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A PRELIMINARY INVESTIGATION OF WEB RETAILERS' ONLINE PRIVACY PRACTICES

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ABSTRACT

This study will analyze the Web sites of online retailers identified as The 50 Best Web Retailers by Internet Retailer.com. The study examines the privacy policies and third-party seals of endorsement found on these sites. Preliminary results indicate as with previous surveys, only a small portion of the Web retailers belong to any third party seal program. Additionally, a large percentage collect personal information from consumers, and the vast majority share that information with business affiliates. Furthermore, the majority of sites require consumers to opt-out of such programs, while far fewer take the opt-in approach for sharing collected information. The paper concludes with suggestions for future research, detailing specific methodologies for data collection and analysis, along with additional sampling procedures for comparative analysis.

BACKGROUND

While the US economy has struggled, with traditional brick and mortar retailers experiencing less-than-expected in-store holiday sales, online retail sales have been steadily increasing. Forrester Research predicted U.S. e-commerce sales will reach $230 billion by 2008 (Cantwell, 2003), indicating that online retail sales will steadily increase at a 19% year-over-year growth. The U.S. Census Bureau predicted third quarter 2003 online sales would be 27% greater that third quarter 2002 online sales (Scheleur & King, 2003). Not only is the dollar amount of online sales growing, this channel's portion of overall retail sales continues to increase, and the online portion is predicted to reach 10% by 2008 (Cantwell, 2003).

In spite of continued growth in online sales, consumer concerns relating to online security and privacy issues still plague the online retail venue. Research and consumer surveys indicate privacy concerns can be attributed to non-purchases online, as well as online shopping "drop-outs" from previous years. Personal privacy and security issues are major barriers to utilizing the Web for retail purchases. Consumers indicate that questions about privacy affect their purchasing decisions (Caudill & Murphy, 2000). Well over three-fourths (81%) of consumers express concern about threats to online privacy, and 79% of online purchasers confirm this concern (Oberndorf, 1998). Moreover a University of Pennsylvania Wharton School survey (Hemphill, 2002) determined online shopping dropouts, those individuals who made online purchases one year but did not return to purchase the following year, were primarily attributed to concerns about third-party monitoring-a proxy for privacy. This study found concern about privacy was the highest predictor for non-purchasing online. One of the most frequently cited reasons consumers don't make purchases

online is lack of trust. A Business Week/Harris survey in 1999 (Benassi, 1999), found 78% of online users would increase their use of the Internet if privacy practices were disclosed; and an even more compelling, 61% of non-users would be more likely to begin using the Internet if privacy practices were disclosed. A 1998 Greenfield Online study (Yoon, 2002) investigated why respondents had never purchased online. The results found consumers had concerns regarding payment security (75%), payment-clearing structure (46%), company credibility and product return (36%), and the absence of a privacy (33%). Early online shopping research by Kunz (1997, 1998) found slightly more than half of consumers indicated concerns about insecure online transactions as a deterrent to purchasing online. A recent survey conducted by NFO WorldGroup and sponsored by TRUSTe revealed that fears related to privacy were projected to have a significant negative impact on online shopping during the 2003 holiday season (Hodge, 2003). Forty-nine percent of respondents indicated a lack of trust regarding the use of personal information would limit their online shopping activity. About 5.6% indicated they would not shop online at all due to concerns about privacy. The three leading reasons reported by the respondents to this survey for reducing or stopping online shopping included concerns about receiving spam after purchasing a product, fear of identity theft, and the potential for credit card information being stolen.

TRUST AND PRIVACY

As early as 1996, Lori Fena, Director of the Electronic Frontier Foundation cited that lack of trust as a significant impediment to electronic commerce (Luo, 2002). People were hesitant to purchase online or even left the electronic market because of a lack of trust, and most specifically concerns about privacy. There are differing opinions regarding online trust. Some say the public may be too trusting (Friedman, Kahn, & Howe, 2000), downloading software, participating in online chats and e-auctions, while others continue to refrain from engaging in online purchases, citing fears that financial transactions are insecure. Thus establishing trust is imperative for online retailers. According to Hemphill (2002), electronic commerce will not attain its full potential in the U.S. economy unless consumers feel confident that their privacy and confidentiality have been protected. Trust has been cited as the most significant long-term barrier for realizing the potential of e-commerce to consumers (Grabner-Kraeuter, 2002). A 2002 survey conducted by Yonkers, NY based Consumers Union of the US, only 29% of 1500 US Internet users polled said they trust Web merchants-far fewer than those who trust brick and mortar retailers (Brannigan & Jager, 2003). A significant factor contributing to this lack of trust is that consumers simply are unwilling to provide personal information to Web retailers. Electronic commerce and online retailing will not attain its full potential in the U.S. economy unless consumers feel confident that their privacy and confidentiality are secure and protected. Urban Sultan and Qualls, (2000) posit that trust will become the currency of the Internet. Companies on the Web have to communicate and sell their products and services by providing a trusted environment. Furthermore, Alan Web, found of the new economy business magazine Fast Company states that the new economy begins with technology and ends with trust (Kelly, 1998), and the forefront of developing trust is the hurdle of privacy.

Several well-known Web retailers have announced changes in the treatment of personal information collection and dissemination/sharing policies recently that have increased the concerns

of consumers as well as respective customers. Most noted of these are Amazon.com's change in the sharing of their customer database information, and Toysmart.com intention to auction off its customer database to the highest bidder (Friedman, Kahn, & Howe, 2000; Turban, King, Lee, Warkentin, & Chung, 2002). Hemphill (2002) indicated consumers are justified in their concerns regarding online privacy, given these notorious incidents such as Amazon.com, Doubleclick, Inc., and Toysmart.com all improper and perhaps illegal handling of consumer information to third parties. Consumers must be willing to share personal identifying and financial information in order to e-commerce to occur. However, the bottom line is that customers won't give the online retailer that information if they don't trust the retailer (Brondmo, 2000). Fraley (2002) makes an important point, that the privacy issue must be managed as a critical strategic issue in every company.

Online consumers feel a lack control over the access that Web merchants have to their personal information during the online navigation process (Hoffman, Novak, & Peralta, 1999). Concern about privacy include perceptions relate to consumers' control of their personal information, as well as what the company will do with their personal data once it has been collected. Hoffman et al. indicate consumer perceptions regarding trust are media-relative. Thus, with more traditional forms of data collection such as phone ordering, or catalog shopping, consumers have come to be more accepting. While 21% of Web users surveyed like receiving direct mail solicitation, only 6% wanted to receive junk email. Almost two-thirds (63%) of Web consumers declined to provide personal information because they didn't trust the site collecting the data, 65% indicate that providing information is not worth the risk of revealing information, and 69% will not provide personal information, if they do not know how it will be used. Finally, the researchers found that an overwhelming number of online consumers, 95%, had declined to provide personal information to Web sites at one time or another, and slightly less than half, 40%, had taken the trouble of fabricating information when providing it. Hoffman et al. conclude that most effective way for Web providers to develop consumer trust online is to allow that balance of power to shift toward the consumers by moving toward opt-in, informed-consent policies in computer-mediated environments.

FAIR INFORMATION PRACTICES

It is obvious that a major concern for consumers in developing trust is privacy of personally identifying information. As described by Luo (2000), in the area of Internet marketing, invasion of privacy is interpreted as the unauthorized collection, disclosure, or other use of personal information. Sheehan and Hoy (2000) suggest that two expressions of control, awareness of information collection and usage of this information beyond the original transaction are the predominant influences on the degree to which consumers experience concerns about privacy. The Privacy Working Group of the U.S. Information Infrastructure Task Force addressed privacy principles as early as 1995 (Hemphill, 2002). Recommendations set forth by this group at that time indicated that online businesses gathering data should inform consumer of 1) what information they were collecting and how they intended to use the data; 2) whether or not personal information was collected from children; 3) the consequences of providing or withhold information; 4) what steps

would be taken to protect the information; 5) a meaningful way to limit use and re-use of personal information; and 6) any rights of redress for harmful or improper disclosure of personal information.

Because of the high priority consumers place on privacy, the Federal Trade Commission (FTC) has been actively involved in establishing guidelines for online marketers in providing and meeting privacy needs. The FTC has relied on fair information principles to guide privacy regulation and industry practice in the U.S. These principles include notice/awareness, choice/consent, access/participation, security/integrity, and endorsement/redress. There is agreement on what comprises the basic premise of each of these principles (Caudill & Murphy, 2000; Commission, 1998, 1999, 2000; Hemphill, 2002; Sheehan & Hoy, 2000). The principle of notice/awareness is considered fundamental: the consumer should be given notice of a business's information practices of collecting personal, identifiable information. Furthermore, this notice should be given before such information is collected. The second principle, choice/consent, gives consumers the option, or choice, on how any information that is collected from them may be used, after the current transaction is completed. Thus, consumers should be able to choose how, or if, their personal information may be disseminated to other, third-party, sources. The third principle of access/participation posits that consumers should be given access to the information that a company has collected about them, as well as contest the accuracy and completeness of the information. The principle of security or integrity, fourth in the list of fair practice principles, needs no more detailed definition other than to say that all data collected as well as transactions must be secured and confidential. Finally, the fifth principle of enforcement/redress provides consumers assurance of compliance. Without this enforcement/redress mechanism, these fair practice principles are merely suggested guidelines, and there can be no assurance that companies will be in compliance.

Although the industry has relied on self-regulation, Milne and Boza (Milne, 2000; Milne & Boza, 1998) found that in a study of 365 organizations, only 38% of the organizations notified consumers about the gathering of personal information, 33% indicate the use of the information, and 26% ask for permission to use the information. Several sweeping research studies conducted in recent years have indicated the large majority of Web sites surveyed do collect personal information, while much smaller percentages post disclosures of such practices. In addition the surveys indicate that in many instances, less than half of these sites implemented four elements of fair information practices established by the FTC. Protection of privacy has become a central issue of the Federal Trade commission, as well as Web retailers. A series of "sweeping" online surveys of fair practice compliance reveal less than exemplary practices on the part of Web sites (Commission, 1998, 1999, 2000; Culnan, 2000; Hemphill, 2002; Milne & Culnan, 2002; Project, 2000) in March of 1998, March 1998, spring of 2000 and December of 2001. The first study conducted in 1998 found that 92% of sites collected personal information, but only 14% posted a notice regarding their information practices, and an astonishingly low 2% posted a comprehensive privacy polity. One year later the numbers improved somewhat, with almost two-thirds of the sites that collected personal information posting some form of privacy disclosure, either a privacy policy or an information practice statement. Thirty-six percent posted both types of disclosures. By 2000, 88% of the sites in a random sample posted at least one privacy disclosure, but only 20% implemented four elements of fair information practices. By late 2001, slightly more than half, 55%, of web sites in a random sample implemented notice, choice and security practices to some extents. This last

survey found that 77% of the sites survey posted a privacy policy, and 74% provided notice about what personal information collected. In addition, 90% of top sites provided notification about the use of cookies-automated information collection programs on the Web sites. Milne and Culnam (2002) also note that almost three-fourths of consumers have noticed Web privacy policies, and 69% report having read at least one online privacy policy. Many organizations use the Internet to gather information through the use of cookies or other forms of tracking software without the consumer's knowledge. This data collection adds to the consumer's concern regarding privacy issues. Building trust may be a solution to consumers' privacy concerns.

SEALS OF ENDORSEMENT

Third-party seals of approval have been developed to assist both Web retailers in gaining consumer trust, and to aid consumers in identifying companies that have developed their Web sites and company procedures in accordance with good practices. Miyazaki and Krishnamurthy (2002) indicate that a seal of approval can be thought of as a co-branding strategy. Thus consumers who see one of the seals can feel a sense of assurance that a certain standard of privacy will be met. These researchers believe that seals raise consumer confidence, citing the Good Housekeeping Seal of Approval or the Underwriters Laboratories Listing Mark as predecessors to the online environment, and current privacy seals. Jamal, Maier and Sunder (2003) note that as of December 2001, four major privacy assurance providers competed by developing standards and offering privacy seals: TRUSTe, the first in the market, PriceWaterhouseCoopers (PWC), WebTrust offered by a consortium of accounting firms, and BBBOnline. Hemphill (2002) notes that by 2002 there were five online privacy seal programs available to Web site operators: BBBOnline, CPA Web Trust On-line Privacy, the Direct Marketing Association's Privacy Promise, Secure Trust, and TRUSTe. While there are several seals of approval, two dominate the online environment: TRUSTe and BBBOnline. A review of the top Media Metrix 500 consumer web sties in 2000 found 24% of the sites had some form of endorsement.

The TRUSTe program addresses the fair information principles, as its licensees agree to provide notice, choice, security, data quality and access. Sites with the TRUSTe seal are monitored through an initial inspections, seeding, and outside audits (Benassi, 1999). The TRUSTe standard requires a Web site to disclose the use of cookies, indicate whether cookies are linked to personally identifiable information, explain what data are collected with the cookies, explain the choice and consequences of not accepting cookies, disclose if the data collected by the Web site are aggregated with the data obtained from other third parties, and disclose third parties who collect data on the Web site. This is the most demanding standard on cookie disclosure (Hemphill, 2002). A BBBonline seal affirms to consumers that their personal information will be safeguarded in cyberspace by the companies that participate in this privacy seal program (Luo, 2002). BBBOnline is the next most stringent seal program. This seal requires disclosure of cookie usage, aggregation of data collected on the Web site with data obtained from third parties and disclosure of third parties collecting data on the Web site (Hemphill, 2002). Both TRUSTe and BBBOnline base fees on client revenue. TRUSTe's maximum fee is $12999 for companies with sales greater than $2billion, while BBBOnline's fee is $7000 for companies with sales greater than $2 billion. Cline (2003) notes that

fees for smaller firms are significantly less; TRUSTe charges $599 for firms with sales less than $5 million, while BBBOnline charges $200 for firms smaller firms. WebTrust provides a full audit at an annual cost greater than $100,000 per client. PWE offers a proprietary BetterWeb service prices at a flat fee of $15,000 (Jamal et al., 2003). So, is one seal better than another? Does one seal provide better assurance, or promote a higher level of consumer confidence, and thus trust? According to Cline (2003) the answer is, "no." Either the TRUSTe or BBBOnline seal will do. TRUSTe has the highest market share, 1374, compared to BBBOnline's 700+. However BBBOnline has a 91-year history with the Better Business Bureau's name recognition. This gives BBBOnline a 93% recognition rate, compared to TRUSTe's six-year old seal a 69% recognition rate.

Jamal et al. (2003) analyzed 100 top Web sites in 2001. Thirty-four of the sites displayed a privacy assurance seal, either TRUSTe or BBBOnline. Seals can affect consumer perception of favorableness toward web site privacy policies (Commission, 2000). This study determined that the mere display of an Internet seal of approval logo enhanced consumer perceptions regarding privacy policies. The presence of seals increased anticipated disclosure and patronage for consumers with relatively high online shopping risk, but did not have the same influence for consumers with low shopping risk. However, the study also found that there was no real support to indicate that the presence of a seal program logo was an accurate indicator of actual privacy practice standards at the Web site. Mayazaki and Fernandez (2000) surveyed over 1600 firms licensed with BBBOnline, 330 firms, and TRUSTe, 1253 firms. Seventy-four displayed both seals. Compliance with the required display of a hyperlinked logo was low-37% for TRUSTe and 48% for BBBOnline. Twelve percent of the TRUSTe and nine percent of the BBBOnline firms did not display any log at all. In addition, 5% of the TRUSTe and 8% of the BBBOnline licensed firms did not have an active web site. Of the active sites surveyed, 54% display the privacy seal on both the home page as well as privacy page of the Web site. One-fifth displayed the privacy seal information only on the privacy policy page, and 9% displayed the logo only on the Web site's home page. Jamal et al. collected data from 100 high-traffic Web sites using a Web crawler. This study found that 34 sites displayed a privacy assurance seal, TRUSTe comprising a significantly higher percentage-30 sites. Two sites displayed the BBBOnline seal, while another two sites displayed both. Of these 34 sites displaying a seal, 97% also posted a privacy policy, and 92% were described as "easy to find," with only a few mouse clicks. All of the sites displaying a privacy seal disclosed their cookie usage, but only 30 explained what cookies are, and the kind of data that was collected using these cookies. For the sites not displaying privacy seals, 97% used cookies, but only 86% disclosed their use of this technology. Approximately two-thirds of the sites explained what cookies are, but only 35% explained how to monitor or disable cookies. Overall, the Web sites with the privacy seals had a superior record of disclosure compared with the sites not displaying third party seals of endorsement.

Web retailers need to make it easy for consumers to trust their site. Posting privacy and security policies, and making them easy for consumers to read and understand can ensure such trust. In addition, employing certifications from trust and e-commerce auditors will encourage consumer trust (Smith, 2000). Sindell (2000) also encourages the posting of an explicit privacy policy statement, along with a privacy audit to reduce consumers perceptions of risk, and increase trust of the Web site. Despite low participation and compliance rates, there is much support for participation in a third-party seal of endorsement programs (Cline, 2003; Mohammed, Fisher, Jaworski, & Cahil,

2002; Urban et al., 2000). While third-party trust seals such as TRUSTe, BBBOnline or Web Assurance Bureau may be useful in building trust, security-related seals such as VeriSign and CPA WebTrust may resolve concern with security issues (Miyazaki & Krishnamurthy, 2002). The VeriSign SecureSite seal indicates that the site adopts up-to-date security technology and is registered with either the bank or the Internet company collecting payment from the consumer based on digital certificate technology (Urban et al., 2000).

A recent study by Earp and Baumer (2003) found that consumers have more confidence in a retail Web site that possessed a Web seal. Young consumers were more inclined to provide name, age and gender information, as well as read the privacy policy on the site. In addition, they were also more like to provide their information in exchange for cash or a gift offered by the site. Older consumers were more concerned about identity theft and losing control of their information, along with unauthorized redistribution of their information. While the support was not particularly strong, Web sites that provided a privacy statement, opt-out features and third-party seals can allay some consumer concerns.

Finally, there is another assurance program currently under consideration for Web retailers selling goods and services internationally, the Safe Harbor Agreement. The Commission of European Communities issued a document in July 2000, outlining the main features of what has become known as the Safe-Harbor Agreement (Brown & Blevins, 2002), to ensure the protection of personal data collected by U.S. based companies about residents of the European Union. It is not European privacy laws that raised concerns in the EU, rather the absence of such privacy laws in the U.S. Personal data privacy has been seen as a human rights issue in Europe, but is a consumer rights issue in the U.S. In Europe, privacy is seen as a right, and the European Union stops the transfer of data to countries outside the EU where "adequate" protection does not exist. Most U.S. Web sites are unlikely to meet the "adequate" level of the EU. Safe Harbor has seven basic principles: 1) notice, 2) choice, 3) onward transfer, 4) security, 5) data integrity, 6) access and 7) enforcement. While on the face of these principles it would appear these principles are basically parallel to the Fair Information Principles endorsed by the FTC. However, the Safe Harbor Principles include follow-up procedures to verify the business's assertion about the privacy practices, as well as obligations to remedy any consequences for organizations that fail to comply. While the Safe Harbor agreement has not been fully endorsed by U.S. Web retailers, it is an impediment to continue true e-commerce for U.S. firms with European Union consumers.

PURPOSE OF STUDY

The purpose of this study is to analyze the Web sites of online retailers identified as The 50 Best Web Retailers by Internet Retailer. Internet Retailer identifies its Top 50 Best Web Retailers every December (Peters, Wagner, & Demery, 2002). An editorial board determines these Web retailers, based upon Web site design and effectiveness. Neither online retail sales revenues, nor consumer ratings have any influence on list inclusion. The study examines the privacy policies and third-party seals of endorsement found on these sites. The specific research questions to be addressed by the study are:

1)	Does the Web retailer have a privacy policy posted, and how easily can consumers access it?
2)	Does the company indicate that it shares personal information with affiliates or third parties?
3)	What choice do consumers have in the control of sharing their personal information?
4)	What third-party seals of endorsement and certification programs are present on the Web site?

METHODOLOGY

A content analysis of the 50 Best of the Web retailers listed in the December 2002 Internet Retailer was conducted in the fall of 2003. Forty-eight of the 50 companies still have operational web sites. Each site was examined for the presence of a privacy policy and presence of third-party seals, including BBBOnline, TRUSTe and VeriSign. In addition, a trained data collector determined how may mouse clicks were required to access the privacy policy from the home page. Content of the privacy policy was examined to determine if the company shared personal information with business partners and affiliates, as well as with third parties; if consumer had the choice to opt-in to data sharing, or if the site offered only opt-out procedures. Finally each site was examined for support or compliance with Safe Harbor practices.

RESULTS

A large percentage of the Web sites examined collect personal information from consumers, and the vast majority of them share that information with business affiliates. Specifically, 83% of the sites share personal information of customers with business partners or affiliates. A much smaller portion, 23%, shares this information with third parties. A significant portion, 90% of the sites have a privacy policy only one mouse-click away from the home page. The remaining 10% place their privacy policy only two clicks from the home page. It should be noted that all of the sites reviewed had a privacy policy posted. Furthermore, the majority of sites, 73%, require consumers to opt-out of such programs, while far fewer, 19%, take the opt-in approach for sharing collected information. Four of the sites (8%) did not indicate either approach to consumer choice. As with previous surveys, these results indicate, only a small portion of the Web retailers belong to any third party seal program. Contrary to industry statistics, more of the sites reviewed displayed the BBBOnline logo than the TRUSTe logo, 21% and 10% respectively. The VeriSign security assurance seal was present on one-third of the sites reviewed. Finally, only three (6%) of the sites were in compliance with Safe Harbor practices. A graphic comparison of these results is presented below in Table 1. A chi-square test of independence was conducted to examine differences in information practices between the sites based upon the assurance seals. Results were significant for all four seals/endorsements and only two variables regarding information practices: sharing of personal information with third parties, and opt-in/opt-out policies. See Table 2 for specific results. These results indicate that the sharing of personal information with third parties and the approach taken toward opt-in or opt-out consumer actions are influenced by the presence of third-party endorsement seals.

Table 1: Frequency Results		
Variable	Number of sites	Percent
Number of clicks to privacy policy	1 click=43	90
	2 clicks= 5	10
Shares information with partners/affiliates	Yes=40	83
	No=8	17
Shares information with third parties	Yes=11	23
	No=36	75
	Not indicated= 1	8
Consumer choice options	Opt-in= 9	19
	Opt-out=35	73
	Not indicated= 4	8
BBBOnline logo present	Yes=10	21
	No=36	75
	Not indicated= 2	4
TRUSTe logo present	Yes= 5	10
	No=43	90
VeriSign logo present	Yes=16	33
	No=32	67
Safe Harbor compliance	Yes= 3	6
	No=45	94

Table 2: Chi-square results				
Seal	Policy	x^2	df	p
BBBonline	share w/ 3rd	27.82	4	.000
BBBonline	opt-in/out	26.55	4	.000
TRUSTe	share w/ 3rd	9.90	2	.007
TRUSTe	opt-in/out	10.20	2	.006
VeriSign	share w/ 3rd party	48.04	2	.000
VeriSign	opt-in/out	13.95	4	.007
Safe Harbor	share w/ 3rd party	24.70	4	.000
Safe Harbor	opt-in/out	27.63	4	.000

Based upon these findings, it would seem that for this group of Web retailers, only a small percentage participates in a third-party privacy seal program, as well as a security assurance program, VeriSign. These results are similar to, but better than those found by Kunz and Henderson (2003) of U.S. retailers. A significantly small number of these Web retailers comply with Safe Harbor practices. In addition, the large majority of the sites reviewed require consumers to take a pro-active approach to personal information. The majority requires consumers to opt-out of information sharing, rather than letting them opt-in, if they so choose. These results are disappointing for this group of Web retailers. While the sites were not selected for their popularity with consumers, or based upon sales volume, they are never the less considered to be top-rated online retailers. Since these sites were identified as top Web retailers based upon site design and effectiveness, one would hope that these sites would exhibit much higher percentages of compliance and seal endorsement. However, the results here are similar, and in some instances better, than the findings of Milne and Culnan 2002 and Jamal et al. in 2003.

LIMITATIONS AND FUTURE IMPLICATIONS

This study is only a small sample of Web retailers, and preliminary in nature. In addition, the analysis is quite simple and relies on frequency and content analysis. However, following this annual list of Best 50 Web Retailers on an annual basis using a longitudinal study could track improvements in compliance. Comparing this group of Web retailers with other sources identifying top-rated, most popular or most visited sites would provide better means of comparison.

Suggestions for future research address three major areas for consideration. The first is sampling methods of the sites to be analyzed. The 1998 FTC survey analyzed Web sites from six different target populations (Commission, 1998; Milne & Culnan, 2002) termed "likely to be of interest to consumers." It included sites that belonged to Dun & Bradstreet's Electronic Commerce Registry database, Media Metrix, RelevantKnowledge and Web 21's "100-Hotcom" sites. The Georgetown Internet Privacy Policy Survey conducted in March 1999 sampled from Web sites likely to be of interest to consumers, sampling from URLs identified by Media Metrix (Commission, 1999; Culnan, 2000; Milne & Culnan, 2002). The 2000 FTC survey (Commission, 2000; Milne & Culnan, 2002) sampled from dot com domains from Nielsen//NetRatings in January 2000. Finally a 2001 survey replicated the 2000 FTC survey, selecting the 100 busiest sites from data again obtained from Nielsen//NetRatings rankings of domains (Milne & Culnan, 2002). It is suggested that samples across various sources that are reported as top-rated Web sites, such as Media Metrix, Nielsen//NetRatings, and Internet Retailer should be sampled, and these results compared across the samples. Furthermore, sites that are duplicated within these samples could be analyzed against single-listing sites. It would also be insightful to analyze sites based upon sales revenue generated. Perhaps a sampling of Web retailer sites, gleaned from the Stores Top 100 U.S. Retailers list published annually could also be analyzed. Previous research by Kunz and Henderson (Kunz & Henderson, 2003)found privacy and security policies present on about half of these Web retailers' sites, but less than 10% displayed third-party seals of endorsement. Additionally, BizRate.com has been surveying consumer satisfaction and perceptions of their respective Web purchase. This site promotes that it is the "world's best shopping search engine (About BizRate.com, 2004; Ratings and

Research, 2004). BizRate's Customer Certified Ratings Program is used by thousands of retailers every day to promote, track and improve their customer satisfaction performance (Ratings and Research, 2004). Identifying a sample of sites endorsed by this online Web vendor review source could also be a sample source.

