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MIDWESTERN BUSINESS AND ECONOMIC REVIEW

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ABSTRACTS

FOR THE BIRDS: AN ANALYSIS OF WORKPLACE MOBBING BEHAVIOR AND WHAT TO DO ABOUT IT

The study of mobbing behavior originated in the field of ornithology. Birds often join forces to harass and drive away larger birds and predators they consider to be a threat. Just as birds gang up to drive a predator away, work colleagues gang up to force a coworker out through rumors, intimidation, humiliation, and isolation (Gates, 2004). While little is known about the mobbing phenomenon, its effects can be devastating to the well-being of individuals and organizations. This paper offers a comprehensive analysis of what mobbing is, how it occurs, who it affects, and what can be done to identify, prevent, and resolve mobbing in the workplace. It closes with recommendations for future research.

AGGLOMERATION ECONOMIES, EFFICIENCY AND PRODUCTIVITY GROWTH IN THE RETAIL TRADE SECTOR, 2001-2007

Retail trade is a vital sector to metropolitan areas. A trade sector that is efficient and experiencing productivity gains over time will contribute positively to a region's economic growth. Using data envelopment analysis, we find that the average efficiency of the retail trade sector was about 70% during the period 2001-7. Over that period, productivity improved by 25%. Agglomeration economies, both urbanization and localization, are positively related to efficiency in retail trade in metropolitan areas. However, only technical change is positively related to urbanization economies, while localization economies do not appear to be important in determining productivity growth.

THE TEACHING OF THE CONCEPT OF CROSS ELASTICITY OF SUPPLY IN UNIVERSITIES AND IN LAW SCHOOLS

This article examines the use of the cross elasticity of supply as a relevant criterion in the process of defining relevant product markets. It provides a brief review of the emergence of the concept in the economics profession and traces its gradual acceptance as a criterion for defining relevant markets in the federal court system. Further, the author examines the degree to which the concept of cross elasticity of supply is taught in economics courses at the university level in the U. S. and Canada, as well as in antitrust law texts used in American law schools. He finds that although the concept is seldom discussed in economics texts used in the aforementioned universities, it is more consistently dealt with in antitrust law texts used in U. S. law schools.

FACTORS AFFECTING STUDENTS' CREDIT CARD AND STUDENT LOAN DEBT ON A UNIVERSITY CAMPUS

Student loans and credit cards have enabled more students to pursue their college education, but the associated debt may create a substantial future financial burden. In this paper we use survey data to study college students' use of credit in the form of credit cards and student loans. Our analysis identified several factors that affect students' reliance on credit, such as current income, family support and expected income after graduation. Our data also show that use of student loan and use of credit card are positively related among our students. The results shed some light on the importance and urgency of educating today's college students to use credit wisely.

MARKET INFORMATION ASYMMETRY AND RESIDENTIAL REAL ESTATE PRICES

Data from 24,790 single-family house transactions that occurred in the City of Dayton from 2001 through 2007 were analyzed to determine whether investors systematically pay a different amount than purchasers who use the property as a principal residence. For the entire study period, investors paid $2,657.93 less. For the mean priced house in our study, this means investors paid 4.75% less, on average, than owner-occupants. The results have implications for anyone with an interest in real property valuation including property tax authorities and fee appraisers because a two-tiered transaction set may distort the assessment process and/or the indicated value calculated by fee appraisers using the comparable sales approach.

CHANGE MANAGEMENT, CANTOR FITZGERALD AND 9/11: DID CANTOR FIT THE MODEL?

In the literature a coherent theory of change management has evolved. However, the bulk of this literature has been written from the perspective of the firm deliberately managing and integrating change as a management process. However, in real world of business change is often forced on a company by external forces, and then change management can become a reactive process. This paper is an attempt to apply the change management literature to exactly this type of situation. Here we will examine a company forced into the change management process by a catastrophic event, and we will look to the literature to see how instructive the theory of change management is to managing unplanned change precipitated by an unforeseen and unexpected catastrophe.

A COMPARISON OF BENEFITS AND WAGE INCENTIVES ACCORDING TO ORGANIZATION SIZE: A CHALLENGE FOR SMALL BUSINESS

This research is based on a sample of manufacturers and their participation in providing employee benefits. A comparison was made between small and large businesses. Significant differences existed in all areas but paid vacation in that a larger proportion of large businesses had time off options than did the small businesses. A large proportion, 95%, of large manufacturers and 80% of small businesses indicated they had health insurance available for employees. Also, 91% of large businesses and 80% of small businesses had health insurance as an employee benefit available for dependents. A majority of the large manufacturers sampled, 96%, indicated they had some type of pension plan for their employees while only 61% of small businesses provided this option. A major challenge is for small businesses to continue to provide and to increase employee benefits.

FOR THE BIRDS: AN ANALYSIS OF WORKPLACE MOBBING BEHAVIOR AND WHAT TO DO ABOUT IT

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MOBBING IS FOR THE BIRDS

The idea of mobbing in the workplace comes from the study of animal behaviors, particularly those found in birds. Mobbing in ornithology refers to birds' behavior in harassing something that represents a threat. It is an overt response to perceived threats from predators. The birds issue alarm calls and fly at the predator, diverting its attention and harassing it. The mobbing usually starts with just one or two birds, but rapidly attracts large numbers of birds. It is not unusual to see groups of birds pursuing an owl, hawk or eagle. Experiments have shown that birds learn from each other which predators to mob. Therefore, one function of mobbing in animals may be educational, and another may be to alert other birds to the presence of an enemy by encouraging them to join in the mobbing. The first mobber benefits directly in this process by ensuring that the predator leaves the disputed territory (Ehrlich et al., 1988).

Like birds gathering forces to swoop on owls and hawks, people may also gang up on work colleagues they perceive as threats. Workplace mobbing is a ganging up of work colleagues to force someone out through several tactics, including: rumoring, intimidating, humiliating, discrediting, and isolating (Gates, 2004). Workplace mobbing is defined as "an impassioned, collective campaign by colleagues to exclude, punish and humiliate a targeted worker" (Westhues, 2002, p. 32). It usually begins with one person who decides that he or she is threatened by a colleague and thus begins a campaign of mobbing to try to drive that person out (Halbur, 2005). Mobbing is a desperate campaign that spreads through the workplace like a disease, infecting person after person with the desire to eliminate a target. Leymann concludes people resort to mobbing to cover up their own weaknesses and deficiencies (1993). It stems from interpersonal conflict and has evolved into extremely negative social interactions at work. Empirical research from both the U.S. and Europe concludes that mobbing is not a marginal phenomenon. Past research in Sweden concluded that 3.5% of the labor force of nearly 4.5 million workers found themselves as mobbing victims (Leymann, 1995). In the United States, with a workforce of over 130 million, this rate of mobbing would affect over 4 million workers (Davenport et al., 1999).

Heinz Leymann was a pioneer in what has become a worldwide campaign to understand, remedy and prevent workplace mobbing, which is a threat to organizational effectiveness and workers' well-being. His work first coined the term "mobbing" for this workplace behavior and brought it to the public attention in the late 80's and into the 90's describing mobbing as a form of "psychological terror" (Leymann, 1996). Leymann, a German psychologist working in Sweden, began conducting studies of workers who encountered high-stress at work. He found that victims of mobbing had by far the highest levels of work-related stress (Gravois, 2006).

Because workplace mobbing is secretive in nature, it usually takes place within the established policies of the organization (Vega & Comer, 2005). Many organizations carry on for years without a single case, but although rare, between two and five percent of adults are mobbed at some point in their careers (Westhues, 2002). The sophisticated behaviors behind mobbing occur on a regular basis and over a long period of time. The frequency is defined as at least once a week and the duration is defined as a period of at least six months. One distinctive feature of workplace mobbing is that it does not focus on the specific act and how it is carried out, but on the frequency and duration of what is done. The regularity and long duration often results in considerable mental, psychosomatic, and social misery on the individual which can ultimately push the victim to an indefensible position. The scientific explanation of the term mobbing thus refers to the workplace conflict through which one individual is targeted by a group of colleagues on a regular basis, over several months leaving the person in an almost powerless position (Leymann, 1997).

PROFILE OF A MOBBING VICTIM

It is a misconception to think that mobbing victims start in the organization as weak, timid or submissive. Unlike victims of bullying who are generally weak or considered easy prey, mobbing victims are typically strong, above average performers who demonstrate enthusiasm, intelligence, competence, creativity, integrity, accomplishment and dedication. Often, they are people whom Daniel Goleman (1995) would consider to be emotionally intelligent. They have learned to work things out, examine their own behaviors and correct themselves when they know they have made a mistake. It is found that prime targets are human rights advocates, whistleblowers, women with family responsibilities, those with religious or cultural beliefs out of the mainstream and particularly those who do not belong to the "in-group" (Gates, 2004, p. 31). In essence, the employee most vulnerable to workplace mobbing is the personally invested high achiever who somehow threatens his or her colleagues. Victims are not usually go-with-the-flow people (Davenport et al., 1999). To calculate an individual's odds of being mobbed, count the ways in which that person opens his or her colleagues to unfavorable comparison. Fame, publications, evaluation scores, connections, eloquence, wit, writing skills, athletic ability, computer skills, salary, family

money, age, class, pedigree, looks, house, clothes, spouse, children or sex appeal could all contribute (Westhues, 2006-3).

FERTILE GROUND FOR MOBBING

Mobbing is a system built on the interaction of key elements which all play measurable roles, relating to and reinforcing each other. The elements include: the psychology, personality and the circumstances of the mobbers and victims, the organizational culture and structure, the triggering event, the underlying conflict and several factors outside of the organization (Davenport et al., 1999). Kenneth Westhues (2007) is a professor of sociology at the University of Waterloo who has written a five-volume series about mobbing in academe and frequently visits university campuses to collect data and lecture on episodes of mobbing. With his research centering on the college environment, he concludes that mobbing occurs most in organizations where the workers are secure in their jobs, there are subjective measures of performance, and where there is frequent tension between the loyalty to the institution and its goals and loyalty to higher purposes or individual goals (Gravois, 2006). Hundreds of Leymann's case studies show mobbing is usually found in work environments that allow poorly organized production and working methods and are with inattentive or uninterested management (Vandekerckhove & Commers, 2003).

Mobbing occurs in all kinds of organizations. However, research shows that in the non-profit sector, as well as in the education and health care industry, mobbing is more prevalent than in private companies. According to Westhues (2006-3), college and university campuses are perfect breeding grounds for the culture of mobbing. This is further supported by Leymann's (1996) study that found a disproportionate percentage (14.1%) of mobbing victims in schools, universities and other educational settings. The high job security, subjective performance evaluations and frequent tension meet the criteria for an atmosphere of mobbing. Mobbing most commonly occurs in organizations where employee rights are formally protected.

IMPACT ON VICTIMS AND ORGANIZATIONS

Workplace mobbing is highly detrimental to victims in many ways. One consequence of enduring this social terror is a change in the victim's personality. Repetitive harassment changes normal reasoning and the way in which they communicate. Confidence and self-assurance are often replaced with insecurity and doubt, sometimes the victim even doubts their own sanity when trying to make sense of the senseless. Their position and influence in the organization is destroyed. Victims who previously were reasonable and balanced often display irrational and erratic behavior as a result of the onslaught. Uncharacteristic anger, frustration and aggravation are often expressed by victims because of the injustice. When a victim finally decides to seek relief from mobbing they have been so affected that they may be labeled as difficult, making it easier to point to the victim as a nuisance to be discarded ("Profile," 2006; Leymann, 1996).

Mobbing is likely responsible for serious illness, such as the post traumatic stress syndrome studied by Leymann. Often, illnesses lead the victim to seek professional medical help, but as argued above, the victim can easily be incorrectly diagnosed when triggering social events are not considered. Paranoia, depression and character disturbance are some of the most incorrectly documented diagnosis as a result of workplace mobbing (Leymann, 1996). The more intense the mobbing gets and the longer it lasts, the greater the effect is on the victim. However, each victim has a different tolerance level and some are better able to shield themselves against the harassment. Some will stand up earlier and escape, but for others, circumstances may prevent them from doing so. Victims often feel constraints make it difficult to escape the mobbing. They depend on their jobs, thus they try to withstand the mobbing. Additionally, victims are often loyal to the organization and committed to its goals. This entices them to keep quiet and not take action (Davenport et al., 1999).

In his studies, Dr. Leymann estimated that 15% of the suicides in Sweden were directly attributed to workplace mobbing (Leymann & Gustafsson, 1998). There are approximately 30,000 suicides in the U.S. annually (Davenport et al., 1999). If 15% of U.S. suicides are attributed to mobbing as in Sweden, there would be 4,500 suicides directly linked. In another study, nearly all victims of mobbing reported being affected in their work ability, de-motivated, suspicious, and nervous. Of those, nearly half became ill, 30% changed their position, 23% left their job completely, and 15% were fired. On the other end of the spectrum, a mere 11% of mobbers had to change positions and only 8% were fired (Gates, 2004).

Mobbing exacts staggering economic and emotional costs not only from victims and their families, but also from organizations and society as a whole. Organizationally speaking, mobbing results in high turnover, less creativity and enthusiasm, low morale, decreased productivity, increased absenteeism, and loss of vision. The victim's focus turns toward internal maneuvering rather than on the goals of the organization leaving a sharp decline in efficiency. The trend tends to have a domino effect throughout the entire organization. Employees who see their co-workers harassed also experience higher levels of negativity and the work quality is weakened when compared to non-exposed workers (Davenport et al., 1999).

Victims often seek relief from the mobbing through legitimate sick leave. Frequent leaves, coupled with insurance and workman's compensation claims are costly and disruptive to the organization. The California Worker's Compensation Institute showed a significant rise in the number of stress-related worker's compensation claims in the mid-90s. This likely reflects the emerging national trend (Davenport et al., 1999). Victims seeking legal help add further costs, often depleting organizations operational funds and legal funds.

Perhaps the greatest cost to the organization, though, is the loss of key individuals (Rayner et al., 2002), resulting in an extensive recruitment, hiring and training process, estimated at a range of 30,000 to 100,000 dollars for each individual (Sheehan & Barker, 1999). Tangible costs are not the only

concern; the organization's reputation, public relations, and commitment from employees are all at stake. Consequently, the cost to the organization is substantial. Johanson (1987) argued that it was far less costly for companies to recognize mobbing, offer employees professional rehabilitation and to reorganize working environments than to pay for the costs associated with sick-leave, early retirement, adjudication, training and development (Johanson, 1987). Ultimately workplace mobbing diminishes teamwork, trust and common purpose throughout the organization (Leymann, 1996). The total social and economic implications of these phenomena are immeasurable due to vast array of costs associated with unemployability, disaffection, and court involvement (Vega & Comer, 2005).

THE PROCESS OF MOBBING

According to Leymann (1996), mobbing progresses through a series of unique stages as it escalates from a small storm to a full-blown tornado. These stages are outlined in Figure 1.

Figure 1

Stereotypical Course of Mobbing
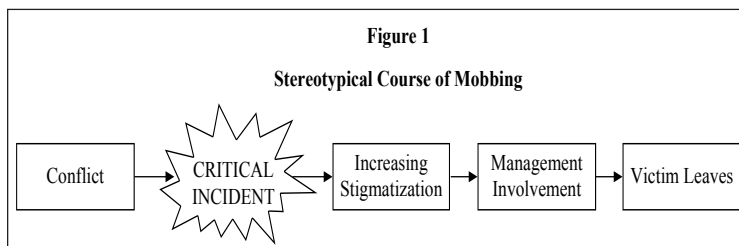
The triggering situation in workplace mobbing is organizational conflict. In organizations with effective conflict resolution policies, conflicts are handled as learning opportunities and colleagues are encouraged to find ways to negotiate, but that is not the case in organizations that experience mobbing. The cause of the conflict, or even the conflict itself, is irrelevant. The conflict can ignite from any number of sources, whether it is a disagreement over work procedures, a lack of recognition, a new boss or colleague, or a clash of personalities. What does matter is that the conflict is not managed and the issues are not dealt with. The conflict lingers and often compounds. Because the organization fails to address the conflict, the mobbing process is set into motion with an escalating situation called the critical incident. Frequently, the initial conflict might be forgotten in the process. (Davenport et al., 1999).

The critical incident in the first phase of workplace mobbing always varies from case to case. The victim is accused of anything from racially or sexually insensitive remarks to being careless with paperwork such as expense reports. The critical incident, in the eyes of the victim's colleagues, confirms what they have always thought of the victim. Mobbers often feel that swift steps need to be taken to remedy the situation, usually involving administrative action (Gravois, 2006). This first phase of workplace mobbing may be very short and hypothetically speaking, is not yet mobbing (Leymann, 1996).

The second phase reveals the stigmatizing actions by colleagues with increasing isolation and petty harassment. Workplace mobbing activities may contain quite a varying number of behaviors and activities. The confusion and isolation experienced by victims may make it difficult to recognize signals

(Davenport et al., 1999). Gossip circulates about the victim and the victim begins to be left off certain lists to attend meetings or be in committees. Requests and paperwork get delayed in the works or lost entirely and the victim is assigned to meaningless tasks or undesirable work times. Work instructions are confusing and constantly change and information critical to success is withheld. The mobbers formally express negative sentiments both orally and in writing with a high value on secrecy among the mobbers making it hard for anyone to defend the victim. Their aim is to show that the victim has no redeeming qualities and that all the victims' real or imagined wrongdoings add up to one mortal sin that demands action (Westhues, 2006-3). These activities do not necessarily indicate aggression, but being subjected to behaviors, such as the ones above, on an almost daily basis over a long period of time is used to stigmatize the victim. Aggressive manipulation used to get at a person is the main characteristic of the behaviors associated with this stage (Gravois, 2006).

Management gets involved to the detriment of the victim in the third stage. At this stage, adjudication at the administrative level is initiated, most often with the desire to get rid of the problem, i.e. the victim. At this point the problem officially becomes a case. Due to the previous stigmatization it is very easy for management to misjudge the situation and place blame on the victim. Management tends to accept and take over the ideas produced by the majority in the earlier stages, often resulting in violations of rights guaranteed by work legislation. The victim is often branded as difficult or even mentally unstable. Psychiatrists or psychologists will sometimes even misinterpret the situation as they have little training in social situations at the workplace. The victim is often judged on incorrect personality characteristics rather than environmental factors resulting in an incorrect diagnosis of the underlying problem. This problem in identification is only cemented when management is responsible for the environment at work and refuses to take responsibility (Leymann, 1996).

