

GLC 2010 Conference Proceedings

*Ethics, Entrepreneurship, and Organizations in an
Era of Global Economic and Financial Crisis*

King's College
Wilkes-Barre, Pennsylvania



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Editors' Comments

We are happy to put the 2010 Global Landscapes Conference Proceedings into your hands. Articles included in the conference proceedings are from presentations at the interdisciplinary conference “Global Landscapes: Ethics, Entrepreneurship, and Organizations in an Era of Global Economic and Financial Crisis”, held at King’s College in Wilkes-Barre, Pennsylvania on April 22 and 23, 2010. Each paper draws the reader into a critical thinking process while addressing a contemporary issue that reflects some dimension(s) of the conference theme.

We hope you will enjoy reading the articles in this volume and join us for future Global Landscapes Conferences at King’s College.

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Entrepreneurship, Ethics, and Social Responsibility

Social Entrepreneurship and Corporate Social Responsibility: A Discussion on Disciplinary Domains and Strategic Relevance

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Abstract

This paper is aimed at addressing two fundamental issues relating to corporate social responsibility and social entrepreneurship. First is the issue of lack of conceptual clarity of the two terms. Social entrepreneurship and Corporate Social Responsibility are often used vaguely and sometimes interchangeably so much so that the disciplinary boundaries of the two constructs are not clearly defined. Second is the issue of strategic relevance. There is a popular misperception that social responsibility and social entrepreneurship are luxuries that can be afforded only in times of sound financial health with surplus monies to spare. Some scholars such as Friedman would even go to the extent of arguing that such initiatives serve to dilute the fundamental mission of managers.

The first part of this paper aims to sketch out an operational definition and disciplinary boundaries for each of these two concepts. The second part of the paper is devoted to a discussion of how corporate social responsibility and social entrepreneurship could be relevant for establishing a competitive advantage in times of financial hardship. Directions for future research are presented.

Introduction

Of late, several corporate scams as well as new and uncharted courses of violation of stockholder and stakeholder interests by business executives have shot business ethics into limelight. The financial crises of 2008/9 have further contributed to the increased awareness of the need for responsible corporate governance. This phenomenon,

coupled with increasing emphasis on global warming, environmental preservation, and prevention of pollution heightened the importance attached to corporate social responsibility (CSR). As part of this overall emphasis, new dimension of corporate social responsibility have begun to emerge. For example, it has been argued that environmental sustainability is a central dimensions of CSR so much so that corporate social responsibility reports are being repackaged as “sustainability reports” (Crowther, 2010). A similar, but slightly different theme can be found in the steady rise of “social entrepreneurship” as a key theme of innovation and entrepreneurship. Entrepreneurs whose visions embrace socially responsive business practices and who succeed in instilling their values in the business organizations they founded are being regarded as necessary to cater to the collective needs of a civil society---needs that are not fulfilled either by the laissez faire model of capitalism or the traditional centrally planned economies where the government assumed the responsibility for social welfare. Social entrepreneurship has thus emerged as the “third way” (Giddens, 1998) offering a way of community partnership in collaboration with the government, but without the burden of an entitlement approach (Mendes, 2000).

The distinctions between Corporate Social Responsibility and Social Entrepreneurship as fields of practice or as areas of academic inquiry are not addressed in the literature. In fact, unlike many other similar terms, social entrepreneurship is a relatively new term where academic discussion is informed, enriched, and preceded by practice rather than the other way round.

This paper aims to address the question of disciplinary boundaries and domain distinctions between Corporate Social Responsibility and Social Entrepreneurship. The paper is organized into three sections. First, we trace the historical evolution of the terms and how they have translated into corporate practice over the years. Second, we propose a set of differences summarizing the disciplinary domains and foundational issues in both CSR and Social Entrepreneurship. Finally, we discuss issues of strategic relevance of these concepts for the current times and possible directions of emergence in the future.

CSR and SE: Historical Evolution

Corporate Social Responsibility and Social Entrepreneurship are both fuzzy terms with varied and constantly evolving definitions and implications. Neither of these terms has been fully and unequivocally defined or operationalized, though their usage has been gaining currency in both management literature and corporate practice. The following discussion attempts to trace the evolution of these terms and find some common themes in both these constructs.

Corporate social responsibility has been conceptualized in some form or the other since the 1920s. Some scholars such as Post (2003) and Turner (2006) contend that the roots of CSR can be traced to the debate of the 1930s between Berle and Dodd over the role of managers. Whereas Berle argued that the only duty of managers is maximization of shareholder profits, Dodd maintained that the powers of managers are to be regarded as those held in trust for the entire community. This dialectic has subsequently found expression in many other forms and spokespersons. Milton Friedman (1970), for example, famously argued that:

There is one and only one social responsibility of business – to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game, which is to say, engage in open and free competition, without deception or fraud.

Carroll (1999) traces the evolution of corporate social responsibility (CSR) as a concept to the 1950s. Expansion of the definition occurred during the 1970s while empirical research and alternative themes such as corporate social performance and stakeholder theory on the theme emerged during the 1980s. The 1990s saw CSR yielding ground to alternative theoretical frameworks; yet the fact remains that the core of CSR revolves around a central theme: whether directors of a company ought to be guided by the primacy of shareholder interests or whether they ought to consider a wider range of stakeholders such as employees, suppliers, local communities, and interest groups in addition to the shareholders. There are strong groups of advocates on either side of the argument. Among the pro-CSR advocates, one could cite Christopher Stone (1975), Ralph Nader (1976), and Joel Seligman (1976). Prominent in the shareholder primacy group are Williams (1999) Friedman (1970), Hansmann (2001), and Easterbrook (1996), among others.

Contrary to CSR, social entrepreneurship is defined in terms of practice rather than ideology. Broadly speaking, SE is considered to be made up of ideas that have already met the test of practice and implementation rather than mere proclamation (Ziegler, 2009). Contrary to a business entrepreneur who seeks out new products, markets, and ideas to make a profit, the social entrepreneur seeks ideas and ventures to solve an existing societal or environmental problem. Social Entrepreneurship was a term coined in the 1960 and 1970s. The term was used by Banks (1972) to describe Robert Owen, a social reformer and founder of the cooperative movement. Bill Drayton's founding of *Ashoka: Innovators for the Public* in 1981 and Michael Young's promotion of social enterprise in the 1980s accelerated the popularity of social entrepreneurship and

social capital as ideas worthy of pursuit. Though it would be wrong to attribute social entrepreneurship as the invention of any one single person or organization, it is appropriate to recognize the contribution of several leaders from India as pioneers of social entrepreneurship. Among these one could cite are Mahatma Gandhi (India's well-known leader and social reformer), Mother Theresa (known for her work among the poorest of the poor in the slums of Calcutta), and Vinoba Bhave (founder of India's Bhoodan or Land Gift program).

However, over time, social entrepreneurship practices have spread all over the world. Michael Young, for example, is known for founding more than sixty new organizations worldwide, including Schools for Social Entrepreneurs in the UK. Similarly, Andrew Mawson (2008) is known for his work in the UK in making communities work. Muhammad Yunus, founder of Grameen Bank and winner of Nobel Peace Prize in 2006 is known for his work in combining business principles with societal ventures through microfinancing.

There is some ambiguity about exactly how to define a social entrepreneur. It has been argued that founders of organizations with earned income, i.e., income earned from paying consumers only should qualify for the label. Others argue that contracted work for public authorities, grants and donations would also qualify for the term. One could expect this dilemma to be resolved in favor of the latter interpretation over the course of the next several years.

CSR and SE: Differences and Disciplinary Boundaries

One primary characteristic of Corporate Social Responsibility is that it represents a normative construct and an ideology that is invoked to inform managerial practice. On the other hand, Social Entrepreneurship is a concept that is derived from practice; it is a concept that derives meaning from new and innovative examples of solutions to societal problems. Thus practice precedes precept in the case of SE whereas it is just the opposite in the case of CSR. Second, the basic theoretical and foundational issue in the case of CSR is the attempt to balance shareholder interests with those of the broader group of stakeholder interests. Thus a recurring theme in CSR literature is its compatibility with the profit motive of a corporation and the cost-effectiveness of CSR measures in terms of bottom-line results. Social Entrepreneurship, on the other hand, explicitly recognizes the primarily role of innovation, creativity, and societal welfare. Profits and profitability is considered at best, as an after-thought. Naturally, the not-for-profit sector is the primary domain for social entrepreneurship. Though this approach is gradually changing to seek

out ways of simultaneously pursuing societal change and profitability, the primacy of societal good continues to dominate SE.

Third, there is a distinction in terms of the level of analysis employed. CSR continues to be explored at the corporate level as the driver of corporate strategy whereas SE has traditionally been primarily concerned with the actions of individual entrepreneurs and founders of organizations. It is important to recognize, however, that there has been a move to recognize and interpret CSR in terms of individual levels of analysis. The concept of Corporate Social Entrepreneurship (CSE), for example, offers to provide a bridge between the two concepts by bringing corporate social entrepreneurship under the umbrella of Corporate Social Responsibility. For example, it has been argued that CSR can be motivated by the personal values of the managers rather than a collectivistic phenomenon such as corporate culture (Hemingway, 2002: Hemingway & Maclagan, 2004).

Strategic Relevance of CSR and SE

There is research evidence cited by the World Economic Forum (2003) to show that incorporating social responsibility can not only reduce portfolio volatility, but also increase returns. As pointed out by the World Economic Forum's report, "... many business leaders face unprecedented, and often unusual, demands on their time and leadership skills. They are under pressure to demonstrate outstanding performance not only in terms of competitiveness and market growth, but also in their corporate governance and their corporate citizenship. They are being called on to engage with activists as well as analysts, to be accountable for their non-financial as well as their financial performance, to manage social and environmental risks as well as market risks, and to cooperate as well as to compete – often with non-traditional partners focused on unfamiliar issues. In response to these challenges, the concept of corporate citizenship or corporate social responsibility is moving beyond the boundaries of legal compliance and 'nice-to-do' philanthropy, to a more central and challenging position alongside issues of corporate purpose, governance, strategy, risk management and reputation." Thus the strategic relevance of CSR cannot be overemphasized in these turbulent times.

Peter Drucker (1989) pointed out more than two decades ago that organizations in the social sector set an example for business corporations in such areas as strategy, mobilization of knowledge workers, and increasing the effectiveness of the board. The measure of success for social entrepreneurship lies in the creation of social value rather than increased profits. It is through this process of value creation that enterprises can improve their strategic positioning.

As a part of their CSR, businesses are increasingly undertaking the challenge of deploying business skills to solve societal problems and to develop leaders of social consequence. It is through this linkage that Social Entrepreneurship and Corporate Social Responsibility complement each other in their strategic relevance to organizations today. In times of economic uncertainty and increased scrutiny of managerial practices, CSR and SE seem destined to grow in importance. There is also the distinct likelihood that Social Entrepreneurship would be embraced by Corporate Social Responsibility bringing about a fusion of practice and precept in the years to come.

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Beyond Shareholder Value: A Social Entrepreneurship Model for Corporate Governance

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Abstract

Agency theory maintains that the sole purpose of a corporation is to provide shareholder value. As the dominant model for corporate governance of publicly held stockholder corporations, agency theory has led corporate management teams, board of directors, and institutional investors to focus on short term financial results to maximize shareholder value. The result has been the current global economic crisis, and a history of scandals, and unethical behavior on the part of transnational corporations.

Despite recent changes to corporate governance laws, such as Sarbanes-Oxley in the United States and the Companies Act of 2006 in the United Kingdom, fundamental changes to the governance of stockholder corporations are required if a repeat of corporate ethics scandals is to be avoided. One such alternative to agency theory is stakeholder theory, which has long sought to extend the responsibility of corporations to consider their impact on both the community, and the environment, the so called “triple-bottom-line”. Several alternative businesses have been founded, based on more socially responsible business models, but so far none have been able to co-exist within the legal fiduciary framework of shareholder theory, as required by corporate governance laws.

This paper will examine such alternative business models as the Economy of Communion businesses, the Mondragon Cooperative Corporation, and existing public and privately held businesses constructed around a Social Entrepreneurship model to determine how they compare and contrast to agency theory model. The benefits and shortcomings of these alternative business models will be considered, and a new model for corporate governance of a stockholder organization based on social entrepreneurship will be proposed.

Introduction

The lowering of trade barriers between nation states, and the end of the political polarization of the cold war, has resulted in an era of widespread globalization, where transnational corporations have come globalization has been a series of to dominate

global commerce. Concurrent with this rise in ethics scandals that has resulted in serious social concerns around the globe. Enron, Arthur Anderson, the financial market meltdown of 2008, and many other instances of willful corporate malfeasance, have raised the profile of corporate social responsibility (CSR). However, despite the increased awareness and concerns for CSR, there have not been significant changes in the laws of corporate governance, which have historically been constructed around the problems of principal-agent theory. If CSR is ever going to advance beyond a voluntary set of best practices for global corporations, a fundamental change in corporate governance will be required. What forms this new corporate governance will take is a matter of great debate (Gill, 2008).

This paper will examine the current shortcomings in agency theory based corporate governance, before recommendations are offered for potential changes to corporate governance regulations to align them with CSR principles.

Shortcomings of Agency Theory:

Public shareholder corporations are governed in accordance with the laws of the country in which the business is incorporated. These laws, referred to as corporate governance, are built upon the legal contract between the shareholder owners, called principals, and the management team hired to run the corporation, referred to as agents. The principle-agent relationship is closely defined by the laws of corporate governance to ensure that the agents are acting in the best interests of the principals, who are the owners of the corporation and its capital.

In the case of large public shareholder corporations the securities, in the form of company stock, are owned by many investors. In large publically traded corporations, where there are literally thousands of shareholders, it would be impractical for each share owner to participate in the decision making of the corporation, and the hiring of agents of manage the corporation. Therefore, the shareholders elect a board of directors to oversee the selection of the management team, and the operation of the company on behalf of all shareholders. Effective control of the corporation rests with the majority shareholder, or groups of shareholders acting in concert (Drucker, 1993).

As corporations have grown into transnational entities during the last 50 years, the ownership of stock has been diluted by an increase in the number of shareholders. This is due in part to the increasing popularity in employee shareholder plans, and the growth of wholesale institutional investors, like large mutual funds. Stock ownership has been diluted to the point that majority ownership by a single individual shareholder has become rare. Individual shareholders have little direct influence in the decision making of the management team.

This widening gulf between principal and agent has been the traditional focus of corporate governance regulations. Existing corporate governance regulations have focused on holding the corporate management team accountable to the shareholders through laws dictating general accounting practices, and financial reporting requirements. The interests of the shareholders are further protected by the oversight of the board of directors, to whom the management team is accountable.

In response to the Enron, Arthur Anderson, Adelphia, WorldCom and Tyco International scandals at the turn of the century, corporate governance laws in the United States were revised via the Sarbanes-Oxley act to tighten oversight of management teams. However, despite oversight by the board of directors, and the new legal requirements, management teams continue to engage in behavior and decision making that is detrimental to the shareholders as evidenced by recent ethics scandals during the current economic crisis. To understand the shortcomings of corporate governance, one need look no further than the existing state of the principal-agent relationships.

Those who most influence the direction of a company are the management team, the board of directors, and the large institutional investors that hold and manage individual, and employee shares in mutual funds. Each of these three constituencies have differing motivations, and incentives, which when taken together have resulted in a situation where the interests of the shareholders are not being adequately protected.

The Management Team

The management team of any large corporation is tasked with both short term and long term decision making to support the mission of the business and deliver a financial return on investment to the shareholders. The management team is a group of leaders that

have risen to positions of management through their promotion by higher-ranking managers within the organization. The rise of a professional management class has occurred only during the last 200 years of history, as free market businesses moved away from guilds, and family owned organizations, and towards stockholder owned entities (Drucker, 1993). The focus of the professional manager as an agent for the shareholder is improving efficiency, and delivering profits. Their motivation is to maintain continued investment in the corporation by increasing earnings. This will serve the shareholders by delivering a return on their investment in the form of a dividend, and in turn make the acquisition of company stock more desirable for other investors. This will result in an increased share price for the company stock.

However, the management teams also have a self interest in increasing the share price of company stock, as the management teams of most large corporations receive a significant amount of their financial compensation in the form of stock option grants. Therefore, an increase in share price will directly affect the material wealth of the management team. This is done intentionally to align the interests of the management team with those of the shareholders.

Institutional Investors

“In the United States at the end of 1992, institutional investors held at least 50 percent of the share capital of large corporations” (Drucker, 1993, p.76). As the owner of the capital the institutional investor is free to purchase, hold, or sell the stock of any given publicly traded company in the interest of creating profit for the shareholders of the mutual fund. Institutional investment firms employ professional fund managers to manage the stock portfolios in line with the investment strategy (long-term growth, international growth, moderate growth, or securities). While institutional investors are legally the principal “owners” of the capital they invest, in reality the fund manager is acting as a trustee of the money belonging to the mutual fund shareholders. The mutual fund manager is not a principal, but merely an agent for the shareholders of the mutual fund corporation. Mutual fund companies earn their profit by selling individual shares in their funds, and charging fees to their customers for the management of the stock funds. The typical investor in mutual fund stocks, are individuals who purchase the stock either

using their own money, or through company supported 401k and retirement pension funds. As the market value of a mutual fund stock is directly related to the performance of the fund, the institutional investor is highly incentivized to maximize his return on investment by buying stock in companies that show growth in earnings. To the institutional investor, the only thing that matters is the *near term* financial performance of the company in which he invests.

Board of Directors

The third constituency to examine is the board of directors of the corporation. The board of directors are professional managers (agents) from other organizations that have been elected to sit on the board, and protect the interests of all shareholders (principals). Board members are elected by shareholders to represent their interests. In this role, the board members serve as the acting principals for the shareholders. In practice, most board members are chosen from among the peer group of the corporate management team, and boards are typically composed of either large shareholders, or professional managers from other corporations. The result is that the board of directors, and corporate management team become a self-perpetuating group of elite agents. Both are financially compensated by the performance of the company stock, which is positively impacted by attracting the investment of large institutional investors. As described above, the best way to attract institutional investment is to deliver near term growth in corporate financial earnings.

Shareholder value as sole incentive

As illustrated above, the interests of the three main constituencies, the management team, the institutional investment manager, and the board of directors, are entirely focused on the share price of corporate stock. Since both the Board of Directors, and the Institutional investment managers are also focused on short term financial results to increase share price, there is no check and balance on the management team. As all three groups are essentially agents, their dedication to the interests of the principals can be called into question. Unscrupulous, or unethical behavior, that results in improved

performance in the near term, is all too easy for these three groups of agents to overlook as the ends are increasingly used to justify the means.

The sad irony in this ownership system is that the mutual fund stocks making up the largest percentage of a corporation's shareholders are typically owned by many small individual shareholders. These small shareholders may be employed by the corporation, or many different companies, and acquire their mutual fund stock through employee 401k retirement and pension funds (Drucker, 1993). While financial returns are important to the individual employee shareholder, other concerns such as job security, working conditions, environmental impact, and long-term health benefits have an immediate impact on both their subjective and material well-being. The illusion is that making employees into shareholders through stock ownership & pension funds gives them a voice, and creates a measure of subsidiarity. However, the rise of the mutual fund, and pension fund as the primary owner of financial capital has created demand for continuous growth and increasing profit to increase short term earnings per share (Christensen, C., Kaufman, S., & Shih, W., 2008).

Despite the intentioned of agency theory, to protect the interests of the principals, in practice the current state of corporate governance only holds management accountable for short term financial results. While some economists, such as Milton Friedman, firmly believe that the only responsibility of business is to increase profits (Friedman, 1970), clearly the gap between long term and short term incentives for corporate management teams do not serve the interests of all shareholders. The result has been that the management of the corporation has been tilted more towards the interests of the agents, at the expense of the principals.

The Current Place of Stakeholder Theory in Corporate Governance:

To move beyond the inherent shortcomings of agency theory rooted solely on shareholder value, many business philosophers have embraced stakeholder theory as an alternative (Freeman, 1984). In stakeholder theory the business is run with a consideration of all concerned stakeholders, namely, investors, employees, communities, governments, suppliers, trade associations, political groups, and customers. (Donaldson & Preston, 1995).

Under stakeholder theory the management team must rely on more than the profit and loss statement to determine the best course of action. Such considerations as the ethical and moral effects of business decisions on employees, families, suppliers, customers, competitors, and the environment must be considered. While admirable these considerations are often much more subjective than the facts and data of financial analysis, and have until recently been considered beyond the realm of management responsibility. Despite the most well intentioned rhetoric on stakeholder value, the remuneration of the management team in most investor owned corporations is based solely on financial performance (Cragg, 2002). The result is that the management team is not directly incentivized to consider subjective stakeholder values, and when faced with decisions between short term financial results and longer term, less tangible values to indirect stakeholders, ethical dilemmas can arise. In these situations, so long as corporate governance laws, and local laws are not violated, and negative public relations effects are minimal, the management team is rewarded only for decisions that result in the maximum financial benefit to investor shareholders. Despite the implicit social contract between society and the corporation, indirect stakeholders have little recourse with the corporation outside of litigation, or public opinion campaigns to raise awareness of corporate abuses.

Conclusion

At present, the only incentives for a corporate management team to practice Corporate Social Responsibility (CSR) are legal requirements, public opinion, and the individual ethics of the management team. Creating a regulatory incentive to the management team to practice CSR above the minimum levels would acknowledge and reward the corporation and the management team for ethical behavior. Measurement of corporations' compliance to a clearly defined set of international standards is one way to achieve this. Creating new reporting requirements similar to the financial requirements of current corporate governance regulations would allow shareholders, and stakeholders to evaluate the social responsibility of corporations. Objective measurements of CSR would allow shareholders to evaluate the financial and social risk of investment in a given corporation. Poor social responsibility on the part of a corporation would result in the

direct loss of financial capital as investors sought to divest themselves of the corporation's stock.

Some work has already been done to assign a set of auditable standards for measuring CSR (Kanji, & Chopra, 2010). The Kanji-Chopra Corporate Responsibility Model (KCCSRM) takes into consideration four key areas of a corporation's CSR.

- 1.) Social Accountability and Investment
- 2.) Ethics and Human Resources
- 3.) Corporate Governance and Economic Responsibility
- 4.) Environmental Protection and Sustainability

The KCCSRM is just one attempt at creating an international standard for measuring the social responsibility of a corporation. Some companies, such as Weyerhaeuser, Starbucks, Toyota, IBM, Abbott Laboratories, and ShoreBank Pacific have already begun to voluntarily file annual CSR reports (Matthew, n.d). These corporations have already seen the value of transparency in reporting their CSR practices in areas such as employee recruiting, public relations, and enhanced credibility for their brands.

The examples of existing socially responsible businesses, have shown that organizations can be effective at creating social as well as financial capital, when they set that as primary focus for their organization. These examples of voluntary reporting of CSR practices, have shown that the business practices used for financial accounting and reporting can be leveraged to the realm of CSR. These corporations have proven that internalizing CSR has not prevented them from delivering profits to their shareholders.

Recommendations:

Based on the success, and drawbacks of the examples discussed, the following changes to current corporate governance regulations and practice are recommended:

1. Establishment of a globally accepted Corporate Social Responsibility Index
2. Regulations requiring corporations to report their CSR performance against the CSR Index

3. The creation of committees at the board of director level to focus on CSR compliance
4. Inclusion of stakeholders from the community in CSR board committees
5. Creation of forums for stakeholders to dialogue CSR concerns in a constructive manner w/o resorting to coercive behavior.

Some of these recommendations are already taking place in the hybridization of voluntary CSR practices and corporate governance (Gill, 2008). There is no dispute that organizations that voluntarily embrace CSR as part of their core principles are more effective at integrating CSR into their business practices and creating social as well as financial capital, but as corporate scandals have shown, without an enforceable regulatory framework which holds corporations accountable, and requires transparency, the urge to greed at the expense of stakeholders and principles is too much for some agents to ignore. Creating a regulatory framework, that requires CSR compliance reporting will do much to ensure that the interests of principals, and stakeholders are being protected. Ultimately though, it will be the willing participation of corporations at enforcing self compliance with these regulations that will result in effective CSR. History has shown that neither regulation without compliance, or compliance without regulation, have been effective at preventing scandal, and ethics abuses. Both corporate governance laws, and voluntary commitment on the part of corporations, are necessary if the world of business is to move beyond shareholder value, and incorporate social responsibility into its core principles.

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Ethical and Location Effects of Supply Chain Management: Comparative Models in the Electronics Power Industry

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Abstract

Multinational enterprises (MNEs) are often accused of engaging in unethical behavior, but have also been changing their international strategies to outsource production and supply chains to other organizations. Is outsourcing any less ethical than internalization?

The electronics industry is a global landscape of increased international production and unethical behavior, such as the exploitation of cheap or child labor, and factory pollution.

This paper is a case study of one sector of the global electronics industry, power supplies. We compare the ethical and location effects associated with the alternative supply chain sourcing strategies in a sample of MNEs, from the outsourced modular production by unrelated contract suppliers to internalized vertical integration control of value chain functions by related subsidiaries, or combinations of both types of strategies. We predict that supply chain sourcing variations will also be associated with ethical performance and corporate social responsibility (CSR), with better ethical behavior and CSR by related MNE subsidiaries and for high power customized products. However, the intense global competition in the electronics industry is increasing cost pressures on all companies, and fostering more transfers of production to low-cost locations and unrelated suppliers. We argue that lower ethical performance is probable under crisis structural and supply chain conditions. MNEs could institute more effective monitoring and control of their own suppliers' behavior to protect the quality of their product lines and global corporate brand reputations, but will follow institutional and environmental influences in each location.

Key words: Multinational enterprises (MNEs); supply chain; value chain; power supply; ethical performance; corporate social responsibility (CSR)

Introduction

Ethics are an increasingly significant challenge in the global landscapes of business, but a growing threat in an era of economic and financial crises. Although there are now greater concerns with business ethics, there are few theories or business models to connect the strategies of multinational enterprises (MNEs) with variations in their ethical behavior. Hence, there are still gaps between theories about MNEs and their own ethical actions; conversely, theories of business ethics remain too abstract and ungrounded in strategies.

In this paper, we attempt to bridge that gap by connecting the strategic choices of MNEs and their ethical outcomes. We begin with the “eclectic” model of MNEs’ international production, formulated by the late John Dunning (2009) and developed further by other international business scholars (Buckley, 20). The eclectic theory analyzes interaction between the ownership (O) of firm-specific assets (FSA), the choice of how to exploit those FSAs by internalization (I) or markets or contracts, and the location (L) choices of where to manage which functional activities. The interactions of these OLI variables are difficult to test; but we emphasize the location choices of MNEs to examine where and how they exploit their FSAs through coordination of supply and value chain activities. We apply the eclectic model to examine the strategic management of global value chains (GVCs) in one sector of the electronics industry, power supplies; but GVCs within that industry are geographically fragmented and controlled by MNEs in long supply chains (Gereffi, 1994). Hence, locations of GVCs reflect ownership and control strategies, but we expect to find variations in functional activities and ownership choices within GVCs.

The production of many electronic components has been fragmented and outsourced by MNEs to other lower cost locations, particularly in China and Southeast Asia; producer-lead GVC supply chains are predominant for most electronic manufacturing processes.

Yet there are still variations in the business models and supply chain strategies used by different national origins, or for different types of products. Japanese owned MNEs are likely to follow different sourcing strategies than other Asian or U.S. owned firms; but Japanese owned MNEs are more likely to internalize their sourcing. Low

power supply products tend to be mature, standardized products manufactured under sub-contracts; but high power supply products tend to be newer, customized, and internalized by MNEs.

We analyze the variations in sourcing strategies within the supply chains of the global electronics industry, but focus on the increasing proportions of component production located in a few regions of China. There are economic reasons of agglomeration and scale in the OLI model for regional clusters in the fragmented value chains of MNEs.

However, the ethical and developmental effects of these electronic component factories have become more detrimental as well as dangerous to the employees and citizens of the clustered regions. Some consumer electronics companies are adopting corporate social responsibility (CSR) strategies, but have had problems extending or integrating CSR to their suppliers. We review the increasing incidence of environmental pollution and labor rights abuses in Chinese and Asian electronics factories, and discuss the mixed efforts of both MNEs and host government agencies to monitor or control component suppliers' compliance with higher standards. We conclude that there are still variations in ethical performance by sourcing strategies and product types, which are challenging markets.

The Changing Locations of International Production

MNEs are engaged in organizing international production across markets and locations. The eclectic OLI theory of MNEs analyzes the interaction of FSA ownership and their internalization strategies; but we focus on neglected Location variables of where MNEs derive competitive advantages and how these are sustained (Dunning, 2009). In many industries, multiple sources of FSA and location advantage are combined by MNEs.

This paper is part of a larger project, which studied the fragmentation and relocation of production in the electronics industry (Clarry, 2010). Although the largest markets and home bases of electronics firms are located in advanced countries, much of the sourcing and production of components have been relocated to lower cost countries, especially in China and Asia. Many consumer electronics companies are based in Japan

or S. Korea, but more component production occurs in lower cost Asian locations. Global electronic manufacturing is migrating to China, which accounted for 25% of production in 2008 (RER, 2009). China and other low cost locations in SE Asia or other emerging markets have increased their share of global electronic production to 55% in 2008, up from 33% in 2000 and only 25% in 1995. However, national growth rates are unevenly distributed, as lower custom volume or innovative components are still made in high cost locations (Japan, US). Table 1 shows the distribution of electronics production in different regions; but production is often induced and concentrated in a few special economic zones (SEZ), such as the Zhonghan Electronics compound of plant sites in Shenzhen (U.S. DoL, 2009).

Many MNEs in the electronics industry operate as “network” organizations (e.g. Miles and Snow, 2008), which divide and coordinate different functions in their supply chains. The product design and marketing functions tend to be located in or near the home nation headquarters of MNEs, while many manufacturing and component sourcing functions are dispersed or decentralized to other foreign locations. These component supply chains are fragmented regionally, but clustered in a few locations and controlled as producer-lead global value chains (GVCs) in hierarchical structures (Gereffi, 1994). Hence, the network model of supply chain management has dispersed production by MNEs, but includes new forms of corporate governance and control over value chain functions across borders. The strategy of MNEs balances goals of low cost flexibility and stable high quality (McKay).

Leading firms in the electronics industry are often very large diversified MNE's; but any effects of their national origins are complicated by their OLI strategies to either transfer, license or outsource production of some components to other locations, partners, and/or unrelated firms. Larger MNE's may transfer FSAs to make their own components abroad, or are vertically integrated networks; but many big vertically integrated electronics firms lost net income and profit margins in 2008-9. Thus, the largest Japanese electronics firms and Philips NV all lost billions in 2008, through their own vertical integration strategies.

We are also studying the extent of outsourcing to unrelated suppliers or internalization by MNEs. Outsourcing production is a typical operating strategy in the

electronics industry for Original Equipment Manufacturers and Designers (OEM, ODM); more component manufacturing is being outsourced, but some sourcing suppliers are now more involved than only contract manufacturing (Read, 2005). U.S. and non-Asian MNEs have tended to use more outsourcing than Japanese or other Asian firms in their supply chain (GVC) modules, and we predicted sourcing strategies will interact with FSA ownership. Hence, we expect the national origins and size of MNEs to impact their levels of outsourcing, as location effects are mediated by component sourcing strategies and national origins.

Case Study of Electronic Component Supply Chains

Although the fragmentation of supply chains exists for many components and products, our study of the global electronics industry focused on only one particular sector, power supply products (Clarry, 2010). Every electronic device requires some form of power, but there are many different types of power products for different applications and levels of power use. Industry analysts may distinguish between high and lower power products, which differ in their power ranges from 5-10 watts for low power or 50+ for high power. Low power products tend to be mature, standardized, high volume and price sensitive for use in many basic or mobile devices. High power products are newer, customized, lower volume, and more expensive for use in more specialized or complex electronic devices.

We derived a sample of leading power supply companies in Asia from industry sources, and expected to find different sourcing strategies by their types of products and national origins. Table 2 and Appendix lists the national origins and sample of 27 power supply firms, and tries to classify them by either high or low power products.

Although most of our sample firms are MNEs, many make both types of power products; but we contend there are still different sourcing strategies used to make each type of product, that vary by national origins and economies of scale advantages for the larger MNEs. Over half of our sampled set of 27 firms is from Taiwan and Japan origins; but more electronic production occurs in China. Although there are only two low power supply firms originating from China in our sample, all of the sampled firms have some degree of manufacturing activities within China. Hence, there are many other smaller to

medium sized power supply firms located or based in China, which operate as contract manufacturers, but who are not in our formal sample. Information on these unrelated “shadow” suppliers to MNEs in China is limited, but there is more data becoming available to compare their operations by product and nationality. (China Sourcing Reports (2009) has published an industry overview of power supplies and profiles).