The second area to be considered for future research is actual analysis of data gleaned from these various samples. Replication of research conducted by Miyazaki and Krishnamurthy (2002) that would analyze the content of the privacy policy information, as well as the readability and disclosure statements made in the policy, similar to the analysis by Milne and Culnan (2002) could provide significant insights into compliance of privacy policies with seal endorsements, as well as the overall effectiveness of the privacy policies. Since previous sweeping surveys have used similar samples of Web sites, continuity across sampling, while using more in-depth analysis of actual content could provide more detailed information.

A final recommendation of future research is to survey online shoppers regarding their awareness of the presence of privacy policies, actual cognizance of privacy policy content, as well as recognition of and reliance on third-party seals of endorsement for privacy assurance. Previous research (Earp & Baumer, 2003; Milne, 2000; Milne & Boza, 1998; Miyazaki & Krishnamurthy, 2002; Sheehan & Hoy, 2000) have found levels of trusts are significantly influenced by privacy concerns and the presence of assurance seals. Thus, determining how consumers use privacy policies, how accurately consumers interpret the information, what specific information in the policies, as well as third-party endorsement seals they use would provide further insights into the effectiveness of such information. Another aspect of consumer surveys should also include determination of what sources consumers actually use to find top-rated, reliable Web retail sites.

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PRE-NEGOTIATION STRATEGY DEVELOPMENT IN UNEVEN POWER SITUATIONS

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ABSTRACT

Negotiations between purchasing managers (acting as representatives of the organization's buying center) and sales representatives (the designated agent of the supplier) are characteristic of the purchase behavior process often encountered in business-to-business marketing settings. It is rare when the situational power of the parties is equal. Even with the growing emphasis on the establishment and nurturing of mutually beneficial relationships between buyers and sellers, the effect of situational power discrepancies on negotiation planning has not been adequately explored. This article investigates how uneven situational power conditions and the expected length of the relationship affect purchasing managers' pre-negotiation strategy development and how they structure their opening offers. Responses from approximately 150 purchasing professionals to pre-tested negotiation scenarios validated the moderating role relationship length plays in the exercise of situational power. Additional findings provide insight to selected negotiation factors purchasing managers consider significant.

INTRODUCTION

Researchers have conducted a considerable number of negotiation studies in the last several decades. Scholars from disciplines as varied as game theory, economics, psychology, sociology, international business, and marketing have explored the tasks, processes, and participant characteristics of negotiations. The implicit rationale for a large number of these studies is the central role that negotiation plays in the organizational buyer-seller exchange process. This process is made more critical because of the strategic role buyer bargaining power and buyer-seller collaboration can play. The relationships created through negotiations may represent either a strong or weak competitive force, depending on whether buyers have sufficient bargaining power to influence the conditions of sale in their favor, and the degree and relative importance that buyer-seller partnerships have within the industry as a strategic advantage.

Several models of organizational buyer behavior have achieved widespread acceptance. The principle motivation for their development was the realization that conventional models of consumer buyer behavior were inaccurate and insufficient to explain and predict the dynamics of organizational buying situations. The Sheth model of industrial buyer behavior (Sheth, 1973) focuses on the crucial elements of the decision process and the interactions among them. Chief among its contributions is the recognition that the expectations of the buyer, whether represented by an individual or by a group, have an effect on organizational buyer behavior. While the model

addresses conflict resolution, it is dealt with only from the perspective of conflict within the organization, and not that which may occur between the buyer and seller.

The Webster-Wind model of organizational buying behavior (1973) incorporates task and non-task factors, as well as interactions that potentially affect the participants, both at a broad level (such as the environment and the organization), and at a narrow level (such as the individual and any group decision-making unit that may exist within the organization). A deficiency of this model is that it only examines the determinants of organizational buying behavior up to the point of a decision. Implementation of that decision, which would include the negotiation process itself, is not addressed either specifically or in general terms. In offering the model, Webster and Wind expressed the hope that their model would be used in future research to identify information required for planning strategies in organizational buying. Those planning strategies would logically include ones covering the likely event of negotiations with sellers.

Jean-Marie Choffray and Gary Lilien (1980) developed a model of industrial market analysis; one that specifically addressed how organizations adopt new capital equipment. Their model explored the connections between the characteristics of the organization's buying center, and the major stages in the industrial purchasing decision process. In discussing these connections, the authors recognized the impact of individual and organizational preferences to the process. While also making a contribution, Choffray and Lilien's model ended with the determination of a buying decision; no implementation issues, such as negotiations with suppliers, were considered.

From a strategic standpoint, the relative bargaining power of a buyer can create a significant negotiating advantage. Buyers have substantial bargaining leverage in a number of situations (Porter, 1980 and 1985). The most apparent demonstration of that circumstance is when large buyers purchase substantial percentages of an industry's products. Bulk purchases generally result in both price discounts and sales terms favorable to the purchaser. The economies inherent in large single point sales are generally seductive in themselves to produce uneven buyer-seller relationships. Still, a seller with a product in high demand can often redress the bargaining balance even when large quantity purchases are involved. Other factors also can create a strategic imperative that produces additional pressures, tilting the relationship in one direction or the other. For example, the possibility of critical market exposure or the perceived advantage of being associated with a prestige customer is common to relationships that are unequal in terms of bargaining power.

BUILDING A THEORETICAL FRAMEWORK

Power

The role of power as a logical determinant of outcomes in the negotiation process has been well established with the publication of several major works in the 1960s (Bier and Stern, 1969, Stern, 1969) as well as reinforced by others more recently (e.g., Greenhalph, Neslin, and Gilkey, 1985). In addition, Cadotte and Stern (1979) developed a model for analyzing power and conflict in the marketing channel and Bonoma (1979), created a typology of buyer-seller relationships based on the relative power of the parties.

Common to most definitions of social power, one of the possible sources of power, is the idea of getting the other party to do something that he or she would not do in the absence of influence. In the case of negotiation however, power takes the form of inducing the other to settle for an outcome of less than their maximum utility, given their situation, but still within their zone of acceptance. Otherwise, an agreement will not be reached. If an agreement is reached, it can come about either because of tactical negotiating skill or situational power (Greenhalgh, Neslin, and Gilkey, 1985). In a paper on power and goal setting in channel negotiations, McAlister and her associates established that constraints established before the negotiations commenced had an impact on the resulting process and outcomes (McAlister, Bazerman, and Fader, 1986). Later work by Perdue and Summers (1991), which focused explicitly on industrial purchasing agents and their use of negotiation strategies in rebuy situations of component parts, demonstrated the ability of contextual variables (e.g., uniqueness of the buying firm's specifications, buyer's cooperative orientation, and buyer preparedness) to predict the emphasis purchasing agents will place on each of the general individual strategies (e.g. problem solving, manipulating perceptions about competition, and tough tactics) they identified for use in any particular set of negotiations.

Of principle concern to the research presented here is the issue of preparedness. The importance of preparedness to the negotiation process is widely acknowledged by purchasing experts (Barlow and Eisen, 1983; Peterson and Lucas, 2001). The possession of information relevant to negotiations and a formal plan for the interactions places the buyer in a strong position. In addition, having this information and a detailed plan for negotiation increases the buyer's ability to elicit concessions from the seller. This argues for greater use of aggressive bargaining by buyers who are better prepared. This contention has long been supported by experimental results that increasing task relevant data causes greater bargaining "toughness" (Siegel and Fouraker, 1960) as well as in the observation that having more information pertinent to the purchase situation tends to produce an aggressive posture in buying task group discussions (Krapfel, 1985).

Asymmetry

Negotiation is one strategy for a channel member to cope with another member's power (Dwyer and Walker, 1981). While many studies involve symmetric or balanced bargaining situations, Dwyer and Walker's research compares the bargaining process and outcomes in asymmetrical power structures against those of more balanced situations. Their results indicated that when the power structure was less balanced, the process was, in their term, more "efficient" (i.e. agreement terms were arrived at in fewer rounds) but the outcomes were less predictable.

Differential situational power has been manipulated in the laboratory in a number of ways, with the observed result that the more powerful party typically used that power (Rubin and Brown, 1975) and as a result had a higher outcome than the weaker party. More specifically, a negotiator motivated by immediate maximum self-gain who holds more power than his partners will submit a more extreme initial bid, yield less profit from his or her initial position, and send a larger portion of demanding-threatening messages than when power is balanced (Thibaut, 1950). Others have also found support for the effects of the power position. Dwyer (1984) found that negotiators in strong power positions earned more than those in weak power positions in an economic task. The results

of these research works suggests the question of under what circumstances a negotiation party in an asymmetrically powerful position will not use (or at least moderate) the use of their power to extract maximum self-gain.

Initial Bargaining Position, Bargaining Style, and Relationship Orientation

Initial bargaining stance has been examined (Lawler and MacMurray, 1980) in the context of its effect on concession strategy in dyadic bargaining. Schurr and Ozanne (1985) extended this line of inquiry and concluded that prior beliefs significantly influence perceptions of the seller's actual behavior and that once a buyer's preconceptions are formed, whether or not the beliefs are consistent with the their objectives, buying behavior will be framed by these preconceptions. Neale and Bazerman (1985) found that a positive frame led to more successful performance than a negative frame, reinforcing Schurr and Ozanne's conclusions. Pullins et al. (2000) explored the early use of cooperative negotiation tactics and the impact on later satisfaction and profits. As a demonstrated construct, framing can occur before negotiations commence and therefore may exert an effect on the process and ultimate outcome of a negotiation.

A competitor's motivations also can have an effect on negotiations. Rose and Young (1991) used written instructions to manipulate negotiators' competitive orientations in a negotiation experiment. As a result of the instructions competitive buyers set more ambitious price goals, made lower final offers, and viewed the seller as more competitive and less trustworthy than cooperative buyers. In an article dealing with the likelihood of future negotiations (Corfman and Lehmann, 1993), the authors found that subjects recognized that to ensure future negotiations, equity in payoffs and satisfaction with the current bargaining experience was important. This view of the importance of possible future negotiations was examined by Pruitt and Kimmel (1977) in a review of the then last twenty years of experimental gaming literature. They concluded that a critical factor determining the behavior of a negotiator at a given point in a negotiation is the negotiator's short-term or long-term orientation. This perspective is taken up by Ganesan (1993). His findings suggest that channel members who have a vested interest in the other's welfare and in maintaining the relationship are likely to refrain from the use of active aggressive strategies. Combined with the finding of other research (Dwyer and Walker, 1981; Frazier, Gill, and Kale, 1989), which found greater use of aggressive strategies under conditions of high power, it suggests that relationship orientation may act as a moderating variable in high power situations.

Strategic Bargaining Leverage

Although the obvious situations of purchasing large quantities, critical market exposure, or the perceived prestige of a buyer's outlet or a seller's product can alter the buyer-seller advantage, there are other attributes that may also affect bargaining leverage. For example: if a buyers' costs of switching to competing brands or substitutes are relatively low; if the number of buyers is small or if a customer is particularly important to a seller or vice versa; if buyers are well-informed about sellers' products, prices, and costs or if sellers have similar information about buyers margins, value chain or end users; if buyers pose a credible threat of integrating backward into the business of

sellers or alternatively if sellers have the capability of integrating forward into their buyers businesses; or if buyers have discretion in whether and/or when they purchase the product or if sellers have discretion in either selling or timing (Thompson and Strickland, 2001).

The important point is that not all buyers have an equal degree of bargaining power with sellers. Furthermore, individual sellers may retain variable bargaining power depending upon the buyer in question. The potential for an individual or a firm to take advantage of the different bargaining levels and forms of the buyer-seller relationship represents a strategic opportunity that should not be missed. Additional understanding of this process could improve the outcomes and therefore be of interest to parties on either side of the buyer-seller process.

Conceptual Framework

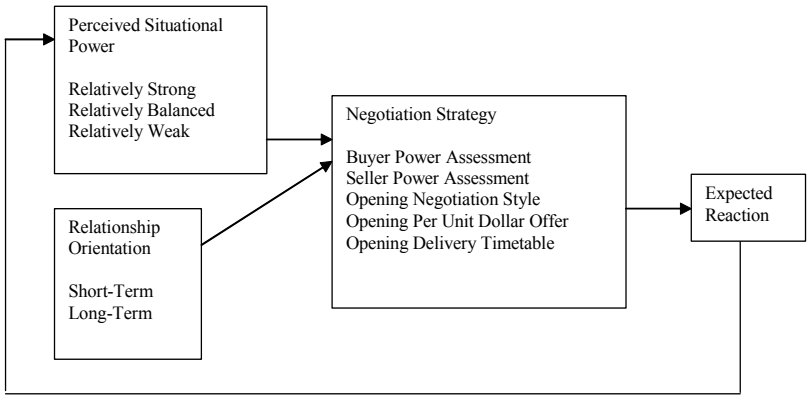
The current practical emphasis on relationship management as a key to successful marketing negotiations, both to buyers and sellers (e.g. Guenzi, 2003; Harwood, 2002) suggests that the ongoing relationship with a negotiating partner might also effect pre-negotiation strategies. More specifically, the existence of an ongoing relationship or one that will stretch well into the future may act to lessen the "extremeness" of opening offers and/or moderate the effect that one party may possess because of situational power. Power however, is not an absolute, dichotomous variable. Rather, it is a continuous one, evaluated relative vis-à-vis some "other" (in this case the bargaining opponent). In other words, if a buyer is negotiating two different $10 million dollar industrial purchases with two different sellers, the buyer will possess more situational power in the negotiation with seller A (where this contract represents 60% of the selling company's annual sales) than with seller B (where the contract would represent only 2% of the selling company's annual sales), all other things being equal. To conceptually represent relative power negotiating scenarios three factor levels will be considered: (1) the buyer is asymmetrically strong relative to the seller, (2) the buyer is on roughly equal or near symmetric footing with the seller, and (3) the buyer is asymmetrically weak relative to the seller.

The other major factor included in the conceptual framework is the buyer's relationship orientation. Two levels of this factor are considered: short-term and long-term. One-time relationships are rare in today's business markets. Even for true one-time purchases, after purchase services, upgrades, and the like typically necessitate some type of ongoing, if peripheral, relationship between buyer and seller. Furthermore, players in many industries are known to all. Reputations, both good and bad, can be created in single sale situations and exert influence over the future actions of the negotiation participants, even if they never negotiate directly with one another again.

To investigate the effect of buyer situational power and relationship orientation, selected elements of the opening offer are examined; ones that are believed to reflect the perceptions (and actions) of the buyer regarding the negotiating opponent and their relative situational power, their reactions to such an offer, and the factors that may either exacerbate or moderate that position (in the current research the expected length of the relationship). In addition, this assessment will be reflected in the bargaining stance or style that the buyer determines to present when the negotiations begin. A current trend, pointed out by Murnighan and Bazerman (1990), supports the value of cooperation in negotiations and conflict management. This trend is also supported by literature advocating the

relationship marketing perspective (e.g., McKenna, 1991; Sherlock, 1991; Burt, Dobler, and Starling, 2003; Hutt and Speh, 2004) and the strategic aspect to managing the buyer-seller relationship considering its role in affecting long-term outcomes (Schultz and Good, 2000). A graphical representation of these factors, the operationalized levels, and their interrelationships is presented in Figure 1 (see Figure 1).

Figure 1 Conceptual Framework



Another way of expressing this model would be in terms of each of the elements of the opening offer (e.g., buying firm power assessment, bargaining style); taking into account the relationships and expected interaction between and among the other elements of the model. In that form, each negotiation strategy element would be a function of power, relationship orientation, and any power by relationship orientation interaction. Imputed into this model would be the buyer's expected reaction of the seller to a particular level of an opening offer element.

The general principle of profit maximization guides the development of the research hypotheses. Given that both sides in the negotiation will be seeking to extract some profit or surplus from the encounter, those subjects that conclude their negotiating position is more powerful, will seek to use that factor in the negotiations and as a result design more favorable opening offer terms for himself or herself (refer to Thibaut, 1950; Rubin and Brown, 1975). Because of the distributive nature of the negotiations the subjects will also adopt a more competitive bargaining stance (as measured by Likert scales) in order to maximize their profits (refer to Perdue, Day, and Michels, 1986). The converse of this will be equally true. If the buyer perceives their negotiating position as asymmetrically weak, they will tend to avoid a competitive bargaining stance since it would have a lower likelihood of success. This disadvantageous position would also translate into the subject designing a less extreme opening offer for themselves, in essence operationalizing a cooperative bargaining style.

Hypotheses

Hypothesis 1:	Buyers (subjects) perceiving their bargaining position as asymmetrically powerful will advocate a more competitive bargaining style and will propose more favorable opening offer terms for the buyer.

Unrelated to the buyer's perception of power, subjects who perceive their negotiations with the seller to be part of a longer term relationship are hypothesized to moderate the terms of their opening offer and lessen the competitive nature of their bargaining stance (refer to Corfman and Lehmann, 1993). By contrast, the perception of a short-term relationship beyond the current negotiations by subjects (which could include the case of no further contact) will embolden the terms of their opening offer and the competitive nature of their bargaining stance.

Hypothesis 2:	Buyers (subjects) perceiving the current negotiation as part of a likely short-term relationship will advocate a more competitive bargaining style and more favorable opening offer terms for the buyer.

Hypotheses #3a and #3b predict that relationship orientation, when combined with perceived power will have a moderating effect at both extremes (i.e. short-term and long-term) for bargaining stance and terms of the opening offer (refer to Dwyer and Walker, 1981; Ganesan, 1993).

Hypothesis 3a:	Buyers (subjects) perceiving their bargaining position as asymmetrically powerful and the current bargaining encounter to be part of a long-term relationship will moderate their competitive bargaining style and advocate a less favorable opening offer for the buyer.
Hypothesis 3b:	Buyers (subjects) perceiving their bargaining position as asymmetrically weak and the current bargaining encounter to be part of a likely long-term relationship will advocate a more competitive bargaining style and more favorable opening offer terms for the buyer.

METHODOLOGY

Experimental Design

From the discussion of the proposed conceptual framework, and the identification of the various levels of the factors that will be employed, a two by three experimental design emerges (long-term vs. short-term orientation and asymmetrically powerful vs. asymmetrically neutral vs. asymmetrically weak). A between-subjects approach was selected for the data collection effort. Due to the time demands associated with the scenario evaluation task and the pencil and paper

questionnaire format used for the main study, to keep likely response rates sufficiently high to allow for meaningful data analysis, each respondent was asked to evaluate only one negotiation scenario.

The Sample

The sample of 600 purchasing professionals was drawn randomly from the membership of the National Association of Purchasing Management, more specifically, those members who designated that their principle employment is in the Standard Industrial Classification Code associated with "Electrical Components Other than Computer Equipment." Selection of subjects within this somewhat narrow classification allowed for the design of experimental negotiation scenarios that were targeted for purchasing professionals in this area.

Data Collection Procedures

Data collection was separated into two stages. Experimental variables were tentatively selected as a result of an examination of the relevant purchasing, negotiation, and related literature. Questions surrounding these variables, as well as surrounding the general process of negotiation were designed into a questionnaire. Approximately 20 telephone interviews with purchasing professionals were conducted, drawn from the same population pool as the main sample. The purpose of these interviews was to verify whether the selected variables played a part in the past pre-negotiation activities of the interviewees and what cues were important to purchasing professionals in assessing their relative bargaining strength. In addition to specific questions about experimental variables, they were asked to recall and discuss the last negotiation situation they had participated in. Probing was used extensively to draw out detail. The responses from the telephone interviews were used to construct a framework for a series of one page negotiation scenarios (one for each of the six experimental conditions) that were administered as part of a pencil and paper questionnaire.

Response Rates

For the main study, 600 questionnaires were mailed to subjects in the purchasing professionals sample with a target of one hundred fifty responses (25%) spread evenly among the six experimental conditions. For each of the six experimental conditions, one hundred, one-page purchasing scenarios were mailed to subjects (one per person). A total of 146 surveys were returned for a response rate of 24.3%. The distribution of responses ranged from a low of 21% (asymmetrically strong / short-term condition) to a high of 30% (asymmetrically strong / long-term condition). More than 20 surveys were returned for each experimental condition. Combined with the fact that these surveys were relatively evenly spread across all 6 conditions, the use of standard statistical calculations and interpretations is appropriate (see Table 1).

Table 1 Sample Response Rates and Characteristics						
	Short-Term Orientation Written Scenarios			Long-Term Orientation Written Scenarios		
	Buyer is Asymmetrically…			Buyer is Asymmetrically…		
	Strong	Neutral	Weak	Strong	Neutral	Weak
Number of scenarios distributed	100	100	100	100	100	100
Number of surveys returned	21	24	24	30	25	22
Sample Response Rate	21%	24%	24%	30%	25%	22%
Years NAPM member	9.7	8.5	7.0	9.0	8.6	8.5
Years with present company	9.6	10.4	10.8	10.1	11.2	10.4
Number of company employees	2,129	7,068	2,569	8,143	17,463	6,189
Percent with supervisory role	57%	58%	67%	66%	60%	57%
Number of people supervising	7	6	5	12	6	35
"New Buy" contracts per year	806	431	58	318	38	117
Value of annual "new buy" contracts (in millions)	$10.2	$10.1	$12.6	$15.7	$3.9	$10.1

An assessment of the background characteristics of the study's respondents, reported as averages for each experimental condition in Table 1, indicates that they are an "expert" group. On average, the respondents have been members of the principle professional organization in the purchasing field, the National Association of Purchasing Management (NAPM) for between 7 and 10 years. Additionally, they have significant tenure with their current organizations which are medium to large in size. New buy purchasing situations (see Anderson et al., 1987) are routine for their firms with significant outlays (in the millions of dollars) each year. Over half of the respondents in each experimental condition report supervising staff, with the average being 4 and 35. While the ranges on these variables vary, the overall impact does not limit the usefulness of the respondents' assessments on the survey. As a whole, the respondents represent an experienced and knowledgeable cohort concerning the experimental task they were asked to complete.

Experimental Task

Each subject was provided a one-page scenario describing a situation facing an organizational buyer (see Figure 2 for a sample). In each scenario, informational elements on the location of the supplier (domestic), nature and complexity of the product needed (moderate), reputation of the supplier (good reputation for quality), anticipated length of the relationship (short-term or long-term), and economic

significance of the contract for the buyer (scaled for asymmetrically strong, balanced, or asymmetrically weak) were provided. Subjects assessed the degree of power both the buyer and seller possessed in the upcoming negotiation using 7-point Likert scales. After each power assessment, respondents evaluated the extent to which the various informational elements affected their judgments. Subjects structured selected elements of an opening offer: price per unit they would be willing to pay, number of days for delivery, and bargaining style employing a 7-point Likert scale ranging from cooperative to competitive. Again, subjects evaluated the impact informational elements influenced their judgments.

Figure 2 Scenario Description for Asymmetrically Strong, Short-Term Experimental Condition

As a fellow purchasing professional I am contacting you to ask your opinion and advice on an upcoming negotiation I will be having. In particular, I would like to draw on your past experiences and training in the purchasing area in structuring the opening offer and other facets of the face-to-face negotiation.

The purchasing department at ACME has recently selected a domestic-based supplier that we have not had any experience with in the past in conjunction with a new product ACME will be marketing. Furthermore, the product we are interested in purchasing from the supplier is a "new buy" for us since we have not needed or sought such an item before.

The item we will be purchasing is a production good of moderate complexity that is the most important component of the finished product we will market. Because of our particular needs this product cannot be purchased from among the number of standardized versions currently available. A number of unique product characteristics and specifications require us to negotiate with a supplier for the good.

ACME managers have selected a supplier who can provide the product unless it becomes clear that no agreement is possible. Certain guidelines concerning the upcoming negotiation are provided on the following pages. However, although our company has not had any experience with the supplier I have been able to learn some things about their firm. They have been in business in our industry a sufficient amount of time to build up a reputation for quality products and service. Furthermore, from speaking with some of their other customers they are considered trustworthy suppliers.

Managers at ACME believe that the potential sales of our new product, which will incorporate the component we will purchase from this supplier, will be strong although only over the near term. We therefore expect our relationship with this supplier to be short-term in nature.

The total dollar amount of this contract will be less significant to ACME than to the supplier. It will represent approximately one and one-half percent (1.5%) of the contract purchases ACME makes this calendar year. According to our information the contract will be more significant to the supplier. The dollar amount of the contract will represent eight and one-half percent (8.5%) of the contract sales they make this calendar year.

Data Analysis

Analysis of variance (with significance evaluated at the 0.05 level) and multiple linear regression techniques were used to analyze the collected data. The research hypotheses test whether informational elements contained in the scenarios, manipulated to conform to the experimental design, affect respondent judgments concerning opening offer terms. Beyond verifying the manipulation of power, central to the study and the conceptual framework, ANOVA was employed

to compare experimental cell means on opening offer terms. For both opening offer terms and power assessments, regression was used to assess which informational elements were important to respondents acting as buyers.

RESULTS AND DISCUSSION

The power manipulation used in the experimental scenarios was successful. Cell mean scores on the buyer power question conformed to expected patterns and were statistically significant at the 0.05 level. Examination of cell mean scores on the question of seller power confirmed the manipulation. In conditions where the buyer was asymmetrically strong, neutral, or weak, the seller was judged to hold the remainder of situational power.

To examine whether buyers, once aware they possess power in the upcoming negotiation, uses this to their advantage in opening offer elements (hypothesis #1) response cell mean scores were examined. Regarding the opening offer price (in dollars per unit), subjects in the asymmetrically powerful experimental conditions provided mixed results. It does not appear buyers perceiving themselves as powerful use that power to structure a shorter delivery time frame at their opening offer. Mixed results were also obtained in terms of the bargaining stance that subjects in the asymmetrically powerful experimental conditions recommended. While they were more competitive in the short-term encounter and evidenced a consistent trend, in the long-term encounter, the asymmetrically neutral condition produced the most competitive stance. Because observed patterns were generally as predicted by the hypothesis, but in some instances not statistically significant at the 0.05 level, hypothesis #1 is only partially supported (see Table 2).

Table 2 Response Means by Experimental Condition

				Opening Offer Terms		
	Buyer's Position	Buyer's Power*	Supplier's Power*	Per Unit Price ($)	Delivery Time Frame (days)	Bargaining Style**
Short-term	Asymmetrically Strong (n=21)	5.24	3.19	118.81	33.00	3.62
	Asymmetrically Neutral (n=24)	4.63	4.46	115.42	31.81	3.50
	Asymmetrically Weak (n=24)	3.42	5.04	131.46	33.00	2.88
Long-term	Asymmetrically Strong (n=30)	5.13	4.37	132.77	33.05	3.60
	Asymmetrically Neutral (n=25)	4.72	4.44	141.50	33.00	3.92
	Asymmetrically Weak (n=22)	3.68	5.32	127.30	33.20	3.32

* Measured with a 7-pt Likert Scale, 1= very little or no bargaining power and 7=a great deal of bargaining power.