Finally, chances are the victim is forced to leave the organization. Whether the victim wins or loses the adjudication, whether dismissed or reinstated, the victim ultimately leaves. Expulsion from employment may easily turn into a much grimmer situation for the victim. The victim may find that they are unable to find another job due to the expulsion essentially leaving the victim completely expelled from the labor market. The mobbing process does not always necessarily end when the victim is driven out of the organization. Mobbing sometimes continues so as to justify the actions taken by mobbers and to concretely prove the organization's decision as the right decision. Mobbers defend themselves by continuing the process of destroying the victim's reputation and by preserving the image of the victim as a difficult employee (Davenport et al., 1999).

RESOLVING WORKPLACE MOBBING

Workplace mobbings are relatively rare, but since most mobbings occur in organizations with flawed cultures and administration, an organization with one case of mobbing will likely have others (Friedenberg, 2006). It is essential to know what phase the mobbing process is in to select an effective

approach to remedy. There are different measures directed towards prevention, stopping it, or rehabilitating a victim and organization (Leymann, 1996).

The role of the organization and management in preventing workplace mobbing cannot be overstated. Victims feel increasingly helpless when organizations do not stop mobbing or even condone it (Vartia et al., 2003). Attacking mobbing first requires naming it and recognizing the patterns. That duty falls directly on management. Managers should be able to read the first signs of mobbing and resolve the conflict before it escalates. Managers have more power to halt a mobbing in its tracks than often recognized by simply demanding it stop. Management must also find individuals through an extensive training and selection process to serve as informal experts, who advise colleagues on anti-mobbing procedures (Vega & Comer, 2005). These procedures must diagnose mobbing cases without placing blame. The focus should be on the situation, issue, or behavior, not the people (Gates, 2004).

Any organization that truly has a desire to prevent mobbing needs a clear policy explicitly stating that it will not be tolerated, just as the development of any organizational policy establishes norms of acceptable behavior (Vega & Comer, 2005). The adoption of workplace policies is an important step reflecting management's acknowledgement of mobbing as a problem. Volkswagen led the movement in 1996 as one of the first private companies to enact an anti-mobbing policy. The Saturn Corporation and Levi Strauss & Company are also often cited as good examples (Davenport et al., 1999). More important than the design, however, is the implementation. It is arguably the most important step. It signifies management's commitment to the issue. Without an anti-mobbing policy it is difficult to intervene on behalf of a victim. Additionally, organizations should have a code of conduct that provides specific examples of desirable behaviors. The process of developing a code of conduct alone illustrates inappropriate interactions (Vega & Comer, 2005). Written documents are only effective if employees know about them and know management's commitment to them. Even well designed policies can be ineffective. For example, enacting a policy forbidding mobbing may become a tool for convicting a victim of a punishable offense and thereby aiding in dismissal if management is not committed to it (Gravois, 2006). A genuine concern about workplace mobbing needs to be embedded in people's minds.

Education about mobbing is itself a remedy, and for many victims, a vital therapy. Training that explains the anti-mobbing policies and helps identify the first signs of mobbing creates an atmosphere of openness as a proactive approach to the problem. However, rote-learning approaches that do not understand the depth and complexity are not the answer. Organizations are often eager to institute training approaches such as this, but workplace mobbing is far from simple and requires an approach that involves a host of interwoven ideas such as: the management and behavior of groups, human development, mobbing psychology, varieties of mobbing, different responses required, and legal issues (Tehrani, 2003). The training should inform employees of how and where to report mobbing incidents,

and clarify as to where they find support for themselves and colleagues (Richard & Daley, 2003).

As a mobbing case develops, it is the obligation of managers to protect the victim. Organizational leadership and effective grievance procedures prevent misconduct. Even if the victim has demonstrated behaviors that might have helped trigger the mobbing, there should be, in every organization, procedures in place that provide the appropriate action (Davenport et al., 1999). Clear strategies, both formal and informal, must be provided so that the person who thinks he or she is a victim has recourse. Depending on the severity, an informal approach to remedy can be effective, followed by a more formal approach later if needed. An explanation and perhaps some minimal coaching may satisfy the need to change behavior. An impartial mediator may be able to deliver the message. When an informal strategy is not viable to resolve a situation, a formal process is required. The information provided by the victim, the accused and witnesses should be weighted and used to determine the merits of the complaint. When more formal interventions are utilized, more substantial training and rehabilitation are likely required (Vega & Comer, 2005). Ultimately, the objective is that the victim recover his or her working life, and get back on track whether it be through administrative reform, publicity of the wrong, redress in the courts, removal to new workplace or therapy (Westhues, 2006-1). Allowing a victim to suffer a mobbing case and then just letting the employee go should be recognized as a major management failure.

THE FUTURE OF MOBBING

Mobbing affects victims so deeply for a number of reasons, none clearer than the fact that victims strongly identify with what they do. Victims are committed to their work and get a sense of purpose from it. Mobbing violates the core of who they are (Davenport et al., 1999). The costs of an infected corporate culture have a significant impact on any organization's operational effectiveness. More expenses incur because of turnover, recruitment, training, low morale, and decreased productivity. These costs coupled with lawyers' fees, court, workers compensation and settlement arrangements are likely a hefty expense. But, most importantly, what is getting lost is the value of healthy workers and organizations with vision (Bultena & Whatcott, 2008).

The lessons from instances of mobbings are clear. It is not enough to correct mobbing cases one by one. Education about mobbing at a general level and cooperation toward finding structures, programs, and policies for organizations to encourage the best from all employees are needed, rather than mob, bully and harass them. Mobbing can only persist as long as it is allowed to persist (Davenport et al., 1999). Only with this collective effort may a remedy for workplace mobbing be found.

Workplace mobbing is a dirty little secret in many organizations. Because it is so secretive and obscure and because it is so steeped within human nature, we can expect it to continue despite our best efforts to combat it. The best weapon against mobbing is

knowledge and awareness. Recent research has revealed both the process and pervasiveness of mobbing behavior at work. Much has been learned. Nevertheless, mobbing has become a way of life in many organizations. The need to form coalitions—for insecure, marginal employees to ban together to enhance their chances of survival—may underlie the mobbing phenomenon. Much remains to be learned in unlocking the mysteries of the mobbing phenomenon.

Future research should focus on the profile of "the mob" and "chronic mobbers" in organizations. Who are the mobbers? Who is invited into the mob and why? How stable is the membership of the mob? How cohesive and compatible is the mob? How is the mob organized? How does it function? Another area that has received little attention in research is the "half life" of mobbing episodes. How long does a mobbing episode last? How focused are mobbers? Do they persist until the victim departs or do they lose interest in a victim who proves resilient and focus on a more lucrative target who is involved in a more pressing issue? Researchers may have to infiltrate the mob in a longitudinal study to unlock its secrets.

Finally, do mobbers really despise their victims, or is it just an intriguing pastime, a survival tactic, or a way for powerless employees to feel powerful? When I was mobbed, I was surprised to find that the mobbing subsided when the issue behind the mobbing was resolved. Much to my surprise, the mobbing ended as quickly as it started and civility was restored as if nothing had happened—no harm, no foul! The mobbers lost interest and targeted another more enticing victim who posed a more eminent threat to their interests. Mobbing may simply be a tool to intimidate, neutralize, and counteract a capable coworker who the mobbers feel has the power to influence important decisions and outcomes. If the defining crisis is resolved or subsides, the victim may be welcomed back into the fold. If not, efforts to intimidate and drive the victim out may continue. How deep does mobbing resentment and the desire to annihilate the victim run? What is its duration—how long will it last? To what extent is it generalized (focused on the target's persona) versus situational (linked to a specific crisis or threat posed by the target)? Much remains to be explored in the mysterious phenomenon of mobbing. Two things are clear: mobbing is taking its toll in the workplace; and, mobbing does not appear to be well suited to humans. Perhaps it is best left to our feathered friends. Mobbing really is…For the Birds!

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AGGLOMERATION ECONOMIES, EFFICIENCY AND PRODUCTIVITY GROWTH IN THE RETAIL TRADE SECTOR, 2001-2007

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I. INTRODUCTION

The retail trade sector in a metropolitan region is vitally important to the economic success of the region. A healthy trade sector is important not only for supplying the goods that urban residents demand, but also as a major creator of jobs (see, for example, Dixon, 2005). Wang and Zhang (2005) state: "The level of retail development…reflects the standard of living in the host cities, especially the world cities" (p. 41, 2005). They list New York, London, Paris, Tokyo, among others, as examples of what they call world cities. However, their quote applies to all urban areas; an efficient retail trade sector with increasing productivity will contribute to enhancing to the standard of living in an urban area.

Where the retail trade sector is constrained by excessive regulation and small size, labor productivity will grow slowly and efficiency will tend to be low. Jones and Yoon (2008) point out that this has been the case in Japan where labor productivity grew by only 0.42 percent per year in the 1990's. This disappointing performance is a product of "market-unfriendly regulations" that have weakened entrepreneurial activity. In contrast, Wang and Zhang (2005) detail the loosening of restrictions in the retail market in Shanghai and the benefits that such deregulation has brought to the sector and the city.

In the United States, the retail trade sector has exhibited accelerated productivity growth since the 1990's. Sieling, et. al., estimate that labor productivity increased at an average rate of about two percent per year during the 1987-99 period. Wolff (2007) estimates that total factor productivity in retail and wholesale trade increased by 2.6% per year during the 1990's and by almost 3.6% per year during the period, 1995-2003. Several factors have contributed to this acceleration in productivity growth: computerization (Nakamura, 1999), the Internet (Wolff, 2007), organizational innovations and improved inventory methods (Fernald and Ramnath, 2004). An additional factor that is mentioned by several researchers is the increase in the size of retail establishments, which enabled the implementation of information technology that led to increased productivity. By contrast, in Japan, "The small number of large-scale outlets has been identified as a key factor behind the low level of productivity in the retail sector" (Jones and Yoon, 2008, p. 29).

As retail establishments grow in size, there is a tendency for the sector to become more highly concentrated in urban areas. In their study of Indiana counties, McGurr and DeVaney (1996) found that the number of retail establishments in nonmetropolitan

counties declined while those in the metropolitan counties increased in number during the period, 1970-90. This occurred despite that fact that "…the proportion of Indiana population residing in metropolitan counties remained almost the same in 1972 and 1992" (McGurr and DeVaney, 1996, p. 41). By 1992, sales per every 1000 population were forty percent larger in metropolitan counties as compared to nonmetropolitan counties; in contrast, sales were only twenty-four percent larger in metropolitan counties in 1972. One factor that is likely driving this increasing urban concentration is likely the existence of agglomeration economies, including both urbanization economies and localization economies. Quigley (1998) and Ciccone and Hall (1996) provide theoretical models and some evidence for the relationship between productivity and urban density. Their studies address many of the questions of the importance of city size to productivity that were explored in the 1970's by Sveikauskas (1975), Segal (1976) and Moomaw (1981).

Hanink (2006) relates earnings to external scale economies for a variety of sectors in New England counties. He finds that urbanization and localization economies were both significant explanatory variables for earnings in the retail sector in 2000. In this paper we are concerned with the relationship between external scale economies and efficiency and productivity growth in the retail sector in metropolitan areas. Extending Hanink's (2006) approach, we estimate efficiency levels and productivity growth of the retail sector in 348 metropolitan areas in the United States and relate these to measures of urbanization and localization.

In the next section, we discuss further the importance of agglomeration economies to retail trade. The third section presents the efficiency and productivity measures for metropolitan areas in the United States. The fourth section relates the measures from the third section to our measures of agglomeration economies, while the last section contains a brief summary and conclusions.

II. THE RELATIONSHIP BETWEEN AGGLOMERATION ECONOMIES AND EFFICIENCY AND PRODUCTIVITY

Agglomeration economies are associated primarily with urban areas. The size advantage of urban areas gives rise to various external economies of scale that can increase both efficiency and productivity growth. Larger markets lead to increased specialization by firms, which can reduce costs. Larger populations also increase the stock of available knowledge,

which can lead to spillovers that increase the productivity of labor, a source of urbanization economies. Some of these knowledge spillovers may be specialized to particular sectors such as retailing, and hence, be a source of localization economies.

As Beeson points out for manufacturing, productivity growth will depend on scale economies as well as the rate of technical progress (Beeson, 1987). Besides the scale effects on the local labor pool, urban areas will be home to specialized business services such as banking, to ready availability of storage facilities and to public services that may be more efficiently provided in a larger urban setting. It can be expected that external scale economies will be higher in urban areas as compared to nonurban regions and such economies are likely to increase with city size.

With respect to technical progress, the rate of development, the diffusion, and the adoption of new ideas are also likely be higher in urban areas (Beeson, 1987). The benefits of new techniques will act to raise the efficiency and productivity growth of sectors in urban areas. Once again, we would expect there to be a close relation between the size of an urban area and the development of new ideas. "If there are economies of scale associated with the development of technological advances, a more than proportionate number of innovations may be developed in urban areas" (Beeson, p. 185). While Beeson's remarks related to the manufacturing sector, in particular, they would appear to apply with equal relevancy to other sectors as well. Within urban areas, we would expect knowledge of new techniques to spread rapidly, leading to advances in efficiency. Between urban areas, there is some evidence that new techniques spread both hierarchically (higher to lower ranks of cities) and radially (adoption rates tend to decline with distance from the source region) (Richardson 1973).

Theory suggests that a sector should benefit from both urbanization and localization economies in urban areas. There is also the suggestion that at least up to some level of population, the benefits of agglomeration should continue to increase. We will use some common measures of urbanization and localization economies to explore these ideas in the next two sections.

III. MEASUREMENT OF EFFICIENCY AND PRODUCTIVITY GROWTH

Data envelopment analysis (DEA) is used to estimate efficiency and productivity growth in the retail trade sector. The basic model is the Farrell input saving model of efficiency with the assumption of constant returns to scale. Our basis of observation consists of metropolitan areas in the United States for the period 2001-2007. This is admittedly a rather short period to study productivity growth in particular, but due to the change to the North American Industrial Classification System (NAICS), data are only available on a consistent basis since 2001. A few metropolitan areas lacked data for the entire 6 year period and therefore, were dropped from the analysis. This resulted in a sample of 348 metropolitan areas for the entire period. Metropolitan areas of all sizes (see Table 6 for the size

distribution of metropolitan areas included in the sample) were included in the sample, making it appropriate for studying the issues of interest.

Data on labor and output were taken from the Bureau of Economic Analysis website (**http://www.bea.gov**). Output is in constant 2001 dollars and is defined as the retail trade component of state Gross Domestic Product. Defining output in the retail trade sector can be a challenge (see Nakamura, 1999; Oi, 1992; and Selers-Rubio and Mas-Ruiz 2007), but this is the best measure that is currently available. Labor is just the number of workers for the retail sector as reported by the BEA. Given the fact that much labor in this sector frequently employed only part-time, hours worked would be a better measure, but it is not available for this sector. The BEA does not provide estimates of capital by sectors for metropolitan areas, so it was necessary to construct capital data. We use a simple allocation approach, whereby we allocate the national capital in the retail trade sector, as reported by the BEA, to the various metropolitan areas. We use a variation on an approach by Garofalo and Yamarik (2002) that employs personal income. We take personal income in the retail sector in a metropolitan area and subtract labor income. The resulting figure is a measure of property income. A metropolitan area's capital stock is then equal to its proportion of national property income in retailing times total national capital in the retail sector. While this is a fairly simple approach, it does allocate capital among the metropolitan areas in a reasonable way. Capital should be related to personal income, particularly after labor income is subtracted out, in a predictable manner and the resulting capital estimates for metropolitan areas do not seem unreasonable.

The variable statistics are given in Table 1. Note that capital is measured in billions of dollars (also standardized to 2001 dollars), output is in millions of dollars and labor, as indicated

Table 1. Variable Statistics

Variable	Mean	Std. Deviation	Maximum	Minimum
Output (millions)	1865.217	4497.217	52536.429	107.286
Labor	42892.146	89281.836	977328	4491
Capital (billions)	1.641	4.223	46.069	0.066

Table 2. Efficiency Estimates

Year	Mean	Std. Deviation	Minimum	Maximum
2001	0.7137	0.0961	0.4444	1
2002	0.7366	0.0938	0.4878	1
2003	0.7201	0.0900	0.4415	1
2004	0.7006	0.0919	0.4249	1
2005	0.6995	0.0977	0.4103	1
2006	0.6939	0.0984	0.4185	1
2007	0.6781	0.0938	0.4101	1
All 7 Years	0.7061	0.0909	0.4339	1

Table 3. Productivity Estimates, 2001-2007

Productivity	Mean	Std. Deviation	Minimum	Maximum
TFP Growth Rate	1.2530	0.0951	1.0173	1.8110
Efficiency Change	0.9524	0.0732	0.7644	1.3878
Technical Change	1.3159	0.0252	1.2187	1.3633

above, is the total number of workers. The standard deviations for all three variables are high relative to their means, reflecting the rather large variation in the sizes of the metropolitan areas.

Average efficiency estimates for each year and overall are given in Table 2. We find that average efficiency declines over the six year period. This is, perhaps, somewhat counterintuitive since the first year, 2001, is a recession year and the last year, 2007, is near the peak of the cycle. Normally, we would expect efficiency to rise as the economy improves form a recession, but this does not seem to have occurred in the retail trade sector. The average efficiency levels also seem to be relatively low (around 70%), indicating that there is considerable room for efficiency-improving techniques in the sector. Low average efficiency levels in retailing are also likely to be a reflection of the market structure, which is typically characterized as

monopolistic competition. Theory indicates that firms can expect to earn normal profits and operate at less than their minimum efficient scale. Therefore, we would expect there to be many retail establishments that are relatively small and exhibit excess capacity, which would contribute to lower levels of efficiency.

