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A special acknowledgement goes to Brenda Fulton, Research Assistant of the College of Business Administration, Clarion University of Pennsylvania, for her editing expertise and work on this journal.

EDITORIAL REVIEW BOARD

A New Initiative for Dissemination of Business and Economic Conceptions

Professional conferences as forums for the dissemination and discussion of new ideas are very important. Each year we hold a conference and publish its proceedings. Additionally, we publish a journal. This is the third issue of this journal, *Pennsylvania Journal of Business and Economics*, which will be published annually by The Association of Pennsylvania University Business and Economic Faculties (APUBEF), an association made up of university-level scholars of business and economics. This editorial section will briefly describe the aim and scope of the journal, APUBEF, and editorial policies and practices.

APUBEF has been formed for the purpose of:

(1) Fostering economic and business scholarship and fellowship among business and economic faculties in the State System of Higher Education in Pennsylvania.

(2) Speaking publicly and objectively on behalf of the economic and business conditions in Pennsylvania and speaking for economic and business education in Pennsylvania.

(3) Encouraging freedom of economic and business discussion.

(4) And finally, fostering professional development of faculties, by encouraging them to engage in research and submitting papers for presentation to the annual meetings of the Association. Selected refereed papers will be published in *Pennsylvania Journal of Business and Economics*, which will be a broad-based forum to present scholarly research and views on a variety of Business and Economic topics.

Editorial policy and practices:

Through a blind-refereed process, we will try to provide timely and thorough reviews of manuscripts. Each manuscript will be subjected to a minimum of two independent blind reviews by members of the Editorial Review Board. The reviewers will evaluate manuscripts on the basis of their value-added contribution to theory development and practical need of practitioners of business or pedagogy. The fundamental focus will be on timely representation of current problems or issues deemed significant domestically and globally. Critical reviews, syntheses, and integration of related disciplines such as accounting, economics, finance, management, management information systems and marketing which serve as criteria for incremental scholarly research and creation of new paradigms are specially welcomed. The economic issues concerning inflation, unemployment, taxation, and economic development are also major themes of interest.

Specifically the following criteria will be used for reviewing:

(1) The degree of originality.

(2) The quality of analysis and logical consistency of arguments.

(3) The importance of issue(s) addressed.

These are benevolent ambitions. However, with the help of contributing authors, the Editorial Review Board, and suggestions from readers, these aspirations can become realities.

Preparation and Submission of Papers for Publication

The authors should conform to the following guidelines in preparing manuscripts for submission to the Journal. A minimum of one author MUST be a member of Pennsylvania's State System of Higher Education.

TYPING:

1. All papers must be single-spaced and printed with a letter quality (Pica) type printing heading on regular (8.5" X 11") paper.
2. Left and right margins 1.5".
3. Top and bottom margins 1".

FIRST PAGE:

Follow the Publication Manual of the American Psychological Association (APA) or the instructions below:

1. The title of the paper (maximum 2 lines) should be capitalized and centered.
2. Double space between title and author's name.
3. The author's name should be centered.
4. Double space between the author's name and the institutional affiliation (centered).
5. Double space after the author's affiliation and the abstract.
6. The word "ABSTRACT" should be capitalized and centered (100-150 words).

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1. Append all tables and figures to end of paper.
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Three copies of the manuscript should be submitted to:

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Letters to the editor that reflect positive, constructive comments on published articles in this journal, as well as book reviews, will be accepted for publication from SSHE university faculty. The length of these submissions should be confined to 500 works, and their style should conform to the above suggestions.

INFORMATION EVALUATION AND SOFTWARE SELECTION: EDUCATIONAL IMPLICATIONS

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ABSTRACT

Proper evaluation of information is an important concern on all levels of the organization. This is particularly so on the managerial level where the responsibility for business success resides. We are now in the "Information Age" where the information to be evaluated is produced by a variety of software packages. Thus, it follows that it is important that managers comprehend types of information that can be generated.