The research question in our location study was whether MNEs from different national origins or making distinct types of components would vary in their sourcing strategies. We are still analyzing our data, but preliminary results confirm that U.S. MNEs are more likely to outsource some of their production and supply chain activities to unrelated firms under contract manufacturing agreements; Japanese and other Asian MNEs (Taiwanese, Korean) tend to transfer more of their production and FSAs to related subsidiaries abroad, or to joint ventures with some equity control. There is also evidence that more unrelated suppliers are used for contract manufacturing of low power supplies or older components; yet it is difficult to distinguish the overall sourcing strategies of MNEs that may make both high and low power products, but under different forms of corporate governance. However, there is a clear trend for more electronic production to migrate to China and other low cost areas, either by MNEs or for them under producer-lead value chains. Thus, location effects of the OLI model are partially confirmed, but with other consequences.

Ethical Performance and Corporate Social Responsibility (CSR)

Previous studies of business ethics focused on low technology of apparel or athletic shoe manufacturers, like Nike (Bron, 2009); yet CSR issues are also increasing in high tech industries. The fragmentation of electronic production has relocated and reconfigured the supply chains of many MNEs; but there are ethical and corporate social responsibility (CSR) issues on the other side of this relocation process. In contrast to abstract values or universalistic approaches to business ethics, we argue that ethical and CSR issues are material to the contextual sourcing choices and international strategies of MNEs.

Although managers or employees may vary in their individual ethical orientations, we are more concerned here with the systemic actions and outcomes of

corporate strategies at an organizational level of analysis. We contend that ethical and CSR issues are embedded in specific national and industry contexts, but must still be “unpacked” from the geographic locations where corporate performance occurs. Hence, we will consider some ethical and CSR issues specific to the electronics industry and Asian production locations, but do not attribute performance variations only to the national cultural or economic characteristics.

In our perspective, national variations in ethical and CSR performance are also associated with international production and sourcing strategies by MNEs. Hence, our emphasis on recent ethical and CSR performance in China follows from her central location in supply chains. Two types of industry social performance are reviewed, environmental impact and labor rights; we discuss current reforms, but are still analyzing recent CSR trends.

Environmental Pollution

Electronic manufacturing involves the use of many industrial chemicals, often with toxic side effects of pollution and health risks. There are a variety of chemicals used at all of the stages of electronic production; but many of the environmental risks of pollution have been shifted downstream to the dispersed clusters of locations in Asia, and especially in China. While there are risks in final consumer markets, more risks exist in supply chains. However, an ethical question for research is who’s responsible for pollution in locations?

If we focus first on China, many of the regions where electronics factories are clustered have become severely polluted. Greenpeace (2009) estimated that 70% of China’s rivers and lakes are now too polluted for human use; over half of this pollution comes from active factories, including electronics. The industrial sites in China’s Pearl River region have contaminated many rivers by discharging wastewater containing many hazardous chemicals, such as manganese that has been linked to brain damage. There is far more environmental pollution in areas where factories are located, but it has been difficult to monitor or control the effluents. Some specific substances are not yet regulated in China.

Pollution problems also occur inside the factories, exposing workers to toxic chemicals and occupational hazards on the job. Many employees at the Wintek plant in China were sickened by exposure to n-hexane chemicals, a toxic solvent used to clean the electronic touch screens for products supplied to Apple Computer; although use of n-hexane is still legal in China, it required special safety equipment and host government permission that Wintek did not obtain (Adams, 2009). In another recently publicized case, many workers making cadmium batteries for Gold Peak Batteries in southern China were poisoned from dangerous dust in the factory, and suffered kidney and toxic health problems. Cadmium battery production has declined, but employees that sued were ignored or fired. There are thousands of other cases of workplace-caused illnesses in China, according to frequently underestimated government statistics; but there are few legal mechanisms for any redress.

The environmental problems from electronics products even continue after component manufacturing. The product life cycles for many products have been accelerated, and older products are often discarded as electronic waste in China, India, and other Asian locations (de Haan and Norbrand, 2009; Toxics Links, 2009). Huge amounts of toxic electronic waste are generated from discarded computers, mobile phones, TVs, etc. For example, 35 million mobile phones are discarded annually in India, creating 5000 tons of electronic (e-) waste. China has been the preferred location for dumping e-waste from local factories and developed countries in North America, Europe, and Japan; 70% of the world's used computers and over a million tons of used electronic products are imported annually for inexpensive, labor-intensive recycling and disposal. The Chinese WEEE-recycling industry is one of the largest of its kind worldwide, employing about 700,000 people (including children) for collection and disposal of any electronic parts for raw materials (Manhart, 2007). Despite stricter U.S. and EU laws against e-waste exports, environmental problems in Asia and other developing nations persist in clustered areas, like the Zhejiang Province of southeastern China. The toxic risks from e-waste recycling expose thousands of workers and adjacent communities, with resulting high disease rates.

Labor Rights

The treatment of employees of electronics factories is another issue of ethics and CSR. There are between 2 and 6 million employees in the Chinese electronics production industry, depending on the product segments and enterprises surveyed (Manhart, 2007). Many employees work in factories located in the regional clusters or SEZ's of China. There are also millions of other employees working in factories located in Malaysia, the Philippines, India, and other low cost countries. However, despite these high numbers, there are very few representative employee unions and hence, working conditions suffer.

Although the electronics factories are often clustered together in a few areas, employees may come from all over in search of jobs. But the jobs and working conditions that they endure are not very satisfying or rewarding. There have long been complaints about the low pay, forced overtime, child labor, discrimination, sexual harassment, and many other human rights abuses common in both textile sweatshops and electronics factories alike (Krueger, 2007). Complaints of labor abuse have increased in tandem with production.

The U.S. Congress (2005), U.S. Department of Labor (2009), and the International Labor Organization (2007) have investigated poor working conditions and forced child labor in China's factories. Labor conditions are slowly improving in some plants, but not in all.

Many employees in electronics plants are young women, who have often migrated from rural areas or other regions in hopes of upward mobility (Adams, 2009; Lee, 2006). But their hopes and dreams are rarely fulfilled. Gender injustice is added to the other labor problems in China's supply chains, as there is unequal treatment and legal protection for women in most electronic factories, and in international trade policies (MVO Platform, 2009). Although young women represent a majority of factory employees, their labor rights and health problems are often neglected. But under environmental and market pressures, the ethical behavior and CSR of electronic component suppliers is changing.

Prospects for Reform and Corporate Social Responsibility

The supply chains and/or values chains in electronics production are still evolving, after migrating from their owners' national origins and becoming more fragmented. This paper has focused on the dispersion of electrical power supply manufacturing sites, but there are similar cluster patterns for many electronic components. More electronic production has migrated to China and other low cost locations, mainly in Asia. MNE's are managing their value chains of activities across locations, and outsourcing more routine production functions to unrelated contract manufacturers. Which activities occur where or by whom?

Dunning's (2009) eclectic OLI model of international production by MNEs combines the national location factors with ownership of FSAs and strategies of market internalization. But multiple locations are involved if modular production is dispersed and outsourced. We have not tested the eclectic model here, but find it useful as a framework to analyze and predict patterns in electronic supply sourcing and ethical performance in the industry. We expected to find variations in sourcing strategies by the national origins of MNEs and the types of power supply products (high or low), but are still analyzing our data. We also expected ethical and CSR performance to vary by sourcing strategy, with better behavior by internalized supply chains of MNE networks compared to unrelated contracted firms. We are still analyzing our data on CSR in the electronics industry; but we have found that more environmental pollution and violation of labor rights tend to occur in contract firms.

Under the pressure of several non-government organizations (NGOs) and corporate codes of conduct, supply chains in the electronics power industry are facing more scrutiny and evolving to become more ethical in their performance. CSR strategies to change the labor and environmental practices of suppliers are improving performance outcomes, but still have a long way to go. Market forces and cost pressures are fostering more outsourced production in clusters of low-cost locations in China and Asian countries. However, the combination of market and regulatory influences is also causing MNEs to increase their monitoring and controls over outsourced contract supplies, in order to maintain their own quality and global brand reputations, without internalization. Thus, we conclude that the prospects for better ethical behavior and CSR in the

electronics industry are improving; but continued improvement will require more collaboration in MNE's value chains.

(References available upon request)

Table 1

Worldwide Regional Electronics Production, 2002-2008

(Total revenues, U.S. \$ millions)

Regional Origin	2002	2003	2004	2005	2008* (estimated)
Asia/Pacific	343,119	386,875	448,767	492,684	698,300
Americas	317,620	314,137	334,255	341,882	369,600
Europe	240,439	247,539	279,072	285,805	243,000
Japan	162,400	180,190	197,807	202,307	258,600
Rest of world	13,177	14,255	15,733	16,216	89,500
Total	1,056,755	1,142,996	1,275,634	1,338,894	1,659,000

Source: *Yearbook of World Electronics Data*, Reed Electronics Research (2009).

Table 2
National Origins of Leading Power Supply Firms

	Sampled Firms	Low Power	High Power	Total
China	2	2		2
France	1		1	1
Japan	7	3 (BOTH)	6	7
Korea	1	1 (BOTH)	1	1
Singapore	1		1	1
Taiwan	8	4 (BOTH)	7	8
United States	5	1 (BOTH)	5	5

Sources: PSMA (2009); Micro Tech Consulting (2009); Teema (2009); Company websites.

APPENDIX: Research Sample of 27 Electronic Power Supply Firms

<u>Parent Company</u>	<u>Headquarters' Nationality</u>	<u>High/Low Power Product Focus</u>	<u>2008 Sales (US \$ mil.)</u>
AcBel Polytech Inc.	Taiwan	Both	\$6,411
Beijing Dynamic Power	China	Low Power	NA
Cincon Electronics Co.	Taiwan	Both	\$41.4
Cosel Co., Ltd.	Japan	Both	\$227
Delta Electronics	Taiwan	Both	\$5,210
Emerson Electric	United States	Both	\$24,807
FSP Group	Taiwan	Both	\$553
Fuji Electric	Japan	Both	\$8,097
Lineage Power Corp.	United States	High Power	NA

Lite-On Technology Corp.	Taiwan	Both	\$7,317
Martek Power Abbott	France	High Power	\$28.8
Mean Well Enterprises	Taiwan	Both	NA
Murata Electronics	Japan	Both	\$5,546
Panasonic Corp.	Japan	Both	\$77,655
Phihong Enterprise Co.	Taiwan	Both	\$406
Potrans Electrical Corp.	Taiwan	Both	\$65
Powerld Enterprises Co.	China	Low Power	NA
Power-One	U.S.	High Power	\$537.4
Samsung Group	South Korea	Both	\$173,400
SL Industries	U.S.	High Power	\$186
TDI Power	U.S.	High Power	\$150
TDK-Lambda	Japan	Both	\$715
Texas Instruments Inc	U.S.	Both	\$12,501
Toshiba Electronics Inc.	Japan	Both	\$66,545
Unifive Co. Ltd.	Japan	Both	NA
Vicor Corp.	United States	High Power	\$205.4
XP Power Ltd.	Singapore	High Power	\$129

Sources: MTC (2009); PSMA (2009); Global Industry Analysts (2008); firm websites.

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Formalism for Representing Uncertainty Establishing Small and Medium Enterprises
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Abstract

In recent years there have been ever growing concern regarding uncertainty in establishing small and medium enterprises (SMEs). Such concern may stem either from their own set of beliefs/ evidences or from the lessons learned folder of the existing SME owners. Most of the times ethics and market rules are not just enough to deal with situations, specific laws must be considered.

This work focuses on representation of such knowledge as well as uncertainty, through a mathematical formalism. This formalism helps recognizing the reliability of the SME, based on the value based assumptions and information. Develop an appropriate algebra comprising of the logical operations such as \vee , \wedge , \rightarrow , and \neg , to calculate the value to compounded assumptions. Finally compare our formalism with the well established methods of handling uncertainty such as Fuzzy Rough Set and Bayesian logics.

Keywords: Small and medium enterprises (SMEs), Uncertainty, Information, Knowledge.

Introduction

In general, knowledge elicited by a small business owner (SBO) is often characterized by uncertainties, as the facts are beliefs and rules are his own situation-action behavior. When this SBO is unable to establish the truth of a proposition, he may have to resort to collecting informations from multiple sources.

Handling of uncertainty is inextricably bound up with the development management information systems. SMEs establishments is highly subject to various

constraint satisfaction, demanding replicate human abilities of problem solving and decision making in uncertain environment. For example, SMEs establishment requires a proper feasibility study, proper planning document, adequate financial and technical support, etc demanding needs a lot of evidential support in establishing truth of a proposition.

Many studies have reported that SMEs are generally lagging behind to large organizations as far as adoption and usage of technology, such as e-commerce. This sluggish uptake and diffusion of the technology among SMEs conformed with the commonly held view that SMEs have been noted for their ability to respond to new opportunities and innovations more quickly than larger enterprises. Therefore the SBO is always look for faster gains, without proper strategic look, due to his inbuilt personal and professional knowledge. We define knowledge as a whole set of intuition, reasoning, insight and experience, related to technology, products, processes, customers, markets, competitions and so on.

Further, human knowledge often takes the form of facts (or valid propositions) and rules. In order to measure the degree of truth of these facts and rules, we must rely on the available evidence/information, which can be in support of or against them. More recently the decision trees are popular choices for learning and approximate reasoning (Janikow, 1998). Thereby the SME's organizational performance is totally depends on the evidential support we get at the time of its establishment.

Mathematically speaking, if we have full (100%) positive information, without any (0%) negative information against a proposition P, then we call it as a true proposition. If it is the other way around we call it as a false proposition. A proposition is 'uncertain' if it does not belong to either of these two categories. In essence, to each proposition P, we associate an ordered pair (α, β) call it as an *e-information point* (EP) of P, denoted by EP (P), defined as:

$$EP (P) = (\alpha, \beta) \in [0,1] \times [0,1].$$

The quantity α represents the positive information in support of, and β represents the negative information, disagreeing with the same proposition P at the same time.

Further, we introduced the notion of an *information space*, $[0,1] \times [0,1]$ as shown in the Figure 01, as the collection of these information points. Sources of information is

assumed to be reliable. We propose algebra of EPs for pooling of information points using the logical operators \neg , \vee , \wedge .

We organize this paper as following: Sections 2 and 3 informally introduce SMEs and the representational aspects of information, its associated algebra and the aspects of decision making. Sections 4 address the issue of comparison of this formalism to the related work. Finally in Section 5 we present some conclusions and future possibilities

Small and Medium Enterprises (SMEs)

There is growing worldwide appreciation of the fact that SMEs play a catalytic role in the development process of most economies. This position is reflected in the form of SMEs increasing number and rising proportion in manufacturing, export, employment, technical innovations and the promotion of entrepreneurial skills.

For the SMEs, the main vision is often coupled with the entrepreneurial spirit of the owner. There is a technology uncertainty (Hemmingway, etal, 2005).

Further, uncertainty about benefits of e-commerce, concerns about security, lack of human resources and skills, set up costs and pricing issues. It is also noticed that lack of time, awareness and business opportunities are the key inhibitors to e-commerce adopted by SMEs. The main issues SMEs face involve security hazards, unfamiliarity with the internet, start up costs, lack of guidance about how to start the process and lack of perceived advantages in implementing e-commerce (Chitura T, etal, 2008).

SMEs are finding it difficult to recruit and retain qualified personnel with required skills and knowledge, and the risk of dissipation of company specific knowledge. SMEs markets are needed a high degree of human interaction. Most of the SMEs lack strategic vision.

Information: The Very Idea

The main difficulty in applying management information systems (MIS) in business environment is the massive effort needed to build such as system, based on the available information. Knowledge acquisition is not a major problem to any frontline industry. The main difficulty lies in managing the uncertainty associated with the organizational development process. This uncertainty is mainly due to the available information (for and against) in the respective contexts. Let us consider the following situation:

Dr Sam has recently got his Ph.D. from an Institute and decided to start up an SME, and applies for license (from Govt.), loan (from a Bank), looking for a strategic place or location within his town/ city.

He was supposed to produce three letters of evidence supporting his candidature (preferably from three establishments or agencies). He goes to three establishments and procures these as following:

- (1) X is an Institution where Sam has graduated enumerates some (say 80%) positive and some (say 20%) negative aspects about Sam is given an EP as (0.8, 0.2).

- (2) Y is a bank, dealing with Sam's finances since two decades ensures to Dr Sam as a part of his client service program. Over the years Dr Sam accumulated a good credit history, so gives EP as (0.7, 0.1).
- (3) Z is police station, establishes the criminal history of Dr Sam, had some discussion with other secret agencies and gives the EP (0.65, 0.).

With these available EPs given by X, Y, and Z about the SMO, establishes the SME.

The pooled information point can thus be realized (obtained) in several possible ways, such as:

- (1) By considering, the minimum value among the positive information and maximum value among the negative information, which gives (0.65, 0.30), or
- (2) By considering, individually the arithmetic mean of the positive and negative information, which gives (0.71, 0.10).
- (3) By considering, the maximum value among the positive information and minimum value among the negative information, gives us (0.80, 0.10)

Methods of information fusion and data fusion might throw some more light on arriving at the pooled information point for any proposition P. Thus, we represent the information as a point in an *information space* as shown in the Figure 01. We refer the axes viz. $\beta = 0$ and $\alpha = 0$ as the *Line of confirmation* and *line of negation* respectively. The line $\alpha + \beta = 1$ is called the *line of demarcation*. The

diagonal $\alpha = \beta$ is called as the *line of contradiction*. Extreme points like (1,1), (0,0) represents respectively, that of *total contradiction* and no *information* about the proposition. For a perfectly true proposition, we can thus associate an information point (1,0) and (0,1) that of for a perfectly false proposition.

Since these positive and negative information are supposed to be gathered from two independent sources of information, thereby their sum need not always be equals to 1.

Consider another situation: If SBO thinking of starting a SME at a place C. Then he needs to do a feasibility study first. For that he needs some local information with supportive evidence. Then he needs to think from several angels, such as (not limited to):

- What will be the EP for my SME feasibility?
- What will be the EP from bank to grant financial support?
- What will be the EP of logistics to support that SME?
- What will be the EP for with standing in completion within the vicinity of C? – Sustainability
- What will be the EP for readily available manpower within the vicinity of C?

As a result of pooling these evidences, he can arrive at a decision. Sometimes the evidence collection bears a major impact on our decision. Initially, let us hope that SBO got the information about the decision D to be (1,0) due to person A and later it got changed to (0,1) due to person B. as a result my decision about D became uncertain, which often results:

There may be a chance of starting up my SMC in the area C.

The possible EP for this uncertain proposition could be

$$((1+0)/2, (0+1)/2) = (0.5, 0.5).$$

In order to resolve a conflicting situation, the response will be an *uncertain* proposition. As a result this will not convey either the truth or falsity of the original proposition. This raises an open question: How do we go for the degree of truth-value of such an uncertain proposition, based on its available information?

In reality, while resolving the conflicting situations, one has to resort on the *indicators of information* such as, *IT MAY BE TRUE, IT MAY BE FALSE, IT IS MORE OR LESS TRUE* (Rollinger, 1983).

In reality, the dominance nature of the positive information over the negative information, or vice-versa in the resultant information point, helps us in resolving conflicting situations. Suppose a database consists of "n" information pairs (α_i, β_i) to "n" propositions $P_i, i = 1, 2, \dots, n$. Then how do we go for determining the EPs for the compound propositions, arising from logical operations such as, \neg, \vee, \wedge ? This motivated us to consider *information point algebra* as follows.

We consider the location of any EP (α, β) in *information space* at three different levels viz., $(\alpha+\beta < 1)$ or $(\alpha+\beta = 1)$ or $(\alpha+\beta > 1)$. We observe that the status of the EPs with $\alpha+\beta < 1$ are points that *lack of information*, the status of the EPs with $(\alpha+\beta = 1)$ looks similar to the probability measure of events in the realm of probability theory. The status of the EPs with $\alpha+\beta > 1$ are points of *excess information*.

Algebra of Information Points

Let $EP(P) = (\alpha, \beta)$ then we define:

$$EP(\neg P) = (1 - \beta, 1 - \alpha) \text{ if } \alpha + \beta > 1 \\ = (1 - \alpha, 1 - \beta) \text{ otherwise.} \quad \text{Ö3.1}$$

Let the $EP(P) = (\alpha_1, \beta_1)$ & $EP(Q) = (\alpha_2, \beta_2)$ then

$$EP(P \vee Q) = (\text{Max}(\alpha_1, \alpha_2), \text{Max}(\beta_1, \beta_2)) \\ \text{if both } \alpha_i + \beta_i > 1, i=1,2 \\ = (\text{Max}(\alpha_1, \alpha_2), \text{Min}(\beta_1, \beta_2)) \\ \text{otherwise} \quad \dots 3.2$$

$$EP(P \wedge Q) = (\text{Min}(\alpha_1, \alpha_2), \text{Min}(\beta_1, \beta_2)) \\ \text{if both } \alpha_i + \beta_i > 1, i=1,2 \\ = (\text{Min}(\alpha_1, \alpha_2), \text{Max}(\beta_1, \beta_2)) \\ \text{Otherwise} \quad \text{Ö3.3}$$

Let T and F stands for a perfectly 'true' and 'false' proposition respectively, results in

$$EP(T) = (1, 0) \text{ and } EP(F) = (0, 1)$$

Then for any uncertain proposition P with $EP(P) = (\alpha, \beta)$, one can verify that:

$$EP(P \vee T) = EP(T), EP(P \wedge T) = EP(P), \text{ and} \\ EP(P \vee F) = EP(P); EP(P \wedge F) = EP(F) \quad \dots 3.4 \\ EP(T \vee F) = EP(T), EP(T \wedge F) = EP(F), \text{ and} \\ EP(\neg T) = EP(F); EP(\neg F) = EP(T)$$

Ö3.5

These resembles, the De Morgan's laws in mathematical logic (Trembly and Manohar, 2008).

We call $EP(P) = (\alpha, \beta)$ as *evidentially valid* or *invalid* based on $\alpha + \beta > 1$ or otherwise. It is realized that the De Morgan's laws are valid only if both the information points for P and Q are *evidentially invalid*. The similarity of the last two equations with standard results in two-valued logic is obvious and this way the algebra of information vectors preserves certain laws that are in-vogue in predicate logic (or two valued logic) (Pearl, 2008).

Decision Making Criterion

Decision making criterion is based on the pooled EP. Then the question is how do we infer our decision, in case of sum of the information exceed one?

Let EP (P) = (α , β), with $\alpha + \beta > 1$, is called excess information EP otherwise we call it lack of information. In the later case, one needs to collect some more evidence. In the former case, one needs to normalize P to take a decision as:

$$EP (P_0) = \{\alpha/(\alpha + \beta), \beta/(\alpha + \beta)\} = (\alpha_0, \beta_0) \text{ with } \alpha_0 + \beta_0 = 1.$$

Graphically, this is a confirmed point on the line of demarcation $\alpha + \beta = 1$ as shown in Figure 02.

We can adopt a process to get the maximum attainable positive information as following:

Using simple geometric principles, we can also realize that

$$\begin{aligned} EP (P_1) &= \{(1+\alpha-\beta)/2, (1 - \alpha + \beta)/2\} \text{ if } \alpha > \beta \\ &= \{(1-\alpha+\beta)/2, (1 - \alpha + \beta)/2\} \text{ if } \alpha < \beta \end{aligned}$$

To generalize this concept, let $\alpha > \beta$, (even if $\alpha < \beta$, one can easily argue) then by considering the convex combination of the points P_0 and P_1 (as shown in the Fig. 02) we get EP of any general point P_i as shown below.

$$EP (P_i) = (\alpha_i, \beta_i) = q \{\alpha_i/(\alpha_i+\beta_i), \beta_i/(\alpha_i+\beta_i)\} + (1-q) \{(1+\alpha_i-\beta_i)/2, (1-\alpha_i+\beta_i)/2\}$$

$$\text{where } 0 < q < 1.$$

At this junction we can also observe that

$a_i = \text{the success factor of } q \{ \alpha_i / (\alpha_i + \beta_i), \beta_i / (\alpha_i + \beta_i) \} + (1 - q) \{ (1 + \alpha_i - \beta_i) / 2, (1 - \alpha_i + \beta_i) / 2 \} > \alpha_i / (\alpha_i + \beta_i) \text{ and}$

$b_i = \text{the failure factor of } q \{ \alpha_i / (\alpha_i + \beta_i), \beta_i / (\alpha_i + \beta_i) \} + (1 - q) \{ (1 + \alpha_i - \beta_i) / 2, (1 - \alpha_i + \beta_i) / 2 \} < \beta_i / (\alpha_i + \beta_i)$

We can also witness that

Max $\{ \alpha_i - \alpha_i \} =$

$(\alpha_i - \beta_i) / 2(\alpha_i + \beta_i) \{ \alpha_i + \beta_i - 1 \}$ and

Min $\{ \beta_i - \beta_i \} =$

$(\beta_i - \alpha_i) / 2(\alpha_i + \beta_i) \{ \alpha_i + \beta_i - 1 \}$

This observation is very much helpful especially while we apply this idea to some real world situations. For example, suppose we have calculated the EP of a SME project, based on several feasibility constraints (not limited to), such as

- Strategic location
- Market demand
- Local people support
- SBO knowledge level
- Financial intuitions support

Then using these results, it is possible for us to look at maximizing success factor, and minimizing the failure factors of project, possibly by the same amount. This improved success factor will give us the improved reliability of that software project. Which

in turn will help us in identifying the respective parameters that influences our project's reliability?

The consistency of this method is verified both logically and mathematically. From the practical significance point of view, the EP obtained in this process (for a particular project) results in establishing the project's technical quality and reliability.

Existing Literature

This section compares our approach with some of the uncertainty handling approaches such as: Bayesian approach, Dempster-Shafer approach and Fuzzy logic approach (Shafer, 1976). These methods have certain limitations in the matter of pooling of evidence from diverse sources. Further, in these approaches the logical operators \wedge , \vee and \neg cannot always define easily. In our case of evidence pooling, these operations can *always* be defined, though some statements become *conditional* by nature, involving two-segmented expressions.

Information Point Method Vs Bayesian Approach

The Bayesian formalism is based on three basic results that may indeed be adopted as axioms that also form the corner stone of the mathematical theory of probability. Given A and B two mutually exclusive events (or propositions), then we have the following axioms:

$$0 \leq \Pr(A), \Pr(B) \leq 1 \quad \text{Ö4.1.1}$$

$$\Pr(\text{sure event or proposition}) = 1 \quad \text{Ö4.1.2}$$

$$\Pr(A \vee B) = \Pr(A) + \Pr(B) \quad \text{Ö 4.1.3}$$

Furthermore we have:

$$\Pr(A) = \Pr(A \wedge B) + \Pr(A \wedge \neg B) \quad \text{Ö4.1.4}$$

$$\Pr(A) + \Pr(\neg A) = 1 \quad \text{Ö4.1.5}$$

Recall that, if EP (P) = (0,0) (or (1,1)) says P is an *unknowable* (or *highly conflicting*) proposition.

If A (or B) is a *true* (or *false*) proposition, with EP(A)=(1,0) and EP(B)=(0,1), results in: EP(A∨B)=(1,0), EP(A∧B)=(0,1). We can also have EP(A∨B)=(1,0) and EP(A∧B)= (0,1). Then we have either EP(A)=(1,0) & EP(B)=(0,1) or EP(A)=(0,1) & EP(B) = (1,0).

That is, the compound information EP(A∨B) is absolutely true and the compound information EP(A∧B) is absolutely false, then one of the constituent information pairs is for an absolutely true proposition and the other is for an absolutely false proposition (Schwartz, 1985).

The importance of SMEs plays a vital role in the industrial development of any country (Janice, etal, 2004). In the context of USA, the importance of the SME sector is still needs to be well-recognized for its contribution in gratifying various socioeconomic objectives, such as

- higher growth of employment
- good out put
- promotion of exports

- lastly fostering entrepreneurship

Let P and Q are two propositions relating to any of above factors, then a simple fact that $\max(x, y) = x + y - \min(x, y)$, for any two real numbers x and y establishes the fact that

$$EP(P \vee Q) = EP(P) + EP(Q) - EP(P \wedge Q) \quad 4.1.6$$

This is similar to the addition law of probability. Further, in the realm of probabilities we also have

$$\Pr(A \vee B) \geq \text{Max}\{\Pr(A), \Pr(B)\} \text{ and } \Pr(A \wedge B) \leq \text{Min}\{\Pr(A), \Pr(B)\}.$$

If $EP(A) = (\alpha, \beta)$, $EP(B) = (\gamma, \delta)$ then we have the analogous results as following:

$$\begin{aligned} m(A \vee B) &\geq \text{Max}\{m(A), m(B)\} \text{ and} \\ m(A \wedge B) &\leq \text{Min}\{m(A), m(B)\}, \end{aligned} \quad \text{Ö4.1.7}$$

One should recall here that $m(A)$ is the measure of $A = (\alpha + \beta)$

If A and B have both fuzzy valid, i.e., whenever $\alpha + \beta > 1$, $\gamma + \delta > 1$, then we define the conditional information pair as,

$$\begin{aligned} EP(P|Q) &= \{ \text{Min}(\alpha, \gamma), \text{Min}(\beta, \delta) \} / \{ (\gamma + \delta) / 2 \} \\ &= (r, s) \text{ (say)} \end{aligned} \quad \text{Ö 4.1.8}$$

Then obviously we have $e(P|Q) = \{r + s\} / 2$ and can have the result that:

$$e(Q).e(P|Q) = e(P \wedge Q) \quad \text{Ö4.1.9}$$

Likewise we can also introduce the "conditional information pair" for $Q|P$ and arrive at the result that

$$e(P).e(Q|P) = e(P \wedge Q). \quad \text{Ö4.1.10}$$

Hence,

$$e(P).e(Q|P) = e(Q).e(P|Q) = e(P \wedge Q) \quad \text{Ö4.1.11}$$

If the information pair $EP(P) = (\alpha, \beta)$ or the information pair $EP(Q) = (\gamma, \delta)$ is not fuzzy or either of them is fuzzy, then the

relevant information representation pairs for $P \wedge Q$, $P \vee Q$, have been already stated in earlier sections. In such cases, the conditional information $P|Q$, $Q|P$ can be defined in ways analogous to (4.1.6) above (Kawalski, 1979). The result (4.1.9) will of course remain valid in each of these cases.

In the realm of SMEs, every SBO invariably starts his business with many conditional constraints. A huge majority of the firm worldwide is SMEs, and they play a significant role in the economy. This results in a fact: The performance of the SME sector is closely associated with the performance of the nation. Certain factors such as:

- whether the firm has stayed in the original business
- change in market demand
- change in management principles and practices
- firm performance w.r.t. competitors

can be made conditional, rather than just straight proportional (Chitura, et al, 2008)..

Further if we interpret the conditional proposition $P|Q$ as equivalent to the material implication $P \rightarrow Q$ then we can observe that (Bundy, 1983), (Bundy, 1985):

$$EP(P \rightarrow Q) = \{(\alpha_2 + \beta_2) / (\alpha_1 + \beta_1)\} EP(Q \rightarrow P)$$

This establishes the relation between the information point theory and Bayesian theory. At several points it is observed that, the very idea behind the information point theory is focussing more light on the amount of positive information collected, and this positive information, is of close conformance with the probability of success, in the realm of probability theory.

Information Point Method Vs Dempster-Shafer Method

Dempster-Shafer Theory assumes that the answer to a particular question lies among finite set X (of propositions) called *frame*. The elements of this set X are mutually exclusive and they are also exhaustive. If 'ma' is a mapping from the set of all subsets of X onto the real interval $[0,1]$ as:

$ma : 2^X \rightarrow [0,1]$ with a condition that

$$ma(\phi) = 0, \quad ma(A) = 1$$

Where $ma(A)$ is the weight associated with the proposition A , which measures the strength of the argument in favor of the proposition A , called a *basic probability assignment* (bpa). If $ma(A) \neq 0$, A (which is a subset of the frame X) is called a *focal element* of X . We can define the notion of *belief* in a proposition A subset X , is given by the equation,

$$\text{Belief}(A) = \text{Bel}(A) = \sum m(B),$$

$$\text{over all } B \subseteq A \quad \text{Ö4.2.1}$$

Then we have the following axioms concerning belief functions:

- $\text{Bel}(\phi) = 0, \quad \text{Bel}(X) = 1$, and
- $\text{Bel}(B_1 \vee B_2 \vee \dots \vee B_n) \leq \sum (-1)^{|I|+1} \text{Bel}(\cup_{i \in I} A_i)$, where $\{I \subseteq \{1,2,\dots,n\}, I \neq \phi\}$

The *plausibility* of a proposition $A = \text{Pl}(A)$ and is given by the relation

$$\text{Pl}(A) = 1 - \text{Bel}(\bar{A}).$$

Where $\neg A = X \setminus A$ is the negation (or complement of A with respect to *frame of reference*) of A. Clearly $Pl(A)$ is a measure of the extent to which the proposition A is believable to be true. The pair $[Bel(A), Pl(A)]$ is a real number interval, that is, it is a subset of $[0,1]$.

