Although the tax was not revenue neutral, the thinking behind the proposal was essentially the same. As Erlandson (1994) points out, the only two viable options to reducing the deficit were a "broad-based consumption tax or a broad-based energy tax." In 1989, as part of the "Drive+" program in California, feebates were used to increase the demand of vehicles that produced less GHG emissions. Gordon and Levenson studied the degree to which the program would effect the sales mix, and not the impact of improved technology finding that in the long run, technology improvements are ten times more important than sales mix changes.

There is a significant body of literature surrounding the effectiveness of a revenue neutral carbon tax in creating a "double dividend" in which the environmental benefits of reducing GHG emissions are gained and economic benefits can be reaped. Bayindir-Upmann and Raiths' 2003 model suggests that environmental benefits

are likely to be squandered by the increase in economic productivity caused by the increased employment that this type of tax reform may bring. However, Sanchos' (2010) equilibrium model shows that the revenue neutral tax programs may improve overall economic efficiency while reducing GHG emissions.

Davis et al. 1995 analyzed six feebate programs representing consumer choice with the Automobile Use, Technologies and Ownership (AUTO) model (Train, 1986) and representing manufacturer behavior with the Fuel Economy Model (FEM) developed by Energy and Environmental Analysis (EEA), Inc. (Duleep, 1992). This study also found that about 90% of the increase in fuel economy comes from technology improvements. A criticism of this study by Greene et al. (2005) is that the study assumed that consumers' assumptions within the AUTO model and the manufacturers' assumptions within the FEM model about the value of fuel economy were the same. If the value of fuel economy is perceived differently by consumers and manufacturers it would imply a market failure. (Greene et al. 2005)

A 1999 HLB study attempting to compare the effect of a Canadian based feebate program and a Canadian feebate program in combination with a United States program found that a program including the two countries would be significantly more cost effective. In Europe, Denis and Kooperman's 1998 EUCARS model suggests that a \$700 - \$1175 per .01GPM feebate would result in about a 10% overall emissions reduction.

Policy Proposal

This proposal includes two types of policy to be implemented in conjunction with one another. Neither policy type is a "silver bullet" solution, but together they form a well rounded and well thought out policy. The first aspect of this policy package is a gasoline revenue neutral carbon tax, and the second is called a feebate program. The primary goal of the tax is to reduce the amount people drive while the primary goal of the feebate program is to supplement the carbon tax by putting strong pressure on consumers to purchase more efficient vehicles. The two policies complement each other by targeting different stakeholders and focusing on opposite aspects of the problem. In the following sections, I will outline how the two policies will work and how they can actually achieve these goals.

Revenue Neutral Carbon Tax

In the simplest of terms, a revenue neutral carbon tax attaches a price to fuels, such as gasoline, in order to reduce the demand for that particular fuel. The "revenues" that are collected from the tax are then returned to consumers through a subsidy, based on the per person average carbon tax paid by consumers, which makes it revenue neutral (Carbon Tax Center, 2010). The overall financial effect of this type of policy on individuals would range from a relatively small cost to excessive gasoline users, no cost at all to moderate users, and a monetary gain for people who are conservative.

The goal of a carbon tax is to encourage people to drive less frequently, because it increases the cost to drive each mile (assuming the same vehicle technology). Perhaps a tax's biggest benefit is the fact that it serves as a constant reminder to consumers. Unlike policies, such as a CAFE standard, it provides a constant reminder to the consumer instead of a one time cost that could result from a CAFE standard. Since a CAFE standard requires vehicle manufacturers to meet mileage requirements on new vehicles, the price of those vehicles may increase because the manufacturer may have needed to invest in the product in order to achieve the mileage requirements. That being said, it would only be a one time cost to the consumer and consumers may not even know what the increase in price is for. Since a tax would raise the price of fuel, which most people purchase frequently (a few times

a month), it provides a powerful tool for changing the consumer's purchasing behavior because it serves as a constant reminder to consumers.

Beyond altering consumer behavior, the tax's stability could potentially inspire private investments in research and development to attempt to create new technology in fuel technology. Since the price of petroleum based fuels would increase, it could provide an opportunity for a greener fuel type, if created, to enter the market.

Elasticity of vehicle miles traveled

I have chosen a tax level of 43 cents per gallon for two reasons: most studies show that because Americans are used to price fluctuations, a substantial tax is necessary (close to 50 cents), and also because it is useful for making comparisons later in this chapter. It is generally estimated that the elasticity of vehicle miles traveled with respect to the price of fuel falls between -0.1 and -0.3 (Austin & Dinan, 2005). This means that for every 10% increase in the price, there will be a 1% to 3% reduction in the amount of miles traveled. Since the average price of gasoline at the pump during 2009 of \$2.35 per gallon (EIA, 2010 Short Term Energy Outlook), using an elasticity of -0.2 (the midpoint of -0.1 and -0.3) and a 43 cent per gallon tax (an 8% increase in the price of gasoline), a reduction of over 41 billion vehicle miles traveled out of the about 2.6 trillion miles traveled could be made (EIA, 2009 Light-Duty Vehicle Miles Traveled by Technology Type).

To convert these projections to reductions in fuel consumption I divide the reduction in miles traveled by the weighted average fuel economy of light duty vehicles. The weighted average fuel economy for LDVs was 21.1 miles per gallon (MPG) in 2004 (EPA, 2009 Light Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends). By dividing the reduction of 41 billion miles traveled by 21.1 MPG, I can estimate that approximately 1.9 billion gallons of gasoline would have been saved in 2009. By multiplying the 1.9 billion gallons by the average price of fuel in 2009 (\$2.35) (EIA, 2010 Short Term Energy Outlook), I can conclude that Americans would save about \$4 billion that they would have spent on gasoline in the previous year. Since this reduction would be derived simply from Americans reducing the amount they drive, it would be immediate and with the same technology that we currently have. It is perhaps the least expensive portion of the emissions reduction because it is derived from conservation instead of making investments in hopes of providing emissions reductions through better technology.

Long Run Demand

The long run elasticity for the demand of gasoline is affected by the elasticity of vehicle miles traveled and the elasticity of the fuel economy of vehicles (caused by improved technology) with respect to the price of gasoline. Unlike the elasticity for vehicle miles traveled, this elasticity measurement includes the reductions that would come from conservation as well as the reductions which could be derived from new technology which would be inspired from an increased demand for more efficient vehicles because of higher gas prices. This elasticity is estimated at -0.39 (Austin & Dinan, 2005). This means that in the long run, the effect of a 10% increase in price will reduce the amount of gasoline demanded by 3.9% by reducing the amount people drive and by increasing the overall fuel efficiency of the U.S. vehicle fleet.

Over the long term, the same 43 cent tax, an 8% increase in the price of gasoline, would result in a decrease in demand of gasoline of about 4.2 billion gallons of gasoline based off of the 137.8 billion gallons of gasoline consumed in 2008 (EIA, 2008 frequently asked questions about gasoline). This number includes the reduction that could be achieved just by a reduction of driving because of the increase in the price of gasoline and the improved vehicle technology.

Reducing how much the U.S. Imports

Considering that about 64% of the U.S. gasoline consumption ultimately comes from foreign refineries (EPA, 2008 frequently asked questions about gasoline), we can make significant reductions in the amount of money we send to foreign countries. If that percentage is applied to the 2008 annual petroleum consumption of 137.8 billion gallons multiplied by the \$2.35 per gallon average (EIA, 2010 short term energy outlook), we would have spent \$207 billion on foreign petroleum. Therefore, if all of the reductions created by the tax are put towards reducing the amount spent on foreign petroleum, the amount spent on foreign petroleum could be reduced by about 4.7% to \$197 billion.

How is it Revenue Neutral?

At the reduced consumption level, the 43 cent per gallon tax would provide “revenue” of \$57 billion. Now, of course, most people cringe at the thought of the government taking their money by means of a tax regardless of what the tax is for. However, this tax “revenue” would not actually be revenue. Revenues from the tax would not be spent on unrelated government programs. Instead the revenues would be returned to consumers in the form of federal income tax subsidies. The purpose of the tax is not to make money for the government; it is to reduce greenhouse gas (GHG) emissions and to reduce our dependency on foreign petroleum (Carbon Tax Center, 2010). Since a federal income tax provides essentially no positive incentive, cycling the revenues through a carbon tax would be more fair and useful to the public than just a regular income tax. Income taxes actually provide an incentive to work less because the tax rates increase for higher levels of income. If a person feels they are being taxed too much through federal income tax he or she can do nothing to lower the amount they pay except for reducing the amount of income they earn. Obviously no sensible person would do that. Any reasonable person would just try to earn more to increase how much money they actually are left with after taxes. Of course by doing that, the amount that person pays for taxes only increases. Now, if a portion of that income tax was waived, through means of a subsidy independent from driving behavior, to compensate for the amount of “revenue” being earned by the government through a carbon tax, that person would have less income tax to pay and the carbon tax that they would pay would be completely dependent upon the amount of fuel that person purchases. People who purchase more than the average amount of fuel would pay more than they would with the previous income tax only structure, but many people would pay less because they would be able to reduce the amount of fuel they purchase, therefore reducing the amount of taxes they pay in total (Carbon Tax Center, 2010). People who purchase an average amount of fuel will pay the same amount of taxes as they did before because the fuel tax would compensate for the subsidy making them break even.

Using the same 137.8 billion gallons consumed in 2008 and the fact that there are about 249 million vehicles that burn gasoline on the road (EIA, 2010 gasoline explained), the average person burns about 554 gallons of gasoline each year. This means that a 43 cent per gallon tax would require a total payment of about \$237 per person each year for an average person.

How the Revenue Neutral Carbon Tax Works

Figure 1 depicts how the revenue neutral carbon tax of 43 cents per gallon would affect drivers. The average driver would spend \$237 over the course of an entire year and would be virtually unaffected by the tax because they would be receiving an income tax subsidy of the same amount. This type of person is not illustrated in

the figure below; rather, two examples of people spending more or less than the average or depicted. The examples of people who are less conservative (gas guzzler) and people who are more conservative (conservationist) are shown just below.

Figure 1: How a Revenue Neutral Carbon Tax Works

Gas guzzler	Conservationist
Average Household Income \$60,000 - Federal income tax \$10,000 - Carbon tax 784 gallons at 43c/gallon = \$337 + Income tax subsidy \$237 = Usable Income <u>\$49,900</u>	Average Household Income \$60,000 - Federal income tax \$10,000 - Carbon tax 319 gallons at 43c/ gallon = \$137 + Income tax subsidy \$237 = Usable Income <u>\$50,100</u>

The people who would pay more taxes are the people who purchase excessive amounts of gasoline and the people who pay fewer taxes are the people who conserve on gasoline. Consumers who purchase an average amount of gasoline would be subsidized essentially the same amount they are taxed so they would break even.

Revenue Neutral Carbon Tax Conclusions

Carbon taxes in general tend to receive political opposition because it is clear to public that it will cost them money. Taxes of any sort are just generally not politically popular. However, the reality is that any climate change policy is going to cost money and a tax would be one of the most efficient types. A revenue neutral tax would cost the public essentially the same amount as they are already being taxed. In fact, it would actually give the individuals more of a choice in how much taxes they pay. The advantage of the tax is that it would achieve a reduction of GHG emissions and it would help reduce our dependency on foreign petroleum in perhaps the most economically stable method of doing so.

A Feebate Program

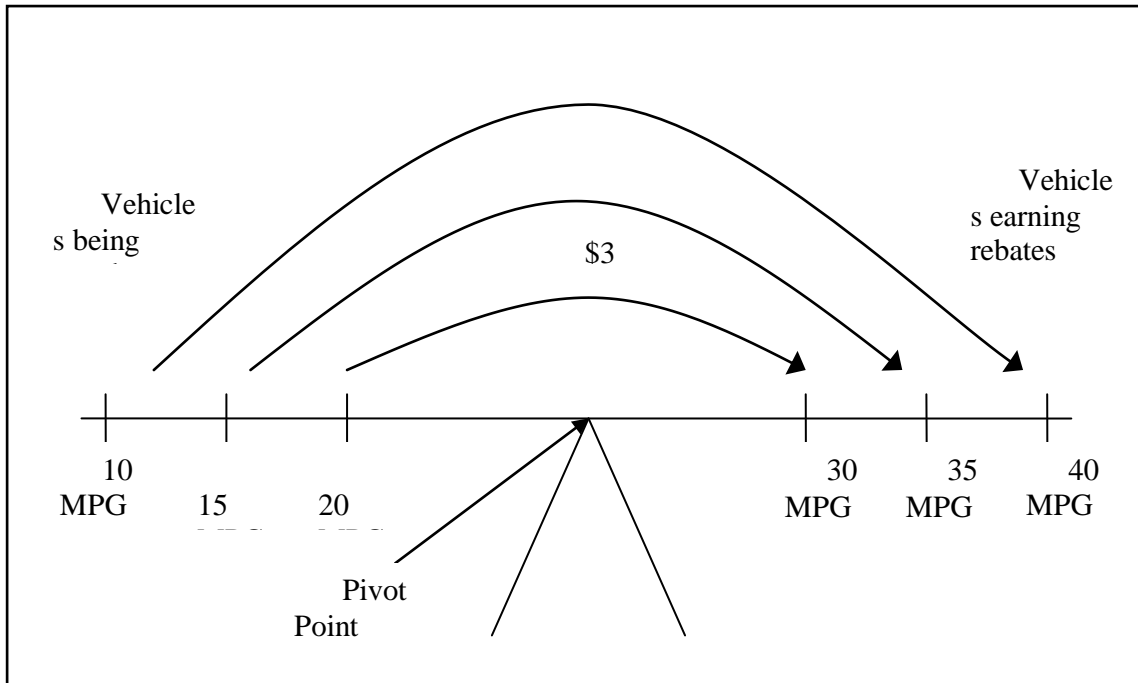
In addition to the revenue neutral carbon tax, a feebate is the second portion of policy that I recommend as part of this proposal. Instead of directly taxing the fuels that our vehicles operate on to encourage conservation, as a carbon tax would, a feebate would raise the price of vehicles that are inefficient and decrease the price of vehicles that are more efficient, thus encouraging people to purchase efficient vehicles. Since it would be taxing the purchase of an inefficient vehicle instead of placing a tax on driving regardless of the type of vehicle being driven it provides a much more direct pressure towards improving vehicle efficiency. A onetime fee at the time of purchasing a new vehicle is likely the best option because it will provide the largest up front incentive for consumers to purchase more efficient vehicles. The feebate is a critical aspect of this proposal because it brings a balance to the overall policy. The addition of the feebate in conjunction with the carbon tax is really what makes this policy unique from other proposals.

An Example of How a Feebate Works

In figure 2, I chose a pivot point of 25 miles per gallon (MPG) which is about 15 percent higher than the 2009 new vehicle fleet wide average of 21.1 MPG (EPA, 2009 Light Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends). The reason for this is that it means that more than 50% of new vehicles will have a fee attached to them which is essential to the program being self sustainable. The program must earn revenues greater than the fees it is paying out, especially at the beginning since as the fleet becomes more efficient before the pivot point is increased, more rebates will be paid than fees being assessed.

In the example, the amount of the fees and rebates, are derived from a feebate level of \$500 per .01 gallons per mile (GPM) below or above the pivotpoint. This means that every .01 GPM below the pivot point is assessed a \$500 fee while .01 GPM above is given a rebate. The chart shows the appropriate fees and rebates for the MPG levels given at a feebate level of \$500 per .01 GPM. MPG ratings not listed would be interpolated and the fee or rebate levels would fall somewhere in between. Lastly, it is important to note that the opportunity cost of the feebate for a person purchasing a vehicle below the pivot point is actually doubled since they could earn the amount of the fee in the form of a rebate if they purchased a vehicle that is an equal amount above the pivot point. This means that the perceived value of the feebate to the consumer would be much higher than the numbers in the chart below. Lastly, it is important to recognize that the amount of the fee/rebates would be determined using a continuum. The numbers on each arrow only represent the amount of the fee/rebate at their respective MPG level.

Figure 2: How a Feebate Works



Now, as you can see the feebate can be constructed to be a revenue neutral policy just as a carbon tax can be. The revenues that are earned from the less efficient vehicles are used to pay the rebates for the more efficient vehicles. This is a critical aspect of the policy because it makes it more attractive politically by ensuring it will not overburden the government.

Perhaps the largest drawback to a feebate is that it needs to be able to be adjusted constantly. For example, if the feebate pivot point is set at 25 MPG. Over time, the amount of people who purchase “inefficient” (below 25 MPG) vehicles will drop and the amount of people who purchase “efficient” (above 25 MPG) vehicles will increase at the same rate. Once that balance is significantly distorted, the amount of revenues able to be obtained will be much less than the amount of rebates that needs to be distributed. In this case, unless revenues were pulled from another government resource, the system would not work and would be forced to stop giving out rebates. Once this happens, the incentive to purchase more efficient vehicles is gone.

A Pivot point Control Committee

To combat this potential effect, a committee would be set in place that will be in control of maintaining the pivot point. This committee will serve a similar role as the Federal Reserve plays in adjusting interest rates. As the system becomes imbalanced, the committee will raise the pivot point, thus encouraging consumers to purchase efficient vehicles. Since large changes in the pivot point will result in surges of purchases of new vehicles resulting in instability, guidelines, such as a maximum of a 2 MPG per year increase should be put in place to guide the committee. By slowly raising the pivot point at small increments, vehicle manufacturers will be able to plan accordingly for the new changes.

The feebate must be set at a level which encourages consumers to purchase more efficient vehicles when their older ones reach the end of their useful life, but not before that point. This will ensure that the policy will not be wasteful and it will not overburden consumers or manufacturers. Climate change is a large issue and it can not be fixed in just a few years. Aiming to change the composition of the fleet of vehicles that are on the road over the course of 14, 15, 30, or even 50 years is a legitimate goal.

Implications of a Feebate

Essentially the same amount of overall reductions can be made by imposing a \$500 per .01 GPM feebate as imposing the very same 43 cent per gallon tax outlined in the “Revenue Neutral Carbon Tax” section of this proposal (Greene et al, 2005). Therefore, using the 25 MPG pivot point, the fee for a vehicle earning 20 MPG would equal \$350. Likewise, the rebate for a vehicle earning 30 MPG would be \$350 (Greene et al, 2005). It would provide the same quantitative benefit, however the reductions would come from different areas. For the tax, much of the reductions would come from people driving fewer miles, while in the feebate the reductions would come almost solely from improved efficiency in vehicles.

Combining the Tax and the Feebate

I propose that the tax be implemented at 43 cents per gallon while the feebate be implemented at \$500 per .01 GPM. By implementing a tax of this magnitude, consumers will see a strong incentive to conserve gasoline and new vehicle buyers will see a strong incentive to purchase efficient vehicles. In this way, fuel producers, vehicle manufacturers, and most directly, the consumers will be affected in what is aimed to be a balanced manner. That being said, there are different combinations of taxes and feebates that could be used in order to achieve varying results. A higher tax in combination with a lower feebate would place more emphasis on changing driving and fuel consumption habits while a lower tax in combination with a higher feebate would place more emphasis on changing vehicle purchasing behavior. Below is a chart showing various levels of tax and feebate combinations and the projected overall reduction in fuel consumption and thus, GHG emissions from LDVs. For example, the projected emissions reduction from the combination of a \$1 per gallon tax and a \$1,000 per .01GPM feebate is 11.04% of total LDV emissions, whereas the reduction from a \$0.20 tax and a \$500 per GPM feebate would result in a 4.55% reduction of LDV emissions.

Table 1: Potential Carbon Tax and Feebate Combinations

		Carbon Tax Per Gallon			
		\$0.20	\$0.43	\$1.00	\$2.00
Feebate Per .01 GPM	\$200.00	2.86 %	4.35 %	7.15 %	10.3 0%
	\$500.00	4.55 %	6.04 %	8.84 %	11.9 9%
	\$1,000.00	6.75 %	8.24 %	11.0 4%	14.1 9%
	\$2,000.00	9.77 %	11.2 6%	14.0 6%	17.2 1%

It makes sense to try to resolve the problem from both areas because that is essentially what is making this policy balanced. The overarching goal of this policy is to reduce the amount of GHG emissions from LDVs in order to reduce the effects of human induced climate change. By reducing the amount that we use, the secondary goal of this policy can be accomplished, which is reducing our dependency on foreign petroleum. Essentially the only way this can happen is by reducing the amount of petroleum based fuel that average people use to power their vehicles.

Achieving reductions can be accomplished by driving less, using better fuels, or by using more efficient vehicles. This policy aims to make use of all of these options. Using both a tax and a feebate is more appropriate than using either one alone. The tax will put pressure on consumers to change their driving habits and will enable less carbon dense fuels to compete on a price basis. The issue with implementing a tax by itself is that it will not provide significant pressure on consumers or vehicle manufacturers to buy or make more efficient vehicles. The feebate fills that void.

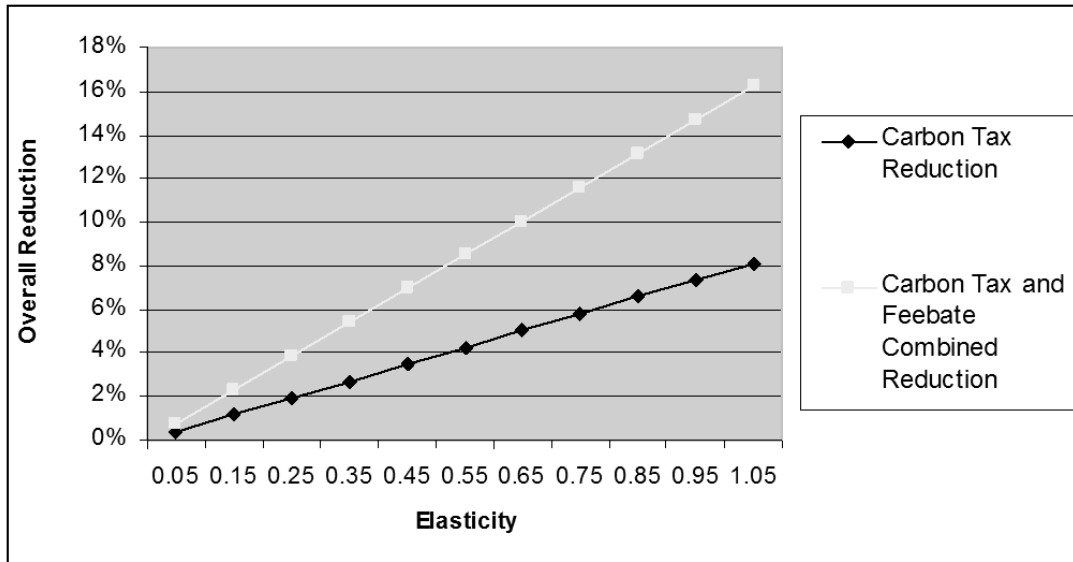
Although a feebate may not be terribly attractive alone because it would do nothing to change consumer driving habits, it will provide a significant incentive for consumers to purchase more efficient vehicles, in turn creating an incentive for manufacturers to make them. If it were implemented by itself, it would be less effective because there would be no strong, longer term incentive and no gains would be made from conservation or better fuel technology, both of which are necessities. People may even drive more since a more efficient vehicle would mean they would be able to drive further on the same amount of gas. Although the feebate may have drawbacks if implemented alone, in combination with the tax it would be highly beneficial.

Sensitivity Testing

Although throughout this paper, I use an elasticity of $-.39$, this elasticity represents my best estimate from the research that I have done. The possibility of this policy having the impact equivalent to other elasticity's does exist. Many factors play a part in the impact that policies have when they are actually implemented. Some factors that could impact the elasticity of demand could range from breakthroughs in fuel or vehicle manufactures technology, improved public transportation, or even other types of policies which may constrain or loosen individual's disposable income. Figure 3 shown below shows the potential overall impact of a \$.43 tax per gallon (the darker line) and the impact of a \$.43 tax per gallon combined with a 500 per .01 GPM feebate (the lighter line) at varying elasticity's which could result if factors similar to those described above occur. By looking at the lighter line we can see that a large variation in the elasticity could result in a large variation in the actual impact of the policy. For example, the overall reductions from the carbon tax and the feebate combined (illustrated by the lighter line) could range from less than a 1% reduction to over a 16% reduction if the elasticity varied significantly enough. This illustrates how paramount the correctness of the elasticity is in making predictions about the impact of the policy.

Figure 3: Elasticity Sensitivity Testing:

A \$.43/ gallon carbon tax in combination with a \$500 / .01 GPM Feebate



Because the elasticity for the feebate has been developed from the elasticity's of carbon taxes with equivalent impacts, the lighter line above, which represents the combined impact of the carbon tax and the feebate, is essentially twice the percentage value of the darker line representing the carbon tax alone.

How is it balanced?

If the consumer is ultimately paying the gasoline tax and the fee if they purchase a less efficient vehicle, how is the policy considered balanced? Since consumers are the ones who actually use the products that create GHGs, they should help finance the reduction of GHGs. This balanced approach places competitive pressures on fuel makers because the tax will allow less carbon dense fuels to better compete on price. Furthermore, the feebate will allow companies that have invested in research and development to create more efficient vehicles a better chance to compete on price with companies that have not made that investment. Undeniably, the consumer will absorb a significant portion of the costs, but since the least expensive reductions will likely come at the early stages of abatement, a larger amount of gains can likely be made by balancing the policy to make reductions in every way possible. For example, it is likely cheaper to improve vehicle efficiency from 20 MPG to 30 MPG than it would be to improve the vehicle 30 MPG to 40 MPG. Since it is likely cheaper to make gains in reducing fuel carbon densities in the same manner, a policy should be aimed to make initial gains in both areas instead of making all the gains possible in one area and neglecting another.

Summary

The tax and the feebate would provide incentives to reduce emissions from LDVs independent of each other, but the combination of incentives will be even stronger and their major weaknesses will be overcome. Using

the long run gasoline demand elasticity of -0.39 and the 43 cent per gallon tax being equal to a \$500 feebate program (Greene et al, 2005), I am able to estimate that the two policies combined would result in a 6% reduction of overall annual gasoline consumption equaling almost \$20 billion per year. Likewise, it could create an LDV emissions reduction of 6%. Second, by reducing emissions through a reduction in the demand of gasoline, it will put the U.S. in a strong position to reduce the amount of petroleum it purchases from instable countries. Using the same data, I estimate that the U.S. could reduce its dependency on foreign gasoline by nearly 10%. While accomplishing these first two broad goals, this policy spreads the burden among the three stakeholders which can optimize emissions reductions. By creating this equity, it creates efficiency because it will induce small reductions from a number of different areas over a long period instead of large reductions from one source, or during a short span of time.

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GENDER DISCRIMINATION AND EDUCATIONAL ATTAINMENT

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Abstract

This paper tests the hypothesis for the 2000-2009 sample period that increases in educational attainment increases the gender wage gap. Bureau of Labor Statistics data on wage median earnings in current dollars for two occupations per education group is used to calculate the discrimination coefficient, which quantifies the degree of gender discrimination. The results indicate wage discrimination against women increases with educational attainment. There is also evidence that indicates female oriented occupations discriminate against males.

Introduction and Hypothesis

Discrimination in the workforce is an issue that has persisted over many years. Discrimination occurs when participants in the marketplace take into account such factors as race and sex, which are not related to economic characteristics such as productivity and experience, when making economic exchanges (Borjas 1996, 365). There are different type of discrimination that exist in our society today such as racial discrimination and discrimination based on one's sexual orientation. However, the most intriguing, and what I find to be the most controversial, is gender discrimination. My hypothesis is that regardless of the degree of education and occupation, men will always receive a higher wage than women because women are more discriminated against than men. The economic theory that I used to lead me to this hypothesis was the "Utility Adjusted Wage and Price Theory," which uses a discrimination coefficient in order to determine the precise degree of wage discrimination. The discrimination coefficient (d) is defined as the percent by which a discriminated against group is paid less than a non-discriminated against group. Firms might dislike hiring women because they might provide disutility for the firm, so the wages of women are therefore less than wages of men with the same education, background, and experience. The main reason why firms see women as being a disutility is because of the fact that women are more likely to leave the labor force to have children. Therefore, the higher the discrimination coefficient value, the higher the discrimination will be which means the more women will be discriminated against.

Literature Review and Background

Since gender discrimination has been a debated topic for many years, there were many historical and even modern day economists and psychologists who argue that men always receive a higher wage than women. Decades ago, it was believed that women weren't as well-educated as men, hadn't worked as long as men, didn't work as hard as men, or really didn't need the money because they were just working until they got married. That is no longer true. For decades, the female labor force participation rate has been rising and women have been graduating from college at the same rate as men—and have even surpassed men in recent years (*Welcome to Women's Media*).

If this is the case, then the question is why are males still receiving a higher wage than women? According to U.S Federal Government's General Accountability Office (GAO), the weekly earnings of full-time working women were about 75 percent of men's in 2001. The GAO believes that the main reason why there is a wage gap between men and women is because women in the workforce are less likely to work a full-time schedule and are more likely to leave the labor force for longer periods of time than men (Longley 2010). This main reason for this deals with statistical discrimination. Statistical discrimination is an economic theory of inequality based on group stereotypes. Individuals are discriminated against because stereotypes are held against the groups they are associated with (Borjas 1996, 379). Women bear children so they're more likely to leave the workforce to care for their children. If a woman is married, then she is even more likely to leave the workforce than a man is due to

pregnancy or raising a child. So firms pay women lower wages than men because of the simple fact that firms assume women won't be staying employed for as long a time as men.

Along with lower wages, women also receive less training because the firm doesn't want to endure the costs of training a married woman if she will leave due to pregnancy. However, if a woman is single and not married, this could be a signal to the employer that the woman is going to be staying in the workforce longer than a woman who is married but with no children. An employer might assume that the married woman is going to be having children within a few years depending on how long she has been married, whereas a single woman sends the signal that she's going to be able to work longer because she doesn't have a husband. Nevertheless, employers infer from the statistical data that women have a higher probability of quitting their job. Since a quit would disrupt the team's work and substantially increase the costs of development, the profit-maximizing employer therefore offers the job to the man (Borjas 1996, 379).

A second argument which adds to why men generally earn more than women is because there are certain jobs and professions that are geared toward men than women. For example, firefighters and police officers are predominantly male jobs because of the duties that need to be performed. A female is not believed to be as physically strong as a male if she needed to use an axe to break into a burning building to save someone's life or to be as intimidating in the presence of a criminal to be a police officer. Prior to the passage of the Federal Civil Rights legislation of the 1960s, racial exclusion and gender-typing of employment was blatant. Employers made it clear in newspaper advertisements which gender they wanted and which one they didn't want for specific positions. Men were requested for positions that included restaurant cooks, managers, assistant managers, auto salesmen, accountants, engineers and welders. Women were requested for positions that included household domestic workers, bookkeepers and waitresses (Darity and Mason 1998, 64).