Table 3 contains estimates of total factor productivity (TFP) growth and its components for 2001-2007. TFP grew by an impressive 25.3% during the seven year period, or about a 3.8% average annual rate of growth. Note that this figure is almost identical to the 3.6% total factor productivity growth rate reported by Wolff (2007) for the period, 1998-2003. All of the growth was due to technical change (31.6% increase, or an average annual growth rate of 4.7%) since efficiency change was negative during the period. All metropolitan areas experienced positive TFP growth due to technical change; the lowest productivity growth rate was about twenty-two percent (3.4% average annual growth rate). The highest rate of technical change was 36.3%, or 5.3% annually (Deltona-Daytona Beach metro area). The Columbus, IN metro area had the highest rate of efficiency change at 38.8% (5.6% average annual growth rate).

Table 4 presents the average efficiency by region. The highest average efficiency was in the Far West at 75.6%, while the Plains region was the lowest at 64.5%. The relatively poor showing of the Plains region is possibly due to the higher costs associated with providing goods to a relatively small and somewhat dispersed population. Note that the next two regions with the lowest efficiency levels are also in states with dispersed populations: the Rocky Mountain and Southwest regions.

Table 5 presents the average productivity growth by region. Productivity growth was slowest in the Plains region at 20.6% for the seven year period and it was highest (31.1%) in the Rocky Mountain region. Efficiency change was negative in all regions, while technical change was positive in every region. The Southwest experienced the highest rate of technical change at 33.3%, while the Great Lakes region's rate of technical change was lowest at 30.4%.

Tables 6 and 7 present the average efficiency levels and productivity growth rates by the size of the metropolitan area. Six size categories are considered (less than 100,000, 100,000-200,000, 200,001 – 500,000, 500,001-1,000,000, 1,000,001-2,000,000 and more than 2,000,000). These are admittedly somewhat arbitrary, but it is unlikely the conclusions would be any different if other size categories were considered. Average efficiency follows a clear upward progression as metropolitan size increases. Metro areas below one hundred thousand in population have an average efficiency score of 66.3% while metro areas exceeding two million in population have an average efficiency score of 82.3%. Productivity growth, however, shows the opposite tendency in that it decreases with metropolitan size (Table 7).

The smallest metro areas saw TFP improve by 32.7% over the period 2001-2007, while the largest metropolitan areas could only attain a TFP growth rate of about 20.1%. The difference

Table 4. Average Efficiency by Region

Region	Average Efficiency
New England	0.7272
Mid-Atlantic	0.6869
Great Lakes	0.6892
Plains	0.6448
Southeast	0.7280
Southwest	0.6797
Rocky Mountain	0.6784
Far West	0.7556

Table 5. Average Productivity Growth by Region

Region	TFP	Efficiency Change	Technical Change
New England	1.2220	0.9208	1.3269
Mid-Atlantic	1.2599	0.9556	1.3188
Great Lakes	1.2024	0.9229	1.3038
Plains	1.2055	0.9195	1.3114
Southeast	1.2730	0.9687	1.3146
Southwest	1.2408	0.9312	1.3332
Rocky Mountain	1.3106	0.9910	1.3227
Far West	1.2774	0.9696	1.3174

Table 6. Average Efficiency Scores by Metropolitan Size

Size	Average Efficiency Score	Number
Less than 100,000	0.6626	23
100,001-200,000	0.6695	133
200,001-500,000	0.7081	102
500,001-1,000,000	0.7353	45
1,000,001-2,000,000	0.7789	21
More than 2,000,000	0.8230	24

Table 7. Average Productivity Growth by Metropolitan Size

Size	TFP Growth Rate	Efficiency Change	Technical Change
Less than 100,000	1.3272	1.0165	1.3057
100,001-200,000	1.2593	0.9587	1.3136
200,001-500,000	1.2518	0.9523	1.3150
500,001-1,000,000	1.2387	0.9394	1.3187
1,000,001-2,000,000	1.2276	0.9229	1.3301
More than 2,000,000	1.2010	0.9071	1.3243

was due primarily to efficiency change, which was positive in the smallest metropolitan areas, while efficiency change was negative in larger metro areas. In fact, the largest metropolitan areas experienced the greatest decline in efficiency over the seven year period. However, the largest metro areas experienced slightly faster technical change than the smaller areas. The most plausible explanation for this result is that it is a reflection of "catching-up" by the smaller metro areas in the adoption of new technology, new organization techniques, etc., that were already in use at the start of the period in larger metro areas. The negative efficiency change in larger metro areas could be a reflection of disagglomeration economies.

IV. EFFICIENCY, PRODUCTIVITY GROWTH AND AGGLOMERATION ECONOMIES

Agglomeration economies in the form of urbanization economies and localization economies are expected to influence efficiency levels and productivity growth in metropolitan areas. The basic model for efficiency scores is postulated to be of the form:

(1) $E_i = \sigma + \beta_1 \ln URBAN_i + \beta_2 LOCAL_i + \varepsilon_i$

where E_i is the average efficiency score over the seven year period, $URBAN_i$ is the measure of urbanization in metropolitan area i, $LOCAL_i$ is the measure of localization (location quotient [LQ]), and ε_i is the error term that follows the usual ordinary least squares assumption of a normal distribution with mean of zero. Because we use metropolitan areas, which are not generally contiguous, regional autocorrelation is not expected to be a problem. Population is frequently used as a measure of urbanization. "Population's link to urbanization economies is consistent with Krugman's (1991) model, in which overlapping markets in cities provide the foundation for external economies of scale among producers in differentiated markets." (p. 959, Hanink 2006) The measure of population is the logarithm of the average population of a metro area over the seven year period. The location quotient (LQ) is the measure of localization and is computed as the share of retail output in the metro GDP divided by the same share nationally. This also is computed as a seven-year average. While employment is typically used to measure location quotients, there is a potential problem when efficiency is the dependent variable. A location quotient that is greater than one for employment in a metro area could be a reflection of inefficiency rather than greater specialization in retailing activities. This will be commented upon further below. The use of location quotients as a measure of localization is also a common approach. This measure of relative size indicates the potential for the development of localized labor pools and specialized services that are the sources of localization economies. The same regression is used for measuring the importance of urbanization and localization economies to productivity growth:

(2) $PROD_i = \sigma + \beta_1 \ln URBAN_i + \beta_2 LOCAL_i + \varepsilon_i$

where $PROD_i$ is productivity growth in metro area i. Finally, we also look at the components of productivity growth, efficiency change (EC_i) and technical change (TC_i), by running separate regressions using each change as the dependent variable in equation (2).

There is the probability in the above models of fixed effects that could affect parameter estimates. Therefore, we used dummy variables for each state (Delaware is the excluded state) since states may have different economic policies with respect to taxation, economic development, etc. that could influence economic activity in a metropolitan area. Finally, labor is not likely to be identical between metro areas. In particular, education levels could influence the productivity growth rates and efficiency levels. We used the percent of the population aged twenty-five or older that had at least a bachelor's degree in 2006 (EDUC) to control for differences in the quality of labor. This variable was not available for metro area in 2006; therefore, the most recent year available was used when the 2006 figure was unavailable. The estimations used White's heteroscedasticity consistent standard errors to correct for the possibility of variation in cross-section error variances.

The results of the efficiency regression are presented in Table 8. Average efficiency in a metro area is positively related to the measures of both urbanization and localization. It is not a surprise that efficiency is positively related to city size since this is what was found in Table 6. Further, we find that as retailing increases its relative presence in a metro area, efficiency also increases. Also, as education levels increase in a metro area, efficiency levels will increase. The results given in Table 8 lend strong support for the importance of urbanization and localization economies in increasing efficiency in the retailing sector. Note that when a location quotient based on employment was used (rather than on output as reported in Table 8), the relationship between efficiency and localization was found to

Table 8. Efficiency Regression

Dependent Variable: AVEEFF

No. of Obs.: 348

Variable	Coefficient	Std. Error	t-Statistic
Constant	0.0684	0.0769	0.89
URBAN	0.0429	0.0042	10.23
LOCAL	0.0653	0.0216	3.03
EDUC	0.0022	0.0006	3.58
Adj. R-Squared	0.538	F-Statistic	8.77

Table 9. Productivity Regressions

No. of Obs.: 348

Variable	PROD	TC	EC
Constant	1.4714	1.2547	1.1681
	(13.86)	(62.76)	(14.71)
URBAN	-0.0164	0.0048	-0.0162
	(-2.82)	(3.60)	(-3.63)
LOCAL	0.0173	0.0094	0.0060
	(0.66)	(1.22)	(0.30)
EDUC	0.0007	0.0001	0.0003
	(0.92)	(0.75)	(0.62)
Adj. R-Squared	0.24	0.17	0.21
F-Statistic	3.11	2.37	2.80

(Numbers in parentheses are t-statistics.)

be negative. This seems to indicate that using more labor is not necessarily a reflection of a region's greater specialization in retailing, but could be an indication of inefficiency in the sector.

The productivity regressions are presented in Table 9. Productivity growth (PROD) is negatively related to population, which is a confirmation of Table 7. The coefficient estimates for localization and for the education variable are not significant. When technical change is the dependent variable, urbanization economies are positive and significant, while the other two variables are insignificant. In a confirmation of Table 7, efficiency change is negatively related to city size (URBAN). Once again, localization economies and education are not significant. One would likely expect productivity growth to increase with education levels. New technology and new techniques would be expected to be more easily introduced with a more highly educated workforce. In addition, urbanization and localization economies, which strongly influence efficiency levels, would be expected to also give a boost to productivity growth. Perhaps the problem is the somewhat short period over which productivity growth is estimated. It is possible that there is not enough time for definite trends to be identified.

V. SUMMARY AND CONCLUSIONS

Efficiency in the retail trade sector has been found to be related to city size. Efficiency scores increase as city size increases, which is evidence of the importance of urbanization economies. In regions of the country where metropolitan areas tend to be relatively small and somewhat dispersed such as the Plains region, efficiency levels are lower; this is undoubtedly a reflection of lower urbanization economies. We have also found that as the relative concentration of the retail trade sector increases in a metro area, efficiency levels will also increase, which speaks to the importance of localization economies.

It is more difficult to identify a relationship between agglomeration economies and productivity growth. This is likely due to the short period over which such growth was measured. Business cycle effects may also be playing a part in masking the relationship between the two variables. Also, the finding that productivity growth tended to decrease with city size may be indicative of a "catch-up" phenomenon among the smaller metro areas during the period under study. The 1990's were a period of rapid change in the industry with substantial consolidation, introduction of new technology, reorganization of delivery of services, improved inventory management that may have occurred first in the larger metro areas. The period under study, 2001-2007, may be one in which some of these changes filtered down the urban hierarchy to smaller metro areas, increasing productivity growth. The fact that average efficiency and population size were found to be inversely related in this study indicates that the smaller areas have not completely caught up and perhaps, given the importance of agglomeration economies to efficiency, they are not likely to reach the efficiency of their larger counterparts.

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THE TEACHING OF THE CONCEPT OF CROSS ELASTICITY OF SUPPLY IN UNIVERSITIES AND IN LAW SCHOOLS

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INTRODUCTION

As the author has previously noted, virtually all students enrolled in intermediate microeconomics classes and probably most enrolled in principles of microeconomics classes are exposed to the concept of cross elasticity of demand. (Greco, Cross Elasticity of Supply ….", 2005 and Cross Elasticity of Supply as Big A Secret ….", 2008). They are taught how to compute the coefficient of the cross elasticity of demand and that a positive sign for said coefficient suggests that the two goods being related through this device are likely substitutes for one another. Students are further instructed that the establishment of a substitute relationship can be helpful in defining relevant product markets. That is, the determination of such substitute relationships can assist in the identification of firms that are, in the eyes of consumers, sellers of competitive products within a given market.

However, as also previously noted, the same aforementioned students are seldom exposed to the concept of the cross elasticity of supply. This concept is the counterpart, so to speak, of the cross elasticity of demand for it measures substitutability or interchangeability of products through the eyes of producers or suppliers (as opposed to consumers). Once again, the establishment of a substitute relationship between the two goods being examined can be quite helpful in the identification of the true current and potential sellers within a given market. As such, it, too, can assist in the proper delineation of product market definitions. However, unlike the case with the coefficient of cross elasticity of demand, a negative coefficient of cross elasticity of supply suggests that suppliers of two goods consider the goods to be substitutes for one another.

This neglect of the concept of cross elasticity of supply is regrettable because it could result in the establishment of an improper definition of the relevant product market. This is, as the readers are probably aware, not to suggest that the neglect of the cross elasticity of supply would leave the determination of appropriate product market definition solely to the cross elasticity of demand. Taken together, these two coefficients alone render but a first approximation of the actual relevant product market in any given situation.

HISTORICAL PERSPECTIVE ON CROSS ELASTICITY CONCEPTS

The original stream of research relative to cross elasticity began in the 1930s and centered on the use of cross elasticities of demand to define various types of market structure, albeit

they competition, monopoly, or otherwise. The articulation of the cross elasticity of demand as a criterion for market delineation was made by Bain, as well as by Machlup in 1952 (Bain, 1952; Machlup, 1952). Machlup also introduced the cross elasticity of supply in 1952 as an additional criterion. Hence, even though the concept of cross elasticity of demand had been originated in the 1930s, it was not touted in the economics literature as a criterion for determining product market definitions until the early 1950s. In addition, the early 1950s marked the introduction cross elasticity of supply to said literature. However, the U. S. Supreme Court actually acknowledged the essence of cross elasticity of supply in the Columbia Steel decision of 1948 when it asserted that the producers of rolled steel products could make other such products interchangeable with the shapes and plates supplied by U. S. Steel and its subsidiaries. (United States v. Columbia Steel, 1948). The Court had sought to determine whether the relevant product market being foreclosed by an acquisition should be limited to plates and shapes manufactured by U. S. Steel. The Court did not, however, make any specific mention of cross elasticities of supply or require the computation of any such coefficients. The Court addressed supply substitutability tangentially fourteen years later in the Brown Shoe decision, but gave this pseudonym for cross elasticity of supply a lower priority than the cross elasticity of demand. (Brown Shoe Co. v. U. S., 1962). Subsequently, the Court addressed supply substitutability in two other cases, both over forty years ago. These cases are summarized in an earlier work of the author (Greco, "A Survey of the Status of Supply Substitutability", 2008). Then in 1974, the Supreme Court upheld a circuit court decision that disallowed a broader market definition based on supply substitutability (U. S. v. Marine Bancorporation, 1974).

Despite the Supreme Court's use of supply substitutability in Columbia Steel and its recognition of its theoretical viability in, Brown Shoe, the principle was not readily accepted throughout the U. S. judicial system. In fact, the various Circuit Courts of Appeal were initially reluctant to accept supply substitutability as a viable criterion on which to base market delineation. This trend was actually launched by a decision of the Federal District Court for the Southern District of New York in the Bethlehem Steel case of 1958. Therein, the court rejected the supply substitutability rationale advanced in the Columbia decision (U. S. v. Bethlehem Steel, 1958). Subsequently, various Circuit Courts essentially asserted that buyer behavior rather than that of sellers should be the test for proper market definition (Reynolds Metal Co. v. FTC., 1962; L. G. Balfour v. FTC, 1971; Columbia Metal Culvert Co. v. Kaiser Aluminum and Chemical Corp., 1978). However, the trend of downplaying

the relevance of supply substitutability began to be reversed in various Circuit Court decisions of the early to mid-1970s. (Calnetics Corp. v. Volkswagon of America, 1972; Telex Corp. v. IBM Corp., 1975; Twin City Sportservice, Inc., v. Charles O. Finley, 1972; Yoder Brothers v. California-Florida Plant Corp., 1976).

The rejection of supply substitutability as a criterion for product market delineation in the aforementioned Bethlehem Steel district court decision of 1958, led to the rejection by the FTC of a company's contention for a broader market definition in a proposed merger. On appeal of the company, the Ninth Circuit rejected the use of supply substitutability on the basis of the Bethlehem Steel decision (Crown Zellerback Corp. v. FTC, 1961). Despite its early rough going, supply substitutability began to be considered as a possible market delineating criterion in cases in the early 1960s in U. S. district court and FTC cases. The concept was discussed and pondered in forty-one cases from 1962-2004. The concept was essentially disallowed or thrown out in three of these cases on "technical grounds." For the first nine of the remaining thirty-eight cases, decisions were rendered in favor of narrow product market definitions. That is, the supply substitutability arguments made in these cases were unsuccessful. Broader market definitions based on supply substitutability arguments were first accepted by the courts in 1974 (Case Student Advertising, Inc. v. National Educ. Advertising Servs., Inc. 1974; Science Products. Co. v. Chevron Chemical Co., 1974). Over all the thirty-eight cases, narrow market definitions were accepted in twenty cases; and broader market definitions, in eighteen cases. However, over the last three decades, the broader market definitions have outnumbered the more narrow definitions by an eighteen to eleven count.

PRIOR RESEARCH

The aforementioned neglect of the teaching of the concept of cross elasticity of supply did, however, intrigue the author and prompted him to explore the extent of this neglect and the reason(s) for it. Since the author is a long-serving professor of economics in various American universities, he initially delved into the extent of the neglect of the teaching of the cross elasticity of supply in American universities. He determined that he should examine the extent of coverage of the cross elasticity of supply in economics textbooks published in America. Specifically, the author examined 13 contemporary and 17 older intermediate microeconomics texts, as well as three contemporaneous and 18 older industrial organization/ governmental policy textbooks relative to other coverage of the cross elasticity of supply concept. Even though the number of books examined is not definitive, the author believes that it is adequately representative of the coverage accorded the cross elasticity of supply concept in upper-level American economic textbooks. After reviewing these textbooks, the author found that only one of the 16 contemporary texts and six of the 35 older texts discussed cross elasticity of supply, that is, only seven of the 51 texts reviewed dealt with this topic. In contrast, 43 of the 51 texts did discuss cross elasticity of demand, while seven did not discuss either cross elasticity concept, (Greco, 2005).

In a subsequent work, the author examined the coverage of cross elasticity of supply in Canadian economic textbooks. After getting no response from an inquiry of Economics Departments of Canadian universities concerning their coverage of cross elasticity of supply in appropriate economic courses, the author sought to examine the most-widely used economics texts across the various Canadian universities. He focused his attention on microeconomics principles, intermediate microeconomics, and industrial organization and policy textbooks. Ultimately, the author was able to identify and examine the four most-commonly used texts in both microeconomics principles and in intermediate microeconomics courses, as well as the two most-frequently used industrial organization/policy texts. The shares of the Canadian market enjoyed by the foregoing were: 76 percent for the microprinciples texts, 55 percent for the intermediate microeconomics texts and 70 percent for the industrial organization/policy texts. The author did not find any coverage of cross elasticity of supply in any of these texts (Greco, 2008).