** Measured with a 7-pt Likert Scale, 1= cooperative and 7=competitive.

Hypothesis #2 compares short-term to long-term relationship orientations across power conditions. The objective is to determine whether respondents in the short-term relationship orientation conditions are more competitive and seek to gain maximum advantage from the upcoming negotiations than those in the long-term conditions. For this hypothesis a relatively clear pattern was observed supporting the hypothesis for lower dollar per unit offer recommendations in short-term versus long-term situations, across all but the asymmetrically weak power level. For delivery time a clear pattern also emerges across all power conditions supporting the hypothesis, but the difference for some power levels is minimal at best. Finally, for the bargaining style issue, the trend was minimal at best to hypothesized results. On balance, hypothesis #2 was supported.

In evaluating hypothesis #3a, a comparison of the mean scores indicates that there is a marked difference in the dollar per unit opening offer consistent with the idea that subjects perceiving themselves as asymmetrically powerful will moderate their power. Delivery time, however, does not appear to be affected and although bargaining stance does show a difference in line with the hypothesized effect it is minimal.

In regard to hypothesis #3b, there is a marked difference in the dollar per unit opening offer consistent with the asymmetrically weak experimental condition subjects trying to obtain a higher price in the long-term condition. Delivery time, however, does not appear to be affected. Bargaining stance by contrast reflects a pronounced difference in line with the hypothesized effect. Taken together, there is sufficient evidence to assert that the anticipated length of the relationship between buyer and seller does affect the buyer's pre-negotiation strategy development.

Results from multiple linear regression assess which informational factors were significant in explaining the respondents' assessments of power and opening offer terms (at least in one experimental condition) are presented in table 3 (see Table 3). The fact that a moderately complex product is involved in the upcoming negotiation was most consistently reported as significant. Relationship length and supplier reputation followed in importance. Economic significance and geographic base were least important across experimental conditions.

Table 3 Statistically Significant Factors in Explaining Respondent Assessments

	Product Complexity	Relationship Length	Supplier Reputation	Economic Significance	Geographic Base
Buyer Power	X	X		X	
Supplier Power	X		X		
Unit Price	X	X	X		X
Delivery	X				X
Bargaining Style	X	X	X	X	

Main and Interaction Effects

Table 4 presents the results of statistical tests for main and interaction effects (see Table 4). No main effects were found for the buyer power assessment question. There is strong evidence of a power by economic significance of contract interaction effect. Additionally, there is evidence of a power by product complexity interaction effect, but only at the asymmetrically strong power level. For the supplier power assessment question there is a main effect with regard to relationship orientation as well as three different interaction effects. Results from the unit price question indicate a main affect for relationship orientation as well as a relationship orientation by supplier reputation interaction effect. Delivery time-frame results reflect the almost total lack of statistically significant main or interaction effects and lend credence to the methods behind the other effects that were deemed statistically significant. Finally, the results for bargaining style do not reflect any main effect, however, a power by supplier reputation interaction effect is indicated.

Taken as a whole, these results support the conclusion that the process of pre-negotiation strategy development, as it is represented in this research, is both complex and generally interactive. Furthermore, the effectiveness of written scenarios to affect a power manipulation underscores the appropriateness of the research methodology. While not conclusive, there is sufficient evidence to warrant tentative support to the underlying theory that situational power does affect buyers' pre-negotiation strategy development and structure of their opening offers. Additionally, there is support for the moderating role that the anticipated length of the relationship between buyer and seller plays. The lack of stronger evidence is believed to be at least partially a result of the artificiality of the task and the exclusion of other important variables that were beyond the scope of the current study.

Table 4 Main and Interaction Effects

	Main Effect	Interaction Effect
Buyer Power	None	Power with Economic Significance of Contract
		Power with Product Complexity (Asymmetrically Strong)
Supplier Power	Relationship	Relationship Orientation with Supplier Reputation
		Orientation Power with Relationship Orientation (Asymmetrically Strong)
		Power with Product Complexity (Asymmetrically Weak)
Unit Price	Relationship	Relationship Orientation with Supplier Reputation Orientation
Delivery	None	None
Bargaining Style	None	Power with Supplier Reputation
		Relationship Orientation with Supplier Reputation

MANAGERIAL IMPLICATIONS

This research explored the effect of uneven situational power on managers' plans for upcoming negotiations. The implications of the results are extensive and certainly no less complex than that of the negotiation process itself. A more generalized application to management practice reflects on the tendency of managers possessing significant power advantages to moderate their behavior under some (select) circumstances. For example, even in situations where the power clearly resides with one party, individual managers and firms frequently refrain from capitalizing on the full extent of their bargaining position. In some ways, this restraint would appear to be counter-intuitive given the expected desire to maximize outcomes that favor the party having the greater power. In cases involving individuals there is a greater likelihood of a "time now" versus a "time in the future" point of view. Individuals are able to sublimate their perceived immediate needs in order to achieve some longer term objective. In part, this is due to their perception that the other party, however weak they may now appear, has or may have additional strategic value or strategic weapons that may appear in the future. Such uncertainty can undermine a manager's perception of power - but more important is that it alters his/her perception of the relative value of a short-term gain in favor of a potential long-term, more strategic, opportunity, particularly if the current negotiation is prelude to a longer-term relationship. Strategic considerations can influence the application of power in ways that are not always obvious.

Corporations and other organizations with many participants involved in a negotiation-like process might be expected to take the short-term advantage when it is offered, except in circumstances where the strategic opportunity is especially clear and not too far removed into the future. The average tenure of a CEO, the individual generally driving the decision process within an organization, is effectively quite short for most firms. Therefore, it becomes increasingly less likely that an organization will invoke other considerations to the extent that they fall beyond the perceived time frames deemed relevant to the reigning CEO. Still, a firm might choose to alter its bargaining position on the basis of a long-term relationship that while unequal in terms of power represents a strategic synergy. The synergistic aspect of the relationship increases the value of the less powerful participant over a longer period of time and thereby reduces the perceived gain available to the more powerful member in the short term. It does not pay to take advantage of the unequal power relationship because the strategic value resides in areas less subject to negotiation. The complexity of most managerial decisions is sufficient that isolating individual components is undoubtedly problematic. Regardless, it is clear that factors other than just having the preponderance of power affect the bargaining process. Neither managers nor firms make their decisions in isolation. To improve the quality of negotiations it is important to know what is being added to the decision mix and the relative value of each component.

CONCLUSIONS AND DIRECTIONS FOR FUTURE RESEARCH

The present research is a beginning step to more fully understanding the influences that affect purchasing professionals' pre-negotiation strategy development. Due to the lack of attention

by researchers to this area of negotiations, this research was, by necessity, exploratory. The future directions of the present research stream are three-fold: (1) expanding the nature of the conceptual framework to include the sellers' perspectives, (2) incorporating additional factors and special circumstances that are particularly important in business-to-business situations thus making it more realistic (e.g., the presence of other sellers and/or buyers not presently involved in the negotiation), and (3) linking pre- and post- negotiation concepts with our current understanding of negotiations, preferably with field investigations.

The conceptual framework is selective in the factors included. Subjects were not provided with information concerning the vendor selection process or at what point negotiations could be broken off and another supplier selected, if at all. In very few real-life negotiation situations would alternate suppliers or products not be available. In future studies, information concerning this aspect of the organizational buying process, as well as others such as imposed organizational buying criteria and time pressure elements, both for preparation to negotiate and the actual amount of time allowed for the negotiations themselves, should be included. The result will improve both the realism of the study and the robustness of the conceptual framework.

The framework may be further developed by incorporating team selling as well as buying center aspects. The validity and robustness of the framework must be subjected to a variety of purchase situations to prove its usefulness. One example would be the impact of the purchase time horizon on the negotiation process. Organizations often have a need for products which may be one-time specialty purchases for which the time horizon is quite long. Different dynamics would almost certainly apply and affect the negotiation process and pre-negotiation activities. Put another way, how would the process function differently for an organization's purchase of small electric motors versus a supercomputer? Because of the globalization of many organizations' purchasing activities the impact of different cultures' bargaining styles should also be addressed in the framework.

Partnerships between buyers and sellers are an increasingly important component in business-to-business activities contrasted with business-to-consumer. Sellers and buyers have found that in a number of areas it is to their mutual competitive advantage to coordinate and collaborate. Specific examples include just-in-time delivery, real-time order processing, multiple level inventory control and the ability to provide mass customization. To the extent that cooperation is possible and could be secured, a third research stream involves longitudinal research with a number of business-to-business buyers and sellers to observe actual pre-negotiation, negotiation, and post-negotiation efforts. These studies, grounded in previous theoretical and fieldwork would provide additional detail to our understanding of the entire negotiation process and permit a meta-theory of business-to-business negotiation to be developed.

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THE EFFECTS OF 911 ON CASINO REVENUES: A COMPARISON OF MISSISSIPPI AND LAS VEGAS

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ABSTRACT

This research compares the effect of 9/11 on casino gaming revenues in Las Vegas and Mississippi. ARIMA models with intervention and transfer functions are used to estimate a time series model for each market. The models show a significant negative downturn in gaming revenues for Las Vegas post 9/11. A similar downturn in gaming revenues in Mississippi is not observed. Air travel is introduced as an explanatory variable for the negative intervention in Las Vegas. This research shows that air travel has significant explanatory power both pre and post 9/11 for Las Vegas gaming revenues. Implications for casino operators are then discussed.

INTRODUCTION

Since September 2001 there has been speculation about the effects of terrorism and changes in the airline industry on various segments of the US economy. In this paper we will show that a statistically significant drop in Las Vegas, Nevada casino gaming has occurred. The methodology used will clearly demonstrate that the decline is not attributable to seasonal shifts or pre-existing trends in gaming revenues. Additionally we will show that there has not been a corresponding drop in Mississippi casino gaming revenues since September 2001.

Having established that Las Vegas gaming revenues have decreased significantly since 9/11, we introduce air travel as a possible explanatory variable. A relatively large percentage of Las Vegas gamblers arrive via commercial aircraft, while most Mississippi gamblers come from adjoining states and do not fly to the casinos.

The airline industry and resorts that rely on airlines maybe some of the hardest hit by the economic effects of 9/11. In the two weeks following 9/11 some 240 conventions cancelled events in Las Vegas (Verhovek & Kaufman, 2001). By October of 2001 forecast national convention revenues had been adjusted downward from 96 billion to 76 billion. The drop in convention revenue is partially attributed to excessive media coverage of the airplane disasters of 9/11 (Barabosa, 2001). Early evidence shows that the decline in air travel may not be short lived. Nationally air travel was down 14.6% in December 2001 versus the prior year. A February, 2002 USA Today survey showed that 43% of respondents reported that they were afraid to fly, almost the same percent as the 44% reported in November of 2001 (Morrison, 2002). Prior to 9/11 only 10% of Americans reported that

they were afraid to fly. In a 2003 survey the percentage of Americans afraid to fly was 40% (Fitzpatrick, 2003).

If customers are unwilling to use commercial air service, this reluctance may explain, in part, a downward shift in Las Vegas gaming revenues. If Las Vegas gaming revenues are significantly affected by the general publics willingness to fly while other casino markets do not depend on air travel for their visitors then Las Vegas casinos face a significant threat to their ability to continue to grow and maintain their dominate market share. The same threat that Las Vegas faces may also be an opportunity for casino operators who can operate casinos in regional markets such as Mississippi.

MISSISSIPPI CASINO INDUSTRY

Mississippi ranks as the third largest casino market in the United States, with more than 50 million people visiting the state's casinos each year (Mississippi Gaming Commission, 2003; Meyer-Arendt, 1995). Additionally, operations in the state have been consistently regulated, facilitating analysis over time (Russell, 1997).

Legislation in Mississippi authorizing gaming on navigable waterways was passed in 1990, and the first casino opened in mid-1992. While some have classified Mississippi casinos as a form of riverboat gambling (Roehl, 1994), large facilities with adjoining hotels, restaurants, and entertainment facilities generate most revenues today.

During the period of 1992 to 2002, annual casino gaming revenues increased from $121 million to over $2.7 billion, and the number of properties grew to 30 (Mississippi Tax Commission, 2003). Casino space now exceeds 1.4 million square feet. Of the more than 50 million people who patronize Mississippi's casinos annually, approximately 65% come from Mississippi or adjoining States. Fully 80% come from the Southeastern U.S. (Mississippi Gaming Commission, 2003).

LAS VEGAS CASINO INDUSTRY

Las Vegas was founded as a city in 1905 and the first gambling licenses were issued in 1931, when Nevada legalized gambling. Corporations began to acquire casinos in the 1960's, signaling a makeover in industry strategy ("The history," n.d.). Gaming revenues grew to $7.7 billion in 2000 and 7.6 billion in 2001. In the first twelve months following 9/11 Las Vegas gaming revenues declined $298 million from the prior twelve months.

In 2001 alone, more than 35 million people visited Las Vegas (Las Vegas Convention and Visitors Authority, 2002). Studies show that 86 percent of Las Vegas visitors gamble while there, each with an average gambling budget in excess of $600. Air travel is important to the health of the Las Vegas casino industry. Fully 48% of the city's visitors arrive by air. This importance is illustrated by the fact that while overall interstate and highway traffic was up by an average of 11%, airline passengers were down by 6.7%, and overall visitor volume was down 2.3% during June of 2002 versus the prior year (Las Vegas Convention and Visitors Authority, 2002).

Overseas visitors predominately travel by air to Las Vegas. Japan provides the largest number of overseas visitors. Overall Asian visitor volume at two of the largest casinos is reportedly

down by 75% since September 2001 (Berns, 2002). With few other travel options besides air travel these overseas visitors are most likely lost business.

DATA

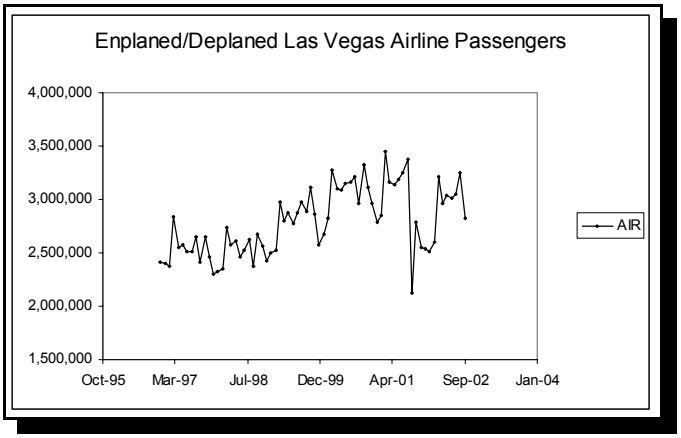
Two data sets are analyzed in this research, Mississippi gross casino revenues and Las Vegas gross casino revenues. In both cases gross casino revenues represent the amount the casino wins from gaming operations. The gross revenues do not include revenue from other sources such as restaurant or hotel operations. In both series the data is a monthly time series.

The Mississippi casino gross revenues (MSGR) were collected from the Mississippi State Tax Commission, Miscellaneous Tax Bureau, Casino Gross Gaming Revenues reports. The Mississippi series is for all casinos operating in the State of Mississippi. The data cover the time period from August 1992 through July 2002.

The Las Vegas series (LVGR) was collected from the State of Nevada, Gaming Control Board, Tax License Division, Nevada Gaming Revenues and Collections reports. The data come from results of casinos operating in Clark County, NV. Clark County includes the Las Vegas strip, downtown Las Vegas, North Las Vegas, Laughlin, the Boulder strip, and Mesquite. Some smaller areas such as Reno and Lake Tahoe are not included in the data. Clark County accounted for 80.4% of statewide gaming revenues in July 2002, and is the primary casino tourist area in the state. Statistics from November 1996 through September 2002 are used in the study, as these are the public data available from the Nevada State Gaming Control Board as of the date of this research.

To model LVGR monthly enplaned and deplaned airline passengers in Las Vegas is used as an independent variable (AIR). AIR was obtained from the Las Vegas Convention and Visitors Authority. AIR is shown in figure 1. This series is available for December 1996 through September 2002.

Figure 1: Las Vegas Enplaned/Deplaned Air Traffic



METHODOLOGY

The goal of this research is to estimate a time series model for each series that will allow for the intervention of September 2001 events. A multiplicative decomposition model, shown in formula 1, is used to model each series up to September 2001 (Bowerman & O'Connell, 1993; Moss, Ryan, & Wagoner, 2003). The model is then used to forecast a 95% confidence interval for the months following September 2001.

$$Y_t = TR_t \, x \, SN_t \, x \, Ir_t \qquad \text{Formula (1)}$$

The multiplicative decomposition model has the advantage of being relatively easy to fit. However, the trend portion of equation and R^2 can be misleading due to auto-correlation in the residuals and the limitation of using algebraic manipulations of the period number in the multiple regression.

To verify the multiplicative decomposition model a Box-Jenkins ARIMA model with an intervention factor is also estimated (Vandaele, 1983; Bowerman & O'Connell, 1993). The data for the ARIMA models will be deseasonalized and first differenced to achieve stationary series. The intervention factor will test for the possible effects of 9/11 on the series. A permanent intervention with immediate effect is used. It is assumed any potential impact on the series is immediate as of September 2001. It is also assumed that the impact is permanent.

A transfer function model will then be estimated to show evidence of the effect of an independent variable on Las Vegas gaming revenues. The ARIMA models are estimated using the Box-Jenkins procedure.

ANALYSIS

Both MSGR and LVGR exhibit trends (non-stationary series) and seasonality. The seasonal portion of the multiplicative decomposition is modeled with a ratio to centered moving methodology (Bowerman & O'Connell, 1993; Moss et al., 2003). Seasonal indices are shown in Table 1. The deseasonalized series are shown in Figures 2 and 3.

Table1: Seasonal Indices		
	MS	LV
January	.987	1.153
February	.987	.935
March	1.087	1.042
April	1.006	.971
May	1.016	1.022
June	.994	.911
July	1.125	.980
August	1.041	.986
September	.966	.972
October	.956	1.032
November	.937	.993
December	.897	1.003

Figure 2: Deseasonalized Mississippi Gross Revenues (DMSGR).

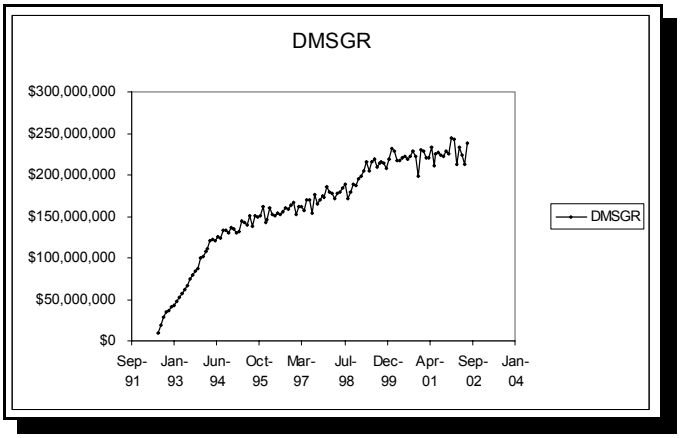
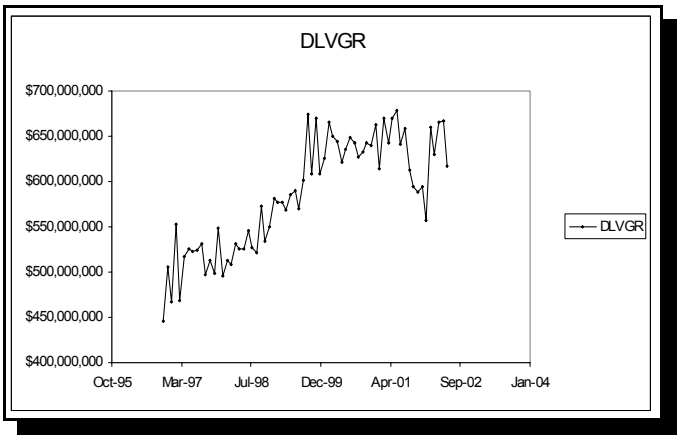


Figure 3: Deseasonalized Las Vegas Gross Revenues (DLVGR).



The seasonal indices for both series have months that deviate significantly from 1.00 supporting the observation of seasonality in the original series. The deseasonalized series, shown in figures 2 and 3, both exhibit trends. The trend equations for the series are shown in formulae 2 and 3. The trend equations are fit using the pre-911 data.

$$FDMSGR = 36{,}317{,}734 + 3{,}201{,}921.7*P - 1{,}349.5*P^2 \qquad \text{Formula (2)}$$
$$R^2 = .951$$

$$FDLVGR = 276{,}000{,}000 + 3{,}469{,}404.5*P \qquad \text{Formula (3)}$$
$$R^2 = .845$$

The forecast and actual deseasonalized series with 95% confidence limits are shown in figures 4 and 5.

Figure 4: Multiplicative Decomposition Forecast for DMSGR (FDMSGR).

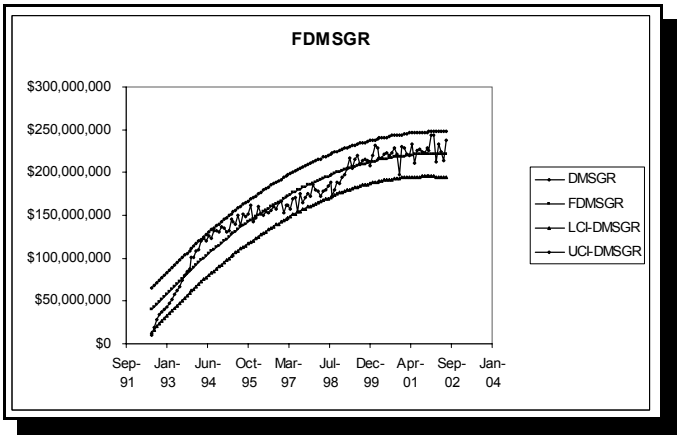
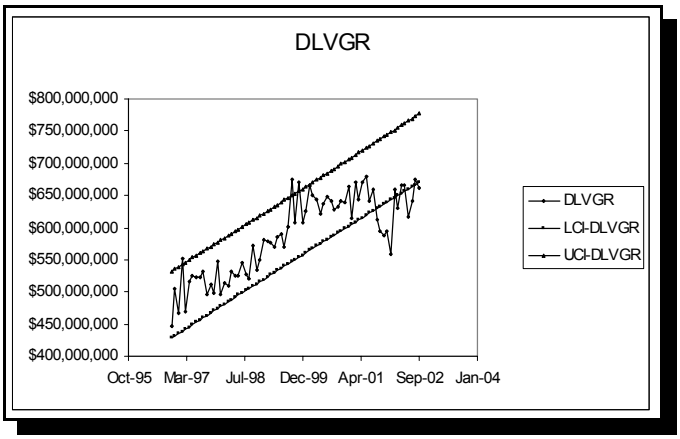


Figure 5: Multiplicative Decomposition Forecast for DLVGR (FDLVGR).



For the DMSGR the actual series stays with the 95% confidence limits after September 2001. For the DLVGR the actual series falls below the 95% confidence limit after September 2001. This result indicates that Las Vegas was hurt significantly by the events of September 2001, whereas Mississippi casinos revenues have not changed.

To verify the multiplicative decomposition model Box-Jenkins ARIMA models with an intervention factor are used. The series are both deseasonalized prior to estimating the ARIMA models. This technique has the advantage of reducing the complexity of the model and maintaining the maximum series length. The deseasonalized data shown in figures 2 and 3 both exhibit non-stationary trends. First differences are used in both series to obtain stationary series.

First differencing results in a stationary series for the DLVGR. For the DMSGR first differences result in a stationary series except for the beginning of the series when casinos first opened in Mississippi. During the initial months of operation the Mississippi casino industry was very small and growing very rapidly. For the initial part of the DMSGR series the first differences do not have the same mean or variance as the remainder of the series. Therefore the first twenty observations from the Mississippi ARIMA model are omitted for model estimation. The ARIMA model for Mississippi with the potential intervention factor is shown in Table 2.

Table 2: Mississippi ARIMA model w/ Intervention Diff=1

Variable	Coeff	Std Error	T-Stat	Signif
CONSTANT	1,313,569.515	373,652.282	3.515	0.001
AR{1	-0.645	0.090	-7.174	0.000
AR{2	-0.478	0.091	-5.255	0.000
INTERVENTION{0}	-946,034.946	6,305,328.845	-0.150	0.881
$R^2 = 0.957$				
Ljung-Box Q-Statistics: Q(12)=10.228 Significance Level = 0.596				

The intervention factor for the Mississippi series, shown in table 2, is not significant. The Ljung-Box Q statistic, auto-correlation, and partial auto-correlation function for the residuals of the model all indicate a white noise residual series. Since the intervention factor is not statistically significant the ARIMA model is re-estimated without the intervention factor. The results are shown in table 3.

Table 3: Mississippi ARIMA model w/o Intervention Diff=1

Variable	Coeff	Std Error	T-Stat	Signif
CONSTANT	1,304,116.052	366,598.780	3.557	0.001
AR{1}	-0.644	0.089	-7.210	0.000
AR{2}	-0.479	0.090	-5.317	0.000
$R^2 = 0.957$				
Ljung-Box Q-Statistics: Q(12) = 10.329. Significance Level = 0.587				

The ARIMA model for DMSGR has an R^2 of 95.7%. The Ljung-Box Q statistic, auto-correlation function, and partial auto-correlation function for the residuals of the model all indicate a white noise residual series.

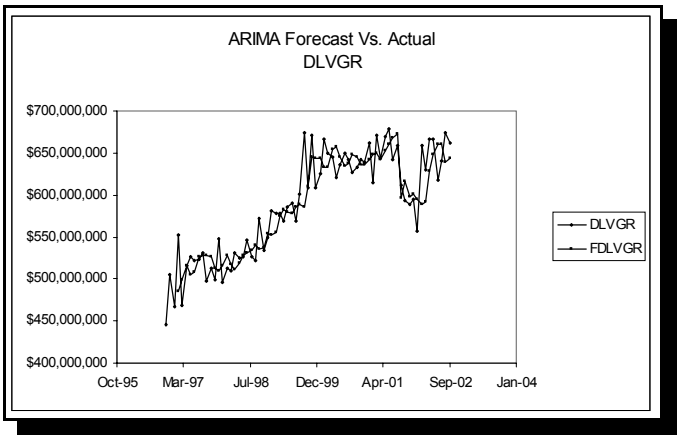
The ARIMA model for the DLVGR with an intervention factor is shown in table 4.