This can be seen on considering that

$$Bel(A) = \sum m(B), \text{ and } Bel(\neg A) = \sum m(C)$$

$$\text{with } \{B \subseteq A\} \text{ and } \{C \subseteq \neg A\} \quad \dots 4.2.2$$

and

$$(B \subseteq A) \vee (C \subseteq \neg A) \subseteq X \quad \dots 4.2.3$$

It is therefore follows that,

$$\sum m(A) + \sum m(\neg A) \leq m(X) = 1 \text{ that is,}$$

$$Bel(A) + Bel(\neg A) \leq 1, \text{ and finally therefore,}$$

$$Bel(A) \leq 1 - Bel(\neg A) = Pl(A)$$

Similarly it can verify that for any proposition A, $Pl(A) + Pl(\neg A) > 1$. The interval $[Bel(A), Pl(A)]$ can be regarded as providing a range for the true probability of A and Bel, Pl may be referred to as the lower and upper bounds (measures) for the probability of the proposition A.

If two belief functions Bel_1 and Bel_2 are based on independent information we can pool them using Dempster's rule of combination and the result is again a belief function (Halpern and Fagin, 1992).

In symbols we can write $Bel_1 \oplus Bel_2$ as the resultant after the combination of. Thus,

$$m_a(C) =$$

$$\{\sum m_{a_1}(A_i) \cdot m_{a_2}(B_j)\} / \{1 - \sum m_{a_1}(A_i) \cdot m_{a_2}(B_j)\}$$

$$\dots 4.2.4$$

This is valid for all subsets C of X, further,

$$\sum m a_1(A_i).m a_2(B_j) < 1 \quad \text{Ö4.2.5}$$

In the information point formalism, for any information pair EP (P) = (α, β) the first component is a measure of *Belief* in the proposition P and $1 - \beta$ is a measure of *plausibility* in the proposition. This is due to the fact that *plausibility* of a proposition involves the disbelief in that proposition. Thus, it can be realized that for any proposition P, we can always have a positive information (α) which confirm its validity, is belief, and the plausibility in such a case will be 1 minus the negative information (β), which negates the same proposition. Here too it is observed that the pair [Bel, Pl] forms an ordered pair, very much useful for an intelligent decision-making.

Information Point Method Vs Fuzzy Logic

Fuzzy logic is one of the practical ways of capturing the "inexactness" in nature. Fuzziness is a type of imprecision or inexactness stemming from the grouping of elements into classes that do not have sharply defined boundaries. Such classes abound in many real life situations, involves ambiguity or vagueness or ambivalence in (mathematical) models of empirical phenomena. Fuzzy set is a class that allows the possibility of partial membership to each element in a given set. If $X = \alpha$ is a class of objects and A is an ordered pair

$$A = \{\alpha, \mu A(\alpha)\}, \alpha \in X \quad \text{Ö4.3.1}$$

We thus refer X as the universe or *frame* and $\mu_A(\alpha)$ as the grade of membership of an element α to be in A . The grade $\mu_A(\alpha)$ is a real number belonging to the interval $[0,1]$ and the final values, 0 and 1 respectively represents an element's non-membership and full membership. A comparison is made possible for the (degree of) truths of inexact statements α in A and β in A .

The declaration like, $\alpha \in A$, $\beta \in A$, and $\alpha > \beta$, signify that α is at least as true as β . Whenever $\alpha \in A$, $\beta \in A$, and $\alpha < \beta$ one can conclude that α is no more true than β . Basic operations on fuzzy sets (which are subsets of a *frame*) can be introduced to tackle questions like: (1) Is $A = B$? and (2) Is A contained in B ?

Compounding operations like conjunction and disjunction over fuzzy sets can also be introduced but in such matters some degree of subjectivism is unavoidable. To compare evidence point formalism with fuzzy set theory it is desirable as following. If X is the *frame* and P, Q are two subsets of X , one can define the membership functions as:

$$\mu\{P \vee Q\}(x) \leq \text{Min}\{\mu_P(x), \mu_Q(x)\}, \mu\{P \wedge Q\}(x) \geq \text{Max}\{\mu_P(x), \mu_Q(x)\} \text{ and} \\ \mu\{\bar{P}\}(x) = 1 - \mu_P(x) \quad \text{Ö4.3.2}$$

In information point theory, we have already seen in earlier that the compounding laws for the operations of conjunction, disjunction and negation. Earlier in this paper we have seen that if information pairs $EP(P), EP(Q)$ are both fuzzily valid, then

$$m_a(P \vee Q) \geq \text{Max}\{m_a(P), m_a(Q)\} \text{ and} \\ m_a(P \wedge Q) \leq \text{Min}\{m_a(P), m_a(Q)\} \quad \text{Ö.4.3.3}$$

Recalling the definitions of the estimate of the information value of an information pair α, β we have statements similar to the above two-statement (4.3.3) involving estimates of information values. We can identify the *grade of membership* of a fuzzy set viz., $\mu_P(x)$ as the estimate of truth-value of the negation of the proposition. That is,

$$\mu_P(x) = 1 - e(P) \quad \text{Ö4.3.4}$$

We can then see the consistency, nay the parallelism of the relations' (4.3.2) in fuzzy set theory with the relations

$$\begin{aligned} e(P \vee Q) &\geq \text{Max}\{e(P), e(Q)\} \text{ and} \\ e(P \wedge Q) &\leq \text{Min}\{e(P), e(Q)\} \end{aligned} \quad \text{Ö4.3.5}$$

This can be rewritten as

$$\begin{aligned} e(\bar{(P \vee Q)}) &\leq \text{Min}\{e(\bar{P}), e(\bar{Q})\} \text{ and} \\ e(\bar{(P \wedge Q)}) &\geq \text{Max}\{e(\bar{P}), e(\bar{Q})\} \end{aligned}$$

In Fuzzy Set Theory, (4.3.2) are the basic rules of definition of the operations of conjunction and disjunction (Zadeh, 1994). In information point theory, equation (4.3.4) or (4.3.5) are merely corollaries from the basic rules of operations for combining both positive and negative evidences/ information. The algebra of operations in the case of information points is more general than that in the case of fuzzy sets.

Conclusions nd Future Possibilities

Based on a research survey, SMEs in USA often lack the time and manpower to implement complicated strategic plans. We have outlined to measure this uncertainty. Though this approach looks

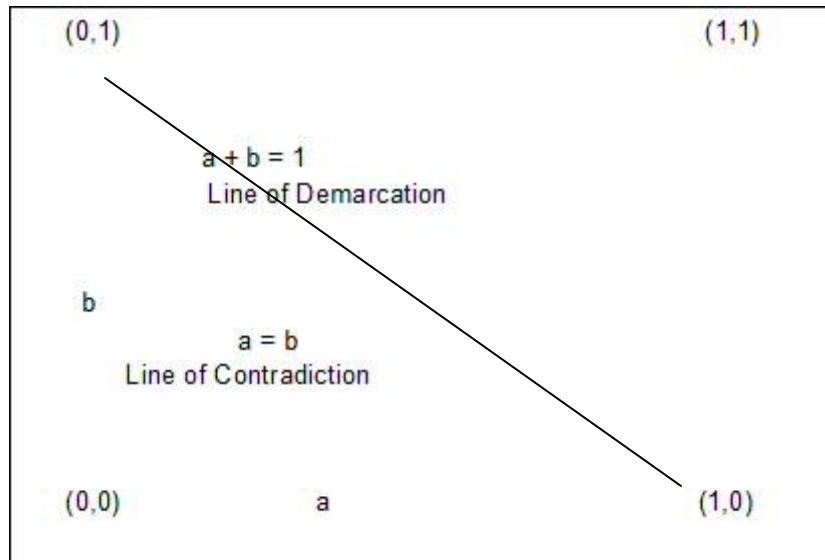
quite promising, but there are some limitations. For example, we could not completely address the situation when we are lack of sufficient amount of information. Since this approach is based on the information from both sides of the same coin, we conclude that this is more useful for intelligent decision making, especially in the design of SMEs. This analysis can be extended to classify the characteristics of successful SMEs.

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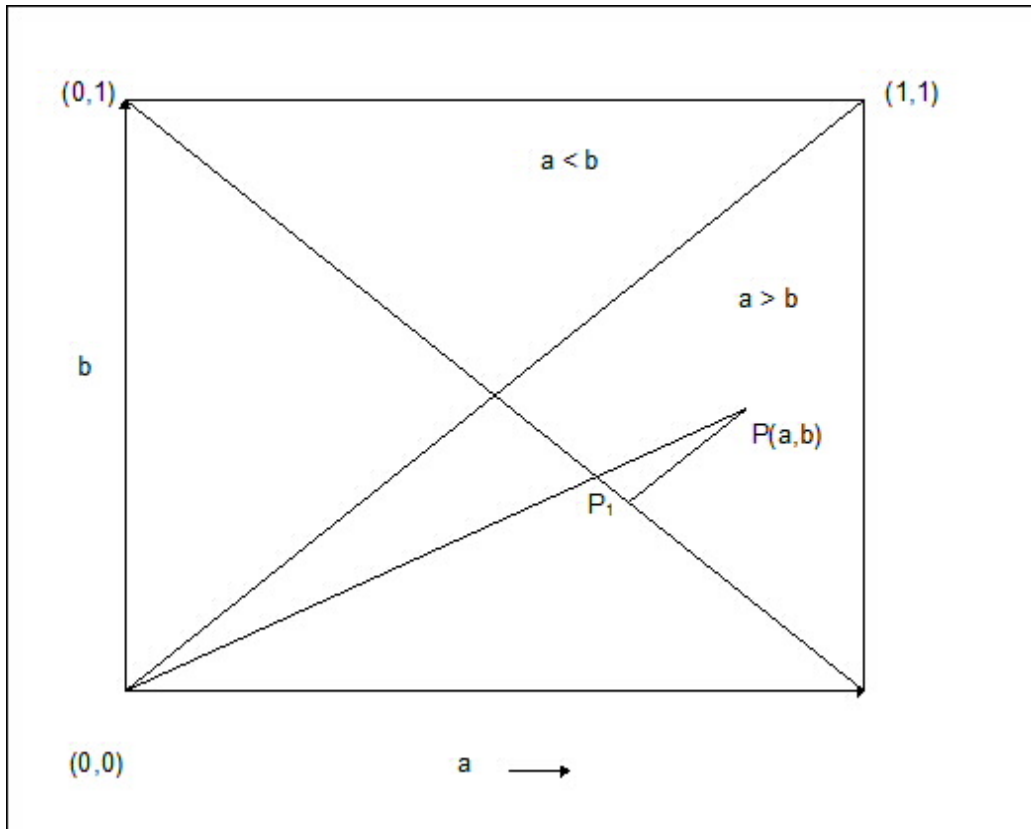
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(Figure 01: Evidence Space)



(Figure 02: Decision Making Aspects)

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Managerial Perceptions on Corporate Social Responsibility: Evidence from a Developing Economy

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Abstract

Corporate social responsibility (CSR) has attracted a great deal of attention over the past decade. A large number of companies appear increasingly engaged in a serious effort to define and integrate CSR into all aspects of their businesses. Corporate executives have also encountered pressure demands from multiple stakeholders who demand that corporate executives should allocate more resources to CSR. The purpose of this study is to explore the perceptions of corporate social responsibility (CSR) among a sample of corporate executives and how CSR is practiced among these corporations in Nigeria. The researchers will use triangulation methods to collect data for the research. A triangulation method is the use of quantitative and qualitative methods for data collection. The use of triangulation methods for data collection has been very popular among researchers because it increases the validity of a study by comparing multiple forms of data and seeking convergence in the findings. In addition, using a triangulation method has been described by researchers as methodological pluralism, and has been used in conducting research related to developing countries. The sample will consists of managers from firms listed in Business Directory of Companies in Nigeria. Findings, implications, and directions for future research will be discussed.

Introduction

The idea of corporate social responsibility began during the 1960s, a time when businesses were expanding internationally and growing rapidly in size and power (Sriramesh, Ng, Soh, and Luo, 2009; Lantos, 2001). Since then, there have been increases in corrupt and irresponsible conduct of companies worldwide which have heightened public awareness of the perils involved in the pursuit of economic profitability and social power (Sriramesh, Ng, Soh, and Luo, 2009). More recently, we have witnessed some of the most highly visible corporate scandals such as Enron, World Com, Nike, and Shell suffering loss of public confidence following wide publicity of their disreputable conduct such as operating sweatshops in developing countries and contributing to environmental

damage. The collapse of once leading companies such as Enron and Worldcom, affecting tens of thousands of employees and investors, have raised many questions regarding corporate practices and credibility and have shaken public confidence in corporations. According to Sriramesh et al; (2009), these unethical acts of corporations are reminders that focusing only on economic interests is becoming increasingly damaging not just to the reputation, but also to the very survival of corporations.

In the management literature there has been growing interest in investigating the perceptions of top management toward CSR and the actions they may take regarding socially responsible issues. In his seminal research Davis (1973) has laid the foundation and benchmark for the researchers to assess attitudes of managers toward CSR. Davis (1973), made the arguments for and against business social responsibility. Some researchers such as (Rashid and Ibrahim 2002; Quazi and O'Brien 2000) have incorporated Davis (1973) arguments in their studies, aiming at measuring managerial attitudes toward social responsibility. However, the attitude-behavior theory claims that the attitudes and intentions of top management, central to the strategy process of a firm, would be likely affected by the characteristics of their firms. Wood (1991) underscores managerial intentions as the motivators of socially responsible behavior, and stresses the management of stakeholder expectations as an integral part of the process. An assessment of a manager's perception toward to CSR, then, may provide an indication of the manager's inclination to respond in a particular way to CSR. Little has been done in exploring managerial perceptions towards CSR.

Our extensive review of the literature revealed that research on CSR issues has been primarily conducted on the Western developed economies of North America and Europe. Unfortunately, very little research effort has been devoted to CSR issues in Nigeria. Nigeria as a non Western economy provides a unique opportunity and challenges for CRS practices and research. The purpose of this study is to examine the perceptions about corporate social responsibility (CSR) among a sample of managers in Nigeria. This paper, is built on the attitudes-behaviors theory, presents an empirical study of how the managers perceive CSR in the context of Nigeria's economic reform. It examines what factors influence managers' attitudes toward CSR and particularly the relationship between managers' attitudes and their behaviors in towards social

responsibility. Findings of this exploratory study will assist in bridging the knowledge gap on this topic and provide an awareness of how CSR initiatives are practices in Nigeria. Therefore, this paper will significant to both practitioners and researchers of CSR.

Literature Review

The Challenge of Defining CSR

Although CSR is not a new concept, remains an emerging and elusive idea for academics, and has been a contested issue for business managers and their stakeholders. Due to the variety of different definitions, and often convoluted by varying use of terminology, the notion of CSR has lead to the emergence of a variety of practices (Freeman 1984; Crane and Matten 2004; Welford 2004; Habisch and Jonker 2005; Fairbrass *et al* 2005). In sum, the concept of CSR has evolved considerably since it first emerged in the 1950s (Carroll 1999; Freeman 1984; Carroll and Beiler 1977; Sturdivant 1977). As a result there appears to be disagreement about what the term means, whether it should be implemented, how it should be implemented, or why it should be implemented (Welford 2004; Stigson 2002).

A major challenge in the field of corporate social responsibility (CSR) is that there is no universally accepted definition of the concept. According to Bowen (1953) offered one of the CSR is the “obligations of businessmen to pursue those policies, to make those decisions, or to follow those lines of action which are desirable in terms of the objectives and values of our society. Since then, the field has evolved assuming different names such as corporate social responsiveness (in the 1970s) and corporate social performance (in the 1980s). This evolution also reflects an increase in awareness in important areas of action and performance that the early definitions had overlooked (Carroll, 1991). For the purposes of this research, we adopted Bowd, Harris, and Cornelissen’s (2003) definition of CSR, which was derived from the views of scholars such as (Carroll, 1999; Wood, 1991; Freeman, 1984; and Friedman; 1970). Bowd, et. al. (2003) defined CSR as a proactive community involvement, philanthropy, corporate governance, and commitment to the environment.

This definition also entails a commitment to accountability, where the organization is obliged to measure and audit its CSR strategy, aims, principles, and manifestations, while simultaneously continuing its focus on generating profits for investors. The Commission of the European Communities (2001, 2002) and the Financial Times Top 100 Index define CSR as corporations being held accountable by explicit or inferred social contract with internal and external stakeholders, obeying the laws and regulations of government and operating in an ethical manner.

Business and Society Perspective

The view that corporations have an obligation to society was developed at a time when corporations were enjoying unprecedented levels of power especially over citizens, while exercising little social responsibility (Wood, 1991, Carroll, 1999). Carroll's model of CSR, which came into prominence during the 1970s, framed business responsibilities into four components: economic, legal, ethical, and discretionary. When Carroll (1999) developed the CSR model it is depicted in the form of a pyramid, with economic performance being the most basic function (depicted at the bottom of the pyramid) and moving up to legal, ethical and philanthropic (which replaced discretionary) components. According to Carroll's (1999) model a socially responsible corporation should simultaneously "strive to make a profit, obey the law, be ethical, and be a good corporate citizen. The model distinguished between philanthropic and ethical responsibilities noting that many corporations assume that they are being socially responsible by being good corporate citizens. Interestingly, several scholars and economists have in fact rejected philanthropy as a legitimate corporate action (Lantos, 2001; Friedman, 1970).

Building on Carroll's work, Lantos (2001) classified CSR into three domains: ethical, altruistic, and strategic. Lantos (2001) described ethical CSR as the minimal, mandatory fulfillment of a corporation's economic, legal, and ethical responsibilities to the public. Lantos (2001) further argued that strategic CSR, where corporations participate only in those philanthropic actions that will financially benefit them by attracting positive publicity and goodwill, should be practiced over altruistic CSR, which constitutes making philanthropic contributions at the possible expense of stockholders. He contended that altruistic CSR is not legitimate. In spite of their different orientations

on CSR, these scholars have put forth a common notion that corporations do not operate in isolation from the society where they exist. This symbiotic relationship was summarized by Wood (1991) who argued that business and society are interwoven rather than distinct entities. We agree with Woods (1991) articulation that one cannot separate business from the society in which it operates.

Economic Perspectives

Contrary to the proponents of the business and society approach, classical economists separated social functions from economic functions, asserting that businesses have the basic responsibility of maximizing profits for their owners or shareholders. Adam Smith (1863, as cited in Lantos, 2001), perhaps was the first to espouse the market value maximization perspective, argued that by pursuing profits, corporations produce the greatest social good because the invisible hand of the capitalist market ultimately will help to solve society's problems. Lantos (2001) used the term Economic CSR to refer to profit-oriented CSR activities, which absolves corporations from social contribution because they pay taxes and wages to employees rather than enslaving them (Marvoux, 2000). Some economists have gone as far as to argue that the only social responsibility corporations have is to obey the law (Carr, 1996). Similar to Carr (1996) perspective, Friedman offered the dominant and well known view representing the economic approach separating social functions from business functions; he argued that the business of business is business (Klonoski, 2001). On the other hand, there are scholars who have argued that there is no more powerful institution in society than business and that the business of business should not be about money, but should be about responsibility, it should be about public good, not private greed (Roddick,2000). However, Friedman (1970) did recognize a spectrum of moral and ethical responsibilities, positing that the social responsibility of corporations is to make as much money as possible while conforming to the basic rules of the society, both those embodied in law and those embodied in ethical custom.

Stakeholder Perspectives

Stakeholders are groups and individuals who can affect or are affected by, the achievement of an organization's mission (Freeman, 1984). Stakeholders, acting either formally or informally, individually or collectively, are a key element in the firm's external environment that can positively or negatively affect the organization (Murray and Vogel 1997). Underpinning the difficulties of managing the relationship between a business and its stakeholders are the issues of divergent (and often conflicting) expectations between stakeholders (Greenfield 2004; Deresky 2000; Bowmann-Larsen and Wiggen 2004; Murray and Vogel 1997; Stigson 2002; Castka et al 2004; Brammer and Pavelin 200; Daniels and Radebaugh 2001; Freeman 1984; Bowmann-Larsen and Wiggen 2004) that are further complicated by varying interpretations arising out of different geographical regions and cultures (Deresky 2009; Bowmann-Larsen and Wiggen 2004; Stigson 2002; Castka et al 2004; Woodward *et al* 2001; Maignan *et al.* 2002; Maignan and Ferrell 2003; Epstein and Roy 2001; Haugh 2003; Crane and Matten 2004); and the challenge of identifying the best CSR stakeholder dialogue strategy and then communicating this to stakeholders (Weiss 1998).

The economic approach overlooked the fact that in the effort to maximize profits, corporations do affect multiple stakeholders (Freeman and McVea, 2001). The stakeholder approach to CSR viewed the corporation as a set of interrelated, explicit or implicit connections between individuals and or groups of individuals (Rowley, 1997) that include anybody who "can affect or is affected by the achievement of the organization's objectives (Freeman, 1984). This approach advocates that corporations are responsible for addressing the interests of the various stakeholders not just those of the owners and/or shareholders because they make other, non-monetary investments, albeit at varying levels depending on the corporation's objectives (Freeman, 1984; Key and Popkin, 1998; Boehm, 2002).

Research Questions

Based on our review of the relevant literature on CSR, the following research questions were to guide our study:

RQ 1: What are the current perceptions of CSR among managers in Nigeria?

RQ2: What activities do corporations conduct in the name of CSR?

RQ3: What motivates corporations to practice CSR?

RQ4: Which stakeholders do these corporations perceive to be important?

RQ5: What resources are allocated for their CSR programs?

RQ6: How do these corporations evaluate their CSR practices?

RQ7: What benefits have these corporations achieved in their CSR initiatives?

RQ8: How do corporations communicate their CSR-related messages to their stakeholders?

Methodology

This study used a triangulation of quantitative and qualitative methods in an effort to increase the validity of our study by comparing multiple forms of data and seeking convergence in the findings (Lindlof and Taylor, 2002). In addition, using a questionnaire survey and in-depth interview methods have been described by researchers as methodological pluralism, and have been used in conducting research related to developing countries (Ibeh and Young, 2001). Cross-cultural studies are believed to have certain challenges due to the cultural, business practice, and communication differences of research respondents. Triangulation helps to prevent some of these challenges and provide rich data and neutralize the biases inherent in an individual method, thereby enhancing the study's reliability (Okpara and Wynn, 2008; Miles and Huberman, 1994).

Survey

Sample

The data were collected in the summer 2009. The sample was composed of firms listed in the Business Directory of Nigeria. A random selection of 35 firms from the list was contacted by email and fax requesting their participation in the research. The firms

identified from the list were personally visited or contacted by telephone for permission to participate in the study. The firms that agreed to take part in the study formed the research sample.

To avoid losses and delays due to the unreliable communication and postal system in Nigeria, a drop-off and pick-up method was used (Ibeh, et al; 2004; Yavas, 1987). This method ensured reliable distribution and collection procedures, which were systematic and controlled by the researchers. Eight trained research assistants and four field supervisors were hired and charged with the responsibility of distribution and collection of the survey questionnaires. Questionnaires were given to a contact person in each of the firms identified for the survey, along with a personally addressed covering letter. This contact person was requested to distribute the questionnaires to the selected managers and to attach a large envelope (provided) to an appropriate central place. The identified personnel were asked to (anonymously) complete the questionnaire, and deposit it into the large envelope. The contact person was asked to seal the envelope and have it ready to be collected in two weeks. Each contact person was contacted by telephone within four days of the return deadline, as a reminder that someone would be coming to pick up the envelope.

A total of 300 questionnaires were distributed and 198 were returned, representing a 66% response rate. The sample comprised an almost equal number of large corporations (51%) and SMEs (49%). We labeled corporations with more than 200 employees as “large.” Of the 35 corporations that participated in the study, 39% were domestic and 60% multinational. These corporations represented various industries although the majority was from the Service (20%), manufacturing (18%), and Banking and Finance (16%) sectors in keeping with the economic landscape of Nigeria.

Survey instrument

The survey instrument used in this study was developed primarily based on measures used previously in the CSR literature (Carroll 1991; Freeman, 1984) as well as industry insights from the UN Global Compact. The survey instrument asked questions about the perceptions choice, the firms’ attitudes toward and perceptions regarding CSR. Most questions were asked using the five-point Likert-scale. Factor and reliability

analyses were employed to assure construct validity of the measures for industries selected. All measures were also examined and verified for face validity by six industry executives who were experienced in CSR practices six university professors who were published authors and have extensive experience teaching and consulting in CSR Sample questions that were asked include: It is important to perform in a manner consistent with maximizing earnings per share, it is important to be committed to being as profitable as possible, it is important to be a law-abiding corporate citizen, it is important that a successful corporation be defined as one that fulfils its legal obligations, it is important to perform in a manner consistent with expectations of societal morals and ethical norms, it is important to prevent ethical norms from being compromised in order to achieve corporate goals, and it is important that managers and employees participate in voluntary and charitable activities within their local communities. The reliability test based on Cronbach's alpha was 0.87.

Interview method

In the second stage of data collection (following the surveys), we conducted in-depth telephone interviews with 15 corporate executives to seek insights on their CSR practices. Besides executives of corporations, we also interviewed managers of NGOs, community representatives, trade associations, and the mass media. According to Dexter (1970) this type of interview with those who are influential, prominent, and well-informed in their fields, is called elite interviews. In these elite interviews, interviewees are not subject to standardized questioning but are allowed to introduce “their notions of what they regard as relevant, instead of relying upon the investigator’s notions of relevance.” We found this approach useful because these elites were able to elaborate on the status of CSR in Nigeria because of their experience.

Findings

Findings from this study suggest that many of the corporate managers surveyed as well as those interviewed had a broad understanding of the concept of CSR. They were able to recognize that CSR consists of a range of responsibilities covering legal, ethical, and philanthropic aspects (Carroll, 1991). The survey respondents recognized the

different parameters that would make a corporation socially responsible. Likewise, interviewees were able to describe CSR comprehensively and viewed CSR as essential to a corporation's sustainability. The discussion of profitability as a parameter of CSR was more controversial and the respondents were divided on whether generating profits was considered CSR. Many of the respondents felt that a corporation needs to be profitable first before it can consider CSR as important to its corporate agenda. With this broad overview of the perceptions among corporate executives, we next answer each of the research questions relying on both quantitative and qualitative data.

RQ 1: What are the current perceptions of CSR among managers in Nigeria?

The first research question sought to know the perceptions about CSR among the sample of corporate executives in Nigeria. We found that the awareness level was high (70%), which might be attributed to the recent increase in media coverage as well as the launch of several initiatives to promote CSR in Nigeria by many multinational corporations. Further, the means for all the CSR parameters listed by us were rather high (means ranging from 3.02 to 4.61) indicating that the sample of managers perceived all the parameters we listed to be significant and that the parameters are relevant in Nigeria.

Table 1 shows the means and standard deviations of perceived factors of CSR. For example, comply with all laws and regulations (M = 4.55, SD = 0.65), business ethics (M = 4.50, SD = 0.61), mission, visions and values (M = 3.88, SD = 0.71), profitability (3.02, SD = 0.73), corporate governance (M = 4.21, SD = 0.58), accountability and disclosure (M = 4.32, SD = 0.66), anti-corruption (M = 4.58, SD = 0.54), quality of products and services (M = 4.60, SD = 0.65), environment (M = 3.36, SD = 0.75), health and safety (M = 4.01, SD = 0.56), labor practices (M = 3.56, SD = 0.62) non discrimination/ equal opportunity (M = 4.59, SD = 0.53), human rights (M = 4.38, SD = 0.67), charitable contributions (M = 3.31, SD = 0.69) community involvement (M = 4.61, SD = 0.49), sustainability (M = 3.28, SD = 0.50) were listed as the most significant parameters. This indicated a relatively high consensus among respondents that these parameters were most significant in defining a socially responsible corporation. Likewise, common themes of CSR that emerged during the interviews revolved around ethical practices, employee welfare, care for the environment, and "giving back to the society."

Although profitability scored the lowest mean ($M = 3.02$, $SD = 0.73$) among all the parameters, it was still perceived by the sample of managers to be a significant aspect of CSR. The interviewees expressed mixed sentiments towards profitability. A few interviewees did not think that being profitable is a part of a corporation's social responsibility. One interviewee commented that "being profitable is the basic requirement of any company that exists in the economy." According to this interviewee, it would be too "narrow-minded" to consider profitability as part of CSR. On the other hand, several interviewees felt that profitability is an essential part of CSR. One interviewee from a public listed corporation felt that his corporation has to be profitable "to run the company efficiently... improve the system... be responsible to his shareholders... staff... contribute to the community."

Many interviewees said that the parameters of CSR are relevant to different corporations in varying degrees depending on the nature of the industry and the stakeholders that corporations perceived to be important. For instance, one interviewee from the manufacturing sector felt that environment is a more significant parameter compared to charitable contributions because the environment's condition has a direct impact on his corporation's long-term survival. A majority of the respondents (83%) disagreed that corporations need not be concerned with the society. This suggested that they perceived corporations to have some obligations toward the society and viewed business and society as "interwoven rather than separate entities" (Wood, 1991). More than half (52%) of the corporate executives felt that CSR should be recognized as a core business function while almost three-quarters (74%) agreed that social responsibility should be a consideration when formulating corporate strategies.

Further, a majority (63%) perceived CSR to have a positive impact on the financial performance of corporations. These findings suggested that managers in our sample acknowledged that CSR should be an integral part of business. Yet, nearly half (49%) agreed that CSR is largely a publicity issue. This suggests a discrepancy between how the corporate executives in this sample felt CSR should be practiced (normative), as opposed to how they perceived CSR is practiced (positive). We raised the appropriateness of using CSR to gain publicity with our interviewees. While some felt corporations should not leverage CSR activities for publicity purposes, others felt that the

benefits derived from these activities are more important than the intended motives. One interviewee explained: “We don’t mind companies doing CSR for publicity. That’s okay as long as they are doing something good. Who knows, maybe after coming out to do something and having felt good, they might continue to do it”. Whatever the reason, it’s a way to get started.

As for the need to regulate CSR, 46% of the respondents agreed that CSR should be completely voluntary and not governed by any law or regulation. A few interviewees felt that CSR should “come from the heart” rather than merely complying with government regulations or legislations. A manager from an MNC felt that CSR is not about what the government sees as right or wrong, saying, “It’s not what the government should do but what companies should do... It is not about just operating within the rules.” An interesting issue that emerged during the interviews was the balance between profitability and CSR whether corporations need to be profitable before engaging in CSR actions.

A majority of interviewee’s perceived profitability as a pre-condition before their corporations could commit resources to CSR. The owner of an SME felt that it is understandable for corporations to put profitability as the top priority as “every business wants their company to be as profitable as possible.” Another common sentiment was that CSR should be placed at the higher end of the “hierarchy of needs,” which would be considered only if a corporation is profitable. On the other hand, a few interviewees felt that CSR does not necessarily have to come after profitability, as indicated by one interviewee: It is acceptable to aim to be profitable but you don’t have to wait to do CSR. It has to be in the corporation’s roots and culture and thus CSR has to start from the first day. Your main objective can be to increase profits and sub-objective to be a socially responsible corporation. This is regardless of your size or industry or development stage.

An interesting issue that emerged during the interviews was the balance between profitability and CSR – whether corporations need to be profitable before engaging in CSR actions. A majority of interviewee’s perceived profitability as a pre-condition before their corporations could commit resources to CSR. The owner of an SME felt that it is understandable for corporations to put profitability as the top priority as “every business

wants their company to be as profitable as possible.” Another common opinion expressed was that CSR should be placed at the higher end of the “hierarchy of needs,” which would be considered only if a corporation is profitable. On the other hand, a few interviewees felt that CSR does not necessarily have to come after profitability, as indicated by one interviewee: It is acceptable to aim to be profitable but you don’t have to wait to do CSR. It has to be in the corporation’s roots and culture and thus CSR has to start from the first day. Your main objective can be to increase profits and sub-objective to be a socially responsible corporation. This is regardless of your size or industry or development stage.

Table 1: Means and standard deviations of variables of CSR (n = 198)

S/N	Variables	M	SD
1.	Compliance with all laws and regulations	4.55	0.65
2.	Business Ethics	4.50	0.61
3.	Mission, visions and values	3.88	0.71
4.	Profitability	3.02	0.73
5.	Corporate governance	4.21	0.58
6.	Accountability and disclosure	4.32	0.66
7.	Anti-corruption	4.58	0.54
8.	Quality of products and services	4.60	0.65
9.	Environment	3.36	0.75
10.	Health and safety	4.01	0.56
11.	Labor practices	3.56	0.62
12.	Non-discrimination/ Equal opportunity	4.59	0.53
13.	Human rights	4.38	0.67
14.	Charitable contributions	3.31	0.69
15.	Community involvement	4.61	0.49
16.	Sustainability	3.28	0.50

RQ 2: What activities do corporations conduct in the name of CSR?