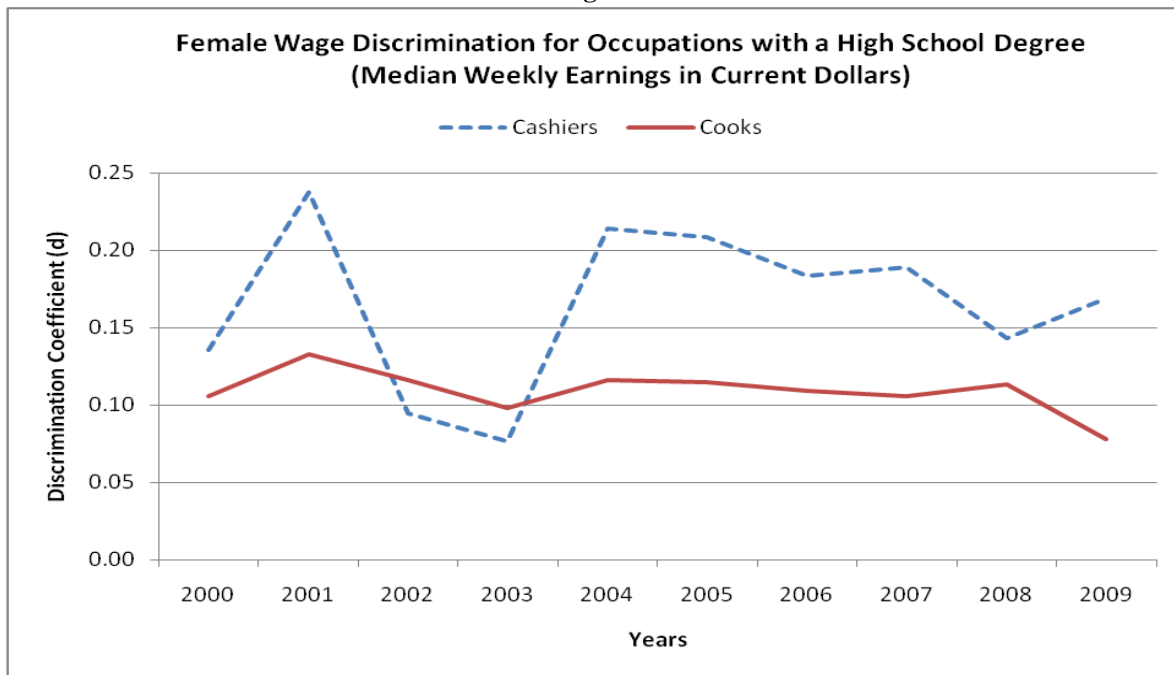
Data Sources and Information

In order to test my hypothesis, I use data taken from the United States Department of Labor Bureau Statistic's (BLS) Current Population Survey (CPS). My hypothesis, as stated earlier, was that regardless of the degree of education and occupation, men will always receive a higher wage than woman. There are three levels of education that I wanted to look at: high school degree only, bachelor's degree (standard 4 years at a college or university) and advanced degree (any number of years of education after a bachelor's degree). I then chose two occupations for each level of education which I thought would be the most intriguing to investigate. For high school degree, I chose the cashiers and cooks, for a bachelor's degree I chose computer software engineers and dietitians, and lastly for jobs that require an advanced degree I chose lawyers and accountants. I used data on the median weekly earnings in current dollars on men and women for each occupation. I use this data to mathematically find the discrimination coefficient in order to determine which gender is more discriminated against. Since I'm testing to find which gender is more discriminated against in various occupations, I needed to keep all other variables constant. In order to do this, my data includes all races, all ethnic origins, all ages 16 years and older, and employed full time. Also, the class of worker I used for every data set was wage and salary workers, excluding the self employed. The sample period I used for this analysis is 2000 to 2009 and my data is aggregated annually. The BLS only provides annual data, not monthly or quarterly data for my subject of interest and data for 2010 is not yet available.

Analysis

To calculate the discrimination coefficient (d), I used the formula $w_x = w_y(1+d)$, where the wage for males which is represented by w_x and the wage for females is represented by w_y . The group that is being discriminated against is females so I then solved for d in order to find out the female discrimination coefficient. The discrimination coefficient will be positive for the discriminated against group. Therefore, the final equation I use is $d = ((w_x/w_y) - 1)$. I substituted in the median male and female earnings for each year into this equation. I used this equation for all of the six occupations. Finally, I used the discrimination coefficients to create all of the graphs below. Each of the following three line graphs are grouped by education level with their corresponding occupation (two occupations per level of education). A higher wage coefficient equates with a greater degree of wage discrimination.

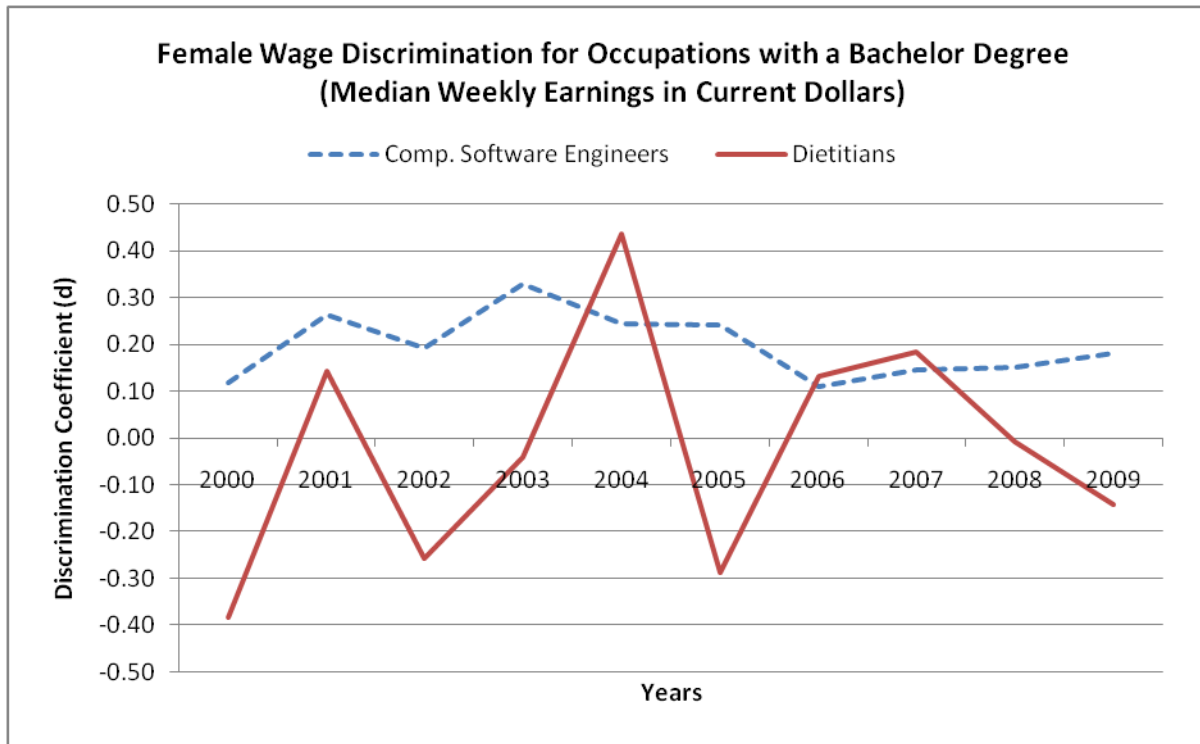
High School



By looking at the two occupations that only require a high school degree, it appears that there is a generally more female discrimination for cashiers than for cooks because the discrimination coefficient is larger for most of the sample. The only exception is for the years between 2002 and 2003, where cooks have a higher discrimination coefficient. In those two years, female cooks were more discriminated against than female cashiers. My analysis also indicated that there is a greater rate of change in the discrimination coefficient for cashiers. Men's median weekly earning was significantly greater than women's earnings which is shown by d decreasing. The larger the income gap, the higher the discrimination coefficient which will cause d to increase whereas the smaller the income gap between men and women, the lower the discrimination coefficient which leads to a decrease in d .

The general fact that women are more discriminated against in the occupation as a cashier as opposed to a cook could be due to the fact that cashiers are more exposed to the public than cooks. All of the work that is done by cooks is in the kitchen, where customers are not allowed so it doesn't matter whether the person cooking the food is a male or a female as long as the job gets done and the food is cooked to the employer's standard. Since a cashier interacts with the customers, there is a greater possibility that a female would be more discriminated against than a male depending on what store she is applying for. For example, a woman is more likely to not be hired at a sporting goods store due to the fact that if a customer has a question about sports equipment, it might be assumed that a female is less likely to be knowledgeable or a customer might not believe her due to the fact that she is a female and supposedly knows nothing about sports because of the stereotypes we have about females and sports in today's society.

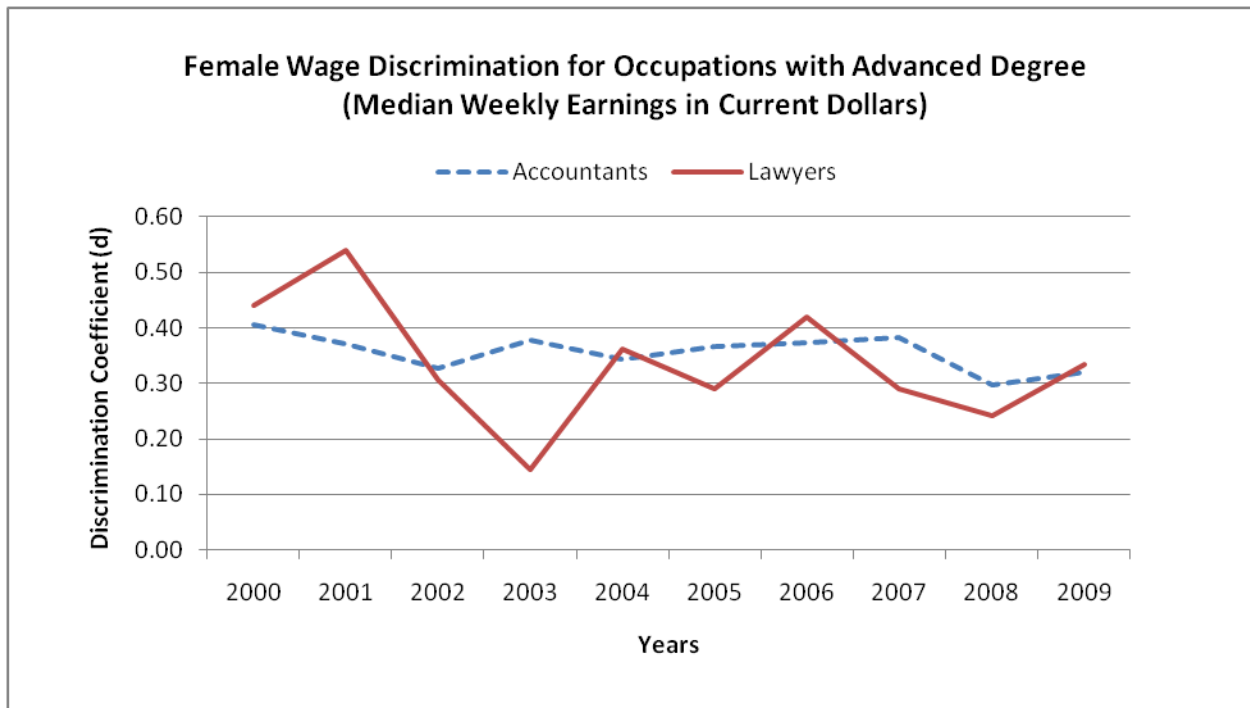
Bachelors Degree



When comparing the two occupations that require a bachelor's degree, computer software engineers are at a higher constant level of discrimination than dietitians. One reason for this is because computer software engineering might be a male dominated profession because it is incorrectly assumed that women are less technologically capable than men in choosing the occupation of a dietitian. I found very fascinating results where males are actually the discriminate group instead of females. This occurs within the dietitian occupation. When I calculated the average discrimination coefficient for dietitians, it came to be -0.02. A possible reason for this is because a dietitian might be considered a "feminine" job. Women play the "caretaker" role and therefore better fit the job description of dietitian. Also, there are some careers that have limited opportunities for men (e.g., dental hygienist or elementary school teacher) because people prefer a woman in those roles and women better fit the job description of these roles (Sahadi 2006).

Out of all of the occupations I analyzed, dietitians were by far the one that had the most dramatic fluctuations, as the rate of change in the discrimination coefficient increases and decreases from year to year. For instance, it goes from 0.44 in 2004 and then plummets to -0.29 the next year, 2005. I then asked myself why does the wage gap go from women earning more than men in one year and then men earning more in the next year? One factor may be the scarcity of labor. In fields like dietitians, a company may get one man and one woman applying for that position. If the company wants to hire a man, they may have to pay the man a premium, or increase his salary. The firm might want to hire a man in a female predominant occupation in order to improve the firm's equal-opportunity policy, which might help secure the firm's government contracts. This would cause the wage gap between men and women to close. Therefore, the drastic fluctuation from year to year could have everything to do with the male to female ratio the employer wants and how much the firm must pay a male to work in a "feminine" occupation. Even though the two occupations show strikingly different trend lines, both female discrimination coefficients start low in 2000 and end higher than what they were in 2009 which tells me that both occupations are becoming more discriminatory over time.

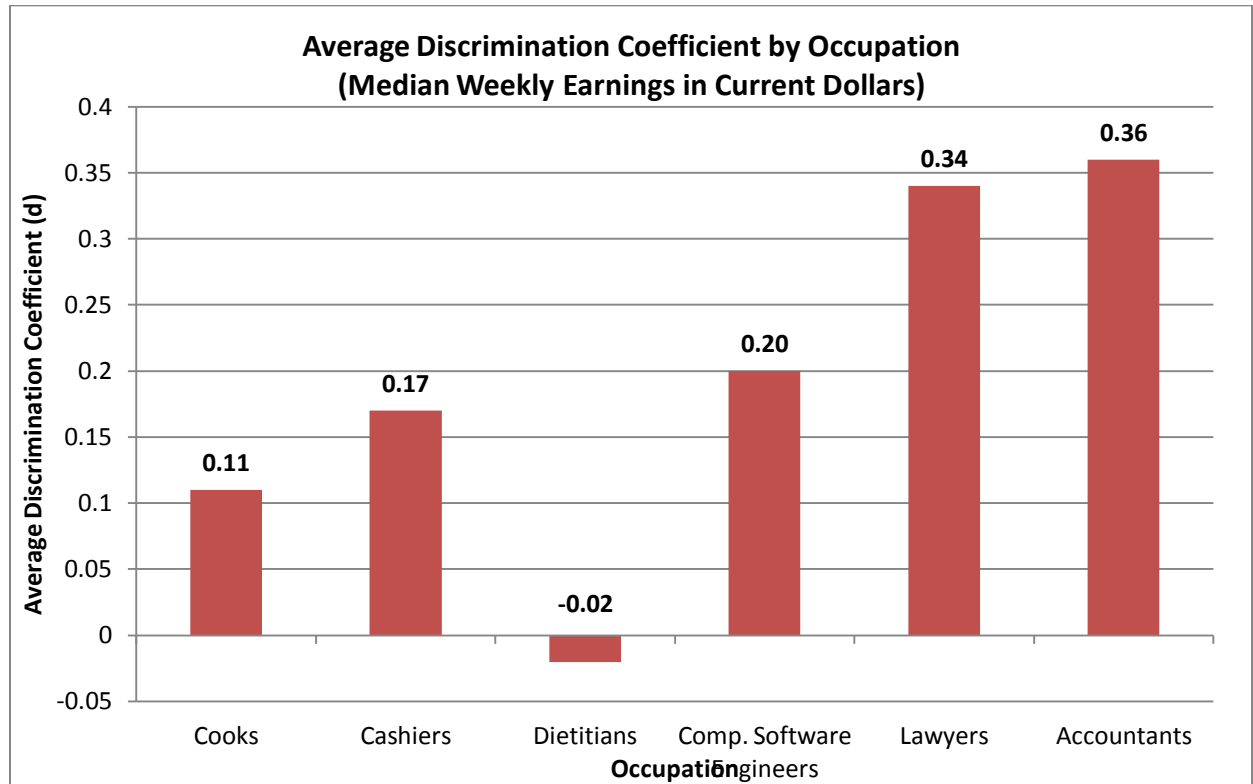
Advanced Degree



When comparing the discrimination coefficient for jobs that require an advanced degree, it appears that accountants are more consistently discriminated against since the discrimination coefficient (d) is at a higher level over a longer period of time than the discrimination coefficient for lawyers. Even though female accountants have been more discriminated against, there is a larger rate of change for female lawyers. There is a large decrease in the rate of change for female discrimination for lawyers as it drops from 0.54 in 2001 to 0.15 in 2003. This trend is very similar to what we see happening in the discrimination coefficient for female cashiers. Whether there is a common cause between accountants and cashiers as to why the wage gap between men and women for each of those professions is decreasing rapidly, and women are being less discriminated against for those particular years, would take further research and investigation.

What I found to be the most interesting about this data is how in 2000 the discrimination coefficient for accountants was higher than lawyers and then nine years later, the two discrimination coefficients converge and are almost the same, with accountants being 0.32 and lawyers being 0.33. One possible reason for this could be the fact that it takes time and effort to obtain an advanced degree and it is harder to find people who have this level of education and skills in 2009 than it was in 2000. Firms might now demand more skilled accountants and lawyers. Therefore, a firm can't discriminate or be as choosy as the same firm might've been in 2000 because they would never have employees to run their business if they discriminate more or keep passing on potential employees who are women who have the skills and education that qualify for the job. For example, "Organizations that wish to sustain gender discriminatory policies will find a shrinking labor pool from which to recruit. We do not believe that gender discriminatory practices can be maintained in such an environment; consequently, organizations need to carefully examine and review their hiring, promotion, salary and personnel practices" (Truman and Baroudi 1994, 138).

Summary and Comparison



These averages mean that over these past nine years, from 2000 to 2009, if a female were to be hired, the wage for that female will be lower than the wage for a male hired, except for dietitians. For example, the average discrimination coefficient for lawyer is 0.34, or that women earn 34 percent less than their male counterparts. My analysis shows that firms discriminate more against women as the level of educational attainment increases. When thinking about these averages logically, it makes sense that employers of low skilled workers, such as cashiers or cooks, don't care if the person cooking or checking out a customer is a man or a woman because it's low skilled labor where both men and women are seen as equal and they're performing tasks that anyone can do; employers just want people who can get the job done. However, if we take a job that requires an advanced degree, such as a lawyer or accountant, there is a higher discrimination here because the employer might believe that a woman can't perform the job as well as a man could, or has as strong of a personality as a male does in order to make a dominant presence in the courtroom. This explanation suggests a reason as to why discrimination increases as the level of education increases. However, amongst lawyers and accountants, I would assume that a female lawyer would be more discriminated against due to the fact that a lawyer must stand in front of many people in a court room whereas an accountant is in a backroom with only a few people. Since a lawyer sometimes must be intimidating and powerful, some might stereotype a man for this job. Interestingly enough, this was not the case and female accountants were actually more discriminated against than female lawyers.

Conclusion

There is mixed evidence in support of my hypothesis. I was correct in saying men always receive a higher wage than women, but I was incorrect in saying it doesn't depend on the occupation or level of education because it does. The only exception from my analysis is for more female dominated occupations, such as dietitians. I also noticed that the most discriminated against occupations were at the advanced level. Relative to women, men get paid more as skill and education required for the occupation increases. The data shows that if an occupation is geared more toward the stereotypical capabilities and roles of females, males are discriminated against. This was seen in the data for dietitians, where the average discrimination coefficient was a negative number which indicates males are earning less than females. If an occupation is geared toward the stereotypical capabilities and roles of

males, then females are the discriminated against group. This was especially obvious in the occupations of computer software engineers and accountants where the female discrimination coefficient was relatively stable for all nine years because they were male dominant professions.

Another key factor that I found to play a role in gender discrimination were merely what face the employer wants to display to the public or to customers. This was shown with the cashier and cook occupation data. If an employer wants a male cashier simply because he or she feels a male will sell more products and is more knowledgeable about the product being sold, the employer will hire a male over a female even if the female has the exact same skills and education. In summary, wage discrimination against women increases with education. Such a counter intuitive finding opens up interesting possibilities for future research.

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POTENTIAL APPLICATIONS OF APPRAISAL THEORY IN MARKETING

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There have been many psychological theories that have related to marketing. However, there is one theory that has great pertinence to the field of marketing but this relationship is relatively unstudied. I propose that appraisal theory and marketing need to be examined together, and that by doing so, firms would gain a better understanding of how they can affect the consumer decision making process.

The appraisal theory of emotions involves the assessment, or interpretation and evaluation, of events which in turn elicits emotional reactions in different individuals. How different people “appraise” events leads those individuals to feel certain emotions that correlate to their appraisals. From this, it is clear that events themselves do not elicit emotions. In fact it is the reaction and assessment of events that elicits emotions. Two separate people can appraise an event and experience a different emotion. Also a person can assess an event at two different times and experience many different emotions. This could possibly lead to the same event causing different emotions in an individual based on their appraisal of said event. This has great relevance to marketing strategists because it is essential to attempt to get customers to view their products in a positive manner consistently. If a person can have two completely identical experiences with a product and appraise that experience in two completely different ways, then how can marketers adapt their marketing mix to account for these different assessments?

There are real-world instances of appraisal theory being practiced by consumers every day. It is clear that appraisal theory has validity and it is even clearer that there is a correlation between appraisal theory and marketing. In marketing it is crucial to attempt to influence the consumer decision making process as much as possible. Understanding how marketing and appraisal can work together can be an effective method that any firm can use to establish a competitive advantage.

Past Research

Appraisal theorists, over time, have attempted to classify appraisals into dimensions, or categories. Theorists have many different ideas on how many appraisals there actually are and what emotions those appraisals will elicit. One of the most popular appraisal theorists today, Dr. Ira Roseman, (1990) suggest that there are five appraisals influence an emotional response. These appraisals are motivational state, situational state, probability, legitimacy, and agency. Motivational state involves an individual’s motive in a given situation. This motive can be, according to Roseman, aversive, which is an attempt to avoid negative consequences of a situation, or appetitive, which is an attempt to achieve a goal or attain a reward in a given situation. Situational state involves the presence, or lack thereof, of the negative consequences or the reward included in the motivational state is involved in the event that an individual is experiencing. Probability involves if the outcome of an event is perceived to be expected, unexpected, or somewhere in between. Legitimacy involves the speculation of what type of outcome is deserved in a given situation. The individual appraising the event can either believe they deserve a positive outcome, or in contrast, believe they deserve a negative outcome. The final appraisal, agency, involves the cause of the outcome of a given situation. The outcome of an event being appraised can be caused by the appraiser, another individual, or some impersonal extraneous variables (Roseman, Spindel, and Jose 1990).

In 1984 Roseman revised his original list of five appraisals to include situational state, probability, agency, motivational state, and power. Roseman replaces legitimacy with the dimension of power. Roseman believed that by adding this new dimension he would be able to gain a larger field of total emotions that could come from a person’s appraisal. Power deals mostly with self image. If an individual perceives themselves to be weak (i.e. not having a lot of power) in a situation, then it is likely that negative emotions will be experienced (Roseman, Spindel, and Jose 1990).

Roseman was somewhat revolutionary to the field of appraisal because of the research he conducted in developing his theories. In 1991 Roseman published a paper that went further than any other appraisal theorist had

before. Roseman states that, “no study published to date has examined all five appraisals hypothesized here to influence emotions. This is important because the theory specifies that the individual appraisals combine to generate particular emotions” (Roseman 1991). Roseman believed that certain emotions could only be elicited by combining specific dimensions of appraisal. Roseman’s research involved the 120 college student participants reading and appraisal prepared written stories. The appraisals of these stories were manipulated and Roseman measured the intensity of the emotions that led from the stories. In Roseman’s 1991 publication he shows that “Results provide significant support for the theory” (Roseman 1991).

Factors that Affect Appraisal

In addition to discovering what dimensions of appraisal elicit what emotions, it is important to consider factors that may affect appraisals themselves. If events can be appraised differently at different times by the same individual it must be identified why this could happen. Some of the extraneous variables that could affect appraisal include: frequency, timing, and general demeanor. The frequency of the occurrence of the event can affect how an event is appraised. A large frequency of occurrence in an event can lead to either positive or negative emotions. This is an important concept to consider for marketers. If the frequency of, for example, an individual viewing a commercial, is too high then that could cause that individual to appraise that event negatively. A high level of exposure to an ad can also lead to ad wear out which would involve the consumer becoming desensitized to the advertisement. A desensitized consumer would experience little emotional reaction. Advertisements become more effective as they are able to show differentiating benefits in an “emotionally compelling or engaging way” (Percy and Rossiter). Therefore, as frequency of exposure increases, positive appraisal decreases as far as communication strategy is concerned.

The timing of an event can also influence the appraisal of said event. If negative events are congruently occurring with the event to be appraised, then the evaluation of the event can be affected. Timing relates to other external events occurring before or during appraisal situations. Antecedents to situations of appraisal can also have great influence on the assessment of an event. The most crucial antecedent to be considered is the gain of knowledge about a particular occurrence or message. Knowing more background information can alter how an event is to be appraised.

Finally, a person’s general demeanor at the moment of appraisal certainly can affect the assessment. This is somewhat related to timing in that something must happen to alter a person’s mood in order for later appraisal situations to be affected. If a person is in a good or bad mood can change the appraisal dimension that come from an event. Goals and motives can be significantly changed by mood. Goals and motives are important characteristics of different dimensions of appraisal which, if altered, can lead to different emotions being experienced.

Current Applications of Appraisal to the Marketing Mix

Firms must develop products in order to create revenue and make profits. This does not only involve the invention of brand new products but also involves the change or alteration of current value propositions. Altering a product to generate revenue or target a certain segment is by no means a new strategy in marketing. However, if certain changes in products are viewed through an appraisal theory lens, then firms might realize, in a different way, the benefits of the change, or potentially the negative consequences. Consumers will recognize the stimuli that marketers place in the environment, they will appraise the recognition of these stimuli, and finally they will make a decision based on that appraisal. This is how appraisal theory directly relates to marketing.

In February, PepsiCo Inc. introduced a new product package for their Diet Pepsi brand. This new can will be taller and skinnier than the standard soda can. Although, not a completely innovative idea, a taller, skinnier can will certainly differentiate Diet Pepsi from other competitors. If a person saw this can how might they appraise it? Will they think it’s a sleek new package? Will they enjoy the refreshing new change? It does seem like this is very likely. This new can would exceed expectations most people have for soda packaging and lead to emotions such as joy, anticipation, intrigue.

However, what if those individuals who just saw the can knew more? What if these consumers realized how Pepsi is going to attempt to position these new cans? Pepsi revealed their new packaging at New York City’s Fashion Week. During the unveiling Pepsi commented that their new can is not only taller, but “sassier” and that the new can is a “celebration of beautiful, confident women” (Skidmore). How might people appraise this position? A

person could see this as a great new idea to target a stylish can to women consumers. It does seem that women would be the dominant demographic to consume Diet Pepsi.

It seems PepsiCo has a great idea on their hands. However, this new product has fallen under a lot of scrutiny especially from one particular organization, The National Eating Disorders Association. The can is being called “thoughtless and irresponsible” by this organization (Skidmore). They view the can as a symbol of social pressure for women to be skinny. The average consumer might not make this connection themselves, however imagine if they read some of the scrutiny the new can and Pepsi’s positioning strategy was coming under. This would undoubtedly change the appraisal of the product and potentially any promotion of the can or even Pepsi. What does this mean? If Pepsi would have thought about the appraisal of their product and communication strategy, then they would have realized their “sales pitch” was not a very good idea. This example shows how with added knowledge an individual’s assessment of a marketing strategy can change. The way people view and assess the new can will lead to emotions, not simply recognizing the can itself.

Another current example of where appraisal theory can be applied is to the marketing strategies of Facebook. Facebook, without question, is one of the most powerful advertisers in the world. The social network took time to become popular, but now it is very difficult to find a young adult without their own page. Adult users are growing as well. With so many people using Facebook, it is becoming a very popular strategy for companies to advertise via Facebook. What has this led to? For one it has turned Facebook into a billion dollar corporation, and secondly it has exposed users to an increasing amount of advertisements. What is important is not the increasing number of advertisers, but how users appraise the increasing number of advertisers. As the volume of ads grows, the more users are likely to experience ad wear out. Will individuals’ views of Facebook change because of the ever increasing volume of ads? It may be too early to tell, however it is clear that frustration is beginning to grow. User’s appraisal of the increasing amount of advertising and the liberties Facebook is letting those advertisers take is creating some negative emotions associated with Facebook. Social networking is a phenomenal opportunity for businesses to increase brand awareness. However, because of the very high frequency that could be created from using social networks, it is crucial that firms think of how social networking advertising will be appraised.

My Presentation

If accepted my presentation will explain appraisal theory as well as an in depth explanation of different dimensions of appraisal. I will then explain how, through previously recorded research, psychologists have determined which emotions follow most often from which dimensions of appraisal. If marketers can recognize which dimensions of appraisal their advertisements elicit, and if marketers can find a means for their marketing mix to be appraised similarly by many different subjects, then there could be a potentially new and un-researched way to approach marketing.

I know that if accepted, my presentation will teach people a completely different way to view marketing strategy involving the marketing mix. This conceptual paper will eventually lead to further research and an empirical investigation that I will use to further the study of appraisal theory and marketing.

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BUSINESS EFFICACY OF SOCIAL MEDIA

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ABSTRACT

In this independent study of business efficacy using Social Media and Search Engine Optimization (SEO) I hope to find exactly what the title depicts. I have been interested in how businesses explore, evaluate, and use the exponentially developing Web 2.0 to reach their target market, and how they increase sales, and their brand recognition. It is my hypotheses that companies who fail to properly reach out to their audience using these new platforms will lose market share to competitors who engage more in on-line consumer activities.

Companies need to evolve as fast as their surroundings in order to stay relevant in this ever-changing market. With the growth of the Internet, companies now have access to the masses easier than ever before. With the growth of Social Media platforms such as Facebook and Twitter, companies have the access to be in direct contact with their customers. This new form of advertising has been experimented with over the previous few years and the title "Social Media Professional" has been a new title many can now claim.