As previously mentioned, the author discovered that the American judicial system has, over the years, increasingly relied upon the cross elasticity of supply in conjunction with the cross elasticity of demand (which the system had previously adopted) as useful criteria in the determination of appropriate product market definitions. He did not, however, find any appreciable reliance on the concept of cross elasticity of supply as a criterion for defining product market structures in the Canadian judicial system.

REVIEW OF LAW SCHOOL TEXTBOOKS

The increasing reliance of the American judicial system on cross elasticity of supply as a useful criterion in the determination of relevant product markets was reinforced in the U. S. Justice Department/FTC Merger Guideline Revisions of 1992 which implicitly broadened the approach to market definition by the inclusion of supply substitutability. While the author was somewhat distressed over the neglect of the cross elasticity of supply in the academic realm, he was encouraged by the aforementioned developments within the American judicial system. He surmised that cross elasticity of supply was being discussed in the antitrust law courses of U. S. law schools. To explore this possibility, the author resolved to examine at least a good cross section of Antitrust Law books utilized in U. S. law school classes. He sought the advice of an Antitrust Law professor at a prominent law school. This colleague assisted in the preparation of a list of 14 frequently-used casebooks in Antitrust Law courses in U. S. law schools. These texts had publication dates from 1981 through 2008. Two were published in the early 1980s; two, in the late 1990s, and ten from 2002-2008. Four were Lexis or Lexis Nexis texts, four were West or Thomson West texts, three were Foundation Press texts, two were Anderson Publishing Co. texts, and one was an Aspen Publishers text. In all, twenty-eight authors collaborated in the writing of these various texts. Not surprisingly, 27 of this number are or had been faculty of various law schools. The remaining author is the current Chairman of the Federal Trade Commission. One of the authors is a Professor Emeritus and three others are now deceased. As far as the author has been able

to discern, four of these authors have doctorates in Economics, whereas the two deceased authors had a bachelor's degree in Economics.

Generally, the author, as expected, found some coverage of the cross elasticity of supply concept in the antitrust case books examined. He did not detect any mention or discussion of it in one text. (E. Thomas Sullivan and Hovenkamp, Fifth Ed., 2003). However, as noted later, the author did find some relevant discussion in the Fourth edition of this text. In another, the author found only some discussion of the concept relative to "the cross-elasticity of production facilities" reference of the Brown Shoe decision of 1962 (Rogers et al., 2008). Further, the author found that a third text discussed only own price elasticity of supply, that is a supply response coming from existing or current suppliers. (Gavil, 1996). Finally the author observed that while a fourth text noted that a relevant product market included potential suppliers of a suitable alternative to consumers, it made no mention of cross elasticity of supply. This text did allude to "the cross-elasticity of production facilities" reference of Brown Shoe in a footnote. (Areeda, et al., 2004). Perhaps the author inadvertently missed some references to and discussion of the cross elasticity of supply concept in any or all of these texts. If this is the case, he herein apologizes to the authors of said texts for his oversight. The oldest of the texts examined did provide discussion of the cross elasticity of supply concept in reference to the Telex and Twin City Sportservice, Inc. Circuit Court decisions (Posner et al., 1981). The 1983 text discusses the cross elasticity of supply concept in reference to the U. S. v. Marine Bancorporation decision of the U. S. Supreme Court in 1974. The Court therein upheld the Circuit Court's ruling that disallowed the adoption of a broader product market definition based on cross elasticity of supply. In that case, the Circuit Court, despite ruling against the broader market definition, had acknowledged that the cross elasticity of supply was well-established as a "valid basis for determining that two commodities should be within the same market" (Schwartz et al., 1983). Similar to the Posner et al. text of 1981, another later text discusses supply substitutability in reference to its discussion of the Telex and Twin City Sportservice Circuit Court cases, as well as to the Science Products district court decision. (E. Thomas Sullivan and Hovenkamp, Fourth Ed., 1999).

In its discussion of the aforementioned Twin City Sportservices Circuit Court decision of 1975, a relatively recent text explains that supply side considerations rarely come up in monopolization cases under Section 2 of the Sherman Act, but rather are often more significant in Section 7 Clayton Act cases through analysis required by the Horizontal Merger Guidelines of 1992 of the Department of Justice and the Federal Trade Commission. This text further deduces from the Twin City Sportservices case that reasonable interchangeability (supply substitutability) is "an element of the relevant market calculus when the supply side of the market is involved" (Gifford and Rashkind, 2002).

A lot of attention in various texts is centered on the aforementioned Horizontal Merger Guidelines, especially on Sections 1.0 dealing with Product Market Definition and Section 1.3 dealing with the Identification of Firms that Participate in the Relevant Market. As the Fox et al. text of 2004 explains, market definition in the Guidelines, (Sections 1.1) focuses exclusively on demand substitution factors (consumer responses) while supply substitution factors (production responses) are considered in the identification of firms that participate in the relevant market as well as in the analysis of entry possibilities (Section 1.3) (Fox, et al., 2004). While the author of this paper would argue that a market is properly defined by focusing on demand, as well as supply substitution factors (i. e. by considering both consumer and producer responses), he believes that the Merger Guidelines effectively do this even though they do not purport to do so.

The Merger Guidelines assert that once a relevant market is defined, it must be measured in terms of its participants. The latter are comprised of current producers, as well as firms that participate through supply response (i. e. "uncommitted entrants"). One way in which uncommitted supply responses may occur is by the switching or extension of existing assets to production or sale in the relevant product market. Production substitution is the term used by Fox et al. to refer to the shift in a firm's use of assets from producing and selling one product to the production and sale of a different product (Fox et al., 2004). While the term(s) are not specifically mentioned, this above is descriptive of supply substitutability as embodied in the cross elasticity of supply concept. (Similar discussions relative to the Horizontal Merger Guidelines were also observed by the author in Gavil et al., 2002, and in Morgan, 2005).

Supply substitutability is probably most comprehensively covered by the three remaining texts examined by the author. One of these cautions that the market share controlled by a given defendant in an antitrust proceeding may be overstated and the actual market involved understated if the delineation of the market is limited to the current manufacturers of the good produced by the defendant, as well the capacity of all those selling a reasonable substitute. Also to be considered are firms that utilize resources that are easily adaptable to the manufacture of the good produced by the defendant even if these firms are not currently producing goods that are reasonable substitutes for that of the defendant. That is, the correct perception of the relevant market should allow for the phenomenon of supply substitutability. If so done, the authors contend, the elasticity of supply regarding these current apparently noncompetitive firms may be high enough for them to, indeed, be considered as competitors of the defendant (E. Thomas Sullivan and Harrison, Fourth Ed., 2003).

Pitofsky et al. identify three prime considerations in identifying the relevant firms in a given market, two of which relate to the demand side of the analysis. The first deals with the nature of the product and the, in effect, the degree of cross elasticity of demand present; while the second deals with the spatial or geographic aspect of the market. The third consideration, which has received less attention in antitrust cases, deals with the supply side of the analysis. Similar to the aforementioned Sullivan and Harrison text, Pitofsky et al. focus not only on the presence and influence of existing alternative sources of supply (both from existing producers of the relevant product,

as well as from producers of widely acceptable substitutes) but also on that of potential suppliers who are currently producing apparently non-competing products but who could easily shift their productive efforts to the provision of the relevant product. (Pitofsky et al., Fifth Ed., 2003). Finally, the recent Elhauge text asserts straightforwardly asserts more than once that one must consider substitution both by buyers (cross elasticity of demand) and by sellers (cross elasticity supply) in attempts to define a market. (Elhauge, 2008).

SUMMARY AND CONCLUSION

This article examines the concept of cross elasticity of supply as a relevant criterion in the process of defining relevant product markets. It provides a brief review of the emergence of the very concept of cross elasticity of supply and traces its gradual acceptance as a criterion for defining relevant markets in U. S. Supreme Court, U. S. Circuit Courts of Appeal, U. S. District Court, and FTC decisions. Further, the article reiterates the author's surprise and disappointment that the concept of cross elasticity of supply is rarely taught in economics courses at the university level. It reviews the author's previous findings in this regard relative to his examination of university texts used in American as well as in Canadian universities. Said findings in conjunction with the aforementioned fact that the concept of cross elasticity of supply has become widely accepted by the judicial community as a useful criterion in the definition of relevant product markets, suggested that the author should examine the coverage of the concept in antitrust law texts utilized in law schools. His examination of fourteen commonly-used antitrust law texts did reveal relatively consistent, yet not unanimous, coverage of this concept in these antitrust law texts. Although the concept in the various texts may have been labeled "cross elasticity of supply," "supply substitutability," or "potential supply," among other things, it was, indeed, included in the vast majority of the texts examined.

The author believes that his findings are representative of the coverage of the concepts in antitrust law texts used in American law schools. Further, it is possible that more even coverage is devoted this topic in classroom lectures than is suggested by the space devoted to it in the various antitrust law textbooks examined.

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FACTORS AFFECTING STUDENTS' CREDIT CARD AND STUDENT LOAN DEBT ON A UNIVERSITY CAMPUS

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INTRODUCTION

The rising cost of education has led more students to seek financial aid in the form of student loans. Students have also had easier access to credit cards. Student loans and credit cards have allowed more students to pursue a college education, but the associated debt may create a substantial future burden. Students must wisely use credit to avoid borrowing more than future earnings will allow them to repay. Limited experience with credit, plus desire to maintain a comfortable standard of living, can make it difficult for students to limit debt to a manageable level. Moreover, students with limited work experience may have unrealistic ideas about expected earnings, which may lead them to incur excessive debt.

STUDENT DEBT

Being a college student frequently means being in debt. In 2001, graduation brought student payments on student loans that were, on average, $19,400 (Holub, 2002). Students are also subject to considerable marketing attention from credit card companies who recognize that a college graduate earns about 85 percent more than a high school graduate (Quinn, 2001). Students take advantage of the opportunity to use credit cards to maintain the lifestyle provided by their parents or in an attempt to emulate fellow students (Sidime, 2004).

Nellie Mae reported that in 2001 "83 percent of undergraduate students have at least one credit card, a 24% increase since 1998" (Nellie Mae, 2002, p. 2). The median balance of the undergraduates was $1,770, which was a 43% increase from the 2000 median. The report also noted that "21% of undergraduates who have cards have high-level balances between $3,000 and $7,000, a 61% increase over the 2000 population" (Nellie Mae, 2002, p. 2). However, average credit card balances decreased and relatively fewer students had balances of more than $7,000 (Nellie Mae, 2002).

An analysis by Nellie Mae revealed that "seventy-six percent of undergraduates in 2004 began the school year with credit cards" (Nellie Mae, 2005, p. 2). That was a decrease from 2001 when 83% reported having cards. "The average outstanding balance on undergraduate credit cards was $2,169, a reduction of 7% from 2001 when the average balance was $2,327, and the lowest average balance since 1998" (Nellie Mae, 2005, p. 2). Their figures showed more than 50% of students with credit cards reported having balances of less than $1,000. The lower balances may indicate more responsible card management, but there are indications students may be under estimating or under reporting their actual credit card debt. "The self-reported average balance is 47% lower than the average balance calculated on the credit bureau data; the self-reported median is 21% lower" (Nellie Mae, 2005, p. 8).

Soman and Cheema (2002) found that naïve consumers view their credit card limits as a predictor of future earning potential and believe that the limits are indicative of how much they will be able to repay in the future. Their analyses found the tendency to spend using a credit card is directly correlated with the card limit. Inexperienced credit card users such as younger college students are particularly vulnerable to excess debt because they lack experience connecting their future earnings and their credit limits. As they gain experience in using cards, they may better understand that credit limits are not an accurate measure of earnings after college (Soman and Cheema, 2002).

Students reported getting their first credit card during their freshman year in college and "56% of survey respondents said they obtained their first card at age 18" (Nellie Mae, 2005, pp. 4-5). This was consistent with Nellie Mae's analysis of credit bureau data which showed "…a 71% growth rate between freshman and sophomore year" (Nellie Mae, 2005, p. 4). Regarding the primary uses of credit cards for education-related expenses, 74% of students reported charging school supplies and 71% charged textbooks. "Just less than 24% charged a portion of their tuition on credit cards" (Nellie Mae, 2005, p. 6).

Colleges and universities have been chastised for allowing credit card companies to market their products on campus, allowing student organizations to earn money for signing up students, selling firms exclusive rights to market, and earning a portion of every dollar students charge on their cards (Gillette, 2001; McNutty, 2000; Climan, 2001; Quinn, 2001). Increased concerns by university officials, economists, financial aid professionals, parents, and others may have increased awareness among students. Nellie Mae reported: "It is likely that the financial literacy programs designed to educate students on the dangers and responsibilities associated with credit card use are having a positive effect…" (Nellie Mae, 2005, p. 4).

It is important for universities to recognize and respond to the potential for negative side effects of credit card abuse. It is also important that financial literacy programs start early, because students are most likely to get their first credit card as young freshmen. Excessive card use by inexperienced students can quickly lead to credit abuse Typical symptoms of credit card abuse on campus include lower grades; lower university retention and graduation rates as students drop out of school

in order to pay their debts; campus crime; and increased stress and psychological problems related to debt. Specifically, debt problems are believed to have caused an estimated 7 to 10 percent of college students to drop out of school (Ninfo, 2005).

DATA ANALYSIS

In the fall semester of 2007, Midwestern State University students were surveyed regarding credit card debt, student loan debt, and their ability to predict future income. The 720 respondents were approximately 54% female and 44% male.

Table 1 presents frequency distributions by ethnicity, college, gender, and classification. White (non-Hispanic) undergraduates accounted for more than 69% of the total. The mean age was 21.7, the median 20, and 64% of students were between 18 and 22 years of age. About one quarter of the students lived with their parents and approximately 40% rented.

The 550 students who responded to the monthly income question reported an average of approximately $2,086, with a median of $800. A much smaller number (133) of students responded to the combined family income question. Those responding reported an average of $7,458 in monthly family income, with a median of $3,000.

Survey data shown in Table 2 indicated 69% of students earned income from their jobs, which was very close to the 68% who reported not being supported by their parents. The number of students who reported being financially supported by their parents represented 32% of the total.

Table 1: Distribution by Student Categories

Ethnicity	Frequency	%
White, Non-Hispanic	499	69.31
Black, Non-Hispanic	89	12.36
Hispanic	61	8.47
Asian or Pacific Islander	18	2.5
American Indian or Alaskan Native	5	0.69
Non-Resident Alien/International	29	4.03
No Response	19	2.64
Total	720	100
College	Frequency	%
Humanities and Social Sciences	102	14.17
Business Administration	220	30.56
Fine Arts	36	5
Health Science and Human Services	158	21.94
Science and Mathematics	74	10.28
Education	92	12.78
Undeclared	34	4.72
No Response	4	0.56
Total	720	100
Gender	Frequency	%
Female	388	53.89
Male	317	44.03
No Response	15	2.08
Total	720	100
Class	Frequency	%
Freshman	146	20.28
Sophomore	216	30
Junior	170	23.61
Senior	178	24.72
Graduate	6	0.83
No Response	4	0.56
Total	720	100
Age	Frequency	%
Age Below 18	56	7.78
Age 18-22	462	64.17
Age Above 22	187	25.97
No Response	15	2.08
Total	720	100
Housing	Frequency	%
Living with Parents/Relatives	205	28.47
Renting	287	39.86
Owning	75	10.42
Dorm	123	17.08
Other	25	3.47
No Response	5	0.69
Total	720	100

Table 2: Distribution by Source of Income

Income Source	Student Response							
	No		Yes		No Response		Total	
	#	%	#	%	#	%	#	%
Earn Income from Own Job	220	30.56	495	68.75	5	0.69	720	100
Supported by Parents	488	67.78	228	31.67	4	0.56	720	100
Assisted by Government	708	98.33	9	1.25	3	0.42	720	100
Supported by Spouse/Alimony/Child Support	658	91.39	59	8.19	3	0.42	720	100

Table 3: Credit Card Payment Patterns

	No		Yes		No Response		Total	
	#	%	#	%	#	%	#	%
Use Student Loan to Pay Off Credit Card Debt	481	66.81	43	5.97	196	27.22	720	100
Pay Balance in Full	206	28.61	148	20.56	366	50.83	720	100
Pay Minimum Payment	194	26.94	123	17.08	403	55.97	720	100

Table 4: Distribution of Debt by Gender

	Have Card		Have Credit Card Debt		Reach Credit Card Limit		Have Student Loan	
	No	Yes	No	Yes	No	Yes	No	Yes
Female	179	195	246	128	318	56	176	198
Male	137	163	213	87	261	39	160	140
Chi-Square	Value	Prob.	Value	Prob.	Value	Prob.	Value	Prob.
	0.3219	0.5705	2.0917	0.1481	0.5353	0.4644	**2.6215**	**0.1054**

	Pay Credit Card Bill In Full		Pay Minimum Payment	
	No	Yes	No	Yes
Female	121	51	100	72
Male	71	63	88	46
Chi-Square	Value	Prob.	Value	Prob.
	9.7149	**0.0018**	1.8036	0.1793

Table 5: Distribution by School (Business School vs. Other schools)								
	Have Card		Have Credit Card Debt		Reach Credit Card Limit		Have Student Loan	
	No	Yes	No	Yes	No	Yes	No	Yes
Other School	239	237	328	148	414	62	224	252
B-school	84	125	140	69	176	33	117	92
Chi-Square	Value	Prob.	Value	Prob.	Value	Prob.	Value	Prob.
	5.85	**0.0156**	0.2479	0.6186	0.929	0.3351	**4.6244**	**0.0315**
	Pay Credit Card Bill In Full			Pay Minimum Payment				
	No		Yes	No		Yes		
Other School	139		74	130		83		
B-school	58		40	61		37		
Chi-Square	Value		Prob.	Value		Prob.		
	1.0667		0.3017	0.0416		0.8384		

Table 6: Distribution By Living Status (living with parents vs. without parents)								
	Have Card		Have Credit Card Debt		Reach Credit Card Limit		Have Student Loan	
	No	Yes	No	Yes	No	Yes	No	Yes
Living with Parents	224	261	314	171	404	81	212	273
Not with Parents	99	101	154	46	187	13	130	70
Chi-Square	Value	Prob.	Value	Prob.	Value	Prob.	Value	Prob.
	0.6243	0.4295	**9.8305**	**0.0017**	**12.446**	**0.0004**	**25.6708**	**<0.0001**
	Pay Credit Card Bill In Full			Pay Minimum Payment				
	No		Yes	No		Yes		
Living with Parents	155		80	149		86		
Not with Parents	43		33	43		33		
Chi-Square	Value		Prob.	Value		Prob.		
	2.1836		0.1395	1.1325		0.2872		

Table 7: Distribution By Class (senior students vs. others)						
	Have Card		Have Credit Card Debt		Have Student Loan	
	No	Yes	No	Yes	No	Yes
Non-Senior	275	237	389	123	284	228
Senior	44	123	76	91	56	111
Chi-Square	Value	Prob.	Value	Prob.	Value	Prob.
	37.8539	**<0.0001**	**54.1583**	**<0.0001**	**24.2374**	**<0.0001**
	Reach Credit Card Limit		Pay Credit Card Bill In Full		Pay Minimum Payment	
	No	Yes	No	Yes	No	Yes
Non-Senior	462	50	121	88	130	79
Senior	124	43	76	25	61	40
Chi-Square	Value	Prob.	Value	Prob.	Value	Prob.
	27.136	**<0.0001**	**8.8516**	**0.0029**	0.0938	0.7594

According to additional survey data, approximately 46% of students reported having no credit cards and 49% reported no student loans. Responses were analyzed according to student use or non-use of the two forms of credit. For those who reported having credit cards, the average number held was 2.16 and the median was 2. Among the 325 students (from the 361 who reported having student loans) answering the question on student loan balance, the average reported balance was $12,450 and the median $9,000. Among the 244 students disclosing their credit card balances, the mean was $2,583 and the median $1,000.