Table 4: DLVGR w/Intervention Diff=1

Variable	Coeff	Std Error	T-Stat	Signif
CONSTANT	3,481,581.38	1,585,057.93	2.197	0.032
AR{1}	-0.84	0.13	-6.577	0.000
AR{2}	-0.28	0.12	-2.279	0.026
INTERVENTION{0}	-62,903,771.98	20,394,911.89	-3.084	0.003
$R^2 = 0.801$				
Ljung-Box Q-Statistics: Q(12) = 18.405. Significance Level = 0.104				

For the Las Vegas series the intervention factor is statistically significant and negative. This indicates a downward change in revenues after September 2001. The Ljung-Box Q statistic, auto-correlation function, and partial auto-correlation function for the residuals of the model all indicate a white noise residual series. The model was used to forecast the DLVGR; results are shown in figure 6.

Figure 6: ARIMA Forecast for DLVGR with Intervention.



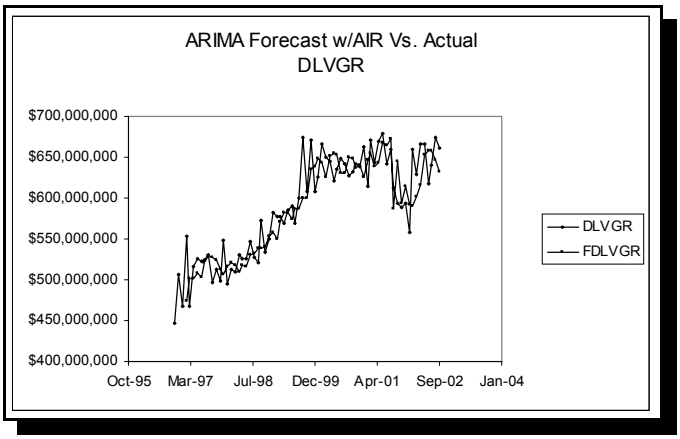
The ARIMA model with intervention in table 4 confirms there is a shift in the series on September 2001. One possible explanation for the shift in the Las Vegas series is air travel. To test this hypothesis an ARIMA model with a transfer function using first differences of deseasonalized AIR as the independent variable was estimated. The model is shown in table 5.

Table 5: ARIMA w/ Transfer Function

Variable	Coeff	Std Error	T-Stat	Signif
CONSTANT	1,836,640.066	1,411,027.502	1.302	0.198
AR{1}	-0.817	0.104	-7.854	0.000
AR{2}	-0.352	0.096	-3.656	0.001
DAIR{0}	76.033	18.202	4.177	0.000
$R^2 = 0.826$				
Ljung-Box Q-Statistics: Q(12) = 15.380. Significance Level = 0.221				

The model shows that air traffic has a significant positive relationship with DLVGR. The Ljung-Box Q statistic, auto-correlation function, and partial auto-correlation function for the residuals of the model all indicate a white noise residual series. Additionally this model correctly predicts positive or negative monthly changes in DLVGR 50 out of 68 months forecast (74%). In the 13 months analyzed post 9/11 the model correctly predicted the direction of the change in DLVGR in 77% of the months. The model in table 5 was used to forecast DLVGR, the results are shown in figure 7.

Figure 7: ARIMA Forecast for DLVGR with Transfer Function (AIR).



To test the robustness of the findings the model in table 5 was estimated using only the data through August 2001. The resulting coefficients change only slightly and all variables are still significant. This verifies that DAIR had a significant relationship with DLVGR prior to September 2001. Testing also included the addition of an intervention to the transfer function model. With DAIR included in the model the intervention is no longer significant.

CONCLUSION

The study shows that Las Vegas gaming revenues have dropped materially since September 11, 2001, while the Mississippi market has not experienced such effects. We believed, a priori, that the downward shift in the underlying pattern of passenger air travel was hurting the Las Vegas market, since a greater percentage of patrons travel there by commercial airline, relative to those visiting Mississippi's casinos. By removing seasonality and trends, we were able to isolate air travel effects and found them to be significantly related to the drop in Vegas revenues.

A recent study using data from 130 domestic airports reports the slump in the airline industry will last at least until 2005 (Banstetter, 2002). Given that, and the relationship between Las Vegas casino revenue and air travel, a recovery does not appear to be forthcoming any time soon. What should Vegas casino/hotel operators and investors do in the meantime?

First, we suggest they concentrate on reducing both monetary and psychological marginal costs of flying to the city. The monetary component could be accomplished by marketing aggressive discount incentives related to meals and the hotel stay. Furthermore, win per square foot per day, or the amount the casino wins from individual patrons (Kilby & Fox, 1998) could be decreased, again coupled with a hard-hitting marketing campaign. Psychological transaction costs can be reduced through new casino alliances with airlines based at smaller, regional airports. Shorter check-in lines and airport commute times should help mitigate the current hassle factor of traveling through major U.S. airports. After all, who truly wishes to stand in a check-in line for an hour or

two, after a trip of similar duration to that major airport by auto, in order to fly to Las Vegas: a trip that will also take at least an hour or two, on average?

Second, we suggest that casino/hotel operators and investors consider diversifying their portfolios with regional casinos that do not rely heavily on air travel. For long-term, the health of the industry might be enhanced by increasing retail presence in these smaller, regional markets. The ability of the Mississippi casinos to weather the current economic storm serves as a perfect example. Similar results have been reported in newer, smaller casino markets. In 2002 Missouri casino revenues increased by 18% in February and 11% in March versus the prior year. Missouri increases are attributed to a mild winter, local market, a growing casino industry, and possibly a fear of flying (Wilgoren, 2002).

We realize that the above shifts in tactics and strategy will be expensive. Yet, this expense is mitigated by the consideration that the decrease in airline passengers costs the Las Vegas casino industry around $247 million each year (table 6), and will do so until airline travel begins to recover, perhaps in 2005, perhaps never.

Table 6: Estimate of revenues lost owing to decreased air travel (in U.S. dollars).

2000 gaming revenues	$7,700,000,000
% travel by air	x .480
% decrease in air travel	x .067
Yearly revenues lost	$ 247,632,000

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PRODUCTIVITY, INNOVATION AND ANTITRUST POLICY

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ABSTRACT

Traditionally marketing's interest in antitrust legislation and policy has focused on constraints imposed by external legal and political forces on marketing strategy decisions and the effect of noncompetitive markets on consumer well being. On the one hand, constraints on predatory pricing, mergers and other anticompetitive activities limit strategic choice and potentially reduce a company's ability to gain competitive dominance. However, while monopoly power may enhance company profits, marketers also value healthy competition that enhances consumer welfare, a goal supported by a strong marketing concept orientation (Gundlach 2001, Gundlach and Phillips, 2002). Balancing the desire of corporations to gain competitive advantage with consumer welfare requires that policy makers understand the dynamic effects of competition. Writers in both economics (Klein, 1977;) and marketing (Gundlach, 2001; Gundlach and Phillips, 2002; Foer, 2002) criticize current, Chicago-school antitrust policy as being static, focused on simple price and output relationships while ignoring the positive results of productivity gains on fostering both healthy competition and consumer welfare. The purpose of this research is to examine the relationship between innovative activity and competition, applying major findings of the study to current U.S. Department of Justice merger guidelines as well as discussing the implications for marketing strategy decisions.

INTRODUCTION

Traditionally marketing's interest in antitrust legislation and policy has focused on both the constraints imposed by external legal and political forces on marketing strategy decisions and the effect of noncompetitive markets on consumer well being. On the one hand, constraints on predatory pricing, mergers and other anticompetitive activities limit strategic choice and potentially reduce a company's ability to gain competitive dominance. However, while monopoly power may enhance company profits, marketers also value healthy competition that enhances consumer welfare, a goal supported by a strong marketing concept orientation (Gundlach 2001, Gundlach and Phillips, 2002). Balancing the desire of corporations to gain competitive advantage with consumer welfare requires that policy makers understand the dynamic effects of competition. Writers in both economics (Klein, 1977;) and marketing (Gundlach, 2001; Gundlach and Phillips, 2002; Foer, 2002) criticize current, Chicago-school antitrust policy as being static, focused on simple price and output relationships while ignoring the positive results of innovation and productivity gains on fostering

both healthy competition and consumer welfare. The purpose of this research is to examine the relationship between innovative activity and competition, applying major findings of the study to current U.S. Department of Justice merger guidelines as well as discussing the implications of these guidelines for marketing strategy decisions.

DYNAMIC ANTITRUST POLICY

Foer (2002) describes existing antitrust policy as a two-legged stool consisting of antitrust law and equilibrium based neo-classical economics. Static neo-classical equilibrium modeling provides the basis for resolving antitrust cases leaving little room for subjective evidence. Decision makers are assumed to be rational profit maximizers with perfect information who would for example not engage in predatory pricing because it would be theoretically impossible for the firm to regain loses in a perfectly competitive market. The evidence is based on neo-classical economic theory rather than actions. Reliance on theoretical rational marketplace behavior while ignoring evidence that challenges the rationality assumption (Kahneman, 1994; Tversky and Kahneman 1986) leads to unbalanced antitrust policy (Foer, 2002; Gerla, 1985).

Similarly, Gundlach (2001) describes the 1980s and 1990s as a "minimalist approach" to antitrust, an enforcement era that he attributes to the adoption of Chicago school views regarding static market efficiency. The difficulty with the equilibrium neo-classical economics approach is that it offers little guidance regarding the implications of antitrust policy for dynamic efficiency characterized by productivity gains and innovation. In the terminology of Foer (2002), dynamic efficiency and productivity growth should become the third leg of the antitrust stool. This view is shared by marketing scholars such as Petty (2002), and Gundlach, Phillips, and Desrochers (2002) who support an increased emphasis on the dynamic relationship between antitrust, competition, and innovation.

Concern regarding the implications of antitrust for productivity growth is an important theme in the recent work of Michael Porter. Porter (2001, p 922) states the relationship between competition and innovations as follows:

> The fundamental benefit of competition is to drive productivity growth through innovation, where innovation is defined broadly to include not only products, but also processes and methods of management.

It is important to note that Porter defines productivity growth broadly to include not only the introduction of new products but also new production methods. Moreover, Porter (2001) argues that given the importance of productivity growth to economic development, promoting innovation should be the primary goal of antitrust policy.

COMPETITION, INNOVATION, AND PRODUCTIVITY GROWTH

While there is widespread acceptance of the argument that dynamic efficiency concerns are of primary importance to antitrust policy, there is little consensus regarding the competitive environment that is most conducive to innovation. Theoretical arguments can be made to support either monopoly power or competition as providing the environment most conducive to innovation and productivity growth.

Joseph Schumpeter (1950) was among the first to analyze the relationship between innovation and the degree of competition. The Schumpeterian hypothesis stems from the belief that past profit enables firms to accept the risks of innovation, hence productivity growth should be greatest in markets characterized by monopoly power. Moreover, Schumpeter (1950) also emphasized the capacity for firms with monopoly power to assemble the financial resources required to innovate.

Alternatively, Kenneth Arrow's (1962) theoretical model establishes that competitive industries provide the greatest incentive to innovate. Arrow's finding results from the propensity for monopolists to restrict output thereby insuring that the benefits of new technologies are earned for smaller quantities as compared to competition. Differences between the Schumpeter and Arrow views regarding the relationship between innovation and competition are a matter of theoretical emphasis. By focusing on the ability to accept risk and capacity to finance research and development, Schumpeter's theory emphasizes opportunities for innovation. Alternatively, by focusing on the potential profits of innovation under varying market structures, Arrow's emphasis is on the incentive to innovate.

Resolution of these competing views regarding the relationship between innovation, productivity growth and competition is an empirical question. Much of the prior empirical literature has examined the relationship between some measure of productivity growth and a proxy for competition in the market such as the concentration ratio. A positive relationship between concentration and productivity growth is considered to be consistent with Schumpeter's view, whereas Arrow's hypothesis calls for a negative coefficient

Empirical studies often reveal a small but persistently positive coefficient for the relationship between innovation and concentration. This relationship appears to weaken when variables denoting inter-industry differences in technological opportunity are included in productivity models (Scherer and Ross, 1990). The finding of previous research thus offers weak support for Schumpeter's view regarding the relationship between competition and productivity growth. However, a small body of empirical literature suggests that the relationship between productivity growth and concentration may be non-linear. These studies suggest that an inverted U may characterize the relationship. An inverted U-shaped model for the relationship between concentration and productivity offers a potential synthesis for the competing views of Schumpeter and Arrow. Innovation initially rises with increasing concentration up to some threshold level, but beyond that threshold additional increases in concentration are associated with declining innovation.

F.M. Scherer (1967) was among the first researchers to investigate the possibility of a nonlinear relationship between innovation and concentration, finding that an inverted U best represents the relationship between R&D expenditure and the four-firm concentration ratio. Scherer

(1967) calculated the critical or "threshold" four-firm concentration ratio in the range of fifty to fifty-five percent. Later studies by Levin, Cohen and Mowery (1985) and Scott (1984) support Scherer's original finding. Moreover, Levin, Cohen and Mowery (1985) determined that R&D expenditures peak when CR4 reaches fifty-two percent, a threshold that is consistent with the fifty to fifty-five percent range initially calculated by Scherer (1967). The major weakness found in all of the studies mentioned above is their use of R&D expenditures as the dependent variable. R&D expenditures represent an input into the innovative process, but they do not measure innovative output or productivity gain.

While the existing literature provides evidence that there is an inverted U-shaped relationship between innovative input, proxied by R&D expenditures, and market concentration, the prior literature does not address the issue of whether an inverted U describes the relationship between innovative output and concentration. This omission creates a significant gap that clouds our understanding of the relationship between productivity and market power. Nickell (1996 p. 725) suggests, "…it is productivity growth that is the cause of the 'wealth of nations,'" underscoring the importance of examining productivity outputs in addition to R&D expenditures.

This paper examines the usefulness of an inverted U to describe the relationship between innovative output and concentration. Our paper focuses narrowly on the relationship between concentration and process innovation. The dependent variable in our models is growth in total factor productivity, a widely accepted measure of productivity growth and a reasonable empirical proxy for process innovation. We also estimate a model with total factor productivity levels as the dependent variable to assess the robustness of our results.

DATA AND MODEL SPECIFICATION

The data for this study are drawn from the *NBER Productivity Database and the Census of Manufactures: Concentration Ratios In Manufacturing* for the census years 1977, 1982, 1987 and 1992. The unit of observation is the four-digit SIC. Beginning in 1997, the Census bureau adopted the NAICs industrial classification system in place of Standard Industrial Codes. The NBER has yet to provide total factor productivity values based on the new industry definitions; hence the 1997 census year could not be included in the study. We limit our sample to Census years in order to provide for the most accurate measure of concentration possible.

The data set includes 278 observations for each of the census years, a total of 1112 observations. In cases where data for a particular SIC was not available from all data sources and for all years we excluded that SIC from our sample. The Economic Report of the President, 2000 provides data for growth rates in real GDP. Empirical proxies and variable definitions for each variable used in the study are given below:

Dependent Variables

Growth in productivity as measured by the growth rate in five-factor total factor productivity as calculated by the NBER (ΔTFP5).

Productivity levels as measured by five-factor productivity as calculated by the NBER (TFP5).

Independent Variables

Concentration measured as the four-firm concentration ratio (CR4)

Firm size measured as the average firm size of the eight largest firms in each industry. Firm size is defined as the real value of shipments multiplied by the eight-firm concentration ratio (FSIZE).

Capital intensity measured as real plant and equipment divided by real value of shipments (CAPIN).

Risk measured as the standard deviation of the de-trended value price-cost margin. Price-cost margin is defined as value added minus material cost divided by value of shipments. Price-cost margin values were de-trended by subtracting the industry mean value from the value for each individual year. Data for years between economic census years are included in the calculation of risk (RISK).

Business cycle measured as the annual growth rate in real GDP for each year of the sample. Measured as a percentage (BUSCYCL).

Import intensity measured as real imports divided by real value of shipments (IMPORIN).

Export intensity measure as real exports divided by real value of shipments (EXPORIN).

Demand growth measured by the average annual growth in real value of shipments over the three preceding years. For 1977 the period is 1974-1977; for 1982 the period is 1979-1982 and so forth (GROWDEM).

Ratio of material costs to shipments measured as the ratio of real material costs to real value of shipments in each industry (MATCOST).

Technological opportunity measured as a group of two-digit industry fixed effects dummy variables denoting the two-digit SIC industry for each observation (IND_j). Miscellaneous manufacturing, industry-grouping 39, was the deleted category.

The basic model relating growth in productivity to concentration and the other structure variables is found in equation 1:

$$\Delta TFP5 = \beta_0 + \beta_1 CR4 + \beta_2 CR4^2 + \beta_3 FSIZE + \beta_4 CAPIN + \beta_5 RISK + \beta_6 BUSCYCL + \beta_7 IMPORIN + \beta_8 EXPORIN + \beta_9 MATIN + \beta_{10} GROWDEM + \sum \beta_{11+j} IND_j + \mu \quad (1)$$

As indicated above, we estimated a second model with TFP levels as the dependent variable to assess the robustness of our empirical results.

The variables included on the right hand side of equation 1 are based on the works of Greer and Rhoades (1976), Sigler (1956), and others. Firm size is included in the model based on the works of Scherer (1967) and Link, Seaks and Woodberry (1988). Both Scherer and Link et al found positive firm size effects on innovation, at least for the smaller range of firm sizes. Capital intensity is included in the model recognizing that capital tends to enhance many successful process innovations. Risk is included in the model based upon Schumpeter's (1950) assertion that less risky environments are most conducive to innovation. Schumpeter's hypothesis would suggest that risk is negatively associated with productivity growth. Alternatively, firms operating in risky environments may innovate to insulate themselves from risk. The hypothesized sign for the risk coefficient is thus ambiguous. The business cycle variable is included in the model based on the works of Hall (1990) and Morrison (1992) who report evidence of pro-cyclical behavior in total factor productivity. Variables capturing import and export intensities are included based on the prior works of McDonald (1994), Edwards (1998) and Amato and Amato (2001), all of whom found evidence that international competition impacts productivity growth.

The variable measuring material costs relative to shipments is intended to capture inter-industry differences in the proportion of shipments produced within the industry. Industries that produce a large proportion of the total value of shipments within the industry may, *ceteris paribus*, have greater opportunities for productivity growth as compared to industries that rely on high proportions of intermediate goods. Material costs, which measure raw materials and intermediate products purchased outside the industry, fall as the proportion of shipments produced by the industry rises. Material costs relative to value of shipments thus provide an inverse measure for the proportion of total output produced by the industry. Following Scherer and Huh (1992), industry dummy variables are included in the model to capture inter-industry differences in technological opportunity.

The potential for simultaneity in the relationship between concentration and innovation has been widely reported by a variety of researchers including Levin, Cohen, and Mowery (1985). The causal linkage from concentration to innovation follows the Schumpeterian hypothesis. Concentration provides some degree of monopoly power that insulates firms from the risk of innovation and provides the resources necessary to conduct research and development. The causation running from innovation to concentration begins with a dynamic process in which certain firms successfully innovate. The successful firms are rewarded with increased market shares with the ultimate effect being increased concentration. This dynamic process in which successful firms are rewarded with increased market shares suggests a lag in the causal relationship running from innovation to concentration.

Ideally, equations for concentration and total factor productivity growth would be imbedded in a fully identified structural model. Unfortunately, exogenous variables to identify such a model

are not available. We can, however, use an instrumental variable approach to deal with potential simultaneity. The lagged relationship between concentration and productivity gains suggests that the regression of current concentration values on lagged total factor productivity growth provides a suitable instrument. To test for simultaneity, we employ the computationally easier form of Hausman's test used by Connolly and Hirschey (1984) as presented by Greene (2000). The null hypothesis of no simultaneity is rejected when the dependent variable is defined as the total factor productivity levels (TFP5), but we fail to reject when ΔTFP5 is the dependent variable. In light of the superiority of OLS regression as cited by Greene (2000), the productivity growth model is estimated using OLS, while coefficients for the TFP5 model are obtained from the instrumental variable approach described above.

STATISTICAL RESULTS

The estimated coefficients are presented in Table 1. Each dummy variable is denoted with a two-digit number that refers to the two-digit SIC code for the industry grouping. Using an instrument constructed from lagged values in the TFP5 equation raises the possibility of autocorrelation in that model. We tested the TFP5 specification for up to fourth order autocorrelation and failed to reject the null hypothesis in every case. Moreover, we also tested both models for heteroskedasticity, failing to reject the null hypothesis for the productivity growth model. However, White's test did reveal heteroskedasticity in the model for TFP5 levels; t-statistics are based on White's robust standard errors for this model.

Column one of Table 1 contains the estimated coefficients for the model with growth in TFP (ΔTFP5) as the dependent variable. Examining the coefficients for CR4 and $CR4^2$, the results are consistent with the inverted U-shape relationship found in the previous works of Scherer (1967) and Levin, Cohen, and Mowery (1985). The coefficient for the linear concentration term is positive and significant, while the coefficient for the squared term is negative and significant. Total factor productivity growth reaches a maximum at a critical concentration threshold of 36.81%. That threshold level is somewhat lower than the maximum concentration thresholds in the range of 50-55% previously reported for models dealing with innovative input such as R&D expenditure. Realizing that R&D expenditure addresses process and product innovation, our results do not invalidate previous findings. Rather, our results suggest that the benefits of concentration on process innovation are realized at concentration levels just under forty percent.

Column 2 of Table 1 contains the estimated coefficients for the model with TFP levels as the dependent variable. Once again, the coefficient for the linear concentration term is positive and significant; the coefficient for the squared term is negative and significant. Maximum concentration is found at a four-firm concentration level of 40.64%, a result that is consistent with threshold level found for the growth in TFP model. The consistency of the results for growth in TFP and TFP levels suggests that our findings are robust. Moreover, our results demonstrate that four-firm concentration levels of roughly forty percent are required to facilitate process innovation.

Examining the coefficients for the industry dummy variables provides some interesting insights. For the productivity growth model, six industries have coefficients that are negative and statistically different from zero: Tobacco Products (21), Apparel and Other Textile Products (23),

Lumber and Wood Products (24), Industrial and Commercial Machinery and Computer Equipment (35), Transportation and Equipment (37), and Instruments and Related Products (38). Four of these groupings (21, 23, 24 and 37) are mature industries that could be expected to experience low productivity growth. The remaining two industries, 35 and 38, represent very heterogeneous groupings of industries using both new and old technologies. Industry grouping 35, for example, contains industries as diverse as industrial tracks and tractors and electronic computers. Similarly, industries in grouping 38 range from missile guidance systems to laboratory apparatus and furniture. Given the very diverse compositions of industries 35 and 38, it is difficult to attach much meaning to negative fixed effects for these industries.

For the productivity levels model, four industries had statistically significant coefficients, all positive in sign. The coefficients for Paper and Allied Products (26), Printing Publishing and Allied Industries (27), Stone Clay and Glass Products (32) and Industrial Machinery and Equipment (35) were all positive and statistically significant. Given the index number approach used for total factor productivity levels, these coefficients do not lend themselves to easy interpretation.

The inverted U-shape relationship between concentration and total factor productivity has important policy implications. The Department of Justice's (DOJ) most recent merger guidelines indicate that mergers resulting in a post-merger Hirschman-Herfindahl (HH) of 1000 or less will not be challenged. Ten identical firms yield a Hirschman-Herfindahl of 1000 and a four-firm concentration ratio of forty percent. While most industries with four-firm concentration ratios of forty percent would have an HH index less than 1000, the DOJ's lower bound of 1000 is not inconsistent with our results regarding the critical threshold concentration level required to sustain effective process innovation. In light of previously published results that calculate a critical concentration threshold of 50-55% to maximize R&D spending (which covers both process and product innovation), it would appear that the DOJ has chosen an appropriate threshold in setting merger guidelines.

CONCLUSION

The most important finding reported here is evidence of an inverted U-shape relationship between concentration and total factor productivity. We find that productivity growth is maximized when the four-firm concentration ratio is approximately forty percent. This finding has important implications for public policy and business strategy. The Department of Justice's (DOJ) most recent merger guidelines indicate that mergers resulting in a post-merger Hirschman-Herfindahl (HH) of 1000 or less will not be challenged. Ten firms with identical market shares would yield an HH of 1000 and a four-firm concentration ratio of forty percent. An HH of 1000 is thus the upper bound for a forty percent concentration ratio. The DOJ's lower limit of 1000 before considering a merger challenge is roughly consistent with our results regarding the critical threshold concentration level required to sustain effective process innovation. Michael Porter (2001) criticizes the use of the HH index as a guideline for antitrust enforcement, implying that the criterion focuses on static efficiency. Our findings suggest that the DOJ guideline is consistent with concentration levels that promote productivity growth and dynamic efficiency. We would recommend caution in abandoning this criterion

Porter (2001) concludes that mergers in industries with weak productivity growth should be carefully scrutinized and required to meet a higher regulatory standard. Porter's argument is based on the logical conclusion that absent productivity gain, the primary effect of mergers is to increase market power which erodes consumer well being. We found negative industry fixed effects on productivity growth for six broad industry groupings. Two of these groupings, Industrial and Commercial Machinery and Computer Equipment (35) and Instruments and Related Products (38) are too broad for meaningful public policy analyses. However, the remaining four groupings, Tobacco Products (21), Apparel and Other Textile Products (23), Lumber and Wood Products (24), Transportation and Equipment (37), contain mature industries for whom a finding of low productivity growth is plausible. While we do not advocate the implementation of public policy based solely on industry level regressions, our findings provide crucial first evidence that elevated scrutiny of mergers in these industries may be appropriate.

Walters (1999) proposes an innovation driven value strategy aimed at obtaining sustainable competitive advantage. The results reported here suggest that antitrust policy has an integral role to play in providing an environment conducive to the strategic approach that Walters advocates. Our findings thus point to the need for continued research regarding the interface between public policy initiatives in the antitrust area and strategy.