The process I will use to achieve the goals of this independent Study are to get in contact with different types of companies (national, local, for-profit, not-for-profit) and ask them basic and complex questions regarding how they use social media and what the challenges are that they face regarding online communication with customers. I anticipate finding a trend of tactics and ways in which companies are using Social Media and Search Engine Optimization. This will be done by reaching out to local and national organizations to see how and why they use these on-line publications via Social Networks such as Facebook and Twitter. Interviews of Marketing and Sales professionals will be conducted to better grasp their goals and reasons for entering into these online arenas.

Along with Social Media, I will be looking at SEO, which involved Google PageRank. PageRank is used by Google and is a main criteria used to market to individuals based on Google search returns. PageRank is a concept and rating of websites importance and popularity on the internet. Pages are given a rating of 0-10 from Google based on these criteria. Companies who have a higher page rank are looked at more on Google because they appear higher in Google searches. Some companies are fixated with their PageRank and SEO companies have sprouted up who write content for their clients in order to increase their Google PageRank.

The study will also investigate companies who have evolved out of this Web 2.0 tsunami as online marketers. Web 2.0 is the evolution of the internet from simple browser based searches to an increasingly user-centered blueprint focused around collaboration using Social Media. These companies will provide the greatest insight to how effectively use social media and SEO, how these industries can grow, and where this wave of media is going in the future. Company representatives already using social media such as Facebook and Twitter are the focus group for this study. The goal is to see how companies use Social Media, so contacting them via these platforms seems like the most logical way to identify the strongest and most effective users.

I believe that the current teens and 20's generations growing up alongside social media platforms like Facebook and Twitter and search engine giant Google will eventually takeover much of the internet we use daily. There will be less individual company websites and more Facebook pages containing equal information. Web Browsers will be tailored around the top social media platform and create an almost "Facebook internet" or "Google internet." Currently many companies direct customers to their Facebook page versus their company Web page. This study assumes is because they have done some type of study to suggest more people would go to their Facebook page. While I anticipate this eventual consolidation of online mediums, I believe it is a crucial point in time for companies as they are on the ground floor of this new wave of advertising and marketing. They can either become a product of former generations or become a "pre-web dinosaurs" that choose not to attract increasingly involved customers and become extinct, or embrace this change and gain market share from resisting competitors.

IS-LM ANALYSIS OF THE 1979-1984 ‘DOUBLE-DIP RECESSION’

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ABSTRACT

The late 1970's and early to mid 1980's were characterized by great economic fluctuations as a result of oil price shocks, bank deregulation, and the economic policies that were set in place as a result. During this time period, interest rates as well as inflation rates were in constant flux, creating a strong sense of insecurity in the economy. Quickly, the United States was plunged into what is commonly referred to as a “double-dip” recession. A double dip recession occurs when GDP growth reverts back to negative numbers after a couple periods of economic expansion. Expansionary fiscal policy, particularly increased government spending, was employed to help pull the economy out of its recessionary state.

This report will seek to analyze this whether the recovery from the double-dip recession is best told at a supply side or Keynesian story. Attempts will be made to model the events of this period using IS-LM analysis as well as studying trends in aggregate demand and supply in the economy. The effectiveness of using IS-LM theory will also be reviewed for examining this historic American recession.

INTRODUCTION

IS-LM theory was developed largely by John R. Hicks, as a macroeconomics tool to understand the relationship between interest rates and national output. The IS curve represents Investment Saving, and the LM curve represents Liquidity Preference/Money Supply in the entire economy.

The late 1970's and early to mid 1980's were characterized by great economic fluctuations as a result of oil price shocks, bank deregulation, and the economic policies that were set in place as a result. During this time period, the United States experienced a “double-dip” recession. The inflation rate was in constant flux, persistently climbing into double digit figures, making it difficult for policy-makers to accurately gauge the necessary levels for economic actions. Chart I shows inflation from 1979-1984. As the U.S. economy entered its first recessionary period in 1979 and 1980, inflation skyrocketed, peaking at approximately 14.5%. The run-up to the recession can be displayed by an outward shift of the IS curve, as seen in **IS-LM 1**. Due to the onset of bank deregulation in the economy, investment in the economy increased, forcing the IS curve outward.

Chart I

observation_date	% Change CPI-U
1979-01-01	9.7
1979-04-01	10.7
1979-07-01	11.8
1979-10-01	12.7
1980-01-01	14.3
1980-04-01	14.5
1980-07-01	12.9
1980-10-01	12.6
1981-01-01	11.2
1981-04-01	9.8
1981-07-01	10.8
1981-10-01	9.5
1982-01-01	7.6
1982-04-01	6.8
1982-07-01	5.8
1982-10-01	4.5
1983-01-01	3.6
1983-04-01	3.3
1983-07-01	2.6
1983-10-01	3.3
1984-01-01	4.5
1984-04-01	4.3
1984-07-01	4.3
1984-10-01	4.1

Source: research.stlouisfed.org

There were a few factors that created the recession from 1979-1980. Primarily, the U.S. and global economies were hammered by oil supply shocks. In 1980, Iraq invaded Iran, a major oil exporter to the United States and the rest of the world. This caused a sharp decrease in the supply of oil, raising prices and effectively decreasing national output. The decrease in aggregate supply can be displayed by an upward shift of LM, as seen in **IS-LM 2**. In the short run, demand for oil is very inelastic, so I did not represent any shift in IS in my model. In late 1980, oil supply finally returned to nearly “normal” levels, and prices dropped significantly. In fact, the first recession officially ended in about May of 1980. This allowed the output gap to decrease modestly, and interest rates dropped. It appeared that the economy would be enjoying growth for an extended period of time. However, it would soon dip into recession once again.

Just as the economy was recovering from the oil price shocks, Congress passed the *Gam-St. Germain Depository Institutions Act of 1982*. The bill greatly deregulated banks, increasing their lending power. Eager to regain much of the wealth lost during the first recession, investors flooded the market to take advantage of easy lending. The amount of mortgages in the United States increased greatly. Also, banks made many high-risk loans, lending to investors who wished to start establishments like casinos, ski resorts, fast-food restaurants, etc. This can be displayed by an outward shift of the IS curve, very similar to the graph of **IS-LM 1**.

It was not long before many debtors began to default on their loans and mortgages. This plunged the economy into a second recession for the time period. Aggregate demand decreased sharply as consumer wealth fell.

This forced the IS curve inward, as seen in **IS-LM 3**. The result was a large decrease in output, creating a massive output gap.

As a response, the government increased spending in an effort to once again increase aggregate demand. This policy proved to be effective. Chart II shows the output gap over the span of the second recession.

Chart II

Quarter	Output Gap (Billions \$)
1981-04-01	-121.6
1981-07-01	-87.1
1981-10-01	-203.6
1982-01-01	-347.4
1982-04-01	-363.2
1982-07-01	-434.5
1982-10-01	-478.8
1983-01-01	-452.4
1983-04-01	-364.7
1983-07-01	-290.9
1983-10-01	-209.7
1984-01-01	-136.1
1984-04-01	-76.3
1984-07-01	-66
1984-10-01	-67.2

Source: research.stlouisfed.org

The positive growth from increases to government spending can be modeled by an outward shift of the IS curve. See **IS-LM 4**.

My findings suggest that the recovery from the “Double-Dip Recession” is best told from a Keynesian (demand-side) perspective. Supply-side economists claim that tax cuts from 1980-1982 spurred economic recovery. However, I think the best explanation for the recovery from the recession is better told as a result of increased aggregate demand in the economy. The government spending during the second recession certainly helped increase aggregate demand and push IS outward. By increasing government spending, corporate investment and private consumption increased, reducing unemployment and shrinking the massive output gap over time.

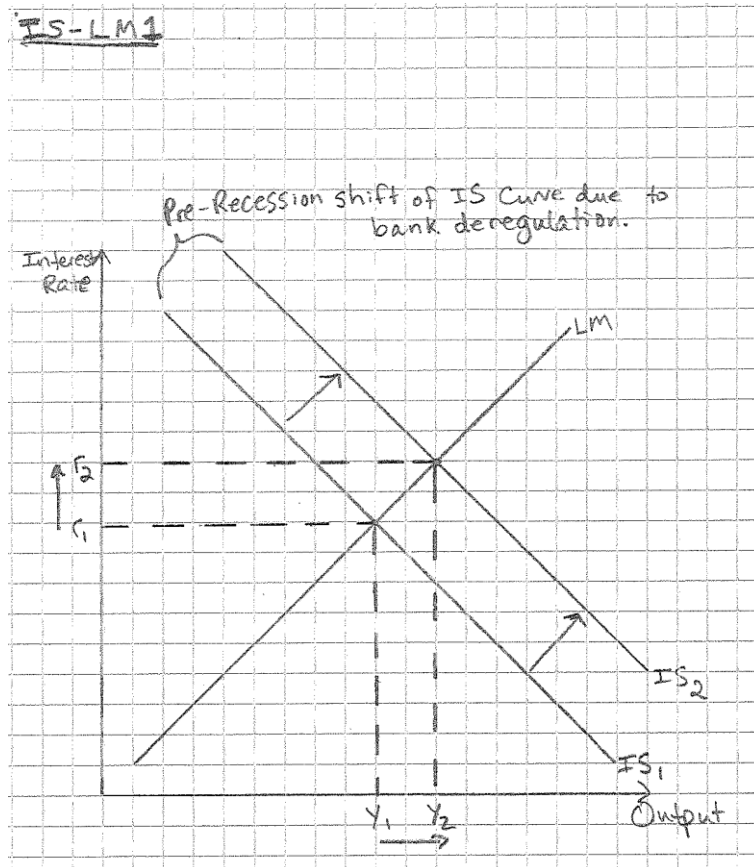
IS-LM theory proved to be an effective method for analyzing this time period. It was acceptably accurate for displaying what happened to output and interest rates at the time. My models were typically explanatory of the actual effects of the events and policies that occurred at the time.

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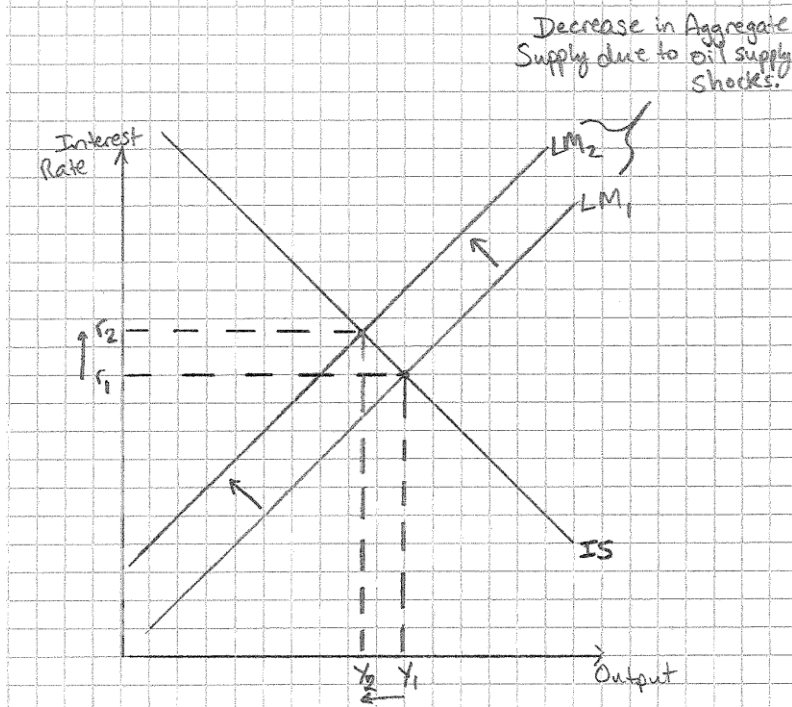
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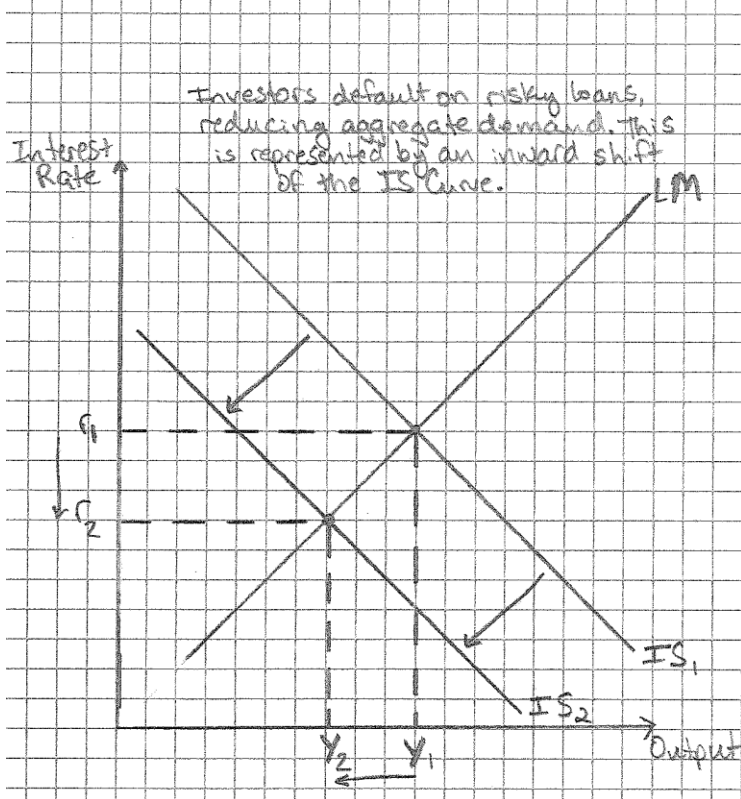
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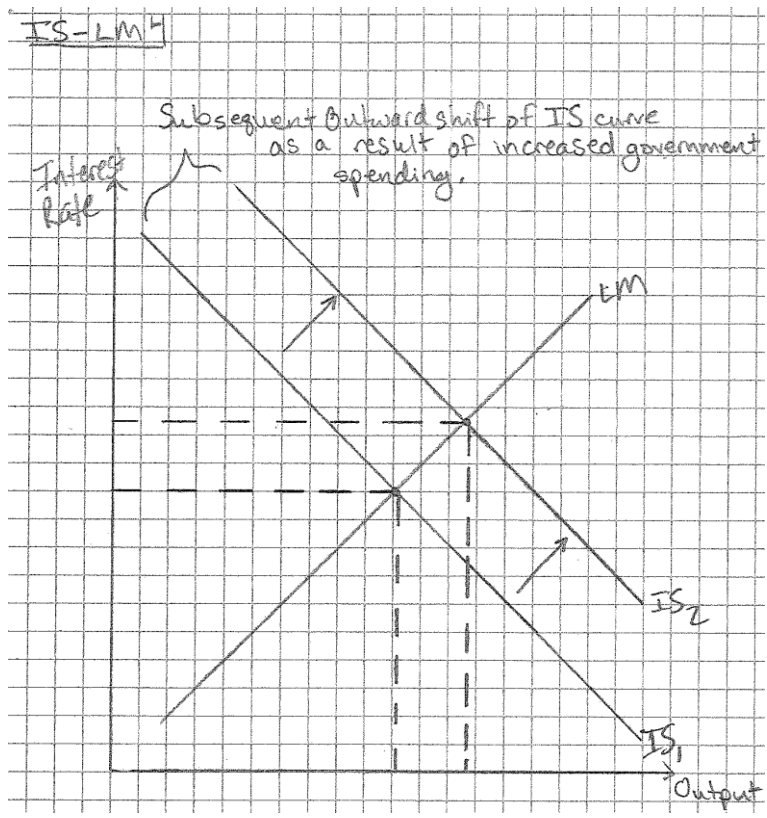


IS-LM 2



IS-LM 3





THE DETERMINANTS OF WINNING IN THE NATIONAL HOCKEY LEAGUE

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Abstract

The introduction of sabermetric analysis to baseball in the late 1970s completely transformed the way people analyze sports, particularly in the last several years. Unfortunately, hockey is the laggard of the group, experiencing modest advances in statistical analysis compared to baseball and to a lesser extent football and basketball. The following paper attempts to illuminate a largely barren field of study by examining the determinants of winning in the NHL, and if those determinants change from the regular season to the playoffs. The analysis utilizes a fixed effects regression model and over 450 observations to determine if shot differential, faceoff percentage, penalty differential, hits, and turnover differential impacted goal differential, the dependent variable, in a meaningful way. This model significantly explains 44 percent of the variation in goal differential during the regular season and 55 percent in the playoffs, however shot differential was the only variable to obtain significance in both regressions. Most interestingly, hits, while insignificant in the regular season, proved very impactful in the playoffs, giving credence to the arguments regarding the importance of toughness in the NHL playoffs. The results of this paper confirm that shot differential is a key and often undervalued statistic in assessing team skill and that the factors affecting winning do change in the postseason.

Introduction

Much of sports analysis is predicated on conventional wisdom and archaic schools of thought that focus on indeterminate qualities such as grit, toughness, and clutch ability rather than quantifiable statistical measurement. Hockey is not immune to this fallacy; it is common place to hear commentators discuss the comeback ability of a team, the big play panache of a player, or the miraculous chemistry between two forwards as reasons for success. These talking points wilt under scrutiny because they are superficial and unsophisticated, using a limited sample of correlation as a basis for broad generalizations and conclusions. Regression analysis, hypothesis testing, and other modern statistical methods permit the researcher to cut through these layers of ineffectual analysis and subsequently unveil insightful information about the sport. The goal of this paper is to expand on previous analysis by Desjardins (2010), Awad (2010), and Ryder (2008) and construct a regression model that explains the determinants of winning in the National Hockey League's regular season and playoffs, and if any significant differences exist between two. The model is buffeted by a robust data set, carefully formulated theory, and sophisticated statistical engineering to ensure that the results are relevant, significant, and unbiased.

Value-Added

Hockey, unlike other major sports, is slow to adapt to the sabermetric revolution that occurred over the last several decades. For instance, analysis of Major League Baseball is to a point where sabermetricians can accurately determine the amount of wins a player is worth to his team. (Wins Above Replacement) Football statistician Brian Burke calculated the expected points added of every player in the National Football League and constructed real-time win probability graphs for NFL games (Burke), while Houston Rockets General Manager Daryl Morey is an outspoken supporter of basketball sabermetrics and openly utilizes advanced analysis to evaluate his players. (Neel) Unfortunately, modern hockey analysis lacks such sophistication for several reasons. First and foremost, hockey is a fluid game that includes the simultaneous interaction of dozens of variables at a given point in time, making it difficult to control for different factors that affect play. Secondly, up until recently, the NHL did a poor job of tracking shift data and other real-time statistics. Thirdly, and perhaps a function of the first two reasons, hockey fans and analysts are still deeply rooted in tradition

and hesitant to adopt a new view of the game. These factors combine to make hockey sabermetrics an exciting and opportunistic endeavor, where capable and detailed research can reveal new truths and change the way people perceive the sport. While some studies have looked at the variables that affect winning, few have attempted to discern any differences between those variables in the regular season and playoffs, which is the value-added of this paper.

Literature Review

While high-level statistical analysis of hockey is relatively scant, the work of several enterprising statisticians provides a useful starting point. Alan Ryder (2008) examined over sixty years of data and determined that goal differential, goals scored minus goals yielded, explains 94% of point percentage, while the remaining six percent is randomness. Consequently, all other variables, whether they be shots, faceoffs, and saves, influence goal differential. This finding is extremely significant because there are six times as many goals as there are wins, which allows for more rigorous and richer statistical testing. (Ryder) Additionally, Ryder's findings dispel the notion that there is any repeatable aspect to winning close games, a favorite talking point of many commentators. If teams could consistently find a way to win close games each season, beyond what their team skill would indicate, then goal differential would explain a less significant portion of point percentage. The findings also make sense intuitively, since teams that handily outscore their opponents buffer themselves against bad breaks and unlucky bounces. This research suggests that goal differential is a worthwhile proxy for winning and perhaps is even better at explaining team skill since it is less stochastic.

One of the more popular areas of hockey research is related to shooting percentage, which is simply the ratio of goals to total shots on net. Conventional wisdom dictates that certain players are better at shooting than others, and that these differences aggregate to make certain teams better at shooting than other teams. However, research by J. Likens (2009) suggests that inter-team variation in even strength shooting percentage is a product of randomness. Likens ran a simulation of 100 seasons and affixed the probability of each team scoring at 8.5%, the league average shooting percentage, meaning that any deviation from 8.5% was a consequence of randomness. The result was a distribution of simulated shooting percentages that is very close to the actual distribution, illustrated in Graph A, confirming Likens' suspicions that shooting percentage is a random variable. (Likens)

Following a similar tact, Vic Ferrari (2009) looked at all goaltenders in the NHL from 1999-2009 and ran a 100 season simulation that used the goaltender's even strength save percentage from the time period as the probability of stopping a shot and the amount of shots faced from each season as the number of trials. The model predicted, for goaltenders that played back to back years on the same team, an average year-to-year change in save percentage of .0103, compared to the observed change of .0108 over that span. Ferrari also ran the model using goalies that changed teams from season to season, and found that the predicted change was .0122, while the observed change was .0133. In both cases the difference between the predicted and observed change was negligible, which is significant because Ferrari did not include any variant for shot quality in the model (higher quality shots are supposed to result in better shooting percentages and vice versa). This indicates that observed season to season change in goaltender save percentage is a random process, rather than a product of shot location. (Ferrari) One can then infer that shot quality is not a relevant variable, and additionally, based on the predicted and observed changes, that goaltender performance randomly varies from season to season by a large amount.

Gabriel Desjardins determined that faceoffs are an underrated facet of team success and can account for several wins depending on the faceoff ability of the centermen. Desjardins looked specifically at what happens after a faceoff is won or lost and found that a team is ten times more likely to surrender a goal in the seven seconds following a defensive zone faceoff loss. Graph B illustrates this point, with the Y-axis measuring goals against per 100 faceoffs and the X-axis tracking time elapsed in seconds. The pink line follows the trajectory after a faceoff loss and the blue line after a win. The difference is most striking at seven seconds of elapsed time, when approximately 0.25 goals are scored per 100 faceoffs after a loss while only 0.02 goals are scored after a win. This effect gradually decreases with time, but stays significant until twenty seconds after the faceoff takes place. (Desjardins) An important aspect to this theory is that faceoff ability is a real, repeatable skill. Players that are good at faceoffs tend to stay good at faceoffs and vice versa, indicating that teams can willfully improve their aggregate faceoff percentage by acquiring the right players.

Theory

Alan Ryder's research regarding goal differential and its relationship to winning is extremely important because it allows one to clarify the model from "what variables affect winning" to "what variables affect goal differential." The first place to start when evaluating goals is to look at shots and saves, and, more specifically, shooting percentage and save percentage. Teams that convert on their shooting opportunities and stifle the opponent's shooting opportunities will assuredly have better goal differentials. An initial regression confirms that 54 percent of the variation in goal differential is significantly explained by shooting percentage and save percentage. However, if one refers back to the work by Likens (2009) and Ferrari (2009), it becomes apparent that both those variables are stochastic; therefore they vary randomly from season to season. Stochastic independent variables are a violation of the standard OLS model and offer little insight to the question at hand because teams cannot control them.

A more deterministic shot-based variable is shot differential, which measures a team's shots for minus shots against. Although simplistically derived, the implications of shot differential are quite vast. Teams that consistently outshoot their opponent usually dominate puck possession and also benefit from more lucky bounces. Several statistics, such as Corsi and Fenwick rating, take shot differential a step further by including missed and blocked shots, which should more accurately gauge which teams and players control the puck. Unfortunately, Corsi and Fenwick rating were not widely tracked before 2005 and must be left out of the model.

Gabriel Desjardins' (2010) work on the influence of faceoffs in the defensive zone is extremely illuminating and suggests that faceoff percentage should be included in the model. One can intuitively justify faceoff percentage's value in determining goal differential as well – teams that win a majority of faceoffs gain immediate possession of the puck while denying the opponent an opportunity to attack or counter-attack. Faceoff percentage is also a deterministic statistic that is not influenced by other variables, but there is the possibility that faceoff percentage could be correlated with shot differential and any other variables that are related to puck possession.

Another underrated aspect of team play is the ability to draw penalties and correspondingly avoid taking them. Players that commit minor infractions in the NHL are assessed a two minute penalty while their team plays shorthanded. This comes at a significant disadvantage to the offending team because close to 20 percent of these situations result in goals against (Descriptive Statistics). Additionally, teams produce very little offense when shorthanded, sacrificing valuable time that could have been spent generating scoring chances in the opponent's defensive zone. Though penalty differential could impact goal differential, it might also correlate to faceoff percentage and shot differential since teams that possess puck probably draw more penalties than they take.

The ruggedness and physicality that defines ice hockey influences many commentators to highlight the importance of intimidation and physical assertiveness, especially in the playoffs when the stakes are high and teams are desperate to gain the slightest advantage. Although many new-era hockey statisticians highlight the importance of skill over size and physicality, coaches and players still emphasize the importance of an aggressive and hard-hitting style of play. The best proxy for physicality is hits, however one should exercise caution with this statistic since the definition of a hit is subjective and varies by score keeper.(Awad) Therefore, the model will utilize road hits, which halves the sample size but ensures that any home score keeper bias is isolated from the model.

This problem extends to turnover differential, which is defined as takeaways minus giveaways. A player earns a takeaway by stealing the puck from an opposing player and garners a giveaway by turning over the puck; however some arena score keepers are more generous than others in assessing takeaways and giveaways, so it is once again advisable to use the road version of each statistic to control for home score keeper bias. Teams that are better at stealing the puck should gain an advantage in goal differential, though I am concerned that this variable could correlate negatively with goal differential since teams that do not control the puck have fewer opportunities to give it away.

Data

The model utilizes ten seasons of regular season and playoff data gathered from NHL.com, the league's official website and most reliable source for team-based statistics. (Team Statistics) The data set has a time series element, ten seasons of play, and a cross-sectional component, thirty NHL teams, indicating that it should be considered panel data. The sample sizes for regular season data, 298 (the NHL iced 28 teams in 1999-2000 and 30 teams since), and playoff data, 160 (sixteen teams make the playoffs each season), are both large and should mitigate instances of season to season randomness.

Specifying the Model

The nature of the data suggests that a standard OLS model is inappropriate for this regression because heterogeneity is likely to exist among different teams each season. For instance, the Detroit Red Wings, a well-managed and consistently dominant team, and the Florida Panthers, a poorly run team that last made the playoffs in 1999-2000, should exhibit heterogeneity over time that is correlated with the independent variables in the model. As a result, the model uses a fixed effects regression to control for unobserved heterogeneity among the different teams. This was confirmed by the Hausman test, which determined that a fixed effects regression is more appropriate than a random effects regression for this model at a 90% confidence interval.

The basic linear regression equation is:

$$Y_{it} = \beta X_{1it} + \beta X_{2it} + \beta X_{3it} + \beta X_{4it} + \beta X_{5it} + u_{it}$$

Where Y_{it} is the expected value of the dependent variable given βX_{1it} , βX_{2it} , βX_{3it} , etc., the parameters of the independent variables. The error term, u_{it} , captures omitted variables, randomness, sample bias, and any other variation in Y_{it} that is not explained by the independent variables.

Also note that the correct functional form of the model is linear, not log-log or log-linear, since the model is concerned with the marginal effects of the independent variables on goal differential rather than their elasticities.

The aforementioned empirical work and theory suggest that a sensible model to describe the determinants of winning in the NHL includes goal differential as the dependent variable and shot differential, faceoff percentage, penalty differential, hits, and turnover differential as the explanatory variables. Specifically:

$$\text{GoalDiff}_{it} = \beta \text{ShotDiff}_{it} + \beta \text{FaceOff}_{it} + \beta \text{PenDiff}_{it} + \beta \text{Hits}_{it} + \beta \text{TurnDiff}_{it} + u_{it}$$

Regression Results

The model explains approximately 44% of the variation in regular season goal differential, holding other things constant. An F-Stat of 25.67 indicates high statistical significance, demonstrating that these results are relevant and did not occur by chance.

Shot differential is statistically significant at $t=9.68$ and has a substantial effect on goal differential, as each shot, either taken or prevented, is worth 0.0824 goals. This equates to approximately one goal for every thirteen shots.

Penalty differential is not statistically significant, which is surprising given the strong theory underlying its inclusion in the model.

Turnover differential is not significant either and its coefficient is negative, showing that a higher turnover differential leads to a lower goal differential. This is probably because teams that possess the puck more face fewer chances to steal it, and vice versa. Additionally, the -91 mean for the turnover differential

results from the fact that the model used road turnover differential data. Scorekeepers are usually biased in favor of the hometown teams, so one would expect road data to show more giveaways than takeaways. However, this does not affect the validity of the results since a regression measures the marginal, rather than the nominal, impact of a variable.

Faceoff percentage is significant at $\alpha = 0.10$, as a 1% increase in faceoff percentage is worth an extra 1.84 goals. Hits is an insignificant variable and possesses a negative coefficient, probably because teams that possess the puck have fewer opportunities to hit the opponent.

The model explains approximately 55% of the variation in playoff goal differential, holding other things constant. An F-Stat of 30.32 indicates high statistical significance, demonstrating that these results are relevant and did not occur by chance.

Shot differential is still statistically significant in the playoffs at $t=2.84$ but has a lower effect on goal differential, as each shot, either taken prevented, now adds only 0.0267 goals. This extrapolates to roughly one extra goal for every 37 shots.

Penalty differential, which is irrelevant in the regular season, is statistically significant in the playoffs at $t=4.29$ and strongly effects goal differential, as each penalty, either drawn or avoided, corresponds to .2818 goals. A possible reason for this dramatic shift in the significance of penalty differential is that teams are much more evenly matched at even strength in the playoffs, which increases the importance of accruing and converting on powerplays and avoiding penalties.

Turnover differential is still not significant, posting a P-value of .211. Faceoff percentage, though significant in the regular season, is insignificant with a P-value of .821 in the playoffs. This phenomenon implies that the value of puck possession is lower in the playoffs, which is also confirmed by the decreased importance of shot differential, another indirect proxy for puck possession.

Hits are the most statistically significant variable of the regression with a t-stat of 9.02. One hit relates to 0.0252 goals in the playoffs, or approximately one goal for every 40 hits. This result lends credence to the arguments about the increased importance of toughness, physicality, and intimidation in the playoffs.

Assumption Tests

The Ramsey Regression Equation Specification Error Test (RESET) shows that both models contain omitted variables, which are likely shooting percentage and save percentage. However, research by Likens and Ferrari shows that shooting percentage and save percentage are stochastic, which violates the assumption of non-stochastic explanatory variables. Including them in the model would just lead to another violation.