Table 3 shows the reported ways credit card debt is managed. Interestingly, 8% of the students who responded claimed they use student loans to help pay off credit card debt. Less than one-half of the students reported paying their credit card bills in full each month.

The possession and use of credit cards and use of student loans by gender, college of students' majors, living status, and classification were analyzed. Of interest was whether females and males use and manage credit differently. Chi-square tests were conducted to identify possible statistically significant differences in responses by gender. Data shown in Table 4 indicate similar distributions among female and male students. One exception involved the question "have student loan or not?" More female students answered "yes" while more male students answered "no". Chi-square test results for this question were barely significant at the 10% level. While almost one-half of male students claimed to pay their credit card bill in full each month, a smaller percentage of female students reported doing so. Chi-square tests show this difference to be highly significant.

A reasonable assumption might be that students in business schools would be more knowledgeable about the proper use of credit. Responses by students in the business school and by students and by students in all other schools combined are shown in Table 5, together with Chi-square test results of differences in patterns of credit use between the two groups. The analysis showed business-school students to be more likely to have credit cards. However, they were not more likely to have outstanding credit card debts, nor were they more likely to have reached their credit cards limits. This may suggest that business school students are better at managing credit cards. Interestingly, business-school students were less likely to have student loans.

The majority of students were "traditional students." Of interest was whether living with parents affected their use of credit. Table 6 information indicates that while students living with their parents were no different in terms of possessing credit cards, they apparently were less likely to have outstanding credit card debts or to have student loans.

Survey information and Chi-square test results shown in Table 7 suggest that senior students were more likely to have credit cards, outstanding credit card debts, student loans, and to have reached credit card limits. They also appeared less likely to pay off credit card bills in full each month.

Table 8: Correlation Coefficients

	CARD	SL	CARDBAL	SLBAL	LIMIT
CARD		0.14203 0.0002 702	0.03543 0.3479 704	0.13396 0.0004 704	0.27474 <.0001 696
SL	0.14203 0.0002 702		0.03695 0.3251 711	0.4454 <.0001 711	0.20605 <.0001 703
CARDBAL	0.03543 0.3479 704	0.03695 0.3251 711		-0.01681 0.6524 720	-0.01473 0.6949 711
SLBAL	0.13396 0.0004 704	0.4454 <.0001 711	-0.01681 0.6524 720		0.15939 <.0001 711

The relationship between the likelihood of students using student loans and the likelihood of using credit cards was investigated and the correlations are shown in Table 8. According to the results, the likelihood of having student loans (SL) was positively related with both the likelihood of having credit cards (CARD) and having outstanding balances on their credit cards (CARDBAL), although the second relationship was not statistically significant (P-value=0.3251). There was a positive relationship between the variable CARD and outstanding student loan balances (SLBAL) and the relationship was statistically significant. The characteristic of whether students had reached their credit card limits (LIMIT) was also analyzed. This variable was also significantly positively related to both SL and SLBAL. These results suggest the two forms of credit were not substitutes for one another—students that had credit cards were also more likely to have larger student loan balances, while students that had student loans were also more likely to have reached their credit card limits.

Table 9: Use of Credit

Use student loan to pay for:	Yes		No		No Response
	#	%	#	%	#
Living expenses	97	18.48	428	81.52	195
Communication	105	20.04	419	79.96	196
Healthcare	55	24.55	169	75.45	496
School	308	58.78	216	41.22	196
Entertainment	113	21.56	411	78.44	196

Use credit card to Pay for:	Yes		No		No Response
	#	%	#	%	#
Living expenses	20	3.82	503	96.18	197
Communication	61	11.66	462	88.34	197
Healthcare	62	11.85	461	88.15	197
School	162	30.98	361	69.02	197
Entertainment	237	45.32	286	54.68	197

How students used their credit card and student loan resources was also of interest. Table 9 shows the distribution of five categories of spending: (1) living expenses such as food, rent and utilities; (2) communication expenses such as internet, and mobile phone charges; (3) health expenses including doctor visits and prescription drugs; (4) school expenses, including tuition, fees, supplies, and club dues; and (5) entertainment expenses, including alcohol/tobacco, movies, dining out, and travel.

Students appeared to have used credit cards and student loans in a similar fashion in paying for living expenses, communication, and health care. For school expenses, more students used student loans than reported using credit cards. Approximately 22% of student respondents indicated they used student loan funds to pay for entertainment, which was much lower than

Table 10: Regression Results, Dependent Variable = Balance on Credit Cards

	Dependent Variable: Balance On Credit Cards						
Intercept	1911.42 (<0.0001)***	2849.88 (<0.0001)***	2387.18 (<0.0001)***	2161.58 (<0.0001)***	2100.35 (<0.0001)***	1293.11 (0.0107)***	-334.27 (0.6814)
Gender							560.43 (0.3303)
B-school							86.02 (0.8841)
Senior	1692.37 (0.0052)***					1794.14 (0.0063)***	1114.27 (0.0525)**
Parent Support		-1280.91 (0.0845)**				-812.05 (0.3317)	-439.07 (0.5686)
Spouse			1379.77 (0.1000)*			4.73 (0.9959)	856.82 (0.2705)
Expected Salary							0.0245 (0.1464)
Dependent				1546.11 (0.0205)**		797.27 (0.2867)	860.61 (0.1993)
Monthly Income					0.1993 (0.0004)***	0.1819 (0.0018)***	0.2683 (<.0001)***
Obs.	242	244	244	241	215	212	184
Adjust R-square	0.028	0.0082	0.0071	0.0182	0.0522	0.0845	0.1577

*: Significant at 10% level   **: Significant at 5% level   ***: significant at 1% level

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the 45% of students reporting they used credit cards to pay for entertainment.

Multivariate regression analysis was utilized to investigate factors that may affect students' use of credit. Outstanding credit card balances and outstanding student loan balances, respectively, were used as dependent variables. In Tables 10 and 11, "Gender" is a dummy variable assigned the value of 1 for male students in the sample and 0 for female students. "B-school" = 1 if the student was enrolled in the business school (Dillard College), and 0 otherwise. Similarly, "Senior" = 1 if the student was in his/her senior year, and 0 otherwise. "Parent Support" = 1 if the student is supported by parent(s), and 0 if not. "Spouse" = 1 if the student was supported by his/her spouse, and 0 otherwise. "Dependent" measures the number of dependents for whom a student was responsible. "Expected salary" was the salary students expected to earn after graduation, while "Monthly income" reflects students' reported current income.

Each column in Table 10 and Table 11 reports a separate regression result. Numbers in parenthesis are P-values, which are below the reported regression coefficients. Univariate regression results are reported if the variable appears to be significantly related to the dependent variable. The last column reports multivariate regression results with all the variables included, while the next-to-last column show regression results from utilizing just the "significant" variables.

According to the regression results, when used in trying to explain the cross-sectional variance in outstanding credit card balances,[1] variables such as gender, business-school majors versus other majors, and having parental or spousal support provide no statistically significant explanation. Senior students do seem to have higher credit card balances, as the coefficient for the independent variable "senior" is positive and significant at the 5% level. Current income level is also significantly positive as related to credit card balances.

The second set of regressions is used to try to explain the cross-sectional variance in student loan balances. The results are similar to the above regression analysis of credit card balances. However, two findings should be noted. First, students with financial support from parents do seem to rely less on student loans, although having parental support does not seem to reduce credit card balances. Second, future expected salary level (after graduation) seems to be negatively related to the amount of student loans and it is significant at the 10% level. It does not appear to have much impact on credit card balances.

SUMMARY AND CONCLUSIONS

The regression analyses indicate that seniors have significantly higher credit card balances, which is consistent with the Chi-square test results indicating they are more likely to have credit cards, outstanding credit card debt, and to have reached credit card limits. Current income is also significant and positively related to credit card balances. However, expected future income does not appear to have a significant impact on credit card balances. Students receiving financial support from their parents seem significantly less likely to rely on student loans to finance their education. Also, expected post-graduate income appears to be significant and negatively related to the amount of student loans. Correlation results suggest that students

	Dependent Variable: Student Loan balance				
Table 11: Regression Results, Dependent Variable = Student loans balance					
Intercept	10332 (<.0001)***	13621 (<.0001)***	16995 (<.0001)***	14882 (<.0001)***	13565 (<.0001)***
Gender					-428.18 (0.7828)
B-school					1935.49 (0.2559)
Senior	6157.99 (<.0001)			6025.96 (<.0001)***	6935.37 (<.0001)***
Parent Support		-4815.30 (0.0015)***		-3675.38 (0.0224)**	-3561.56 (0.0764)*
Spouse					712.25 (0.7600)
Expected Salary			-0.1020 (0.0053)***	-0.0833 (0.0198)**	-0.0730 (0.0782)*
Dependent					738.89 (0.6763)
Monthly Income					-0.1818 (0.3941)
Obs.	323	323	289	286	229
Adjust R-square	0.0596	0.0278	0.0234	0.0984	0.0905

*:Significant at 10% level   **: Significant at 5% level   ***: Significant at 1% level

with credit cards are more likely to have larger student loan balances and students with student loans are more likely to have reached their credit card limits. With respect to students' school expenses, student loan proceeds are more likely to be used than credit cards.

The data analyses indicate that as students are exploring alternatives for financing their college education, they need more awareness of the dangers and responsibilities associated with credit cards and student loans. The benefits of financial literacy to the students and to the university would likely far exceed the costs associated with student financial problems and drop out rates. Literacy should include accurate expectations for earnings after graduation.

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ENDNOTES

1. For this regression, observations used report positive credit card balances.

MARKET INFORMATION ASYMMETRY AND RESIDENTIAL REAL ESTATE PRICES

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INTRODUCTION

For most people, participation in a real estate transaction is a rare event. This relative lack of market experience does not facilitate acquisition of market knowledge which, in turn, means these individuals likely operate in residential real estate markets at a significant informational disadvantage compared to individuals who routinely transact for investment purposes. The economic principle of substitution, sometimes referred to as the law of one price, suggests that identical assets should sell at identical prices, but the informational asymmetry that exists between professional investors and non-investors in residential real property markets presents the possibility that the law may not always apply in these markets.

The purpose of the present study is to empirically test whether investors use their informational advantage to systematically pay less for single-family houses than people whose market experience is generally limited to an occasional home purchase or sale. Regression analysis s used for this purpose. In real estate research this technique is referred to as hedonic regression. This well established technique provides a means to determine the monetary contribution of a variety of property attributes towards the selling price of residential property. Previous research has demonstrated that a property's value depends in part on specific physical features of the property itself such as its' age, size, upkeep, and benefits that accrue to property owners due to the property's location. In the present study an additional variable is added to a standard hedonic model to capture any price effect attributable to the classification of the purchaser. Data from 24,790 transactions that occurred in the City of Dayton, Ohio from 2001 through 2007 were analyzed. The results indicate that investors paid, on average, $2,657.93 less than buyers who used the property as their principal residence. For the mean priced house in our study, this means investors paid 4.75% less. The data was also analyzed in annual increments with results similar to the entire study period. The results have important implications for anyone concerned with real property valuation including independent fee appraisers and property tax authorities.

The remainder of the paper is organized as follows. In the next section, a brief literature review is presented. The data and methodology are presented in the third section and the results are contained in the fourth section. The paper concludes with a summary.

LITERATURE REVIEW

A review of the literature indicates that only a handful of researchers have empirically investigated the single-family housing market by focusing on discrepancies in the purchaser's market experience, and most of the published studies present results which are consistent with the law of one price. Three studies report no difference in the price paid by experienced and inexperienced buyers. Song (1995) found that prices paid by first-time buyers in the Reno-Sparks area of Nevada did not differ significantly from prices paid by repeat buyers. This is consistent with results reported by Turnbull and Sirmans (1993) who studied the Baton Rouge market. Turnbull and Sirmans also discovered no significant difference between prices paid by out-of-state buyers than in-state buyers. Most recently, Wilhelmsson (2008) found no significant difference in the price paid by first-time buyers and other buyers in his study of the Stockholm housing market. He did, however, report that buyers who visit many open houses and try to inform themselves about the housing market pay less than buyers who do not make many visual property inspections.

At least two factors may have contributed to the findings of above described studies. We suspect that most buyers in these studies were working with a broker who was acting as the agent of the seller. None of the studies reported if, or to what extent, buyer's brokers were used. If both experienced and first-time buyers are using the services of the seller's representative, the actions of the agent may effectively negate any advantage over the first-time buyer held by the experienced buyer. It is also possible that some of the experience gap between first-time and repeat buyers was offset by a technology gap. Some studies, including Larsen, Gulas and Coleman (2008), report that relatively young home shoppers use the Internet more than their older counterparts in their search. Because first-time homebuyers tend to be young, we suspect they could have used this vehicle to decrease the knowledge gap between themselves and experienced buyers. In at least one case such behavior may have provided first-time buyers with an advantage over experienced homeowners. Kestens, Thériault and Des Rosiers (2006) report that first-time homebuyers paid less than other buyers in their study of the Quebec City housing market. Ferreira and Sirmans (1995), however, investigated data from the National Association of Realtors home financing file, and reported that first-time homeowners paid more per square foot for their homes compared to other homeowners.

Despite arriving at contradictory conclusions, one thing all the studies mentioned above have in common is that each

compares first-time and experienced home purchasers. We believe it is not unreasonable to assume that both these groups have less knowledge of the local single-family house market than investors who regularly purchase houses for the purpose of using them as rental properties or rehabilitating them for resale. The present study differs from the above studies in the way that buyers are classified. Instead of comparing the prices paid by first-time homeowners and experienced homeowners, here we compare the prices paid by all homeowners to the prices paid by investors.

METHODOLOGY AND DATA

The presentation to this point suggests the following null hypothesis.

H_o: There is no difference in the price paid for single-family houses between investors and non-investors.

To test this hypothesis, the following model was estimated using the SAS (2004) PROC REG procedure.

$$PRICE = \alpha + \beta_1 AGE + \beta_2 BATH + \beta_3 FIRE + \beta_4 LOT + \beta_5 SQFT + \beta_6 FRAME$$
$$+ \beta_7 BRICK + \beta_8 REHAB + \beta_9 AIR + \beta_{10} NONE + \beta_{11} FULL + \beta_{12} ABOVE$$
$$+ \beta_{13} BELOW + \beta_{14} SPRING + \beta_{15} FALL + \beta_{16} WINTER + \sum \beta_{17}^{22} AREA$$
$$+ \beta_{23} BUYER + \mathcal{E} \qquad (1)$$

where:

PRICE = the transaction price adjusted for inflation to December, 2007 dollars,

α = the intercept,

β = the estimators,

AGE = the structure age in years,

BATH = the number of bathrooms in the house,

LOT = the number of square feet in the lot,

SQFT = the living space of the house in square feet,

FIRE = the number of fireplaces in the house,

NONE = a binary variable equal to 1 if the house had no basement, equal to zero otherwise,

FULL = a binary variable equal to 1 if the house had a full basement, equal to zero otherwise,

FRAME = a binary variable equal to 1 if the house had a wood exterior, equal to zero otherwise,

BRICK = a binary variable equal to 1 if the house had either a brick or stone exterior, equal to zero otherwise,

ABOVE = a binary variable equal to 1 if the house was in above average condition according to the county tax assessor, equal to zero otherwise,

BELOW = a binary variable equal to 1 if the house was in below average condition according to the county tax assessor, equal to zero otherwise,

AIR = a binary variable equal to 1 if the house had central air conditioning, equal to zero otherwise,

REHAB = a binary variable equal to 1 if the public record indicated that the house had been rehabilitated prior to the transaction, equal to zero otherwise,

SPRING = a binary variable equal to 1 if the property was sold either in March, April or May, equal to zero otherwise,

FALL = a binary variable equal to 1 the property sold in September, October or November, equal to zero otherwise,

WINTER = a binary variable equal to 1 if the property sold in December, January or February, equal to zero otherwise,

AREA = a vector of six binary variables equal to 1 if the property is located in a particular area of the city, equal to zero otherwise,

BUYER = a binary variable equal 1 if the property was listed as subject to a homestead exemption in the County Auditor's Office, equal to zero otherwise, and

$\mathcal{E}$ = the error term

Data for 25,693 single-family house transactions that occurred in the City of Dayton from 2001 through 2007 inclusive was obtained from the Montgomery County, Ohio Auditor's Office. Observations with missing or obviously incorrect information were eliminated leaving 24,790 observations in the final sample. Summary statistics of the variables in the data base are presented in Exhibit 1.