Table1. Estimated Regression Coefficients

Variable	ΔTFP5		TFP5	
	Coefficient	t-value	Coefficient	t-value
Intercept	-2.85392	-3.83*	0.99494	38.05*
FSIZE	2.7783E-9	0.15	1.095E-8	2.56*
CR4	0.15606	4.02*	0.00184	2.63*
CR4SQ	-0.00212	-4.18*	-0.00002	-2.86*
CAPIN	-0.01880	-1.81	-0.15650	-8.06*
RISK	0.04160	0.75	0.23967	2.05*
BUSCYCL	0.00258	3.44*	0.00506	3.36*
IMPORIN	-0.00283	-0.79	-0.00432	-0.69
EXPORIN	-0.05655	-2.93*	0.19784	4.05*
MATCOST	0.02455	1.22	-0.13691	3.11*
GROWDEM	0.00336	13.44*	0.00259	4.22*
IND21	-0.05987	-2.53*	0.07158	1.56
IND22	-0.00617	-0.54	0.01904	0.91
IND23	-0.02714	-2.57*	0.00349	0.15
IND24	-0.03338	-2.88*	0.01169	0.50

Table1. Estimated Regression Coefficients				
Variable	ΔTFP5		TFP5	
	Coefficient	t-value	Coefficient	t-value
IND25	-0.01672	-1.36	0.00090	0.05
IND26	-0.00484	-0.31	0.07791	3.28*
IND27	-0.01398	-1.01	-0.05729	-2.10*
IND28	-0.01044	-0.99	-0.01862	-0.96
IND29	-0.01948	-1.15	0.04346	1.38
IND30	-0.01830	-0.80	-0.00492	-0.12
IND31	-0.01941	-1.58	0.02457	1.06
IND32	-0.00615	-0.56	0.04162	2.10*
IND33	-0.01551	-1.29	0.06470	0.88
IND34	-0.00892	-0.89	0.02486	1.26
IND35	-0.02314	-2.30*	0.06304	3.08*
IND36	-0.00081	-0.08	0.00171	0.08
IND37	-0.02426	-2.01*	0.00359	0.15
IND38	-0.02585	-2.04*	-0.01418	-0.64
R^2	0.1904		0.2622	
F-Value	9.10*		13.74*	
* Significant at < .05 level				

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ELECTRONIC COMMERCE: THE EMERGING TECHNOLOGY FOR TOMORROW'S BUSINESSES

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ABSTRACT

With the emergence of electronic commerce (e-commerce) in the past few years, business as we know it has currently been under major reconstruction. From the creation of new businesses that are a result of being online, to the convenience of doing business on the Internet, e-commerce is growing at such an alarming rate that even analysts have trouble explaining just how this new way of doing business could continue this explosive growth rate. This paper gives an overview of e-commerce: its history; its present role in the economy; and its expected role in the future. By analyzing the literature and what other researchers have to say, the purpose of the research is to determine e-commerce's true impact on the U.S. economy. Considering that e-commerce is currently in a state of drastic transformation, it is important to stay abreast of its status in order to keep from being left behind in this economic revolution. The conclusions show that e-commerce's impact on the U.S. economy can be directly linked to businesses changing with the new economy.

INTRODUCTION

Traveling to the grocery or convenient store in order to purchase a gallon of milk has become a common practice for the average American in today's society. The mere thought of having someone deliver a gallon of milk to your doorstep brings back memories to some and sounds just plain expensive to most. However, the reality of having a milkman deliver milk to your home at a reasonable price has never been more practical. Since the emergence of the electronic commerce (e-commerce) revolution, which went into the mainstream of the U.S. economy three years ago, there has been no stopping this fledgling economy.

With the tax effects under deliberation by the federal government, e-commerce is presently under great scrutiny, especially considering that the Federal Trade Commission (FTC) feels that e-commerce could be the most active trade vehicle in the next decade (Federal Trade Commission 1999). Moneyline (CNBC's television show), targets companies who have insight on "the new economy," has compared the current economic expansion and bull market of the present to the traditional boom and bust economy of old, and determined the impact technology companies (primarily e-commerce firms) are having on the market. Businesses today are being forced to make the decision of changing with this "new economy," or else watching it pass them by.

E-commerce has come a long way in a very short time period and is moving at such a rapid pace that it's hard for many businesses, not to mention the average consumer, to keep up with this growing form of commerce. Even though the first forms of e-commerce have been around for decades, economists have questioned the Internet's effect on the U.S. economy for about the last three years. Consumers can now benefit from being only a mouse-click away, instead of a car-ride, not to mention a wait-in-line away from acquiring their milk (Quelch & Klein, 1996).

The objective of this paper is to shed some light on the seemingly obvious, yet plausible, impact of e-commerce and it's reshaping of the U.S. economy and society as a whole. More specifically, the sub-objectives are:

- To give a foundation knowledge of e-commerce by summarizing the history and discussing its current status;
- To investigate infrastructure issues of e-commerce that have led to the current vehicle we see today;
- To investigate value chains in e-commerce and discuss what impact e-commerce is having on both Business-to-Business (B2B) and Business-to-Consumer (B2C) markets.

Further, this research examines the discrepancies that exist between academics and practitioners. Analysis of current trends, theories, and expert opinions will be discussed, along with predictions for the future of e-commerce. The findings will illustrate the current impact of e-commerce on the U.S. economy and give insight on the development of this relatively new medium into the future. Finally, this paper will look into e-commerce business that is conducted over the Internet and the impact that this subsection of e-commerce has on the overall U.S. economy.

LITERATURE REVIEW

While e-commerce may be disparately defined, a general definition of e-commerce is the use of computers and electronic communications in business transactions (McDonnell, 1999). It is any transaction completed over a computer-mediated network that involves the transfer of ownership or rights to use goods or services (Mesenbourg, 1999). Some experts believe that the definition should include both monetary and non-monetary transactions because some transactions may have a "zero price" (e.g., the download of free software) while other transactions may be paid in-kind or through barter (e.g., portal pays for an e-commerce consulting service by providing banner advertising) (Mesenbourg, 1999). E-commerce may include the use of Electronic Data Interchange (EDI), electronic money exchange, Internet advertising, websites development and maintenance, online databases, computer networks, and point-of-sale (POS) computer systems (Applegate et al., 1996). While EDI, Electronic Funds Transfers (EFT), and all credit card activity have been around for decades and result in trillions of dollars worth of activity every day, B2C e-commerce between businesses and consumers, where the exchange takes place on the Internet, has only existed for about three years.

History of the Internet

The Internet began as the Advanced Research Projects Agency Network (ARPANET) during the Cold War in 1969 (Internet Indicators, 1999). It was developed by the U.S. Department of Defense (DOD) in conjunction with a number of military contractors and universities to explore the possibility of a communication network that could survive a nuclear attack. It continued simply because the DOD, its contractors, and universities found that it proved a very convenient and relatively inexpensive way to communicate (i.e., send and receive e-mail).

Internet e-commerce took off with the arrival of the World Wide Web (WWW) and commercial browsers (e.g., Netscape and Microsoft Explorer) in the early 1990s. Now, thirty years after the development of the original ARPANET, fourteen million people are predicted to have Internet access by the end of 2000 and of this, forty-three percent are predicted to use PC's as the primary Internet access device (NUA Internet Surveys, 2000). This is quite a jump considering that the original intent of the Internet was to create a mode of communication for the government that could endure a nuclear war and the outcome has been the creation of a new method of the way our society does business (Hoffman & Novak, 1996).

Currently, about 650,000 U.S. homes have some form of networking installed, with many more having access at their place of employment (The Yankee Group, 1999). It is estimated that 10 million households across the U.S. will be transformed by the introduction of networking capacity to their homes by the year 2003, reflecting a compounded annual growth rate of ninety-five percent over the next three years. Today, for a few thousand dollars, anyone can become a merchant and reach millions of consumer's worldwide. "In a sense, the Internet has done for e-commerce what Henry Ford did for the automobile--converted a luxury for the few into a relatively simple and inexpensive device for the many" (Organization for Economic Co-operation and Development, (OECD), 1999, 21).

Internet Economy

The Internet economy is a collection of global Internet Protocol (IP) based networks and applications, interconnected electronic markets, and consumers, producers, and electronic intermediaries (Barua & Whinston, 1999). One clear-cut difference between the "new" Internet economy as compared with the "old" traditional economy is that the Internet economy has a reliance on an "open" electronic infrastructure as compared to the traditional economy and its reliance on a "closed" physical structure. Creating new value and efficiency through digitization of business processes is a difference that could prove very useful to businesses in the near future (Magretta, 1998; Pine & Gilmore, 1998).

Whether its B2B or B2C, virtually all of the e-commerce sites rest on the same network structure, communication protocols, web standards, and security systems (Turban, Lee, King & Chung, 2000). The infrastructure of the Internet economy will be addressed by following the competition among providers as they fashion the new infrastructure and its applications (Berkeley Roundtable, 1999). An infrastructure study was conducted in 1998, by Network Computing, in which more than forty Commerce Service Providers (CSPs) were surveyed. The CSP survey

consisted of: three CSPs that were predominantly serving large businesses, seven serving medium-sized organizations, and the remainder serving small merchants. The mix reflects the realities of e-commerce-skills, staffing requirements, and infrastructure investment all mandate that most small to mid-sized companies outsource services, while the need for high reliability and customization at large companies keeps the ranks of high-end CSPs to a minimum (Network Computing, 2000). Some CSPs estimate that the typical mid-sized business will need one to three months to launch online. A fortune 500 company website might dedicate more than a year to site-development alone (Network Computing, 2000). As far as costs are concerned, estimates show that it costs $6.7 million to outsource the operation and maintenance of a $3 million with packaged application for 1,000 users over three years (Forrester Research, 1999). The same steps performed in-house would cost $8.87 million. This shows how outsourcing can lead to considerable savings for a CSP. More than half of the companies surveyed indicated that custom design and integration tend to be the area of underestimation, with considerable costs being expended in each. The most popular commerce-hosting configuration among the sites in the survey was Unix as the operating system and Apache as the web server (Desiraju & Shugan, 1999).

E-commerce software has been another huge aspect of businesses moving online. The most critical decision for companies developing a successful online storefront is choosing the right software solution for that particular businesses site (King, 1999). According to King (1999), it is important to take into consideration that not all e-commerce software can provide purchasing and electronic data transfers (e.g., payments and invoices) between business partnerships as well as wholesale purchasing, which is used for B2C commerce. This is critical, since business must decide if they will need both, or plan for additional programming and expert configuration in the future.

Role of the Government

Government can play an important role in facilitating the transition to a digital economy by adopting laws and regulations that explicitly support and advance e-commerce (Atkinson & Court, 1999). The Department of Commerce (DOC) believes that the Internet has the potential to be the United States' most active trade vehicle within a decade. The Clinton administration also agrees that Internet shopping may revolutionize retailing by allowing consumers to sit in their homes and buy a wide variety of goods and services from all over the world. However, the jury is still out because that is what direct mail and the home shopping networks was supposed to do in the 1960's and 1980's respectively. The selling of retail goods over the Internet is appropriately labeled "e-tailing" by the media. The DOC also calls for businesses to develop stronger online privacy and consumer protection policies (Daley, 2000).

Recently, the Clinton Administration issued a statement welcoming the House resolution (H. Con. Res. 190) adopted on October 26, 1999 by a vote of 423-1, supporting the Administration's ongoing efforts to obtain a permanent moratorium on the imposition of tariffs on e-commerce transactions. The Administration also commended "the goal of the House resolution regarding taxation, which is to keep the Internet and e-commerce free from special, multiple or discriminatory taxes... and other discriminatory measures which would impede the use of important commercial, educational and social tools," (Clinton Administration, 1999, 1).

In order to argue e-commerce's potential impact on the U.S. economy, it is important to understand the direct contribution of computers to GDP, which has been misjudged in the past. Experts have raised the question in the past of why the computer revolution everywhere except in the (aggregate) productivity statistics (Solow, 1987). One answer has been that economic growth is underestimated-that the areas in which computers have greatly multiplied productivity have been areas in the service sector in which measurements of output are the worst (Moulton, 1999).

A second answer offered deals with the fact that the U.S. economy is very large (Moulton, 1999). Until the 1990s, investments in information processing were not all that large a share of the total investment; hence, the U.S. would not have expected a large contribution from computers as compared to measured GDP. Statistics show that without growing sales of computers, economic growth over the past six years would have been half a percent per year lower.

Table 1 shows how the direct contribution of computers to GDP has become quite large since 1990. In 1990, the percentage of GDP growth that was attributed to computers was 0.1%, however, by 1999 that percentage had increased to 0.7%, showing a greater contribution to GDP from computers. Therefore, if computers are having a substantial impact on our GDP, then it would be plausible for one to say that as more computers are being used, due in part to the fact that an increasing number of people continue to do business online using computers, then GDP should directly be affected.

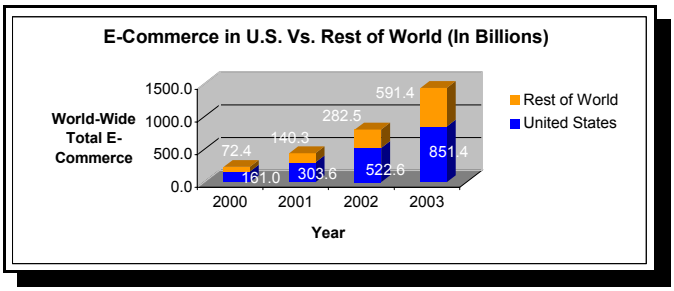
Table 1: Computers effect on GDP

Year:	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
GDP Growth	0.70%	-1.80%	2.70%	2.30%	3.50%	2.30%	3.40%	3.90%	3.90%	3.50%
Without Computers	0.60%	-1.90%	2.50%	2.20%	3.40%	1.90%	2.90%	3.40%	3.30%	2.80%
Computer Contribution	0.10%	0.10%	0.20%	0.10%	0.10%	0.40%	0.50%	0.50%	0.60%	0.70%

Source: http://econ161.berkeley.edu/oped/virtual/technet/handouts/tnh13.html

E-commerce has grown not only in the U.S. but also the rest of the world; with the U.S. projected to continue to dominate the rest of the world in e-commerce (e-Marketer, 2000). In 1999, the U.S. accounted for approximately eighty percent of the global e-commerce activity (OECD, 1999). Currently, the U.S. accounts for sixty-nine percent of the global e-commerce activity and it is projected to decrease over the next three years (e-Marketer, 2000). Graph 1 shows the comparison of U.S. e-commerce in 2000 and its projected increase by 2003.

Graph 1

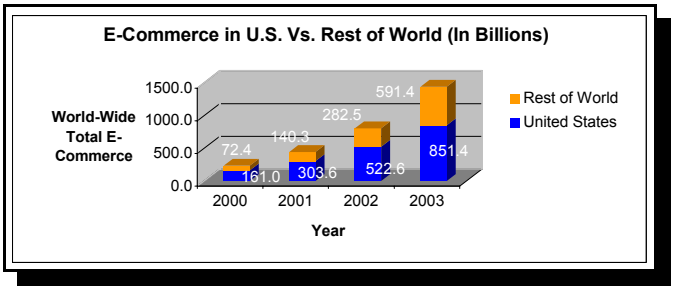


According to International Data Corporation (2000), the worldwide Internet economy will surpass the $1 trillion mark in 2001, and by 2003, it will be well on its way to $3 trillion. Total e-commerce revenues were $124 billion in the first quarter of 1999 (The University of Texas, 1999). This is 1.4 percent of the total U.S. economy. It is estimated that $135 billion of value added was provided by the "Internet economy" in 1999 (The Progressive Policy Institute, 1999). Projections are that the Internet economy will generate $360 billion of value added in 2001. The Internet economy in the U.S. grew sixty-eight percent from the first quarter of 1998 to the first quarter of 1999, pumping an estimated $507 billion into the U.S. economy (The University of Texas, 1999).

Internet commerce, which is arguably the most significant component of e-commerce, includes B2C and B2B transactions; online financial services; media; infrastructure; and consumer and business Internet access services (Atkinson & Court, 1999). Although e-tailing sales will continue to soar over the next five years, analyst expect the number of online shoppers in the U.S. to level off at around 50 million households (Forrester Research, 1999). There will be a steady increase in average online spending per household, growing from $1,167 in 1999 to $3,738 in 2004, as consumers shift from convenience and researched items to replenishment purchases like groceries.

Graph 2 shows the diversity of the various sectors and compares their values for last year. The B2C sector of the Internet economy is small in comparison to the B2B sector of the economy. B2B is the sector that many experts predict is going to have the biggest impact on e-commerce, with predictions of tremendous growth as awareness increases.

Graph 2



Source: http://www.neweconomyindex.org

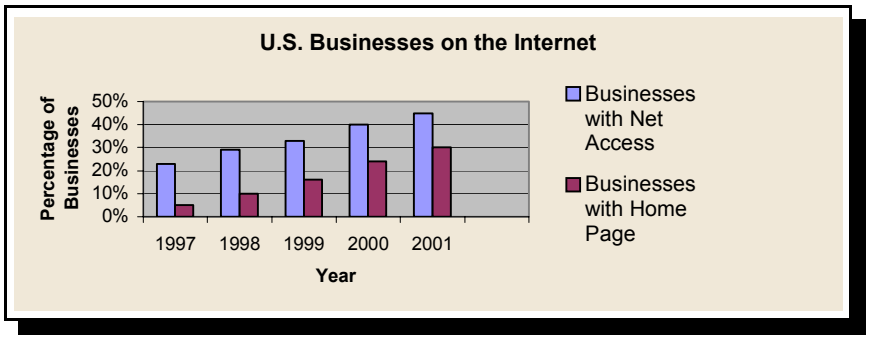
The number of Internet-related jobs increased from 1.6 million in quarter one of 1998 to 2.3 million in quarter one of 1999. New companies were created and others shifted employees to new assignments to take advantage of the opportunities in the Internet economy. This allowed for the creation of nearly 400,000 e-commerce jobs last year, a seventy-eight percent increase from quarter one of 1998 (University of Texas, 1999).

Estimates show that the percentage of Internet users with college degrees is declining. The percentage of people using the Internet with college degrees declined from fifty percent in 1994 to just over forty percent in 1997 (New Economy Index, 1999). Similarly, from 1994 to 1997, average income declined from about $62,000 to just over $45,000 (New Economy Index, 1999). As both of these characteristics continue to decline, there is a greater likelihood for e-commerce to reach a greater number of people, therefore, increasing the number of people exposed to Internet commerce. As more people become informed and comfortable with e-commerce, the more likely that the face of the old economy is going to change.

It is estimated that fifty-six percent of U.S. companies will sell their products online by the end of the year, up from twenty-four percent in 1998 (NUA Internet Surveys,1999). Small and medium enterprises that use the Internet have grown forty-six percent faster than those that do not (American City Business Journal, 1999). Arguably the most important sector of the Internet economy, the B2B e-commerce, is expected to account for $186 billion in 2001, well over half of the total Internet economy, this according to the New Economy Index (1999). The prediction is that businesses will spend $1.5 trillion online through B2B e-commerce by 2003 (Forrester Research, 1999).

Graph 3 shows the increase in businesses on the Internet from 1997 to 2001. The percentage of businesses with net access as compared to having a home page, were very different in 1997, with nearly twenty-three percent of all businesses having net access, while less than five percent had a homepage. Those numbers are projected to drastically change in the future, with nearly half of all businesses having net access by 2001, while thirty percent having a homepage. This clearly demonstrates that businesses are keeping in line with the trend of moving online.

Graph 3



Source: http://www.neweconomyindex.org

According to the Organization for Economic Co-operation and Development, the greatest effects of e-commerce may be linked with customized products and the elimination of middlemen. However, other effects may include the less visible, but potentially more pervasive effects on routine business activities (e.g., offering office supplies, paying bills, and estimating demand) (OECD, 1999). Research has shown that e-commerce has the potential to radically alter our economic activities, considering that it already affects such large sectors as communications, finance, and retail trade, which together accounts for thirty percent of our GDP.

Economists agree that it's not easy to evaluate the impact of technological developments and their associated price declines on production costs, productivity, and prices. The impact of computers alone on productivity has proven to be difficult to assess. It is what led the leading economist and Nobel Prizewinner, Solow to ask why the widespread introduction of computers has not resulted in increases in the official productivity statistics. This question has resulted in economists developing the "productivity paradox:" which is the label being used for productivity statistics not showing any impact from computer and information technologies. Efforts to find a solution to this paradox have resulted in the unlikelihood of a single answer (OECD, 1999).

The real reason for the productivity paradox lies in the fact that the U.S. economy is "neither fully in the old mechanized economy nor yet in the new digital economy" (Atkinson & Court, 1999, 1). The force of the old economy was mechanization of goods production and handling - to automate the assembly line and the farm. However, now the force of productivity improvement is shifting towards digitization (Atkinson & Court, 1999). As we make this transition to a digital economy, the effects are likely to be felt "economy-wide,"(e.g., while the current cost of a teller transaction at a bank is $1.07, the cost of a similar online banking transaction is one cent). "As a result, the animating force for productivity and wage growth in the 'New Economy' will be the pervasive use of digital technologies to increase efficiency and productivity, particularly in the heretofore low-technology service sector" (Atkinson & Court, 1999, 1).

The idea of "frictionless" economies is when transaction costs are nearly zero, barriers to entry and contestability disappear, and markets clear instantly (OECD, 1999). E-commerce will eliminate intermediaries and drastically reduce transaction costs (Vlahos, 1999). As a result of producers selling directly to consumers over computer networks, there will be lower production costs, which will encourage the entry of new businesses, and thus increase competition and pressure to pass lower costs on to consumers. This will enable consumers to search among the many merchants for greater value, and will lead to a decrease in overall prices, which will result in a shift of market power from producers and/or intermediaries to consumers.

The impact of Internet and computer technologies on inflation is an important measurement in arguing the impact of e-commerce on the U.S. economy. While e-commerce may not change current price levels, it may well change the price setting structure, and in the case of content, make it more efficient. By increasing competition, greater efficiencies are evident, leading to price savings in the future (OECD, 1999).

The effects of e-commerce on prices do not necessarily translate lower costs into lower prices automatically (OECD, 1999). The potential for this exist, however, the phenomenon is not, at the moment, broadly evident (OECD, 1999). Of the four known surveys that measure the impact of e-commerce on prices, each of which has methodological flaws, only one unequivocally finds

evidence of price declines. Any given B2C transaction will involve a larger number of related B2B transactions and this "transactions multiplier effect" and its expected growth, with continued change, will add to the challenge of measuring e-commerce (Mesenbourg, 1999). Table 2 summarizes the surveys, showing the impact of e-commerce on prices. Of the four surveys that measure the impact of e-commerce on prices, there was only one that showed a price decline. Some analysts say that this is the reason for slow growth thus far in the B2C sector of e-commerce. However, others believe that this slow growth could be a result of the young state of B2C e-commerce.

On Wall Street, e-commerce has played an integral role in the popularization technology stocks. As shown in Graph 4, e-commerce stocks have not returned to the highs they reached in the spring of 1999, while Internet services stocks have done much better (Dow Jones, 2000). Since the beginning of 1999, e-commerce stocks are up about 50% as of January .

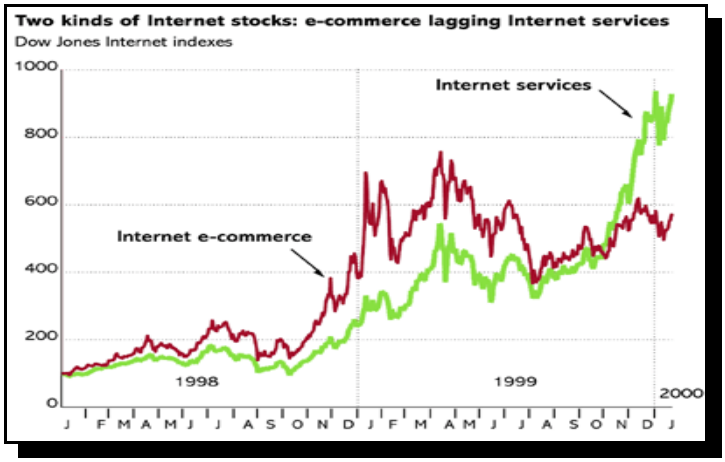
Table 2: A survey of studies analyzing the impact of e-commerce on prices

Survey	Date	Coverage	Caveats	Key Findings
Ernst & Young[1]	January 1998	Comparison of 3 on -line vendors for 32 consumer products (n = 96).	Shipping costs and taxes not included Off-line stores all located in Cleveland Ohio	On-line prices were lower for 88% of products, same for 6%. In total, on-line was 10% less expensive.
Forrester Research[2]	July 1997	150 companies in 12 major industrial categories engaging in business-to-business e-commerce.		Lower costs mean higher margins, most of which are currently being retained.
Goldman Sachs[3]	August 1997	Comparison of a 30-item market basket sold by Wal-Mart.	One store, arbitrary selection of products.	Online prices were 1 percent with shipping costs included
OECD[4]	Feb/Mar 1997	Comparison of 24,000 prices for three products: books, CDs and software.	Shipping costs and taxes not included. Off-line stores are not strictly off-line but are "hybrids" with both an on-line and off-line presence. Prices for off-line stores are those posted on their Websites.	On-line prices are slightly higher than those of "hybrid" stores and change more frequently.

(Source: http://www.oecd.org/dsti/sti/it/ec/) 1. http://www.ey.com/wired/pricing survey; 2. http://www.forrester.com; 3. Goldman Sachs, 1997; 4. http://www.oecd.org/dsti/sti/it/ec/

On Wall Street, e-commerce has played an integral role in the popularization technology stocks. As shown in Graph 4, e-commerce stocks have not returned to the highs they reached in the spring of 1999, while Internet services stocks have done much better (Dow Jones, 2000). Since the beginning of 1999, e-commerce stocks are up about 50% as of January 21, 2000 (Dow Jones, 2000). However, recent figures indicate that investors are weary that some of these stocks are overrated and hence have lowered their expectation on their performance.

Graph 4



Source: Dow Jones

CONCLUSIONS

Considering that this study bases arguments of effect on ideas and statistics of similar subjects, much of what can be determined in such a new area of business is based on sound theory and expert opinion. The data gathered in this study came exclusively from secondary sources. The sources were limited to books and articles dated from 1995 to the present. With regards to not only the constant transformation of the Internet but also its recent development, the very nature of the subject matter limits ones projections. The main limitation of this study is that it uses previous research and secondary data to support its position. But, it still provides a complete overview of e-commerce and its expected role in the future. One direction that this study can take is to conduct a mail survey to analyze the impact of e-commerce in a B2B and B2C environment.