Table 2 shows activities conducted by corporations in the name of CSR. Of the 35 corporations surveyed 32 (91%) engaged in CSR-related activities, as defined by their own notions of CSR. The most commonly performed activities were charitable donations (87%), employee welfare and training programs (96%), and community projects (98%). These findings were confirmed by many interviewees who discussed philanthropic activities as CSR efforts before any prompting by the interviewer. Some interviewees felt that CSR is simply a new way to label some of the philanthropic functions that have been traditionally practiced by corporations. One interviewee perceived CSR as basically involving altruistic actions: When I see this term CSR, what comes to my mind are mainly donations, or some charitable work for the society, doing something other than directly involved in the profitability of the company.

Interestingly, some interviewees disagreed that philanthropy should be a major aspect of CSR, even though they acknowledged it as a commonly practiced activity in Nigeria. One interviewee differentiated between CSR and philanthropy: Companies tend to see CSR as donating money to charities and putting out a statement so that people know that they have done it. And that is a very short-term view...”That is not CSR. That is just philanthropic. That is just contributions”. Our interviews also revealed that the type of CSR activities conducted was closely linked with the nature of the corporation. Size and industry of the corporations too, were considered to be important determinants of the type of CSR activities practiced. One SME interviewee expressed concern over the applicability of the various CSR parameters to smaller corporations which are generally less concerned with community relations and global outreach. Some interviewees also reported that Business-to-Business corporations have fewer incentives to practice CSR because their clients are unlikely to appreciate their investment in CSR efforts. An interviewee from an engineering corporation commented: A company that serves the public will need to leave an impression but we are more of a business to business. Businesses do not care if you are charitable in nature... For consumer products, CSR gains market share and consumers’ favor by doing corporate volunteering but doesn’t help an engineering company.

Table 2: Means and standard deviations of parameters of CSR (n = 198)

Variable	M	SD	%
Economic Components (Responsibilities)			
It is important to perform in a manner consistent with maximizing earnings per share	3.40	0.55	98
It is important to be committed to being as profitable as possible	3.49	0.54	96
It is important to maintain a strong competitive position	3.38	0.40	94
It is important to maintain a high level of operating efficiency.	3.28	0.46	89
It is important that a successful corporation be defined as one that is consistently profitable.	3.20	0.38	86
Legal Components (Responsibilities)			
It is important to perform in a manner consistent with expectations of government and law.	3.88	0.36	98
It is important to comply with various federal, state, and local regulations.	3.91	0.33	99
It is important to be a law-abiding corporate citizen.	3.93	0.30	99
It is important that a successful corporation be defined as one that fulfils its legal obligations.	4.01	0.29	99
It is important to provide goods and services that at least meet minimal legal requirements.	3.88	0.35	98
Ethical Components (Responsibilities)			
It is important to perform in a manner consistent with expectations of societal morals and ethical norms.	4.43	0.30	98
It is important to recognize and respect new or evolving ethical moral norms adopted by society	3.60	0.45	92
It is important to prevent ethical norms from being compromised in order to achieve corporate goals.	4.40	0.29	98
It is important that good corporate citizenship be defined as doing what is expected morally or ethically.	3.31	0.38	93
It is important to recognize that corporate integrity and ethical behavior go beyond mere compliance with laws and regulations.	3.87	0.40	97

Philanthropic Components			
It is important to perform in a manner consistent with the philanthropic and charitable expectations of society	3.52	0.45	88
It is important to assist the fine and performing arts	3.32	0.49	86
It is important that managers and employees participate in voluntary and charitable activities within their local communities.	3.52	0.45	87
It is important to provide assistance to private and public educational institutions.	4.52	0.40	98
It is important to assist voluntarily those projects that enhance a community's "quality of life."	4.32	0.43	98

RQ 3: What motivates corporations to practice CSR?

Our survey findings indicated the listed motivators to be relatively important with ratings of their importance ranging from 3.20 to 4.08 (with 1 = least important and 5 = very important). The only exception was avoid regulation (M = 2.90, SD = 0.92). The top five motivators were enhance reputation (M = 4.80, SD = 0.90), long term sustainability (M = 4.35, SD = 0.86), attract investors (M = 4.53, SD = 0.70), improve public welfare (M = 4.40, SD = 0.89), and enhance community trust and support (M = 4.80, SD = 0.90) (Table 3). The results suggested that our sample of corporations considered CSR as being vital for a corporation's survival. In addition, the focus on enhancing reputation and community support indicated that the corporations in the sample were receptive to the business and society approach reviewed earlier in this paper. Interestingly, our interviewees were more inclined to value external and disciplinary motivators such as "consumer pressure," "government guidelines," and "crisis prevention." Interviewees also generally agreed that corporations should not be considered as being separate from the community, regardless of whether a corporation is local or multinational. One interviewee summed up these sentiments: We realize that we are part of the world. An organization doesn't exist in isolation ... For any company to go on as a perpetual

entity, whoever is holding the fort need to ensure that the economy and world that it operates in continue to be a safe environment.

Economic motivators align a corporation's CSR efforts with potential monetary returns. Attract investors, promote transactions/ partnerships, and increase profits were categorized as economic motivators. The relatively low average mean of the three motivators ($M = 3.68$) implied that most corporations in the sample did not practice CSR for bottom-line reasons. Although most corporations considered all the motivators listed as essential, motivators aligned with corporate agenda ranked among the lowest in importance. Some interviewees who were skeptical about certain local corporations' CSR efforts questioned the above findings as indicated by an interviewee: There are a lot of organizations out there who are actually using (the tsunami disaster) by donating 10% of proceeds and so on. We see that as a bit gimmicky, which means they are trying to get sales. They are trying to appeal to the emotion of somebody, ultimately to get sales, because it is tagged to the sale of an item.

External pressures ($M = 3.20$, $SD = 0.811$) was considered as not being such an important motivator. Only 35% of respondents agreed that external pressures coming from NGOs, government, media, consumers, and community are important in motivating CSR practices. This finding was consistent with the relatively low level of civil activism prevalent in Nigeria. The executives of the corporations in the sample were divided on whether government regulation should be considered as a CSR motivator. Almost half of them (49%) indicated a neutral stand toward government intervention. It is important to note that the mean ($M = 2.87$) indicated that the other half of the sample corporations did not consider government regulation as a motivational factor. The actual distribution of corporations between "not important" and "important" was relatively balanced. Interestingly, some of our interviewees believed that the Government of Nigeria should be instrumental in driving the CSR movement. Their reasons ranged from the government's powerful financial, media, and human resources, to the large number of Government Linked Companies (GLC, or public sector enterprises) and a vast amount of regulatory power. One advocate of government regulations as a CSR driver said, "It [government regulation] sets a precedent, it puts that out in the public domain, it becomes

a norm, it becomes part of a corporation’s daily operations.... The structure naturally becomes self-substantiated on its own.

Table 3: Motivations for practicing CSR (n = 198)

S/N	Variable	M	SD	%
1.	Increase profits	3.68	0.78	90
2.	Long-term sustainability	4.35	0.86	96
3.	Company tradition	3.80	0.83	92
4.	Recruit / retain employees	4.02	0.77	94
5.	Attract investors	4.53	0.70	95
6.	Promote transactions / partnerships	3.87	0.91	89
7.	Enhance community trust and support	4.80	0.90	97
8.	Avoid regulation	2.90	0.92	88
9.	Favorable media coverage	3.60	0.88	86
10.	Improve public welfare	4.40	0.89	98
11.	Altruism	3.88	0.78	90
12.	External pressures (NGOs, government, media, consumers, community etc)	3.87	0.80	91

R Q 4: Which stakeholders do these corporations perceive to be important?

Research question four sought to understand which stakeholders’ corporations in the sample perceived as important. As shown in Table 4, the top three stakeholders were customers (M = 4.65, SD = 0.71), employees (M = 4.43, SD = 0.86), and business partners (M = 4.20, SD = 0.90) This perception of the high importance of employees was consistent with our earlier finding that employee welfare programs constituted a major portion of the CSR activities in the sample corporations. These findings were mirrored by our interviewees who saw employees and customers as significant stakeholder groups with the power to impact CSR. Some interviewees cited examples in the US where consumer advocacy groups pressured corporations to be more CSR conscious by boycotting products.

Within the primary stakeholder group, suppliers (M = 3.59, SD =1.13) were considered by the sample of corporations to be the least important. Some interviewees stressed that there is a growing need for corporations to pay attention to their suppliers’ practices. One interviewee believed that the onus is on individual corporations to monitor and investigate the ethical behavior of their suppliers. Interestingly, the least important stakeholders appeared to be *NGOs* (M = 3.28, SD = 1.06). The representative of one NGO interviewed by us was not surprised with this finding. He explained that NGOs in Nigeria play a “facilitator” role rather than that of “community activist.” He elaborated that this is due partly to the limited power of NGOs and the relatively low level of activism in most developing countries including Nigeria.

Table 4: Means and standard deviations of stakeholders perceived to be important by the corporations

S/N	Variable	M	SD
1.	Employees	4.43	0.86
2.	Shareholders	4.20	0.90
3.	Business partners	4.17	0.89
4.	Suppliers	3.88	0.99
5.	Customers	4.65	0.71
6.	Community	3.90	0.82
7.	Media	3.55	0.91
8.	Government	3.88	1.10
9.	NGO/Special groups	3.18	1.21
10.	Competitors	3.75	0.94

R Q 5: What resources are allocated for their CSR programs?

Almost half of the respondents 49.50% indicated that their corporations allocated a budget specifically for CSR activities. Many interviewees reported that the allocated budget tends to fluctuate based on situational factors such as profit margins and scale of activities. As far as the breakdown of the personnel distribution for CSR activities is concerned, almost half of the sample corporations (49.50%) had designated personnel to

plan CSR activities of whom about 20% allocated more than eight members. However, a significant proportion of respondents (30%) were unable to cite specific numbers, suggesting the low level of commitment to tracking personnel allocation. Some interviewees explained that the number of planners varied among projects because of the voluntary nature of the ad-hoc committees. Further, CSR planning in some of the corporations' spans across several departments, making it difficult to determine the exact number of staff designated for CSR activities.

With reference to research questions six, we asked the respondents to indicate how their corporations evaluated CSR practices, a majority of the corporation's (67%) surveyed indicated that they did not evaluate their CSR practices at all. Likewise, many of the corporate executives interviewed also reported that they did not conduct any evaluation. Interviewees attributed this to the novelty of CSR. Further, many of the interviewees stated that their corporations did not specify goals or targets for their CSR initiatives. We found that the standards and methods for evaluation differed widely among survey respondents. This was confirmed in our interviews where evaluation techniques ranged from casual and informal methods such as tracking media coverage or simply talking to customers for feedback to more formal methods such as focus groups and surveys.

Nevertheless, several interviewees viewed evaluation as an essential step that should be adopted. Problems associated with evaluation, according to interviewees, include the lack of appropriate evaluation instruments, the intangible nature of the results of CSR practices, and the perceived lack of importance given to CSR reporting. One interviewee illustrated this here is difficulty in comparing fieldwork and actual practices with guidelines or. A common standard to be developed by the NGOs might help although the guidelines will not be too specific.

Our data indicated that verbal feedback was the most common method used to evaluate CSR efforts. Out of the 22 corporations in the sample that conducted CSR evaluation, only five used profit figures to measure the success of their CSR efforts. This result appeared to contradict our earlier finding that profitability is a perceived benefit of CSR. This deviation between the two findings might be due to the difficulty in measuring the relationship between CSR and profitability. While the sample of corporate executives

might believe that CSR has a positive impact on financial performance, it might be difficult for corporations to actually measure the impact and link the two variables conclusively. Other evaluation methods used were the number of corporate volunteers, feedback from beneficiaries, and the number of days of leave claimed to serve as volunteers were also used. A quarter of the corporations surveyed were not sure of how data for evaluation were collected. Half of the corporations reported their CSR initiatives either in their annual reports or on their websites.

Research question seven asked what benefits the corporations in the sample had achieved in their CSR initiatives. The most often cited benefits were improved customer loyalty (57%), improved organizational culture (53%), and attracting and retaining employees (35%). The top benefits cited by the corporations in our sample were related to customers and employees, who were also the most important stakeholders identified. The interviewees also cited similar benefits. In addition, they reported that their corporations enjoyed a more cohesive workforce, enhanced image, and reduced business costs as a result of CSR practices. It was paradoxical that improved image and reputation (11%) was the least frequently cited benefit of CSR, considering an earlier finding that enhancing reputation was the most significant motivation for corporations to engage in CSR activities. The sample of corporations might have difficulty assessing the impact of CSR on reputation because corporate reputation is hard to measure.

With regard to CSR communication, an overwhelming majority (90%) of the corporations communicated with their stakeholders about their CSR practices. The stakeholders with whom organizations communicated most frequently were customers and employees (see Table 5) and these corresponded with the stakeholders who were perceived by the sample of corporations to be the most important. The main communication tools employed were company leaflets and posters, websites, and annual reports. Interestingly, the sample of corporations did not communicate as frequently with the mass media. Only 37% of the sample corporations issued press releases and 32% communicated to the mass media about their CSR activities. It is reasonable to presume that the mass media are not a common tool used by the sample of corporations to disseminate information about CSR. Clarkson (1995) distinguished between primary and secondary stakeholders. Primary stakeholders are those groups or

individuals that have direct transactions with the corporation and include: owners, suppliers, employees, and customers. Secondary stakeholders have a more “distant” even if no less important relationship and include environmental groups, society at-large, media, local community groups, social interest groups.

Table 5: Means standard deviations and percentages of CSR activities

Variable	M	SD	%
Resource Allocation			
Have annual budgets allocated to CSR programs	3.39	0.92	49.50
Do not have annual budgets for CSR programs	4.02	0.87	50.50
We have a department in responsible for CSR activities	3.42	0.79	36
Do not have a department responsible for CSR activities	4.23	0.88	64
Evaluating CSR activities			
We a process in place for evaluating our CSR activities	3.15	0.91	33
We do not a process in place for evaluating our CSR activities	3.78	0.77	67
We often solicit feedback for our CSR activities	3.34	0.98	41
We seldom solicit feedback for our CSR activities	3.56	0.82	59
Benefits of CSR programs			
Improved organizational culture	3.45	0.86	90
Improve corporate image and reputation	4.12	0.69	96
Attract investors/shareholders	3.23	0.81	89
Attract, motivate, and retain employees	2.97	0.99	85
Maintain customer loyalty	4.08	0.95	95
Communication of CSR activities			
We often communicate our CSR activities to our stakeholders	3.00	0.84	79
We seldom communicate our CSR activities to our stakeholders	4.22	0.73	89
We often communicate to the mass media about our CSR activities	2.89	0.67	68
We seldom communicate to the mass media about our CSR activities	4.19	0.72	93

Discussion

In Nigeria, CSR activities appear to revolve around philanthropic activities such as “employee volunteerism,” “corporate donations,” and other charitable activities. This could be attributed to the limitation that it is easier for the interviewees to discuss such activities as opposed to legal and ethical activities. We also acknowledge that such community-oriented activities may be preferred by corporations because of their ability to generate better publicity and garner public goodwill. While actual practice appears to lag behind perceptions (which is more comprehensive), this is understandable as the modern concept of CSR was introduced to Nigeria less than half a decade ago (Roche, 2000) and it is coming to vogue only in the last couple of years.

Decision-making activities of CSR practices varied among the sample of corporations. For decision-making, most of the interviewees cited that a top-down approach is ideal. Likewise, the survey results revealed that almost three quarters of the CEOs from the sample of Corporations made decisions on CSR, thus centralizing decisions on CSR. With regard to motivation, based on the descriptions of our interviewees, we found that corporations adopted three major approaches when they practiced CSR proactive, accommodative and reactive. Proactive corporations are motivated by their corporate values and agenda to implement initiatives on CSR, which are aligned with their corporate strategies. These are typically large and multi-national corporations. Accommodative corporations tend to follow existing guidelines and regulations to fulfill minimum CSR criteria. They also may consider feedback from important stakeholders and attempt to meet the CSR expectations of these groups. Reactive corporations tend to react to events and conduct CSR activities on an ad-hoc basis. In terms of evaluation, one of the obstacles hindering corporations from evaluating their CSR efforts can be attributed to the inherent difficulties in measuring CSR, as stated in our literature review. We also discovered from the interviews that some corporations do not set goals prior to implementing their CSR projects. Thus, there is no benchmark for these corporations to evaluate their CSR activities as a result of which they seem to do very little by way of CSR evaluation. A secondary objective of this study was to develop recommendations that can be used to drive the CSR movement in Nigeria. Based on our quantitative and qualitative data, as well as insights from the literature

review, we identified seven stakeholders that are able to influence corporations to practice CSR. We refer to these stakeholders as drivers: the government of Nigeria, NGOs, mass media, corporations, trade associations, consumers, and employees.

In order to evaluate the effectiveness of these drivers, we assessed the current activity level of each driver. Drawing inspiration from the terminology and concepts of the situational theory of publics (Grunig, 2005), we rated individual drivers on their level of awareness and activity in promoting CSR. We used three criteria to conduct our analysis: 1) awareness of the concept of CSR, 2) recognition of the issues and opportunities surrounding CSR, and 3) organizing and taking actions to manage CSR issues and leverage opportunities. When none of the above three conditions is present in a driver, it is labeled a non-driver. When the driver is aware of the concept of CSR, but does not fully recognize the issues and opportunities surrounding the concept, it is labeled a latent driver. When the driver recognizes the issues and opportunities, it moves from the latent stage to the aware stage. Unlike a latent driver, an aware driver will think about, and communicate about, CSR but it does not act upon these thoughts and discussions. Lastly, an active driver will engage in formalized discussions about CSR, seek to promote CSR, and organize to actively bring about changes to make corporations more CSR-minded.

Conclusion, Limitations, and Directions for Future Research

We recognize that ours is by far a descriptive study from which we have made data-based extrapolations such as the drivers of CSR in Nigeria. However, as Wood and Pasquero (1997) suggested: “At this early point in field’s maturation process... description should be as legitimate as explanation”. We do not know enough... to construct variable-based theory that would lend itself to quantitative explanatory research.” Because there is very little empirical data about CSR in Nigeria, it is almost impossible to construct research instruments that will help predict phenomena related to this concept. We hope our study will spur more research on CSR in Nigeria and help the movement grow as well. Future researches may select specific variables from the framework (employees and potential impact) and test their relationship empirically.

We also relied only on participants' input about their corporations' behavior. Survey respondents and interviewees may feel apprehensive about revealing information about their corporations due to the sensitivity of the issues discussed. As a result, responses that have the potential to put corporations in a negative light may have been omitted. Social desirability bias could also have skewed the results positively. Further, the Asian tsunami disaster (December 2004), which happened in the midst of data collection for this study, may have raised the awareness of CSR among corporations in Nigeria and skewed the level of understanding of CSR.

Further, some elements of the questionnaire, such as evaluation and CSR activities, may have been open to wide interpretations by respondents, and the survey findings may have masked these variations. These problems associated with the survey methodology were compensated with the in-depth interviews with corporate executives and elite interviewees, which added considerable depth to our study. With regard to the external validity of this study, there is inevitably some degree of self-selection of the respondents as the sample is dependent on the corporate executives' and corporations' willingness to participate. Thus, those who volunteered to respond are likely to have more interest in CSR. Further, because we did not use probability sampling, we consider this study to be a snapshot at this point in time. Future studies may be able to replicate our study and confirm our findings. We studied two units of analysis to answer the nine research questions, resulting in a descriptive study covering a wide scope. Future researchers can use our study as a benchmark to address correlations of variables and conduct explanatory studies. One area of study can include examining the correlation between size of corporations and their level of CSR practices.

CEOs and top managers were found to be the key decision makers of CSR activities among the corporations in our study. Future research can conduct a deeper study of their attitudes towards CSR. Another area of study can include investigating the perceptions about consumers and employees, as they were regarded the most important stakeholders by the sample of corporations in our study. Future research can also examine the potential impact and current activity level of customers and employees, as well as other stakeholders such as NGOs and trade associations to test our analysis on the various CSR drivers empirically. Another possible research avenue is to explore the distinct CSR

issues associated with the different industries so that specific guidelines and recommendations can be formulated. A longitudinal study to uncover any significant trend in executives' perceptions about CSR and corporations' CSR activities over time may also be an interesting area for future research.

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Business and Economics in a Global Context

Risky Business: Uncertainty Avoidance and Gender: Global Perspectives and Dynamics for Women Seeking Leadership Positions in Business

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Abstract

The challenges for women seeking high level positions in business have been well documented and are evidenced in the lack of a significant number of women in the popular ratings list of top executives in the business field. The glass ceiling, stereotyping and self-exclusion have been noted as potential reasons for the lack of representation of women in CEO positions.

In an effort to further explore the reasons for the lack of women in high level positions, this paper will explore two cultural dimensions, "Uncertainty Avoidance" and "Masculinity" as defined by Geert Hofstede, with an attempt to draw a link between these dimensions in the United States and their potential impact on women seeking high level leadership roles in corporate America. In addition to a review of the dimensions of the Hofstede Studies and a limited look at Project Globe, several recent writings will be discussed which suggest different scenarios for the observable lack of women in corporate leadership positions.

Note: Audience participation is welcomed and encouraged.

Introduction

Competition between men and women is nothing new. In the business world, however, there are many factors that make such competition fiercer, such as salary, promotions, and in particular, top level CEO positions. A number of surveys and lists point to the fact that few women make it to the CEO level positions. Fortune Magazine's debut of its "Most Powerful Women in Business" honoree listing in 1998 had two women in it that were CEO's in Fortune 500 companies. In 2009, thirteen women qualified for this distinction. (Shambora). Granted, this is an increase, but considering this gain is over the span of eleven years, it presents the question: Is there any merit to the idea that

business is a “man's world,” and that women are too soft to handle the constant pressures of management and conflict, or is this all just one giant misconception that women haven't had the chance to disprove? Before exploring that question, a look at the latest data shows that there is a clearly changing and growing workforce. Organizations are becoming more heterogeneous in terms of gender, age, race, ethnicity, sexual orientation and inclusion of other diverse groups. Women now represent nearly half (47%) of the workforce in the United States. They earn 57% of all master's degrees and 45% of all doctorates. Women account for about 16% of line management positions and yet only 8% of CEO position at major corporations (Catalyst). Based upon the lack of a representative number of women in major leadership positions in corporate America, one might wonder if uncertainty avoidance and generalizations related to gender might account for this shortfall.

In an effort to explore the reasons for the lack of women in high level positions, this paper will explore two cultural dimensions, “Uncertainty Avoidance” and “Masculinity” as defined by Geert Hofstede, with an attempt to draw a link between these dimensions in the United States and their potential impact on women seeking high level leadership roles in corporate America. Between the years of 1967 and 1973, Prof. Geert Hofstede of Maastricht University collected data from over 100,000 people living in 40 countries to create an index with which to evaluate them based on cultural differences (Hofstede, Cultures). While the original work of Hofstede is more than thirty years old, and was based upon a single company, IBM, his research has left a lasting mark on the field of Organizational Behavior. Hofstede is one of the most widely cited cultural research scientists ever. Not only are his findings useful for helping countries to interact with one another, but they also place each country on a scale that provides a basis of comparison for individuals within that country, further enabling individuals to understand perceptions both within and outside their own cultures. Hofstede's research is presented in the form of five indexes - The Power Distance Index, Individualism Index, Masculinity Index, Uncertainty Avoidance Index, and Long-Term Orientation Index. The Masculinity and Uncertainty Avoidance Indexes are of particular interest when studying gender and risk aversion.

Masculinity Index

The Masculinity Index (MAS) is used to determine the variance in distribution roles between genders (Hofstede, Cultures). It is defined as the extent to which a society reinforces or does not reinforce traditional notions of masculinity as compared to femininity. In terms of ratings on the scale, Masculinity is the degree to which a culture is founded on values that emphasize dominance, physical strength, independence, aggressiveness and dominance. Men are expected to be tough, assertive, and focused on material success. Cultures that score high on masculinity include Japan, Austria, Italy, Mexico and Ireland. A culture that scores low on the Masculinity scale is considered to be more feminine, which means that culture or society tends to favor values like independence, emotional openness, compassion, and empathy. Women are supposed to be more modest, tender and more concerned with the quality of life. Dominant values include caring for others, emphasis on the importance of people and relationships, and resolving conflict through compromise and negotiation. Countries that have a more feminine role orientation include Denmark, Costa Rica, Finland and Portugal (Javiden and House). 'Feminine' countries are those that have equal expectations for men and women to be soft and modest. These countries are low on the masculinity scale and have less discrimination between genders. Therefore, males and females are treated nearly equal in every aspect of society. Countries that are high on the masculinity scale, considered to be 'masculine,' show a greater gap between gender roles; women in these countries attempt to be more competitive and insistent, but may be held back by cultural expectations for men to be strong and women to be nurturing and tolerant (House 344).

The United States is considered high in Masculinity with a score of 62; the world average MAS ranking is 50. For the United States, the Masculinity Index is the second highest level on the cultural dimensions chart, making it highly masculine. This means women in the United States will try to make up for gender differentiation roles by attempting to adopt male traits, such as power and assertiveness, especially since males seem to “dominate a significant portion of the [American] society and power structure (Hofstede, Cultures).” Unfortunately, this unequal distribution of power creates a stigma that men achieve such roles in society because they express a certain level of aggressiveness that women, who are not part of this majority, must lack.

Another aspect of those cultures that differ on the Masculinity Index is the difference in reward systems and a varied approach to the way work is divided. In the reward system of a feminine culture, both men and women are equally recognized for their work. Management opportunities are equal for both men and women and work is divided and distributed equally among its citizens. Feminine cultures stress pay equality and gain sharing. Goals are set by participation and rewards are linked to team achievement. There is a more broad use of fringe benefits in the feminine cultures. (Tosi and Greckhamer). Research has also suggested that there are most definitely gender differences in the approach to decision-making. Overall the research indicates that women analyze decisions more than men do. In fact, twenty-five years of studies find that women spend significantly much more time than men analyzing the past present and future. Rumination or “over thinking” can be a negative result of this approach, thus making problems more difficult to solve and perhaps the critical decision may be significantly delayed or an opportunity missed because of this practice. On the reverse, the process of very careful analysis may in fact lead to more careful decision making (S. Nolen-Hoeksema). It is apparent that clearly the differences in cultures, especially as they relate to a reward system and decision making style may account for the lack of a significant number of women in leadership roles in corporate America.

Uncertainty Avoidance

Hofstede's Uncertainty Avoidance Index (UAI) measures how comfortable members of a country are with uncertainty or lack of structure in their lives. Uncertainty Avoidance is the extent to which people rely on social norms, procedures, and organizations (including government), to avoid ambiguity, unpredictability, and risk. Those cultures with the rank of “high” seek orderliness, consistency, structure, well-defined procedures and rules that govern situations in their daily lives. Countries that rank “high” include Japan, Sweden, and Germany, with their cultures being characterized by more secure and long-term employment. Reward and promotions systems emphasize seniority and rewards are more often based upon the performance of the company, rather than the performance of an individual or a team. Countries that rank low on the factor of uncertainty avoidance often are more accepting and geared toward layoffs, employment

uncertainty and job mobility. Rewards are based upon the performance of individuals and there is a strong tolerance of ambiguity and uncertainty. Countries that rank low on uncertainty avoidance include the United States, Canada and Hong Kong. (Hofstede)

Differing levels of anxiety about uncertain situations are another aspect of this cultural dimension. Countries with high uncertainty avoidance feel threatened by uncertain and ambiguous situations and try to avoid them. People fear the unknown; have increased levels of anxiety about ambiguous and unsure situations, and use laws and other controls/rules to reduce anxiety. Countries with low uncertainty avoidance tolerate ambiguity, are less rule-oriented and accept change more readily and with less anxiety. New ideas, unusual behaviors, and change are often embraced rather than feared. For example, efforts to try new methods are often stifled in Latin America, because employers set high priority on career stability and are protected by rigid rules and seniority. American managers are more likely to be open to novel management styles and ideas. Rules are viewed as guidelines whereas Latin American managers see rules and procedures as absolute and sacrosanct. (Becker, 2004) Conflict avoidance is closely associated with uncertainty avoidance. Conflict creates uncertainty so countries that are high in uncertainty avoidance avoid the competition and aggression that conflict unleashes. (Hofstede)

The U.S. is ranked fairly low when it comes to uncertainty avoidance with a ranking of 46, compared to the world average of 64. This means people within the United States are more open to new thoughts, ideas, and change, and therefore feel that it is acceptable to take much greater risks, whether it has to do with career moves or life choices in general. When combined with the MAS Index, one may think that women may have trouble assuming such risks due to the perceptual gap that undermines their abilities. However, the Hofstede study is not gender specific; it is culture specific and focuses on generalizations of countries, more so than individuals.

The concept of uncertainty avoidance is more general than risk avoidance. The Global Leadership and Organizational Behavior Effectiveness research program, more commonly referred to as the GLOBE Studies, defines uncertainty avoidance as “the extent to which ambiguous situations are threatening to individuals, to which rules and order are preferred, and to which uncertainty is tolerated in a society (House).” Project

GLOBE resembles the Hofstede studies; however, it adds dimensions and performance orientations. The initiative, which began in 1994, uses data from 825 organizations in 62 countries and examines nine dimensions in which national cultures differ, including the attributes of effective leadership (House). The concept of uncertainty avoidance was broken down into findings at the societal level and findings at the organizational level; the results were narrowed down even further into the subdivisions of values and practices. With rank 1 being the highest level of uncertainty avoidance and rank 62 being the lowest, the United States ranked 51 in terms of values and 30 in terms of practice. These are moderately low scores, which indicate both studies have validity in this subject area. (House)

A typical assumption of people from low uncertainty avoidance cultures is that they tend to be less calculating before taking risks (House 618). Perhaps women by nature tend to plan before risk taking, as their nature according to the MAS index would indicate, and simply convince themselves not to take a risk despite the fact that ambition was originally present. In contrast, people from cultures consistent with high uncertainty avoidance are assumed more likely to take notes in business meetings and keep accurate details of proceedings, a beneficial trait, which can be overlooked by someone less concerned with risk. Many scholars who have spent years studying the topic consider it a “fundamental need to reduce uncertainty in our lives, to explain our world, and establish predictability. More recently, several scholars suggest that certainty, or true predictability, are illusions perpetuated by misguided Western thought, which advocates the control of nature (House 603).” It seems to be evident that extremes on both sides of the scale would be harmful to businesses and individuals alike. Inadvertently, because there are benefits to both sides of the scale, the most successful societies are the ones that have created a balance between the two (House 618).

Recent Studies/Womenomics

A gender-based study was recently performed on uncertainty avoidance which touches on the idea that risk aversion in men and women has to do with biological differences. Paola Sapienza, an associate professor at the Kellogg School of Management at Northwestern University, was curious about this subject and decided to explore it

further. Out of a sample set of 500 MBA students, 36% of females in the group, compared to 57% of males, identified with the desire to have high-risk financial careers like trading or investment banking (Preidt). Sapienza suspected this may have something to do with testosterone, which is found in much higher concentrations in men than women. The experiment revealed:

Higher levels of circulating testosterone were associated with lower risk aversion among women, but not among men. At comparably low concentrations of salivary testosterone, however, the gender difference in risk aversion disappeared, suggesting that testosterone has nonlinear effects on risk aversion regardless of gender. A similar relationship between risk aversion and testosterone was also found using markers of prenatal testosterone exposure. Finally, both testosterone levels and risk aversion predicted career choices after graduation: Individuals high in testosterone and low in risk aversion were more likely to choose risky careers in finance. These results suggest that testosterone has both organizational and activation effects on risk-sensitive financial decisions and long term career choices. (Maestripieri)

High levels of testosterone also reduce fear and anxiety, which are valid reasons for women to be more risk-averse (“Gender”). This evidence suggests that perhaps uncertainty avoidance has more to do with inner biological composition than it does with external cultural differences. This is the first study showing such linkage (Preidt). This idea could be explored more thoroughly if the tests were performed in other countries besides the United States and results were compared to the findings of the GLOBE and Hofstede studies. Since the experiment shows that women with higher levels of testosterone and low risk aversion were more prone to going after high-risk financial careers, it would also be interesting to see if testosterone levels of the top female CEO's in America were high in support of this inquiry.

A popular journalist’s writings have given rise to something new called 'Womenomics,' a study about women and their economic role in society. It focuses on motivating women to pursue more work-related challenges by raising awareness of just how much power they actually do have in the workplace (Kay). Claire Shipman, who coins the term 'womenomics' in her book, “*Womenomics: Write Your Own Rules for Success*,” suggests that risk aversion and uncertainty avoidance are not what is keeping

women from reaching the top of corporate ladders. Facts show, contrary to popular belief, that companies that have a higher number of female managers are more profitable. Fortune 500 companies that held the best records for promoting women outperformed their competition within a 41% - 116% range; and women constitute 83% of consumer spending in America (Shipman). Eventually, 'face-time' which plays a heavy role in decision making will soon be outweighed by the influence of these actual performance results (Kay). Information such as this is increasingly spreading throughout the business world as female leadership is becoming advantageous to corporate America. This means that women are gaining respect and more opportunities to prove themselves without having to take as many risks.