Examination of Exhibit 1 will reveal that the mean inflation-adjusted (to December, 2007) transaction price (PRICE) was $55,905 and the mean age of houses in the sample (AGE) was nearly 77 years. Prior research, including one study of the

Exhibit 1
Statistical Summary of Housing Characteristics

Variable	Description	Mean	Standard Deviation	Minimum	Maximum
PRICE	Transaction price in December, 2007 dollars	55,904.65	41,543.58	3,000.00	1,945,793.42
AGE	House age in years	76.54	22.02	1	205
BATH	Number of bathrooms	1.22	0.42	0.5	4
FIRE	Number of fireplaces	0.26	0.49	0	8
LOT	Lot size in square feet	5,893.08	7,297.17	1,002	435,600
SQFT	Square feet of living space	1,292.01	430.71	700	6,712
FRAME	Wood exterior	0.74	.44	0	1
BRICK	Brick or stone exterior	.14	.35	0	1
REHAB	House rehabbed before transaction	.03	.16	0	1
AIR	Central air conditioning	.24	.42	0	1
NONE	No basement	.13	.34	0	1
FULL	Full basement	.70	.46	0	1
ABOVE	House in above average condition	.03	.16	0	1
BELOW	House in below average condition	.26	.44	0	1
SPRING	March, April or May transaction	.26	.44	0	1
FALL	September, October or November transaction	.25	.43	0	1
WINTER	December, January or February transaction	.22	.41	0	1
BUYER	Buyer status: 1 = resident, 0 = investor	.71	.45	0	1

Dayton housing market by Larsen (1991), suggests that the sign of the estimator for AGE will be negative. REHAB was included to control for the effect of any major property rehabilitation prior to the transaction date. Because rehabilitation would tend to reduce the effective age of the house, the expected sign of the estimator for REHAB is positive. Nearly three quarters of the sample houses had wooden exteriors (FRAME) and 14 percent had a brick or stone exterior (BRICK). Larsen (1991), among others, reported a positive estimator for BRICK and it is anticipated that the estimator will be negative for FRAME. Most of the houses in the Dayton market are rated by the Auditor as being in average condition. The expected sign of the estimator for houses rated as above average (ABOVE) and below average (BELOW) is, therefore, positive and negative, respectively. Larsen (1991) also reported that houses in the Dayton area may sell for more during the summer months than at other times. Therefore, the estimators for houses that sold during March, April or May (SPRING), or during September, October or November (FALL), or during December, January or February (WINTER) are expected to be negative. Most (70%) of the sample houses had a full basement (FULL) and 13% had no basement (NONE). The holdout category for this attribute is a partial basement and the expected sign for NONE and FULL is uncertain because while basements in Dayton offer a place of safety during severe storms, they also have a tendency to flood. To control for geographic differences, the observations are grouped into seven geographically-based areas (LOC). A priori, we have no reason to anticipate a particular sign of the estimator for these variables. Variables are also included in to control for the presence of central air conditioning (AIR), number of fireplaces (FIRE), lot size (LOT), living space in the house (SQFT), and the number of bathrooms (BATH). Prior studies indicate that the estimator for each of these variables should be positive.

The variable of primary interest in the present study is BUYER. The buyer's status could not be observed directly, but following the recommendation of personnel at the Auditor's office, it was inferred from information in the data base. Specifically, it was assumed that a house was purchased by a non-investor if the data base indicated the property was subject to a homestead exemption. This exemption entitles resident homeowners only to a reduction in property tax. It was assumed that the buyer was an investor if the property was not subject to the exemption. BUYER was assigned the value 1 if the house was subject to the homestead exemption or zero if not. Therefore, if investors pay more for houses than residents, the estimator for BUYER will be negative, but if investors pay less than residents the estimator will be positive. Examination of Exhibit 1 will reveal that 71 percent of the transactions were comprised of houses subject to the homestead exemption. This figure does not appear to be inconsistent with the 2007 homeownership rate of 64.2% for the Dayton Metropolitan Statistical Area reported by the United States Census Bureau (http://www.census.gov/hhes/www/housing/hvs/annual07/ann07t14.html). Preliminary analysis of the data, not detailed here, indicated that investors were involved in transactions that spanned the transaction price gambit.

RESULTS

Examination of Exhibit 2 will reveal that the data fits the model well; the F statistic of 725.69 is highly significant. The estimated coefficient for each of the control variables has the anticipated sign and the significant estimators appear reasonable in amount. The results indicate that each square foot of living space in the house added $17.33 to the properties sale price, each square foot of the lot added 44 cents, and selling price decreased by $495.38 for each year of house's age. Properties that had undergone a significant rehabilitation sold for about $14,384 more, on average, than similar properties that had not been rehabbed. Houses in below average condition sold for a discount of $8,080 compared to houses in average condition while houses in above average condition sold at substantial premiums. Central air conditioning was associated with an $11,050 larger selling price and each bathroom was associated with a $7,526.02 increase in value. Houses with no basement sold for $1,685.46 less than houses with a partial basement and houses with a full basement sold for $3,146.73 more. Houses with a brick or stone exterior sold for a premium of $4,489.68 and frame houses sold at a discount of $2,557.98, on average, compared to the holdout category. Houses that sold during spring, autumn, and winter months, did so at discounts of $1,284.65, $2,948.42, and $1,475.72, respectively, compared to houses that sold during the summer.

Of particular interest, the results indicate rejection of the null hypothesis. Investors and non-investors in our study did not pay the same price for comparable properties as indicated by the estimator for BUYER which is positive and highly significant. Investors in our sample paid $2,657.93 less, on average, than non-investors, ceteris paribus. For the mean priced house in our sample, this means investors paid 4.75% ($2,657.93/$55,904.65) less than non-investors. Due to data limitations, we cannot determine exactly how investors were able to achieve lower acquisition costs, but the fact that they did presents an exception to the law of one price.

Equation 1 was also estimated for each calendar year from 2001 to 2007. The results which are summarized in Exhibit 3 are fairly consistent with the results from the full study period. Investors acquired properties at discounts compared to non-investors in all but one year. The size of the significant discounts ranged from a low of $1,755.06 in 2005 to a high of $4,476.99 in 2006. Two of the differences are significant at the 99% confidence level, three at the 95% level, and one at the 90% level. The only year in which there was not a significant difference in the price paid by the two groups of buyers was 2003. We can offer no logical explanation for this anomaly.

A comparison of our results with those of Song (1995), Turnbull and Sirmans (1993) and Wilhelmsson (2008) suggests that the knowledge gap between investors and noninvestors is greater than the knowledge gap between first-time home buyers and experienced home buyers. The results also have important implications for anyone with an interest in real property valuation including property owners, lenders and government authorities. The results lead us to advise appraisers to ascertain whether a similar situation exists in their area. If it does, we

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suggest they not use an investor-owned house as a comparable in appraising a house in which the buyer intends to reside, but if an investor-owned house is used for this purpose, an appropriate adjustment should be made to the selling price of the investor-owned property. Property tax officials should also consider the implications of a two tier pricing system on the assessment process.

SUMMARY AND CONCLUSIONS

Transaction data from 24,790 single-family house transactions that occurred between 2001 and 2007, inclusive, in Dayton, Ohio were investigated to determine whether investors systematically pay a significantly different amount than do non-investors. The results indicate that investors paid $2,657.93 less, on average, than non-investors. For the mean priced house in our sample, this means investors paid 4.75 percent less. We attribute the price difference to the superior knowledge possessed by investors, but it cannot be determined from the data exactly how investors achieved lower prices. Future research efforts, therefore, might investigate not only whether the results reported here apply in other markets, but also, if they do, whether investor's superior performance is due to their ability to locate and acquire properties that are initially listed attractively low, or whether investors are able to negotiate lower prices more effectively than buyers who intend to reside in the property, or whether there is some other cause. Data constraints also precluded consideration of the influence of seller-type (investor versus owner-occupant) on price. Another possible extension of this research would be to incorporate this facet of the transaction into the analysis.

The results have an important implication for anyone with an interest in real property valuation including property tax authorities and real estate appraisers who normally put heavy reliance on the comparable sales approach when valuing single-family houses. Appraisers routinely make adjustments to the transaction price of comparable houses to account for differences in property characteristics, location and financing terms between the comparable and the subject property. This study has identified another factor that appraisers may wish to consider in arriving at their value judgments. Because property tax officials normally base their assessments on recent transaction prices, to be equitable they also should consider the possibility that prices are impacted by buyer-type.

Exhibit 2			
Ordinary Least Squares Regression Results of Equation 1: 2001-2007			
Variable	Parameter Estimate	t Value	P > ltl
Intercept	48,790.00	28.26	< .0001
AGE	- 495.38	- 40.28	< .0001
BATH	7,526.02	12.99	< .0001
FIRE	4,753.64	10.11	< .0001
LOT	0.44	15.13	< .0001
SQFT	17.33	26.93	< .0001
FRAME	- 2,557.98	- 3.91	< .0001
BRICK	4,489.68	5.49	< .0001
REHAB	14,384.00	11.40	< .0001
AIR	11,050.00	21.03	< .0001
NONE	- 1,685.46	- 1.99	.0469
FULL	3,146.73	5.48	< .0001
ABOVE	39,572.00	27.53	< .0001
BELOW	- 8,080.15	- 15.06	< .0001
SPRING	- 1,284.65	- 2.29	.0221
FALL	- 2,948.42	- 5.19	< .0001
WINTER	- 1,475.72	- 2.51	.0122
AREA1	13,850.00	14.37	< .0001
AREA2	- 10,770.00	- 14.05	< .0001
AREA3	11,359.00	14.41	< .0001
AREA4	26,043.00	39.43	< .0001
AREA5	- 9,407.61	- 11.69	< .0001
AREA6	- 4,052.44	- 3.91	< .0001
BUYER	2,657.93	5.67	< .0001

F = 725.69   Pr > F < .0001   Adj. R^2 = .7731

Exhibit 3				
Average Price Discounts Achieved by Investors				
Year	n	Estimator	t	Pr > t
2001	2,952	$2,761.69	2.31	.0208
2002	3,274	$4,043.74	2.28	.0225
2003	3,214	$314.97	0.25	.8064
2004	3,632	$3,777.92	3.30	.0010
2005	4,226	$1,755.06	1.77	.0769
2006	4,049	$4,476.99	4.25	< .0001
2007	3,443	$2,379.80	2.11	.0347
2001-07	24,790	$2,657.93	5.67	< .0001

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CHANGE MANAGEMENT, CANTOR FITZGERALD AND 9/11: DID CANTOR FIT THE MODEL?

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INTRODUCTION

A better question would be "Did Cantor Fit Any Model?" September 11, 2001, was a day in New York and Washington, D.C. which occasioned change so catastrophic that there is no one existing model to deal with such catastrophic change. This was not only a crisis where people experience an event as episodes of threat, uncertainty or a grave predicament requiring urgent action (Boin and 't Hart, 2003, 544); for Cantor it was a catastrophe, the disastrous end of a great and sudden calamity (Webster's New World Dictionary 3rd ed., s.v. catastrophe). As Higgs and Rowland describe, it is High Magnitude, master change driven by complex external events (2005, 136, 143). It was total destruction and it did require urgent action. This was not the ordinary organizational change described in the literature.

Cantor Fitzgerald was one of the companies located in the World Trade Center in New York City. The experience of Cantor was unique in the events of September 11. September 11 was a man-made occurrence with catastrophic results. One author writing prior to 9/11 likened catastrophic change to that wrought by the gods (Duening 1997), these were natural occurring events against which there was no defense. Defense was possible against man-made catastrophes in the past, and amounted to such structures and plans as the Great Wall of China, mutual-assured-destruction, or in the case of a business organization, to the "lean-mean reengineered organization" (Duening 1997). Other, more recent natural disasters have caused as much damage but not killed as many people nor brought as much media attention. September 11, 2001 was unexpected in its boldness and in its breadth. It was an event for which there was little or no preparation or defense. There certainly was no preparation for the management of such catastrophic change prior to its occurrence.

This paper is a case study using the Cantor Fitzgerald Company as backdrop to discuss the change management literature. The main focus of this case will be the story of Howard Lutnick who was Cantor's chairman and CEO (Barbash 2003). The first section of this paper will give a brief background to Cantor Fitzgerald and the events of September 11, 2001 as they affected Cantor. The second section will detail a change theory which is applicable to Cantor and the 9/11 experience. The third section will explore Lutnick and Cantor's response to the events in light of the change management literature and the theory of change management it has developed. And the final section will look at the conclusions drawn from the Cantor experience.

CANTOR FITZGERALD AND 9/11

On Top of the World is Howard Lutnick's story of his company and as the subtitle suggests of Cantor Fitzgerald's loss and survival following September 11, 2001 (Barbash 2003). Much of this background is told from Lutnick's perspective as retold in the book by Tom Barbash.

Tower One was the first to be hit by the American Airlines hijackers on 9/11. The crash occurred on the 93rd floor, and all those individuals above the crash site were unable escape either up or down; the elevators had stopped working, the staircases were filled with burning jet fuel, and the roof was either inaccessible or covered with smoke. Cantor occupied floors 101 through 105 of Tower One of the World Trade Center. There were more than 650 Cantor employees at work that day on the floors above the crash site. Many jumped when they realized the futility of their situation. The rest were crushed as the building collapsed.

Howard Lutnick was late to work that day because he was taking his son to his first day of kindergarten. He began his journey to the south tip of New York just as the first plane hit Tower One. He arrived at Tower One amid falling debris from Tower Two as it began to fall. Of the 1,000 Cantor employees who worked in Tower One, 658 were killed; Lutnick was one of the 352 who survived (Barbash, 8). He and those who survived were able to pull Cantor together, keep their customers, and survive the catastrophe.

Cantor Fitzgerald was, and still is, an international brokerage firm. They are a wholesale broker of bonds for financial institutions, selling hundreds of billions of dollars of bonds on a daily basis (Babash, 7). One of the characteristics which made Cantor popular with bond traders was the anonymity with which they handled their trades. Their clients knew that their sales and purchases would not become public knowledge; in fact, Cantor was relatively unknown to the world outside of Wall Street prior to 9/11. Their business consisted for the most part of face-to-face or telephone transactions; although they had entered the electronic age with their eSpeed trading system (eSpeed, accessed April 20, 2008), their clients preferred the personal contact with Cantor employees, and their electronic system was not pressed on those who did not want it.

Cantor's New York City office culture was close-knit; many were related by blood. And many were related by marriage to other employees. Lutnick believed that if an employee could vouch for an applicant, that was a good enough recommendation

to hire the person. Many came to Cantor Fitzgerald without formal financial training, although, many employees were hired away from Cantor's competition on Wall Street. The employees were encouraged to socialize after work, and many did as a means of relieving the stress of the day. Many lived close to one another and commuted on the train together to the World Trade Center. The wives of the employees, if not related to one another, also socialized with one another. Cantor's was a very tight-knit group.

All this changed on September 11, 2001.

SEPTEMBER 11, CANTOR FITZGERALD AND CHANGE THEORY

Catastrophism was once a popular belief as a means of explaining the unexplainable (Duening 1997). Its followers believed that unpredictable, uncontrollable forces caused events which interrupted everyday life. For many it was the result of the gods interfering with mens' lives. Those who predicted catastrophic events were occasionally correct in their predictions, and were thus able to hold sway as tellers of the future (Duening 1997). Catastrophism fell into disrepute when man came to realize that many events had natural and explainable causes such as the weather or tectonic plates.

The change theory which best explains 9/11 and its aftermath is punctuated equilibrium (True, Jones, and Baumgartner 2007). Punctuated equilibrium posits that an organization is in stasis or near equilibrium most of the time (True, et. al., 160; Palmer, Dunford, and Akin 2006, 86; Weick and Quinn, accessed online, under Episodic Change). Small, everyday changes do not upset the equilibrium of an organization. These changes are absorbed, usually because they have been planned, and the organization continues as before incorporating the changes as required. Under punctuated equilibrium theory, the period of stasis is interrupted or "punctuated" by a large scale event (True, et. al., 160; Palmer, Dunford, and Akin 2006, 86) which causes a radical change from the past. The event is a "mighty blow" which cannot be ignored (True, et. al. 160). For the World Trade Center, one punctuation or mighty blow interrupting the stasis occurred in 1993 with the first bombing which occurred in the garage area. Following the 1993 bombing, new security measures were initiated in the World Trade Center; monitors recorded activity, visitors needed escorts to enter the upper floors of the buildings, and more security guards were hired. Press coverage was extensive, but eventually subsided. Business as usual or stasis returned; the changes were incorporated and accepted by all of the tenants of the Center. Below is a representation of the bombing of 1993 bombing of the World Trade Center and 9/11.
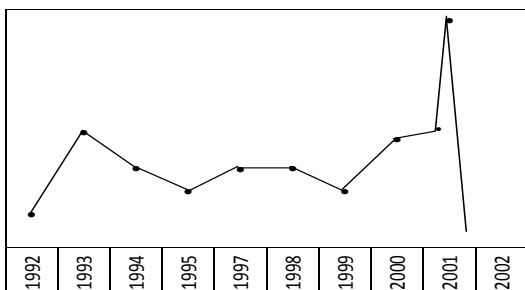
Note: this is a representation of the punctuated equilibrium of the 1993 bombing and 9/11

The September 11 event, however, was catastrophic. The equilibrium was not only interrupted, but for Cantor and many others it was destroyed. In addition to the loss of 658 employees and its office space, Cantor lost all of its computer and technology equipment, the paper records it kept, and a multi-million dollar collection of Rodin sculptures. The sculptures were part of the collection of one of the founders, Bernie Cantor, and were housed at the Cantor offices (Barbash, 7). The building, the offices, the artwork all spoke of power(Barbash, 183); the trappings of power as Caildini writes (195). Cantor now needed to rebuild itself and bring about a new level of stasis.