Before attempting to prove the impact of e-commerce on our economy, a basic introduction was given including a brief history and some of the current legislation concerning the subject. By giving some of the opinions of experts in the field of e-commerce and combining that with surveys and statistics showing the trend that business on the Internet is having, several conclusions were made on the basis of the entire collection of data. Some argue that business on the Internet has effected our economy for a few years now, however it is the belief of many that e-commerce has

only begun to evolve. Therefore, as more research is done on this subject, the argument becomes stronger for a definite impact of this new business vehicle on our economy.

As "milk delivery" across the world improves, the duty will then be that of e-commerce experts to determine just how wide this window of opportunity will open. Our economy has flourished over the past decade, due not only to technological advances, but many other factors. The Internet economy alone has grown by leaps and bounds, proving that there is obviously some change in amounts of money being transacted over the Internet. A study showing the direct contribution of computer technologies to our GDP was given to illustrate the direct impact that information systems may have on our economy. By showing trends of businesses moving online, this study provides support to the argument that e-commerce does indeed impact our economy through changes in prices and the effect of the Internet and computer technologies. E-commerce is a new vehicle that will drive our economy into the future and cannot be neglected. Therefore, it will be imperative that our society adequately understands the effects of e-commerce.

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THE CONSUMER SATISFACTION/DISSATISFACTION PROCESS: THE CONTEXT OF JOINT OR SYNCRATIC DECISION-MAKING

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ABSTRACT

This paper was undertaken to provide insight into the consumer satisfaction/ dissatisfaction process in the context of joint or syncratic decision-making. Another objective was to investigate the applicability of the symbolic interaction framework to the consumer satisfaction process and to test the reliability and validity of the scales using three separate data sets: husbands, wives, and joint. A third purpose was to use the confirmation/disconfirmation model to investigate the relationship between syncratic decision-making and the individual and joint satisfaction of husbands and wives. The results indicate that, despite significant differences in norms, expectations, and perceptions of performance, husbands and wives showed no significant difference in disconfirmation and satisfaction. There was also no significant difference between the joint and the individual satisfaction of either husbands or wives. Implications are that individual differences in norms, expectations, and perceptions of product performance could result in similar levels of satisfaction.

INTRODUCTION

The concept of consumer satisfaction/dissatisfaction (CS/D) has received considerable attention in the marketing and consumer behavior literature. Part of this concern for the welfare, and hence the satisfaction, of the consumer stems from the realization that, over the long run, satisfied consumers are critical to the successful practice of marketing and to the long-run profitability of the firm. Customer satisfaction with a product often leads to repeat purchase, acceptance of other products of the same product line, and favorable word-of-mouth communications. Marketers are also deeply concerned with consumer satisfaction because of the many adverse effects which can result from consumer dissatisfaction (Richins, 1983; Engel & Blackwell, 1982).

The apparent marketing maxim that directs the marketer towards providing consumer satisfaction, or the absence of dissatisfaction, is stated in the "marketing concept." Dickerson, Herbst and O'Shaughnessy (1986) state that

...the marketing concept remains the most enduring tenet in the teaching of marketing. Its foundation stone is consumer orientation, the belief that a business, if it is to be successful, should be oriented towards satisfying the needs of its customers (p. 18).

Since its introduction in the 1950s, the marketing concept has become the cornerstone of the principle and practice of marketing (McKitterick, 1957). While the profit aspect of the marketing concept has always been given a relatively great amount of research attention, the notion of satisfaction has only recently begun to receive the attention of researchers (Hunt, 1977a). The number of articles published in the area attest to the fact that CS/D is of great interest to marketers. Much of this work, however, has tended to focus firstly on conceptual and theoretical developments and secondly on adaptations to the basic CS/D process model to account for consumer and market differences (Tse & Wilton, 1988; Woodruff, Cadotte & Jenkins, 1983; Westbrook, 1980).

This study focused on the replication and extension of the disconfirmation model by including the concepts of consensus and cohesion. Survey research procedures were employed to gather both individual and joint data from 137 couples who had purchased single-family dwellings between January 1986 and December 1989. The main statistical techniques used were T-tests, analysis of variance, and regression analysis.

PURPOSE OF THE RESEARCH

The purchasing of most consumer products takes place within the context of the family. Further, a large number of these decisions are either jointly made or else are influenced by someone within the family. However, despite the apparent pervasiveness of joint or syncratic decision-making, inquiry into the area of consumer satisfaction has focused on the individual as the unit of analysis, largely ignoring dyads and larger groups. While family decision-making processes have been conceptually and empirically examined, little attention has been given to the individual or group satisfaction outcome with group decisions or to variables which influence the satisfaction outcomes derived from such decisions (Engel & Blackwell, 1982).

Some researchers imply that the satisfaction outcome of group decision-making may differ materially from that of individual decision-making. Hunt (1977b), for example, notes that satisfaction with products may differ by the extent to which they are used individually or jointly. This difference in use may be reflected in the differing consumer perceptions of satisfaction. Heffring (1978) notes that interactions take place within the family unit as a result of differing perceptions, and a focus on group rather than individual satisfaction represents an intriguing, but under-researched, area of inquiry. A focus on groups, as the unit of analysis, facilitates the consideration of the effects of group decision-making on individual satisfaction, as well as the development of a conceptual treatment of the notion of group satisfaction.

This research seeks to go beyond traditional conceptualizations of satisfaction/ dissatisfaction as being the result of individual decision-making. A review of CS/D literature indicates that little attention has been given to the impact of joint decision-making on CS/D (Tse & Wilton, 1988;

Cadotte et al., 1987; LaBarbera & Mazursky, 1983; Westbrook, 1980). While considerable advances have been made in the study of family involvement in the decision-making process, very little attention has been focused on issues concerning consequences--particularly those related to CS/D with purchase decisions. Further, no studies appear to have significantly advanced a conceptual treatment of joint satisfaction with the results of joint decision-making (Filiatrault & Ritchie, 1980; Klien & Hill, 1979; Hempel, 1976; Davis & Rigaux, 1974; Sheth, 1974).

This research will attempt to enhance understanding of the satisfaction process in two primary ways. First, it will attempt to establish and explore relationships between joint family decision-making and individual satisfaction/dissatisfaction. Second, it will attempt to expand the conceptualization of satisfaction by refining a theoretical meaning of joint satisfaction and developing ways to measure it empirically. In this respect, the study also seeks to extend the work of Oliver (1979, 1980a); Woodruff, Cadotte & Jenkins (1983); Tse & Wilton (1988) and others, by focusing on the group, rather than the individual, as the unit of analysis.

In viewing the family as the unit of analysis, the study will also empirically investigate the applicability of the symbolic interaction framework to the CS/D process. Symbolic interaction (SI) theory provides a convenient perspective from which to view the family as group behavior. The SI approach posits that the rational behavior of an individual results from that person's definition of the environment and the social interaction that the person has with people in the group (Stryker, 1980; Burr et al., 1979; Kuhn, 1964; Charon, 1979; Blumer, 1969; Hill & Hansen, 1960). The framework focuses upon the nature of the interaction between individuals by viewing people's actions in relation to each other.

STATEMENT OF THE PROBLEM

Consumer satisfaction/dissatisfaction appears as an integral part of all models of consumer behavior. Scholars in the business disciplines agree that the survival of an organization depends, in part, upon its ability to satisfy customer needs. The notion that customer satisfaction is essentially the outcome of individual decision-making even where joint decision-making is involved may impinge upon an organization's ability to provide long-term satisfaction in all purchasing situations. Joint or syncratic decisions, resulting in possible joint rewards, may modify the satisfaction outcome in some manner. These issues have not been significantly addressed, leaving a void in the literature and providing the rationale for this study.

This study seeks to contribute to the development of marketing theory by empirically testing the confirmation-disconfirmation consumer satisfaction model (Oliver, 1980a; Woodruff et al., 1983; Cadotte et al., 1987) using a joint rather than an individual decision-making process. If the model is supported, researchers will be provided with further evidence as to its validity; if not, then it may be appropriate to consider ways to modify the model. The study seeks also to provide further insight into the nature of the consumer satisfaction process by focusing on the satisfaction outcomes when a joint decision is involved. Further, the study involves theory building via the application of the SI theory to the consumer satisfaction process.

Marketing knowledge will be expanded in the area of family decision-making by applying relevant literature from sociology (Hill & Scanzoni, 1982; Waldroff, 1988). The sociological literature on joint family decision-making indicates that there exist a number of measurement and data aggregation issues which need to be addressed when data are collected individually from both husband and wife (Bokemeier & Monroe, 1983; Thompson & Walker, 1982; Thomson & Williams, 1982). Marketers, however, are yet to investigate these issues to determine their applicability to models of consumer behavior or to the practice of marketing.

THEORETICAL PERSPECTIVES

In studying the "family" as the unit of analysis, researchers have used a number of different theoretical frameworks (McDonald, 1980; Holman & Burr, 1980; Gelles & Straus, 1979; Klien & Hill, 1979; Hill & Hansen, 1960; Hill, Katz & Simpson, 1957). These theories could be classified under three broad headings: intra-individual, social psychological, and socio-cultural theories.

Intra-individual theories explain family dynamics in terms of some biological and/or acquired characteristics or qualities of the individual actors (Berscheid & Walster, 1978). The social psychological theories examine the interaction of the individual with other individuals and groups. Among the theories which fall into this group are exchange theory (Nye & Berardo, 1966; Blau, 1974; Homans, 1974; Huston & Cate, 1979; Acock & Bengtson, 1978), attribution theory (Harvey & Weary, 1981, 1984; Kelley & Michela, 1980; Shaver, 1975), social learning theory (Hilgard & Bowers, 1966; Hall, 1966), self-attitude theory (Epstein, 1973), and symbolic interaction theory (Stryker, 1980; Burr et al., 1979; Blumer, 1969).

Sociocultural theories tend to focus more on the macro-level variables such as social structures, values and norms, systems operations, functions, and subcultures or social systems. Among the theories in this group are structural functionalism (Merton, 1968; Parsons, 1951), institutionalism (Mayhew, 1987), general systems theory (Sirgy, 1988; Beavers, 1981; Buckley, 1967; Broderick & Smith, 1979), and conflict theory (Sprey, 1969; Marx, 1964; Coser, 1956; Dahrendorf, 1951; Turner, 1970).

Of the three broad groups of theories, the social psychological theories facilitate research at the micro level and are therefore best suited for this study. Theories in this category focus on the interaction of the individual with the environment and with others. Of the various social psychological frameworks which have been employed in the study of the family, the symbolic interaction perspective and its variant "social interactionism" comes closest to viewing the family as a primary social group (Bagozzi & Van Loo, 1978). With this perspective, the family can be viewed as a system of dyads that is marked by face-to-face contacts, small size, and frequent and intense contact.

When compared to the other social psychological theories the symbolic interaction approach is better able to integrate the general concepts from the consumer satisfaction model with the concepts from the decision-making model. The approach also provides greater scope in that more information can be subsumed under the interaction approach than under the other approaches (Burr et al., 1979).

Holman and Burr (1980) assert that there are several indications that the interaction approach continues to be the most influential framework in family studies. Despite this emphasis, and the fact that much of the research concerned with the "satisfaction" variables have borrowed concepts and propositions from SI theory, the interaction theory has remained outside of the realm of marketing inquiry (Burr et al., 1979). Therefore, given the relative importance of SI theory in the family literature, and its close link with the satisfaction literature, the approach will be used as the theoretical framework for this study.

Symbolic interaction theory focuses on the subjective, symbolic side of social life. It focuses upon the nature and meaning of human behavior, how these behaviors are built up, how they persist, how they are modified, and the consequences of these meanings in various situations (Stryker, 1980). Applied to the family situation, the approach will be concerned with the evolving social meanings of satisfaction among family members. In group settings, the interaction of the parties affects their individual behavior. Thus, satisfaction within the family might reflect the shared meanings and role expectations of the individual family members (Gelles & Straus, 1979).

Family life consists of the spouses interacting or fitting "lines of actions" to each other. These lines of actions give rise to and make up "joint action." But joint action, while made up of diverse acts, is different from the individual acts and from the mere aggregation of those acts in that joint actions possess a distinctive character in their own right. In this respect, joint action is really an interlinking of separate acts of the actors. This interlinking always has to undergo a process of formation in each instance of joint action. Because of its unique nature, a joint action may be identified as such and addressed without any attempt to break it down into the separate acts that make it up (Blumer, 1969).

In the study of consumer satisfaction, the SI approach focuses attention upon how the responses of others constrain the action and satisfaction of individuals. The approach is concerned with the process involved in the "construction of consumer satisfaction," the dynamics of the situation, life cycles of satisfaction episodes, and the encounters between actors in satisfaction situations (Burr et al., 1979). Symbolic interaction provides more than a mere ceremonious nod to social interaction by recognizing such interaction as being of vital importance in its own right (Blumer, 1969). This importance exists because human interaction is a process that forms behavior instead of merely being a setting for behavior.

The interaction model pays attention to the nature of the feedback from intimate associates in primary groups. As such, it is assumed that occurrences in the mind are a function of what occurs in these intimate interactions. Apart from paying attention to an individual's perceptions of generalized conditions in their social situation, the interaction approach also pays attention to contextual variables such as social status and norms (Blumer, 1969; Kuhn, 1964).

THE RESEARCH MODEL

The close association between SI and CS/D makes it possible to use the two-stage expectancy confirmation model, which was developed by Oliver (1977a, 1980a) and extended by a number of other researchers. While very comprehensive, the model has been applied only to

satisfaction situations involving individuals (Oliver, 1979, 1980b; Cadotte et al., 1987; Tse & Wilton, 1988; Woodruff et al., 1983; Westbrook, 1980). Given the differences between individual and syncratic or family decision-making, this study can provide further proof as to the validity of the satisfaction model by empirically testing it using the family, rather than the individual, as the unit of analysis.

This study seeks to extend the work of Cadotte, Woodruff and Jenkins (1987) and others by empirically investigating the applicability of the SI framework to the CS/D process. The major objective of the study is to analyze the relationships between family decision-making and CS/D. The study will also address some of the methodological issues which appear in the current literature on family decision-making.

In the field of family decision-making, the use of responses from a single respondent tends to ignore the reality that decision-making is a joint enterprise (Hill & Scanzoni, 1982; Thompson & Walker, 1982; Thomson &Williams, 1982). Researchers are now virtually unanimous in their belief that the "final-say" or outcome-focused technique is not the best way to assess family decision-making. They argue that it is necessary, for theoretical and substantive reasons, to address family decision-making as a process.

While complex, the measurement of processes is an essential next step to further understanding of decision-making in particular, and family dynamics in general (McDonald, 1980; Klien & Hill, 1979; Cromwell & Olson, 1975).

Specific research questions to be addressed in this study include:

1.	What is the relative advantage, if any, of using the dyad of the family as the unit of analysis in gathering data on consumer satisfaction?
2.	If joint decisions lead to joint satisfaction, how is the joint satisfaction to be measured? Note that the joint satisfaction may be different from the sum of the individual satisfactions (Burr et al., 1979; Blumer, 1969).
3.	Is there a significant difference between the individual satisfaction of the spouses and their "joint" satisfaction with a joint or syncratic decision?
4.	Within the conjugal family, to what extent does family congruence, or the extent to which family members share or have knowledge of the beliefs, perceptual biases, buying motives, and predispositions of other family members, exist prior to the exchange of information and actual purchase?
5.	To what extent can the findings from studies using an individual family member as the respondent be generalized to other family members as being representative of their perceptions, attitudes, or satisfactions?

Answers to these questions would have implications for consumer behavior and marketing management. The results from this study could be used in designing the marketing communication

effort. Indeed, marketers would have some idea of the extent to which they should appeal to both parties to a joint decision. Further, this study could also serve as the catalyst for more detailed and systematic studies of the relationships between joint or syncratic decision-making and the CS/D process.

AN OVERVIEW OF THE RESEARCH METHODOLOGY

In this study, the hypotheses were tested using cross-sectional data gathered from a sample of resident homeowners in Memphis, Tennessee. The sample consisted of couples who had purchased and occupied a house within no less than nine months of the data collection period. With respect to the house, the expected findings were that individual evaluation of the product attributes will be consistent with the respondent's prior expectations about the product. This would be true with the evaluation of an individual purchase. Since the product involved was purchased by way of a joint decision, their joint evaluation was expected to be consistent with the degree to which the decision was syncratic.

The data for this study was gathered by means of a structured questionnaire. Since data were gathered from both husband and wife, respondents were asked to individually respond to questions related to satisfaction with the housing purchase. Following their individual responses, the couple was then asked to provide a single co-operative or joint evaluation of their satisfaction with the housing purchase. A variety of demographic data was also gathered from each family unit.

The importance of this study stems from its theoretical and practical implications. From a theoretical viewpoint, the study seeks to extend Oliver's (1977a) two-stage expectancy model by including the joint expectations and satisfactions of both parties to a syncratic decision. The use of the joint expectation, joint satisfaction approach represents a major departure from the individual expectation-satisfaction approach adopted in the marketing literature. This departure provides a necessary next step in the development of a comprehensive understanding of the theory of consumer satisfaction. Therefore, any empirical testing of the major tenets of Oliver's two-stage expectancy theory can only serve to further validate the relationships suggested in the model.

Apart from providing some direction for future research, this study will assess the advisability of measuring group or joint satisfaction with a syncratic decision. The literature from the late 1980s is void of studies relating to the presence, or absence, of joint satisfaction with syncratic decisions. This study seeks to provide a necessary first step in directing attention to this important area. It is hoped that marketers would be made more aware of the importance of evaluating not only the individual satisfaction of the parties to the decision, but also their joint satisfaction. By monitoring joint satisfaction levels, managers may be better able to efficiently and effectively plan marketing strategy to meet the needs of selected target markets. Apart from its use in market targeting, this information can also be utilized in the selection and training of salespersons to service those segments. Where a syncratic decision is involved, this may be of critical importance because the satisfaction/dissatisfaction level of one party to the decision can affect the satisfaction/dissatisfaction level of the other party to the decision.

Any study of joint satisfaction has the potential of leading to a more comprehensive understanding of the true nature of satisfaction at both the individual and the group level. By knowing the relative level of satisfaction obtained from joint decisions, marketers can try to minimize or even prevent the degree of dissatisfaction that is likely to arise. Importantly enough, the expressed satisfaction/dissatisfaction of the individuals to the decision-making process may be somewhat modified in order to accommodate the satisfaction/dissatisfaction levels of the other party to the decision. This is particularly true in the decision to purchase a product that exposes the consumer to a great amount of risk. Here one spouse may agree to accept some aspect of the product to please the other spouse or to gain dominance in some other aspect of the decision. It is therefore possible that the expressed individual satisfaction of the parties to the decision may be somewhat different from their joint satisfaction.

RESULTS

This section presents the results of data analysis on family home purchasing decisions in Shelby County, Tennessee, and the satisfaction/dissatisfaction process. Because of the many difficulties inherent in obtaining couple cooperation for husband-wife surveys, most of the data for this study was gathered from a sample of couples contacted through realtors in Shelby County, Tennessee. Additionally, using a two-step sampling procedure, a sample of homeowners was identified and contacted through the mail. Attempts to contact respondents through religious organizations did not yield a list that was large enough to warrant using such organizations for identifying and contacting prospective respondents. In most cases, religious organizations were unwilling to provide a roster of their membership or to publish the research undertaking in their weekly bulletin.

Where there was no listed telephone number for a house sold within the specified period, the next property listed in Chandler's RSR was substituted, provided it was in the same zip code and had a selling price which was within $5,000 of the price of the originally selected property. Because the street names are alphabetically listed in the sales report, it was possible in many cases to substitute houses that were on the same street.

In gathering the data, it became apparent that it was time consuming and often very difficult to get couples to provide their responses to individual questionnaires and then provide their joint response to a single questionnaire. However, because the study focuses on a dyadic relationship, the entire set of questionnaires for each couple (husband, wife, and joint) had to be completed or else all three were deleted from the study.

Each prospective respondent was sent an initial letter informing them of their inclusion in the study. This was followed by a telephone call aimed at determining if there was a married couple occupying the house and if they owned the house. The telephone call was also used to make appointments with couples wishing to participate in the study.

Of the 142 couples who could participate in step two of the sampling procedure, 57 couples, or 40.14 percent, agreed to take part in the study. However, only 40 of them actually participated. This yielded a response rate of 28.17 percent. Considering that each couple had to complete an

individual and then a joint questionnaire, this response rate appears to compare well with reported response rates for gathering marketing data. A major shortcoming in collecting couple data could be attributed to the fact that both husband and wife had to agree to take part in the study. To the extent that one spouse was either busy or was unwilling to participate, the response rate was sure to be adversely affected.

RELIABILITY ANALYSIS

One test for the uni-dimensionality of a multi-item measure is its internal consistency. Internal consistency is concerned with the correlations between the various measures used to measure a construct (Nunnally, 1978). If all the items in a multi-item scale measure the same underlying trait, the correlations between the various scale items should be high. The higher the correlation, the better the reliability.

A priori, the measures were partialed into initial clusters on the basis of the constructs they were intended to measure, and the reliability of each cluster was assessed using coefficient alpha, a widely used method for determining the internal consistency or reliability of multi-item measures. As recommended by Nunnally (1978), a coefficient alpha below .70 indicates that the items perform poorly in capturing the construct meaning.

The scales used in this study are consistent with those conceptualized and are highly reliable. A summary of the coefficient alphas for the various scales are presented in Table 1. For the purpose of comparison, the alpha coefficients have been determined using four levels of data: husbands, wives, joint husband-wife, and averaged individual responses. With the exception of the cognitive measure of satisfaction that has an alpha of .60, the reliability coefficients are all above the .70 cutoff requirement, an indication that they are all quite acceptable for the three respondent groups. For the husbands and wives, the magnitude of the reliability coefficients does not differ markedly among the ten measures, .705 to .956 for husbands, .746 to .933 for wives. While the range is wider for the joint husband-wife respondent group (.602 to .961), some of the individual coefficients are higher than those obtained for either the husbands or the wives group.

After determining the coefficient alpha for each scale, factor analyses, using varimax rotation, were performed in order to confirm the various construct dimensions. Because of the relatively large number of scale items, the constructs were divided into three groups and the scale items related to each grouping of constructs were included in the same factor analysis. The first factor analysis included the scale items related to norms, expectations, performance, and disconfirmation. The second factor analysis included the items related to the three satisfaction measures. The items related to the consensus, cohesion, and the syncratic decision process were included in the third factor analysis. In general, the factor analyses captured the relevant construct dimensions conceptualized. In almost every case, the items for each of the scales loaded heavily on only one factor, an indication of a single dimension within each scale.

Table 1: Reliability Assessment Using Four Levels of Data: Coefficient Alpha for Variables in the Study

Data Level	Husbands	Wives	Joint	Average =(Husband+Wife)/2
Measure	Coefficient Alpha	Coefficient Alpha	Coefficient Alpha	Coefficient Alpha
Product Norm	.9132 (15 items)	.9012 (15 items)	.9411 (15 items)	.9251 (15 items)
Expectations	.8838 (8 items)	.8544 (8 items)	.8006 (8 items)	.8936 (8 items)
Performance	.7622 (6 items)	.8032 (6 items)	.8308 (6 items)	.8300 (6 items)
Disconfirmation	.9558 (16 items)	.9268 (16 items)	.9606 (16 items)	.9475 (16 items)
Satisfaction				
Cognitive	.7048 (3 items)	.7461 (3 items)	.6015 (3 items)	.7914 (3 items)
Affective	.9524 (5 items)	.9331 (5 items)	.9310 (5 items)	.9637 (5 items)
AU Specific	.9223 (11 items)	.9028 (11 items)	.9180 (11 items)	.9273 (11 items)
Consensus	.9058 (11 items)	.8563 (11 items)	.9335 (11 items)	.9087 (11 items)
Cohesion	.8183 (5 items)	.8439 (5 items)	.8715 (5 items)	.8702 (5 items)
Syncratic Decision	.8435 (8 items)	.8156 (8 items)	.8020 (8 items)	.8469 (8 items)

MEASURE VALIDATION

Measure validation provides evidence of the degree to which research tools are generalizable. In this study, the validation checks focused on the degree to which the various constructs exhibit high convergent and discriminant validity. Convergent validity seeks to determine the degree to which the scales correlate highly with other measures designed to measure the same thing; discriminant validity focuses upon the degree to which the measures differ from measures of different constructs. It requires that a measure not correlate too highly with measures from which it is supposed to differ.

The multitrait-multimethod matrix (Campbell & Fiske, 1959) can be used to simultaneously examine the reliability and the convergent and discriminant validity of the various constructs used in a study (Heeler & Ray, 1972). This method has been used to assess the validity of some of the measures used in husband-wife research (Davis, 1971; Wilkes, 1975; Hopper, 1983), and it has also been used in satisfaction research (Cadotte, Woodruff & Jenkins, 1987; Garland, 1983; Bolfing, 1985).

According to this approach, the correlations among multiple measures of the same trait should have higher correlation in the matrix than the correlations across measures of different traits. In all cases, it was expected that measures of the same construct would show high correlation (convergent validity), and measures of different construct would exhibit lower correlation (discriminant validity).

The multitrait-multimethod matrix is composed of intercorrelations that result when each of two or more traits are measured by each of two or more techniques or methods. An assessment of reliability is provided on the reliability or main diagonal of the matrix. Heeler and Ray (1972) note that the traits or constructs may be considered internally consistent and relatively stable if the values along the reliability diagonal are high.

In this study, the information relating to the ten measures was obtained from three sources within each family--the husband, the wife, and the joint husband-wife response. Following the technique used by Davis (1971), the necessary data are available to construct a "multitrait-multirater" matrix. The multiple traits are the ten constructs or measures, and the three methods are the independent responses or reports of husbands, wives, and husband-wife to the same questions about satisfaction with the couple's place of residence. Since the reliabilities for the various measures do not differ across the respondent groups, the three sets of data were included.

Before discussing the convergent and discriminant validities of the various traits, it is important to note that since neither the decisions nor the methods used in this study are strictly independent, the traits and methods differ somewhat from those addressed by Campbell and Fiske (1959). Davis (1976) asserts that the use of identical scales to obtain information from husbands and wives within the same family contributes to the non-independence of the measures through shared method variance. However, he notes that these factors do not lessen the usefulness of the multitrait-multimethod approach.