Autocorrelation is defined as the serial correlation of error terms over time. Though this does not bias the regression estimators, a model with autocorrelation underestimates standard errors, which results in inflated t-stats. The Wooldridge test for autocorrelation shows a p-value of 0.0932 in the regular season model, resulting in serial correlation at 90% confidence, but not at 95% or 99%. The playoff model showed a Wooldridge p-value of 0.56, signifying no autocorrelation. Autocorrelation is probably not an issue because each NHL season is independent from the one before it and the one after it. There is no year-to-year momentum or lag that is usually associated with the presence of autocorrelation in time series data.

Heteroskedasticity occurs when the variances of error terms in the model are not constant. Similar to autocorrelation, the presence of heteroskedasticity does not bias the estimator but might produce incorrect standard errors. The Breusch-Pagan/Cook-Weisberg test denoted homoskedasticity in both the regular season, however the playoff regression was heteroskedastic.

Correlation tests indicate that multicollinearity is not an issue since no variable was more than 38% correlated with any other variable in either regression. The lack of multicollinearity is confirmed by a mean

Variance Inflation Factor of 1.15 in the regular season and 1.14 in the playoffs, both well below the threshold of five.

The data is normally distributed because the skewness levels in the descriptive statistics are close to zero while the kurtosis levels are near three.

Conclusions

An in-depth literature view, carefully constructed theory, and advanced statistical techniques reveal that there are large differences between the variables that affect success in the NHL regular season and playoffs. Shot differential and faceoff percentage are the primary non-stochastic determinants of winning in the regular season, while hits and penalty differential display increased importance in the playoffs. Additionally, the constructed model is 25 percent better in explaining success in the playoffs than the regular season. The observed differences in the models are illuminating but open a series of new questions that will require further research, such as why puck possession loses value in the playoffs and physicality is less important in the regular season.

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THE DETERMINANTS OF NEW YORK STATE WORKER'S COMPENSATION INDEMNITY CLAIMANTS

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Abstract

This study investigates the impact of economic factors on the number of male and female claimants from various weekly wage categories, as reported in the New York State Workers' Compensation Board's Annual Reports. The unemployment rate, prime rate, and CPI are all shown to be significant in explaining female claiming behavior, but do not sufficiently explain male claiming behavior. Also, wage categories are significant in explaining the number of claimants of both genders from those categories. Additionally, the inclusion of a workplace safety control variable significantly improved the model and was significant in explaining the number of claimants of both genders.

Introduction

“The New York State Workers' Compensation Board protects the rights of employees and employers by ensuring the proper delivery of benefits to those who are injured or ill, and by promoting compliance with the law” (<http://www.wcb.state.ny.us>). The mission statement of the Workers' Compensation Board states a clear goal that is governed by law; if a worker is injured on the job, he or she is entitled to certain benefits to cover medical expenses and lost wages. While medical expenses are fully covered by workers' compensation, indemnity benefits do not fully replace lost wages. Fully disabled workers are eligible to receive 2/3 of their average weekly wage, and partially disabled workers are eligible to receive 1/3 of their average weekly wage (www.wcb.state.ny.us). Since workers' compensation does not fully indemnify wage losses, the actual claiming behavior of those employed in New York State is influenced by many factors other than simply the occurrence of a work place injury.

It has been shown in past studies that there are many factors influencing the frequency of workers compensation claims. Biddle and Roberts (2003) found that factors influencing why a particular injured worker does not file a workers' compensation claim include the severity of the reported condition, the generosity of the benefits to be received, and the age of the worker. Butler and Worrall (1991) studied the effects of moral hazard on claiming behavior, concluding that increasing benefits causes decreased frequency of injury while simultaneously causing increased frequency of claims. Shield, Lu, and Oswald (1999) found that deductibles tend to reduce the frequency and severity of claims by reducing the effects of moral hazard.

While the study by Biddle and Roberts showed the factors influencing a particular injured workers' claiming behavior and the studies by Butler and Worrall and Shield, Lu, and Oswald showed the impact of policy provisions on claiming behavior, this study attempts to determine the factors influencing the aggregate claiming behavior of the New York State employed population by looking at factors effecting the relative significance of a workers' compensation benefit with respect to economic conditions. That is, controlling for the overall landscape of industry in the state and the benefits available, what is the impact of economic factors facing New Yorkers on the claiming behavior of the employed population? This question is answered by analyzing the results of OLS regression methods on female and male indemnity claimants.

Literature Review

As briefly discussed, past studies have made strides in identifying factors that influence the claiming behavior for workers' compensation benefits. While most of the variables in these studies are relevant to individual claimants rather than the aggregate number of claimants, which is the focus of this paper, they do provide evidence

of the impact of benefit levels on claiming behavior. A review of these scholarly articles was influential in providing a background and determining some of the variables to be included in this study.

“Claiming Behavior in Workers’ Compensation”

In a 2003 study entitled "Claiming Behavior in Workers' Compensation" (www.jstor.org/stable/3519939), Jeff Biddle and Karen Roberts explored how the number of workers' compensation claimants in Michigan compared to the number of workers who were eligible to receive benefits. Through multivariate analysis, it was found that there were a significant number of eligible workers that did not file to receive workers compensation benefits. The data for this analysis was collected through surveys of people whom physicians had identified as having work-related injuries, as well as administrative data of the state of Michigan. The surveys provided data about the claiming behavior that is not readily available through the administrative data, including why eligible workers did not file workers' compensation claims. This analysis found that the severity of the worker's condition and general health is the most influential factor effecting an eligible worker's decision to file. In addition, the generosity of benefits to be received, job arduousness, and the age of the worker are also determining factors.

The individual responses to the survey administered in this study also provide insight into the claiming behavior of injured workers. The most common response with 59.8% of participants was the worker not perceiving the injury to be sufficiently serious. The worker not expecting to lose time also was given as a reason for not filing a claim in 58.8% of responses. Availability of other sources of wage replacement appeared as a response from 28.3% of participants as well. Although not relevant to indemnity claims, availability of other health insurance was also a common answer, cited in 36.1% of responses.

Several of the explanatory variables used in this paper to describe the proportion of claimants from the employed population were based on the findings of Biddle and Roberts. First, job arduousness from Biddle and Roberts' study is incorporated into this model through the inclusion of a variable measuring employment in manufacturing and construction industries. Jobs in these industries are highly physical and face a high risk of injury. Also, availability of other sources of wage replacement is captured by the inclusion of an unemployment variable to account for availability of employment opportunities.

“Claims Reporting and Risk Bearing Moral Hazard in Workers’ Compensation”

In a 1991 study entitled "Claims Reporting and Risk Bearing Moral Hazard in Workers' Compensation" (www.jstor.org/stable/253233), Richard J. Butler and John D. Worrall investigated the effects of increasing benefits on claiming behavior. It is intuitive that increases in benefits paid on workers compensation cases result in an increase in the total cost of these claims. All other effects held constant, simply increasing the benefits paid will increase the cost of each claim and so the total benefits paid will increase. However, Butler and Worrall hypothesized that there is also the introduction of moral hazard when benefits are increased. This article distinguishes between risk-bearing moral hazard and claims reporting moral hazard. Risk-bearing moral hazard occurs when workers are more likely to bear higher risk jobs, knowing that the benefits they will receive should they be injured are greater. Claims reporting moral hazard occurs when workers are more likely to file a claim, given that an injury has occurred, due to the greater benefits they will receive.

This study found several relationships between changes in benefit levels and claiming behavior. First, Butler and Worrall found that not only the severity, or dollar amount, of claims, but the frequency of claims increases when benefit levels increase. This is because an injured worker has greater incentive to go through the process of filing a claim if the end result is a greater payoff, which is claims reporting moral hazard. However, Butler and Worrall also found that while the frequency of claims increases with an increased benefit, the frequency of workplace injury actually decreases. This counterintuitive result is due to the response of employers to increased benefits. Increased benefits cause insurance to be more expensive to employers. In order to offset this cost in the following year, employers will take steps to improve workplace safety in order to decrease claims in the current year. A more favorable loss experience in the current year will result in the insurance company charging a lower premium in the following year. This action of employers reduces risk bearing moral hazard. While workers are more likely to take on high risk jobs because of increased benefits in the event of injury, the actions of employers offset this by improving workplace safety overall. The end result of this study was that the effect of increased

claims reporting moral hazard is enough to offset the effect of decreased risk bearing moral hazard, leading to an overall increase in claims when benefit levels rise.

The most significant contribution from this study to the work in this paper is defining a workplace risk variable as the proportion of employment in manufacturing and construction. While the work of Biddle and Roberts also identified the need to measure job arduousness, Butler and Worrall identified an exact way of measuring such a variable.

“Workers’ Compensation and Employers’ Cost”

In a 1999 study entitled "Workers' Compensation and Employers' Cost" (www.jstor.org/stable/253609), Joseph Shields, Xiaohua Lu, and Gaylon Oswalt investigated how deductibles on workers' compensation policies affect the frequency of claims and the cost of individual high dollar claims. It was found that policies with deductibles have reduced claim frequency and reduced individual claim costs. This combined effect impacts employer's by reducing their overall cost of workers' compensation. The rationale behind this result is that a deductible provides an incentive to employers to practice risk reducing behaviors and to file fewer claims, some of which may be legitimate. In contrast, full coverage firms that do not pay a deductible have no incentive to contain costs because the entire cost is transferred to the insurance company.

While the effect of the deductible on individual claim costs is not relevant to the topic of this paper, the effect on claim frequency is relevant: Policies with deductibles have fewer claimants than policies without deductibles. This is consistent with the study by Biddle and Roberts in that a deductible lowers the generosity of benefits to be received. Biddle and Roberts found that this may result in legitimate claimants to not file for benefits, which would lead to Shield, Lu, and Oswalt's result of reduced claim frequency. This is also consistent with the study by Butler and Worrall in that a deductible decreases benefits, which they found to lead to decreased effects of moral hazard. Injured workers have less of an incentive to file a claim given that they are injured, which would lower the overall number of claimants.

Data

Dependent Variable

This focus of this study is to investigate the determinants of the number of workers' compensation indemnity claimants in New York State, for males and females separately, as a percentage of the state's employed population. This variable was constructed after encountering a multicollinearity problem between the number of employed people and other explanatory variables. Structuring the variable as a proportion out of the employed population eliminates the multicollinearity problem while also accounting for changes in the number of employed people, which is the population from which claimants come.

This dependent variable was constructed from two data sets. First, data on the number of indemnity claimants with the first benefit paid in a particular year comes from the New York State Workers' Compensation Board's Annual Reports (<http://www.wcb.state.ny.us>). This data is from the 2001 through 2007 annual reports and is reported by average weekly wage and gender.

The data for the number of employed people in New York State was obtained from the New York State Department of Labor (<http://www.labor.state.ny.us>). Data is based on the reported annual average for the years 2001 through 2007. While data was reported in thousands, the data was multiplied by one thousand so that it is in single units. This was done so that it is in the same units as the claimant data. Also, the number of employed people is for both genders combined.

In order to get the percentage of male or female claimants from the total population of employed people in New York State, the claimant data by gender was divided by the employed data and multiplied by one hundred. Thus, results of the analysis are reported as a percentage rather than a proportion. For example, a result of 0.25 corresponds to 0.25% rather than 25.0%.

Explanatory Variables

The variables of interest in this study are the economic variables that affect the relative significance of the benefit to be received by an indemnity claimant. It has been shown in all three studies discussed in the literature review that the benefit to be received from filing a claim influences the decision to file and thus influences the frequency of claims. While the overall benefit level of the state varies from policy to policy and cannot be captured in the aggregate, these three variables are used to attempt to explain the aggregate frequency of claims based on the financial significance the workers' compensation benefit may have to a claimant as the economic climate varies from year to year.

- (1) *Consumer Price Index (CPI)*: CPI is used as a measure of the relative prices paid by consumers each year¹. Annual averages were taken from monthly data, which is from the Federal Reserve of St. Louis economic database (FRED) (<http://research.stlouisfed.org>). It is hypothesized that increases in CPI result in decreases in the percentage of workers' compensation claimants, since injured workers will be less likely to take the pay cut associated with claiming if prices are high.
- (2) *Bank Prime Loan Rate*: As a gauge of market rates, the prime rate is used in this study. Annual averages were taken from monthly data, which is from the Federal Reserve of St. Louis economic database (FRED) (<http://research.stlouisfed.org>). It is hypothesized that increases in the prime rate will result in decreases in the percentage of workers' compensation claimants for several reasons. First, the cost of borrowing is higher when interest rates rise, resulting in higher interest expenses on existing borrowed funds and less incentive to borrow going forward, which may be a consequence of the lower wage replacement associated with a claim. Also, when interest rates are high, income can be invested at higher rates, giving incentive to continue to work at normal wage levels.

¹Inflation was also tested as a measure of relative prices, but was found to be statistically insignificant.

- (3) *New York State Unemployment Rate*: The third economic factor considered in this study is the annual average New York State Unemployment rate. The state unemployment rate data is from the New York State Department of Labor (<http://www.labor.ny.gov>). It is hypothesized that as the unemployment rate rises, there will be a decrease in the proportion of indemnity claimants. Injured workers will be less likely to stay out of work if there are fewer opportunities for other sources of income. Also, workers will be less likely to settle for reduced wages if their spouse or another family income-earner is unemployed.

In addition to these variables, other variables were included to control for overall level of workplace safety and benefit levels.

- (4) *Proportion of State Workforce in Manufacturing and Construction*: This variable is used to control for the overall level of workplace safety in New York State, since jobs in manufacturing and construction have a high risk of injury. The annual averages of the data series "Manufacturing Employment in New York" and "Construction Employment in New York" from the Federal Reserve Bank of St. Louis were summed to obtain total employment in the two industries. The result was then divided by total employment in the state from the New York State Department of Labor to obtain the proportion of employment in manufacturing and construction.
- (5) *Average Weekly Wage*: This categorical variable was obtained from the New York State Workers' Compensation Board's Annual Reports. Nine wage categories, represented by dummy variables, are in increments of \$75, beginning with "less than \$75," then "\$75 - \$149," and increasing up to "\$600 and up." These wage categories are represented by dummy variables with the "less than \$75" wage category being the base category. One issue faced with this data was that in the first two years of data (2001 and 2002), there was not a "Not Indicated" wage category, as there was for the following five years of data. In order to compensate for this, the claimants in the "Not Indicated" wage category for years 2003 through 2007 were allocated to the other wage categories based on the percentage of claimants in those categories out of the total of claimants who indicated their wage. In essence, the distribution of claimants who indicated their wage was used to allocate the claimants who did not indicate their wage. This was done for each year separately and for males and females

separately. It is also important to note that this variable does not attempt to capture relationships regarding the probability of a worker from various wage categories to place a claim, but rather captures the changes in the proportion of claimants from the wage categories out of the employed population. This indicates the number of claimants, not an individual's probability of claiming.

- (6) Maximum Weekly Benefit: New York State sets a weekly maximum benefit available to workers' compensation claimants depending on if they are fully or partially disabled. In the years considered in this study (2001 through 2007), the maximum benefit was raised once in July of 2007. In order to capture this change in generosity of benefits, a dummy variable is included in the regression model. The base category, receiving a zero, is the years 2001 through 2006 and the year 2007 receives a one to signify the change in the maximum benefit during that year.

Data Analysis

Descriptive Statistics

The descriptive statistics of the variables defined above are shown below:

Table 1. Descriptive Statistics					
	Obs	Mean	Std. Dev.	Min	Max
% of Male Claimants	63	0.0722	0.014911	0.0008	0.4817
% of Female Claimants	63	0.0403	0.004663	0.0010	0.1479
CPI	63	190.573	10.561	177.067	207.342
Unemployment Rate	63	5.343	0.727	4.5	6.4
Prime Rate	63	6.037	1.569	4.12	8.05
ManufConst	63	0.1059	0.0067	0.0990	0.1186

As shown above, the average percentage of male claimants in a particular wage category out of the population of employed people in the state is greater than that of female claimants. In each year, the total number of male claimants exceeds that of females, but the same is not true for each wage category in each year. In fact, the number of female claimants in the \$150 - \$224 and \$225 - \$299 wage categories exceeds that of males in every year, while the number of male claimants exceeds that of females greatly in the upper wage categories, particularly \$600 and up.

CPI increases in each year from a low of 177.1 in 2001 to a high of 207.3 in 2007. The New York State unemployment rate increases from 2001 to 2003, reaching a high of 6.4% in 2003, and then decreases from 2003 to 2007 to a low of 4.5%. The bank prime loan rate follows a pattern that is opposite to that of the unemployment rate during this period, reaching a low of 4.12% in 2003 and increasing to high of 8.05% in 2007. The proportion of employment in manufacturing and construction follows a pattern that is opposite to that of CPI, decreasing in each year from 2001 to 2007. The proportion is 0.1186 in 2001 and decreases to 0.0990 in 2007.

Correlation

The relationships amongst these variables are described by the correlation matrix below.

Table 2. Correlation Matrix				
	CPI	Unemployment	PrimeRate	%ManufConst
CPI	1			
Unemployment	-0.66	1		
PrimeRate	0.6468	-0.9596	1	
ManufConst	-0.9114	0.3464	-0.3048	1

As shown, there is high negative correlation between the unemployment rate and the prime rate, as well as between the proportion of workers in manufacturing and construction and CPI. Although these variables are more than 90% correlated, theory supports the inclusion of these variables in the specification of the model. However, the high correlation between these variables should be noted, as it may lead to a multicollinearity problem in the model.

The Model

Together these variables specify the following model, with the regression for female indemnity claimants as an example. The same explanatory variables are used for the regressions on male claimants:

$$\%ClimntsF = \beta_1 + \beta_2 WAGE_1 + \beta_3 WAGE_2 + \dots + \beta_9 Wage_8 + \beta_{10} CPI + \beta_{11} UEMP + \beta_{12} INT + \beta_{13} EMC + \beta_{14} MXB$$

%ClimntsF = Percentage of female indemnity claimants in indicated wage category out of entire employed population in New York State

WAGE₁ = Average weekly wage, \$75-149, Dummy Variable

WAGE₂ = Average weekly wage, \$150-224, Dummy Variable

....

WAGE₈ = Average weekly wage, \$600 and up, Dummy Variable

CPI = Consumer Price Index

UNEMP = New York State Unemployment Rate (Percentage)

INT = Bank Prime Loan Rate (Percentage)

EMC = Proportion of Employment in Manufacturing and Construction (Proportion)

MXB = Maximum Weekly Benefit, Dummy Variable

Empirical Results

According to the model specified above, an ordinary least squares regression was run on the variables with the percentage of female claimants out of the employed population as the dependent variable and then with the percentage of male claimants out of the employed population as the dependent variable. In both cases, the models suffered from autocorrelation, based on graphical examination of the residuals, and heteroscedasticity, based on the Breusch-Pagan test. (The Durbin-Watson test for autocorrelation cannot be run on panel data.) The results of these tests can be found in the appendix.

In order to remedy these issues, the regression was run with Newey-West standard errors. The data set was identified as panel data, with the weekly wage categorical variable as the panel variable and the year as the date variable. The coefficient estimates for this regression are the same as the standard linear regression, but with reduced standard errors. The regression results are shown below.

Table 3a. Regression Results on Female Claimants

Regression with Newey-West standard errors
maximum lag: 0

Number of obs = 63
F(13, 49) = 119.39
Prob > F = 0.0000

PctClaiman~F	Coef.	Newey-West Std. Err.	t	P> t	[95% Conf. Interval]	
w75to149	.0077408	.0030775	2.52	0.015	.0015563	.0139253
w150to224	.0202124	.0030631	6.60	0.000	.014057	.0263679
w225to299	.0317303	.0036473	8.70	0.000	.0244007	.0390598
w300to374	.0407804	.0039085	10.43	0.000	.0329259	.0486349
w375to449	.0385094	.0034312	11.22	0.000	.0316143	.0454046
w450to524	.0363249	.0033565	10.82	0.000	.0295797	.04307
w525to599	.0320355	.0031925	10.03	0.000	.02562	.0384511
w600up	.1288622	.0098834	13.04	0.000	.1090008	.1487236
CPI	.002884	.0016676	1.73	0.090	-.0004672	.0062353
Unemployment	-.0126309	.0059611	-2.12	0.039	-.0246101	-.0006517
PrimeRate	-.010057	.0044168	-2.28	0.027	-.018933	-.001181
ManufConst	4.350529	1.976649	2.20	0.032	.3783041	8.322753
MaxBenefit	-.0155578	.0092545	-1.68	0.099	-.0341555	.0030399
_cons	-.8768435	.4925771	-1.78	0.081	-1.866714	.1130273

Table 3b. Regression Results on Male Claimants

Regression with Newey-West standard errors
maximum lag: 0

Number of obs = 63
F(13, 49) = 94.46
Prob > F = 0.0000

PctClaiman~M	Coef.	Newey-West Std. Err.	t	P> t	[95% Conf. Interval]	
w75to149	.0040681	.0068652	0.59	0.556	-.0097281	.0178643
w150to224	.0138199	.0060039	2.30	0.026	.0017546	.0258852
w225to299	.0305182	.0055551	5.49	0.000	.0193548	.0416815
w300to374	.042467	.0056002	7.58	0.000	.031213	.0537211
w375to449	.0453299	.005575	8.13	0.000	.0341265	.0565334
w450to524	.0498627	.0059255	8.41	0.000	.037955	.0617704
w525to599	.0449044	.0056789	7.91	0.000	.0334922	.0563166
w600up	.3885604	.0284722	13.65	0.000	.3313434	.4457775
CPI	.0043426	.0033835	1.28	0.205	-.0024567	.0111419
Unemployment	-.0238652	.0146866	-1.62	0.111	-.0533791	.0056486
PrimeRate	-.0166478	.0112249	-1.48	0.144	-.0392051	.0059094
ManufConst	6.958537	4.12855	1.69	0.098	-1.338094	15.25517
MaxBenefit	-.024261	.0174845	-1.39	0.172	-.0593975	.0108754
_cons	-1.329348	.9465426	-1.40	0.166	-3.231496	.5728008

These results show that the pattern of the significance of the explanatory variables in explaining the percentage of claimants out of the employed population is similar for female claimants and male claimants. In both regressions, the average weekly wage, proportion of workers in manufacturing and construction, the bank prime loan rate, and the unemployment rate are the most significant variables. In contrast, CPI and the increased maximum weekly benefit in 2007 are least statistically significant in explaining claiming behavior. While the significance of the variables follows the same pattern, the overall level of significance of the variables is higher for females than for males. This may be due to the greater variability in claimants for males than females, as shown in

Table 1. While all explanatory variables are statistically significant at an alpha level of 0.10 for female claimants, only average weekly wage and employment in manufacturing and construction are statistically significant for male claimants.

This result is also supported by the Ramsey RESET test for omitted variables. While the regression on female claimants has no omitted variables ($p=0.1160$), the regression on male claimants has omitted variables ($p=0.0000$). This is an improvement from earlier model specifications that excluded the employment in manufacturing and construction and prime rate variables.

In addition to the statistical significance of variables following the same pattern in both regressions, the signs of the coefficients are consistent across the regressions. Also, the coefficients of variables take on the expected signs as hypothesized according to theory, with the exception of the increase in maximum weekly benefit variable. While it is expected that increases in the maximum benefit would increase claims, the sign of the coefficient is negative. However, it is statistically insignificant in the male regression and very close to being insignificant in the female regression. CPI and employment in manufacturing and construction both have a positive relationship with claimants, implying that increases in CPI and employment in manufacturing and construction lead to increases in workers compensation claims. Additionally, the unemployment rate and prime rate take on negative coefficients, implying that increases in the unemployment rate and prime rate lead to decreases in claims.

The coefficients of the average weekly wage dummy variables are all positive, implying that there are more claimants from wage categories above \$75 than in the "Less than \$75" wage category on average. However, this does not imply that workers who make greater than \$75 per week are more likely to make workers' compensation claims. It only means that the overall level of claimants from this category is less than those of higher wage categories, since it is without respect to the number of employed people in the state making less than \$75 per week but with respect to all employed people. While this is not relevant to describing claiming behavior, it is relevant to describing the number of claimants from different wage categories given the number of employed people in the state.

Analyzing the wage dummy variable coefficients from this perspective reveals different relationships for females and males. In the case of females, the proportion of claimants out of the employed population, and thus the number of claimants, from the wage categories increases until the "\$300 - \$374" wage category and then decreases again with the exception of the "\$600 and up" category, which has the highest number of claimants. The number of claimants based on wage category for males follows a pattern similar to that of females, except that the number increases up until a higher wage category before decreasing. The proportion of claimants out of the employed population from the wage categories increases until the "\$450 - \$524" wage category and then decreases again with the exception of the "\$600 and up," which has the highest number of claimants. These relationships are not necessarily reflective of the propensity of workers from various wage categories to make a claim, but may be reflective of the overall number of employed people in each wage category. This is best evidenced by the highest proportion of claimants in the "\$600 and up" category, which has no limit to the wages of the claimants in this category.

Conclusion

The model developed in this study has provided evidence that the number of indemnity claimants out of the population of employed people in New York State in various wage categories varies based on the proportion of state employment in manufacturing and construction for both genders. Additionally, the unemployment rate, prime rate, and CPI explain a significant amount of variation in female claimants. However, these variables are not sufficient to describe variation in the percentage of male claimants out of the employed population.

Increases in the unemployment rate lead to decreases in workers compensation claimants, which can be explained by the decreased tendency of workers to take a wage cut if other sources of income are less readily available or if other family income earners are out of work. Rising interest rates also lead to decreases in claimants, likely due to the higher interest expenses incurred by workers and the increased incentive to invest. The overall level of workplace safety in the state, as measured by employment in the high risk industries of manufacturing and construction, positively influences indemnity claims. As the proportion of employment in these industries rises and the state's employed face a higher risk of workplace injury, the number of indemnity claimants rises. Additionally,

increases in CPI leads to decreases in indemnity claimants due to increases in the level of prices faced by workers in the state. The maximum benefit available to claimants was not relevant to explaining claiming behavior amongst males or females.

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Appendix A. *Specification Tests for Regression on Female Claimants*

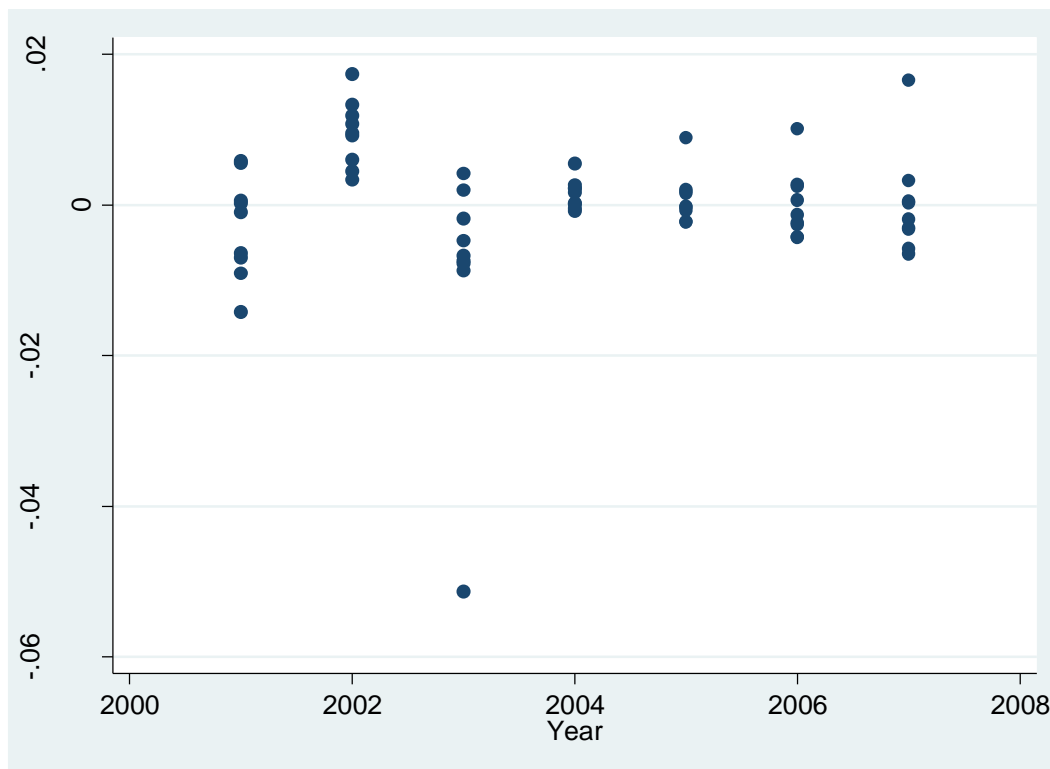
(i) Test for Omitted Variables

Ramsey RESET test using powers of the fitted values of PctClaimantsF
Ho: model has no omitted variables
F(3, 46) = 2.08
Prob > F = 0.1160

(ii) Test for Heteroscedasticity

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of PctClaimantsF
chi2(1) = 81.06
Prob > chi2 = 0.0000

(iii) Autocorrelation Analysis



Appendix B. Specification Tests for Regression on Male Claimants

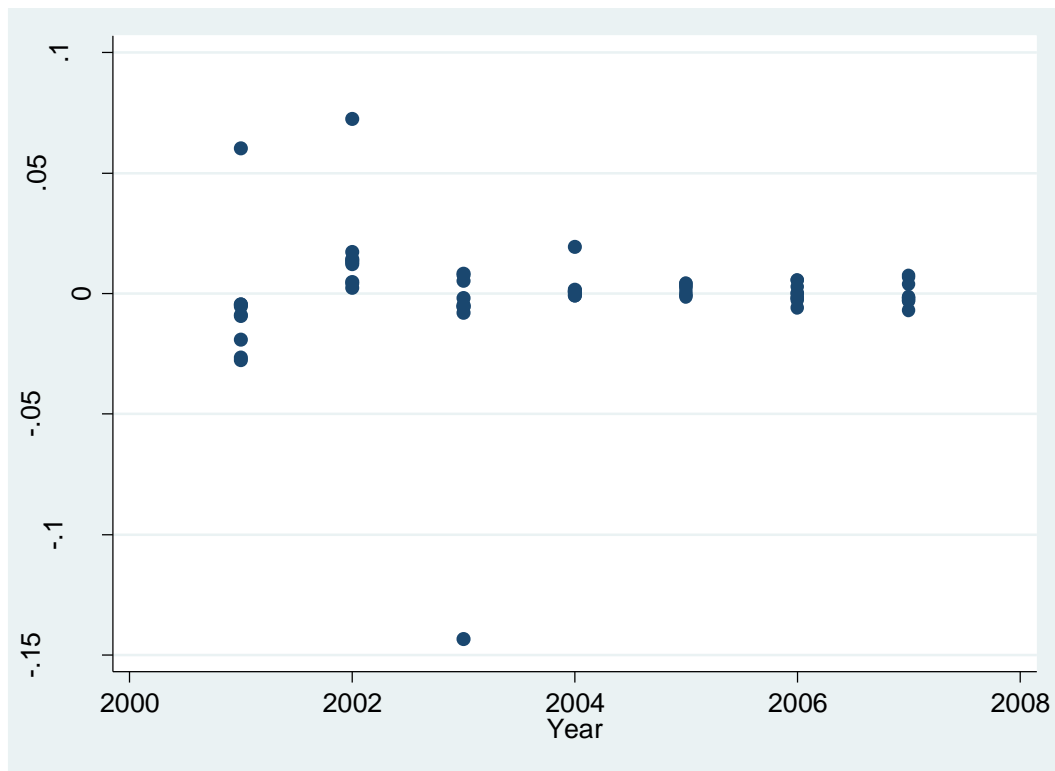
(i) Test for Omitted Variables

Ramsey RESET test using powers of the fitted values of PctClaimants
Ho: model has no omitted variables
F(3, 46) = 23.19
Prob > F = 0.0000

(ii) Test for Heteroscedasticity

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: constant variance
Variables: fitted values of PctClaimants
chi2(1) = 182.68
Prob > chi2 = 0.0000

(iii) Autocorrelation Analysis



CAPITAL TREND INVESTMENTS

FINANCE 315: ADVANCED THEORIES & PRACTICE

Frank Massi, Siena College
Kerry Connelly, Siena College
Tom Hergenroether, Siena College



EXECUTIVE SUMMARY

Purpose:	Investment Portfolio for Clients
Current Assets:	\$1,000,000
Credit Lines:	\$1,000,000
Total Buying Power:	\$2,000,000
Interest Earned Rate:	3%
Interest Borrowing Rate:	8%
Time Horizon:	February 2 nd - April 23 rd
Expectations:	Earn 15% of Current Assets
Risk Tolerance:	High
Spending Policies:	As Opportunities Arise

PORTFOLIO BASICS

As Capital Trend Investors our primary goal is to increase the holdings of our portfolio by roughly fifteen percent over the course of a three to four month period. These abnormal returns will be realized through careful technical and fundamental analysis of various asset classes organized in a diversified portfolio. Our strategy, given this limited time span, is to capitalize on gains aimed at energy, renewable resources, technology, and other potentially expansive markets globally. One of our primary objectives as a business is to target young investors willing to take viable risks in high return asset classes. It is our assumption these individuals have insurance, cash reserves, and the safety of future earning ahead of them to compensate for the risk our portfolio will expose them to. We typically seek equity with high beta values and large payout ratios in expansive sectors/industries with earnings growth potential. Within this introduction we hope to highlight the following:

- Our Policy Statement with Objectives and Constraints.
- Initial strategies and asset allocation
- Adjusted strategies and asset allocation
- Allocation across sectors
- Methods of benchmarking the portfolio
- Economic conditions for trading

Through analyzing our Policy Statement for the first quarter we hope to provide a greater understanding of our success. Given a time period any investment group can experience gains when the market is up. By conceptualizing our strategies and learning from our success we want to prove to our clients we can sustain heavy growth into the future by following the groundwork laid within this prospectus.