This study surveyed managerial preference for the sub-constructs of the Snavely Hierarchy, "Information Usefulness," as they related to a common business scenario. These elements of Practicality, Reliablilty, Relevance, Sufficiency, Understandability, and Significance were originally derived by Snavely from the American Accounting Association Standards and Guidelines.

Principal components analysis revealed only four sub-constructs that focused on modeling freedom and control. Since these were a reaggregation of the original six, further analysis was done on an individual item basis. Subjects rank ordered five well-known types of decision support software. Initially, they ranked the preferred choice as number one. However, correlation analysis on the individual itein level revealed that this group of managers did not understand the types of and uses for information produced by their chosen software.

Two conclusions are suggested. Managers may desire the software with the most capability regardless of whether they comprehend its product or not. Second, managers appear to recognize only uses for hard accounting data that is historical in nature. This may be a function of educational emphasis.

INTRODUCTION

Installed computing capacity has been estimated to be 1000 times greater in 1990 than in 1970 due to the introduction of the microprocessor and accompanying software. In 1983 use of this computing technology was increasing at a rate of 50% to 90% a year and is expected to continue for the foreseeable future (Rockart and Flannery, 1983). End user/developers (EUD's) now have technological tools which enable them to develop new computerized applications that formerly required the skills of a programmer/analyst. User developed applications are projected to consume up to 90% of total computing capacity in American Business in the 1990's (Heckman and Galletta, 1988).

The EUD literature suggests that IS roles are being gradually merged into managerial roles rather than the reverse (Heckman and Galletta, 1988). Closely related is the ability of these user/managers to select the technology capable of creating applications needed to address their business situation.

BACKGROUND AND PURPOSE

Research regarding determinants of the information evaluation process has included communication theory (Shannon and Weaver, 1949), and the information economics approach (Marschak and Radner, 1972). Other research focuses on behavioral theories, use theories, and the dimensionality of information. More specific to this research, how information is evaluated in the business context, was explored by King and Epstein (1976), Edwards and Roxburgh (1977), and Larcker and Lessig (1980).

Snavely (1967) developed the construct of information usefulness as a measure of information value. The construct of "information usefulness" comprised 15 attributes of useful information in the business environment. From these Snavely assembled a hierarchy comprised of 6 sub-constructs: Practicality, Reliability, Relevance, Sufficiency, Understandability, and Significance. These are similar to and derived from the American Accounting Association's standards and guidelines. Subsequently,

Szewczak and King (1987) used the Snavely hierarchy to explore differences in organizational group processes as determinants of how information is evaluated. While Szewczak and King (1987) found differences in this regard, the role of the individual in information evaluation with respect to Decision Support technology was not addressed.

Since the adoption process in the organization parallels stages of awareness, knowledge acquisition and persuasion in the individual from the human information processing model (Huff and Munro, 1985), individual technology adoption might be expected to follow this model. This study seeks to validate the Snavely hierarchy and associate the fifteen information attributes in the Snavely Hierarchy with five types of available Decision Support technologies.

METHODOLOGY

A four part survey instrument was administered to 114 managers currently enrolled in part-time MBA programs in accredited schools of business. In part one, respondents read a scenario that cast them in the role of a manager seeking to extend the functions of the current information system. The expanded system included planning capabilities for newly acquired subsidiaries. The scenario emphasized the need to include decision support functions using the personal computer by an end-user developer.

Part two consisted of the 15 "information usefulness" items in the Snavely Hierarchy and used by Szewczak and King (1987). These were slightly modified to more closely fit the DSS scenario. Each manager indicated on a seven-point Likert scale the strength of his/her belief in the importance of each information attribute.

The third part required each manager to read a verbal description of the types of information that could be produced from five types of Decision Support packages. Managers were presumably well versed in the vernacular of the descriptions at the MBA level. The five descriptions were of prioritization modules (Package A), accounting spreadsheets (Package B), qualitative/verbal analysis (Package C), planning and forecasting (Package D), and desktop integration (Package E). They then rank ordered their preferences for the five types.

Lastly, participants completed demographic items which asked the level of their experience, education, computer training, and general information about their companies.