Ironically, the female tendency to demonstrate uncertainty avoidance is suddenly considered a valuable trait given the current state of the economy. At this year's World Economics Forum held in Davos, Switzerland, Nick Lehman stated his belief that Lehman Brothers may have been able to avoid filing for bankruptcy if there were more women in upper-level management positions (Shipman)." Kanini Mutooni, head of internal audit at Kleinwort Benson private bank, has been quoted saying, "Women have a more balanced approach to risk-taking. I am convinced that if we had women chief financial officers and chief executives, the banks would have ended up taking a lot less risk. And we probably would not be where we are now" (Coomber). In addition, it also seems to be the opinion of thousands of MBA graduates that the actions of male "testosterone-driven, bonus-fueled, risk-taking MBAs" were the driving force that caused the "near collapse of the global banking system."(Coomber). This perceptual shift could be just what the United States economy needs to counteract the pessimism present in those who suffered from the negative effects of the recession by playing up the competitive advantages of having women in the workplace.

Another point worth noting is that misconceptions aren't just created based on the differences between men and women's' success rates. Many simply have the wrong idea about how risky careers in business actually are. Luigi Zingales, a professor of finance at Booth School of Business, University of Chicago, is very blunt on this topic. "Because there is greater variability of earnings for MBA graduates entering the finance field, you might earn millions but, as employees of Lehman Brothers discovered, you might end up

without a job (Coomber)” People also fail to realize that contained within many risky fields of business lie plenty of jobs that depend on actual knowledge and skills, not willingness to take risks (Coomber).

Of course, there are many other factors such as family life, job location, passion for the job, or other personal priorities that keep women from taking risks. Age must also be taken into consideration; it makes sense to think that women who are young and fresh out of college who don't have children depending on them will be more likely to take chances, especially if they believe they have nothing to lose. More and more studies are starting to show that older women, in particular, women with families, value such things as time and a harmonious work-life balance over money:

“Women who have had enough of 60 hour weeks, of holidays that never get taken, of the frantic dance between a fulfilling career and a rewarding personal life can finally negotiate for the work-life they really want. Women can demand new rules of engagement in today’s workplace—more flexibility and control. Women have also realized, after decades of working our way up a male ladder, that many of us don’t really want to be on that straight-up climb. But we don’t want to quit. We want to go sideways for a while, in different directions, and then perhaps back up again.” (Kay)

This brings to light that there might be a misunderstanding of what women actually want to gain from the workplace. Many are not seeking to get to the top because it simply just isn't a priority – not because of special tendencies to be risk-averse. It also suggests that women don't mind assuming some level of risk, just as long as they don't have to do it all at once and are able to control it themselves. Of course this still a characteristic of uncertainty avoidance because there is a certain level of security involved, but when women are gradually reassured they become more inspired to take charge. When confidence is present, there is less anxiety about the chance of failure, which makes a woman more likely to step outside the ordinary boundaries.

In response to some of these new findings, companies have made changes to their business models to foster improvements in the way 'womenomics' will shape the future of business. For example, ExxonMobil has an entire initiative dedicated to 'Women's Economic Opportunity' that focuses specifically on building the next generation of female leaders and entrepreneurs, eliminating the barriers that prevent this from

happening, and identifying specific technologies that will help women use their knowledge and skill sets to the best of their ability (ExxonMobil). It seems that even if women are more risk-averse than men, if businesses are finding more and more ways to help women succeed in their organizations there will be less of a need for them to worry. Providing equal opportunity for all women, no matter their ambitions or testosterone levels, would ensure that the women who make it to the top really want it because they took advantage of said opportunities. There would be no need to place blame on the 'glass ceiling' or lack of ability due to gender stereotyping, which would not only be beneficial for businesses, but also for society as a whole as negative misconceptions will be replaced with positive realities.

After taking a look from statistical, cultural, psychological, biological, and individual viewpoints, it can be concluded that men and women will continue to handle business practices differently from each other, and that these differences will sometimes account for failures as well as successes. Negative stereotypes about women are beginning to change rapidly as performance indicates they are capable of handling some of the worst financial pressures just as well as, and in some cases, better than men. It will be interesting to see how further advancements in science and 'womenomics' studies correlate with the findings and theories from the past. As for uncertainty avoidance, the amount contained within each and every individual depends on one's desire to fulfill cultural expectations and perhaps exceed some of his/her self-imposed limitations. Accounting for this is sure to help businesses prosper by knowing when to take risks and when to play it safe. If nothing else, managers will perhaps be more aware of creating equal opportunities and access for all people, thus encouraging every individual to live up to their fullest potential.

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The Reversibility of Globalization

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Abstract

We describe a brief history of globalization beginning with the first golden age in 1890-1913. We consider the rise and fall of the Washington Consensus, and the rise (and fall?) of the end of history. We review recent developments, in particular the 2008 financial crisis, and evaluate the prospects for continued globalization. We conclude that globalization is here to stay.

Keywords: Globalization, free trade, economic growth

The Reversibility of Globalization

In a recent paper, Gregory, Henn, McDonald and Saito (2010) argue that the onset of the 2008 financial crisis was followed by a “sudden and sharp” contraction—a 17.5 percent fall in global trade volumes between September 2008 and January 2009. They attribute the decline in world trade to three factors: (i) Consumers postponing spending, and firms cutting back on investment, (ii) Firms cutting back on imports of intermediate inputs in the global supply chain, and (iii) Reduced availability of trade finance. World trade continued to shrink in 2009; according to the World Bank, global trade volumes fell 4.4 percent in 2009, while global GDP shrank 2.2 percent over the same period.

Globalization enjoyed its first “golden age” in the pre-World War I era (1890-1913). Advances in transportation led to dramatic declines in shipping costs, enabling goods to be traded more cheaply. Trade ratios rose sharply in several countries—UK, Australia, Japan, Canada—and moderately in others (United States).¹ This period ended, however, with the advent of World War I, as trade volumes dried up practically overnight.

The inter-war period was dominated by the Great Depression. In 1930, the U.S. government sought to restrict the entry of foreign goods by imposing the Smoot-Hawley tariffs, which resulted in tariffs of up to 60% on certain imports. Other countries

¹ The highest ratio of trade to GDP (30%) was attained by the United Kingdom, while Australia, Canada, and the average of European countries all exceeded 20% at their peaks. Japan reached a ratio of trade to GDP of 15%, while the United States achieved 7.5% (Feenstra and Taylor, 2008).

retaliated, and the average tariff worldwide, which stood at 17% in 1900, rose to 25% in 1933. The result was a sharp decline in world trade.

The post-World War II era witnessed a rebirth of globalization. Further advances in transportation— container shipping, jet travel—and communications led to lower trade costs. The General Agreement on Tariffs and Trade was established. The various Rounds of GATT trade negotiations led to successive declines in tariffs on imported goods, primarily in developed countries. By 2000, the average tariff worldwide had fallen to 7%. In recent years, even developing countries like India, which had long resisted trade liberalization policies, have sharply reduced their tariffs to levels below those permitted by the World Trade Organization (Gregory, Henn, McDonald and Saito (2010)).

But the recent economic crisis and the concomitant declines in trade have stoked fears that, after decades of expanding trade volumes, the long run of globalization may be ending. With unemployment remaining stubbornly high, especially in the developed countries, governments would give in to public pressures to save jobs in the short run and use protectionist measures to keep out foreign competition. The trend of increasing openness, once seen as ineluctable, if not entirely desirable, would be reversed. Was globalization itself in peril?²

In this paper I look at a brief history of globalization, consider recent developments, and evaluate future prospects for global integration. In an influential essay, Ferguson (2005) argued that the sinking of the Lusitania in 1915 marked a symbolic halt to the first golden age of globalization. He states, more contentiously, that the factors that played a role in the demise of globalization in that era—overstretch of the hegemonic empire, escalation of rivalry between great powers—have parallels in today's world. Globalization, therefore, could sink yet again. In this paper, I argue that Ferguson's conclusion is unwarranted: that globalization is here to stay.

² Mother Nature too appears to be attempting to throttle globalization. On April 14, 2010, after lying dormant for two centuries, the Eyjafjallajökull volcano in Iceland erupted. The resulting plume of ash in the atmosphere disrupted air travel, primarily to and from Northern Europe. Thousands of flights were cancelled, and passenger and cargo freight were significantly affected.

A brief recent history

In the 1990s globalization—here, defined as increased trade in goods, services, capital and labor among nations—was in full flow. The World Trade Organization had come into existence in 1994. The trading system it replaced, the General Agreement on Tariffs and Trade, was proving to be ineffectual in advancing trade, and particularly at resolving trade disputes among member countries—and the WTO was designed to address these shortcomings. A year earlier, President Bill Clinton had signed into law yet another sweeping trade agreement, NAFTA, bringing down trade barriers between the United States, Canada and Mexico and thus creating a free trade area to rival the European Union, which itself, following decades of increasing economic integration among Western European countries, would shortly establish a monetary union by adopting the euro as its single currency.

The 1990s also witnessed the United States economy experiencing a long period of rising GDP and quiescent inflation. So as it took the lead in promoting the cause of freer trade around the world, countries took notice. The U.S. was not alone, however, in reaping the benefits of globalization. Following decades of increased openness and reliance on a dynamic export sector, the Asian tigers had experienced remarkably protracted periods of prosperity, along with, in several cases, falling inequality. This was an irresistible combination, and the rest of the developing world, along with development agencies like the World Bank, could scarcely doubt the role of globalization in the success of these countries. Thus was born, in the 1990s, the Washington Consensus, a doctrine that appeared to be the perfect prescription for the maladies afflicting the developing world. To ensure rapid economic growth (and to combat poverty), in this view, countries should practice fiscal and monetary restraint, privatize large segments of the economy hitherto held in government hands, and open up their economies to the bracing winds of foreign competition. Adam Smith's invisible hand should be given free rein, while the visible hand of the government, inefficient, plodding, corrupt, would be withdrawn from the economic sphere.

Globalization was a key component of the Washington Consensus. Opening up a developing country to increased trade in goods and services, and permitting an unfettered flow of capital into and out of the country, were seen as indispensable handmaidens to

growth. The multinational corporations were, of course, all for it, as were the titans on Wall Street and in financial capitals around the world. The intellectual underpinnings provided by academic studies on the merits of globalization, some of which originated in the research departments of the International Monetary Fund and the World Bank, were thus bolstered by the self-interest of corporations and financial conglomerates—and the Washington Consensus thus became the dominant economic model for development.

In the meantime, a thesis on the inexorable march of liberal democracy began to garner significant attention. In 1989, according to Freedom House, there were 69 electoral democracies, accounting for 41% of all countries; by 2008, there were 119 electoral democracies, accounting for 62% of all countries.³ In coining the memorable expression “end of history”, Fukuyama (1992) wrote: "What we may be witnessing is not just the end of the Cold War, or the passing of a particular period of post-war history, but the end of history as such: that is, the end point of mankind's ideological evolution and the universalization of Western liberal democracy as the final form of human government." It was simply a matter of time, in this view, before the world embraced the tenets of liberal democracy (for government structure) and capitalism (for economic structure). The path to such a denouement would be marred by occasional deviations, but the end itself was clear.

The end of history thesis, which Fukuyama had earlier advanced in a brief article, provoked a storm of critical essays; see for example, Fuller (1989) and Satter (1989). The enduring power of totalitarianism, the dubious nature of democratic institutions in countries like Russia, the lure of socialism—all these were cited as arguments against the thesis.

The Washington Consensus was also not without critics. While those inclined towards limited government in economic affairs lauded the emergence of the doctrine, others pointed to the likely ill effects of the policies associated with the doctrine: fraying of the social safety nets as governments sought to reduce budget deficits, the withering of domestic industry under the onslaught of cheap imports, the rise in inequality as only the educated class took advantage of the opportunities afforded by globalization while the unskilled, the uneducated, fell further behind.

³ See <http://www.freedomhouse.org>.

The Asian financial crisis of 1997 came as a shock. Here were the Asian tigers, following exactly the dictates of the Washington Consensus—small budget deficits, actually even budget surpluses in some cases, few barriers to trade in goods and services, unimpeded capital flows—and yet now faced a vicious spiral of forced currency devaluations, panicked outflows of capital (to the relative security of the West), spikes in interest rates, and sharp declines in economic activity. Thailand, Malaysia, Indonesia, South Korea all suffered varying degrees of rising unemployment and negative GDP growth.

The response of the IMF was seen as unsatisfactory, even wrong-headed. Asking the Asian governments to raise interest rates and cut government spending came in for severe criticism, notably by former World Bank economist Joseph Stiglitz, whose *Globalization and its Discontents* included a blistering attack on the IMF's policies following the Asian crisis.

Globalization, in particular the unfettered movement of capital, especially in countries with undeveloped banking systems, came to be regarded as a major culprit in the Asian financial crisis. Countries that had exercised greater restraint on the inflows of foreign capital, notably China and India, had largely escaped the crisis. And when the IMF, hewing to its standard operating procedure, enjoined troubled Asian countries to keep capital flowing freely as part of its conditionality, one country—Malaysia—balked. The Malaysian government decided to eschew IMF funds and imposed capital controls.

Despite grim predictions about the consequences for the Malaysian economy, the imposition of capital controls did not have unduly adverse effects on GDP growth. Growth rates in countries that followed the IMF's dictates were not significantly different from those experienced by Malaysia during the period of recovery.

The Malaysian experience raised troubling questions for the neoclassical orthodoxy. As did a similar experiment in Latin America—Chile, a star performer in the region, had long imposed capital controls with seemingly little detrimental effect. The desirability of permitting the free flow of capital, a key element of globalization, was now seen as questionable.

Recent developments

The WTO is facing a crisis of confidence, as countries appear to have concluded that the Doha Development round is stuck. Begun in November 2001, the Doha Round has endured several Ministerial meetings but is far from finished. A key sticking point is the agricultural subsidies paid by rich-country governments to their farmers: developing countries want these subsidies abolished. As meeting after meeting of the WTO has failed to yield progress, countries have turned to signing bilateral trade agreements with each other. Such agreements make trade freer between the concerned parties; however, if the extent of trade diversion exceeds that of trade creation, they stand to adversely affect global trade and welfare.

The WTO's forum for dispute resolution is also being put to good use. In 2009 Q4, fourteen WTO members initiated investigations into trade practices by trading partners. Developing countries accounted for 77% of the investigations, the industrialized countries the remaining 23%. The main target in many of these investigations is China: that country's exporters have been named in over 70% of the new country-level investigations, and they face import restrictions as a result.

The 2008-09 economic crisis has affected trade volumes around the world, dramatically in some cases. In the U.S., exports have fallen in each quarter beginning in the fourth quarter of 2008: down 3.3% in 2008Q4, 21.5% in 2009Q1, 25.8 in 2009Q2, 21.5 in 2009Q3, and 0.5% in 2009Q4. China's exports also fell in the aftermath of the global crisis: down 19.8% in 2009Q1, 23.5% in 2009Q2, and 20.6% in 2009Q3. In the fourth quarter of 2009, however, China's exports have staged a recovery, posting a modest gain of 0.1%.

The picture for exports over a 12-month period ending in 2009Q4 is mixed. Exports from North America fell 2%; U.S. exports fell 0.9%. Brazil (down 12.5%) and Japan (down 1%) also experienced declines in their exports. However, for the world as whole, exports rose 3.9%. For Asia as a whole, exports were up 3.8% (China was up 0.1%) and for the EU, the rise was 3.9%.

The picture for more recent changes in exports shows a clearer upward trend in exports. From the third quarter of 2009 to the fourth, exports worldwide rose 10.3%. In that period, exports from the U.S. surged 11.1%, while China's grew at a robust 9.2%.

Though the trend may prove to be fleeting, the data suggest that the worst of the declines in exports is over. Regions around the world are starting to see exports grow—and as the economic recovery takes stronger root, the trend is likely to intensify.

Future prospects

Globalization is here to stay. Governments have recognized the importance of globalization for growth and development. Several studies—for example, Dollar (1992), Sachs and Warner (1995), and Frankel & Romer (1999)—show that trade leads to faster GDP growth and higher incomes.⁴ More recently, Estevadeordal & Taylor (2008) conclude that reducing tariffs on imported capital and intermediate goods leads to faster GDP growth.

The consequences of the Smoot-Hawley tariffs have not been forgotten. While the causes of the Great Depression continue to be debated, there is widespread agreement on the pernicious effect the tariffs have had on global trade and global GDP growth in the 1930s—and governments are grimly determined to avoid repeating the mistake.⁵

Countries profess fealty to the WTO agreements hammered out painstakingly over the past few decades. They understand that they stand to gain if they adhere to the requirements that they do not impose trade barriers. Even developed countries are loth to abrogate the terms of trade treaties—see the barrage of criticism the U.S. attracted after President George Bush imposed tariffs on foreign steel early in his first term as president. In laying out his plans for a fiscal stimulus package in 2009, President Obama early on spoke about the need to include a “Buy America” provision. But the protectionist sentiment attracted opprobrium both within the country and outside, and the provision was quietly scaled back in the final package.

Even the Chinese position regarding the yuan and its alleged undervaluation is treated carefully. Various U.S. politicians periodically call for the imposition of tariffs on

⁴ This view is not shared by all; Rodrik (2006), for instance, argues that trade reforms are not very important for growth.

⁵ Perhaps this is the rare case where we do learn from history and are therefore not condemned to repeat it.

Chinese goods—the undervalued yuan, they say, is hurting U.S. exports to China—but the administration (first Bush, now Obama) have resisted, seeking instead to nudge the Chinese government in the desired direction through diplomacy. Trade with China is too important, not least because of the large-scale purchases of U.S. Treasury securities by the Chinese government that enable the U.S. to borrow at low interest rates in the world capital markets.

Conclusions

The process of globalization has been unfolding for a long time, with the period immediately preceding World War I being referred to as the first golden age of globalization. But the advent of World War I brought globalization to a halt, and this historic reversal suggests that globalization is not necessarily the ineluctable force it is made out to be. Some suggest that the factors that brought about the war and the decline of globalization are in fact present today, and therefore pose a danger to increased economic integration among countries.

But the evidence does not support such a conclusion. Despite the tremors of the 2008 financial crisis—and the pressures on governments to adopt protectionist policies—countries remain reluctant to forswear the agreements made painstakingly over decades of WTO trade negotiations. The lessons of Smoot-Hawley are still fresh, and despite the failure to complete the Doha Round, and increasing number of complaints being lodged at the WTO by countries about trading practices, there are no signs that trade barriers are being erected in any significant manner. As the economic recovery gains steam, world trade should also expand, further quenching any remaining ardor for protectionism.

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Economics and Ethics of Global Inequality: Proposing Principles to Make it More Equal

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Introduction

The global economic structure is very unequal. This inequality has various dimensions, not only in terms of the tremendous diversions in terms of per capita GDP, degree of consumption, access to resources ownership, access to health care, life expectancy and other measures of health, and education, it is also unequal in terms of power and influence within important global institutions such as WTO, the World Bank, the IMF, etc. that can influence global economic variables and power relationships. These unequal economic and other relationships have implied pervasive global poverty, disease, malnutrition, leading to even larger gaps among the haves and have nots. Although there has been some progress, on a macro level, in certain countries such as China and other Asian countries, the situation in some countries has not improved leading to even larger gaps between the very rich and the poorest countries, and even within very many countries not included among the poorest. This is in particular true for those Paul Collier has called the bottom one billion. It is no wonder that according to United Nations Conference on Trade and Developed (UNCTAD): "The share of the developed countries in world income increased from less than 73% in 1980 to 77% in 1999". (UNCTAD 2002). These statistics reveal various facts, including the unequal share of global economic power and a sort of unequal exchange between the rich and powerful on the one hand, and the poorest/less powerful on the other.

Ending the tremendous poverty among the poorest, and the prevalent global inequality of wealth and health, require a sort of redistribution in wealth and economic decision making in global relationships. However, conventional economic theory (i.e. neoclassical economic theory) is silent about a type of redistribution that would make things more equal. Even though economics began partly as a branch of ethics, after all Adam Smith, the father of modern economics was professor of moral philosophy, noted British economist Lionel Robbins, in his famous essay (1935), suggested that it does not seem logical to associate economics, that he viewed as the science of efficiency, with

ethics. In other words, as argued by Nobel Laureate economist John Hicks: “If measures making for efficiency are to have a fair chance, it is extremely desirable that they should be free from distributive complications as much as possible.” It is no wonder that another Nobel winning economist – Kenneth Arrow – once made the statement that: “The essence of economic theory has been the forces of greed and aggressiveness, not the best, but the strongest motives of humanity.” (1974). In fact, according to many conservative economists, including Milton Friedman, market outcomes are conducive to distributive justice. Globally, this suggests that adherence to free trade is also conducive to distributive justice, since, through international markets, it will lead to an efficient allocation of resources. As a normative doctrine, the comparative advantage doctrine that advocates free trade claims in a utilitarian fashion that free trade also makes good sense as good international policy, since more global production and consumption are preferable to less. Of course, comparative advantage and free trade have nothing to say about global equality. This explains why several heterodox economists have tried to argue that free trade is not just, since gains from international trade do not occur on the basis of any ethical principles. Example are Ronald Findlay’s 1982 paper, and the 1986 paper by Elias Dinopovlos and Ian Wooten.

What do we attempt to do in the paper? After discussing global poverty, global income inequality and global health disparity, the paper tries to investigate if various instruments in welfare economics or ethical theories are able to justify a drastic distributional change that would lead to global equality. As we will see, the only theory that comes close to it is the ethical theory developed in John Rawls’ second book, this 1999 book *The Law of Peoples*. Since the theories discussed – utilitarianism, Pareto optimality, the Hicks-Kaldor compensation test, Rawls’ theory developed in his 1971 book *Theory of Justice*, Amartya Sen’s capability approach and even Rawls’ principles developed in his 1999 book – are not totally satisfactory, attempt is made to develop principles that can justify meaningful redistribution of wealth and power. These principles go beyond those developed by Rawls in his 1999 book the *Law of Peoples*.

II – The Unequal Global Economic System

The world economic scene is one of extreme and worsening inequality, with a minority experiencing very high and increasing wealth while a great deal more suffer

intense deprivation. As emphasized by Paul Collier in his 2007 book, *The Bottom One Billion*, poverty is particularly severe for the inhabitants of a group of countries at the bottom that are falling behind, and are often falling apart, facing civil war, disease, and illiteracy. A few statistics would demonstrate these problems. In the winter issue of J.E.P., Timothy Taylor quotes a recent report of the International Food Policy Research Institute which states that: “We found that 162 million people live in ultra poverty on less than 50 cents a day. This is a significant number of people: if all of the ultra poor were concentrated in a single nation, it would be the world’s seventh most populous country... “As it is, the ultra poor are overwhelmingly concentrated in one region – Sub-Saharan Africa is home to more than three-quarters of the world’s ultra poor.”(2008, p. 235).

According to Michael Clemens (Foreign Affairs, 2007), the GDP of 58 countries of the bottom one billion is about \$330 billion. This is smaller than the GDP of metropolitan Chicago. According to Clemens’ calculations, with an optimistic GDP growth rate of 2%, two generations from now the average GDP per capita of those bottom billion countries will be less than US \$3 a day, which is equal to the daily per capita GDP of Honduras and Sri Lanka today.

As emphasized by Ted Trainer (2007), things are bad and are getting worse for the poorest people in the world. For example, while the richest 20% of the world’s population get 86% of the world’s income, the poorest 20% get only 1.3%. In terms of per capita incomes, the ratio between rich and poor in the world is 70 to 1, and, as he argues, it is getting worse. According to IMF sources, for 2009, the per capita incomes of the seven highest countries were:

\$88,717 for Qatar

\$78,723 for Luxemburg

\$53,269 for Norway

\$50,103 for Brunei

\$49,434 for Singapore

\$46,434 for the United States, and

\$42,443 for Switzerland

However, for the lowest seven countries (Niger, Guinea Bisaw, Brundi, Liberia, Congo, and Zimbawei-the lowest among those) they ranged from \$736 to about \$200.

As we see, all the lowest seven are located in sub-Saharan Africa. It is worth mentioning that while in 1950 the ratio of the highest to lowest per capita incomes of different countries was only 20 to 1, for 2009 it was about 440 to 1. And, the distance between incomes for different countries of the richest and poorest countries has also increased historically: 3 to 1 in 1820; 11 to 1 in 1913; 35 to 1 in 1950; 44 to 1 in 1975, 72 to 1 in 1992, and much higher today. Or, in 2009, the sum of the GDPs of 41 countries amounted to less than the wealth of the seven richest individuals in the world. And, while, in 2008 the combined wealth of 497 billionaires-obviously not from the poorest countries-amounted to 7% of total world GDP, the combined wealth of 2.4 billion poorest in the world consisted of only 3.5 percent of total world GDP. Additionally, the lowest income countries only exported 2.4% of total world exports.

Today, half the world's inhabitants have an average income of US \$2 per day. However, for those Collier calls the bottom one billion it is even under US \$1 a day. Interestingly enough, the three richest individuals in the United States have as much wealth as the total amount of income of the poorest 48 countries. And, the 400 billionaires in the United States have as much wealth as half of the world's population.

Another important criterion for making global comparisons of (potential) wealth is access of nations to resources. The rich 20% of the world's people get about 80% of the world's resources produced, their per capita consumption of those resources being 15 to 20 times that of the poorest half of the world's population.

Global inequality can also be demonstrated by emphasizing that about one billion people in the world do not get enough to eat. Or, that one billion people consume drinking water which is contaminated. Or, that more than 30,000 people in poor countries die every day because they are deprived of necessities like food and clean water. In fact, according to the United Nation's Human Development Report, the poorest one third of the world's population is becoming poorer. The reflection of global inequality and poverty is also witnessed in the statistics for the global measures of health. For example, in 2009, the average life expectancy in the world was 67.2 years. However, while for the top five countries it ranged from 82 to 84 years, for the bottom five countries – that include sub-Saharan African countries of Lesotho, Zimbabwe, Zambia, Angola, and Swaziland - it ranged from the lowest of 32.23 years to the highest of 39.97

years. Or, while infant mortality rate (per 1,000) for countries such as Iceland, Singapor, Japan, Sweden, and Norway only ranged from 2.9 to 3.3 per 1000, for the worst countries – that included war-torn Afghanistan and four sub-Saharan African countries of Mali, Angola, Liberia, and Sierra Leone (the worst) they ranged from 128.5 per 1000 to 160.3 per 1,000. (For 2009, for the United States, which ranked 35th out of 195 countries listed, it was 6.3 per 1000).

To those statistics about global measures of health, we can also add that in the world (obviously most in the poorest countries) some 14,000 children die daily due to poverty and malnutrition; that in the poorest countries 1.8 million children die annually due to diarrhea; or that in the poor countries, 2.2 million children die annually because of lack of immunization.

A major claim of the proponents of the present globalization system is that increased integration of the world economy will lead to convergence between rich and poor countries (R. Went, 2002). Went argues that no such convergence is taking place. To emphasize his point that divergence rather than convergence is the rule, Went quotes World Bank's senior economist Pritchett (J.E.P., 1997) that: "Divergence in relative productivity levels and living standards is the dominant feature of modern economic history. In the last century, incomes in the less developed countries (or euphemistically, "developing") countries have fallen from those of the developed countries, both proportionately and absolutely".

We can add that even if some convergence has occurred, it has not benefited Paul Collier's bottom one billion. In the words of Boyer (in Berger and Dore, 1996): "Statistical evidence does not confirm any general and secular trend toward economic convergence in productivity levels and standards of living. Such convergence is restricted to the small club of nations that have been able to invest sufficiently in productive investments, infrastructure, and education. The poorest countries (for example in Africa) have been left out of the process of economic development".

It is no wonder that according to *UN Human Development Report 2005*, only nine countries (or 4% of the world's population) have reduced the wealth gap between poor and rich, while 80% of the world's countries have recorded an increase in wealth inequality. According to this report, "The 2.5 billion people living on less than US\$2 a

day – 40% of the world’s population – receiving only 5% of global income, while 54% of global income goes to the richest 10% of the world’s population.”

Additionally, *the UN Report on the World’s Situation 2005: The Inequality Predicament* identifies non-economic aspects of global inequalities – such as inequities in health, education employment, gender, and opportunities for social and political participation - as causing and exacerbating poverty in the world. This UN report emphasizes the inevitable social disintegration, violence and national and international terrorism that this inequality fosters.

According to the UNHDR 2005, the unjust global trade regime is a primary cause of this increasing inequality. According to this report, greater financial benefits would be imparted to the countries of the South if they were able to trade equally with the countries of the North than the benefits they receive through overseas development assistance. As some have suggested, the North’s agricultural subsidies cost the LDCs nearly as much as the assistance they receive. In fact, even the *World Bank World Development Report 2006* recommends an end to those subsidies and agricultural tariffs in order to create a more even global playing field.

Needless to say income/ wealth inequality and its growth is not confined to the South, since it also exists in more advanced nations, including the United States.

Global income inequality can exist in many forms, including in the forms of unjust prices and unequal exchange. For example, if we accept the definition of just price provided by Nell-Breuning (RSE, 1950) that: “A just price is one which achieves objective equivalence between what is given and what is received,” then one can find many instances in which poorer nations do not receive the objective equivalence of what they provide. One can argue that poor countries’ commodity prices are often subject to this lack of objective equivalence. Various writers - William Krehm (2007), Henry liv (2007), E. Launer (1992), and Chossovsky (2003)-have provided examples of unequal exchange (thus unjust price) in which the LDCs are short changed. The examples provided demonstrate unequal exchange in the case of primary/agriculture products exported by the LDCs; they also demonstrate this unequal exchange (or unjust pricing) for non-primary products exported by LDCs. In these examples, the largest share of the value added goes to the distributors in the more advanced nations.

III - Unitarianism, Welfare Economics, Sen's Capability Approach and the Question of Redistribution.

Making the global economy more equal requires a global redistribution of income and wealth. But can this redistribution be justified ethically?

Among the ethical theories economists have applied to redistribution is utilitarianism. In short, for utilitarians, "an action is right if and only if the sum total of utilities produced by that act is greater than the sum total of utilities produced by any other act the agent could have produced in its place." (Velasquez, 1998).

Economically speaking, utilitarianism has three requirements. First, it is a consequentialist ethical theory, since it requires that actions, like deliberate distributional change in the global incomes, must be judged in terms of their resulting effects. In the words of Johan Graafland, it is outcomes, not process that matters (A. Sen, 2007, p.150). To Sen, the second required element of utilitarianism is welfarism which requires that a state of affair-one that can result from a global distributional changes be a function only of the utility information regarding that state. As Sen puts it: "It excludes all non-utility aspects of the situation." (1987, p.15). The third requirement of utilitarianism is sum ranking, which assumes that one should do whatever maximizes the sum total of utilities. This maximization requires the equalization of the marginal utilities of different persons involved. By assuming diminishing marginal utilities of income across the globe, utilitarianism implies that income should be redistributed globally until the marginal utility from additional income is equal for all persons involved.

Of course, in order to estimate the total welfare gain from an action – in this case global income redistribution – utilitarianism requires that utilities of both the persons who gain and those who lose could be measured, and that the utilities of all persons across the globe could be added. This in turn requires interpersonal comparison of well-being across the globe. As Amartya Sen (1987) has argued, it is difficult to compare the well-being in terms of the desire fulfillment of different persons, since the extent of desire fulfillment depends on the circumstances of the agent.

In order to prevent interpersonal comparison of utility while preserving the possibility of deriving a social ordering of different options at an aggregate level, welfare economics, that branch of economics which is equipped to evaluate distributional changes, has tried to establish a social welfare function that solely depends on the individual rankings. However, this is problematic, since according to Arrow's (1967) impossibility theorem, it is impossible to aggregate individual preferences into a social welfare function for the nation that satisfies a reasonable minimum list of acceptable conditions. If it is impossible to aggregate individual preferences in one nation, in my view it would also be impossible to do it globally.

In terms of the above requirements of utilitarianism, welfare economics has generally accepted consequentialism and formal welfarism but has rejected sum ranking because of the problem of interpersonal comparison of utilities. The response of welfare economics has been the utilization of Pareto optimality as the welfare criterion; a change causes Pareto improvement if it makes one or more persons better off without making anyone else worse off. Pareto optimality then exists if no further changes of this kind are possible. Thus, the Pareto optimality criterion is in favor of the status quo, since all real world situations and actions or policy measures-including global redistributional changes required – will affect the utility of some individuals in a negative way. Thus, it cannot be used as a tool of global redistribution.

To solve the limited applicability of Pareto principle in making policy decisions, British economists Kaldor and Hicks proposed the compensation test, which, in a utilitarian fashion, assumes that a policy change is acceptable if the winners could compensate the losers. According to this principle, the best policy option would be one that has the largest net benefit. As argued by Graafland, the compensation principle provides a justification for cost-benefit analysis in economics – which is the economic way of evaluating a policy change when there is no market for it. For, it imitates the market by measuring the values of the utility of goods and services utilizing a monetary metric for utility. However, utilitarianism, including its cost-benefit version faces problems, making it very difficult to justify international distributive changes. It is not difficult to argue that utilitarianism (thus welfare economics) in all of its three aspects

faces difficulties, thus it cannot be used as a means of justifying global redistribution of income.