EMPIRICAL TESTING OF RESEARCH HYPOTHESES

An empirical examination of the nine research hypotheses was conducted. These hypotheses were formulated on the basis of theoretical discussions of symbolic interaction theory and the disconfirmation model. In order to test the hypotheses concerning the differences between the satisfaction of husbands, wives, and their joint responses, the t-test of significance and ANOVA were used. Hair et al. (1987) notes that ANOVA and t-test are equivalent when only two independent sample means are being compared. Regression analysis was used to determine the relationship between satisfaction, the criterion variable, and the set of predictor variables included in the disconfirmation model.

CONCLUSION

The results of this study suggest that consensus and cohesion may play a direct role in the determination of joint satisfaction under conditions of syncatic decision-making. A particularly interesting finding of the study was that performance was a better predictor of satisfaction than was disconfirmation. However, while the disconfirmation paradigm provides a viable framework for studying joint satisfaction, further refinement and testing is necessary.

These findings have significant marketing implications because practitioners can benefit from a better understanding of the consumer satisfaction process. Market segmentation applications can be realized from the fact that individuals with expressly different norms, expectations, and perceptions of performance can have similar levels of satisfaction. Marketers must recognize these differences in formulating effective marketing strategies.

While the findings cannot be generalized beyond the population of concern, they provide some understanding of the theoretical and empirical issues related to family decision-making and the satisfaction process. As such, the study has implications for marketing strategy and for theory development. Future studies in this area should be extended to include additional variables related to family decision-making.

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DIFFERENCES IN WORK-FAMILY CONFLICT, TECHNOLOGY & OTHER ISSUES RESULTING FROM WORK SCHEDULE AND TRAVEL REQUIREMENTS OF SALESPEOPLE: AN EXPLORATORY STUDY

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ABSTRACT

The first purpose of this exploratory study was to add to the body of knowledge related to work-family conflict (WFC), particularly in the area of the impact of family members' health issues on careers. The second purpose was to address the impact of information technology security issues on salespeople's lives and careers. The authors designed and distributed a survey on work-family conflict and technology issues to 35 salespeople they knew. Items from two previously-developed scales were borrowed, and new items and questions were created. Significant differences related to work schedule and travel requirements were found with regard to length of employment, amount of time spent on selling tasks, and tension over how much time is spent on travel. Limitations and implications for future research are then addressed.

INTRODUCTION

A discussion of the effect of aging parents on professional careers took place at a conference in the fall of 2003 among several colleagues. This discussion prompted the researchers to explore the impact of family-related issues (schedule flexibility, care giving responsibility and technology usage) on salespeople's ongoing professional development and careers. A review of the literature revealed the connection of family-related issues, and to a lesser extent, technology issues, to the larger issues of work and family conflict and role conflict and ambiguity.

LITERATURE REVIEW

The psychology, organizational behavior, human resource management, and family sciences literature is full of studies on the impact of work and family conflict on employee productivity, job satisfaction, job loyalty, marital happiness, and physical and mental health, among other attitudinal,

physiological, and behavioral consequences. Work-family conflict has been established by prior research to be bi-directional; i.e., it involves two types of conflict, work obligations interfering with family life (work-family conflict, WFC) and family life interfering with work duties (family-work conflict, FWC)(Marchese, Bassham & Ryan, 2002, pp. 145, 146). Greenhaus and Beutell (1985) identified three key types of WFC in their review of existing literature: time-based conflict (e.g., hours worked per week, schedule flexibility, child care demands); strain-based conflict (e.g., tension, depression, irritability, family roles expectations); and behavior-based conflict (role expectations). Boyar, et al. (2003) found through structural equation modeling that work-role conflict and work-role overload were positively related to WFC and thus affected turnover intentions. However, family responsibility was not related to FWC. Namasivayam and Mount (2004) found an unexpected linkage of FWC issues with higher, not lower, job satisfaction. They cautioned that the result may be due to the overwhelmingly Hispanic workforce that participated in the hotel chain study.

One area of the work-family literature that has received more attention lately is that of the impact of caregiver arrangements and related issues on employees' attitudes and behavior (e.g., see Kossek & Ozeki, 1998). To some extent, more research seems to have been done on child care than on elder care. The research on child care, however, has been more from the perspective of measuring the impact of providing assistance (e.g., child care centers) on reducing WFC (see Marchese, Bassham & Ryan, 2002, p. 147). Jansen et al. (2003) found that having to care for a chronically sick child or other family member at home was a significant risk factor for WFC for men but not for women. Marks (1998) found that women suffered more psychological distress from care giving for disabled children/parents/spouses. However, while being a caregiver generated more WFC than not being a caregiver, there were no significant gender differences in terms of increased WFC. Kossek, Colquitt and Noe (2001) conducted an extensive examination of care giving decisions and work performance and found that "managing elder care interacts with variables to influence employee outcomes more negatively than does managing child care, especially when caregiving is at home or by a family member" (p. 40). Personal resources, health and age are postulated to affect how much influence aging parents have on family decision making (Watson, Srisupandit & Tung, 2002). Rose and Hartmann found that family responsibilities still fall primarily upon women, that "neither society nor employers have found good ways to mesh those [responsibilities] with job demands," and consequently, women suffer salary setbacks when they take career breaks to care for family members (Bernstein, 2004, p. 58; also see Hymowitz, 2004).

Research on WFC has also been done on the salesforce, involving work environment and mental health (Borg & Kristensen, 1999), coping strategies (Nonis & Sager, 2003), and turnover intentions (Netemeyer, Brashear-Alejandro & Boles, 2004). Boles, Wood and Johnson (2003) focused research on the interrelationships of WFC and role conflict with multiple dimensions of job satisfaction, paying particular attention to gender differences. In fact, they did find gender differences with WFC: women realize more satisfaction with work, coworkers and company policies when WFC is reduced, whereas men realize more satisfaction with pay, supervisors, promotion and policies when WFC is reduced (Boles, Wood & Johnson, 2003, p. 109).

Little research was found in terms of the influence of technology on salespeople's careers and role conflict (e.g. see Boles & Sunoo, 1998; Prewitt, 1998). Salesperson technophobia was found

to be related to age and education level of salespeople and was a contributing factor to increased role stress (Rich, 2000). Since the terrorism attacks on September 11, 2001, and given the subsequent passage of the Patriot Act, the authors decided to investigate attitudes toward computer security issues both at home and in the sales office. In order to better cope with family versus work issues, more and more employees are working from home; thus technology issues may now become a part of family/work issues. Anecdotally, salespersons have commented that having the flexibility to work at home and to have flexible work schedules has helped with family issues.

Based on the literature review and the anecdotal experiences of the authors, the purpose of the study was two-fold: first, to add to the body of knowledge regarding the impact of family members' health issues on salespeople's careers; second, to assess the impact of home/office information technology security issues on salespeople's lives.

METHODOLOGY

A questionnaire was originally designed in November 2003 and subsequently pretested on students in an upper-level Marketing class at a southern regional university. As a result of the pretest, wording on the two uses of technology questions was changed from "use computers" to a broader, less confusing, "use any kind of technology". For the three questions regarding how far respondents lived from family members, the response categories were changed from region of the state to distance in miles (less than 20, less than 60, less than 100, or greater than or equal to 100). The final version of the questionnaire contained 28 numbered questions, with three of the numbered questions containing a total of 33 Likert-type statements. The first set of questions on the final questionnaire addressed the following topics: length of employment with current employer, travel expectations of job, extent of travel, hour worked per week, work schedule flexibility, use of technology at work and at home for work purposes, online work assessment, and percentage of time spent on sales tasks (selling, meetings, paperwork, etc.).

A search of the three volumes of the Marketing Scales Handbook yielded two scales that appeared to be appropriate for the authors' assessment of family-related issues. Chonko and Burnett (1983) developed a 27-item scale that measured role conflict (Bruner & Hensel, 1998). One segment (four items) from Chonko and Burnett's scale was used in our study; this segment represented Factor 3: Family and addressed time spent working, socializing (with customers and other salespeople), and traveling. This particular segment was deemed to be more relevant to the study at hand than the role conflict and ambiguity scales developed by Rizzo, et al. (1970). Responses were measured on a five-point scale ranging from "Complete agreement" to "No agreement."

Good, Page and Young (1996) used a 13-item scale adapted from Fournier (1981) to measure work and family conflict (Bruner, James & Hensel, 2001). The items addressed self-image and esteem, impact on productivity, spousal career conflict, and contentment with current city. A five-point Likert-type scale was used to measure responses, ranging from "Strongly disagree" to "Agree strongly," with "Not applicable" as the fifth scale point. Since specific questions that measured the impact of family members' health on one's sales career could not be found, four questions were added to the work and family conflict scale: health of spouse/significant other,

health of parents or spouse's parents, health of children, and anticipation of career move/change due to health issues in next five years.

A search of the literature did not reveal any scales that were up-to-date and relevant to current technology issues (security, training, viruses, and computer usage). Therefore the authors developed a 12-item Likert-type scale, using the same five-point scale that was used by Good, Page and Young (1996), to measure work and family conflict possibly stemming from technology-related issues.

The final series of questions dealt with demographics, including gender, age, marital status, number of children, state of residence, and education, computer usage (number at home, Internet access), and family information (parents living, distance from parents, distance from children, and primary caregiver).

A cover letter was prepared according to university Institutional Review Board guidelines. The questionnaire and cover letter were combined to produce a booklet format and printed at a local office supply store.

A convenience sample was used in this exploratory study. Surveys were distributed by hand and through e-mail to 35 salespeople known by the researchers. The salespeople were employed by business-to-consumer companies. All 35 surveys were completed during December 2003 and used in this exploratory study. The surveys were edited, coded and inputted into ABstat™ as a database. The data was cleaned, and then frequencies, descriptive statistics, and both parametric and nonparametric statistics were calculated.

DISCUSSION

Twenty (57%) of the 35 survey participants were women. Twelve (34%) of the respondents were between the ages of 35 and 44 and ten (29%) were between the ages of 45 and 54. Twenty-five salespeople (74%) were married. Thirty-three participants reported having one computer at home. All but one person had Internet access from home. Of those 34 with Internet access at home, 16 (47%) used a dial-up modem while 17 (50%) had broadband access to the Internet. Thirteen (37%) of the 35 respondents have earned an undergraduate degree, while another seven (20%) have earned a graduate degree. Just over half (51%) indicated that both parents were still alive, while 26% indicated that only one parent was still living. Nineteen (70%) out of 27 who answered the question reported that they lived less than 20 miles from their parents. Ten (42%) out of 24 who responded to the question reported that they lived less than 20 miles from their spouse's parents. Thirty participants (86%) said they have children; of these, 43% have two children and 30% have one child. Thirteen (45%) of the 29 who answered reported that they have one child under the age of 18, while another ten (34%) have two children less than 18 years of age. Twenty-two of the thirty parents (73%) indicated that they lived less than 20 miles from their children. With regard to being the primary caregiver for parents, only one out of the 35 participants reported that they had that responsibility. All of the respondents lived in one southern state.

Descriptive statistics for ratio and interval scale-based questions are provided in Table 1 and briefly discussed in this section, along with frequencies from categorical questions. The respondents have been with their present employers an average of 65.26 months (or almost five and a half years).

Over three-fourths of the salespeople (77%) are required to travel as part of their jobs. Twelve people (44%) indicated that they had to travel two to three times a week, while another eight people (30%) had to travel on a weekly basis. Of the 27 who indicated that they had to travel, 15 (56%) said that their travel did not require an overnight stay. Respondents averaged 52.57 hours of work per week, with four people reporting 70 hours a week as their workload. Eighteen salespeople (51%) indicated that they had a flexible work schedule. Most (97%) reported daily usage of any kind of technology (computers, registers, etc.) at work; meanwhile, nine (26%) reported using technology at home for work monthly versus six (17%) who used it daily at home. Twelve respondents (34%) rarely or never used technology at home for work purposes. Most of the salespeople (91%) indicated that their use of the Internet for work is more than it was a year ago; only three people said their Internet work usage had remained the same.

Table 1: Descriptive Statistics

Variable	Mean	Standard Deviation	Median	Mode	n
Length of employment (months)	65.26	50.01	54	24, 36, 60	35
Hours worked per week	52.57	10.39	50	40	35
Time spent selling (%)	35.14	10.25	30	30	35
Time spent in meetings (%)	10.00	5.82	10	5	35
Time spent traveling (%)	9.57	8.08	10	10	35
Time spent entertaining (%)	5.86	4.62	5	5	35
Time spent on sales follow-up (%)	16.14	6.54	15	10, 20	35
Time spent on professional development (%)	8.57	5.23	10	5	35
Time spent on paperwork (%)	15.00	8.66	10	10	35
Agreement on time spent working*	1.91	0.89	2	2	35
Time spent socializing with customers	1.91	0.89	2	2	35
Time spent socializing with other salespeople	1.80	0.80	2	2	35
Agreement on time spent traveling	1.86	0.97	2	1	35
Able to do things as well as others#	3.49	0.51	3	3	35
Personal concerns reduceproductivity	2.34	0.77	2	3	35
Family has resources to meet desired lifestyle	2.82	0.64	3	3	33
Spouse's job/career conflicts with mine	2.15	0.53	2	2	27
I certainly feel useless at times	1.71	0.71	2	2	35
Family problems cause loss of time at work	2.33	0.69	2	3	33
Inclined to feel like I'm a failure	1.51	0.66	1	1	35

Table 1: Descriptive Statistics

Variable	Mean	Standard Deviation	Median	Mode	n
Nervous/tense/frustrated when I get home	2.11	0.76	2	2	35
Take a positive attitude toward myself	3.23	0.49	3	3	35
I am satisfied with myself	3.32	0.48	3	3	34
Spouse is content with his/her work status	3.11	0.42	3	3	27
I'm content with spouse's work status	3.04	0.44	3	3	27
I'm content with city in which I live	2.82	0.80	3	2	34
Spouse's health has affected my career plans	1.70	0.61	2	2	27
Kid's health affected my career plans	1.60	0.50	2	2	30
Parents' health affected my career plans	1.56	0.50	2	2	32
Make career move due to family health	1.63	0.56	2	2	30
Using computers is more important in job#	3.74	0.44	4	4	35
Required to login using password at work	3.74	0.44	4	4	35
Required to login when accessing from home	3.74	0.45	4	4	35
Spouse uses home computer for work	1.96	0.60	2	2	26
Family uses computer for non-work activities	3.00	0.61	3	3	28
Time on computer takes away from family	2.33	0.55	2	2	30
Company is overly concerned about security	3.14	0.49	3	3	35
I'm concerned about work computer security	2.86	0.60	3	3	35
I'm concerned about home computer security	2.89	0.58	3	3	35
Company provides adequate training	3.09	0.45	3	3	35
Careful to ensure work anti-virus is up-to-date	2.86	0.60	3	3	35
Careful to ensure home anti-virus is up-to-date	2.83	0.57	3	3	35

*For the next four statements, 1=complete agreement and 5=no agreement.
#For the remaining statements, 1=strongly disagree and 4=agree strongly; 5=not applicable (dropped from analysis).

Respondents were then asked to allocate 100% of their time in a typical week among seven sales-related tasks. Over half the time was allocated on two tasks: selling (planning, calling, prospecting, presentations) and sales follow-up (customer service, training).

The first set of scale questions dealt with time spent working, socializing with customers, socializing with other salespeople, and traveling. A five-point rating scale was used to measure agreement with the four statements, with 1 reflecting "complete agreement" with the statement.

Means ranged from 1.80 for time spent socializing with other salespeople to 1.91 for time spent working and time spent socializing with customers (see Table 1). Respondents felt there was very much agreement between them and family members on how they spent their time in these four areas.

The next set of scale questions dealt with WFC issues, including new items on family members' health. For purposes of analysis, any "5" score was dropped since it represented "not applicable," leaving a four-point scale. As seen in Table 1, respondents tended to agree with positive self-related statements (e.g., able to do things) and spousal career statements (e.g., spouse content with his/her job). Salespeople tended to disagree with negative self-related statements (e.g., feel useless), conflict statements (e.g., spouse's career conflicts with mine), and all four health-related career-impact statements.

The last set of scale questions focused on technology issues (see Table 1); respondents tended to agree with most of the statements. Participants tended to disagree with only two statements: my spouse uses the home computer for work and time spent on computer takes away from family time.

Scale reduction was attempted through the use of common factor analysis. Given the sample size of 35, the common factor analysis could not be accomplished. Surveys were also administered to marketing students (potential future salespeople) at the same time. That data set, as of yet unanalyzed, will be combined with the 35 in order to have a sufficient sample size to perform common factor analysis and test the new scale items. We acknowledge that the inability to conduct common factor analysis on the scale items, especially the new items, is a major weakness of this paper.

Given the scope of the exploratory research undertaken, the authors decided to focus on significant differences by work schedule, travel requirements, and other demographic factors in this paper. Significant gender differences were discussed in an earlier paper (see Totten, Schuldt & Donald, 2004). Significant differences were also found for work schedule and travel requirement factors (see Tables 2-4). For the scale-based questions, the Kruskal-Wallis One-way ANOVA by Ranks (KW) was selected over the independent t test and ANOVA due to the sample sizes falling below 30. KW is also equivalent to the Mann-Whitney U test when k=2 (see Sheskin 1997, p. 397).

Salespeople who were required to travel averaged a longer period of employment with their current employers (about two years), worked almost 15 more hours per week, and were less satisfied with the city in which they lived, than did those who were not required to travel (see Table 2). Traveling salespeople spent more time selling, traveling, and entertaining, and less time in meetings, and doing sales follow-up and paperwork than did their nontraveling counterparts.

Table 2: Significant Kruskal-Wallis Differences by Travel Requirements (Must Travel)				
Variable	Travel required (mean)	Travel not required (mean)	X^2	Significance
How long have you been working with present employer?	70.8 months	46.5 months	2.85	0.0912
How many hours/week worked?	55.9 hours	41.25 hours	12.36	0.0004
Percentage of time spent selling?	37.4%	27.5%	5.28	0.0216
Percentage of time spent in meetings/conferences?	9.1%	13.1%	3.78	0.0518
Percentage of time spent in travel?	12.4%	0.0%	18.00	0.0000
Percentage of time spent entertaining?	7.4%	0.6%	13.35	0.0003
Percentage of time spent on sales follow-up?	14.6%	21.3%	6.03	0.0141
Percentage of time spent on paperwork?	11.9%	25.6%	11.82	0.0006
I am content with the city in which I live.	2.69	3.25	2.77	0.0960

Of the twenty-seven salespeople who do travel as part of their job, several significant differences were found regarding whether they had to stay overnight or not (see Table 3). Those who had to stay overnight tended to spend more time on selling, travel, and entertaining, and less time doing sales follow-up, paperwork, and professional development than did those who did not have to stay overnight during their travels. Those salespeople staying overnight also reported some tension between their family and themselves over how much time they spent socializing with customers and on traveling itself. On the other hand, they reported less frustration when they get home from work and a more positive attitude with themselves than did salespeople who did not have to stay overnight.

Table 3: Significant Kruskal-Wallis Differences by Travel Requirements (Stay Overnight)				
Variable	Must stay overnight (mean)	Overnight stay not needed (mean)	X^2	Significance
Percentage of time spent selling?	41.3%	34.3%	3.26	0.0710
Percentage of time spent in travel?	17.9%	8.0%	13.39	0.0003
Percentage of time spent entertaining?	10.0%	5.3%	8.72	0.0032
Percentage of time spent on sales follow-up?	10.8%	17.7%	7.60	0.0058
Percentage of time spent on professional development?	5.0%	10.7%	6.19	0.0128

Table 3: Significant Kruskal-Wallis Differences by Travel Requirements (Stay Overnight)				
Variable	Must stay overnight (mean)	Overnight stay not needed (mean)	X^2	Significance
Percentage of time spent on paperwork?	8.8%	14.3%	5.15	0.0233
Agreement on time you spend socializing with customers.	2.33	1.67	2.92	0.0877
Agreement on how much you travel on your job.	2.42	1.53	3.72	0.0539
I am nervous, tense, or frustrated when I get home from work.	1.67	2.33	5.04	0.0248
I take a positive attitude toward myself.	3.50	3.00	4.20	0.0404
On the whole, I am satisfied with myself.	3.55	3.13	3.11	0.0776

With regard to having a fixed or flexible work schedule, salespeople with fixed schedules (e.g., 9:00 a.m. to 5:00 p.m.) reported working about 11 less hours per week than did their counterparts who had flexible schedules (see Table 4). Those with fixed schedules tended to spend less time selling, traveling, and entertaining, and more time in meetings and on sales follow-up, professional development and paperwork tasks than did those with flexible schedules. However, they reported less self-assurance and more frustration when coming home than did those salespeople with flexible schedules.

Table 4: Significant Kruskal-Wallis Differences by Work Schedule				
Variable	Fixed	Flexible	X^2	Significance
How many hours/week worked?	47.1 hours	57.8 hours	9.32	0.0020
Percentage of time spent selling?	29.1%	40.8%	11.32	0.0010
Percentage of time spent in meetings/conferences?	12.1%	8.1%	4.51	0.0340
Percentage of time spent in travel?	4.1%	14.7%	16.70	0.0000
Percentage of time spent entertaining?	2.9%	8.6%	14.24	0.0000
Percentage of time spent on sales follow-up?	19.4%	13.1%	8.24	0.0040
Percentage of time spent on professional development?	12.1%	5.3%	15.19	0.0000
Percentage of time spent on paperwork?	20.3%	10%	12.77	0.0000
I am able to do things as well as most other people.	3.29	3.67	3.54	0.0599
I am nervous, tense, or frustrated when I get home from work.	2.35	1.89	3.06	0.0802

LIMITATIONS OF THE STUDY

There are several limitations that need to be addressed first. The analyses were limited by the small sample size of 35 (or fewer, depending on variable and analytical method). The sample is not a representative sample, since it was a convenience sample and also drawn from a small region of the United States. The study also is affected by the use of borrowed scales and the appropriateness of added items (see Engelland, Alford & Taylor, 2001 for cautions in such use). In hindsight, the 10-item sales activity classification taxonomy developed by Moncrief (1986) should, perhaps, have been used instead of the sales tasks developed by the authors. The scale items also need to be carefully examined through factor analysis and reliability analysis.

IMPLICATIONS FOR FUTURE RESEARCH

Given the exploratory nature of this study and the small sample size, any implications to be drawn are speculative at best. The identified relationships between travel and time spent on tasks as well as WFC tensions appear to confirm what one would assume from an anecdotal point of view. Salespeople who travel will typically spend more time on travel-related tasks and are likely to encounter some tension at home over the amount of time they spend on the road.

A larger sample size is needed to test whether or not these generally significant differences between salespeople who travel and those who don't, can be generalized to a larger population. A wider geographic range of participants is also warranted. The scales need to be tested and further refined by other researchers. The authors are also gathering more data as one of several next steps in this vein of research.

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ASSESSING THE PERCEIVED IMPACT OF E-COMMERCE ON PHYSICAL DISTRIBUTION AND LOGISTICS-RELATED FUNCTIONS

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ABSTRACT

This paper examines the salience and impact of e-commerce on the roles of distributors in the semiconductor industry for four different types of products, namely differentiated products, architectural products, technological products, and complex products. Specifically, the study measures the perceived importance of e-commerce and the possibility of e-commerce displacing the offline roles of distributors to customers, producers, and both. Questionnaire and the purposive sampling method were used to collect data from distributors in the semi-conductor industry. The results of the study show that physical distribution and logistics-related functions are becoming more salient with the advent of e-commerce. In addition, the likelihood of e-commerce replacing the offline channels is lowest for complex products as compared to any other product category. Details of the findings are discussed.

KEY WORDS:

E-Commerce
Physical Distribution Functions
Semi-Conductor Industry
Perceived Importance
Likelihood of Being Replaced
Malaysia

INTRODUCTION

Forecasts that predict the size of online trading revenues in the near future vary from a few hundred billion to a few trillion dollars (van Hooft & Stegwee 2001; Jantan, Ndubisi & Ong, 2003). Arthur Anderson (2000) indicates that electronic business-to-business represents 84% of total e-business revenue and the growth prospects are substantial with the revenues predicted to be anywhere from $2.7 trillion to over $7 trillion in the next three years. There has also been concern that the salience of physical distributors could be undermined by e-commerce.

The existence of distribution channels has helped to make society more efficient in resource allocation. Most producers use intermediaries both to acquire raw materials for production and to bring their products to market. They try to forge distribution channel to facilitate the process of making a product or service available for use or consumption by the consumer or business user (Stern, El-Ansary & Coughlin, 1996). Bagozzi et al., (1998) assert that intermediary creates savings and the savings become more dramatic as the number of producer-consumers increases. Armstrong and Kotler (2003) pointed out that intermediaries play an important role in matching supply and

demand, while Waxman (2000) argues that by servicing the thousands of indirect partners who are the customers, midrange distribution adds true value.

However, one of the constantly raised questions with the emergence of e-commerce is whether the offline channels will be emasculated. The purpose of the study therefore, is to understand the perceived importance of e-commerce and its impact on the physical distribution and logistics-related functions for customers, producers, and for both, across four product categories in the Malaysian semi-conductor sector.

LITERATURE REVIEW

Armstrong and Kotler (2003) define distribution channel as a set of inter-dependent organizations involved in the process of making a product or service available for use or consumption by the consumer or business buyer. In most contemporary markets, mass production and consumption have lured intermediaries into the junction between buyer and seller. Intermediaries provide economies of distribution by increasing the efficiency of the process.

Researchers have credited distribution channels with the following roles: information gathering and distribution of marketing research and intelligence information (Sawhney, 2000); promotion (Jantan et al. 2003); contact or prospecting (Sawhney, 2000); matching (Kearney, 2000a); negotiation (Ndubisi et al. 2003); physical distribution (Sawhney, 2000; Kearney, 2000a); financing (Jantan et al. 2003); and risk-taking (Ndubisi et al. 2003; Kearney, 2000a;). Bagozzi et al., (1998) categorizes the distribution functions into three: functions for customers; functions for producers; and functions for both customers and producers. Two forces underlie the need for intermediaries: the discrepancy of quantity (i.e. differences between the quantity typically demanded by customers and the quantity that can be produced economically by manufacturers) and the discrepancy of assortment (differences between the varieties of products typically demanded and economically produce-able varieties (Bagozzi et al., 1998). Middlemen fill these needs by carrying out transactional, physical and facilitating roles.