POLICY STATEMENT: OBJECTIVE

Objectives:

Capital Trend Investments was established in early January of 2010 with the primary goal of returning roughly 15% over a short three to five month period. Annually we seek returns of 40% - 45%. This is achieved through careful analysis and constant monitoring of the assets held.

Furthermore, we aspire to outperform our benchmark, the Standard and Poor's 500 Index (S&P500) over the long term by a factor of two. Although the S&P 500 only yields on average 8.12% annually (measuring data from 1950 - 2010) we feel this is the most appropriate measurement on a macro basis in America. Benchmarking is further referenced later in the report.

In order to reach these lofty ambitions CTI targets firms based on key criteria. The first of these criteria is simply having a good business model. Companies are thus screened according to their profitability, growth, and positioning in their respective market niche. Among these successful companies we further screen for high beta values, for heightened growth or high payout yielding companies for security and fixed income. We believe this equilibrium of risky growth and safe fixed income adequately balances the portfolio. It also removes part of the non-systemic risk in the market.

Our target market for clients would be individuals with a high risk tolerance. According to our asset allocation we believe our portfolio would be most appropriate for individuals still accumulating or consolidating their wealth. We recommend all of clients have insurance to cover their health and living needs which includes but is not limited to health, disability, automobile and home owners insurance. Prior to making investments we further insist our clients having liquid savings of roughly six to twelve months of living expenses for emergency needs. Since the power of compounding returns and future years of earnings is most evident for those between the ages of 18 to 35 we would target individuals specifically in this age range.

Constraints:

All investments are subject to limitations. For CTI our most limiting factor in regards to the raw dollar value we were able to return was our initial investment could not exceed \$1,000,000 in current assets. We had the option of extending an additional line of credit for another million dollars, however, we chose not to engage in this practice and will provide rational further in the report. The interest rate to borrow this additional million was fixed at 8%.

Another highly limiting factor was the investment period. This began on the second of February and went only until the twenty third of April. This gave only fifty six days of trading and thus limited the depth and diversification we might have achieved with a more extended period. With a longer trading period it can be assumed we would have pursued high yielding bonds, commodities on the futures market, and currencies.

There were also smaller constraints on the portfolio, which did not necessarily affect us directly but played into our decision making. We were allowed 200 trades, and since we used only 92 this had no effect. If the number of allowable trades had been higher we might have been more apt to trade daily. Also there was a standard ten dollar commission fee on all actions taken which we felt was slightly high.

Finally, like all investors, CTI was subjected to the current economic conditions. The sentiments of the market are inextricably linked to the social, financial and political nature of not only America, but the entire planet. Our portfolio was thus constrained by both the positives and the negative elements seen in the market in the given time period.

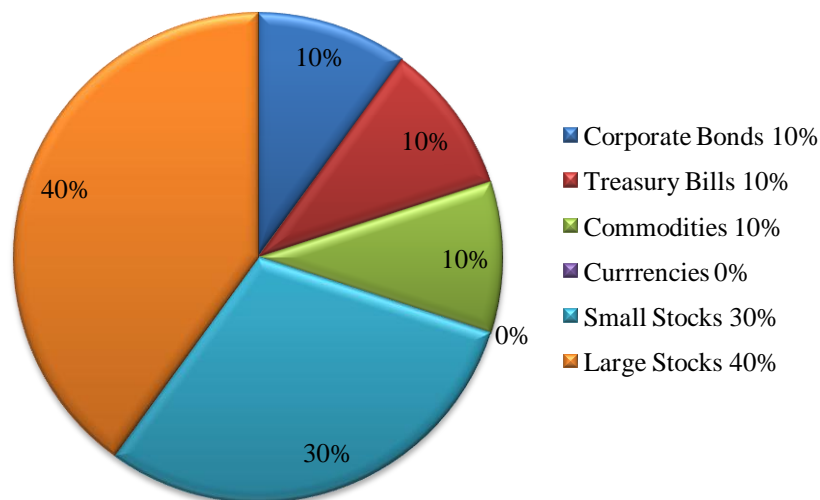
INITIAL INVESTMENT STRATEGY

Originally we wanted to have the conservative security bonds and treasury bills offer as we initiated our investments. This would bring in fixed income in the short term regardless of the market conditions. We did not want to merely jump into the market expecting growth since there are many concerns still plaguing the United States economy. The unemployment rate is above 10%, we are coming out of a recession, and under the current executive administration taxes have been hiked. There is also considerable turbulence based on the European Debt crisis unfolding specifically in Greece. We therefore wanted to have the security and fixed returns both short term bonds and treasury bills could offer. This will also balance our riskiness in equity. Since we would only select them on a short term basis, this will give us the flexibility and liquidity of moving the capital to more profitable endeavors if the market conditions improve.

We wanted to hold commodities over the entire time period, specifically in precious metals such as gold and silver. This investment we put forth in commodities would serve as a hedge against inflation towards the dollar. Since the dollar has been weak and the treasury has been increasing the amount of currency in circulation we feel this is a safe investment likely to yield a favorable return. This inflation is a rising concern for many contemporary investors over the past two years and has led to both gold and silver seeing high volatility and returns.

In time, we plan to move our money out of Treasury Bills into more profitable securities, depending on the market conditions. The majority of the portfolio will be manifested through large and small company equities which will be carefully chosen to balance the portfolio. We want to select the stock based on high beta, payout ratio, and growth potential in profitable entities. We are particularly keen on energy, renewable resources, technology and other expansive markets.

INITIAL ASSET ALLOCATION



Major Asset Classes	Percentage	Dollars Allocated
Corporate Bonds	10%	\$100,000
Treasury Bills	10%	\$100,000
Commodities	10%	\$100,000
Currency	0%	\$0.00
Small Stocks	30%	\$300,000
Large Stocks	40%	\$400,000

ADJUSTED INVESTMENT STRATEGY

After establishing ourselves in the SPDR Gold Trust for the duration of the trading period we began to deviate significantly from our initial plans. The market became highly volatile and after a small dip early on sustained significant growth for the extent of our investment horizon.

We quickly decided against our plan to invest in treasury bills since they would yield less than the 3% we would achieve for merely leaving the money in the account and doing nothing. Also, we felt the inflation rate would tear into any earnings treasury bills could possibly offer.

As a group we further believed we did not have an appropriate time horizon to invest in debt. In order to truly experience compounding coupon payments from bonds at our required rate of return we would need years rather than months.

The difficulty then became compensating for the risk and fixed payments. We selected a number of stocks, including NuStar Energy, Kinder Morgan, Verizon Communications and the Energy Income Growth Fund. All of these paid dividends with a yield of over 6.5% and had beta values under .7 and are considered stable, less risky equities. This gave us fixed dividend payments over the time period which are similar to what bonds and treasury bills can offer but are higher yielding. These low beta values also brought balance to our level of riskiness.

This variation in equity caused us to remove our expected investments in small stocks and place them in larger safer ones. The major large cap stocks we invested in were Apple, General Electric, Citigroup, and JP Morgan Chase.

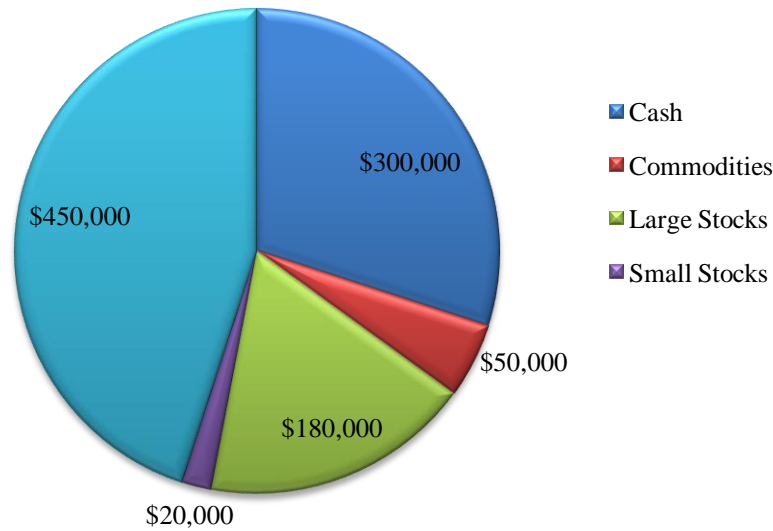
The most significant change made from our initial strategy was the decision to trade options. Since the volatility was high and the market was rapidly increasing in overall value the market conditions seemed ideal for options trading. Volatility and options trading are further referenced later in the report. All of our options were in large cap stocks and the most traded ones were Apple, Goldman Sachs, Google, JP Morgan Chase, and Citigroup.

Since forty five percent of our portfolio was through options trading we needed to hold another thirty percent in cash reserves. The purpose of this large cash holding was used to purchase our calls and to take advantage of numerous contracts when purchasing options. This strategy allowed us to control significantly more shares of a given stock than we could have by merely purchasing the stock at face value.

Furthermore, the increased cash reserves gave us the flexibility and liquidity necessary to react to the market. As investor sentiments rose on particular trading days we were able to capitalize early in the morning and realize sizable profits. This was due to two main factors: investment related material being released and high Alpha Jensen correlations with the market.

Since Apple was one of our most profitable endeavors we can use them as an example. When they released the i-pad and their earnings we made sure to have open contracts well in advanced anticipating positive market reactions. We ran their Alpha Jensen analysis for one year, having 250 observations from 2009 - 2010. Their stock correlated with the movements of the NASDAQ over 72% of the time. Since the NASDAQ was seeing such growth, and the one year beta of Apple from our analysis was only slightly over one we concluded this stock was poised to see massive growth in the short term. Also their beta is calculated publically at 1.52, which is much higher than our calculations. Their t-stat was just under 2 and we therefore believed it was improperly undervalued. We thus felt the stock had the potential to earn higher returns with the expectations of the market, yet we were experiencing less risk than the rest of the market likely anticipated.

ADJUSTED ASSET ALLOCATION



Major Asset Classes	Percentage	Dollars Allocated
Cash	30%	\$300,000
Commodities	5%	\$50,000
Large Stocks	18%	\$180,000
Small Stocks	2%	\$20,000
Stock Options	45%	\$450,000

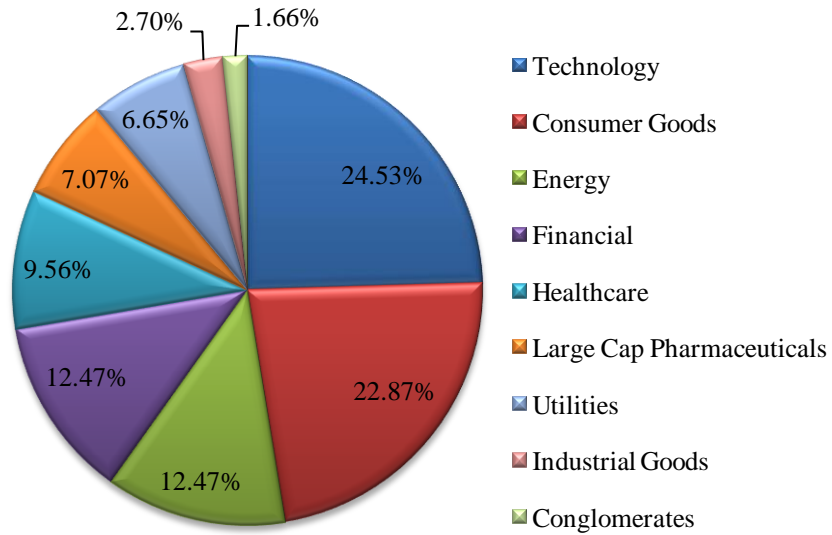
ALLOCATION BY SECTOR: ANALYSIS

Considering the vast majority of our holdings were based in equity CTI felt it was in the portfolio's best interest to be diversified across a variety of sectors. This would eliminate some of the systemic risk in the portfolio. If one particular sector had a shortfall in expectations or excessive sudden costs it would mitigate the losses.

Our largest weights were in Consumer Goods and Technology. Our technology based stocks were Apple, Verizon, and Suntech power. Utilities and Energy comprised a large percentage as well and this was due to the large dividends they pay. Also, we felt as the price of oil rises these companies will see high returns. Also we tried to seek companies who are heavily based in renewable energy. To accomplish this we invested in both Suntech Power and General Electric. In recent years GE has been moving aggressively into the renewable market through their promotion of both solar and wind technology. Their wind turbine sales saw a major gain during our trading period when they signed a \$450 million contract to install 2.5 mega-watt units off the European coast.

As the trading period went forward we became leery of financial based stocks such as Goldman Sachs, JP Morgan, and Citigroup when the market gained significantly. These stocks were all soured by the debt in Europe. After we sold Goldman Sachs the Securities and Exchange Commission filed a case against them for unethical internal dealings. After this information came out and the banking legislation was brought to the forefront of political debates again we felt it was in our best interest to not pursue financials due a bleak outlook. Our fear was as the hearings on Goldman Sachs continued the government would be urged to investigate the entire sector which would certainly result in lower stock prices.

ANALYSIS BY SECTOR: GRAPHICALLY
Overall Allocation throughout the Time Horizon (equity)



Sector	Percentage	Dollars Allocated
Technology	24.53%	\$59,000
Consumer Goods	22.87%	\$55,000
Energy	12.47%	\$30,000
Financial	12.47%	\$30,000
Healthcare	9.56%	\$23,000
Large Cap Pharmaceuticals	7.07%	\$17,000
Utilities	6.65%	\$16,000
Industrial Goods	2.70%	\$6,500
Conglomerates	1.66%	\$4,000
	100.00%	\$240,500

INVESTMENT CHARACTERISTICS

Over the time period CTI sought a variety of companies to invest in based on different levels of risk. When analyzing equity we first looked for strong profitable entities operating in unsaturated markets. We particularly looked at their ability to grow not merely in the short term but also on an annual basis. Specifically we made sure their 1 year expectations were high.

Since the markets were trending up so much we also wanted stocks with both a high beta and a high Alpha Jenson so they would not only correlate with the market but have the potential to outperform it. To balance these high beta stocks we chose a group of core energy and utility based companies such as NuStar Energy, Kinder Morgan, and the Energy Income Growth Fund. As previously stated all these stocks paid dividends with a yield of over 6.5% and had beta values under .7.

The standard deviation for our portfolio was roughly 19% compared to the market of .762% which is a testament to our ability to invest in profitable companies. From this we calculated a sharp ratio for the portfolio of 2.06. The sharp ratio is used to measure excessive return per unit of total risk. The sharp ratio for the S&P500 8.20, and we were unable to outperform the market in this regard. To further measure the portfolio the Treynor ratio is designed to measure excessive return per unit of systemic risk. CTI's Treynor ratio for the portfolio was 27.19% while the markets was 6.26%.

BENCHMARKING: ANALYSIS

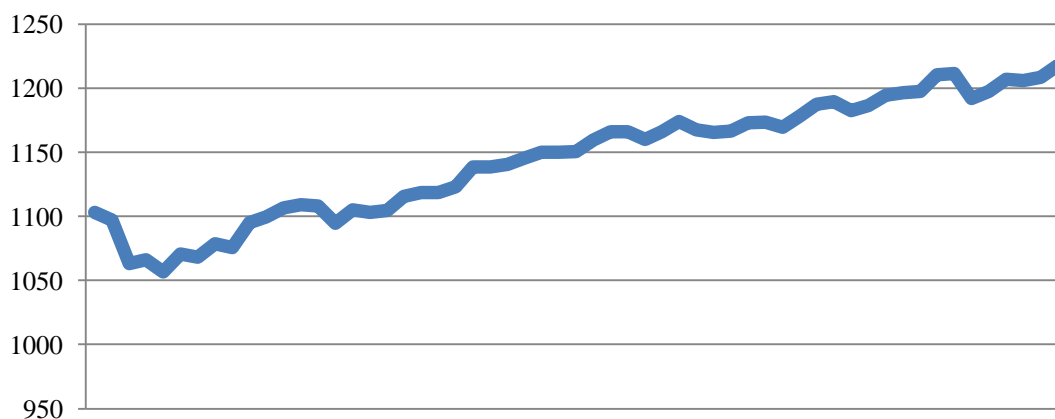
For our benchmark we used the Standard and Poor's 500 index. This is a weighted index of 500 large cap American equities initiated in 1923. The data, beginning in 1950 (on yahoo finance), when analyzed from monthly data yields roughly .6787%. This translates to a historical annual return of about 8.12%. Since the past three month period yielded 10% it can be assumed this was abnormally high for such a short period compared to the historical value. However, it is not too abnormal since the markets are resetting from the 2008-2009 recession.

We believe the S&P 500 is an adequate benchmark since the vast majority of our equity, both in stock and options were traded in large cap companies. Also the S&P 500 is highly diversified and therefore a good indication of the overall market trends in America.

Our goal was to at least double the return of the market. Since the market only earned 10% and our portfolio earned over forty percent we outpaced the S&P 500 benchmark significantly. With the calls we had on many of our options we even had the potential (on more than one occasion) to more than double our portfolio value reaching above the \$2,000,000 mark. This unprecedented success was not realized due to the conservative protective nature of our analysts who wanted to ensure positive returns rather than gamble them away.

BENCHMARKING: GRAPHICALLY

S&P500 Gains from 2/2/10 – 4/23/20



Overall, from February 2nd to April 23rd of 2010 the S&P500 gained roughly 10.00%. It began its ascent from, just over 1100, fell nearly to 1050 and then rose steadily to about 1220. This was an impressive stable run and was mainly due to high earning reports, favorable market conditions, high volatility, and positive investor sentiments.

ECONOMIC CONDITIONS

The economic outlook beginning in February of 2010 and lasting until March was one we approached with caution and conservatism despite our appetite for risk. With the memory of the recession in 2008 and 2009 stocks appeared to be trending positively and regaining some of the losses. Even so, there is roughly 10% unemployment in the United States, unfavorable banking/financial legislation being forced through the legislature, and high taxes under the current administration. The price of energy is also expected to rise along with inflation in the coming year. With this in mind we proceeded with caution. Overall, we had exceedingly favorable market conditions considering our expectations. In general the S&P 500 was up roughly 10% while the Dow Industrial Jones Average was up 8.58%.

The first major event to hit the market was the Toyota recalls for faulty breaking systems. We sold Toyota short, however, it yielded practically nothing since we bought it too low. Had we reacted quicker to the announcement and shorted the stock sooner we could have realized a higher gain. This had a negative impact on the market overall.

While we had open calls on Apple, the company released their highest earnings ever at \$3.1 billion, in the non holiday season. This drove their stock to new highs and since we bought our options at \$205, with a strike of \$210, holding 400 contracts this investment decision proved to be highly profitable. We failed to make as much as we potentially could have by selling off lots of 100 to 50 contracts at a time in order to realize earnings as we went along for safety. Later on in the trading period Apple released the i-pad, which beat all expectations in sales. This drove their stock to new heights and we traded numerous options at various strike prices.

There has been a growing concern over the debt in Europe which seems to be centered on the nation of Greece. This has caused the Euro to fall over 5% relevant to the dollar. The entire world has been hit hard at the reality Greece would be unable to meet their sovereign debt obligations. In order to compensate for this loss they had to offer over \$75 million in bonds so far in 2010. This represents over 20% of their overall Gross Domestic Product (GDP). This seems like a bad situation poised to get worse considered the facts: an already debt ridden nation was forced to take out even larger loans to pay off the current ones.

Another significant event occurring within our trading horizon was the passing of the healthcare bill on Sunday March 22nd. The vote was 219 to 212 democrats to republicans respectively. We figured the market would respond unfavorably to the outcome of this decade long battle for healthcare reform. To accomplish this we shorted the Dow Jones Industrial Average. This had devastating effects and we proceeded to lose over \$100,000 through this transition. This marked the lowest point on CTI's progress and was our poorest performing investment choice. After sustaining the losses for a few days we sold and began a challenging recovery.

The final major event which affected both the market and our trading decisions was the Security and Exchange Commission's filings against Goldman Sachs. This knocked their stock down considerably from over \$180 to under \$145 a share. We eliminated financial and banking based equities from our portfolio at this point. Since significant gains had already been made it seemed too risky. Our predictions were the hearings would rouse the issues of banking reform which would negatively impact the financial sector.

VIX vs. S&P500: GRAPHICALLY



The past three months have seen some dramatic events (previously noted) that have reflected on the volatility of the market. As you can see from the chart above, of the Chicago Board of Options Exchange's (CBOE) Volatility Index (VIX) denotes the volatility of the market over a given period. The VIX has an inverse relationship to the S&P 500 benchmark. With all of the economic factors mentioned, we believed that the market would be extremely volatile and we wanted to capitalize on this by trading both equity and options.

OPTIONS ACTION: ANALYSIS

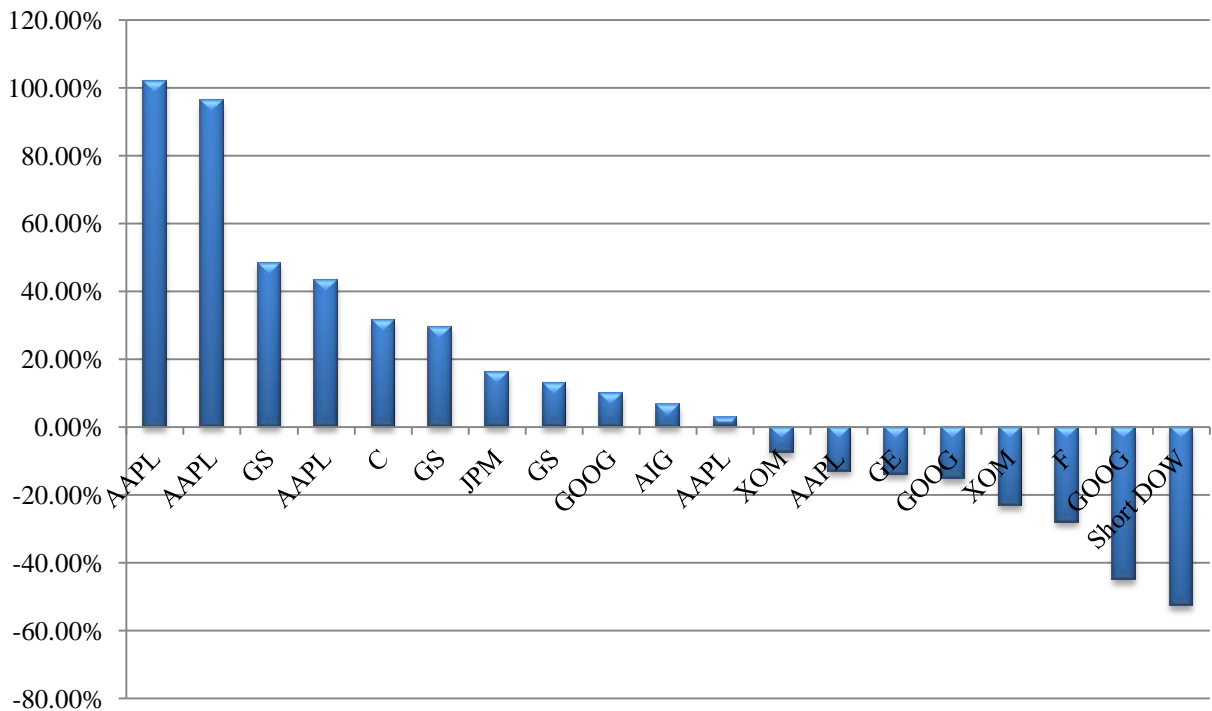
We decided to trade options for several fundamental reasons. First, options can be used to hedge a portfolio by using protective puts as we did unsuccessfully when we bought puts against the DJIA ETF. Secondly, options provide an enormous amount of control for a small amount of capital. A stock option is the right but not the obligation to buy (a call) or sell (a put) stock at a given price called the strike price. For example, Apple Inc. was our largest holding which we purchased four separate times for various expiration dates. On average we bought 300 contracts which control 100 shares of stock each, or 30,000 shares. This transaction only cost us a mere \$300,000. If we were to buy the same amount of stock at a strike of \$240, it would have cost \$7,200,000. This of course would have been unrealistic considering we were only allotted \$1,000,000; options were the only way to be able to control such a large amount of stock. We decided not to trade on margin simply because options, in our belief, are a far superior and safer way to trade. Buying on margin requires borrowing money from a broker at an 8% interest rate. If the trade ever dropped below the margin requirement then we would not only lose our initial investment but we would still have to pay the 8% interest fee.

The reason call options have so much upside potential is really simple, when a stock reaches the strike price it goes up dollar for dollar with the stock, this is why AAPL was so profitable for us. We anticipated the iPhone sales would increase dramatically as well as the sales from the newly introduced iPad causing a boost in the stock price; it was this reason we weighted AAPL so heavily. If you look at our holdings, our overall return for AAPL was a respectable 38%; however our options on AAPL returned 400%. Options are much riskier than the underlying stock they derive from. Throughout the 56 trading days we kept a careful watch on our portfolio especially the options. Whenever the facts changed or the news about the market looked bleak we reacted immediately by selling to cut our losses as noted by chart below. This is the reason for all of the options that lost money for the most part only 10%-15% of their value.

Our biggest loss came from the puts on the DJIA ETF. It was our belief that the market's increase over the first two months of trading was too swift and a correction was eminent. We were of course wrong about this and quickly sold the contracts. Overall, our profits from options amounted to \$380,720 which equates to 89.41% of our total profits.

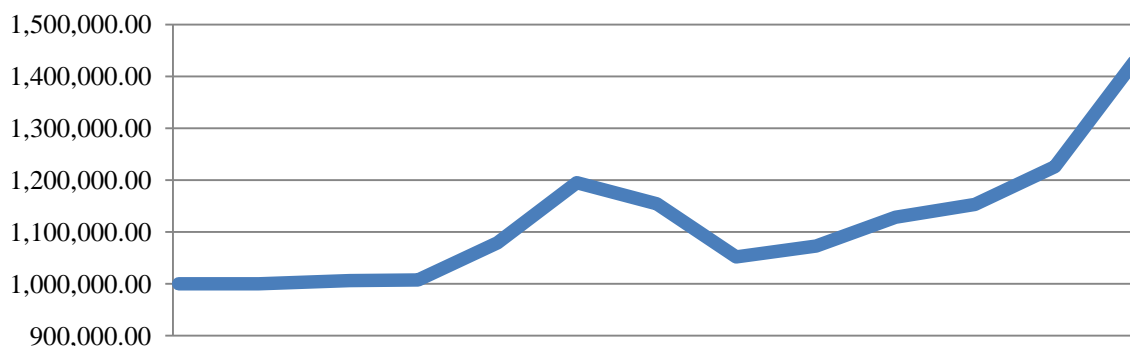
OPTIONS ACTION: GRAPHIC

Percentage Gained or Lost for Options held



ENDING PORTFOLIO VALUE

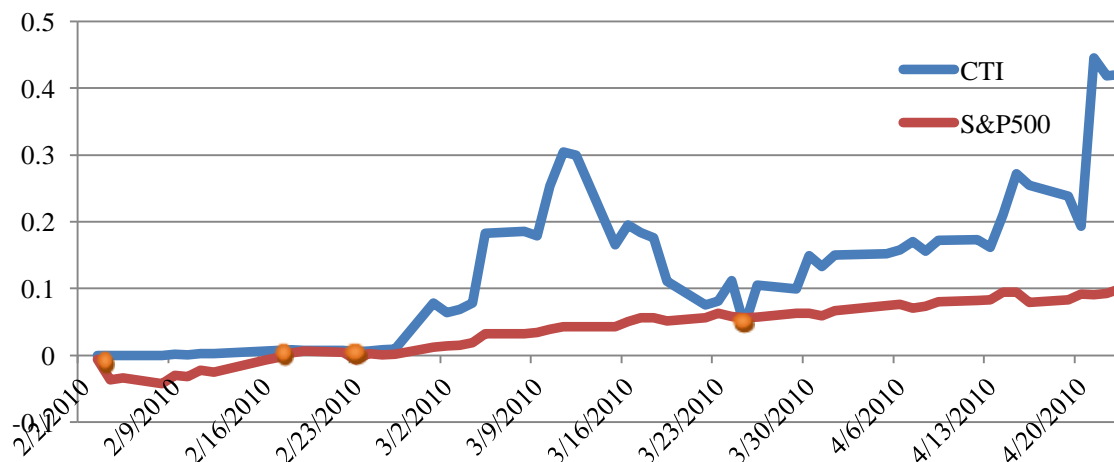
CTI Portfolio Performance From February 2nd – April 23rd 2010



In the above graphical representation you can observe the overall performance of CTI over the 56 days of trading from the 2nd of February to April 23rd 2010. In the beginning we saw moderate growth. Upon opening the contracts on Apple we saw significant gains. After shorting the Dow and having an unfavorable call on Google, that we failed to sell at the proper time, we practically dropped back to our starting point. From there on out our stocks saw large increase as well as our Apple option calls.