What sorts of difficulties do these three aspects of utilitarianism face?. For example, the welfarism requirement of utilitarianism faces several problems.

(1) Well-being is not the only relevant argument in evaluating a policy option, as in the case of Sen's (1987) example of a person who is happy fighting successfully for the independence of his/her country. (2) That utility does not adequately represent well-being, since desire fulfillment depends on the circumstances of the agent. According to Graafland, "Deprived people may come to terms with their predicament and lose the courage to desire a better life by the necessity of survival." (1007, p.162). (3) Welfarism assumes that different values are reducible to one basic value, namely, utility, i.e. that values are commensurable. But, some goods, such as human life, are very high value. (4) Some preferences (like rape) might be morally unacceptable, but conducive to high utility for some individuals who engage in it. (5) Welfarism assumes rationality, even though some individuals might desire something harmful to themselves. (6) Or that individual preferences might ignore community goods.

Utilitarianism's sum ranking requirement too may face difficulties. Because the extent of desire fulfillment depends on the circumstances of the agent, interpersonal comparisons of utility is very difficult. Sum ranking may require measures that people view as unjust; it may also require the accounting of the well-being of future generations, which is difficult to measure and predict.

Sen's capability approach is a type of consequentialism which is viewed as non-utilitarian. Sen's capability approach focuses on capabilities that foster freedom, rather than utility. As argued by Ingrid Robeyns (2005), the core characteristics of the capability approach focus on what people are effectively able to do and to be; that is on their capabilities. This contrasts with other approaches that concentrate on people's attainment of utility, or income expenditure, or consumption. (Ibid.).

To Sen, our evaluations and policies should focus on what people are able to do and be, on the quality of their life, and on removing obstacles in their lives so that they have more to live that kind of life. (Robeyns, 2005). (Sen's capabilities approach has also been utilized by Martha Nussbaum in developing a sort of theory of justice). To

Sen, only the ends have intrinsic importance, where as means are instrumental to reach the goal of increased well-being, and development, although sometimes ends become means to other ends.

For Sen the end (well-being, justice or development) should be conceptualized in terms of people's capabilities to function, i.e. beings and doings that Sen calls functionings. To him, functionings include working, resting being literate, being healthy, being part of a community, being respected, etc. (Robeynes, 2005). For Sen, the distinctions between functionings and capabilities is between achievements on the one hand, and freedoms or valuable options a person has to choose on the other. The capability approach evaluates policies according to their impact on people's capabilities. As such, it may not very useful in evaluating distributional changes that would make the global economy more equal and just.

IV – Rawls' 1971 and 1999 Works and Justification of Global Economic Redistribution

Rawls published his *A Theory of Justice* in 1971 (revised in 1999). This work was guided by the question: "What is the most appropriate moral conception of justice in a democratic society." (Freeman, 2003). According to Samuel Freeman, in the seminal work, Rawls "posed this question as part of a more general inquiry into the nature of social justice and its compatibility with human nature and a person's good." (Ibid). As an alternative to utilitarianism, Rawls, drawing on the social contract tradition, developed a conception of justice that is highly Kantian in nature. As argued by Freeman, according to this conception, justice generally requires that basic social goods – liberty and opportunity, income and wealth, and the bases of self-respect – be equally distributed, unless an unequal distribution is to everyone's advantage." (Ibid). Rawls, in that book, developed two principles of justice. These two principles require that certain important liberties be provided equally for all, that these basic liberties have priority over aggregate social welfare and perfectionist values, that fair opportunities be provided equally for all citizens (first principle) and that differences, in income and wealth and in social positions

be structured so as to maximally benefit the worst off members of society (difference principles).

Rawls' first principle, the principle of equal basic liberties, according to Freeman, parallels J.S. Mill's principle of liberty, in that it is conceived as defining constitutional limits on democratic government.

It is the second principle that deals with the question of distributive justice. For Rawls, economic rights of property and contract are institutional and not conventional. Rawls refers to an ideal of social cooperation where institutions are designed to benefit everyone on a basis of reciprocity; the role of his difference principle is to define this ideal of reciprocity. According to Freeman, "The institution of property is justly ordered when it is part of a social and economic system that specifies property relations so as to make the worse-off class better off than they could be under the institutions of any feasible alternative economic system (subject to the conditions that equal basic liberties and fair equality of opportunities are always maintained) (Freeman, 2003).

According to Rawls, from the standpoint of justice, the worse off are the poorest among us, and not necessarily the unhappiest (as in utilitarianism) or the most disabled physically or mentally (as in Sen's capability approach).

For Rawls, the two principles of justice cannot be justified in isolation from one another; both basic liberties and a social minimum – a basic social entitlement to enabling resources such as income and wealth – are interconnected.

Rawls advocated an alternative ethical theory (to utilitarianism) that would be capable of grounding principles of justice. To him, a shared conception of justice is important for a society (Graafland). For this reason, he developed a social contract procedure to determine what principles a group of persons would choose. For him, individuals are in an original position in which they have no information about the position they will have themselves in the real world. In other words, they are behind a veil of ignorance: "each person is ignorant of his or her particular situation in society....." (Graafland). The idea of the hypothetical original position is to set up a fair procedure so that any principles to assign rights and distribute benefits agreed upon in this position will be just.

To Rawls, the persons in the original position are mutually disinterested and rational. Thus, agents would take the most effective means to given ends. These rational individuals are aware of the presence of primary social goods.

To Rawls, under two conditions individuals in society will unanimously agree to both of his principles of justice. It should be noted that in his *A Theory of Justice*, Rawls was not interested in the justice among nations. Rather, as argued by Graafland: “Rawls developed his theory to derive a conception of justice for one society in a situation of moderate scarcity and isolated from other societies. The assumption of moderate scarcity has the effect of assuming that everyone’s subsistence is taken care of” (p. 200). It was only in a later book that Rawls dealt more explicitly with justice among nations (Ibid).

Does Rawlsian ethics apply to the case of economic justice among nations? As stated before, in his *The Theory of Justice* (1971, 1999) Rawls developed his theory of justice to be applied to a society which is isolated from other societies (i.e. a closed economy/society). This, obviously, implies the inapplicability of the Rawlsian difference principle to the world economy. Of course, in spite of that fact, as we saw with Findlay (1982) and Dinopoulos and Wooton (1986), still some theorists have tried to apply it to the global economy and its inequalities. However, in his 1999 book *The Law of Peoples*, Rawls extended his theory of justice to the global society. In his 1999 book, according to Graafland, Rawls “develops a political conception of rights and justice that applies to the principles and norms of international practice” (p.206). What is worth noting is that what he develops only applies to well ordered societies, excluding what he calls outlaw states and societies burdened by extremely unfavorable conditions. In spite of this improvement over his concept of justice developed in *The Theory of Justice*, what he developed in *The Law of Peoples* is still limiting, since many nations/peoples excluded from its realm of application are the poorest and are, according to Collier, burdened by various traps including civil wars, plague, and illiteracy (2007). Following Kant who rejected a world-government, the Rawlsian global society in *The Law of Peoples* consists of various independent societies, and not a utopian world government (1999, p.36 and 48).

In *The Law of Peoples*, Rawls also applies the original position and the veil of ignorance to the global situation. But, instead of dealing with the citizens of the various countries, his agents are peoples' representatives. The representatives subject to the veil of ignorance, among other things, do not know, for example, the size of their country, their country's population, the extent of their natural resources, or the degree of their country's economic development (p.37). Using the veil of ignorance and the original position, Rawls develops eight principles of justice among peoples. For example, according to principle (1) peoples are free and independent, and their freedom and independence are to be respected by other peoples; according to principle (3) peoples are equal and are parties to the agreements that bind them; according to principle (6) "Peoples are to honor human rights"; and according to principle (8) "Peoples have a duty to assist other people living unfavorable conditions that prevent their having a just or decent political and social regime". But would undemocratic leaders of certain nation-states also come to the same conclusions?

What does *The Law of People* imply for distributive justice between peoples? Although there are similarities with what he developed in the *Theory of Justice*, the concept of the difference principle in *The Law of Peoples* differs from what it was in *The Theory of Justice*. In *The Law of Peoples*, the duty of assistance is satisfied if all people have an ordered society; it does not matter how great the gap between rich and poor may be. In other words, Rawls rejects "an unqualified global egalitarian principle" (Graafland, p. 208). Rawls advocated assisting burdened societies to become full members of the world community and to be able to determine the path of their own future for themselves. Thus, it is a principle in transition since duty to assist ceases once the goal has been reached. To Rawls, burdened societies are those whose historical, social, and economic circumstances make their achieving a well ordered situation difficult. In the words of Graafland: "Rawls' concept of global distributional justice shows that he does not believe in the cosmopolitan view that considers all individuals equal, world-wide, without regard to the societies in which they live" (p.208).

V – New Principles to Improve the Rawlsian Principles of International Justice

Beginning with the 1955 Afro-Asian conference in Bandung, Indonesia, through various UN conferences on trade and development, as well as through the Non-Aligned

Movement, etc. advocates and representatives of the LDCs have asked for more justice in international economic matters. As early as 1974, the advocates of the Third World at the UN (through a resolution) emphasized the existence of global injustice in the world economy by declaring that: “The gap between the developed and the developing countries continues to widen in a system which was established at a time when most of the developing countries did not even exist as independent states and which perpetuates inequality.”

This suggests that the type of “veil of ignorance” and “original position” advocated by Rawls in *The Law of Peoples* has never been applied to the global economy and its relations (including those of the GATT and WTO). Although the above-mentioned principles developed by Rawls provide an improvement over the present global economic system, starting with the veil of ignorance and an original position, we can develop other principles that can lead to a more just global economic structure. Development of such principles is what we will do in the remaining of this section.

We first need to know what is justice and what is meant by distributive justice. According to ethicist Miller (1976), distributive justice implies “giving to each his due” (1976). As suggested by Findlay (1982), there exist three grounds for each person’s due. The first of these, advocated by conservative philosophers Edmund Burke and David Hume are rights – as positive or ideal. A second one is justice as desert which emphasizes contributions, either on the basis of labor alone (Aristotle or Marx), or on the basis of contributions of all inputs to be found in the views of economist J.B. Clarke and other proponents of marginal productivity theory of distribution. The third one is justice as need, reflected in Marx’s “To each according to his needs”.

Even ignoring justice as need, which would call for more drastic global income redistribution, what should matter is objective equivalence which would become possible only if procedures are just. Abba Lerner once stated that: “An economic transaction is a solved political problem. Economics has gained the title of the queen of social sciences by choosing solved political problems as its domain” (AER, 1972, p.269). This suggests that, domestically or globally, we should not ignore procedures, namely rules, laws, and institutions within which (in our case) international exchanges are allowed to take place. These rules and procedures are needed to guarantee justice as right and justice as desert.

Although globalization is expanding, there is no sign that the nation state is disappearing. Given that the nation state is not disappearing, pure procedural justice requires that actors in the global arena must agree on rules and procedures of international exchange. Given the unequal amounts of economic and political influence and clout, and military power among nations, procedural justice requires a veil of ignorance in the original position. Since there is no world economy in the above-mentioned Kantian sense, the agents involved are representatives of the nation-states whose selection also reflects the same democratic procedure. In other words, representatives of all nation states must truly reflect the true interests of their peoples.

Using the nation states as agents makes the assumption of rationality of agents easier to achieve, and because there exist much fewer nations-states than their populations, coming up with a veil of ignorance driven social contract is a lot easier. The global social contract proposed in this paper (and which complements some of the principles developed by Rawl's in *The Law of Peoples*) will involve the following principles.

1. Principle one: Justice requires the exchange of equal values and burdens in international transactions.

Obviously, this principle will make the law of comparative advantage and international prices obsolete, since global laws of demand and supply, reflecting ability, desire, and scarcity, do not necessarily reflect international economic justice. This, of course, requires that economic justice is also maintained within each nation state. Instead of international equilibrium price, we should be using reference prices that would reflect what goes into the productive process, as well as the burden it imposes on both sides of the exchange. Obviously, valuation and calculation of these prices will be difficult. However, difficult or not this guarantees economic justice.

2. Principle two, which requires the sovereign equality of nation states. According to this principle, international exchange cannot be just unless nation-states are sovereign, treated equally by all, and the rules of the international economic game are decided democratically by all participants.

Principle two rules out direct or implicit colonialism and imperialism; it also prevents unequal exchange agreements and practices that reflect the unequal/uneven nature of political, economic and military powers of different nations. Based on this principle, nations have equal opportunity when entering international exchange as well as international organizations – such as the WTO, etc. If domestically democracy implies one person – one vote regardless of the wealth, height, weight, color, gender, and power of individuals - it should also imply the same internationally for the nation-states, so long as nation-states prevail.

3. Principle three, which guarantees that international exchange among nations takes place on a voluntary basis. This principle rules out coercing less powerful nations into accepting involuntary and unequal exchange relations. If democracy dictates that individuals within nation-states cannot be coerced into entering exchange relations, particularly if they are unequal, nations should also not be allowed into involuntary and unequal exchange relations.

Achieving these three might be utopian. Applying them to the world economy or not, they demonstrate that it is neither just nor equal.

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Sustainability and Natural Resources

Opportunities of Sustainability in an Era of Global Crisis

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Abstract

The paper explores the issue of **Sustainability**. Where we are in terms of **Sustainability and Sustainable Development** in world figures, what are the obstacles to its development, what can we do, and most importantly, what are the opportunities in this emerging theme. Starting by defining **What is Sustainability and Sustainable Development**, we will consider **Sustainability** in a overall perspective to realize where we are in this subject, talk through simple questions that each individual can do, what we can do together, to get to the opportunities of **Sustainability**. We will also dissect the issue of **Sustainability**, realizing that it is an issue that goes beyond the environmental, economic and social issues. It is a set of all these. As we live in an increasingly globalized society, issues such as sustainability also tend to a framework of issues and not just individual issues. Questions like these are increasingly interconnected and should not be considered separately. Finally, in this times of global crisis, there are more opportunities in the most simple and direct things than we imagine.

So we will reach the **Opportunities of Sustainability in an Era of Global Crisis**.

Introduction

What is Sustainability? The concept originally surfaced as Sustainable Development, in the Brundtland Commission report (1987), issued by the World Commission on Environment and Development (WCED), an entity created by the United Nations in 1983. In the report, Sustainable Development emerged as «the needs of the present generation without affecting the ability of future generations to meet their» (WCED, 1987). This was the setting 23 years ago, but in essence it remains very current. And in this time of crisis becomes increasingly less an option and increasingly more a necessity. A systemic concept, a very good basis to start with...

In that time as today, the term or concept Sustainable Development can mean different things to different people. But, in essence, «Sustainability is the principle of ensuring that our actions today do not limit the range of economic, social, and environmental options open to future generations» (Elkington, 1999).

Nowadays, Sustainability is much more than a simple definition or concept. The development of this issue led to the emergence of additional settings that come to add something more to the original concepts, reflecting their adaptation to changing society, business, education, etc. I highlight some of them like the "Triple Bottom Line"⁶, a term also known as “people, planet, profit”, although all ultimately will reach the same end, what can be defined as the Sustainability pillars, the Sustainability dimensions, the Economic, Environmental and Social dimension.

The Economic dimension refers to generate prosperity in different levels of society and make efficient economic activity. It refers to organizations viability and their activities in generating wealth and promotion of quality employment. The Environmental dimension refers to conserve and managing natural resources, especially those who are not renewable and are fundamental to support life. Requires actions to minimize air pollution, water and soil, preserve biodiversity, protect and improve environmental quality and promote responsible consumption. Finally, the Social dimension refers to respecting the human rights and equal opportunities for all individuals in society. The promotion of a more just society, social inclusion and fair distribution of property with a focus on poverty elimination. Concern by local communities, in particular, recognize and respect cultural diversity and avoid all forms of exploitation. Following this we can summarize the broader concept of Sustainability or Sustainable Development. Thus, in a more comprehensive point of view, Sustainable Development therefore involves:

- A broad view of social, environmental and economic outcomes (triple bottom line);
- A long-term perspective, concerned with the interests and rights of future generations as well as of people today (following the original concept);
- An inclusive approach to action, which recognizes the need for all people to be involved in the decisions that affect their lives (a proactive perspective).

⁶ A term coined by John Elkington in 1994, the founder of a British consultancy called SustainAbility, more details at: <http://www.johnelkington.com>

Sustainability Today

As said before, evolved to the Triple Bottom Line (TBL), and it's much more than a simple concept or definition. But not everything is great. There are still many obstacles towards Sustainability in nowadays. Still means different things to different people. But today people in general are more aware about these themes. Let's see some numbers. In a Weber Shandwick survey of 8.000 consumers indicates that 80% of high education/high income people in the USA have considered switching brands, when a company was negatively portrayed in the media, in respect of Social Responsibility issues. If we turn to Europe, in Germany we've got a 75% rate, in the UK a 66% and in Italy a 42% rate. This was in 2001. Just imagine today's numbers.

And things are really changing. In another point of view, if we look to the sites of three top American companies, we can see already something. Microsoft corporate site has a section dedicated to Environment Sustainability. Wal Mart has a special section of Sustainability. Apple has a section named Environment, and describes the impact of Apple itself in the environment and what they are doing to make it better.

Let's see now the colleges and universities market. In the US we can find a great initiative called the College Sustainability Report Card, where we can see the profiles and indicators of the 300 major universities in the US and Canada. There's an regular evaluation of sustainability efforts made by the institutions and then the information is posted. There are many facts that we can look in and take conclusions by ourselves. For example, if we look at the 26 Sustainability Leaders of the report, we can find universities as Yale, Harvard, Stanford and others, with an overall value of "A-". But we find that MIT is not one of the leaders, it has a "B+". One of the things important on a Sustainable process is keeping track of the evolution, and in College Sustainability Report Card we can see data from 2007.

Let's get to it...

So far we have seen a little of Sustainability and Sustainable Development, which may be seen as the balance between the Economic, Environmental and Social aspects in any activity. We also found previously that value creation is a fundamental aspect of a strategy or process of Sustainability, but this requires an integrated management of social,

environmental and governance, working as a model of government that can identify both the risk factors and opportunities associated with the activity. For an organization that can identify risks and opportunities must be able to dialogue with its stakeholders, understand their needs and expectations so that with them, can identify strengths, weaknesses, opportunities and threats (SWOT). The involvement and collaboration with stakeholders enables organizations to improve the way they identify the risks and opportunities they may face. At the bottom line, Sustainability involves the integration of a Sustainability strategy by organizations, and will involve, in addition to dialogue with stakeholders, also the involvement of the entire structure, all employees, as well as the integration of Sustainability in the model of government organization.

Still on the issue of dialogue in the business world it's becoming increasingly a trend and a necessity the issue of the Sustainability report. This is illustrated primarily by sustainability reports published by companies, in a significantly increased manner. Besides spreading the word on their performance according to defined indicators, the intention of the companies, in general, was mainly to improve its reputation and brand image, but the trend is increasingly to use the sustainability report as a strategic element in both the relationship with stakeholders, such as communication support for the exterior, beyond implicit gains in reputation and brand image, but also in attracting investments and synergies.

Besides these aspects and considerations, we can also look for Sustainability strategies at the individual level or the individual itself, or in a personal level. We can say that it's possible to have individual Sustainability strategies, the same way we have Personal Marketing we can have a Personal Sustainability Strategy. This personal strategy can be integrated in a wider one, like a group or community with the same objectives, or simply solo strategy. One of the advantages of Sustainable Development is the possibility of working at different scales, from the individual level to a larger scale, multinational or even global.

As already mentioned, Sustainability not only can make proactive research improvements at all levels, but first, lets you correct mistakes, failures, problems, both structural, procedural, logistical, and many others. But the great advantage of Sustainability is the perspective with which one can face the issues to be worked, such as forms of action

before them. Imagine these examples that might illustrate this idea. For example, doctors in the ER trying to find better ways to treat victims of accidents, which are thrown through the windshield. Here, the problem is not in treatment but in the methods and safety procedures that can prevent accidents or at least the projections by the windshields. Another example: finding a way to reduce the errors of judges in trials, when the best solution is to first reduce crime. That is, Sustainability, and their strategies and methodologies, is normally a more effective and objective way to face problems and difficulties, to correct mistakes and failures. From another point of view, Sustainability allows us to focus on key issues, and even when we don't know what they are, it shows us the path to them. If we want to simplify, if one needs to create value can only move forward and do better than the previous day. Sustainability has also the advantage of being comprehensive, integrating the economic, environmental and social areas. In this last case we could also talk about the concept of Social Responsibility, in a simpler way, or slightly more complex looking for Corporate Social Responsibility (CSR). CSR implies going beyond mere compliance with the law, through increased investment in human capital, environmentally responsible technologies in relation to the stakeholders and the local community. Social Responsibility, whether corporate or not, is a key aspect of Sustainability, and one of the decisive factors in a sustainable strategy

Sustainability Opportunities

Thus, within a theme as broad as this, opportunities may certainly be various. So let's look at some of them. First, we can start by a saving's solution, an example from the University of Wisconsin, proposed by a Dutch printer company, that was simply as changing the font on documents. They showed that by changing the font in university's documents could led to savings of about 20 dollars per year in a printer. One could say that it is a very small saving but if we think that the university has 6500 students that spend about \$100,000/year on ink and toner cartridges we can talk about 5000 to 10,000 dollars/year in savings. It's a simple solution that can go from household to a corporate level.

In computer monitors, sleep modes uses less energy than screen savers. This can save about 70 dollars/year per user. Again, a simple solution. Let's get to Colleges and

Universities opportunities. As mentioned above, and ends up being common sense, many aspects of Sustainability passes by a better focus education, that is, passes by educating people, and what better time to educate this kind of themes than colleges. And people, in general, are very open to these themes. In a British study, called Future Leaders Survey (2007/2008), made with applicants to colleges and universities in the UK, their were made some questions about the future, and some of them about subjects that they could or wanted to study. In the results we can find that 45% of those intending to study education, social sciences, architecture, and building and planning say that a good track record on Sustainable Development was important or very important in choosing where to study. Overall, 46% said that environmental considerations are important or very important when deciding what organization to join.

So, we see that the paradigm shifts may create good opportunities, especially for university and colleges market. Following this idea, if we intend to change behaviors, we will be more effective in younger generations than in older generations, and the best environment for absorbing the knowledge for this thematic is, for sure, in an academic environment. I think it is very clear that if we want to make changes for a better future, although the behaviors have to change in all levels and ages, our focus has to be in younger generations, because it's they that will be around in that greater future. Beyond courses, in Colleges and Universities, in Higher Education, the disciplines and subjects around Sustainability and Sustainable Development have many applications. Because it is a very dynamic theme or concept, it can be applied in many ranges of courses in Higher Education. For example, we can see Sustainability on alternative energies research in engineering, sustainable construction in architecture and engineering, sustainable urban solutions in architecture, sustainable design solutions, sustainable marketing and communication, and so on.

But beyond the Higher Education market there are many more opportunities, for example, Sustainable Mobility. In this subject we can group some different areas, energy, eco-efficiency and mobility. We've been hearing, but still not enough, there have been some projects from the automobile industry for alternative fuels cars, as the electric cars, that if applied in a larger scale could change our life for better. But this electric mobility doesn't bring opportunities only for carmakers. Let's think that the electric cars need a

good network of electric stations where they can refuel. For example, the highways can take a significant role in this equation, as they can explore the production of electricity and sell it in service stations. Harnessing the potential of solar and wind power, they can create service stations that can produce energy and sell it at the same time. It's a big opportunity and if the companies that explore the highways would explore too this kind of opportunities, for sure that the carmakers would invest more in cars with alternative fuels.

In Sustainable Mobility issues are focus on studying solutions for cleaner transport and mobility and energy efficient, with a greater focus on urban mobility, since there are more urban opportunities for synergies and partnerships, with the involvement of various partners and entities. These solutions are equally viable in large transportation networks, such as highways. In this last, partnerships and opportunities arise not only with the highway concessions, the companies exploring the roads, but with the various regional or local communities. The impacts of urban mobility and other types of mobility are different. In Sustainable Mobility issues are more focused on cleaner fuels and vehicles; traffic management, public passenger transport, freight transport, and lifestyles less dependent on cars.

Another opportunity is related to the movements called "Quality of Life." Some people like to name this theme "Sustainability 2.0". Basically these movements include people who seek quality of life, linked to welfare, environment and sustainability, what we can call a sustainable lifestyle. These are people who are characterized from a frenzied consumerism to a more conscious consumerism, citizens increasingly expecting more and regular information of its brands and companies behind them, and finally characterized with a cynicism and even hostility toward marketing and sales. With the spread of issues such as climate change, nature protection, recycling, among others, leads people to become increasingly inclined, more sensitive and alert to these issues. Other opportunities can be found in issues related with ethics, codes of conduct and some other legal or moral subjects. This is a more complex area, but an opportunity as well. Many other opportunities could be found just by thinking, planning and executing Sustainability strategies, in any level. But as the process itself, the opportunities will be

found within the strategy, within the research process, in sustainable way. Fortunately we are not in the beginning of this, but much more has to be done.

Finally, it's understandable that these kind of issues are very complex to work on, but it's not very hard, because the basis of it all it's just common sense. We need to survive, we want to live on a better place, and we need to preserve what we have. But we have to act on that path. Sustainability, in general, it's not only good intentions; we have to work, act and intervene in our society, in our community, in our family.

But there is a lot to discover, there is a lot of information on the internet (I have some examples of good sites in the end of this paper) and published books. The important part of all of this, in this Era of a Global Crisis, is to act, firmly, but act swiftly, objectively and in a decisive way, and Sustainability can help anyone in this task, and you can help by being a more sustainable.

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UNEP Finance Initiative – Innovative financing for sustainability

www.unepfi.net

World Business Council for Sustainable Development

www.wbcsd.org

Global Reporting Initiative

www.globalreporting.org

Greenbiz.com - Business voice for the green business

www.greenbiz.com

United Nations Environment Programme

www.unep.org/themes/biodiversity

Sustainability in Construction – Promoting Sustainable Competitiveness in Construction

www.sustainabilityinconstruction.org

Responsible Investor

www.responsible-investor.com

Electric Mobility Experience

www.electric-mobility.com

Animals & Natural Resources

Global Warming and Windmills: Attitudes and Objections of People in Northeast Pennsylvania

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Abstract

As global warming continues, it is increasingly important for us to find methods of producing electricity from renewable resources. But people's attitudes change slowly and many people are reluctant to accept the premise of global warming or to accept new ways of meeting this challenge. Proposals for increasing the construction of windmills in the Northeast Pennsylvania Area have been made and they have oftentimes been met with objections. Indeed, many people continue to use coal to heat their homes (including new, recently installed, heating systems).

This is an empirical study of people's attitudes towards global warming and methods of generating electricity, with specific attention given to attitudes towards windmills. A questionnaire was developed intended to assess these attitudes including objections to renewable sources of energy and sensitivity to changing methods of supplying home energy. At present, there are 150 respondents and we hope to increase this number before analyzing the data to make conclusions.

Introduction

Windmill generated power might be viewed to be a viable energy source as an alternative to non-renewable and polluting sources such as coal and oil, albeit a controversial alternative. Windmills are opposed for a variety of reasons, including aesthetics, noise, hurling ice, and endangering birds and other wildlife. The question posed by this project is whether the opinions voiced by the most vocal protesters is typical of the population at large, or are the protesters atypical. The research presented is exploratory in nature.

Background

A windmill is a rotating machine that takes the wind's energy and converts it into electrical energy. Windmills have been used for irrigation pumping and for milling grain since the 7th century AD. Modern windmill towers are made of steel and they are tubular in shape, while the blades of a windmill are mostly made of fiberglass-reinforced polyester. Today the United States produces 31,000 megawatts in wind power alone with 1.2% of the electricity produced in the United States comes from wind power and most of this comes from mid-western states.

Current Research

There are many different groups around the world promoting the idea of wind generated energy. A familiar committee associated with the United States is "Wind Powering America" which wishes to increase use of wind energy in the United States while focusing on the positive benefits that come along with it. They cite such positive benefits as new sources of income for those using this source of energy as well as meeting energy needs with a cleaner source of electricity. In addition, Wind Powering America not only wishes to increase energy provided by wind, they wish to protect the local environments of the United States and enhance our power generation options.

Global Warming

Wind provided energy is cited as a quick and relatively inexpensive way to convert to renewable energy technology. Not only will wind energy cut back carbon dioxide emissions, it will also cut back health care costs. There was a study done on the effects of air pollution from a fossil-fuel-fired power plant in MA at the Harvard School of Public Health a few years back and the data they collected was quite astonishing. It suggested that the air pollution of a power plant alone caused 159 premature deaths, 1,710 emergency room visits and a shocking 43,300 asthma attacks. Wind supplied energy would eliminate this hazard.

Attitudes

With regards to wind turbines and the people in the community surrounding them many concerns seem to arise. One major concern is over the level of noise these turbines generate. This concern is understandable the noise produced by early turbines was so loud it could be heard nearly a mile away. This problem was quickly addressed and manufactures were able to re-develop the wind turbines with a lower level of noise. In reality the noise is so low that it is barely even noticeable as compared to a typical power plant.

Another concern people in the community had was the impact of wind turbines on the value to their property. A study was conducted that surveyed properties near wind turbines with the conclusion that wind turbines in the area did not affect the values of the property. As a matter of fact, the values of the property increased in some instances where turbines were present.

Lastly, people were unsure and doubtful about wildlife and wind turbines. The thought of flying birds and a huge turbine turning left people to believe that lead to many animal deaths. Surprisingly enough, wind turbines are less harmful and killed fewer birds than radio towers, airplanes and tall buildings.

Survey

The primary purpose of this survey was to ascertain the general attitude people have towards the use of windmills to generate electrical power. Therefore, the majority of the items were attitudinal in nature, specifically about positive or negative traits that people may feel windmills possess and their impact on the environment. There were also a few questions about specific dangers that people sometimes perceive to be inherent in windmills and which form many of the arguments against their use.

Since the issue of the use of renewable sources of energy is related to the concept of global warming and because other resources are typically used to generate electricity we included a few items to measure: 1) respondents' belief in global warming and 2) respondents' beliefs about the favorability of various forms of generating electricity. Additionally, we included a few demographic questions that might be useful in further describing people with favorable or unfavorable attitudes towards windmill power.

Sample.

The sample was composed of 185 people primarily living in the North East Pennsylvania area with a few respondents from the Philadelphia area or New York and New Jersey. This was a non-probability sample; however, the demographics show that it was reasonably well distributed. 50.8% were female, 49.2% male, average age was 39 with a range of 16-93. Finally, respondents were asked their occupation and for analysis, were placed into categories of ‘white collar’, ‘blue collar’ or ‘not working’ (primarily students and retired people). There were too few respondents in the ‘not working’ category for statistical analysis.

Survey Results

The attitudinal questions were Likert-type on a scale of 1-7 where 1 is “completely disagree” and 7 is “completely agree”.

Attitude towards global warming.

Respondents were first asked four questions involved with the concept of global warming.

“Global warming is a serious problem.” The mean score was 5.16

This result shows widespread agreement about the seriousness of global warming.

“Global warming is caused by using mineral resources.” The mean score for this was 4.72

While most people accepted the proposition that global warming was a serious problem, fewer accepted that it was caused by the use of mineral resources. Nevertheless, in the next two questions it appears that there is strong support for reducing the use of mineral resources and for the increased use of renewable resources.

“It is important to reduce dependence on mineral resources”. The mean score was 5.29
“Renewable energy resources protect the environment.” The mean score was 5.27

The four questions above about global warming were examined for reliability using Cronbach’s Alpha (.833). Factor analysis showed that they formed a single factor. So the four questions were made into a summary statistic and examined with regard to gender, age and occupation to see if attitudes towards global warming were related to any of these demographics.

An independent samples T-test showed no relationship in attitudes based upon gender. A regression was performed using age as the dependent variable. It showed no relationship with attitudes towards global warming. Finally, an ANOVA was performed to see if occupation had an effect on attitudes. It was also not a significant factor.

Preference for different methods of generating electricity.

Selecting methods of generating electricity involves trade-offs. And there may be historical/cultural attitudes predominate in North East Pennsylvania about the use of coal. So respondents were asked to rate on a 1-7 scale their degree of preference for various methods of generating electricity. 1 = least preferred and 7 = most preferred.

The type of fuel and the mean score for each on a 1-7 scale is given.

Coal	4.11
Nuclear	3.55
Natural gas	4.74
Solar	5.23
Wind	5.15

On a 1-7 scale a 4 is seen as neutral. So it can be said that there is a negative attitude towards the use of nuclear energy and the attitude towards coal is modestly positive. And

respondents were much more positive towards the use of the renewable resources solar and wind.

Independent samples t-tests were performed to determine if there was a relationship between gender and preference for methods of generating electricity. No significant relationships were found except that males had a slightly more favorable opinion about the use of nuclear power than females ($t=2.35$, $sig.=.020$).

Attitudes towards windmills.