RESPONDENT PROFILE

One hundred fourteen useable questionnaires were obtained from MBA students at two accredited schools of business. Individual backgrounds were unknown at the time of the survey. The group was felt to be representative of those accustomed to addressing issues of the type presented in the scenario. Managers and students do not differ substantively in their assessments if prior or unique business experience and skills are not required (Ashton and Kramer, 1980).

Demographic responses indicated that 94% of the subjects have used software and have taken some computer coursework within the last five years. Fifty-six percent work in information intensive functional areas such as management, marketing, accounting or information systems. Nearly half were in their first five years of full-time employment. Eighty-six percent held the Bachelor's degree. This suggests that most subjects acquired their only computer training at the bachelor's level. It does not preclude additional knowledge gained on the job.

The average respondent, was relatively young, (less than 35 years old), male (64%) and in the early stages of a career. Since they had received undergraduate software training, it was felt that they should be able to recognize software capabilities and uses.

RESULTS

Analysis of Information Usefulness Items

Responses to the modified fifteen items derived from the Snavely "Information Usefulness" construct were analyzed using principal components with Varimax Rotation. While the original construct consisted of six sub-constructs, this analysis derived only four. These were named after the item that loaded most highly on each factor: Modeling Flexibility, Verifiability, Control and Sufficiency. Items not shown in Table 3 were dropped due to cross loadings on the factors.

In the first factor, Modeling Flexibility, managers attributed the greatest importance to the personal ability to model many environments. They included with this factor timely information, simplicity of operation, accurate representation, and idiosyncratic decision design. This combination might be interpreted to mean they simultaneously desire great freedom to be creative while maintaining accuracy, a near impossibility in a planning scenario.

The second factor, Verifiability, places importance on verifiable information, evaluation of effectiveness, and the notion that DSS cost more than they are worth, thereby implying that the information produced is inadequate for the task of evaluation.

The third factor, Control, combined elements of control that are essentially internal in nature, with the perception that DSS produced an overabundance of information needed for control policies. This is the antithesis of what is needed to address future projections.

The last factor, Sufficiency, was a single item indication that abundant information is still insufficient to address complexity.

Since these four factors are essentially a reaggregation of the original six, the most fruitful approach was deemed to be further analysis on an individual item basis.

Analysis of Software Rankings

Analysis of software rankings for the five types of DSS packages was conducted in two steps. Intercorrelations among the packages established statistical independence of the descriptions. Low to moderate intercorrelations are desirable for this purpose. The intercorrelation matrix (Table 2) shows that ranked preferences were negatively correlated as desired and significantly so in some cases. Average scores for each package indicated clear preference for Package D, the preferred package of the IFPS type, with a score of 1.93.

The second highest score was given to Package E with an average of 2.45. This description was of a desktop simulator. While this seems a reasonable choice, it only facilitates document assembly and would not bear directly on the scenario. The third preference was for Package B with an average score of 3.11. This description was of accounting spreadsheet software and was limited by definition to historical data.

Choices four and five were descriptions of newer expert systems that are gaining favor in industry. Both feature the more qualitative aspects of decisions that utilize soft data. The descriptions mirror the capabilities of known software. Average scores were 3.55 and 4.02. Respondents clearly had little use for anything except 'hard' data. This is opposite from the comprehension of the function and purpose of a DSS. While the reasons for this are not clear, speculation is made as to these in the conclusions to this paper.

It is apparent that the integrative nature of Packages D and E was only partially recognized. Neither was the fact that capabilities of some packages could have been present in others. For example, the LOTUS type (Package B) could be part of the IFPS type (D) but the correlation is low (-.302). Similarly, results of PRIORITIZATION (A) can be imported by the FRAMEWORK type (E) as can the IFPS type(D). Had these overlaps based on respondent's knowledge of the types of packages been recognized, there might have been less statistical independence of the software descriptions. Each instance of this type strengthens the argument that user/managers of the new software technology do not fully comprehend its potential, and may recognize as useful only accounting data that is historical in nature.