CTI PORTFOLIO vs. S&P500

Percent Return for CTI and the S&P From February 2nd – April 23rd 2010



This graphic is meant to depict the percentage of returns for CTI in comparison to the S&P 500 benchmark. As you can see there are only a few points (marked in orange) where CTI correlates closely to the market. This led us to infer our Alpha Jensen analysis would likely have an abnormally low R^2 value. As we postulated, the R^2 was only 13.35%. This is meant to show the correlation of CTI with the S&P. Since we outperformed the index by over 30% it would be assumed our movements would not typify those of the market.

Our ending portfolio return of 42.97% was compared to the S&P which returned 10% over the same time period. Therefore, our total excessive return was 32.97% over the benchmark. From the \$1,000,000 starting value we made \$429,700 in profits for our clients.

PORTFOLIO INTERPRETATIONS

When the trading period of 56 days had concluded we conducted an Alpha Jensen analysis in order to measure the excessive return at a given level of systemic risk. Our findings yielded the following results:

Multiple R	0.36546373 9
R Square	0.13356374 5
Adjusted R Square	0.11751862 9
Standard Error	0.04867594 9
Observations	56

	Coefficients	Standard Error	t Stat	P-value
Alpha	0.00539	0.00652	0.8277 2	0.41147 2
Beta	1.4283	0.49505	2.8851 8	0.00561 1

We based the regression output on the percent returned from CTI, the S&P, and the ten year treasury bills over the period traded. The most important values we analyzed are highlighted in blue. CTI followed the movements of the S&P 500 roughly 13.35% of the time shown in the R^2 . As previously stated, this is what we would have expected since we outperformed the market by over 30%. The alpha coefficient of .005 is insignificant, since it is so low, and shows there are no excessive returns. The portfolio beta is about 1.43. This is higher than the market average of 1 and shows we are a high risk portfolio like expected. The final t-stat value of .82772 is insignificantly low. From this it can be assumed the portfolio is properly valued.

FUTURE OUTLOOK

Going forward CTI will look to expand further on their growth from our first quarter of success. We plan to learn from our mistakes and look to amplify our triumphs. Our first move toward the future will be to secure long term contracts on Apple, Goldman Sachs, and JP Morgan due to our belief they are still notably undervalued. Our portfolio will be balanced between high beta stocks and stocks with large payouts. The overall beta of our portfolio will likely increase slowly over time and our high risk status as an investment fund for clients will continue to target young professionals. Over the next year we aspire to increase our Sharp ratio to 3.00 to have a better return per total unit of risk. Finally, we look to maintain our daily dedication as traders and analysts and will continue to place market stops and holds to safeguard gains and limit losses.

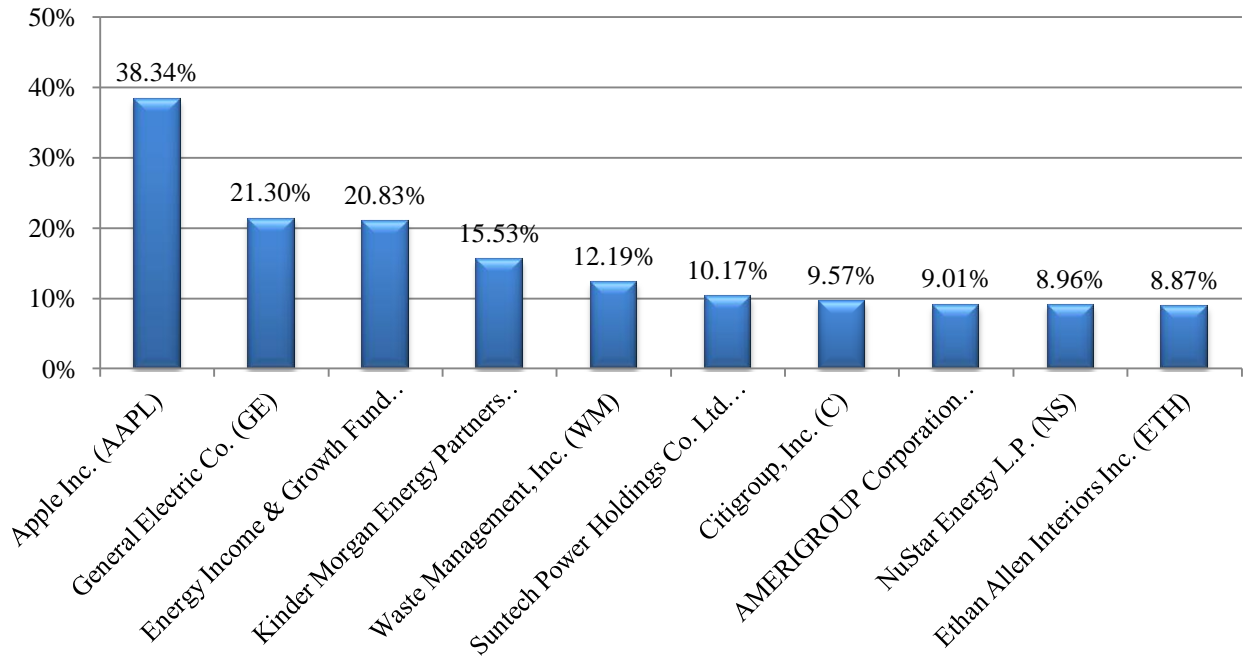
REFERENCES

The following list of sources is where we found the information included within this report:

- Yahoo Finance
- Reuters
- Thompson One
- Bloomberg
- MSN Money
- Grain Guide
- Ameritrade
- Google Finance
- Logo Artwork by Phillip Hartshorn

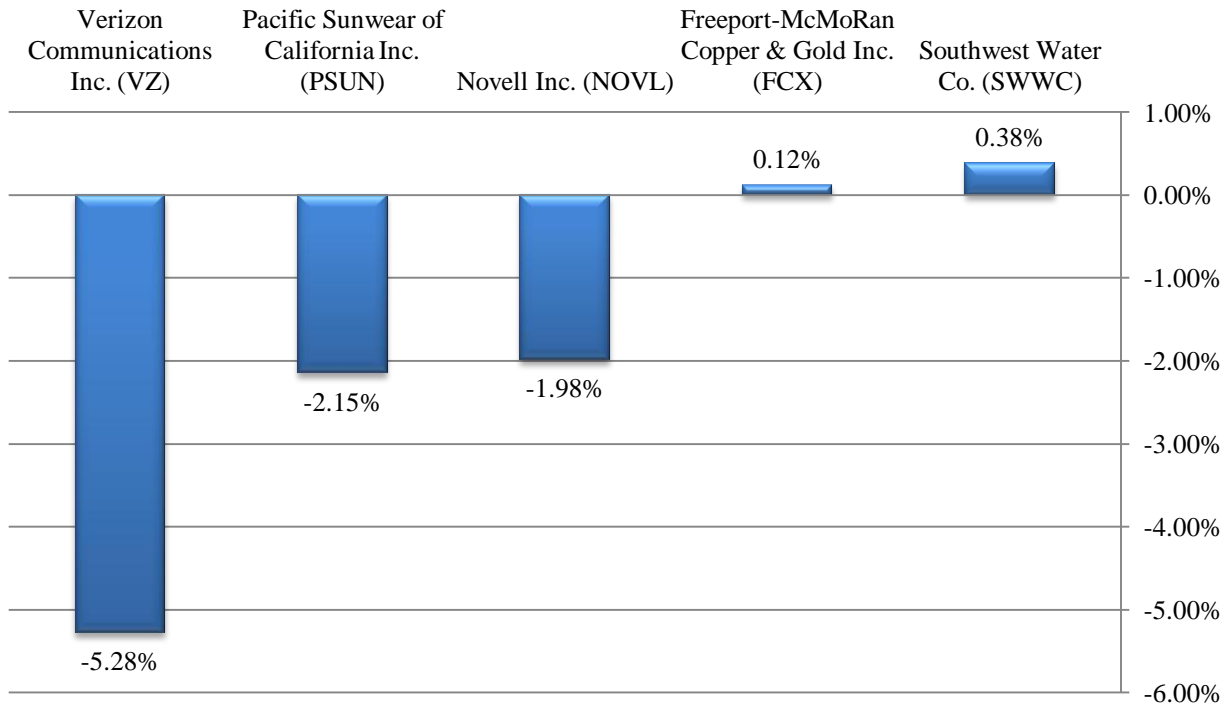
TOP TEN PERFORMERS

Breakdown graphically by the top ten performers according to the percentage gained



POOREST EQUITY PERFORMERS

Breakdown graphically of the bottom five performers according to the percentage gained/lost

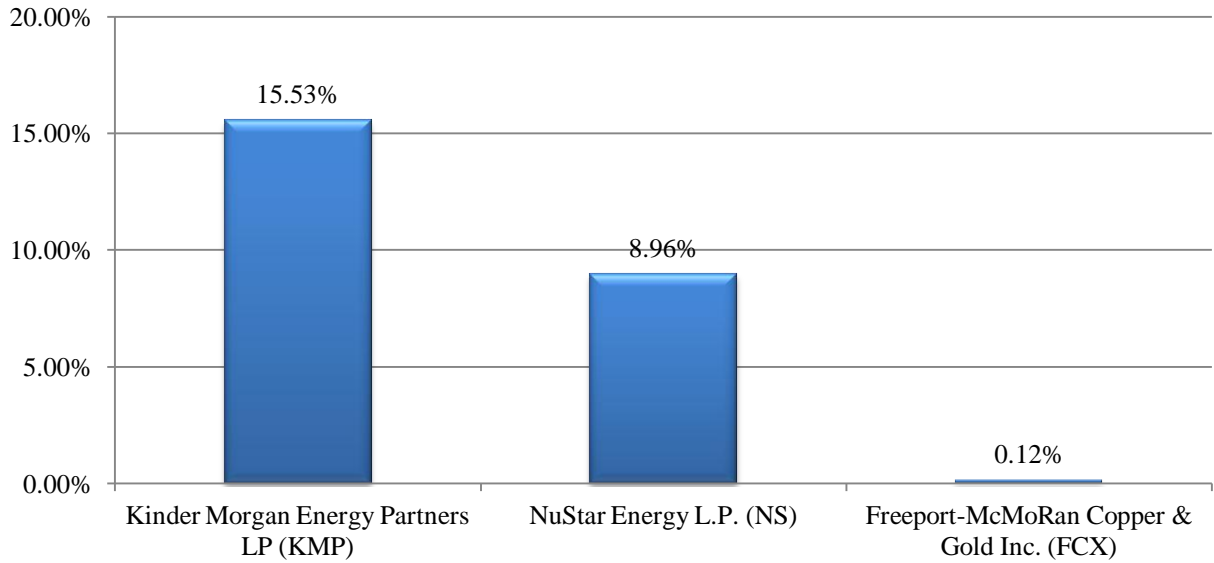


EQUITY PERFORMANCE: BY SECTOR

Stock	Sector	Initial Value	Ending value	Percent Changed
Kinder Morgan Energy Partners LP (KMP)	Basic Materials	\$6,002	\$6,934	15.53%
NuStar Energy L.P. (NS)	Basic Materials	\$16,180	\$17,630	8.96%
Freeport-McMoRan Copper & Gold Inc. (FCX)	Basic Materials	\$40,435	\$40,483	0.12%
SPDR Gold Shares (GLD)	Commodities	\$41,742	\$45,276	8.47%
General Electric Co. (GE)	Conglomerate	\$4,741	\$5,751	21.30%
Ethan Allen Interiors Inc. (ETH)	Consumer Goods	\$55,300	\$60,205	8.87%
Energy Income & Growth Fund (FEN)	Financial	\$22,085	\$26,685	20.83%
Citigroup, Inc. (C)	Financial	\$3,240	\$3,550	9.57%
JPMorgan Chase & Co. (JPM)	Financial	\$27,303	\$28,057	2.76%
AMERIGROUP Corporation (AGP)	Healthcare	\$23,033	\$25,109	9.01%
Eli Lilly & Co. (LLY)	Healthcare	\$17,215	\$17,975	4.41%
Waste Management, Inc. (WM)	Industrial Goods	\$6,390	\$7,169	12.19%
Fuel-Tech, Inc. (FTEK)	Industrial Goods	\$8,110	\$8,660	6.78%
Pacific Sunwear of California Inc. (PSUN)	Services	\$15,380	\$15,050	-2.15%
Apple Inc. (AAPL)	Technology	\$58,732	\$81,249	38.34%
Suntech Power Holdings Co. Ltd. (STP)	Technology	\$10,128	\$11,158	10.17%
Verizon Communications Inc. (VZ)	Technology	\$34,882	\$36,398	4.35%
Novell Inc. (NOVL)	Technology	\$6,050	\$5,930	-1.98%
Verizon Communications Inc. (VZ)	Technology	\$24,642	\$23,342	-5.28%
Southwest Water Co. (SWWC)	Utilities	\$20,870	\$20,950	0.38%

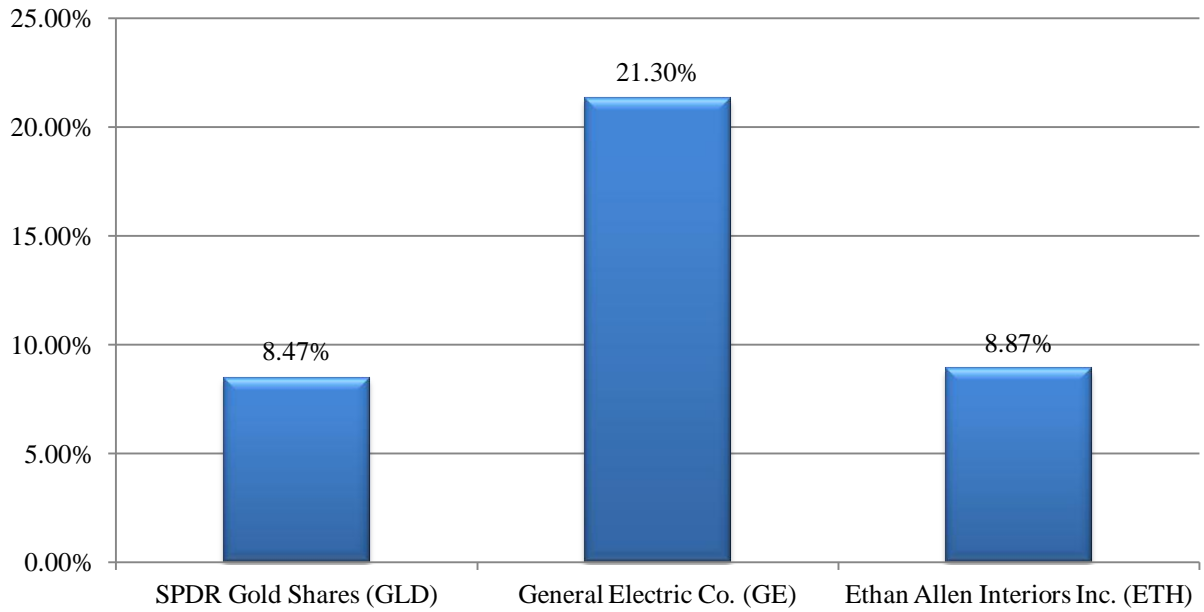
EQUITY PERFORMANCE: BASIC MATERIALS

Basic Materials by Percent Earned



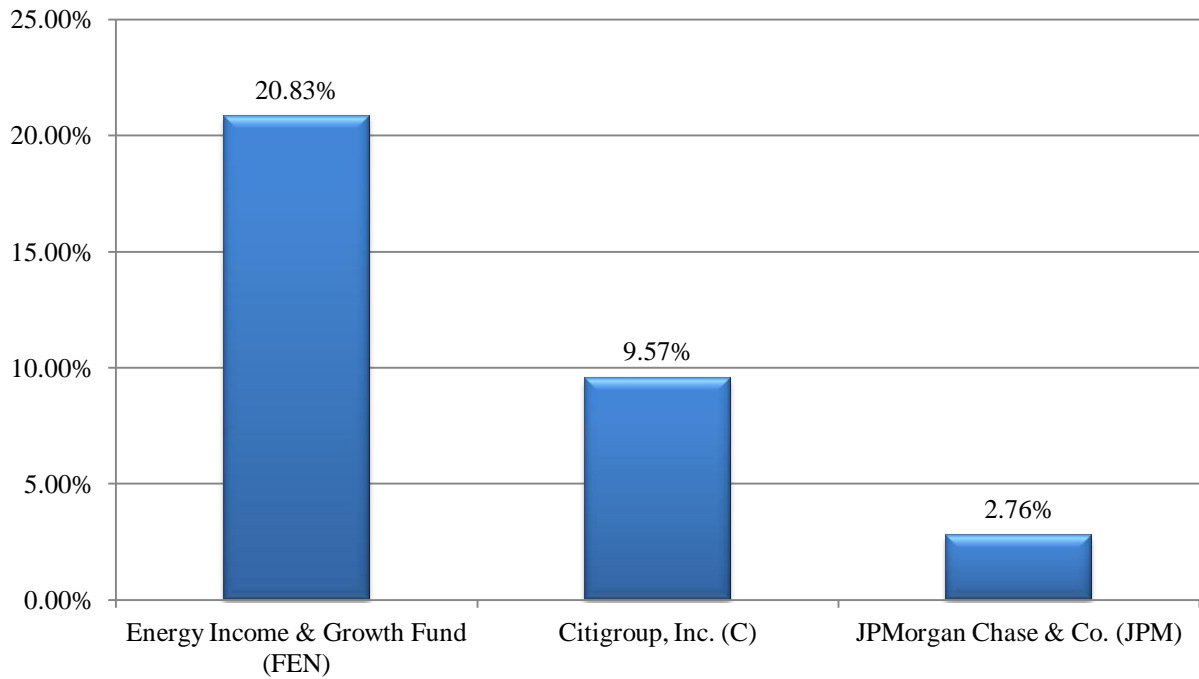
EQUITY PERFORMANCE: MISCELLANEOUS

Commodities, Conglomerates, & Consumer Goods



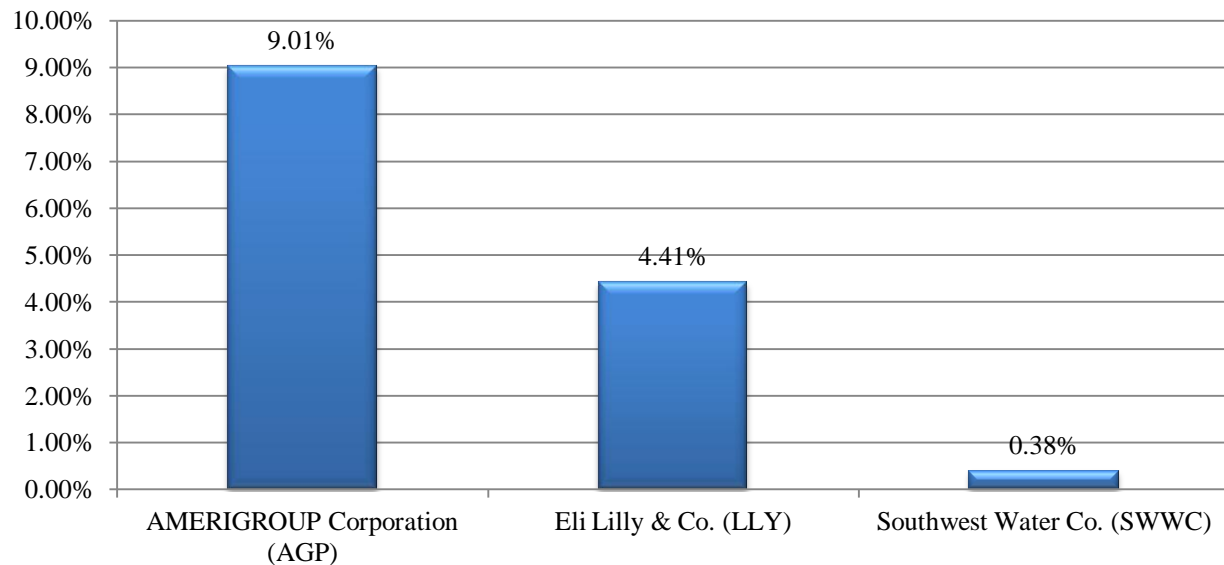
EQUITY PERFORMANCE: FINANCIAL

Financial Sector by Percent Earned



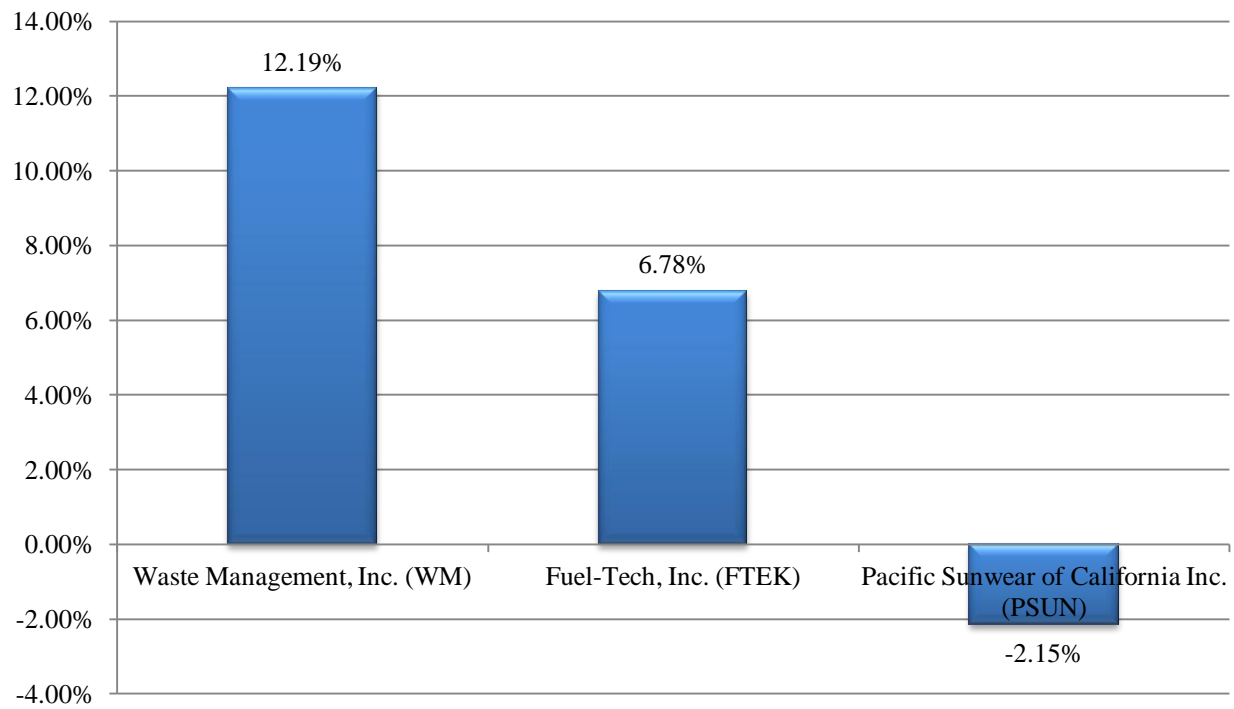
EQUITY PERFORMANCE: HEALTHCARE & UTILITIES

Healthcare & Utilities by Percent Earned



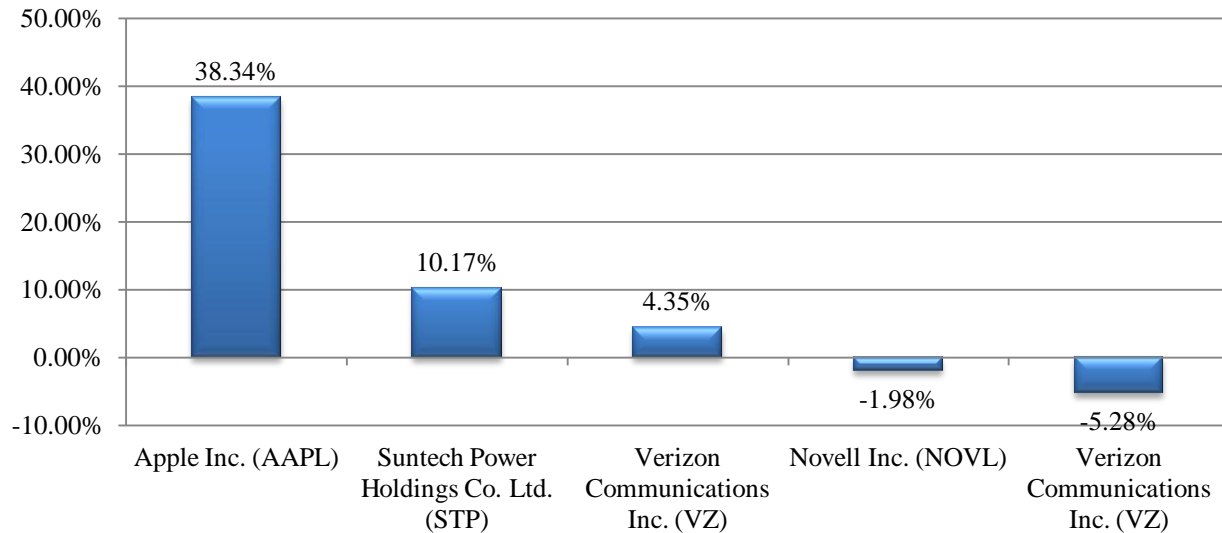
EQUITY PERFORMANCE: INDUSTRIAL GOODS & SERVICES

Industrial Goods & Services by Percent Earned



EQUITY PERFORMANCE: TECHNOLOGY

Technology Sector by Percent Earned



ANALYSIS PROFILES

Frank Massi

Frank is a highly aggressive investor who prefers investing in small and large stocks with high volatility that appear underpriced compared to their historic values. He also believes physical commodities are an excellent way to hedge against inflation and are essential to a well balanced portfolio. Frank is currently a junior at Siena College majoring in Finance and Accounting. Upon graduation in May of 2011 he looks forward to pursuing a master's degree in accountancy.

Kerry Connelly

Kerry overall is a moderate risk investor, but is not afraid to buy on margin or trade options if the conditions are favorable. His forte is in the stock market and likes to hedge using ETF's as well as commodities. Kerry is a junior at Siena College majoring in Finance and will be looking to pursue a career in Finance.

Tom Hergenroether

Tom is a moderate risk taker who in an effort to reduce risk is looking for a well balanced portfolio. He is looking to invest primarily in the stock and bond markets, combining both small and large company securities. He is a junior Finance major at Siena College and is looking to be a financial planner upon graduation.

GROSS JOB CREATION: WHICH ECONOMIC FACTORS FACILITATE THE JOB CREATION GROWTH IN THE UNITED STATES?

Cory W. McIntosh, Siena College

Abstract

This paper examines the economic factors that influence gross job creation in the United States Economy. It is modeled on previous literature on net job creation and related topics and attempts to explain job creation in gross numbers, thereby ignoring job destruction. Conventional wisdom would suggest that job creation numbers would be highest during periods of economic expansion; therefore some of the variables include retail trade, real GDP growth, and the civilian unemployment rate. Also, variables such as the US Dollar Index and the Capacity Utilization rate were introduced into the model to try and find if other economic factors positively affect gross job creation. In the second half of this analysis, we consider Caballero and Hammour's hypothesis that gross job creation would be highest during recessionary periods by running a similar regression using observations from the two most recent US recessions.

Background

Discussions on the health of the United States Economy since the Great Recession have largely focused on the creation of jobs. This study explores what economic conditions are best for facilitating the creation of new jobs using empirical evidence. Since the United States economy is dynamic and is in a constant state of change, policy makers must understand what factors increase job creation so that government policy can focus on these issues. In this analysis, several different economic indicators that represent areas across the economic field will be used to try and find the causes of increased job growth during some periods and declines during others.

Previous studies on job creation have focused on net job creation, which is the overall difference between new jobs created and existing jobs destroyed. I argue that this can be an ambiguous value for the following reason: Net Job Creation can take on the same value in a period of high job creation paired with high job destruction, as a period with less job creation but also less job destruction. Since observing job creation as a net value may not explain the overall level of new jobs created, the focus of this study will be gross job creation, thereby ignoring job destruction entirely.

Since Gross Domestic Product is one of the key indicators of US economic performance, it would intuitively influence job creation, which is often viewed as a result of favorable economic conditions. In previous studies, Real GDP had a significant positive correlation with Net Job Creation. In their study, Davis and Haltiwanger concluded that Real GDP growth would be consistent with Growth in Net Job Creation and therefore both variables would be cyclical. Further, Job Creation would be relatively stable during recessions but experience stronger growth during expansionary periods (Davis and Haltiwanger, 1990). Since this model is only concerned with Gross Job Creation, the expected result is also a cyclical pattern correlated with Real GDP growth, but unlike job creation all values will be positive.