The remaining questions were specifically about attitudes towards windmills. The attitudes expressed were generally positive. These, again, were Likert-type questions on a 1-7 scale where 1=completely disagree and 7=completely agree. Therefore, a response of 4 is neutral and 5, 6 and 7 are positive 1, 2 and 3 are negative,

“I know that windmills are a good thing.”

63% agreed while 13% disagreed with the statement.

“Power generating windmills are effective at reducing dependence on mineral resources.”

64.9% agreed while 11.5% showed some disagreement.

“Windmills take away more than they contribute”

This reverse-ordered question found substantial disagreement. 67% disagreed while 16.3% agreed that windmills hurt more than help.

“Windmills nearby will have a negative effect on the community.”

A consistent issue with windmill construction is that people do not want them close to where they are. The response to this question shows that opposition is not so great. 66%

feel windmills will not have a negative effect on the community while 15% feel that it will.

“A large number of windmills would be very disturbing to me.”

While still favoring windmills, opinions were more evenly divided on this question. 54% said that a large number of windmills was not disturbing to them while 27% agreed that a large number would be disturbing. Perhaps moderation in numbers would be advisable if a wind farm was proposed to be near populated areas.

Two non-Likert questions were asked about two frequent objections to windmills, that windmills are dangerous and that they will damage the beauty of the landscape.

“Do you believe that windmills are naturally dangerous?”

Responses were:

Definitely – 1.3%

Probably – 8.5%

Don't know – 24.2%

Probably not – 37.3%

Definitely not – 28.8%

“How much do you believe windmills damage the beauty of the landscape?”

Responses were:

Very much – 10.6%

Quite a lot – 15.3%

Only a little – 42%

Not at all – 31.6%

These two questions appear to show that few people actually see windmills as dangerous while more but still a large minority see them as ugly. Again, the second question seems to indicate that moderation in numbers around populated areas is the preferred route in their development.

Conclusion

This was a pilot study to assess people's attitudes towards global warming, sources of generating electricity and, particularly, towards the use of windmills to generate electricity. The general conclusion from this study is that people accept that global warming is real and have little opposition to the use of windmills to generate electricity.

As a pilot study a convenience sample was used to gather data. Therefore, we do not offer definitive statements about the findings. Rather, these findings ought to be used to develop a study offering a better sampling plan. For instance, a stratified sample could be used to further investigate the attitudes of people who are located near where windmill projects are presently located or proposed compared to attitudes of people who are far removed from such places.

Additionally, the demographics of gender, age and occupation did not succeed in finding meaningful differences in attitudes towards either global warming or the use of windmills to generate electricity. There certainly are some people who object to, and conversely support, the existence of global warming and the use of windmills, but demographics or other variables than those used in this study must be used to further identify these groups.

An interesting finding is that many people seem to agree that global warming is real and that there should be greater use of renewable resources. But, while strong overall belief in warming, there is less support for the proposition that it is caused by the use of mineral resources. It is possible that if the question was broken down into parts such as 'burning coal' versus 'burning oil' versus 'burning natural gas' the responses would be different. Natural gas was rated more favorably than other mineral resources. It also might be interesting to better understand the people who believe that mineral resources

do not cause global warming. The demographics of age, gender and occupation did not reveal such tendencies.

It may also be notable that the scores for respondents in the neutral category to many questions were in the 20-27% range. This may indicate either a lack of knowledge or lack of interest in the subject of windmills or global warming in general.

In general, this study supports the propositions that people recognize global warming as real and important. People show a preference for renewable resources to generate electricity although they are not negative to natural gas and are slightly positive towards coal. But they are more negative towards nuclear power. Again, the respondents are primarily from North East Pennsylvania where coal is common and nuclear power is currently used to generate electricity. Consequently, these responses may not be typical of the nation overall.

Finally, in regard specifically to windmills, people are not very negative and are, in fact, generally supportive of windmills. The note of caution is in the number of windmills constructed in populous areas. The weakest support for windmills came in the question dealing with large numbers of them in an area. Aside from this, windmills are seen as a positive method for generating electricity.

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Fish Farming: Friend or Foe?

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Abstract

Fish farming currently account for approximately 47% of all consumed fish, which is a dramatic increase over the past twenty years. Problems such as mixing of farmed with wild fish, transgenic fish, disease, pollution, antibiotic resistance and regulations are addressed. Positives such as malnutrition alleviation and economic empowerment could occur as a result of fish farming. Hopefully, the entrepreneurship shown by fish farming will be a positive response overall to our era of global economic and financial crisis

Decline in wild fish populations

Due to the drastic decline of fisheries as is seen through decreased harvest yields from commercial fishing, fish farming has been touted as an urgent remedy to continue providing an important food source. Fish have been farmed for centuries, but fish farming has witnessed a marked increase because of this wild fish decline. Hopefully, the entrepreneurship shown by fish farming will be a positive response overall to our era of global economic and financial crisis.

Increase in fish farming

Aquaculture has grown by 8.8% per year since 1970, and 47% of the fish consumed by the world is farmed and had a value of \$78 billion in 2006 (Nomura 2009). Shrimp farming, the most lucrative,

has increased by over 500% from 1984-1995. (Grislund and Bengtason 2001). The United States paid \$3.7 billion for farmed shrimp imports in 2004. Thailand, China and Viet Nam were the main suppliers, followed by Bangladesh, Mexico and Indonesia. However, the US does export specific-pathogen free (SPF) brood stock that has been used to replenish the Asian industries that are sometimes fraught with disease. Tilapia and carp are also big Asian products, even though tilapia originated in Africa. Tilapia is also produced in quantity in South America, and, globally, is a bigger export than carp. Both contribute about 80% to inland fisheries (Nomura 2006). Salmon farming has increased three-fold from 1985 to 2002, with the major producers being Norway, Chile, the UK and Canada. Worldwide, this produces revenue of \$3.5 billion (Le Curieux-Belfond et al. 2009). Sea bass and sea bream farming have increased in Europe since the 1980's (Vale et al. 2007). Although relatively small in number, an area of particular interest to the author (Nolan et al. 2000) is sturgeon farming. Since wild sturgeon have now been listed on the Convention on International Trade in Endangered Species (CITES) list, (<http://www.cites.org/eng/resources/species.html>) they have continued to be caught in the Caspian Sea because of their flavorful and much prized and expensive eggs (caviar). However, since sturgeon need at least seven years to reach reproductive age, they are not replenished quickly. Thus they have become endangered through non-sustainable fishing practices. However, farmed sturgeon may

provide the answer to this dilemma, both by replenishment of wild stocks with farmed (Nomura 2006) and/or by providing farmed caviar of valued species, as have recently been farmed in California (see Figure 1).

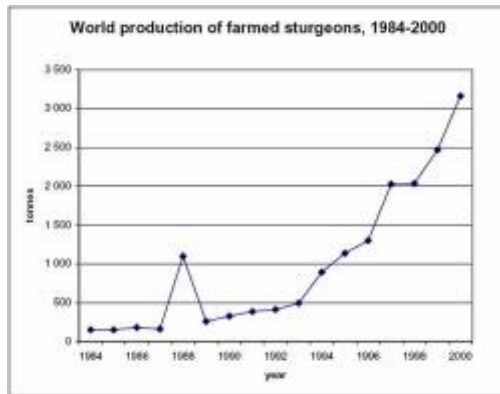


Figure 1. :World production of farmed sturgeon 1984-2000.

www.fao.org/docrep/006/y5261e/y5261e06.htm

Economic projections of fish farming

As technology improves, the world population increases, overfishing of wild stocks continues, and demand for high-quality protein continues, fish farming should continue to be a viable choice.

Types of fish farming habitat

There are three key types of fish farming habitat: salt water or marine in which salmon is the most prevalent fish which is raised in cages. Brackish water, which has a salt concentration that is in-between marine and fresh water, is used to farm mainly certain types of shrimp. Fresh water is used to farm carp, tilapia, some types of shrimp and channel catfish. Carp, tilapia and shrimp are raised primarily in Asia, and channel catfish are raised in the United States. An example of a real success story (Brian Nolan, personal communication) is the ponds of tilapia in Ecuador established by the company Tropical Aquaculture. John Schramm, the CEO, started the company when commercial fishing off the coast of Maine was not giving him the results he desired. Brackish and freshwater fisheries utilize ponds and raceways (Nomura 2006). Fish are also farmed in varying densities; tilapia is chosen because it grows well in high densities.

Mixed and polyculture

Many fish farmers are experimenting with culturing more than one organism together. The waste of one fishery can be used to feed the other culture. This makes for a more sustainable practice. For example, Tian et al. (2001) experiment with various concentrations of shrimp, tilapia and the clam-like tagelus to obtain the results shown in Table 1. The optimum results (densities) are show in line 2. A lower ratio of tilapia to tagelus gave the best yields overall.

Shrimpm²	Tilapia	tagelus
7.2/m ²	0	20/m ²
7.2/m²	.08/m²	14/m² (the best)
7.2/m ²	.12/m ²	10/m ²
7.2/m ²	.16/m ²	7/m ²
7.2/m ²	.24/m ²	0

Table 1. Various densities of shrimp, tilapia and tagelus per meter squared.

Frei et al. (2007) performed an experiment in which they found that when both tilapia and carp are reared together on a farm in Bangladesh there was ultimately a higher fish yield than when each was reared alone. This was also integrated with rice production.

Continued research on optimal combinations of farmed organisms, along with plants should produce optimal situations regarding waste management and yield of fish.

Genetic integrity

Inbreeding

By having a smaller pool of parents, there is a concern that inbreeding might cause an increase in potentially negative traits that might show up when two recessive genes (alleles) come together through mating. In nature, there are more deleterious recessive alleles than dominant alleles; dominant alleles can take over a recessive allele through mating.

Mixing of farmed with wild

There is a concern that farm fish might "escape" into the wild and mate with wild fish. This might reduce the genetic diversity of the progeny. Noakes et al. (2000) contend that we should also be concerned about hatchery fish that are used to stock rivers, ponds and lakes. They suggest that this might also contribute to inbreeding depression. They note that other factors such as climate change and overfishing may also contribute to the decline of Pacific salmon, and merit further study.

As we switch to a freshwater scene of tilapia introduced to a sample of Asian Mekong ponds, Arthur et al (2010) did not find significant decline in diversity or amount (biomass) of native fish. One statement in the article I took issue with was "Only a small proportion (about 6-22% of non-native fish species are associated with severe impacts on native biota." This appears to be a substantial percentage to me.

Transgenic salmon

Transgenic salmon, produced in Canada, are currently waiting for approval by the US Food and Drug Administration (FDA). This "super salmon" has been produced by inserting a gene that produces an antifreeze proteins (from ocean pout) and a growth hormone gene (from Chinook salmon) into Atlantic salmon eggs. Since eggs are plentiful, this type of technology is relatively easy. This allows the fish to grow six times as fast, and year-round. Concerns have

included genetic integrity of wild stocks from inevitable escapees, the ethics of patenting an organism, causing an increase in need of smaller fish (herring and sardines) that could directly be used as human food, squeezing out the small farmer (or large commercial farmer for that matter) who does not use this technology, increase in pollution and disease, and a drop in price. A positive result would be a fish resistant to pathology, but, as has been shown in livestock, resistance can develop, which might necessitate of even greater doses of pesticides (Le Curieux-Belfond et al., 2009).

Disease

Disease can be caused by the close quarters in which the fish are held, by movement through global trade, and by a lack of predators or defenses because of this movement. Conditions such as climate change can also accelerate the spread of disease. I was surprised to learn that the eastern oyster was wiped out by a parasite that jumped species from the Pacific oyster, not by over-fishing as I presumed (Bondad-Reantaso et al., 2005). A recent case of disease transmission through trade is the spread of koi herpes virus (KHV). Even though it has been known to occur in other parts of the world since 1998, it was first reported in Indonesia in 2002 (Nomura 2006). Bondad-Reantaso et al. (2005) suggest that there should be a new emphasis placed on the training of fisheries biologist and veterinarians that could take a role in stemming the spread of disease.

Laws and regulations

Regulations for fish farming are few, and to date, most have been voluntary. Enforcement of regulations is almost non-existent. Self-studies by various stakeholders in the aquaculture industry should be undertaken. Some positive examples are noted here, such as better management practices were implemented by cluster shrimp farmers in Andhra Pradesh, India (Nomura 2006)

The Worldwide Fund for Nature (WWF) and the World Bank (WB) Consortium on Shrimp Farming and the Environment have been striving to develop uniform certification standards and better management practices for shrimp farming.

In some Latin American and Caribbean countries, plant certifications (Standard Sanitary Operation Process (SSOP) and Hazard Analysis and Critical Control Points (HACCP)) are now required by the US and EU for imported fish (Nomura 2006)

Fishmeal----menhaden reduction

Fish farmers often use fish meal that has been produced by reduction of menhaden, a small oily fish that occurs in large schools off the coasts of the U.S. (Franklin, 2007). Bioaccumulation of toxic substances can build up in the farmed fish because each fish eats the result of many smaller fish of which the fish meal is composed. (Dorea 2009). One solution to this is to use soy meal, as has been used by tilapia fish farms in Ecuador (<http://www.eattilapia.com/>) and by Salze et al. (2010) in cobia.

Pollution

Grislund and Bengtason (2001) provide a review of some of the types of chemicals used in fish farming, and point out that the same chemical is often used for multiple purposes, thus making it difficult to track usage. For example, chlorine can be used as an algaecide, herbicide, or in pH regulation of the water. It is difficult to quantify exactly how much of each chemical is being used, and even more difficult to ascertain the knowledge base of the person administering the chemical. These chemicals can ruin ponds that have to be abandoned, cause salination (heavy salting) of the soil and overgrowth of algae in the farmed waters (eutrophication). It is important that clear regulations and manuals be developed for a more uniform use and tracking system of these chemicals.

Understanding the ecosystems that surround fish farms and the interactions between the fish farms and the wild surroundings is paramount for the success of fish farming. For example, in the Mediterranean Sea, seagrass meadows have been in existence for centuries, and contribute to ecosystem integrity by serving as spawning and nursery grounds for native fisheries. Holmes et al. (2009) warn that these precious meadows will be destroyed unless waste from nearby coastal fish farms is contained.

Wastewater that might be discharged into another body of water is called *effluent*. A goal is to treat the water in an effluent water treatment plant, and to possibly use it for irrigation of agricultural lands located nearby, as is done in Yaguachi County of Ecuador.

Sludge can also be used to make meal for the poultry, shrimp, pork

and household pet feed industries (<http://www.eattilapia.com/>). In Nicaragua, this approach was also taken, beginning in the late 1970's (Michael Friedman, personal communication).

Another study with rainbow trout in open net cages showed that sustainability with a goal of zero emissions could be best achieved by using local wild herring as a part of the farmed fish feed not to exceed 11%. This study incorporated the wild and farmed fish together in a medium-sized ecosystem called a *mesocosm* (Gyllenhammar et al. 2008).

One positive finding by Vale et al. (2007) on the Mediterranean was that wild fish assemblages and their larger commercial prey actually increase around cages of farmed sea bass and sea bream. They appear to be attracted to the feed that *escapes* through the cages.

Antibiotic overuse

One example of contamination by antibiotics from fish farms was seen in a river study in France, but there may have been additional contributors such as animal farm waste and human drug companies (Ouliquen et al. 2009). It is difficult to *tease out* just where the sources of chemicals such as antibiotics are coming from, especially in dynamic aquatic ecosystems.

As has become common both in humans and animals, antibiotic resistance is rampant. This is really caused by overuse--- only one organism (such as a bacterium) needs to have undergone a mutation that causes it to be resistant to antibiotics, and, since

bacteria multiply every twenty minutes, this antibiotic resistance can become quickly established. The shrimp fishery which collapsed in Taiwan in 1998 was a result of antibiotic resistance of infectious organisms (Grislund and Bengtason 2001).

Habitat loss

Mangrove forests form islands in the ocean, or fringe coastlines. Their roots provide habitat and a nursery area for small coral reef fish. (I have been a personal witness to many small fish in the mangroves of Belize and Honduras.) However, many mangrove forests have been destroyed by people desiring to build shrimp farms (Davidson 1998).

Positives

Positives of fish farming, especially subsistence farming, are the alleviation of malnutrition and the economic empowerment of, sometimes notably---women. For example, The Women in Aquaculture project was piloted in certain areas of Nepal by agencies in Thailand and Nepal with a group of 150 women. This project was an attempt to see if fish farming could increase both the economic empowerment of women and quality protein consumption (Bhujel et al. 2008). This pilot study found that the optimal size of the pond was small (15--350 m²) and approximately half of the fish could be sold bringing in \$30-60 annual income, which is up to 20% of the total income required of the poverty benchmark. This study

showed that fish farming could have a positive impact on poor women in Nepal.

An example of a success story for the US is exemplified by catfish farming in Chicot County, Arkansas, where, for instance in 2004, \$359 million was generated, providing \$20 million in tax revenues and 2,534 jobs, which was 46 percent of total employment in the county.(FAO 2006)

And, lest we forget that there are so many more people who could benefit from the nutrition that farmed fish have to offer, I will close with some information from a study done in poverty-stricken Malawi. Measurements were taken of sixty-six children from each of two types of households: tilapia fish farming or non-fish farming. Overall, there were less malnutrition indicators (stunting, underweight and wasting) in the fish farming households (Aiga et al., 2009).

Conclusions

The rise in fish farming has really taken much of the world by surprise. With attention to the problems such as the maintenance of genetic integrity and diversity, treatment of disease and pollution, and solutions to antibiotic resistance, and proper research and regulations there is much hope. The future of fish farming holds both adversary and promise, but we hope to be able to tip the balance in favor of ìmore friends than foesî.

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Education for the Global Economy

US Education Reform: Are We Selling our Children Short?

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Abstract

President Obama's most recent State of the Union Address included a strong commitment to reauthorize the Elementary and Secondary Education Act, currently referred to as the No Child Left Behind (NCLB) Act (US Department of Education 2002). One innovative and generous aspect to the president's plans are the inclusion of "Race to the Top" (Clark, 2010) grants that individual states can acquire by proposing effective educational programming that meets four benchmarks for educational improvement. NCLB had been severely criticized by many education leaders (Berliner, 2009), policymakers, and practitioners, while others noted benefits to its implementation. Critics, including the National Education Association (Packer, 2007), hoped that instead of abandoning all of the tenets of NCLB, a new administration would make substantial improvements to it. What are the benefits and pitfalls of NCLB? How does the president propose to reauthorize ESEA, particularly through the "Race to the Top" program? Does "Race to the Top" appear to contribute to an improvement of NCLB? This presentation will share the principle characteristics of NCLB and the "Race to the Top" initiative and critique their development and impact upon public education and the US and world economies.

Introduction

President Obama's most recent State of the Union Address included a strong commitment to reauthorize the Elementary and Secondary Education Act (ESEA), currently referred to as the No Child Left Behind (NCLB) Act (US Department of Education 2002).

NCLB had been criticized by many education leaders (Berliner, 2009; Noddings, (2007), policymakers, and practitioners, while others had noted benefits to its implementation. Critics, including the National Education Association (Packer, 2007), hoped that instead of abandoning all of the tenets of NCLB, a new administration would

make substantial improvements to it. This paper proposes to review major principles of the act, explain some of the benefits and disadvantages of the act's mandates for accountability as perceived by educational experts as well as local educators; and summarize what is known currently about President Obama's proposals to address accountability in reauthorizing ESEA.

The No Child Left Behind Act Of 2001

In 2001, President George W. Bush enacted The No Child Left Behind Act of 2001 (NCLB), a reauthorization of ESEA. When President Bush took office, "he announced that NCLB was the number one priority of his administration's domestic agenda" (Yell & Drasgow, 2005, p. 7). No Child Left Behind (NCLB) is a federal regulatory policy that requires state action. In January of 2002, President George W. Bush signed a "comprehensive revision" of the Elementary and Secondary Education Act of 1965. This policy was passed "with strong bipartisan support in Congress" and promised "an important shift in efforts at all levels to improve quality education" (Ritter, 2003, p. 1).

This act reflected "impatience in Washington with the pace of state-led improvement, and, in particular, with the slow pace at which states have instituted tough accountability systems" (Cohen, 2002, p. 1).

NCLB requirements states:

- (1) to administer reading and mathematics assessments at least once a year to students in grades three through eight by 2005-2006,
- (2) to add a science assessment to be administered at least once yearly in each of three grade-level bands by 2007-2008.
- (3) to choose their assessments and define their own proficiency levels.

(These plans must be submitted to the U.S. Department of Education to establish goals for what percentage of students in various subgroups will meet or exceed the proficiency level on the assessments each year. The subgroups of students may include low-income, limited proficiency in English, minorities, and special needs students.)

- (4) to determine the number of students in a group necessary to yield statistically reliable information, as well as the number of students required to be in a group to ensure the results will not reveal personally identifiable information about the student.
- (5) to “develop a system that tracks students’ success in reading/language arts and mathematics as the students progress through school, and the data associated with these adequately sized groups must show at least minimum levels of competency” (Lissitz, 2003, p. 10).

The Major Principles of No Child Left Behind

Accountability has undoubtedly emerged as a “legislative goal framing education policy debates” (Cibulka, 1999, p. 183). The United States Department of Education must now work to “ensure full compliance with new requirements, but realistically also provide states with enough flexibility to adapt the requirements to the states’ varying circumstances” (Cohen, 2002, p. 3). Successful implementation of a state-by-state standards system depends upon “the willingness and ability of federal and state officials to negotiate a complex set of technical, political, and organizational challenges” (Cohen, 2002, p. 3).

As a result of multiple educational attempts toward greater accountability in public education, NCLB has further magnified the use of assessments as a tangible means to measure school performance. Indeed, “standardized tests and indicators of school performance are a firmly entrenched part of the political landscape that public schools must navigate” (Powers, 2004, p. 765). Through a series of political policies, assessments have become a yardstick by which success in this nation’s schools will be measured.

Therefore, it is essential to fully understand the four overarching principles of No Child Left Behind. These principles are as follows:

1. Accountability for Results

This policy “substantially shifts the historical balance of federal versus state control over education” (Cohen, 2002, p. 2). Implementation of the new law poses great challenges to the states from the federal government. No Child Left Behind focuses on

increasing the academic performance of all public school students and improving the performance of low-performing schools (Yell & Drasgow, 2005, p. 13). It does this by requiring school districts to identify each child and group of children and to measure progress yearly.

To receive funding under NCLB, “states must submit accountability plans to the U.S. Department of Education that detail the state’s procedures for reporting school performance and their system for holding schools accountable for increasing student achievement” (Yell & Drasgow, 2005, p. 13). States must search for the means to meet federal requirements without “seriously disrupting their own standards-based reforms” (Cohen, 2002, p. 2). Each state must “devise a substantive definition of the skills and knowledge a child should learn in each grade” (Ritter, 2003, p. 1). States must then develop tests to examine whether schools are meeting the standards.

By 2005-06, NCLB requires that states administer reading and mathematics tests in grades three to eight. Within 12 years, all states are expected to have all students performing at an adequately proficient level in all core subjects. Schools are also required to “issue an annual report card to the public, which will provide stakeholders with the information that will allow them to compare performances against the state standards” (Yell & Drasgow, 2005, p. 14).

States must also develop a definition, called adequate yearly progress (AYP) to use each year to determine if schools are meeting the state standards quickly enough to have 100% of students proficient on academic standards within a timeline prescribed by NCLB. The AYP is the minimum level of improvement that schools must achieve each year. Individual schools that do not meet AYP are designated as low-performing. The AYP accountability system must be based on the state’s academic standards, statewide assessments, and other indicators, take into account the achievement of all public elementary and secondary students, be the same accountability system that a state uses for all its students and districts, and include rewards and sanctions that states will use to hold schools and school districts accountable for student achievement (Yell & Drasgow, 2005, p. 30).

In a recent Times’ Leader article (April, 2010), Guydish outlined the percentage goals for Pennsylvania schools, including alternate ways schools could show adequate

yearly progress (AYP) towards the goal of proficiency in 2014. The four categories designated for performance include below basic, basic, proficient, and advanced. Each state sets their own percentage goals for making adequate yearly progress. For the first year, Pennsylvania set percentage goals of 45 percent in reading and 35 percent in Math for AYP. This past year, the percentage goals were set at 63 percent in reading and 56 percent in Math.

To offset problems in determining AYP solely with test scores, six alternative ways of determining this have been codified, although four are most commonly used. These include: 1) Confidence Interval, 2) Safe Harbor, 3) Safe Harbor with Confidence Interval, and 4) Growth Model (Guydish, 2010).

The Confidence Interval Option takes into account that not all students will be at the same school over time. In fact, there can be a high migration of students in schools. Given this fact, a 95 percent confidence interval can be used to counterbalance this fact. Instead of having to meet an exact percentage, credit is given to percentages plus or minus five points.

Safe Harbor is the alternative that gives states a chance to pass AYP if they successfully increase the achievement scores by at least 10% for all students or a subgroup. This allows schools whose student scores are much lower than other schools to have a chance to show progress. Scores of higher achieving schools sometimes drop, yet they still pass AYP since their scores are over the minimum percentage.

Safe Harbor with Confidence Interval allows states to use a 75 percent confidence interval in determining whether certain safe harbor groups have met AYP.

The Growth Model allows states to analyze individual growth as opposed to group growth over time. This permits evidence of an increase in individual children's scores as opposed to a whole class' score to be used to support AYP.

2. Research-Based Instruction

No Child Left Behind emphasizes “using strong educational programs and practices that have been demonstrated to be effective by rigorous scientific research” (Yell & Drasgow, 2005, p. 14). Under NCLB, teachers are asked to only implement educational practices that are supported by reliable evidence to be valid. In recent years,

a number of national efforts have supported this concept. Reports were issued by the National Research Council (2002) and the Coalition for Evidence-Based Policy (2002) stating that education will progress only if teachers build a knowledge base of practices that have been proven to work through research (Yell & Drasgow, 2005, p. 15).

No Child Left Behind allows federal funds to support programs and teaching methods that have actually improved student achievement. Scientifically-based research includes “(a) systematic, empirical methods that draw on observation or experiment, (b) rigorous data analyses that have adequate hypotheses and justify the conclusions, (c) measurement or observational methods that provide valid data, and (d) acceptance by a peer-reviewed journal or approved by a panel of independent experts through comparably rigorous, objective and scientific review” (p. 16).

3. Local Control and Flexibility

The third principle of NCLB, local control, “allows states and schools greater flexibility and control over how they use the federal educational funds” (Yell & Drasgow, 2005, p. 16). The reason for this type of control is the philosophy that local school leaders better understand the needs of the schools and the students. Schools can now “transfer up to 50% of the federal funds” they receive under a number of programs without having to get federal approval. Also, the funds can be used to help schools meet adequate yearly progress and for narrowing achievement gaps.

4. Parental Options

Under NCLB, if students attend low-performing schools that do not improve within a prescribed time period according to the state proficiency goals, parents are given a number of options regarding their child’s education. If a school fails to meet proficiency goals for two consecutive years, parents may elect to have their children transferred to a better-performing school. If a school fails to meet its goals for three consecutive years, children are eligible to receive supplemental services such as tutoring.

Finally, if a school is unsafe or dangerous, parents may elect to send their child to a different school. The philosophy behind increased parental options is that these options

may foster student achievement while also creating a sanction for low-performing schools failing to improve (Yell & Drasgow, 2005, p. 17).

Implications of Accountability Mandates of No Child Left Behind Upon Public Schools

The federal government is now requiring states to test and report scores on assessments to demonstrate proficiency in reading, mathematics and science. Substantial pressure for performance creates major implications for public education (Goertz, 2003, p. 4). These requirements create major issues to be addressed by public education. These issues are: (1) expanding the size and scope of assessment programs, (2) searching for a single test to serve multiple purposes, (3) balancing adult and student accountability, and (4) supporting change in practice for teachers (Goertz, 2003, p. 4).

1. Expanding the Size and Scope of Assessment Programs

First, states are now forced to expand the size and scope of their assessment programs. While the government has promised to provide aid in developing these assessments, there is extensive cost in administering and scoring these assessments for the school district. Some states are finding the additional funding by deleting the funding from other content areas such as science and social studies.

In the article *Exploring the costs of accountability*, Peyser and Costrell (2004) reference an article by Mathis asserting that “public K-12 education spending needs to rise by at least 20 to 35% to meet the goals of NCLB—an increase of \$85 to \$150 billion a year” (p. 1). This funding has three components according to this article:

1. cost of designing and implementing a statewide system
2. cost of evaluating schools and districts and intervening when schools underperform, and
3. cost of ensuring schools have the resources to provide high quality educational opportunities that students need to meet the requirements of NCLB (Peyser & Costrell, 2003, p. 3)

Undeniably, implementation of NCLB by each state requires a major expenditure in a variety of ways. Meeting the requirements of NCLB is a financial expense for states

that cannot be avoided. Further, significant manpower is required in designing statewide assessments, evaluating the schools' performance on assessments, and allotting for the resources and materials to ensure success on assessments.

2. Searching for a Single Test to Serve Multiple Purposes

The increased focus on a single test also raises another issue for public schools, can a single test serve multiple purposes? These purposes would include providing an indicator of the success of the school system, motivating students to perform better, and playing a role in the instructional decisions about individual students. Standardized tests do attempt to create an assessment tool that permits someone to make a valid inference about the knowledge and skills a given student possesses in a particular content area (Popham, 1999, p. 8). However, there is an enormous amount of knowledge and skills that students at any grade level are likely to possess. The substantial size of the content a standardized test is "supposed to represent poses genuine difficulties for the developers of such tests" (Popham, 1999, p. 9). If the test covered all of the knowledge and skills in the content area, the test would be far too long.

Further, many argue tests are not a perfect measure of student ability or achievement (Ballou, 2002, p. 1). Ballou (2002) suggests "a student's performance on any given test will be partly due to true ability and partly random influences--- distractions during a test, the student's emotional state that day, and a fortuitous selection of items" (p. 2). It may be a constant struggle to identify and employ a single test to answer all of the concerns plaguing the public school system with a single test.

3. Balancing Adult and Student Accountability

Further, many question if NCLB takes steps to bring student and adult accountability into greater balance. Ultimately, "the effects of accountability policies depend on the cooperation of students," (Chabran, 2003, p.129) yet most of the pressure falls on the adults: teachers, administrators, parents, and the school board. The threat of sanctions for poor performance certainly gets the attention of teachers and administrators, but the students may not fully understand the magnitude of the potential loss of funding and how it will impact the school and their learning environment. Or in an effort to help

students understand, teachers may place undue pressures on students. More than one local education professor has heard from preservice teachers working in schools or with school children that their teachers have told them in so many words that “If they do not do well on the tests, their teachers could be fired.”

One of the components of NCLB is to “penalize troubled schools that do not show gains in their test scores” (Ehrenfeld, 2001, p. 43). As a result of NCLB, much of the pressure for achievement on assessments rests with the adults, teachers and administrators, as they feverishly search for ways to motivate students and to improve test scores. No Child Left Behind has “proclaimed that all kids can learn and it is the job of grown-ups to figure out how to teach them” (Chenoweth, 2004, p. 36).

4. Supporting Change in Practice for Teachers

The final issue lies in the capacity of the school system to support change in practice. High-stakes assessments are greatly altering the shape of education. In *The trouble with testing* (2001), Ehrenfeld states “we are taking children out of their classrooms, so we [teachers] can find out that they couldn’t pass the test; and then we are testing them even more to familiarize them with the testing format, while neglecting the content that would actually allow them to raise their scores” (p. 43). Teachers appear to be struggling with the intense focus on test taking in the classroom as a result of the demands of NCLB. In this study, the teachers’ perceptions of a course specifically designed to foster improved assessment performance play a central role. It hopes to illustrate “teachers’ responses to the threats and mandates of high-stakes testing” (Rex & Nelson, 2004, p. 1288).

In *Teachers’ perceptions of high-stakes testing* (2004) by Reese, Gordon and Price, the authors cite the negative impact of high-stakes testing upon teachers and the classroom. These negative effects include teachers narrowing the curriculum, spending extensive time teaching basics, which accounts for a large portion of the instructional time each day, observing a sense of powerlessness and decreased interest among the students, and citing high-stakes testing as the number one reason for leaving the profession (p. 465).

In a qualitative study by Reese and Gordon conducted in 1997, 20 Texas teachers were interviewed regarding their perceptions of high-stakes testing. Although this research was conducted prior to the institution of No Child Left Behind, an intense focus on testing already existed in this state at that time. In this study 55% of teachers believed teaching to the test improved scores, but 65% felt that students became burned out and disinterested in this setting. Further, while 90% of teachers believed they should be held accountable for what they teach in the classroom, 99% believed that a variety of methods to evaluate schools would be a better approach and represent a truer picture of what is happening in schools. Finally, 75% of the teachers agreed that more time was spent on the material to be tested than it would be if the test did not exist, and 86% believed that test-related material received the greatest emphasis in schools at the cost of other content (p. 476).

Certainly, in the aforementioned study, it does not appear that teachers are against teaching to the test or to being held accountable for their teaching, but they do seem to express some frustration with assessments and also witness a similar effect in the students.