CANTOR FITZGERALD AND CHANGE MANAGEMENT

Change management in theory explains, for the most part, planned change (Fernandez 2007, 326,). Some authors argue that we live in a turbulent, volatile, and hostile environment (Kotter, 1995, 122; Harris 2006, 80). Change, under these circumstances, needs to be planned if possible, and the external environment must not control an organization's actions (Light 1998, 91); it can shape what they do, but not control those actions (Light, 13, 91). An organization which is able to plan and prepare for change whether technological change or structural change will be more successful in its initiative. One author argues that 70% of change attempts fail (Higgs 2005,122), other authors speak to the difficulty of maintaining change in organizations (Fernandez 2007; Higgs and Rowland 2005; Light 1998; McBain 2006; Palmer, Dunford, and Akin 2006; and Sirkin Keenan, and Jackson 2005). Although episodic change can be triggered by the environment it is disruptive whether it is planned or not (Weick 1999, under "Analytic Framework," accessed online 1/17/08), one author argues that a changing environment can give new insights and direction to an organization (Kiel 1994, 188). By using theories and models, an organization can simplify reality to some extent and minimize the uncertainty facing the prospect of change (Kiel, 178).

September 11, however, was unexpected, and the change that resulted was unplanned and unscripted. Many organizations that exist in areas prone to natural catastrophes, such as earthquakes in California, tornadoes in Tornado Alley states or hurricanes in the Gulf and east coast states, are presumed to have contingency plans to protect their assets. Cantor had no such plans, there were no safety nets (Barbash, 144), or theories on which to rely and guide them.

Howard Lutnick lost more than half his employees which included whole departments, his offices, his technological equipment, his paper transactions records, and the Stock Market was closed until September 13 thus limiting access to Cantor records there (Barbash, 31). His "biggest earners," those departments which generated the most money for Cantor were lost in the collapse of the building (Barbash, 51-54). Lutnick's main concern in the days following 9/11 was to save Cantor. To save the business, Lutnick had to satisfy and keep the customers who still needed to transact trades.

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Everything in Cantor's and Lutnick's worlds was changed all at once. The remainder of this paper is an examination of the assigned change management literature which applies to Cantor Fitzgerald following 9/11. The following factors will be explored in the light of the case study of Cantor's experience: Howard Lutnick as the change manager, media exposure and the competition, stakeholder interests which includes the relatives of those who died and clients, and, of course, the surviving employees. It is difficult to place these factors in any sequential or prioritized order because in the days and weeks following 9/11, every issue was important. Howard Lutnick dealt with these issues on a day-to-day, sometimes an hour-to-hour basis as they arose.

Howard Lutnick

Howard Lutnick was the chairman and CEO of Cantor Fitzgerald. McBain writes that the role of leadership is critical if change is to be successful, and he argues (2006, 4), as do Higgs and Rowland (2005, 133), that the DIY or do-it-yourself method of initiating change is not successful. Lutnick had no choice; there was no book written about such massive destruction.

Lutnick was a change manager, not the change agent who initiates changes, but the manager of change thrust upon him. Whether he wished to be or not he was now the catalyst for shaping the change of Cantor (193);all decisions now came from him. At any given time following September 11, Howard Lutnick filled one or more of the six images of a change manager as described by Palmer et al (2006). He was a "Director" making the strategic decisions upon which Cantor depended for its survival (27). He was a "Navigator" guiding his organization through planned responses to 9/11 and the unintended consequences of those decisions, and the aftermath of the catastrophe (28). He was a "Caretaker" offering encouragement to others even when he had little control over a situation (29). He was a "Coach" directing those with talents into new positions and encouraging their performance (31). He was an "Interpreter" helping his employees and surviving spouses make sense of what had happened on 9/11 (31-32). And finally, he was a "Nurturer" shaping or nurturing the thoughts and feelings of those around him when all seemed chaotic (33). He was also the one who had to say "no" and when to say "yes"; decisions which effected a wide range of people and businesses (Light, 49, 135).

In addition to managing the employees, Lutnick built, in Kotter's words, a guiding coalition (98) of his wife, sister, and a number of his surviving top managers. His wife and sister dealt with calls from surviving relatives, giving information on funerals, available government help, and they acted as Lutnick's moral support. His surviving top managers helped Lutnick make decisions.

The Media

One of the first issues facing Cantor was the instantaneous media exposure. As mentioned previously, Cantor was a company unused to any media exposure; their discretion was an important factor for their clients (Barbash, 93). Now, having lost more than half of their employees, the media focused attention on Cantor's

unique situation; rumors were rampant as to the exact extent of the loss at the World Trade Center (Lasorsa, 2003). Although many authors stress the importance of communications, the theorists' intent was communications with organization employees and other important stakeholders (Argyris 2004; Duening 1997; Fernandez 2007; Light 1998; and Kotter 1995). Press coverage of Cantor's situation would ultimately become Lutnick's "daily report card" (Barbash, 213), an assessment of Cantor's recovery efforts. Kotter (62, 64, 100) and others (Light, 22; Argyris 2004) write of the necessity of feedback through communication; however, initially, communication by Howard Lutnick with the media gave information not only to the press and the public in general, but also to Cantor's competition and survivor's stakeholders. These last two posed a large threat to Cantor's tenuous existence following 9/11.

The Competition

With the news of Cantor's position, the competition from Wall Street moved in to take Cantor's clients. Lutnick's openness was beginning to work against the company; this openness is contrary to the advice of one writer who believes that the public should be kept informed (Jarret, 2007). In the days immediately following 9/11, Dean Witter, J.P. Morgan, Merrill Lynch and other brokerage houses contacted Cantor clients and ran advertisements in the newspapers to coax those clients away from Cantor. This spoke to the ruthlessness of the competitors (Goffee and Jones 1996, 136) on Wall Street even when Cantor's existence was questionable. Wall Street has always been cut-throat; the unequal exchanges as Cialdini would argue, were part of the everyday business-as-usual (2001, 33). In the past, Lutnick had frequently lured traders away from his competition, now stealing clients from Cantor was just a form of reciprocity as Cialdini might argue (23), only it was a perverse form of reciprocity. The competitive threats needed solidarity (Goffee and Jones 1996, 136) to keep Cantor's life-blood, the client, but Cantor's employees were still trying to recover from the shock and the loss.

The Clients as Stakeholders

Cantor's clients were also stakeholders with an interest in the survival of the organization. As previously mentioned, they valued Cantor's discretion in keeping their trades from the public view. But they could not put their transactions on hold until Cantor recovered. In Kotter's words, there was a sense of urgency (97) in Lutnick's attempts to get Cantor up and running again. Many clients did not want to use eSpeed, Cantor's electronic trading system (eSpeed). Cantor had offices in Connecticut, New Jersey, and Los Angeles; these offices, however, did not deal in the multi-million dollar bond transactions which originally were handled in New York and internationally in London. As Weick and Quinn posit, in episodic change, organizations are more concerned with short-run adaptation rather than the long-run (accessed January 17, 2008; under Basic Metaphors: Organizing for Episodic Change).

As McInnes et al write, a company's identity is important; Cantor set its identity as being *On Top Of The World* and thus on

top of its business (2006, 1110). Its image of importance came from its perch on the top of the tallest building in New York with a view extending for miles in all directions. These "trappings" gave Cantor's clients the feeling that they were dealing with a knowledgeable, successful brokerage firm (Cialdini, 195). This was destroyed. As Robertson and Seneviratne argue, an organization's identity is tied to the physical space in which they work (1995, 550-552). Now Cantor was spread between London, an apartment in New York City, Connecticut, Los Angeles, and Lutnick's house in New Jersey.

Lutnick had to get the multi-million dollar clients back into the business of bond trading with the feeling of dealing with a capable firm. These large trades were sent by email to London, it was the crisis center for handling the large trades. The vice president there arranged for the office to be staffed during the New York trading hours to deal with trading for the large clients, but also London had to cover for the Cantor New York departments which had lost most or all of their employees. This decentralized, horizontal structure, as Harris writes, will increase performance in today's turbulent and uncertain times (Harris 2006, 80-81). Harris also points out that electronic resources are a necessity for the "horizontal organization" (81). Cantor's horizontal organization was in most places only three employees deep, between Howard Lutnick and the trading floor employees, there was usually only one other employee. Harris also argues that technology is a key element in change for any organization (82). Cantor served a niche market (Barbash, 93) and electronic technology was the only way to serve that market. For Cantor, email and eSpeed and working in conjunction with their Los Angeles and London offices helped them to keep their clientele.

The Surviving Relatives as Stakeholders

Lutnick appeared on *World News Tonight with Peter Jennings* on September 13 to explain Cantor's situation and how it came to happen that he was not in the building at the time of the first plane crash (Barbash, 49-50). It was during that interview that Lutnick promised to take care of the families of the survivors; a mixed message which many misunderstood (Argyris 2004, 9, 52). This was a promise made without a clear plan as to how it was to come about, something writers warn against. Plans, authors argue, are necessary to the success of any change (Buchanan et al 2005; Fernandez and Pitts 2007, 325; Higgs and Rowland 2005, 122; Kotter 1995, Light 1998; McBain 2006; Palmer, Dunford, and Akin 2006; Robertson and Seneviratne 1995, 547; Weick and Jones 1999, accessed online, under Conclusion). Lutnick did not have a plan for how he would be able to provide the type of money he had publicly promised.

Lutnick paid the September 15 paychecks of those who died to the survivors, but made no more payments to them. This made the news; to many wives who did not work and had small children, Lutnick's actions seemed cruel. Lutnick was able to go on the *Larry King* show in October to explain that the remaining employees, less than one-third of the original number, could not make up the salaries of those killed (Barbash, 137-139), but that Cantor would pay the families 25% of the company. Again, he did not explain how. Lutnick's surviving employees knew

that he did not have a plan but because most were still numb from the shock and over work, it was a situation of *Captainitis* (Cialdini 2001, 9) where they just followed his lead in allowing word to get out that Cantor was going to help. Again, Argyris warns against sending mixed messages of this type (9) without having plans on which to follow through.

Buchanan et al argue for involving the different stakeholders (195), but Lutnick's contacts with the press did not relay Cantor's message. Lutnick called and returned many personal phone calls of the wives to lend support and what help he was able to arrange from government agencies; but this did not reach the more than 1,500 surviving family members (Barbash, 8). As a sympathetic listener, Lutnick also used Piderit's "appreciative inquiry" of asking concerned questions to understand how the family members were dealing with their losses (2000, 791).

To remedy the general bad feelings and uncertainty, Lutnick initiated a series of family dinners to keep the family stakeholders informed as to what was happening; some would argue that this is Cialdini's "lunch technique" where people are more receptive to suggestions if the suggestions come with a meal (167). As Light (22) and Kotter (100) claim, it is important to communicate the mission of the organization. These dinners helped the wives understand the importance of saving the company and how Lutnick intended to keep his promise. Sirkin, Keenan, and Jackson state that the executive should communicate his commitment to the change at least three times more than he believes necessary (2005, accessed online, under Commitment). These dinners and other family meetings continued until all promised payments to the surviving stakeholders were paid; insurance coverage for the surviving family members was promised for twenty years.

The Employees

In a time of turbulence, followers desire certainty (Kiel, 176-177). For Cantor's employees, the world was a sense of profound loss and confusion. They needed something or someone to bring certainty and stability to their lives. They were faced with what one writer labeled "unprecedented levels of change" (McBain 2006, 1). They were left with memories.

Cantor Fitzgerald was a wonderful place to work. The culture was enjoyed by all who worked there and all who visited. The work site was conducive to high powered type of work they did (Robertson and Seneviratne 1995, 550), and with a four-direction view, they did literally sit on top of the world. It was a place to be proud of, and all enjoyed coming to work. They knew each other as work acquaintances and, for many, as relatives; they had many get-togethers outside of work which helped cement their friendships (Goffee and Jones, 147). It was Goffee's and Jones' sense of sociability and solidarity (1966); they knew each others' work habits and helped each other when trading became heavy.

Robertson and Seneviratne would argue that social factors are important (550, 552); however, as September 11 showed, there was a down-side to the close relations of the Cantor employees. The survivors lost relatives, spouses, and close friends. For

days following 9/11, many walked around in a daze, in conflict between grief at their loss, and relief that they had not been at work, and then guilt that they had not been there when their friends needed help (Barbash, 77). As Barbash writes, so much of their identity had been wrapped up in their jobs (109), McBain suggests that an organization provide employees with a social identity (2006, 3), this was taken away in the collapse of Tower One. Now, there was a sense of urgency (Kotter, 97) to pull everyone together, continue their trading and help Cantor survive (Barbash, 74).

Lutnick's driving purpose was to keep Cantor open to do business; his fear was that if clients were lost to other trading houses, no one would remember Cantor (Barbash, 194-195). To that end, he reassigned surviving employees to work in the crisis management centers in New Jersey and Connecticut. Other trades were handled by eSpeed, and out of the Los Angeles and London offices. As with the media situation, the employees were acting on the *Captainitis* phenomena (Cialdini, 9), following Lutnick's instructions and doing what was necessary. It was a title wave of pressure (Goffee and Jones, 133) requiring lots of hard work as contrary to McBain's (2006, 5), and Sirkin et al's (accessed on line, under Effort) belief that change should increase an employee's work load by no more than 10%. Everyone was putting in 20 hour days usually sleeping at the location where he worked. There was no time for resistance (Argyris 2004), and it was not a matter of convincing someone that he should change his mind about the needed change (Gardner 2004). Work had to be done to save Cantor.

Lutnick was the Director (Palmer, 27). People just followed his instructions, putting in the extra effort to help Cantor survive (Sirkin, Keenan, and Jackson, accessed online, under Commitment and Effort). In the months following 9/11, whole departments were eliminated due to the loss of most or all of their employees. Those employees who were the few remaining in an eliminated department were reassigned. People willingly accepted new positions. As Gardner states, it is easier to change in a new environment (62). Harris writing that new technology is a key element in changes (82) points to a factor which helped keep Cantor alive. eSpeed turned into Cantor's new method of serving its customers given the small size of its workforce. All involved, employees, customers, and Wall Street had to develop Gardner's new mental representation (5) of Cantor now as an electronic dealer in bonds.

Lutnick had to create a new meaning for the employees out of all the chaos (McInnes et al, 1112). He kept them focused on the vision (Kotter) of saving Cantor and the mission (Light, 56) of re-gaining their place in Wall Street as the dominant bond trading house. By setting small goals (Barbash, 33) and then celebrating those achievements, Lutnick was able to maintain the morale and demand the short-term sacrifices (Kotter, 102). As Light argues, employees do not do their best work when they are facing the firing squad (47); however, Cantor's employees did.

All their efforts paid off. Cantor Fitzgerald was able to turn a profit of approximately 20 million dollars at the end of 2001;

approximately 5 million of that would be paid to the survivors, this was the 25% Lutnick had promised on the *Larry King* show (Barbash, 268). This amount along with health care would be paid to the survivors in 2002.

Since September 11, Cantor had hired approximately 150 new employees; these were hired away from other Wall Street houses and from other financial and educational organizations. As a company get-together, Cantor held a Christmas party in December 2001. The new employees were keenly aware of Cantor's 9/11 experiences and losses. The surviving employees at that party were told stories of Cantor's lost employees and their experiences (McInnes et al, 1111; Gardner, 19; Higgs, 129). This made the solidarity and friendship of the past seem real for the newcomers (McBain,1, 3). Time will make them a true part of the Cantor Fitzgerald family.

CONCLUSION

"Did Cantor Fitzgerald Fit the Model?" The answer would have to be No. Most models do not fit, but there is much useful information which can provide a useful framework which can be used under the scenario of catastrophic change. Using the case study method, and applying that study to the assigned readings, it could be said that Cantor fit many different models of change management. Cantor experienced a catastrophe of unimagined proportions. Yet the survivors were able to rebuild Cantor, not to what it was before, but to something new. Howard Lutnick, Cantor's chairman and CEO, had the vision of Cantor surviving to reclaim its original mission as the dominant bonds trader on Wall Street. Cantor today has a wide variety of electronic systems to facilitate its trades, and again is a successful bond brokerage house. Using the change management literature as a means of explaining Howard Lutnick's actions, one can see that there is no one model to explain Cantor Fitzgerald's survival. Cantor Fitzgerald and Howard have written a new model for surviving unplanned catastrophic change.

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A COMPARISON OF BENEFITS AND WAGE INCENTIVES ACCORDING TO ORGANIZATION SIZE: A CHALLENGE FOR SMALL BUSINESS

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INTRODUCTION

Research efforts have been initiated to examine the nature of small business employee benefits and to understand challenges and methods for improvement. Employee benefits have continued to become an important factor in employee retention, motivation, commitment, and other variables. Studies show that large businesses tend to have more employee benefits than the small businesses sector (Popkin, 2005). The objective of this wage and benefit survey was to describe the level and distribution of pay and the nature of employee benefits. Information requested from the survey was obtained from the manufacturing sector in ten counties within a 30- mile radius of a Metropolitan Statistical Area (MSA). The manufacturing sector includes industrial producers, distributors, and processors.

SURVEY OF LITERATURE

Studies have measured employees' attitudes towards benefits and related to performance, absenteeism, and turnover. The Independent Institute for Employment Studies (IES) and the DfEE (2000) provided clear findings in that small- and medium-sized enterprises (SMEs) stand to gain from family-friendly employment practices just as large corporations with national reputations when they take care of employees (Anonymous, 2000).

Carraher (2008) found a relationship between employee attitude regarding employee benefits and turnover. The study found behavioral intentions to search for a new job, to quit, and intention to be absent were related to actual turnover and performance but not to absenteeism. Muse (2008) found that providing work-life benefits was part of a positive exchange between the employee and employer. This exchange was positively related to employees' feelings of perceived organizational support and affective commitment to the organization and reciprocation in the form of higher levels of task and contextual performance behaviors. The results revealed that employees' perceptions of benefit program value were critical regardless of the actual program in influencing attitudes and behavior.

Jayachandran & Kraybill (1998) examined the relationship between employer size and the provision of fringe benefits in rural businesses. They found that a clear employer size-benefits relationship existed only in the case of health insurance, while other benefits were not strongly linked to employer size.

The Small Business Administration (SBA) found that employee benefits costs varied based on the size of a business.

Employees of small businesses had access to fewer benefits than did the employees of large businesses. Small and large businesses continued to provide benefits to their employees, but at a declining rate. Companies of all sizes have reduced the availability of health insurance due to the increasing cost associated with benefits in recent years. Also, access to retirement benefits was more prevalent among large firms than among small firms. Specific findings were:

1. Paid vacation leave was the most common benefit while pension plans was least common.

2. Paid benefits varied by size with 81% of large firms offering sick leave vs. 65% for smaller firms.

3. Health insurance costs were high for firms with less than 10 employees, decreased for companies from 25 to 99 employees, and increased for large companies over 1,000.