Generically, e-commerce has fundamentally reshaped business relationships and has caused dramatic shifts in channel power as information and communication imbalances disappear. The Internet technology also allows interactivity. Interactivity is defined as the extent to which a two-way communication flow occurs between the organisation and customers (Mohammed et al. 2003) or other channel stakeholders. The Internet enables an unprecedented level of customer dialogue, which facilitates exchange. Online exchanges are infiltrating distribution channels at an outstanding rate. As growth in the use of Internet accelerates, distributors have been warned repeatedly that they risk being cut out of the channel by aggressive web-savvy, and purely virtual competitors. Gates (in Adelaar, 2000) opines that in recent years, it has been widely accepted that e-commerce signifies the dawn of a friction-free market; structural changes in markets, such as dis-intermediation, would occur due to the impact of electronic trade and electronic information age, albeit, Sarkar et al., (1995) disagrees, stating it is exaggeration because different outcomes are possible such as, cyber-mediation and re-intermediation. Moreover, the high fragmentation of the distribution industry, and the nature of the product sold which differs with respect to need for inspection, personal assistance needed from the expert, etc. has been challenging the idea of physical

channel replacement by the Internet. Instead, distributors will compete and collaborate with a new type of Internet-based company - the online exchange (OLE). Online exchanges, which are being created in almost every vertical supply chain, bring together buyers and sellers in ways that were not possible before the advent of Internet. It is believed by many that online exchanges (of the many variations of e-commerce) pose the most important strategic challenges to the offline intermediaries, whereas Fein et al., (1999) believe that distributors can retain an important, and enhanced place in the channel as these exchanges mature.

The issue of the salience of e-commerce and the possibility of replacing the physical channels will depend on a number of factors chief among them being the value-added and the cost of each channel. The transaction cost theory by Coase (in Sarkar et al., 1995) is an often-employed framework in the intermediaries context since it focuses on a firm's choice between internalized, vertically integrated structures, and the use of external market agents for carrying out activities that constitute its value system. In the context of channel decisions, it can be used to articulate process whereby firms either "make or buy" an intermediary function; that is, whether the firm decides to internalize the channel activity within its organizational boundaries, or whether it chooses to rely on the market (Sarkar, et al., 1995). In the situation of choice between physical channels or e-commerce, decision makers have employed the transaction cost perspective. Benjamin and Wigand (1995) examine electronic markets and the industry value chain from a transaction and transaction cost perspective. They argue that transaction cost theory helps to understand how markets and hierarchies are chosen. In free market economies, one can observe two basic mechanisms for coordinating the flow of materials and services through adjacent steps in the value chain: markets and hierarchies. Williamson (1981) further classifies transactions into those that support coordination between multiple buyers and sellers (i.e. market transactions), and those supporting coordination within the firm as well as industry value chain (i.e. hierarchy transactions). Hence, the price a product is sold consists of three elements: production costs, coordination costs, and profit margin. Benjamin and Wigand (1995) suggest that the chain of market hierarchies, which bypasses the distributor, will result in a lower purchase price for the customer. Recent research by Kearney (2000b) shows that production costs seem to be under control, but web-based processes can: (1) save another 10-30% from operating costs; (2) cut cycle times by anything up to 90%; and (3) virtually eliminate the supply and demand mismatches that cause inventory build-ups and stock-outs.

It has been noted that intermediaries add significant costs to the value chain, which are reflected in a higher final price of goods and services (Sarkar, Butler & Steinfield, 1995). As illustrated in Benjamin and Wigand (1995), in the high quality shirts market, it would be possible to reduce the retail price by almost 62% if wholesalers and retailers could be eliminated from the traditional value chain. Moreover, since the cost of creating value is a function of how well the activities in the value chain are coordinated, and integrated (Delphi Group, 2000), intermediaries who are unable to coordinate and integrate activities at reduced cost will suffer market loss to this newer marketing arrangement - the E-commerce. Kirchmer (2004) has reported that the Internet is a major enabler for the improvement of supply chain management and customer relationship management. In many organizations, the resulting networks of e-business processes are designed

and implemented using available industry standards in the form of reference models such as supply chain reference model (SCOR), the RosettaNet Standards, etc. (Kirchmer 2004).

Schmitz (2000) comments that the effects of e-commerce on intermediation depend on the characteristics of the goods under consideration. Schmitz considers high degrees of standardization, a low complexity of valuation, and ease of description as prerequisites to distribute goods via e-commerce. King and Kang (2000) indicate that product complexity is positively correlated to an e-shopper's propensity to use a vehicle other than the Internet to close a transaction. Connors (2000) reports that technological advances are producing many products more complex than what came before, so it is essential to get active guidance from technicians for customizing, integrating, installing, documenting, and maintaining these systems. Waxman (2000) holds the view that relationship with customer is still required even though the Internet may migrate to an order fulfillment vehicle. Manufacturers of many types of industrial goods tend to be more engineering than marketing-oriented, therefore, it is not surprising that they frequently turn marketing problems to distribution specialists. This is one of the reasons why industrial products, more so than consumer products has been a particularly viable sector of wholesaling over the years (Stern et al, 1996). Moreover, distribution goals depend in part on other product characteristics namely, unit value, standardization, bulkiness, complexity, stage of product life cycle (Pelton et al. 1997), which affect decision about whether intermediaries should be used or which distribution channel to use. Industrial products more so than other product categories tend to be more complex, and the relevant properties are more technical in nature. The financial services industry in general was an early adopter of online technologies such as value added networks and has been equally early in adopting the Internet through online stock-broking and online banking (Bauer & Colgan 2001).

Some researchers argue in favor of physical channel based intermediation, while others have feared its overthrow or dis-intermediation. Wigand (1996) defines dis-intermediation as the displacement of market intermediaries, enabling direct trade between sellers and buyers without agents. Schmitz (2000) notes that the notion that e-commerce will lead to dis-intermediation seems to be widely accepted in the scientific community and well established in the popular debates. Schmitz further argues that elimination of intermediaries will have one of two causes, (1) there is no longer a demand for the services provided by the intermediary, or (2) the provider of these services is integrated into another company at a different step in the value chain and the service will be produced internally. Benjamin and Wigand (1995) suggest that when appropriate information technology can reach the consumer directly… the manufacturer can use the national information infrastructure to leap over all intermediaries. In turn Picot et al., (1997) argue that with the support of information and communication technology, principals could acquire the agent's superior problem solving capabilities, thus enabling them to fulfill the originally delegated tasks on their own. In line with above argument, Pitt et al., (1999) reason that many intermediaries will die out, while new channels and new intermediaries will take their places as a result of the emergence of Internet, and the World Wide Web will change distribution like no other environmental force since the industrial revolution. Other works on channel impact of e-commerce (e.g. Sawhney, 2000) categorize richness of physical interactions in the buying process and the intensity of information in the buying process as two main factors influencing whether a company should discontinue its channel partners.

While the argument on intermediation or dis-intermediation drags, recent developments reveal a form of collaboration between producers and channels partners with the help of advancement in information technology. 'Partner Relationship Management', focuses on information that enables channels partners to quickly act on the product and customer data they receive from vendors (Connors, 2000) by utilizing specialized extranets that enable producers and their channels partners to share and jointly manage business processes to facilitate sales management and product information sharing, offering secure websites that afford partners access to all a producer's data - leads, profiles, and sales support documents (Connors, 2000). Survey conducted by Johnson (1999) on industrial equipment distributors shows that dependence, flexibility, continuity expectations, and relationship age, encouraged the distributor's strategic integration of its supplier relationship.

It has also been suggested that some developments (e.g. increased efficiency and availability of truck transportation, increased availability and access to electronic data interchange via WWW, growth of larger retailers) threaten the overall viability of distributors, or at least limit their ability to perform certain functions profitably, whereas others create new opportunities for distributors growth and expansion, and new ways of doing business (Bagozzi et al., 1998). Schmitz (2000) submits that the effects of the diffusion of e-commerce would not reduce the functions of distributors in gathering, organizing, and evaluating information, instead the informational efficiency of intermediation will prevail. It is useful therefore to understand the importance of e-commerce to distributors and the place of brick and mortar in the wake of e-commerce.

METHODOLOGY

This study investigates the perceived importance of e-commerce and the likelihood of replacing the physical performance of distribution functions for four product types namely, differentiated products, architectural products, technological products, and complex products in the semi-conductor industry, based on Tidd et al., (1997) and Bagozzi et al., (1998) models. Tidd and colleagues developed the two-by-two matrix of technological and market novelties resulting to four product categorizations identified earlier.

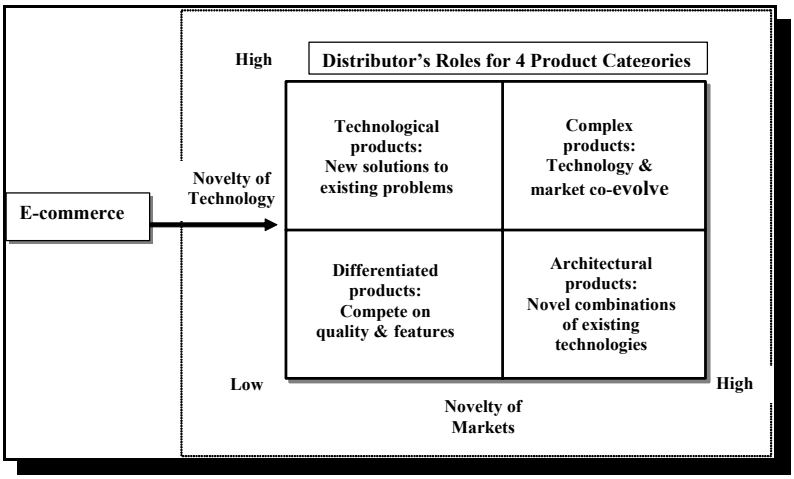
For complex products both the technologies and markets are novel, and co-evolve. In this case there is no clearly defined use of a new technology, but over time developers work with lead users to create new applications. The development of multimedia products and services is a recent example of such a co-evolution of technologies and markets.

Technological Products are novel technologies developed to satisfy known customer needs. Such products and services compete on the basis of performance, rather than price or quality. Here, innovation is mainly driven by developers.

Architectural Products are existing technologies applied or combined to create novel products or services, or new applications. Competition is based on serving specific market niches and on close relations with customers. Innovation typically originates or is in collaboration with potential users.

Differentiated Products are those in which both the technologies and markets are mature, and most innovations consist of the improved use of existing technologies to meet a known customer need. Products and services are differentiated on the basis of packaging, pricing and support.

Figure 2: Two-by-Two Matrix of Technological and Market Maturity



Bagozzi et al.'s (1998) model of distribution functions was adapted to categorize distribution functions into three major groups - functions for customers (namely providing right attribute and right quantity), functions for producers (e.g. storing, financing, information gathering) and functions for both customers and producers (such as risk reduction, educating customers and representing producer, safe transportation, timely transportation, promoting/highlighting new products, and promotional programs for sales force).

Since a number of studies (e.g. Jantan et al. 2003; King & Kang 2000; Schmitz 2000) have shown that the nature of the product is important factor in determining whether or not transaction will be done online, an investigation of different product categories in the semi-conductor industry is needful as there is currently no known study focusing on this sector. It is also important to understand the changes in the importance of the physical distribution and logistics-related functions, given the advent of e-commerce. It is therefore hypothesized as follows:

The physical distribution and logistics related functions for customers are becoming increasingly important across the four product categories given the advent of e-commerce (hypothesis 1).
The physical distribution and logistics related functions for producers are becoming increasingly important across the four product categories given the advent of e-commerce (hypothesis 2).
The physical distribution and logistics related functions for both customers and producers are becoming increasingly important across the four product categories given the advent of e-commerce (hypothesis 3).
The ranking of perceived importance of e-commerce for complex products will be lowest compared to other product categories (hypothesis 4).

The likelihood of functions for producers being replaced is higher for differentiated products, architectural products, technological products, and complex products in order (hypothesis 5).

The likelihood of functions for customers being replaced is higher for differentiated products, architectural products, technological products, and complex products in order (hypothesis 6).

The likelihood of functions for both being replaced is higher for differentiated products, architectural products, technological products, and complex products in order (hypothesis 7).

The ranking of likelihood of physical roles of distributors being modified will be lowest for complex products compared to other product categories (hypothesis 8).

The population of study includes all multi-national industrial distributors in the semiconductor industry in Penang, Malaysia. It is important to mention that Penang is the seat of semi-conductor business in Malaysia and East-Asia by extension. The study's sampling frame was drawn from the list of firms obtained from the Penang Development Corporation (PDC) Directory. The list contains a total of 63 firms from different countries of origin, and each of these firms was included in the survey. The questionnaire administration procedure was either through e-mail, personal contact, or through post mail. Out of the 63 questionnaires sent out, 54 usable responses were received which translates into 85% rate. The unit of analysis was at the organizational level, and either the CEO or the deputy represented the organizations. All the firms included in this study have a website where products are exhibited. They also have portals where customers as well as producers logon to access and give information regarding products, place orders and make payments, etc. The distributors have ample experience with both on-line and off-line transactions. Thus, respondents have adequate knowledge and experience with both on-line and off-line transactions to furnish reliable information on the perceived importance of e-commerce. The responding organizations are of 22 nationalities, which were grouped according to regional blocks as follows: 7 of the organizations are Americans, 22 are Asian firms, 4 are from Africa and the Middle East, 19 are from Europe, and 2 are from Oceania (Australia to be exact).

The questionnaire was adapted from Tidd et al., (1997) and Bagozzi et al., (1998). All questions were rated using 5-point Likert-like scale. Questions relating to importance were measured from greatly decreased (point 1) to greatly increased (point 5), while those relating to likelihood of distributors functions being replaced or modified were measured from highly unlikely (point 1) to highly likely (point 5).

Nonparametric Friedman Test was employed in addition to others in this study. The Friedman test is applied to problems with the following characteristics: the problem objective is to compare two or more populations, the data are either ranked or quantitative but not normal, and the data are generated from a blocked experiment (Keller & Warrack 2000). This tool is suitable for this study and will help in comparing four categories of products listed above.

RESULTS AND DISCUSSION

The internal consistency of the measures was ascertained via reliability analysis. The Cronbach's Alpha coefficients for all dimensions show values higher than .60 except for likelihood of being replaced (for differentiated products), which is .50. As observed from Table 1, the construct measures are reliable.

Table 1: Cronbach's Alpha Values

	E-commerce Importance				Likelihood of Modifying			
Role of Distributors	DP	AP	TP	CP	DP	AP	TP	CP
Functions for Customers (2 items): * Providing right attribute * Providing right quantity	.88	.88	.77	.80	.83	.90	.89	.80
Functions for Producers (3 items): *Storing *Financing *Information gathering	.74	.73	.73	.72	.50	.80	.81	.71
Functions for Both (6 items): *Risk reduction *Educating customers & representing producers *Safe transportation *Timely transportation * Promoting new products *Promotional programs for sales force	.62	.73	.75	.74	.65	.81	.80	.83

DP = Differentiated products; AP = Architectural products; TP = Technological products CP = Complex products

In Tables 2 and 3 below, mean and standard deviation for the change in importance and the ranking for change across different products are presented.

Table 2: Change in Importance of Distributors' Roles

	Mean				Standard Deviation			
Role of Distributors	S1	S2	S3	S4	S1	S2	S3	S4
Functions for Customers	3.61	3.74	3.73	3.60	1.10	0.84	0.85	0.95
Functions for Producers	3.69	3.66	3.60	3.52	0.81	0.70	0.73	0.73
Functions for Both	3.44	3.56	3.53	3.45	0.58	0.55	0.58	0.64
Overall function	3.54	3.62	3.59	3.50	0.62	0.58	0.58	0.64

S1 = Differentiated products; S2 = Architectural products; S3 = Technological products; S4 = Complex products

There is perceived change in importance of distributors functions with mean values ranging from 3.44 to 3.74 across product categories. Change in importance of functions for customers, producers and for both respectively range from 3.60 to 3.74, 3.52 to 3.69, and 3.44 to 3.56 across product categories. Overall functions of distributors (a combination of functions for customers, producer, and both) are increasing in importance for all categories, with the following mean and standard deviation of change in importance: differentiated products (3.54; 0.62), architectural products (3.62; 0.58), technical products (3.59; 0.58), and complex products (3.50; 0.64). In all, the results show a perceived increase in importance of the roles of distributors in the semi-conductor industry. Across all product categories in the industry, perceived importance of e-commerce on the roles for customers is strongest, followed by functions for producers, and functions for both. Therefore, the physical distribution and logistics-related functions for customers, producers, and for both are becoming increasingly important in the e-commerce era (hypotheses 1, 2 & 3).

Table 3 shows the ranking in the perceived change in importance of e-commerce on distributor's roles using the Friedman two-way ANOVA. The results indicate that overall there is no definite ranking in the perception of change of importance measured in this study (hypothesis 4). Thus, the relevance of e-commerce to distributors functions for customers, producers, and for both is increasing in no significant order.

Table 3: Friedman Two Way ANOVA by Rank (Change in Importance)

	Mean Rank				Test Statistics		
Role of Distributors	S1	S2	S3	S4	Chi-Sq.	Sig.	W[a]
Functions for Customers	2.43	2.70	2.49	2.38	2.679	.444	.017
Functions for Producers	2.71	2.66	2.35	2.28	5.380	.146	.033
Functions for Both	2.25	2.68	2.59	2.48	3.860	.277	.024

S1 = Differentiated products; S2 = Architectural products; S3 = Technological products; S4 = Complex products
a = Kendall's Coefficient of Concordance

Table 4 presents the means and standard deviations for likelihood of distributors roles being replaced. Mean and standard deviation of likelihood of replacing overall physical distributors functions based on product category are, differentiated products (3.41; 0.59), architectural products (3.24; 0.75), technological products (3.24; 0.71), and complex products (3.09; 0.78). The results show that the likelihood of the physical distribution functions (for customers, producers, and for both) being replaced is highest for differentiated products and lowest for complex products. This result is probably accounted for by the low level of technology and market novelty of differentiated products as compared to complex products. Since market and technology co-evolve in complex product category, the physical distribution and logistics-related functions are seemingly more indispensable (relative to other product categories) as the demand for their specialized services increases.

Table 4: Likelihood of Distributor's Roles Being Replaced								
	Mean				Standard Deviation			
Role of Distributors	S1	S2	S3	S4	S1	S2	S3	S4
Functions for Customers	3.62	3.24	3.28	3.12	1.02	1.05	1.05	1.06
Functions for Producers	3.50	3.28	3.27	3.15	0.70	0.92	0.87	0.86
Functions for Both	3.30	3.22	3.16	3.05	0.59	0.69	0.68	0.77
Overall function	3.41	3.24	3.24	3.09	0.59	0.75	0.71	0.78
S1 = Differentiated products; S2 = Architectural products; S3 = Technological products; S4 = Complex products								

Table 5 provides the summary of Friedman two way ANOVA and Kendall Test of Concordance's test results for likelihood of functions being replaced. There is a definite ranking across all products for the three main functions. Generally, mean rank is highest for differentiated products (2.53-2.94), followed by architectural products (2.40-2.68), technological products (2.27-2.58), and subsequently complex products (2.18-2.51) for all functions. Checking on the next level of details, results show that functions for customers, functions for producers, and functions for both have definite ranking for likelihood of being replaced. It is therefore conclusive to state that the likelihood of functions being replaced is highest for differentiated products, architectural products, technological products, and complex products in order.

Table 5: Friedman Two Way ANOVA by Rank (Likelihood of being replaced)							
	Mean Rank				Test Statistics		
Role of Distributors	S1	S2	S3	S4	Chi-Sq.	Sig.	W[a]
Functions for Customers	2.94	2.42	2.40	2.25	11.544	.009**	.071
Functions for Producers	2.85	2.54	2.32	2.29	7.359	.061 m	.045
Functions for Both	2.80	2.68	2.27	2.26	8.554	.036*	.053
S1 = Differentiated products; S2 = Architectural products; S3 = Technological products; S4 = Complex products *p<.05 ** p<.01 m= Moderate a = Kendall's Coefficient of Concordance							

The study shows that there is significant evidence at 5% level to support the validity of hypotheses 5, 6, 7 & 8. Thus;

The likelihood of functions for producers being replaced is higher for differentiated products, architectural products, technological products, and complex products in order (H5).

The likelihood of functions for customers being replaced is higher for differentiated products, architectural products, technological products, and complex products in order (H6).

The likelihood of functions for both being replaced is higher for differentiated products, architectural products, technological products, and complex products in order (H7).

The ranking of likelihood of physical roles of distributors being modified will be lowest for complex products compared to other product categories (hypothesis 8).

IMPLICATIONS OF THE STUDY

This research advances the current knowledge in this field by unveiling distributors' perceptions of the importance of e-commerce to the physical distribution and logistics-related roles. It also helps to understand the extent to which product nature affects the perceived importance of e-commerce. Moreover, the study helps to clarify the debate on the issue of intermediation and dis-intermediation of e-commerce. The findings of the research show that e-commerce is growing in importance and can potentially render some of the roles of offline intermediaries irrelevant. Some of the roles will experience more modification and others less, depending on the product typing. Specifically, complex products are less likely to experience disintermediation than the other product categories in certain functions as shown earlier, while differentiated products are more vulnerable to disintermediation. The current study supports the earlier findings of Schmitz (2000) that the effects of e-commerce on intermediation depend on the characteristics of the goods under consideration, as well as the findings of King and Kang (2000) that product complexity is positively correlated to an e-shopper's propensity to use a vehicle other than the Internet to close a transaction.

One of the managerial implications of the research is to provide distributors an idea of the functions that are likely to be replaced and which are not. For those functions that are more likely to be replaced, distributors should collaborate with producers and customers to integrate electronic options into their activities in order to achieve higher efficiency level, which will eventually benefit all parties in the supply chain. For those functions that are less likely to be replaced, distributors may continue to offer offline services and to strengthen their competitive edge and further add value to customers and producers by delivering superior value offline (Ndubisi 2003a; 2003b). Physical distributors should deliver solutions instead of just commodities, which is the only way they can retain an important place in the channel. One crucial way of doing this as mentioned shortly is to introduce some elements of online (if they have not done so) to be used in juxtaposition with existing offline functions so as to serve both customers and producers more efficiently. This will help distributors to ensure that adequate and timely supply and demand data and other relevant information are easily available to buyers and sellers at all times. The ability of distributors to provide market intelligence to producers will be considered as value added as it is difficult for

producers to monitor millions of customers that buy their products. This role can be played more effectively through online tracking of shoppers' profiles and creation of databases for such information. Thus vital information about consumer buying habits, store preferences, price sensitivity, promotional penchants, brand awareness and loyalty, attitude towards electronic transactions, etc. can be generated for the benefit of both upstream and downstream partners. By creating a business home page, the distributor can also help to promote the manufacturer's products as well as provide customers with useful product information. Furthermore, distributors can also leverage e-commerce capabilities in the strategic decision to undertake demand creation activities in addition to demand fulfillment.

Further, since product complexity as shown earlier is positively associated with an e-shopper's propensity to use a vehicle other than the Internet to close a transaction, physical intermediaries may choose to exploit this opportunity created by the inability of e-commerce to begin and complete delivery of complex products or highly technical products by extension. As such, the relevance of 'brick and mortar' is not likely to be annihilated; instead they can support online activities by serving as service center, collection and redemption centers, in addition to its full offline functions. They may create a niche by providing offline services (including pre transaction, transaction, and post transaction services) in a similar manner as the Dell company, which is opening up Kiosks around the US to attend to offline services needs of its customers.

The research also holds an important lesson for producers. They should not consider the possibility of consortia-like electronic marketplace as the next business model whereby they could form strategic alliances with e-marketers to synergize the effect of their competencies in online while retaining the services of the offline distributors at the same time. This is because of possible conflicts this might raise. The shift toward direct channels has not been as easy for the major PC manufacturers who conventionally used indirect channels. IBM and Compaq, for example, have developed manufacturing and sales programs to generate some of the cost advantages of going direct without alienating their dealer networks (Wilcox 2000). These plans have not been successful thus far, because dealers have retaliated against the companies. Because of their experiments with direct selling, IBM's revenues were down 24% in the first half of 1998 while Compaq's were flat. Hewlett-Packard, which did not try to go direct, experienced a 26% sales gain (Lyons 1998). Channel conflict arose because disintermediation brings IBM, Compaq, and other manufacturers in direct competition with intermediaries.

LIMITATIONS OF THE STUDY AND FUTURE RESEARCH DIRECTION

Although the study has succeeded in achieving its primary objectives, some limitations and opportunities for additional research can be identified from this research. Firstly, this study is purely on understanding the respondents' perceptions and not based on hard data generated over time on the change in importance and likelihood of distributors' functions being modified. Future research in this area should use hard data by tracking changes in importance of e-commerce over time. Although data for such a study may be difficult to get as it will require information on the value of online and offline transactions over the period, this approach may have different implications from

a perceptive approach used in the current research. The future research should be longitudinal, using actual data of change in importance and likelihood of functions being modified. This will help to ascertain if the findings based on actual data agree with findings of the current study, which is based on perceptions.

Secondly, the sampling frame of this study is limited to semiconductor industry, hence may not be applicable to other industry sectors. Future research should cover a wider industry sector for a more comprehensive and more general findings.

Lastly, albeit the setting of this study is in the Northern Malaysia, which is also the seat of semi-conductor business in Malaysia and the Pacific Rim by extension, there is potential for regional clustering bias. Future research should replicate the study in other nations and/or regions for a more generic picture of the impact of e-commerce on the physical distribution and logistics-related functions.

CONCLUSION

This study attempts to provide an understanding of the perceived importance of e-commerce on the physical distribution and logistics-related functions for customers, producers, and for both across four product categories in the semi-conductor industry in Malaysia. The findings of the study reveal that e-commerce has important impact on the roles of distributors, especially in their roles for customers. Further, findings by comparing among the four different types of products show that the likelihood of distributors' functions being replaced is lowest for complex products than for differentiated products, architectural products, and technological products. E-commerce is modifying the informational and promotional roles of distributors in all four product categories, as such pure 'brick and mortar' intermediaries who are yet to go online, may seek for strategic alliances with e-marketers to develop a viable strategy and to realign the business goals in order to compete favorably in this information technology age. Producers should not attempt to use direct (online) and indirect (offline via intermediaries) distribution methods simultaneously. This strategy will likely lead to channel conflict which tends to arise from incompatible goals. Since channel members such as manufacturers and distributors are independent businesses, each striving for profitability, growth, market share, etc., they will eventually retaliate against such a strategy, thus causing it to backfire.

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