Information Usefulness Items and Software Preferences

Fifteen items representing the construct of Information Usefulness were correlated with the ranked preferences for each of the five DSS packages to determine which items, if any, were associated with a particular package. Generally examination of the item-package correlations in Table 3 reveals that approximately seven percent of the correlations are significant at or beyond the .05 level (two-tailed test). Even though the magnitude of the values is low, ranging from .190 to .279, this is slightly more than what would have occurred by chance. An additional eight items were significant at the .10 level with r values of .156 or greater.

We shall begin with discussion of Package D since that was the DSS of choice and managers did indeed

indicate they preferred it to the other four. Only Item 9, Simplicity, correlated significantly at .216. As preference for this DSS increased, their expectation of simplicity decreased. At the same time the preference for verifiability increased also. Under conditions of complexity, there is an increased **need** for verifiability but probably a decreased availability of it, due to the increase in uncertainty.

Managers clearly did not recognize the ability of Package D to address the formulation of objectives, strategies and guidelines. Neither did they recognize their contribution to effectiveness (Items 1, 2, 3) and decision modeling capability (Items 10 and 14).

These results suggest that managers' preferences for the preferred DSS are unrelated to elements of the Information Usefulness construct. Its rank as first among the five may be based on irrational grounds. The reasons may be related to lack of understanding of information attributes, use of some poorly defined general image of DSS, or worse, simple word matching between the scenario and the descriptions of the packages.

At the other end of the spectrum, Package C received the lowest preference ranking. It featured qualitative verbal analysis that made no decisions. It only encouraged better questions based on symbolic features of the problem. There was a significant positive relationship (.279) between this package and quantifiability (Item 6) and at the .01 level. The reasons for this are not clear based on this research. These managers have perceived qualifiability and quantifiability as interchangeable, perhaps even synonymous. Other correlations indicate a tolerance for an unknown amount of delay.

The remaining packages had even fewer information usefulness items associated with their preference evaluations. Package A permits creation of one's own "expert system," and prioritizes solutions. It was perceived as providing sufficient amounts of information (-.25 with item 12, too little information).

Package B, highly focused on accounting and financial data with graphics capability was perceived to have usefulness in terms of comparability (Item 8) and near significance of Quantifiability and Consistency with user concepts (Items 6 and 7). Lastly, Package E resembles a desktop. Managers perceived this Package as supporting decision making (.206, Item 10). It approached significant levels with producing information to formulate objectives and goals (Item 1), Quantifiability (Item 6), and Simplicity (Item 9).It received the second highest average rank (2.45).

CONCLUSIONS

Two qualified conclusions seem appropriate. First, managers either do not know or do not recognize any but the most mundane uses of information in the business environment, even when they are experienced and are involved in advanced business training. Second, schools of business are failing to make students aware of technologies designed to support unstructured problem analysis. The reasons for this are beyond the scope of this study.

Similarly, our recommendations are twofold. Managerial implications are particularly serious for the company which invests large monetary sums in the acquisition of personal computers and related software. Many of those requesting this technology may have little insight into how it can and should be used. Those in decision-making roles should proceed with caution.

Implications for institutions endeavoring to teach contemporary business concepts are that the gap between managerial perceptions and the knowledge required to utilize technology may be widening rather than narrowing. Indeed, the predominance of the accounting orientation, to the exclusion of all other considerations, may be a causal factor. This is a particularly ominous situation in an era in which competing in time and business redesign through technology utilization are seen as a road to sustained comparative advantage (Keen, 1988).