An alternate hypothesis states that job creation would be at its highest during recessions. Caballero and Hammour asserted in their study that because opportunity costs would be lowest during economic downturns, an efficient market would see large amounts of job destruction and also strong growth in job creation. During a process they termed "creative destruction", inefficient jobs in dying markets would be eliminated and resources would be reassembled toward more efficient, technologically advanced jobs in growing fields (Caballero and Hammour, 1996). Intuitively, there would be a large spike in gross job creation during periods of negative real GDP if this hypothesis were to hold true. To examine this, an additional regression was run using observations from the two most current recessionary periods in the United States with an expected negative coefficient for Real GDP growth.

The next variable that was included in this model was Bank Prime rate for loans. Although previous literature on net job creation did not include interest rates as an explanatory variable, my hypothesis includes them as a potential significant variable. Since lower interest rates allow companies to borrow money at a lower cost, the number of business startups and company expansions would increase when rates are low. A higher number of startups and expansions would lead to an increase in new jobs, and thus gross job creation growth as well. The purpose of using the Bank Prime rate was that it generally reflects the overall level of all interest rates including credit available to small business and commercial paper rates. Since the federal funds rate is often influenced strongly by monetary policy and not necessarily by the market, I believe that the Bank Prime rate will serve as a better proxy for aggregate interest rate levels.

Unemployment levels were also used to explain variance in gross job creation in my model. Previous literature has compared job reallocation rates to unemployment levels but none has directly compared gross job creation levels with unemployment. In their analysis, Davis and Haltiwanger found that job reallocation rates were positively correlated with the unemployment rate. During times of high unemployment, jobs and capital would flow between establishments and sectors leading to job creations in other areas of the economy (Davis and Haltiwanger, 1990). I believe this to be counter-intuitive and that gross job creation would be highest at low unemployment levels when existing jobs are filled. Also, economic conditions are generally favorable during low unemployment periods. The logic is as follows: Less unemployment would lead to more workers having disposable income. Higher levels of disposable income would cause overall consumer demand to spike, leading firms to increase production. Since unemployment is low and existing jobs are filled, new jobs would be created to meet market demand and therefore gross job creation would experience a significant growth. Since job reallocation is only a component of overall gross job creation, I still expect to find a significant negative relationship between gross job creation growth and the unemployment rate. However, in the supplementary regression where observations from the two recent recessions were used, Davis and Haltiwanger's assertion that job reallocation would increase when unemployment is high may hold true and show a significant positive relationship.

Retail Trade was also introduced as an explanatory variable in my model. Retail Trade is often used as an alternative barometer to the economy's performance rather than GDP. Since the Retail Trade sector thrives on disposable income, it can be seen as a measure of consumer demand and generally is an indicator of the economy in general. Other studies on job creation and reallocation ignore retail trade, likely because they already use Real GDP as an indicator for overall economic conditions. I assert that including Retail Trade as a variable could produce useful insights as to the effect of disposable income on job creation as well as using it as an alternative to measuring economic conditions using only Real GDP¹. It is expected that higher levels of retail trade will lead to gross job creation growth as increased disposable income spending leads to new jobs to meet market demand.

Another feature of the economy that would likely have an effect on gross job creation would be exchange rates. In his study of real exchange rates and jobs, Gourinchas concluded that during times of rapid appreciation of a currency, domestic job creation and job destruction would spike jointly. This also held during times of currency depreciation in which both job creation and destruction slowed. This would mean that only examining gross job creation would exhibit a positive relationship between gross job creation and real exchange rates (Gourinchas, 1998). The one criticism of these findings is that they are now 12 years old, and today's economy is much more globally oriented with outsourcing and offshoring becoming more common business practices. In this analysis, I intend to examine whether long term performance of the US Dollar has a positive correlation with gross job creation, rather than short term currency "shocks" as hypothesized by Gourincha.

An alternate explanation is that if that US jobs are being moved overseas, as those countries' economies become stronger, their currencies would likely appreciate against the US dollar. This would mean a lower exchange rate for the US dollar, making imports more expensive. US consumers would be more likely to purchase domestic products, therefore increasing demand within the US economy spurring job creation. In this scenario the relationship between job creation and the US dollar exchange rate would be negative. It is an objective of this model to determine which of these scenarios plays out in reality. In order to observe the performance of the dollar, this model uses quarterly values from the US dollar index that weights it against a basket of foreign currencies. While this may

¹ * Used Retail Trade and Real GDP at the same time in some regressions and used one at a time in other regressions to determine significance of the variables

not only weigh the dollar against countries that US jobs are being lost too, it is the best available proxy for overall performance of the US dollar.

The final topic in the scope of this analysis deals with the relationship between gross job creation and capacity utilization. Previous literature on job creation largely overlooks job creation or applies it in ways that are mostly irrelevant to the growth of new jobs. I argue that during periods of high capacity utilization job creation will decrease because of limited production resources. As the economy approaches its capacity for production, these resources become more expensive and therefore firms will be less likely to create new jobs that will require higher costs to obtain the necessary inputs. On the contrary, during times of relatively low capacity utilization there will be an abundance of resources coupled with low opportunity costs of shifting capital and equipment inputs. This would facilitate new job creation and therefore a negative coefficient is expected for capacity utilization in the following regression.

Methodology

In order to perform empirical analysis on the previously discussed variables, reliable data had to be compiled and properly adjusted. Several Government department websites were used for this data collection including the Bureau of Labor Statistics, the Federal Reserve, The Bureau of Economic Analysis, and the United States Census Bureau. Other than being reliable data sources, the most useful aspect of their data was that it was available in seasonally adjusted form. This helped remove several biases such as the sharp spike in retail trade that occurs during the holiday seasons in the United States, and higher unemployment that occurs when seasonal employment dips during the winter months.

Since some of the data was available in monthly observations and other statistics presented quarterly, all variables were converted into quarterly observations. In order to perform this conversion, I took the 3-month average of the variables in monthly form and used those values as quarterly measured values. The reasoning behind this method was that intuitively there would be less error than trying to divide out quarterly observations into monthly values, since there would be no variations between months in a quarter making it impossible to observe trends within those quarters anyway. The dependant variable, Y, was converted to logarithmic form to examine gross job creation growth rather than absolute values for job creation. This was also done with Real GDP, as growth or contraction seemed to be a better indicator of economic conditions rather than absolute values.

Since some of the variables in the this model tend to exhibit “sticky” or lagged behavior, such as GDP and unemployment, I used Robust Standard Errors when I computed the OLS regression to help limit the effects of autocorrelation in the regression. The usage of Robust Standard Errors adjusted the errors to still be valid when the OLS assumptions may have had violations, such as autocorrelation in this model or other violations such as heteroskedasticity. The model itself took the form of:

$$\ln Y = \beta_1 + \beta_2 X_1 + \beta_3 X_2 + \beta_4 X_3 + \beta_5 \ln(X_4) + \beta_6 X_5 + \beta_7 X_6$$

Where X_1 = Retail Trade, X_2 = Bank Prime Rate, X_3 = Civilian Unemployment Rate, X_4 = Real GDP, X_5 = US Dollar Index, and X_6 = Capacity Utilization Rate. For X_4 , I converted real GDP to logarithmic form to examine GDP growth as a percentage of GDP, rather than absolute changes. An example is that if GDP changes by \$1 million dollars, no context is provided to tell the reader whether this is a significant change or rather minimal due to the overall level of the economy. By using GDP growth, this ambiguity is removed and growth/contraction can be measured on a percentage basis.

In the examination of Caballero and Hammour’s hypothesis that gross job creation would peak during economic downturns when opportunity cost would be low, I used the same model specification as in the initial regression but used only observations from the two most recent recessionary periods. As before, robust standard errors were used to help adjust for violations in the OLS assumptions such as potential skewness errors resulting from a lower number of observations. Using the results from this alternate regression, I constructed the null hypothesis that $H_0: \beta_5 > 0$ and separately that $H_0: \beta_7 > 0$.

Results

The results from the regression are detailed in TABLE 1 of the appendix. These results concur with most of the previous literature read on the topic and the hypotheses laid out earlier in this study. All the variables with the exception of Bank Prime rates, were significant at $\alpha = .10$. One result that stood out was that quarterly retail trade had a negative coefficient which was unexpected based upon previous studies of job creation. However, the magnitude of the retail trade coefficient was extremely small in comparison to other factors in the analysis. In fact, for every \$1 dollar increase in retail sales, gross job creation decreased by .00000666%. The likely cause of this result is multicollinearity between retail sales and GDP growth as evidenced by the Variance Inflation Factors and correlation matrix that are detailed in TABLES 2 and 3, respectively.

As can be seen from the VIF analysis, growth domestic product growth and quarterly retail trade variances are highly inflated, and further analysis using a correlation matrix shows that they are in fact very highly correlated. I considered removing retail trade or lnRGDP from the model but these both created larger specification problems for the model. TABLE 4 shows the results of the Ramsey Regression Test with both variables included. While multicollinearity may be a problem in this model, making it less efficient, the Ramsey RESET Test in TABLE 5 shows that without retail trade included in the model there is clearly a specification error. Supplementary regressions were run using one of these variables at a time but this created obvious biases in the remaining explanatory variables. Given that previous studies have inferred correlation between job creation and both of these explanatory variables, I felt omitting one variable would create larger problems than the inclusion of both.

Other explanatory variables had coefficients that were consistent with previous findings on job creation, and also consistent with the hypothesized values stated in introduction of this analysis. The civilian unemployment rate had a significant negative correlation with gross job creation for extremely low levels of alpha. This was as expected given that when economic conditions are bad and there are more people being fired than hired, one would not expect to see an increase in new jobs. Also, if there are higher levels of unemployment, firms are more likely to hire employees back to vacant positions when economic conditions improve rather than create new jobs to increase production. As seen in TABLE 1, a 1% increase in the Civilian Unemployment rate will cause a .07024% decrease in gross job creation given all other factors remain constant (*ceteris paribus*).

Real GDP growth exhibited a significant positive correlation with gross job creation. Despite multicollinearity issues, all values in the 95% confidence interval were positive and thereby confirming the original hypothesis that Real GDP growth would be positively correlated with the creation of jobs. Since even the minimum coefficient value in the confidence interval was greater than the magnitude of the other explanatory variables, it seems as though Real GDP growth has the strongest effect on gross job creation. This is somewhat intuitive being that Real GDP is essentially a measure of all economic activity within a given economy. If production of that economy is increasing, one would expect that new jobs must be created as a result of the increased production. According to the regression data, a 1% increasing in Real GDP will cause gross job creation to increase by 1.4618%.

The US Dollar Index had a significant negative correlation with gross job creations. This seems to suggest that an appreciated domestic currency may cause companies to offshore production where they can build factories, purchase materials and pay their workforce in a depreciated currency compared to the dollar. These findings are opposite to the findings of Gourincha, who concluded that gross job creation is positively correlated with appreciation shocks on the domestic currency. I believe that the findings in the regression may be different for one of three reasons: The first could be that Gourincha observed short term appreciation shocks in currencies, where as this study looks at long term increases and decreases in the dollar index. These two phenomena may have altogether different effects. Another reason was detailed earlier in the introduction in that previous analysis on currency took place before outsourcing and offshoring was a common business practice among firms. The final explanation is that both are simultaneously occurring, but the offshoring effect dominating the job reallocation effect. According to my model, a 1% increase in the US Dollar index caused a .00185% decrease in gross job creation.

Capacity Utilization also had a negative coefficient in the regression. This was one of the less studied variables in comparison with gross job creation so there is little previous knowledge to compare my findings with. Intuitively, this result makes economic sense in that lower capacity utilization means more resources available at lower costs due to decreased demand. This would facilitate the creation of new jobs and expansions by existing

firms causing gross job creation to increase. In TABLE 1, you can see that a 1% increase in the Capacity Utilization rate caused a .01143 decrease in gross job creation.

The alternate regression in which observations from the two most recent recessionary periods was ran using the same variables and robust standard errors. The results from this regression are detailed in TABLE 6.

The key points of this regression are the values for Real GDP and Capacity Utilization. As discussed in the background and methodology sections of this analysis, Caballero and Hammour claimed that Gross Job Creation would be highest during recessionary periods. In the regression of recessionary periods, the results showed that Real GDP growth was insignificant in gross job creation. By looking at the 95% confidence interval, you can observe that Real GDP coefficient values could be either negative or positive within one standard error. For this reason I rejected the null hypothesis that $\beta_5 > 0$ this result is inconclusive at confirming or disputing Cabellero and Hammour's Hypothesis that gross job creation would be highest during recessionary periods marked by decreasing real GDP and low capacity utilization. The second part of this additional analysis intended to show that during a recession, low capacity utilization would facilitate growth in gross job creation because lower demand for productions would drive down the costs of hire new employees. The null hypothesis was that $\beta_7 > 0$, and looking the t-value and 95% confidence interval, I was able to reject the null hypothesis and confirm that capacity utilization had a significant negative correlation with gross job creation. The correlation matrix for this alternate regression is detailed in TABLE 7.

Conclusion

This analysis shows that a policy designed to increase gross job creation would likely focus on a combination of encouraging real gross domestic product growth, lowering unemployment, avoiding an inflated domestic currency, and increasing production capacity. However, due to various issues in the regression results including skewed residuals, heteroscedasticity, and autocorrelation, further statistical techniques need to be applied before more definitive conclusions can be made on the effects of these explanatory variables. Although this model may not have the minimum variances for these variables, some valuable inferences can be made. Real GDP growth, being as it is a chief indicator of economic conditions in an economy, is likely correlated with growth in gross job creation. Also, an economy with lower unemployment will have higher gross job creation due to fewer openings in existing positions and overall higher consumer demand due to disposable income increases. Also, increased production capacity would likely lead to an increase in gross job creation as it would decrease the capacity utilization rate if production were to remain constant as overall production increased.

In the examination of Cabellero and Hammour's alternate hypothesis that job creation would be highest during economic downturns when Real GDP is low, results from this regression did not support the hypothesis. Increased observations from earlier economic periods than ones under the scope of this analysis, or perhaps economic data from other countries' economies could produce a more meaningful relation between these variables.

The main success of this analysis is that it provides the preliminary research and regressions to determine an efficient and accurate model for gross job creation. By using more sophisticated statistical techniques and introducing other variables such as overall production capacity and government job creation incentives, further research and analysis on the topic may provide an outline for policy makers to implement.

Table 1

Linear regression

Number of obs = 71
 F(6, 64) = 59.50
 Prob > F = 0.0000
 R-squared = 0.7906
 Root MSE = .03463

lnGJC	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
quarterlyrt	-6.66e-06	1.02e-06	-6.56	0.000	-8.69e-06	-4.64e-06
quarterban~n	-.0000558	.0062508	-0.01	0.993	-.0125432	.0124317
civunemprate	-.0702377	.0082183	-8.55	0.000	-.0866557	-.0538198
lnRGDP	1.461834	.2442001	5.99	0.000	.973988	1.94968
USDI	-.001847	.0009163	-2.02	0.048	-.0036775	-.0000165
CapUtil	-.0114254	.0052262	-2.19	0.032	-.021866	-.0009848
_cons	-1.374551	2.315647	-0.59	0.555	-6.000587	3.251485

Table 2

Variable	VIF	1/VIF
lnRGDP	129.11	0.007745
quarterlyrt	127.30	0.007855
civunemprate	6.47	0.154512
quarterban~n	4.51	0.221836
CapUtil	4.46	0.224156
USDI	2.98	0.335981
Mean VIF	45.81	

Table 3

	quarter~t	quarter~n	civune~e	lnRGDP	USDI	CapUtil
quarterlyrt	1.0000					
quarterban~n	-0.3401	1.0000				
civunemprate	-0.0765	-0.6846	1.0000			
lnRGDP	0.9918	-0.3912	-0.0048	1.0000		
USDI	0.3149	-0.1425	-0.3714	0.3323	1.0000	
CapUtil	-0.5096	0.7812	-0.4900	-0.5686	-0.3731	1.0000

Table 4

Ramsey RESET test using powers of the fitted values of lnGJC
 Ho: model has no omitted variables
 F(3, 61) = 0.43
 Prob > F = 0.7344

Table 5

Ramsey RESET test using powers of the fitted values of lnGJC
 Ho: model has no omitted variables
 F(3, 62) = 11.27
 Prob > F = 0.0000

Table 6

Linear regression

Number of obs = 18
 F(6, 11) = 21.72
 Prob > F = 0.0000
 R-squared = 0.9113
 Root MSE = .02771

lnGJC	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
quarterlyrt	-4.36e-06	2.06e-06	-2.12	0.058	-8.90e-06	1.73e-07
quarterban~n	.0083444	.0143307	0.58	0.572	-.0231972	.0398859
civunemprate	-.0639393	.0190564	-3.36	0.006	-.1058821	-.0219965
lnRGDP	.5919232	.6032154	0.98	0.348	-.7357449	1.919591
USDI	-.0061035	.0022502	-2.71	0.020	-.0110561	-.001151
CapUtil	-.0184331	.0043372	-4.25	0.001	-.0279792	-.0088871
_cons	7.112572	5.339404	1.33	0.210	-4.639376	18.86452

Table 7

	quarterlyrt	quarterban~n	civunemprate	lnRGDP	USDI	CapUtil
quarterlyrt	1.0000					
quarterban~n	0.2916	1.0000				
civunemprate	0.1467	-0.7872	1.0000			
lnRGDP	0.9334	-0.0239	0.4629	1.0000		
USDI	-0.9266	-0.0806	-0.2363	-0.9381	1.0000	
CapUtil	0.3441	0.8626	-0.7531	0.0124	-0.1417	1.0000

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APOLOGIES: MORE THAN SAYING SORRY

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In the wake of business and accounting scandals the public usually demands to know what went wrong. We search for answers, we search for someone to blame, and we search for a resolution. After extensive investigations, media coverage, and intense debates we believe we have reached a verdict, we have someone to hold accountable. Maybe the company or the individual are fined or the company is dissolved and the top executives are sent to jail. The government takes legislative action, new laws are passed and we believe justice is restored. However, peace is momentary.

Another scandal emerges, and the cycle begins again. We look for new people to blame; we ask the question “Where are the auditors?” or “Who could do this?” We focus on how we could change the outcome if we could go back in time, or how we could best punish those who have done wrong. We search for preventative solutions in legislative reform, such as the Sarbanes-Oxley Act of 2002, all the while assuming we have fixed the fatal flaw. Again, another scandal emerges. Perhaps now is the time to ask a new question, to search for a new way to heal.

Why do we need apologies?

From Enron to Bernie Madoff, the waves of white collar crime in the last twenty years have resulted in “an unprecedented assault on the integrity of US corporations.”² As a society, we have become accustomed to scandal and the wrongdoings of those in power. Not only are we not surprised by corporate malfeasance, we have accepted the aftermath of the “misdeeds [of the few that] have tainted entire [industries].”³ Despite the consequences of corruption, apologies are rarely delivered or expected. Yet apologizing could help to “restor[e] positive values and a sense of trust within the business community.”⁴ Sincere and genuine apologies can limit the damage to a company’s reputation and they may also be able to heal the economy as a whole.⁵

What is an Apology?

In order to discuss the place for apologies in the business world, we must first discuss what an apology is. An apology is defined as “a regretful acknowledgment of an offense or failure.”⁶ Apologies have the power to “heal humiliations and grudges, remove the desire for vengeance, and generate forgiveness on the part of the offended parties.”⁷ Apologies also possess the ability to reconcile and restore broken relationships, but these abilities are often tainted by “empty...cheap [and] insincere...‘pseudo-apologies.’”⁸

²Lazare, Aaron. *On Apology*. Oxford University Press, USA, 2005. Print, 1-2

³Aslop, Ronald J. "Corporate reputation: Anything but superficial – the deep but fragile nature of corporate reputation." *Journal of Business Strategy* 25.6 (2004): 21-29. Web. 23 Dec 2010.

⁴R., Kenneth, Larry A., and George William. *Corporate scandals: the many faces of greed : the great heist, financial bubbles, and the absence of virtue*. Paragon House Publishers, 2005. Print,1

⁵Aslop, Ronald J. "Corporate reputation: Anything but superficial – the deep but fragile nature of corporate reputation." *Journal of Business Strategy* 25.6 (2004): 21-29. Web. 23 Dec 2010.

⁶Lazare, Aaron. *On Apology*. Oxford University Press, USA, 2005. Print,1

⁷Lazare,1

⁸Lazare, 1-8

According to Aaron Lazare in *On Apology*, in order to reap the positive benefits of an apology, the apology must be genuine and acknowledge the offense..., express genuine remorse ... [and], offer appropriate repatriations, including a commitment to make changes in the future.⁹

The following offers an analysis on the application of the proper steps of an apology to the business world.

Acknowledge the offense: the Cost of White-Collar Crime

White-collar crimes can be broken down into the categories of organized crime, collective embezzlement, corporate crime, occupational crime and individual crime.¹⁰ The Association of Certified Fraud Examiners breaks down white-collar crime into specific categories of:

- Misrepresentation of material facts
- Concealment of material facts
- Bribery
- Conflicts of interest
- Theft of money or property
- Theft of trade secrets or intellectual property
- Breach of fiduciary duty¹¹

Those who commit white-collar crimes “inflict illness, injury, and death on their victims over a period of years or even decades.”¹² While this may seem like a dramatic outlook, the reality is that white-collar crime affects individuals, organizations, and society. Typically the cost of white-collar crime is delivered in the dollar value of the scandal; however, it is important to discuss costs in non economic terms.

Individual Costs

Before describing the various cost of business fraud to individuals, it is important to mention that individuals includes all victims of white collar crime; those who were employed by the perpetrator, those who interacted with the company or fraudster, and even those who were unaware they had a relationship to a white-collar criminal. Individual costs can include the loss of a job or retirement savings, unwillingness to invest in financial markets, higher taxes, and diminished business opportunities. Perhaps the most overlooked is the inability of former employees of a scandal ridden company to obtain employment elsewhere. It is also important to note that family and friends of those who are involved with or affected by scandal are also severely harmed by white-collar crime.¹³ The life changing effects of those who are associated with fraud is exemplified by the recent suicide of Bernie Madoff's son, Mark Madoff. Regardless of his guilt or innocence in regards to his father's actions, his wife and children will forever be affected by their association with the Madoff name.¹⁴

⁹ Lazare, Aaron. *On Apology*. Oxford University Press, USA, 2005. Print,9

¹⁰ Leap., Terry L. *Dishonest dollars: the dynamics of white-collar crime*. Ilr Pr, 2007. Print,12

¹¹ "FRAUDBASICS: The Many Faces of Fraud." *Association of Certified Fraud Examiners*. ACFE, n.d. Web. 23 Dec 2010. <<http://www.acfe.com/resources/view.asp?ArticleID=183>>.

¹² Leap., Terry L. *Dishonest dollars: the dynamics of white-collar crime*. Ilr Pr, 2007. Print,6

¹³ Leap., Terry L. *Dishonest dollars: the dynamics of white-collar crime*. Ilr Pr, 2007. Print, 130-131, 134

¹⁴ Baker, Al, and Diana B. Henriques. "A Madoff Son Hangs Himself on Father's Arrest Anniversary." *New York Times* 12/12/2010: A1. Print.

Organizational Costs

The costs of white-collar crime to organizations are the costs that are usually associated with fraud. However, costs are generally thought of in dollar value, such as how much money was embezzled or the amount of investor's money that was mishandled. Not in the effects on the organization and its functions. The principal price of corporate fraud is bankruptcy or business failure. Other major costs are the risk of lawsuits filed by stakeholders and the loss of competitive advantages, business relationships, customers, and employees.¹⁵ Organizations will also see an increase in monetary costs from increased insurance premiums, amplified security and surveillance, and regulatory compliance. Even if the actual scandal did not put an organization out of business, the aftermath of the misdeed may cause the business to downsize or suffer setbacks in market share and growth opportunities.¹⁶

Societal Costs

Societal costs range from specific economic costs to general costs that are paid by the entire society. Society loses trust not only in the tainted companies, but in capitalism as well. Society is burdened with the expense of criminal proceedings, from the investigation, prosecution, and incarceration of white-collar criminals.

Crime, [including white-collar crime], forces the diversion of tax dollars toward the criminal justice system and away from the beneficial public services such as hospitals, parks, or educational programs.¹⁷

Society will also see a rise in regulations, such as with the forming of OSHA, the SEC, and the EPA. Although costs can somewhat be divided amongst individuals, organizations, and society they often occur simultaneously and it is difficult to decipher where one ends, and the other begins.¹⁸ Determining the less tangible range of effects of white-collar crime, in addition to the tangible effects of monetary value and broken laws, is the first step towards a sincere apology.

Express Genuine Remorse: the Healing Power of Apologies

The typical treatment of a corporate scandal often involves public exposure of the misdeed, a public statement from the company, media coverage and legal proceedings. Often times even when a case is settled, the settlement never involves "having to say you're sorry, [companies] just cut checks and [walk away]." ¹⁹ A common theme in the follow-up of corporate scandal is the tendency to point fingers, which we see in the case of Enron. As observed in *The Smartest Guys in the Room*,

in the aftermath of one of the largest corporate scandals in American history, precious few were willing to concede that they had done anything wrong... No matter who you asked, it was always somebody else's fault.²⁰

Even amidst the current financial crisis, we see executives eager to evade blame. Former Citigroup chief executive Chuck Prince has stated,

I'm sorry. I'm sorry that the financial crisis has had such a devastating impact on our country...I'm sorry for the millions of people, average Americans, who have lost their homes.²¹

¹⁵Leap., Terry L. Dishonest dollars: the dynamics of white-collar crime. *Ilr Pr*, 2007. Print, 131, 134

¹⁶ 131-134

¹⁷ 133

¹⁸ 133

¹⁹Tischler, Linda. "The Art of the Anti-Apology." *Fast Company* 09/01/2001: n. pag. Web. 23 Dec 2010. <<http://www.fastcompany.com/magazine/74/apology.html>>.

²⁰McLean, Bethany, and Peter Elkind. *The smartest guys in the room: the amazing rise and scandalous fall of Enron*. Portfolio Trade, 2004. Print.

406, 409

In this seemingly apologetic statement, Prince fails to acknowledge his own hand in the financial crisis, and is merely stating sympathy, not expressing remorse.

“Successful” apologies are able to heal broken relationships because they satisfy the needs of the victim. The needs set forth by Lazare are:

- Restorations of self respect and dignity
- Assurance that both parties have shared values
- Assurance that the offenses were not their fault
- Assurance of safety and their relationships
- Seeing the offender suffer
- Reparation for the harm caused by the offense
- Having meaningful dialogues with the offender²²

The recent actions of Qantas Airways, based out of Australia, demonstrate the power of remorse coupled with meeting the needs of the victim. After a midair engine explosion, the airline addressed the situation from multiple media outlets and grounded the airlines remaining planes. His actions “heightened visibility [and] helped...Qantas retain traveler’s confidence.”²³ Qantas’ actions serve as a stark contrast to a case we are more familiar with in the United States, Toyota. Rather than acting immediately, as Qantas did, Toyota waited over a week to address the recalls of their vehicles, resulting in a major loss of consumer confidence.²⁴

Unfortunately, responses such as Qantas’ are rare. The typical post scandal cleanup of corporations does not even begin to scratch the surface of genuine remorse. By definition an individual expresses remorse when they display “regret or guilt for a wrong committed.”²⁵ Responsibility goes hand in hand with remorse and is unfortunately lacking from the business world.

Reparations and a Commitment to Change: A Plan for the Future

Too often do we hear the phrase “I’m sorry.” Every time we look to the news there is another political figure, another celebrity, or another athlete apologizing for their transgressions, indiscretions and misbehaviors. The phrase has almost entirely lost its meaning, “apologies, it seems, have become something of a joke.”²⁶ It is important to remember that “I’m sorry does not always convey an apology”.²⁷

²¹ Abelson, Max. "Never Having to Say You're Sorry." *New York Observer* 04/13/2010: n. pag. Web. 23 Dec 2010. <<http://www.observer.com/2010/wall-street/never-having-say-you%E2%80%99re-sorry>>.

²² Lazare, Aaron. *On Apology*. Oxford University Press, USA, 2005. Print,44

²³ Fenner, Robert. "Qantas' Strategy to Reboard Passengers." *Bloomberg Business Week* 12/02/2010: n. pag. Web. 23 Dec 2010.

²⁴ Fenner, Robert. "Qantas' Strategy to Reboard Passengers." *Bloomberg Business Week* 12/02/2010: n. pag. Web. 23 Dec 2010.

²⁵ "Remorse." *Oxford English Dictionary*. 3rd Edition. 2010

²⁶ Smith, Nick. *I was wrong: the meanings of apologies*. Cambridge Univ Pr, 2008. Print, 25

²⁷ Lazare, Aaron. *On Apology*. Oxford University Press, USA, 2005. Print,25

The most significant aspect of an apology is the commitment to change going forward. Without a sincere attempt to rectify the wrong through future actions, the apology is empty. Oftentimes the changes made going forward are preventative actions taken by those who were not responsible for the fraud committed. For example, the collapse of Enron prompted the federal government to pass the Sarbanes-Oxley Act of 2002, which places restrictions on corporations and their auditors and holds executives responsible for financial statements. Although this was beneficial, the response was legislative, nothing was actually done by Enron executives as an apology. Had Enron executives participated in the crafting of Sarbanes-Oxley, as a means to prevent similar catastrophic events from taking place, it may have been considered one of the most successful apologies of our time.

Johnson & Johnson: A Case Study

The theoretical concept of apology in the business world appears to have substantial relevance, but can this be applied to the real world? Johnson & Johnson (J&J) offers a perspective of both the benefits of a successful apology, and the harm of a failure to apologize. Following the Tylenol recall in 1982, Johnson & Johnson became the gold standard of crisis management and ethical decision making. Despite not having direct responsibility for the deaths that occurred after several individuals ingested cyanide laced Tylenol, J&J pulled the product from the shelves and reconfigured their packaging. Taking indirect responsibility for the actions of another, J&J introduced new, tamper proof packaging to assure to the public that such an incident would not occur in the future. The actions taken by J&J sufficiently fulfilled the following needs of consumers and society:

- Assurance that both parties have shared values
- Assurance of safety and their relationships
- Reparation for the harm caused by the offense
- Having meaningful dialogues with the offender

Johnson & Johnson acknowledged the offense, expressed remorse, offered reparations and made changes for the future.