Jones, et al. (1999) summarized surveys of North Carolina schools which indicated that more than 80% of teachers spent more than 20% of their instructional time on test preparation. To make matters worse, more than 28% of those teachers spent more than 60% of their instructional time on test prep. In school days, that equates to roughly 36 days and more than 100 days, respectively.

Another element of the pressure teachers face in this high-stakes environment is the requirement dictated in NCLB that all teachers in public schools must be “highly qualified.” According to NCLB, in addition to having a bachelor’s degree, teachers must hold state certification in the subject they teach and, if they do not, must be able to demonstrate competency in the core academic subject by passing a state administered test (Yell & Drasgow, 2005, p. 45). At the middle school level, it is possible that a teacher who is elementary certified is teaching seventh-grade mathematics or science, as is the case in this study. According to NCLB, these teachers must now pass a test in mathematics or science to illustrate they are competent to teach these subjects.

In conclusion, research on school-based performance programs shows that “clear goals and incentives are necessary, but not sufficient, to motivate teachers to reach their school’s student achievement goals” (Goertz, 2003, p. 5).

Teachers are told they must find a way for students to succeed on assessments but are often not offered the opportunity for professional development to help them reach this end. Some believe “rather than set standards for professional practice and the development of local capacity to enhance student learning, many state education departments have placed even greater weight on the same managerial equation that has repeatedly failed in the past: State Standards=State Test Results; State Test Results=Student Achievement; Student Achievement=Rewards or Punishments” (Brooks, 1999, p. 18).

Local Teachers’ Perceptions of NCLB

To investigate the impact of No Child Left Behind (NCLB) on local public school districts and teachers, thirty-one teachers from Northeastern Pennsylvania with a wide range of teaching experience were asked to respond to questions regarding their personal feelings and experiences regarding the focus of NCLB on standardized testing. Sixteen of the respondents were certified either in elementary education in grades K-6 or early childhood education. Twelve of the respondents were certified at the secondary level in grades 7-12. Three of the respondents were certified in special education and certified in grade K-12. Each of the teachers was enrolled in one of two graduate courses at the college.

The questionnaire largely focused on three research questions: (1) What are your perceptions of the No Child Left Behind Act? Please include positive and negative perceptions and examples as necessary. (2) How do you feel NCLB impacts your teaching situation in your classroom? and (3) What would your recommendations be for making alterations to the act?

In reviewing the responses, the teachers cited a variety of positive and negative consequences associated with this act. The teachers did indeed believe that the act’s intent was valid and had the best interest of students at its heart. By thrusting educational reform into the spotlight, it forced examination of the weaknesses that exist within the

school system and its educational practices. All of the teachers believed its primary intent was to narrow the achievement gap among students. It instituted the use of uniform standards to guide the curriculum, focused instructional decision-making, and implemented research-based practices in the classroom. The teachers felt the use of standards created a more well-balanced learning situation for all students. Many of the teachers also felt it was positive that the act focused on teacher quality and insuring that every teacher was highly-qualified in the content area they are teaching.

In addition to the act's positive impact on curriculum and instruction, many teachers were pleased with the supplemental programs made possible through funding provided by the act. This funding has allowed the creation of programs including after-school mathematics clinics and reading programs for students.

Finally, the teachers felt the focus on early childhood education encouraged by the act to be positive and extremely important. The act allows for Title I funding for early childhood programs and truly focuses on the importance of early childhood education and the value of developmentally appropriate activities in the positive growth of children.

While the teachers did identify positive attributes, the responses were weighted more heavily towards negative attributes. Despite the belief that standards help guide the curriculum and instruction, the teachers found the extreme focus on standardized testing to be detrimental to the curriculum. Extreme pressure is placed upon teachers to prepare students for the testing consuming large amounts of classroom instructional time. Ultimately, while NCLB is successful in aligning curriculum and instruction, its focus on success on one standardized test takes time away from curriculum and instruction. Further, teachers indicated that using a single test to determine proficiency is not a fair gauge of student understanding, specifically citing lack of consideration for special education and gifted students. They question if the act takes into consideration the needs of both of these student populations.

In addition, the teachers surveyed expressed concern over the loss of specials in the school such as art and music. They also felt content areas not tested, such as social studies, were receiving much less attention in the curriculum to the detriment of creating a well-rounded student. Many schools are electing to place students in remedial mathematics and reading courses in lieu of electives such as art to improve test scores.

Finally due to the high pressure of testing, many of the teachers felt that not only academics but school climate was detrimentally affected as well. Due to great pressure, teachers and students experience a decreased enjoyment and involvement in school. In class, one pre-service teacher related how her daughter has a second grade teacher that she had as a child. She remembered her school days with this teacher as being fascinating and delightful, Her daughter, however, doesn't like her second grade experience at all, including the teacher. The pre-service teacher, who substitutes in local schools, believes that her favorite teacher has had to sublimate his teacher personality in order to meet all the testing demands of NCLB.

An overall analysis of teacher feedback shows a great contrast between the intent of the act and what occurs as a result of following through with the guidelines and criteria specified. Teachers seem to recognize the heart of NCLB as trying to ensure a quality education for all students. However, because the act is based primarily on one standardized test yearly, the results are not as intended. It becomes a highly pressurized situation for students and teachers which negatively impacts education.

President Obama's Proposals for Education Reform

In an article for Education Week (2010), Alyson Klein outlined 10 major components of the Obama administration's "blueprint" to improve the Elementary and Secondary Education Act (ESEA), currently known as No Child Left Behind (NCLB). They are as follows:

1) Disaggregation of data for varied student groups, including special education students, and the emphasis on improving their achievement will be preserved.

2) States and schools will have more flexibility in selecting instructional programs and approaches to increase the achievement of many low-performing schools (the lowest-performing schools would be under federal jurisdiction). In addition, states will be able to assess other disciplines besides reading and writing; and report other types of information, including various environmental factors.

3) The 2014 deadline for having all children reach proficiency in reading and math would be dismantled. States will be exhorted to develop college- and career-ready standards.

4) Yearly assessment of designated subjects will still continue.

5) Tailored interventions will be recommended for some schools rather than a one-size-fits-all mandate required for all schools under NCLB.

6) The lowest 5% of performing schools would be directed to adopt one of four turn-around models. The details of these models have not been shared publicly as yet.

7) School choice or supplemental educational services (ses) will not be required of schools who fail to meet achievement goals.

8) As regards teachers, there are plans to survey their ideas and concerns about school programs and environment. There will also be a push to ensure that the best teachers are found in all schools, not just in a few. Each state will also determine a definition of “effective teacher,” and part of that definition will need to include their students’ achievement.

9) In an effort to improve “funding equity,” all schools, whether of high or low ses, will need to document how they use resources more explicitly.

10) Provisions will be made for assessment processes that analyze individual student’s progress as opposed to comparing different categories of students.

Evaluation of Initial ESEA Reform Proposals

Stakeholders and experts are supportive of the Presidents’ proposals to continue to make schools and states accountable for the achievement of all students, including subgroups of minorities, special education students, students of low socio economic backgrounds, and English language learners. However, education experts, such as Berliner (2007) and Noddings (2007) caution that some of the blame for this lack of achievement is due to social ills, including poverty, violence in the home, and poor

health care. Placing sole responsibility on schools and teachers to improve student achievement will not enable all children to succeed as the law suggests.

Critics of high stakes, standardized assessment must applaud the concern the new proposals appear to have for the individual school and student needs. To require that all students make the same progress by a given time was a fatal flaw of NCLB from the beginning. Erasing the 2014 deadline for this “utopian goal,” as Secretary of Education Arne Duncan has referred to it is a step in the right direction. On the other hand, the goals for college and career ready standards are still in the process of being formulated.

In addition, the idea that all children should achieve the same goals is suspect. Noddings (2007) speaks of the abomination in a democracy of children not having a choice in the direction of their lives. As a former high school mathematics teacher and a Stanford Emeritus professor, she realizes that not all children need to follow a stringent academic path for later career success. A curriculum that does so ends up watering down requirements. For example, it’s possible that passing a standard high school algebra course today suggests that a student is ready for college mathematics when in fact they’re not. She further exhorts that a democracy is in need of many talents and contributions that do not require the academic expertise current standards are suggesting.

Furthermore, a National Educational Longitudinal Study (NELS 88), described by Deke and Haimson (2006) followed 10,000 students from 1988 until 2006 and found that certain nonacademic competencies were the greatest predictors of success after school. These included competencies such as improved work habits, sports and leadership skills, and personality characteristics, such as taking personal responsibility for success or failure.

To put this discussion within a global context, there is significant evidence from the experience of other countries that associating achievement with certain standardized test scores and dictating what school districts teach and how they are to teach it is unnecessary. According to Pont, Nusche, and Hopkins (2008), Finland scores very high on the Programme for International Student Assessment (PISA) and has an enviable, vibrant economy.

Overall, much will depend upon how these goals are constructed and then assessed to nullify the effects of curriculum narrowing and failure to encourage the

educational growth of all students. There is much in the President's proposals that attempts to turn around aspects of NCLB that greatly concerns educational experts, teachers and parents. To date, the process is just beginning. Hopefully, educational experts and policymakers will continue to cooperate in the hard work of crafting education policy which results in all children growing towards their potential as fully productive citizens.

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GIS and Ethics in the Undergraduate Classroom

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Abstract

In the college classroom environment, geographic information systems (GIS) studies bring together a variety of student backgrounds and interests. One of the more fascinating aspects of engaging students with the material is providing an arena for students to research, design and deliver individual projects of voluntary selection. While the academic backgrounds range broadly from environmental sciences to information technology to criminal justice, each class delivers an example of ethical matters with GIS data. Concerns include distribution of real personal data, data lacking quality assurance and quality control, as well as presentation of topically sensitive subject matter such as sex offenders and hate groups. The publication of this data either for the classroom or larger public audiences, should ensure the technology and its facility is emphasized, not the specifics of the data itself. This paper aims to explore the common topics which have volunteered themselves in the classroom environment and how they are woven into the curriculum.

Keywords: Ethics, GIS, computers, student response to ethics, ethic topics

Introduction

In the increasingly expanding field of information-driven technology, the study or profession is both broad and demanding. By this, those involved are subject to continuous learning of new technologies to streamline or creating complex tapestries of programs, analyses and applications to meet current needs. The field of geographic information systems (GIS) is no exception. Its study is a rigorous undertaking and the dynamic of the profession demands the user be in tune with new developments. From both a student and professional perspective, the complete understanding of GIS theory and principles, the data of interest, and the hardware, software and tools required to complete individual goals of a GIS assessment often neglects the character of the data. Once a functional GIS is established, the data obtained are often seen as the crucial element in facilitating a GIS project. The data's character can represent many facets of

the data (completeness, methods of compilation, source, etc...). The ethics of data usage tends to serve as an afterthought rather than a component of project planning, especially for those new to the study or field.

By definition, the term *ethics* is described by the following: the discipline dealing with what is good and bad and with moral duty and obligation; a set of moral principles; the principles of conduct governing an individual or a group; a guiding philosophy; a consciousness of moral importance; a set of moral issues or aspects (Merriam-Webster 2010). From the perspective of the information technology field, the definitions of ethics above should direct proper use of data obtained and its associated products. Outlined by Mason as part of the infiltration of data into the hands of the general population, four umbrella groups define ethical concerns: privacy, accuracy, property, accessibility (Table 1).

Table 1: Mason's Four Ethical Issues of the Information Age

<p style="text-align: center;">Privacy</p> <p>What information about one's self or one's associations must a person reveal to others, under what conditions and with what safeguards? What things can people keep to themselves and not be forced to reveal to others?</p>	<p style="text-align: center;">Property</p> <p>Who owns information? What are the just and fair prices for its exchange? Who owns the channels, especially the airways, through which information is transmitted? How should access to this scarce resource be allocated?</p>
<p style="text-align: center;">Accuracy</p> <p>Who is responsible for the authenticity, fidelity and accuracy of information? Similarly, who is to be held accountable for errors in information and how is the injured party to be made whole?</p>	<p style="text-align: center;">Accessibility</p> <p>What information does a person or an organization have a right or a privilege to obtain, under what conditions and with what safeguards?</p>

Shifting to the GIS perspective where location is centric, many concerns arise with information surrounding place, notably confidentiality (Griffith). While data is central to many fields the effectiveness and magnitude of visual data (thematic maps) is profound. This reinforces the necessity to have the best data possible. Knowing the significance of visualizing data to an audience, the data being displayed should be examined with ethical scrutiny.

While the ethics of data collection, compilation, etc... can be assessed, this paper explores the topical consideration of ethics. What do students perceive to be GIS datasets

bearing the weight of moral concerns, as found in the general definition of the term: *ethics*. Since ethical perspectives can be tied to background, the dimension of academic study is incorporated as well to explore what topics arise to students of differing academic programs.

Awareness

Marrying the foundations of a study in GIS in the classroom to a driven discussion of right/wrong in an ethical context is not difficult to do. Further exploring the complexities concerning the availability and intent of spatial datasets amplifies awareness of where ethics and GIS intersect. The difficulty resides in appropriate placement and delivery in a manner to encourage audience (student) response and participation. The move to include ethics as a notable component of the classroom curriculum followed repeated concerns encountered over time with topics presented to the class by fellow students in which certain ethical components should have been addressed either before or during the presentation.

For many students in a liberal arts environment, the technical understanding of GIS principles and the steep learning curve for concepts, terminology, and data collection comprehension makes the sixteen week semester study challenging. Once these topics mentioned have been addressed, ancillary and supporting topics to round out the study are introduced. Discussion of ethics, even as a brief supplement to the semester's curriculum has been deemed increasingly important due to the nature of the student projects presented at the conclusion of each course.

Generally, ethically sensitive topics are presented in the same manner as those which might be considered ethically-neutral. Factors influencing this uninterrupted delivery may include an underdeveloped sensitivity to their surroundings with respect to the topic and/or a naive oversight of the audience's beliefs, connections or interpretations. Limited experiences at the undergraduate level easily permit social background to be a reason for the frequent failure to address matters such as ethical considerations. An underdeveloped sensitivity to audiences which the students are presenting is the most apparent. Students often do not prepare an explanation for their topic but when introducing or presenting their work it becomes evident they must. More difficult is

when the student does not have the opportunity to provide this explanation such as during map galleries with overt adult content for students of elementary age.

This oversight of the audience's beliefs, connections or interpretations is brought to light under presentation circumstances either by the presenter or by the audience. For instance, data findings with racial components are more heavily scrutinized by classmates identifying with a similar racial affiliation. Additionally, an audience with more information on the topic than the presenter can also bring a challenge to the presenter's delivery of analysis.

Ethical concerns, as a topic, were categorized in the curriculum as a data concern (topics in this arena included data errors and bias). As part of the classroom discussion of error considerations, concerns with ethics and bias raised included those social and environmental in content. An open discussion of concerns led to examination of agencies with agendas using data to their advantage and public availability of data which may be personal. Classroom discussions included differences in species data from governments, mission-oriented organizations and commercially collected data. The genesis of GIS is based in landscape inventories and while much has been done with this technology on social matters (population, traffic, cadastre management, disease, etc...), many examples and case studies focus on the environmental topics.

Addressing ethical issues as part of the course curriculum encourages students to consider their ideas and create awareness prior to being in a position of having an audience potentially sensitive to the ideas and conclusions presented. Voluntarily addressing ethical concerns during presentation of ideas is welcome and brings a maturity and perspective to the discussion.

Participants

The two colleges in this study (referred to as College A and College B) are located in northeastern Pennsylvania. Each college enrolls less than 3000 students and offers a liberal arts curriculum. Neither college has a geographic information systems degree but offers the course as part of other academic programs (environmental science, environmental resource management, computers & information systems, geography).

The semester chosen for this questionnaire, reflects student characteristics regularly encountered in the general population for the GIS classes at their respective

institutions. The responses were gathered from students at two separate institutions, taught during the same semester, simultaneously by the same instructor (author) in the course: Introduction to Geographic Information Systems. The courses utilized different texts but instructional materials (lectures, custom exercises, slide presentations, etc...) were similar in design and delivery. The students' major programs can be seen in Table 2. While Criminal Justice stands alone, the other two categories aggregate similar programs (i.e. Environmental Resource Management and Environmental Science combined as Environmental Studies; Computers and Information Systems, Computer Science and Information Technology combined as Information Systems in the table).

	Environmental Studies	Information Systems	Criminal Justice	Total
College A	8	12	-	20
College B	8	1	1	10
Total	16	13	1	30

Table 2: Academic Programs

With student developed projects being a major component of the course to the individual, it should be noted just what topics the students chose to explore. Student projects over the course of three semesters were summarized and categorically divided as being either: natural or social. Natural refers to any project centered on environmental principals. Social refers to project themes which emphasize human relationships with one another or the environment. When it comes to students developing projects for the course, natural themes dominate by a ratio of 2:1. The background of student studies certainly lends itself to individual decisions in choosing a project.

Method and Instrument

In an attempt to measure the perception of ethics added to the curriculum, students answered a discussion question on the final examination where they were permitted to define an ethical topic of a GIS data nature and discuss concerns as well as mitigation measures. This question was left as an open opportunity for response, so not to anchor a decision based on their major or course of study.

In order to identify topics meriting ethical consideration, students were asked to answer the following:

We discussed concerns with data that ranged from error and documentation to ethics. Regarding the latter, describe (1) what constitutes an ethical concern in GIS (2) aside from sex offenders and hate crimes, what is an example of an ethically sensitive GIS data layer and why (3) what can be actions can be taken by you as the user to ensure data of this nature is treated/delivered responsibly.

The first component requesting a topic sought to engage the student in defining the role of ethics in the realm of GIS. The aim was to gather a description of when a moral issue arises in the context of geospatial data.

The second component requested the student to consider an obvious example of a dataset which might have ethical considerations. The question eliminated two choices (sex offenders and hate crimes). The reasoning for excluding these topics was their prevalence in instructional discussion. From a teaching perspective as well as from student feedback, these topics facilitate understanding of ethical considerations in GIS and become the obvious examples.

The third component of the question solicited ideas to redress the issues faced in assessing or demonstrating data with ethical concerns in GIS analyses. Many measures can be applied to responsibly handle datasets with ethical concerns in their outcomes and students were to pair a measure with the topic chosen.

The second component, focusing on topical illustrations of ethical matters in GIS, became the key focal point in determining what flags student concerns with GIS. The responses to exemplify an ethically sensitive dataset gave insight to student perception of what topic says this best.

Responses and Data

All thirty students returned responses to the question posed. All responses displayed in Figure 1 represent the actual written answers. While some answers to components one and three in the survey were vague, component two required a more

direct and succinct reply.

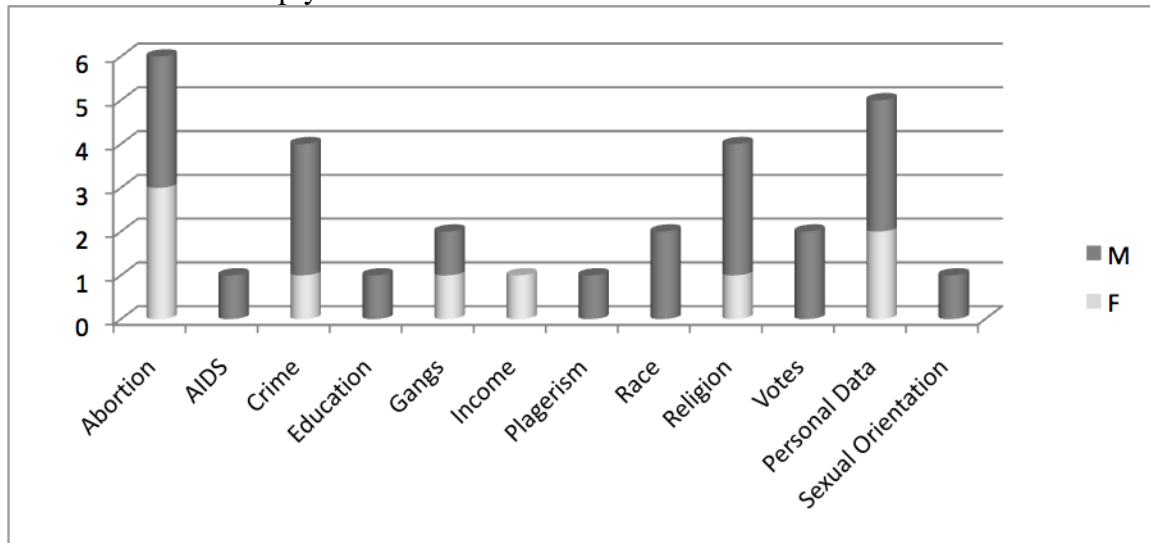


Figure 1: Student Suggested Ethical GIS Datasets

The only aggregate category listed is Personal Data which combined: (1) Personal data in Tax Parcel Datasets (2) Personal Medical Information (3) Accused Public Official Personal Info.

Findings

Though the sample population in this study is small, there is a clear emphasis on a social-ethical relationship. Every response, equating to 100%, can be classified as a social issue by topic. Even with sixteen of the thirty students coming from an environmental background, student inclinations favored a social-ethical response versus environmental (ecological) ethical. The emphasis is particularly interesting since many students chose to pursue environmentally-focused for their semester-long projects. In addition, much of the course content stresses environmental application of GIS. While not directly outlined in class in an ethical context, concerns with bias and other ancillary issues in environmental datasets as well as improper manipulation of these data to suit the issuers point. In dealing with data, the user must have the intellectual ability to deal with the information at hand (Mason). When dealing with certain datasets, this complex consideration is often underestimated in the undertaking of a GIS data project.

With respect to the dominant environmental themes in modern society, the overwhelming social-ethical response is unexpected. Environmental consideration,

sustainability and justice are woven into a variety of disciplines' curricula which often minimized the connection until recently. Capturing environmental-social-economic themes into a sustainable framework has provided for a broad-scale awareness of the importance of nature in our social development and economic trajectory.

While concerns with perceptions of environmental topics having as many ethical concerns as social topics, the ninth commandment in the Ten Commandments of Computer Ethics by the Brookings Institution's Computer Ethics Institute directly addresses the latter:

Thou Shalt Think About The Social Consequences Of The Program You Are Writing Or The System You Are Designing.

Social considerations receive higher profile attention due to the direct impact on people or societies. The continued rise of environmental and green awareness elevates the high profile debates and impacts of data analyses on society as a whole (global warming, climate change, pollution, food supplies). Essentially, whether social or environmentally classified, it is the human reaction or concern which can lead to environmental problems.

Conclusions

While ethical considerations are a component of environmental interaction, ethical matters gravitate to social concerns. Moral principles attach themselves to perceptions of society and human characteristics are perceived to be a function of society. The GIS study and profession uncover ethics as necessary but the complexities of the field can overshadow this important concern. Pausing to address the ethical issues surrounding a topic can lead to in-depth examination of seemingly endless *what-if* scenarios and debate. Any data has an uncertain fate of improper usage. The manager and end-user have the obligation to ensure the best utility of the data as well as the review of the results.

This survey has revealed the common themes and issues in both society and spatially organized data which bring about ethical discussions and concerns. While not comprehensive of all the concerns exposed in spatial analysis, knowledge of what students consider to be of obvious ethical concern can facilitate an understanding of other matters which will filter from just a social association to others such as

natural/environmental. Incorporation of an ethics discussion is imperative for student understanding of decisions and their implications.

The continued acquisition of student surveys will assist in planning and understanding the perceptions of ethics and geospatial data. The manner in which ethics are presented, as well as the timeframe of collecting the survey in the course of the class, add perspective and will continue to be pursued.

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Mathematics Institute for High School Teachers in Investment Mathematics
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Abstract:

A specialized research project in an emerging direction for post-graduate mathematics teacher education was developed. An institute was established for the improvement of teacher pedagogical training and knowledge in the mathematics skills needed by high school students to compete within the investment industry.

Introduction

In 2008, the Pennsylvania Department of Education (www.pde.state.pa.us) reported the mathematics proficiency of 11th graders in the Commonwealth to be 52% as measured by Pennsylvania State Standards Assessment (PSSA). In Luzerne County, some schools were reporting only 46% proficiency level at the eleventh grade. As demonstrated repeatedly by educational research (O'Conner, 2008; National Council of Supervisors of Mathematics, 2007; Graves, Juel, & Graves, 2007) the single greatest factor in improving student achievement is the quality of teaching in the classroom. As we develop better teachers, we develop better students. As we develop better teachers we should also further address the needs of the state and the country.

Several years ago, a tragedy occurred in New York City. After that event the major corporate leaders and the government began to

plan the development of Northeast Pennsylvania as a financial hub for the extension of financial services based in New York City. This initiative stated that their goal was, "to expand the local presence of the financial services industry by establishing a "Wall Street West" to provide not only marketing support for the nine-county region to prospective employers in "Wall Street" but also to prepare the workforce for meeting the emerging needs of the industry." (<http://www.wallstreetwest.org>). Their nationally recognized site selection and economic development consultant assessed the workforce situation in this nine-county region and reported six (6) key points to assist in the establishment of Wall Street West's goals. One of these goals was to assist local school systems to continue their improvement in basic mathematics and reading skills while incorporating the "soft" skills and career awareness into the education process.

The goal of the King's College project was to prepare mathematics teachers to broaden their students' knowledge of the financial services industry to include the stock market, bond market, mutual funds, unit investment trusts, real estate investment trusts, portfolio diversification, asset allocation and variable and fixed annuities so that students can be competitive in the job market, particularly as it relates to back-up, disaster recovery, and back-office operations of New York City-based financial institutions. As financial institutions begin to move their operations, it is now up to the schools of Northeastern Pennsylvania to prepare its workforce

to succeed in the new environment by improving the mathematics skills of our high school students.

Goals/ Objectives

The main goal of the King's College project was to prepare public school secondary mathematics teachers in an intensive week-long summer institute to broaden their own, and in turn, their students' knowledge of the financial services industry in order for their students to be competitive for jobs in back-up, disaster recovery, and back-office operations of New York City-based financial institutions.

Our objectives included:

Objective A: During the summer institute, provide instruction on how to integrate technology (e.g. PC Tablets, and Athena Software) into mathematics while teaching competencies which will be measured by pre- and post-evaluations

Objective B: Following the institute, observe lesson plans of teachers in surrounding school districts

Objective C: Develop a curriculum that addresses applied mathematics in the financial industry

Objective D: By the conclusion of the summer institute, demonstrate improved comprehension of the financial services industry by the quality of lesson plans prepared by teachers

Objective E: Develop mathematics teachers'

investment/banking/insurance vocabulary to be measured by pre- and post-tests

Objective F: Conduct professional observations of the participating math teachers and provide feedback on the lesson plans developed in the summer institute.

Methods

Approach and Participants

To accomplish these goals and objectives, a summer institute (5 days x 8 hours) for eighteen (18) high school mathematics teachers co-taught by a mathematics instructor and an investment advisor was conducted. In collaboration with the project director, a graduate level mathematics professor, the institute instructor, and an investment advisor a curriculum was developed. This course targeted 18 senior high school mathematics teachers from Northeastern Pennsylvania to develop their applied mathematics teaching skills. Each participant developed lesson plans to implement in their classrooms.

The high school teachers selected had to be employed within Luzerne and Lackawanna counties and had to be teaching mathematics at the high school level. Permission was also needed by the building principal to allow the participant to teach lessons developed at the institute and allow classroom visitation by the researchers.

Development Schedule

Throughout the Winter and Spring, the group of 4 individuals (curriculum specialist, mathematics professor, investment broker, high school mathematics teacher) met to plan and develops the lessons that would be implemented during the 4th week in July.

The following schedule was completed:

February/ April 2008

Commence development of the curriculum

Order educational materials

Order Internet2 connection and equipment

Begin recruitment and registration of 18 participants

May/ June 2008

Complete the development of the curriculum to coordinate with curriculum goals

Establish evaluation procedures

Register participants

Arrange field study

July 2008

Conduct the Mathematics Summer Institute

Collect participant evaluations

August through December 2008

Schedule and conduct professional observations

Course Curriculum

The following course schedule was presented to participants:

Monday - Pre Test (Appendix A) Evaluation to Determine Students Knowledge of Investing, Technology

Session on Computers, COMPOUND INTEREST, EQUITY SECURITIES (What is a Security?; Stock?; Preferred Stock; Return On Investment; Tracking Securities; Characteristics of ADRs)

Tuesday - Trip to UBS Trading Floor in Stamford, CT, the largest trading floor in the world.

Wednesday- DEBT SECURITIES (Characteristics of Bonds; Bond Yields; Corporate Bonds; Trading Corporate Bonds; Money-Market Securities and Interest Rates), MUNICIPAL SECURITIES, OPTIONS(the Options Contract; Basic Options Transactions; Using Options to Protect a Position).

Thursday - MUTUAL FUNDS (Characteristics of Mutual Funds; Comparing Mutual Funds; Mutual Funds Distributions and Taxation), RETIREMENT PLANS (Corporate Retirement Plans; Individual Retirement Plans (IRAs); Corporate Retirement Plans).

Friday - UITs (unit investment trusts) investments vs. Mutual Funds, REITs (real estate investment trusts), Energy Trusts, ETFs (Exchange Traded Funds), Post Test of Students Knowledge of Investing (Appendix A).

A typical day was comprised of: a session by the investment advisor, followed by instruction by the math instructor, a break for lunch, another session by the investment advisor and the day concluded with a session by math instructor.

Post Course Evaluation

The Mathematics Institute was a success and the participants were impressed with the amount of economic mathematics they learned and the new and innovative teaching ideas they acquired. A comparison of the results on the pre- and post test developed indicated that participants gained an average of 81% knowledge of economic mathematics and terminology. (Appendix B). Although the percentage increase for some questions was calculated in the triple digits this indicates a lack of any knowledge to begin the course.

PERCENTAGE COMPARISION FROM PRE-TEST TO POST-TEST

N = 18

Question #	Pre-Test Correct	Post-Test Correct	% Change
1	12	18	50
2	0	12	>1000
3	12	14	17
4	7	9	28

5	3	11	267
6	4	16	300
7	6	13	117
8	0	8	>1000
9	4	9	125
10	6	10	67
11	4	12	200
12	4	10	150
13	1	9	800
14	2	10	400
15	9	12	34
16	9	14	57
17	8	12	50
18	3	16	433
19	2	11	450
20	6	11	83
21	3	9	200
22	2	15	650
23	6	12	100
24	4	16	300
25	7	14	100
26	6	13	117
27	15	18	20
28	3	16	433
29	11	16	45
30	12	18	50

Objectives

Objective A: During the summer institute, provide instruction on how to integrate technology (e.g., PC Tablets, and Athena Software) into mathematics competencies which will be measured by pre- and post-evaluations.

Achieved: Instruction was provided to all participants in the Summer Institute on how to integrate technology into the competencies.

Measured: This was measured through the use of lesson plans and topics submitted by the participants in each area.

Objective B: Following the institute lesson plans were shared with teachers in surrounding school districts.

Achieved: After the Institute transmission of lesson plans and information was distributed to participants via e-mail and direct mail.

Measured: During the 4 months following the Institute all participants were sent lessons and information.

Objective C: Develop a curriculum that addresses applied mathematics in the financial industry

Achieved: The curriculum was developed by the four instructors during the 3 months prior to the Institute in July.

Measured: All planning was accomplished for the Institute and distributed to participants during the last week of July.

Objective D: By the conclusion of the summer institute, demonstrate improved comprehension of the financial services industry by the quality of lesson plans prepared by teachers.

Achieved: The final course assignment of the Institute was to present lessons developed by each participant.

Measured: A rubric was developed to evaluate the lessons.

Objective E: Develop mathematics teachers'

investment/ banking/ insurance vocabulary to be measured by pre- and post-tests.

Achieved: Pre- and post-tests were developed by the instructors on investment/ banking/ insurance vocabulary prior to the first day of the Institute.

Measured: All participants completed the pre- and post-tests.

Objective F: Conduct professional observations of the participating math teachers and provide feedback on the lesson plans developed in the summer institute.

Achieved: The director of the project visited each participant and viewed the teaching of a lesson on investment/ banking/ or insurance.

Measured: Observations were scheduled and completed with each participant.

Achievement and outcomes

The true measure of the success of this research was three-fold. The first was the increase of economic mathematics knowledge obtained by the student/ teachers. This knowledge was measured by the pre- and post- test administered by the course instructors. The mean of the increase of knowledge was 81%. Student/ teachers repeatedly verbally indicated the amount of mathematics they were learning through this project. The second measure of success was the new and innovative ways the teachers were using their new

knowledge in their classrooms. Observing high school students learning about economical ideas was fascinating. New perspectives were gained by the students when lessons were presented about calculations of simple interest, compound interest, annuities, mortgage calculations, and the overall trends in the stock market. The third measure of success is yet to be observed. This measure will take 4-5 years before it becomes evident. This will be how the new information affects the lives of the high school students in the careers they select and their majors in college. Hopefully, this small initiative will change the workforce in Northeast Pennsylvania.

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