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TABLE 1
FACTOR LOADINGS FOR INFORMATION USEFULNESS ITEMS

Name	Item	FACTOR LOADINGS I	II	III	IV
Modeling	14	.759			
	15	.694			
	09	.680			
	05	.606			
	10	.592			
Verifiability	04		.830		
	03		.770		
	13		.612		
Control	11			.789	
	02			.755	
Sufficiency	12				.891

TABLE 2
INTERCORRELATIONS AND MEANS FOR THE RANKED SOFTWARE PACKAGES

	SOFTWARE PACKAGES A	B	C	D	E
A	1.000	-.298*	-.134	-.154	-.249**
B		1.000	-.380**	-.302**	-.057
C			1.000	-.206	-.420**
D				1.000	-.358**
E					1.000
Average Rank of Packages	3.55	3.11	4.02	1.93	2.45

* p=.05
** p=.01

TABLE 3
CORRELATIONS BETWEEN INFORMATION USEFULNESS ITEMS (Abbreviated)
AND RANKED DECISION SUPPORT PACKAGES

ITEMS	PACKAGES A	B	C	D	E
1. To formulate objectives, goals and strategies	-.003	-.136	-.086	.044	.164
2. To formulate and evaluate guidelines, directives and control policies	.019	.005	-.014	-.059	.037
3. To evaluate decision-making effectiveness	-.036	-.063	-.004	-.007	.070
4. Verifiability	-.046	.055	.165	.174	.011
5. Freedom from bias and accurate	-.127	.114	-.040	-.043	.098
6. Quantifiability	.013	.166	.279**	-.040	.156
7. Consistency with user concepts	.004	.160	-.147	-.125	.119
8. Comparability	-.046	.190*	-.117	.109	-.006
9. Simplicity	.080	.005	-.070	-.216*	.161
10. Supports/models decision-making	-.034	.022	-.097	-.093	.206*
11. Too much information	-.052	-.045	.153	.037	.095
12. Too little information	-.251**	.039	.097	.136	.006
13. Costs more than it's worth	-.048	-.057	-.006	-.007	.150
14. Flexible modeling	-.013	-.078	.041	-.023	.067
15. Timeliness	-.059	.108	-.177	.023	.088

* p=.05 two-tailed
** p=.01 two-tailed

THE PENNSYLVANIA UNJUST DISMISSAL ACT MEETS THE COASE THEOREM: AN ECONOMIC CRITIQUE

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ABSTRACT

The purpose of "The Unjust Dismissal Act" is to create a "just cause" standard for the termination of virtually all employees in Pennsylvania. The bill requires mandatory arbitration of disputes regarding terminations, which would not be subject to judicial review.

Employment termination law in Pennsylvania until now has been court-created. The courts have tried to balance these five factors: (1) The employee's interest in making a living; (2) The employer's interest in running his business; (3) The employer's motive in discharging the employee; (4) The manner of effecting the discharge; and (5) The public policies implicated.

In my paper I examine the economic efficiency of both the Act and the common law according to the Positive Coase Theorem. I conclude that the existing judicially developed doctrine is preferable to the Act's provisions, a sweeping, all-inclusive standard, accompanied by a broad-based administrative process.

INTRODUCTION

In Pennsylvania, in the absence of a collective bargaining agreement or other contract for a definite duration, employees fall under the century old doctrine of employment-at-will.[1] The doctrine acts as a presumption that the parties to the employment relation intended their agreement to be terminable by either party without cause.[2] Simply put, the doctrine in its pure form allows employers to discharge at-will employees for any reason, or for no reason.[3]

The Pennsylvania courts, following the general trend,[4] have come to recognize the need to mitigate the stringency of that doctrine. Though unwilling to abrogate the at-will doctrine entirely, believing it to be, in the main, fair and efficient, they understand that it is possible for a particular discharge to have a devastating negative impact on the employee which is not offset by compelling efficiency gains to the employer. Moreover, the courts recognize that the employer's unfettered power to discharge may negatively affect important public interests. The result is a modified doctrine that attempts to find a middle ground between contractual freedom and abusive behavior. The courts have been willing to protect employees from discharges motivated by malice[5] or that are contrary to public policy.[6]

In November 1991, seventeen members of the Pennsylvania House of Representatives[7] introduced a bill with the short title, "The Unjust Dismissal Act."[8] Though they recognize that it "has become a well established principle in Pennsylvania case law that employers do not have an absolute right to terminate employees when the cause for dismissal arises from issues dealing with public health and safety or matters of public policy," the Representatives make it clear that they do not believe that the judicially created doctrine adequately protects employees.