Despite being so effective in the past, taking a look at Johnson & Johnson, starting in September of 2009, provides an example of how to mishandle a crisis. J&J has had to issue several recalls on various medicines, such as children's Tylenol, Motrin, Benadryl, Zyrtec, and Roloids as well as products such as artificial hips and contact lenses. The central issue to J&J's recalls has been product quality. A representative of J&J offered an apology and has responded by removing the tainted products off of the market. Their approach has been described as "one part apology and promise to do better to three parts disclaimer and evasion."²⁸

The handling of the current controversy differs immensely from the 1982 Tylenol recall. The main difference is that in 1982 the issue was not directly a result of J&J's negligence but was handled swiftly and successfully. Currently there are multiple issues that have not been sufficiently addressed and are accumulating to create an extremely hazardous situation. Congressman Edolphus Towns summed up the situation best saying,

The information... raises questions about the integrity of the company...It paints a picture of a company that is deceptive, dishonest, and has risked the health of many of our children.²⁹

The lack of genuine remorse, intensified by "downplaying the situation," renders Johnson & Johnson's current apology ineffective.

²⁸ Kimes, Mina. "Why J&J's headache won't go away." *Fortune*. 08/19/2010: Print.

²⁹ Kimes, Mina. "Why J&J's headache won't go away." *Fortune*. 08/19/2010: Print.

The benefit of apologies

We have all most likely seen the benefit of apologies in our own personal relationships. We have seen how a damaged relationship can begin to repair itself after both parties have worked together to address the wrong and work towards a new future. Apologies are not a guarantee for relationships to be restored to their pre-incident state, but a genuine apology is the building block for change. In many cases of fraud, despite that the individuals or corporations are held responsible; many of those who are affected never receive justice. Fraud exists in nearly all organizations, at every level, and on varying scales of severity. By accepting responsibility for their actions and for change, the business world may be able to repair the broken relationships that have been destroyed in the path of corruption, alleviate the strain of the costs of white collar crime and potentially deter further corruption.

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DELIVERING VALUE TO RETAILERS AND CONSUMERS USING POINT OF SALE (POS) DATA THROUGH CATEGORY MANAGEMENT PRACTICES

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ABSTRACT

The purpose of this paper is twofold: (1) To assess how POS data is utilized by supermarkets implementing category management practices to deliver value to consumers and their organizations and (2) Assess the longitudinal effects of changes in private label sales penetration on overall category profitability and sales. Secondary Point of Sale (POS) data was obtained for 10 product categories from a supermarket retailer located in the northeast United States over a three year time period. Correlation tests were generated for all 10 product categories selected between (1) Category private label sales penetration and category profitability and (2) Category private label sales penetration and category sales. The empirical results of this study indicate that private label brands increase profitability in product categories but may result in overall category sales diminishing. There was a significant positive relationship in five product categories between private label sales penetration and overall category profitability. There was a significant negative relationship in six product categories between private label sales penetration and overall category sales volume.

INTRODUCTION

Providing customers with value has emerged as a dominant theme for business success for 21st century companies. Innovative companies that create maximum value for their customers will survive and thrive and will carve sustainable competitive advantages in the marketplace. Firms that do not provide adequate value will struggle or disappear (Weinstein & Johnson, 1999).

Gaining loyal customers by providing unique value is the essence of successful marketing. Today, a more careful attempt is being made at understanding how a firm's customers perceive value and then actually creating and delivering that value. Customer value, for the purpose of this paper, is the unique combination of benefits received by targeted buyers that includes quality, convenience, on-time delivery, and both before and after-sale service at a specified price (Kerin et al., 2011).

To enhance the delivery of customer value, category management has evolved into a core business practice in the supermarket industry. Category management (CM) is a process that manages product categories as business units and customizing them store-by store, so as to meet consumers' needs (ACNielsen, 1992). The objective of category management is to maximize the sales and profits of a product category while meeting needs of consumers.

Detailed data from Information Management Systems has been a key factor fueling the uptake and rapid progress of category management (Sharif, 2009). Since CM basically is driven by data, information technology (IT) offers an important enabling component (Gonzalez-Benito et al., 2008).

The rapid advances in information and communication technology provide greater opportunities for businesses today to institute, nurture, and sustain long-term relationships with their customers than ever before. The main objective is to transform these relationships into greater profitability by reducing customer acquisition costs, increasing repeat purchases, and charging higher prices (Winer, 2001).

Point-of-sale (POS) scanner data provides category managers with a unique opportunity for analyzing consumer packaged goods trends and patterns by data mining techniques. Decisions of increased complexity are made possible by the amount of data available and marketing decision-making in the consumer packaged goods area benefits from advances in the collection of electronic scanner data.

“Implementing category management without using scanning equipment in your stores is like trying to sell frozen foods without a freezer”. The category management process works ideally when the category manager relies on an information system combining internal scanning data with third-party analyses and manufacturers’ expertise. Internal scanner data can provide historical, chain-wide statistics on what products were sold, in what quantity, when, where and for what price (ACNielsen, 1992).

Point-of-sale (POS) scanner data provides a unique opportunity for analyzing consumer packaged goods trends and patterns by data mining techniques. Decisions of increased complexity are made possible by the amount of data available and marketing decision-making in the consumer packaged goods area benefits from advances in the collection of electronic scanner data. A critical problem facing today’s consumer packaged goods brand managers is not a lack of data but a lack of systems transforming voluminous scanner data into decisions of strategic advantage (Jiang et al., 1998).

An increasing focus of category management practices in supermarkets has been on private label products. Private label products can be defined as “products retailers sell under their own names” (Anchor & Kourilova, 2009). Private labels are a permanent feature of competitive landscapes around the world and dollar sales of PLs grew at an annual rate of more than seven percent from 1996 to 2004, far outpacing the growth of manufacturers’ brands (Baltas & Argouslidis, 2007).

PURPOSE OF THE STUDY

The purpose of this study is to empirically investigate the influence of private label products by a supermarket retailer on category profitability and sales volume. The supermarket retailer is located in the Northeast and operates over 100 stores that generate a total yearly sales volume in excess of \$4 billion. Private label brands, being exclusive brands, can allow retailers to differentiate themselves from competitors leading to a competitive advantage. As the emphasis on increasing private label sales continues to escalate, supermarkets need to understand fully the role of private brands in facilitating sources of a competitive advantage.

The purpose of this paper is twofold: (1) To assess how POS data is utilized by supermarkets implementing category management practices to deliver value to consumers and (2) Assess the longitudinal effects of changes in private label sales penetration on overall category profitability and sales. The focus of the study is at the product category level. Category specific changes in overall private label sales penetration are studied to determine the

impact on overall category profitability and sales. For example, does increasing the private label sales penetration in a product category such as coffee result in increasing total coffee category profits and sales?

CONCEPTUAL BACKGROUND AND HYPOTHESES

Retailers mainly practice category management to increase profits and sales although different strategies may be pertinent for different categories. "Retailers practice category management with several ends in mind, but increasing profitability, increasing revenue and optimizing item mix are the most important motivators." Ninety seven percent of retailers, for example, surveyed indicated that the top priority for practicing category management is increased profitability (ACNielsen, 1998).

Store brand penetration growth in a large number of markets and their broader acceptance by consumers oblige suppliers to take an increased interest in their promotion. Retailers consider their private brands a powerful competitive tool allowing them to improve store image and obtain greater margins resulting in greater profits (Recio & Roman, 1999).

An efficient and effective store brand program may not only increase market share in a store but is also an important tool in negotiations between distributors and manufacturers. Corstjens and Lal (2000) results indicate that there should be enough customers who buy national brands for a quality store brand strategy to be profitable. This balance between national and private label brands is in the best interest of consumers by ensuring a broad choice of products to choose from as well as low prices. The strength of private label brands keeps manufacturers in check by suggesting to them to offer competitive wholesale prices on national brands. The strength of national brand products keeps retailers in check by inducing them to compete with one another by offering competitive prices (Ailawadi, 2001).

The research questions developed for this study were based on previous research pertaining to category management and branding. Research questions and resulting hypothesis were developed based upon the literature and research by such authors as Nelson and Desrochers (2006), ACNielsen (2006), Dupre and Gruen (2004), and Jacoby and Chestnut (1978). These studies identified the overall objectives of category management and the significance of private brands in the overall category management process.

RESEARCH QUESTIONS

Specifically, this study seeks to answer the following research questions related to achieving a superior category performance:

1. Is there a positive relationship between private label category profitability and total category profitability?
2. Is there a positive relationship between private label category sales and total category sales?

HYPOTHESES

Based upon the research questions, the following hypotheses will be tested in this study:

H1: There is a significant positive relationship between a Change in Category Specific Private Label Sales Penetration and Category Profitability.

H2: There is a significant positive relationship between a Change in Category Specific Private Label Sales Penetration and Category Sales.

METHODOLOGY

Secondary Point of Sale (POS) data was obtained from a supermarket retailer located in the northeast U.S. This Supermarket has annual sales exceeding \$4.0 billion annually and places a major emphasis on the growth of their private label products. The Grocery Department consists of center store dry grocery, dairy and frozen foods sections and formed the sample for which secondary data was obtained. The supermarket retail chain has over 100 stores dispersed over New England states and is representative of typical United States national grocery markets.

Category management is implemented at this Supermarket retailer and data was obtained from 10 different product categories. The categories are divided based on consumer purchase patterns of similarities among products and key objectives of each category manager is to increase sales or profits of each category along with private label sales penetration.

MEASUREMENT OF VARIABLES

- 1) *Change in Category Specific Private Label Sales Penetration*- A three year history from fiscal 2002-2004 by period (39 total periods) of Private label penetration for 10 grocery product categories was analyzed from information gathered from the Supermarket's point of sale database. Private label category sales penetration is calculated as private label category sales divided by total category sales. The 10 product categories analyzed were: Refrigerated juice, yogurt, laundry detergent, coffee, pasta, mayonnaise, cookies, crackers, salty snacks and frozen pizza..
- 2) *Category Profitability*- A three year history from fiscal 2002-2004 by period (39 total periods) of Category Gross Profit dollars of each of the 10 categories was gathered from the Supermarket's point of sale database.
- 3) *Category Sales*- A three year history from fiscal 2002-2004 by period (39 total periods) of Category Sales of each of the 10 categories was gathered from the Supermarket's point of sale database.

RESULTS

Correlation tests were generated for all 10 product categories selected between (1) Category private label sales penetration and category profitability and (2) Category private label sales penetration and category sales.

Hypothesis 1 stated there is a significant positive relationship between a Change in Category Specific Private Label Sales Penetration and Category Profitability. **Table I** indicates the correlation between private label sales penetration and category profitability for the 10 product categories. The results indicate that five of the ten categories resulted in significant positive relationships. This means that as private label sales increased in a product category as a percentage of overall category sales, the total profitability of the category also increased.

Table 1- Correlations between PL Sales Penetration and Category Profitability

<u>Category</u>	<u>Sig. (2 tailed)</u>	<u>Pearson Correlation</u>
Refrigerated Juice	0.004	0.450*
Yogurt	0.030	0.349*
Laundry Detergent	0.010	0.410*
Coffee	0.054	-0.311
Pasta	0.204	-0.208
Mayonnaise	0.000	0.626*
Cookies	0.935	-0.013
Crackers	0.021	0.367*
Salty Snacks	0.056	-0.308
Frozen Pizza	0.686	-0.067

*Significant at .05 level

Hypothesis 2 stated there is a significant positive relationship between a Change in Category Specific Private Label Sales Penetration and Category Sales. **Table II** indicates the correlation between private label sales penetration and category sales for the 10 product categories. The results indicate a significant relationship in seven of the ten product categories with six of the categories resulting in a significant negative relationship. This means that as private label sales increased in a product category as a percentage of overall category sales, the total sales volume of the category decreased.

Table 2- Correlations between PL Sales Penetration and Category Sales

<u>Category</u>	<u>Sig. (2</u>	<u>Pearson</u>
	<u>tailed)</u>	<u>Correlation</u>
Refrigerated Juice	0.473	0.118
Yogurt	0.020	0.372*
Laundry Detergent	0.004	-0.455*
Coffee	0.000	-0.592*
Pasta	0.075	-0.288*
Mayonnaise	0.000	-0.553*
Cookies	0.002	-0.490*
Crackers	0.747	0.053
Salty Snacks	0.000	-0.548*
Frozen Pizza	0.203	-0.208

*Significant at .05 level

CONCLUSION

This paper has demonstrated the benefits that POS data provides category managers in delivering value to consumers. Category management is a customer-centric practice used to understand and meet consumer needs and is an essential component contributing to the success of a retail operation. As businesses seek to differentiate themselves from competitive offerings in the minds of consumers, progressive retailers realize that there is gold in the reams of data available from retail POS systems.

The empirical results of this study indicate that private label brands increase profitability in product categories but may result in overall category sales diminishing. Private label products have higher gross margins than national brand products and, therefore, result in higher profits. Private label brands, however, typically have retail prices 10-15% below national brand items and will result in lower overall sales if the unit volume remains the same.

Category management seeks to maximize the overall profitability and sales volume in categories by managing all brands. Private label brands form an integral component of an assortment mix for retailers but an overreliance on private label products may potentially be detrimental to sales volume. This is due to consumers desiring a full mix of product selection and the average lower retail prices of private label products compared to national brand products.

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THESIS TOPIC: DIVISION I WOMEN'S SOCCER DECISION MAKING ON CHOOSING A COLLEGE OR UNIVERSITY

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ABSTRACT

I am in the process of studying a Division I athletic conference's women's soccer teams and their decision making on choosing a college or university. Currently most studies involving decision making and recruitment are done with men's sports teams, like the tier one sports football and basketball. But there is very limited information out there on women's sports and specifically soccer. I have sent out a number of questionnaires to each school in the conference in hopes of their participation in the study. I believe that there are a few different decision making paths that women's soccer student athletes take based off the factors that they consider. Some of the different factors I am considering include recruitment by the coach, facilities available to the student, reputation of the school, athletic aid, academic variety, graduates getting good jobs, and graduates getting into top graduate programs. Preliminary results show that the student athletes responding to the survey decide on schools based on academics and athletics rather than strictly athletics found in the men's studies.

GLOBAL SOCIAL MEDIA BRAND EXPERIENCES: A CROSS-CULTURAL STUDY

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ABSTRACT

The current study applies a recently introduced brand experience framework (Brakus et al 2009) to the realm of social media. In exploring the nature of how consumers experience social media brands, the study addresses a gap in the marketing literature. The authors also identify private and public self-awareness as statistically significant antecedents to brand experience. Lastly, a cross-cultural analysis finds interesting differences between Indian and American users of social media. The results provide empirically tested hypotheses that can be used by marketers in creating effective social media brands.

INTRODUCTION

Social Media (i.e. Facebook, MySpace, Twitter, etc) has become a pervasive and transformative fixture across the globe. Moving beyond simple interactions with peers, social media (specifically social networking) sites have evolved into platforms for gaming, file sharing, customer feedback among many other value-added services. The rapid evolution of these environments raises important questions for those who manage the brands and those who advertise on these sites: How do consumers experience social media brands and what personal characteristics impact differences in experience?

Brand managers have begun to integrate social media strategies into their overall marketing communications plan. Before doing so, it may be useful to understand the nature of a social media brand experience. In comparison to traditional brands, how do consumers engage with social media brands? Marketers must understand that this powerful new touch point brings a new set of challenges. Traditional brand experiences such as watching a television commercial, handling a product in a store, or talking to a salesperson cannot be the basis for designing social media brand experiences. This study provides an analysis of how consumers experience brands in a social media context. The findings of this preliminary study provide an important first step in designing an effective experience for consumers. One significant difference between social media brand experiences and a traditional brand experience is the extremely public nature of social media. It is currently unknown how consumer psychographics impact brand experiences with social media brands. A unique way to achieve the goal of an effective brand experience may be to align a brand's digital marketing strategies to the consumers' notion of self.

In this paper we expand on this strategy by exploring how an individual's private and public self-awareness impacts their digital brand experience. We offer the theoretical foundations of the constructs we propose to measure, proceed to obtain initial empirical data from the virtual world of social media, discuss findings that have implications for marketing managers and marketing scholars. Our findings will enable marketing strategists to design digital brand and consumer interactions that lead to improved satisfaction for the consumer and customer life time value for the firm. The study also examines these concepts in both an American and Indian context, providing cross-cultural insights for marketing practitioners.

LITERATURE REVIEW

Brand experience is an innovative marketing construct set forth by Brakus, Schmitt, and Zarantonello (2009). Little has been published in the area of brand experience, however, the impact brand experience promises to have on marketing strategies warrants further investigation. Brand experience is defined by the original authors as being a consumer's sensory, affective, behavioral, or intellectual response to brand-related

stimuli. Affective brand experiences elicit emotional responses from consumers. According to an empirical study conducted by Brakus et al, Disney, Hallmark, and Prada were shown to have the strongest affective dimensions. Sensory brand experiences involve a brand stimulus making a strong impact on the consumer's senses (feel, smell, taste, etc.). Brands like Ferrari, Toys R Us, and Ben & Jerry's were found to be strongest in this dimension. Intellectual brand experiences occur when a brand challenges the consumer to engage in a lot of thinking when dealing with the brand. LEGO, Sudoku, and American Express were found to create the strongest intellectual experiences in the particular study. Lastly, behavioral brand experiences occur with brands that invite the consumer to engage in physical actions. Brands strong in the behavioral dimension included Puma, Gatorade, and Adidas. The proposed theory states that the average reported level of agreement of each component can be averaged to determine an overall brand experience.

Brakus, Schmitt, and Zarantonello also offer a valid and reliable scale for measuring the strength of a brand experience and its four dimensions. The researchers finally provide an empirical study that shows a positive correlation between strong brand experiences and customer satisfaction and customer loyalty. Based on these findings one could infer that brand experience, at the very least, presents an opportunity to increase customer lifetime value.

In a subsequent article, (Zarantonello and Schmitt 2010) a typology of experience-seeking consumers is presented. The underlying hypothesis behind creating such a typology was that different customers would find different types of experiences more appealing than others. Through cluster analysis, respondents were grouped by the strength of their overall brand experience and their differences in strength of the various brand experience dimensions (as measured by the previously validated scale). Five customer types emerged: hedonistic, action-oriented, holistic, inner-directed, and utilitarian.

Zarantonello and Schmitt's' analysis was successful in establishing a difference between brand experiences sought by consumers. However, we contend that a superior method of classifying experience-seeking consumers can be found using consumer personality traits rather than grouping consumers by common experiences. The proposed clusters don't reflect the possibility that consumers may have a predisposition towards certain types of experiences (sensory, affective, behavioral, and intellectual).

Also, certain brands may generate experiences that lend themselves better to a specific dimension. For example, Gatorade, is likely to elicit a strong behavioral brand experience (Brakus, Schmitt, and Zarantonello 2009). If two consumers were to interact with the brand, regardless of their unique backgrounds, it is likely they would report a strong behavioral reaction. However, if we were to shine a spotlight on each consumer's personality it may become apparent that, given the choice, they would prefer to seek a different type of brand experience. To illustrate, consider the stereotypical high school athlete and his math club counterpart. Both consumers are sure to have different preferences. For the athlete, a behavioral brand experience like Gatorade may be his first choice. He welcomes a brand that encourages him to participate in competition. The mathematician, conversely, would likely prefer an intellectual brand experience in which he can be cognitively stimulated and challenged. However, drinking Gatorade will likely create a stronger behavioral experience regardless of the individual. Whether it is being consumed after a leisurely jog (by the intellectual) or gulped down during a varsity football game; Gatorade, as a brand, creates a behavioral experience. In order to account for this challenge, our analysis studies each respondent's personality traits across multiple brand types. It is important to understand how consumers are likely to experience brands given their predispositions, values, etc. With this concept in mind, we build on brand experiences' seminal work by introducing the consumer personality element into the equation.

Self-Awareness has been the subject of academic investigations for decades with significant advances made in every decade since it was introduced in the clinical psychology literature in early seventies (see Wicklund, Ickes, Ferris 1973; Diener 1979; McDonald 1980; Scheier and Carver 1983; Higgins 1987; Duval, Duval, Mulilis 1992; Trapnell and Campbell 1999; Silvia 2001; Goukens, DeWitte, Warlop 2009) . The initial publication by Shelley Duval and Robert Wicklund in 1972, proposes that objective self-awareness results from directing one's attention towards oneself. In their path breaking work, the authors conceptualized that an individual can only focus their conscious attention either externally (towards their environment) or internally (towards themselves) but not both simultaneously. Self-Awareness was said to catalyze an immediate comparison between the self and a set of standards. Duval and Wicklund originally defined standards as "a mental representation of correct behavior, attitudes, and traits (Duval and Wicklund, 1972, pp. 3). Being objectively self-aware requires an individual to look

inward and compare themselves to a set of standards. A gap between the self and the individual's standards was said to induce negative feelings and motivate the individual to close such gaps so that a person's actions were congruent with what they perceived to be correct behavior(Higgins 1987; Duval, Duval, and Mulilis 1992).

Later work (Fenigstein, Scheier, and Buss 1975; Buss 1980; Carver and Scheier 1981; Froming, Walker, and Lopyan 1982) in self-awareness establishes two distinct types of self-awareness: public and private. Private self-awareness occurs when an individual focuses attention inward and uses their own personal standards for evaluation of choices and behaviors. Engaging in private self-awareness before making a decision involves consulting with your own feelings, values, and conceptions. For example, consider a purchase situation for a piece of clothing. If you are highly privately self-aware you may consider how the color makes you feel, whether the item fits with how you see yourself, or whether you have personally enjoyed a similar item in the past. Often an individual is seen commenting on how a color is their own, "black is my color"

Public self-awareness involves an individual's perception of how they are viewed by others. People high in public self-awareness are likely to consult external and societal norms and standards as a basis for engaging in behaviors (Froming, Walker, and Lopyan 1982). If you were to engage in public self-awareness you would likely consider how the garment will make you look to others when making a purchase decision. Members of your reference group, fashion trends, and society in general will influence your decision more so than your own personal feelings and attitudes. A comment by a friend, "black is so your color," could positively influence a purchase decision in this case.

Regardless of whether an individual is more prone to public self-awareness or private self-awareness, it is useful to marketers to know whether a consumer is acting based on internal standards or externally imposed standards. The most effective marketers are those who understand the decision-making process of their target customers. The internal and external standards of behavior for any given consumer are a critical part of their decision making process and therefore imperative to understand. They act as a lens through which a consumer perceives the choices that lay ahead. Our study will add to the marketer's knowledge by investigating how these "lenses" of the consumer decision process impact brand experiences.

Conventionally, marketers have applied simple techniques like addressing consumers by their name to make them feel more valuable. More recently, marketers have applied self-awareness theory in offering a host of personalised products and services. In the digital age, marketers have devised novel ways of enhancing consumers' self-awareness towards their selves and the environment, thanks to the rapid advancements in internet and mobile technologies. For example, some websites, in addition to asking for the user's name, give the user a host of options before entering the site. The options combine to create a personalized virtual experience that incorporates the user's preferences and personality.

Aforementioned strategies seem piecemeal and ad hoc. Conceptual and empirical bases for formulation and implementation of such strategies are conspicuous in their absence. As marketers grapple with new technology, innovative brand experiences, and heightened consumer expectations in the digital realm, marketing literature should address and suggest conceptually sound strategies based on empirical evidence,. We proceed to fill this gap in the literature by proposing and testing several hypotheses. Our goal is first to explore the average composition of a social media brand experience in regards to the four dimensions of a brand experience. We then aim to find a connection between an individual consumer's self-awareness and how they experience social media brands. Lastly, we seek to identify differences in these experiences on the basis of culture, manifested in the Indian and American samples.

HYPOTHESES

The digital environment is unlikely to induce a consumer to engage in physical actions (Behavioral Dimension). Social Media experiences should also be less cognitively demanding as the brands are normally used for entertainment and social connection and generally not for stimulating intellectual activity (Intellectual Dimension). A consumer's senses are likely to be impacted due to the many images and sounds that a user encounters in the social media environment (Sensory Dimension). Lastly, social media brands are likely to most strongly impact a consumer's emotions (Affective Dimension). There are often relationships formed and sometimes

broken as a result of this medium, so it stands to reason that such a dimension would prove to be most impacted. This logic yields the following hypothesis:

H1. Overall, Social Media Brand Experiences will be strongest in the Affective Dimension followed by the Sensory Dimension, the Intellectual Dimension, and the Behavioral Dimension will be the weakest.

Strength of BE Dimensions in Social Media

Affective > Sensory > Intellectual > Behavioral

Self-awareness is an indicator of how a consumer focuses their attention both internally and externally (Duval and Wicklund, 1972). Essentially, self awareness can be conceptualized as a lens through which a consumer experiences not only a brand but their entire human existence. Acting as an internal controller of attention, self awareness is a powerful cognitive mechanism. We therefore posit that such an integral part of human experience is likely to be part of a consumer brand experience as well. As studies (Goukens, DeWitte, and Warlop 2009) have shown, levels of private and public self-awareness impact how consumers see themselves and in turn make choices. Considering this logic, it stands to reason that self-awareness will exhibit a significant impact on brand experiences.

H2. Self-Awareness will significantly impact one's experience with a brand.

The American and Indian consumer live and buy in two very different cultures. Despite the connected nature of social media sites we believe there will be significant differences in how each group experiences these brands. Differences are also likely to be found in the amount and type of self-awareness engaged in by each group. Hofstede's indices support these hypotheses by pointing out the vast differences in American and Indian cultures. American consumers are more individualistic while Indians are more collectivistic. The power distance ratings also show that Americans seem to be more empowered than Indian consumers (Hofstede 2001). These cultural discrepancies likely lead the different groups to express themselves and experience social media in different manners.

H3. American and Indian consumers will have significantly different social media brand experiences.

H4. American and Indian consumers will differ in the type and strength of self-awareness engaged in while experiencing social media brands.

METHODOLOGY

This study utilized a convenience-based random sample of 174 respondents, with 84 respondents from the United States and 90 from India. Our questionnaire included the original Self Consciousness Scale published in 1975 (Fenigstein, Scheier, and Buss 1975). The recently developed 4-factor Brand Experience scale (Brakus et al, 2009) was also included and respondents were asked to think about their favorite social media site when responding. Upon approval from the institutional review board, the questionnaire was administered via an online survey service and approved by the IRB. Additional surveys, in paper form, were distributed to bolster the number of Indian responses.

RESULTS

In determining the composition of social media brand experiences it was necessary to measure the strength of each brand experience dimension. After aggregating the respondents' selections for each dimension, descriptive statistics were used. Using a 7 point Likert scale, with 7 indicating a very strong experience and 1 indicating a very weak experience, we were able to find the relative strength of each dimension within the social media context.

Relative Strength of Brand Experience Dimensions		
Dimension	Mea n	St. Deviation
Sensory	3.92	0.9
Affective	3.56	0.9
Intellectual	3.81	1.0
Behavioral	3.29	1.0

As expected, the behavioral dimension of brand experience was weakest in the context of social media brands. Surprisingly, the affective dimension was next weakest (as we had originally hypothesized this to be the strongest). The social media environment appears to be more intellectually stimulating than we had originally hypothesized. This is perhaps the result of the many ideas and articles of news that are disseminated in this environment. As we have recently seen in the case of the Egyptian revolution, social media spreads far more than celebrity gossip, but also important concepts of freedom and human rights. Lastly, the sensory dimension proved to be strongest. It is probable that this dimension is strongest due to the many visually stimulating multi-media elements now incorporated on social media sites.

Regression analysis was utilized to determine whether or not self-awareness had a statistically significant impact on the brand experience construct. Two separate regression models, one using public self-awareness and the other using private self-awareness as the independent variable, were run with overall brand experience as the dependent variable. Although both models showed that self-awareness did not explain much of the variance in brand experience, both were highly statistically significant, each with a significance value of .000.

A one-way analysis of variance between groups revealed that there were three statistically significant differences in social media brand experiences between Indian and American respondents. Indian respondents had a stronger intellectual experience with their social media brand of choice than the American respondents. American respondents had a stronger affective experience than their Indian counterparts. The same analysis of variance also indicated that Indian consumers are more privately self-aware when experiencing social media brands.

MANAGERIAL IMPLICATIONS AND FUTURE RESEARCH AGENDA

This study serves as a critical first step towards understanding how consumers experience social media brands. Traditional brands, that are looking to engage consumers through this medium, should be keenly aware that the social media experience has the largest impact on a consumer's senses. It is also important to note social media's apparent move from an entertainment medium to hub of information. As our study shows intellectual stimulation has become a large part of the social media experience. Advertisements, information pages, or any other means of social media interaction should be designed with these findings in mind. Marketers can also benefit through considering the consumers psychological motivations for using the social media sites. As we have shown, both private and public self-awareness play a significant role in a consumers experience using social media. The cross-cultural aspect of our study serves two purposes. First, we have displayed that cultural differences have led to varying uses and experiences with the social media environment. Secondly, we can specifically conclude that Indian users are more self-aware when using the sites. The Indian user is also more likely to be intellectually engaged when using social media. The American user is more likely to be using social media for emotional purposes. To further this area of research, it will be necessary to collect data from larger samples. It will also be interesting to explore not just how consumers experience social media currently but also how they would prefer to experience it. Results from this may uncover latent demand for a new type of social media experience.

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BEYOND THE SUIT AND RESUME: WHAT SIENA STUDENTS NEED TO KNOW ABOUT FACEBOOK AND PRIVACY

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Abstract

The impact of an online reputation is becoming of great concern to many while the knowledge of how information found on the Internet helps form a reputation is not well understood. The goal of our research is to inform Siena students about the implications of posting personal information on the Internet. I will expand beyond the research into the area of online privacy to suggest best practices to build an online reputation for professional success. Our suggestions for best practices have been formed upon the empirical data collected from over 180 US employers. The employers responded through our Qualtrics questionnaire. I will also present the contrast between the expectations of the employers and the perception of privacy of over 1000 college students.

Research commissioned by Microsoft in December 2009 provided a framework for our study. Many social media studies focus on answering the question ‘if’ online reputation matters and have found it clearly does. Our study extends this study by asking what specifically shapes a positive online reputation and ultimately results in a positive hiring outcome. The best practice suggestion will help Siena students leverage social media in a way to enhance their online reputation and maximize their professional success.

With this knowledge, Siena students may have a competitive advantage over other candidates. It is important for Siena students of all class years to use this information. It is critical for students looking for employment to be aware and maintain a positive and professional online reputation. It is equally important for younger students to plan ahead and start thinking about how to best create a positive online image rather than try to repair a negative one when it comes time for them to start applying for work in their senior year. As time goes on, one’s online image is continuing to be referenced in more and more areas including graduate schools and professional programs. Social media has become an extension of one’s personal image and has serious implications for students who wish succeed in today’s increasingly technological world. I plan to give Siena students the knowledge about their online reputation they need maximize their future success.