From a strategic point of view, it makes sense for small businesses entering a growth stage to increase the costs of employee benefits to retain talent (Popkin, 2005).

According to the NFIB 2003 Small Business Poll on Compensating Employees, the most common employee benefits offered by small businesses are: (Zahorsky, 2003).

> Paid Vacations; Offered by 75% of small businesses.
> Employee Health Insurance Plan; 61%
> Paid Sick Leave; 59%
> Disability Insurance; 41%
> Education Reimbursement for Job; 39%
> Pension Plan; 30%
> Life Insurance; 29%

Zahorsky (2009) found that small businesses are making concerted efforts to maintain employee morale in turbulent times, and they perceived the work environment has more impact on employee satisfaction than financial factors such as benefits or compensation, according to a quarterly survey of more than 250 small businesses. The single largest group of respondents believed that employee morale in their companies had remained unchanged from a year ago. Of the remaining respondents, 34% perceived employee morale has improved, while 24% indicated it had declined. The most commonly cited contributor to employee morale was the company culture and reputation at 36%. However, other major factors include flexibility and work/life balance (23%) and job security (22%). In analyzing employees' perception of their company, the

largest group of respondents (60%) reported they successfully built and maintained a positive employment brand through good communication and quality management practices. Survey implications were that companies should pay attention to fundamentals such as benefits and payroll, as they remain important foundations for a thriving company culture. A total compensation package that includes both work environment and financial factors, such as a comprehensive benefits package, should protect and expand an organization's employer brand regardless of the economy (Business Wire, 2009).

Jury (2003) found that companies that can attract, keep, and motivate good employees will save money. One key to success in all three areas lies in how well companies provide for their employees' financial security. This study illustrated that benefits are an investment, not just an expense and that they are reaping the rewards of their investments with an impressively low turnover.

Small businesses need careful and sophisticated employee benefits planning. Well-informed plan sponsors and employee benefit professionals recognized the cost-containment potential of flexible benefits. A small business may also negotiate discounts with local providers. However, benefits may be reduced or withheld unless the selected providers are utilized (Sundermeyer, 1993).

METHODOLOGY

This study is part of a major research project which examined wage and benefit information for a 10-county area within a 30-mile radius of a Metropolitan Statistical Area (MSA). This research effort was sponsored by a consortium of four economic development corporations. Data from this study was taken from the major project which was based on the results of a questionnaire mailed to 234 manufacturers during spring, 2009. The questionnaire requested information regarding employee benefits, such as holidays, vacation, sick leave, insurance, and retirement plans. Also, hourly rates, overtime, wage-level adjustments, bonuses, training programs, and seasonal hiring information were obtained. The data was segmented according to 22 large manufacturers (> 100 employees) and 66 small manufactures (100 or less employees).

Development of the Survey Instrument.
The methodology used by the Bureau of Labor Statistics and other wage and benefit studies were examined and modified for this research. The survey instrument was carefully developed with input from manufacturers, information technology specialists, and economic development staff. The questionnaire was organized into the following sections: (1) time off; (2) insurance availability; (2) retirement; (3) cost of benefit package; and (4) bonus and hiring practices. This survey has been conducted five times over the past 13 years and modified with each mailing.

The Sample.
Businesses identified for the survey had five employees or more. The questionnaire with cover letter and prepaid envelope were mailed February 9, 2009 to both large and small population

segments with the return rate shown below. Letters, email, and telephone reminders followed to ensure a good return rate. A total of 66 surveys were returned, producing a response rate of 28% as shown below:

Number Mailed	Number Received	Return Rate
234	66	28%

Size of Employers
The number of employees working at the companies surveyed varied from 5 to 5,799 with a median of 39 employees.

Mean (0) Average	Median	Range	
		Low	High
230	39	5	5,700

ANALYSIS OF EMPLOYEE BENEFITS

Holidays, Vacation, and Time Off
Table 1 shows the types of leave and time off given to employees segmented by large and small businesses. Significant differences existed in all areas but vacation in that large businesses had a larger proportion of time off than did the small businesses ($p < .05$). However, the proportion both large and small manufacturers providing vacation and pay in lieu of vacation did not differ significantly.

Paid Holidays
All large businesses provided paid holidays for their employees. The median was 8 days for all employers (the difference was significant as $p < .01$).

Floating Holidays
Only 11% of small businesses indicated they had floating holidays for their employees, while 32% of large manufacturers provided this option (the difference was significant at the .01 level, as $p < .01$).

Vacation
A wide majority of all employers, 93%, reported they gave vacation days to their employees. A higher proportion, 95%,

Table 1
Holidays, Vacation, and Time Off

Types of Time Off	Small Business		Large Business		T statistic
	#	%	#	%	
Paid holidays	41	93%	22	100%	-3.29**
Vacation	41	93%	21	95%	-0.74
Paid jury duty	32	72%	20	91%	-3.60**
Paid sick leave	15	34%	11	50%	-2.52*
Time off to vote	1	2%	12	55%	a
Time off as a witness	11	25%	9	41%	-2.68**
Personal Time Off (PTO)	7	16%	8	36%	-3.83**
Pay in lieu of vacation	12	27%	5	23%	0.80
Floating holidays	5	11%	7	32%	-4.21**
Unpaid holidays	10	23%	0	0%	a
Holiday premium pay	4	9%	5	23%	a
Sample Size	44		22		

Note: "a" denotes not test was made due to insufficient sample size.
*$p < .05$. **$p < .01$.

of large businesses have vacation days for employees (no significant difference exists as p >.05).

Pay in Lieu of Vacation
Smaller proportions of small and large employers, 27% and 23%, respectively, indicated they paid employees in lieu of a vacation (no significant difference exists as p >.05).

Table 2
Insurance Available to Employees

Yu[Types of Insurance of Time Off	Small Business		Large Business		T statistic
	#	%	#	%	
Health	35	80%	21	96%	-3.68**
Dental	30	68%	20	90%	-4.35**
Vision/eyewear	15	34%	13	59%	-3.98**
Life	32	72%	20	91%	-3.60**
Disability	25	57%	18	82%	-4.21**
Workers' Compensation	29	66%	13	59%	1.09
Self-Insured	10	23%	8	36%	-2.36*
Sample Size	44		22		66

*p < .05. **p <.01.

Table 3
Insurance Available to Employees

Yu[Types of Insurance of Time Off	Small Business		Large Business		T statistic
	#	%	#	%	
Health	35	80%	20	91%	-2.41*
Dental	29	66%	19	86%	-3.68**
Vision/eyewear	15	34%	13	59%	-3.98**
Life	25	5%	18	82%	-4.21**
Sample Size	44		22		66

*p < .05. **p <.01.

Table 4
Types of Retirement/Pension Plans

Types of Retirement/Pension Plans	Small Business		Large Business		T statistic
	#	%	#	%	
Defined contribution (401k, 401b, IRA, etc.)	19	43%	20	91%	-8.74**
Profit sharing plan	3	7%	4	18%	a
Employee Stock Ownership Plan (ESOP)	1	2%	4	18%	a
Other*	3	16	1	5	a
Sample Size	44		22		

Note: "a" denotes no test was made due to insufficient sample size.
*p < .05. **p <.01.

Table 5
Savings and Incentive Plans

Types of Savings and Incentive	Small Business		Large Business		T statistic
	#	%	#	%	
Profit sharing	6	14%	4	18%	-0.97
Savings & thrift plan	1	2%	5	23%	-6.29**
Tuition aid	9	20%	14	64%	-7.65**
Other*	6	14%	1	5%	a
None	26	59%	5	23%	5.99**
Sample Size	44		22		

Note: "a" denotes no test was made due to insufficient sample size.
*p < .05. **p <.01

Paid Sick Leave
Small manufacturers, 50%, indicated they had some type of paid leave while 34% of the small manufacturing sector had paid sick leave as a benefit (a significant difference exists as p < .05). The median number of sick leave days per year was computed to be 6 days with a range of 2 to 32 days. The manufacturing sector average was 5.5 days.

Paid Jury Duty
A majority of the large manufacturers, 91%, stated they gave time off to employees for jury duty. A smaller proportion, 72%, had this option (the difference was significant at .01 level, as p < .01).

Time off as a Witness
Some 41% of large manufacturers indicated their employees were given time off to serve as a witness. On the other hand, only 25% of the small businesses had this option (the difference was significant at .01 level, as p < .01).

Personal Time (PTO) Paid Time Off
When asked if paid personal time off was given to employees, 36% of the large employers, and only 16% of the small businesses responded "yes" (the difference was significant at .01 level, as p < .01).

Insurance
Employers were asked to indicate the types of insurance available to employees and their dependents. A large proportion, 96%, of large manufacturers and 80% of small businesses indicated they had health insurance available for employees. Additionally, 91% of large businesses and 80% of small businesses had health insurance as a benefit for dependents (significant differences existed in all insurance areas with the exception of workers' compensation).

Table 2 shows various types of insurance and the proportion of small and large businesses that have this employee benefit option. Large businesses reported a higher proportion in every instance with the exception of worker's compensation. The small businesses sector had a higher proportion, 66%, in the worker's compensation category. Furthermore, a larger proportion of large manufacturers provided an option for the dependents than did small businesses as shown in Table 3 (significant differences existed in every type of insurance variable).

Retirement and Other Benefits
A majority of the large manufacturers sampled, 96%, indicated they had some type of pension plan for their employees while only 61% of small businesses provided this option (the difference was significant at .05 level). Furthermore, 95% of large businesses with a pension plan indicated they matched the employee's contribution to the plan, while 74% of the smaller businesses matched the contribution. The average contribution matched for large businesses was 5.5% and for small businesses, 3%.

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The primary retirement plan offered was a defined contribution plan (91% for large businesses and 43% small businesses). Table 4 shows that there is a significant difference according to size of business and having a defined contribution plan.

Table 5 shows that 14% of small businesses and 18% of large businesses have a profit sharing plan for employees. Further, no significant difference exists (t.= -.97 at the .05 level). However, a larger percent of large businesses, 64%, indicated they had some type of tuition aid for employees. When asked what types of savings and incentive plans are available, 59% of large businesses indicated none, while only 23% of small businesses had no savings and plans which denotes a significance at the .01 level (t = 5.99).

COST AND VALUE OF BENEFITS

Value of Benefit Package
Employers were asked to estimate the company benefit package average dollar value per employee. The average estimate (median) of the benefit package per employee for all manufacturers was $5,875 (See Table 6). However, large manufacturers estimated the value to be $7,500 which is significantly higher than the $4,800 for small businesses.

Value as a Percentage of Wages
Employers were asked to estimate the value of the benefit package as a percent of wages. The median value of the benefit package as a percent of wages was reported to be 30% for large business and 15% for small businesses.

HIRING PATTERNS AND FINANCIAL INCENTIVES

Seasonal Hiring Patterns
Few employers (25% for small and 23% for large businesses had some type of seasonal hiring practice. In fact, no significant differences existed according to size and seasonal hiring practices.. A large proportion, 75%, of the small businesses indicated they never have a seasonal hiring practice. Table 7 below shows the frequency of hiring practices (no significant difference existed).

Salary Increases
The majority of manufacturers reported they had some type of wage-level adjustments. According to Table 8, no differences exist between the proportion of businesses giving merit and size. However, significant difference exists in the proportion paying other bonuses. Large businesses, 41%, indicated they paid some type of bonus, where only 11% of the small businesses had bonuses as part of the compensation package.

Table 9 below shows 45% of small businesses and 77% of large businesses have annual adjustments. A significant difference exists between the two segments (t = -5.20).

Bonuses and Incentives
Several types of bonuses were initiated by the manufacturers in the sample. No significant differences existed among large and small businesses regarding non-production bonus and premium paid for overtime. However, differences did exist in "other" types of bonuses in that large businesses, 41%, paid had more overall bonuses; i.e., cost saving and skilled based.

Table 6: Distribution By Living Status (living with parents vs. without parents)

		Have Card		Have Credit Card Debt		Reach Credit Card Limit		Have Student Loan	
		No	Yes	No	Yes	No	Yes	No	Yes
Living with Parents		224	261	314	171	404	81	212	273
Not with Parents		99	101	154	46	187	13	130	70
Chi-Square		Value	Prob.	Value	Prob.	Value	Prob.	Value	Prob.
		0.6243	0.4295	**9.8305**	**0.0017**	**12.446**	**0.0004**	**25.6708**	**<0.0001**

	Pay Credit Card Bill In Full		Pay Minimum Payment	
	No	Yes	No	Yes
Living with Parents	155	80	149	86
Not with Parents	43	33	43	33
Chi-Square	Value	Prob.	Value	Prob.
	2.1836	0.1395	1.1325	0.2872

Table 7
Frequency of Seasonal Hiring Practices

Seasonal Hiring Practices	Small Business		Large Business		T Statistic
	#	%	#	%	
Sometimes	11	25%	5	23%	0.41
Frequently	0	0	2	9%	a
Almost never	33	75%	15	69%	1.17
Sample Size	44	100%	22	100%	

Note: "a" denotes no test was made due to insufficient sample size.

Table 8
Types of Salary Increases

Types of Salary Increases	Small Business		Large Business		T Statistic
	No.	%	No.	%	
Merit pay	30	68%	17	77%	-1.55
Cost of living	15	34%	5	22%	1.92
Other*	5	11%	9	41%	-5.92**
Sample Size	44		22		

Note: "a" denotes no test was made due to an insufficient sample size.
*p < .05. **p <.01.

Table 9
Frequency of Salary Increases

Frequency of Salary Increases	Small Business		Large Business		T Statistic
	No.	%	No.	%	
Annual adjustments	20	45%	17	77%	-5.20**
No set pattern	22	50%	3	14%	a
Other*	2	45%	1	5%	a
Sample Size	44	100%	22	100%	

Note: "a" denotes no test was made due to insufficient sample size.
*p < .05. **p <.01.

CONCLUSION

This research, based on a sample of manufacturers and employee benefits, found significant differences existed in all areas of time off with the exception of paid vacation in that large businesses had a larger proportion of time off than did the small businesses. A large proportion, 96%, of large manufacturers and 80% of small businesses indicated they had health insurance available for employees. Also 91% of large businesses and 80% of small businesses had health insurance options for dependents. A majority of the large manufacturers sampled, 96%, indicated they had some type of pension plan for their employees, while only 61% of small businesses utilizing this option. Also, significant differences existed in that a large proportion of large businesses offered insurance to dependents.

A majority of the large manufacturers indicated they had some type of pension plan for their employees, while fewer small businesses provided this option. Furthermore, 95% of large businesses with a pension plan indicated they matched the employee's contribution to the plan, and 74% of the small businesses matched the contribution. Also, a larger proportion of large businesses, 64%, indicated they had some type of tuition aid for employees. The average estimate (median) of the benefit package per employee for all manufacturers was $5,875. However, large manufacturers estimated the value to be $7,500 which is significantly higher than the $4,800 value as estimated by small businesses. Employers were asked to estimate the value of the benefit package as a percent of wages. The median value of the benefit package as a percent of wages was 30% for small business and only 15% for small businesses. No differences exist between the proportion of manufacturers giving merit pay and organization size. However, significant difference exists in the proportion paying bonuses. Several types of bonuses were paid by the manufacturers in the sample. No significant differences among large and small businesses regarding non-production bonus and premium pay for overtime. However, differences existed in "other" types of bonuses in that a larger proportion of large businesses paid bonuses to their employees.

Employee benefits continue to be an integral part of job performance as well as affecting attitudes and turnover. Therefore, this study suggests a major challenge exists for small business to continue to provide increased employee benefits. Providing employee benefits has shown a culture of caring and valuing the employee which may lead to commitment and increased productivity. Although small manufacturers have made significant progress in providing employee benefits, their participation is significantly less than larger manufacturers. Several barriers may exist for the small business, such as: (1) difficulty in identifying the carriers; (2) lack of human resource professionals; and (3) administration and documentation of the total compensation package.

A proper benefit plan must incorporate the administration and documentation necessary to take advantage of tax savings for both employers and employees through the deduction of qualified benefits. Having timely and accurate information regarding employee benefits is important. In order to increase benefits, managers might enhance their human resource department with an experienced professionals, since small businesses need careful employee benefits planning. Well-informed plan sponsors and employee benefits professionals recognize the cost and potential benefits of such planning. Also, agencies, such as the Small Business Administration (SBA), SME benefit providers, and professional associations, may be helpful. Agencies should communicate with small manufacturers to inform them of the types of available assistance and improve the quality of communications while emphasizing and clarifying the availability of the services, their purposes, criteria for qualifying, and the benefits that firms may derive from using the services. Since having timely and accurate information is important, perhaps agencies should provide newer and more effective vehicles for manufacturers to assess their services. Such opportunities could be an Internet accessible database, web site for sharing, and a state-wide clearinghouse that identifies all options.

LIMITATIONS AND DIRECTORS FOR FUTURE RESEARCH

Though this research provides interesting insights into the nature of small business employee benefit, limitations do exist. Although the conclusion proposed in this study may have a universal application, empirical tests rely on data collected from businesses in one state. While no research has identified that this area is fundamentally different, differences may exist that this work would not have discovered.

The research suggests that further analysis is warranted, and questions emerge from this study. The following factors seem important in formulation of hypotheses: (1) reasons for lower benefits; (2) differences between benefit participation and

Table 10 **Types of Bonuses and Incentives**					
Bonuses and Incentives	**Small Business**		**Large Business**		**T Statistic**
	No.	**%**	**No.**	**%**	
Non-production bonus	9	20%	6	27%	-1.25
Premium pay for overtime	26	59%	14	64%	-0.71
New employee graduated training wage programs	7	16%	4	18%	-0.47
Other*	12	27%	9	41%	-2.26***
Sample Size	44		22		

*p < .05. **p < .01
**Other includes skill based, cost savings and other bonuses.

length of time in business; and (3) whether assistance has been used to improving employee benefit status.

Since the research was designed to be exploratory in nature and thus was broad based in scope, future research would do well to assess specific information needs segmented by type of employee attitudes, productivity, absenteeism, and turnover. As a final point, it would be interesting to seek a relationship between revenue and profits and the employees' perception of the benefit value.

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