In recent years several other American jurisdictions have seen bills proposed that would afford "just cause" protection to at-will employees similar to that enjoyed by workers who are subject to collective bargaining agreements.[9] In August of 1991, the National Conference of Commissioners on Uniform State Laws approved and recommended for enactment in all the states the Uniform Law Commissioners' Model Employment Termination Act (1991). The Model Act would only allow terminations for "good cause."[10] The initiative to protect employees with a legislative scheme is part of a world-wide trend. According to the Commissioners, "The United States is the last major industrial democracy in the world that does not have generalized legal protections for its workers against arbitrary dismissal."[11]

The various legislatures that are in the vanguard of the movement toward a statutory scheme for the employment relation, as well as the Uniform Law Commissioners, have been influenced by a growing contingent of commentators who are critical of the prevailing judicial approach to employment law.[12] Altogether, then, there seems to be a consensus developing that the judicial approach has not worked, and that a statutory scheme is required.

It is my position, however, that statutory schemes are unnecessary and counterproductive. Employment-at-will, properly modified to protect against abuse of employer power, will be more efficient, and ultimately a better overall protector of employees. I recommend, therefore, that the Pennsylvania Act should not be adopted.

THE PENNSYLVANIA ACT

The Act is, as of this writing, in front of the Committee on Labor Relations of the Pennsylvania House of Representatives. Its chances of being enacted are difficult to assess, partly because the likely proponents of the bill are not easily identified.[13]

The following purpose for the act is offered in its legislative findings: "...[T]o further establish ...employee rights and to advance them to the point that all employees would have a process to seek redress when they have been dismissed from employment for any reason other than just cause." (Emphasis added.)[14] No mention is made in the legislative findings of any need to protect the interests of employers. Perhaps the Representatives believe that employers are powerful enough, vís-a-vís at-will employees, to protect themselves.[15]

Definitions

"Employee" is defined in the Act as:

"A person who performs a service for wages or other remuneration under a contract of hire, written or oral, express or implied. The term does not include persons protected by civil service or tenure against unjust dismissal or a person who has a written employment contract of not less than two years and whose contract requires not less than six months' notice of termination."[16]

The effect of this definition is to give protection to all employees who are not otherwise protected under collective bargaining agreements, civil service, or an individual employment contract. The coverage of the Act is therefore wide in scope, intending to leave no one completely unprotected. It appears that every employee would be protected by statute (if not already protected by contract or civil service) from the moment he or she is employed, including part-time and temporary employees.

The Act has a simple and broad definition of "employer:"[17] "A person who has one or more employees, including an agent of an employer." Thus, under the Act, even the smallest employer in a highly personal employment relation must be required to show legally provable just cause to terminate her single employee.

The Act defines "termination" as, "An involuntary discharge from employment, including a resignation or voluntary quit resulting from an improper or unreasonable action or inaction of the employer. This term and its derivatives shall not be construed to include layoff or any other type of temporary dismissal."[18] The logical implication of this usage is that a "layoff" is a type of temporary discontinuation of employment which would be at the discretion of the employer, subject only to the strictures of the common law. The permanent elimination of a position, however, would not be considered a layoff, and therefore would be covered by the Act.[19] Thus, employers would be obligated to meet the statutory standard of "just cause"[20] for eliminating a position just as they must for replacing one employee with another.[21]

The Act would only apply to involuntary dismissals, and not to resignations or quits unless caused by the wrongful act or omission of the employer. Thus, employees would be free to leave their jobs without having to meet any standard, such as that of good faith.[22]

The Act provides that, "An employer may not dismiss an employee except for just cause."[23] However, the Representatives have not defined "just cause" in the Act. The intent of this purposeful omission must be to leave arbitrators and courts free to create either a standard of "just cause" based on

jurisprudence in the areas of collective bargaining and employment contracts for a term of years, or an entirely new standard. Though "just cause" can be a nebulous concept, dependent for its meaning on the particular circumstances of each case,[24] it is clear, however, that this standard generally applies to the conduct of the employee and his or her ability to perform the job assignment, and reasons unrelated to that performance would not constitute just cause. For example, an employer would not have "just cause" to terminate a competent employee who currently holds a position merely because the employer has found a new applicant for the position who has better qualifications than that current employee. Such a reason is not related to "the ability of the current employee or his conduct in his position."

The Act's use of "just cause," a standard that has a long history in the common law and in federal labor law, has the benefit of familiarity. The arbitrators responsible under the proposed scheme for resolving disputes between employers and the at-will employees they have terminated could simply apply to such cases the same standard they and the courts have used for years to evaluate collective bargaining agreements, civil service protection, and long-term employment contracts.

Though the Act does not use the term "burden of proof," the employer's positive duty of showing just cause for dismissal would logically indicate an intention to place the burden of proof on the employer.

The Act provides for judicial enforcement of arbitration decisions, and for review of the awards to determine the presence of fraud, partiality, or to see if the arbitrator exceeded her authority, but not to correct for mistakes of law by the arbitrator.[25] The most challenging issue in this regard is whether due process of law[26] is satisfied by this procedure. In contractual arbitration, the parties willingly trade their day in court--and the right to a determination based on the precise rules of law--in exchange for a process that is less cumbersome and less expensive. In a legislatively mandated arbitration scheme such as the Act proposes, however, the parties have no choice but to submit to arbitration. It would appear that due process of law requires that such rights as important as employment be decided according to the law, and that the appeal process include a review of the rules that the arbitrator applied to the case. This change would have a significant impact on the number of appeals brought, and therefore on the efficiency of the system proposed by the act.

ECONOMIC EFFICIENCY, FREEDOM TO CONTRACT, AND EMPLOYMENT SECURITY

Employment law should aim at creating a proper balance of these goals: the efficient use of resources, freedom to contract, and security for employees. It would be shortsighted to attempt to maximize any of these goals while neglecting the others entirely. While each is worth pursuing in and of itself, each is also a necessary condition of achieving the others. Freedom to contract, it can be argued, leads to the most productive uses of resources. Security, by reducing risk, allows for more efficient investment of human capital. Productive efficiency is necessary for any real security, because when firms are inefficient layoffs result. Finally, freedom to contract requires that both parties have genuine alternatives, which requires a reasonable balance of bargaining power. For example, the institution of collective bargaining provides a union (a collective group of employees) with sufficient bargaining power to confront the power of a large corporation (a collective group of owners). When a single employee is offered employment by a large company, one wonders how much real freedom to negotiate is actually present.

Freedom to Contract

Modern moral philosophy, whether from a deontological, utilitarian, or communitarian perspective, contends that an action that denies freedom is unjustified unless other significant societal interests are more important in a particular case.[27] A decision by government to require virtually all employment contracts to operate under a just cause standard would significantly restrict: 1) the freedom of the employer to run her business, and 2) the freedom of both parties (employer and employee) to contract.[28] Such a loss of freedom should not be countenanced without significant gains in fairness or efficiency.[29]

Why Employment At-Will is an Efficient Doctrine

The Coase Theorem and its Application to Employment At-Will.

"[O]ne of the most celebrated insights in the economic analysis of law"[30] is the Positive Coase Theorem.[31] Stated simply, it holds that "when parties can bargain together and settle their disagreements by cooperation, their behavior will be efficient regardless of the underlying rule of law."[32] The initial assignment of rights is still important to the parties, because it determines how large will be each party's share of the cooperative surplus. That assignment is also important to society because it determines the magnitude of transactions costs, which are in society's interests to minimize. From this follows the Normative Coase Theorem, namely, "Structure the law to remove the impediments to private agreements."[33] Doing so allows parties, by negotiating, to move to the most efficient agreement possible.

In the employment context, employer and employee negotiate the terms of their contract. It may be that a "just cause" standard is the most efficient, or perhaps employment at-will is the preferable arrangement for a particular set of parties. The Positive Coase Theorem suggests that regardless of the legal rule, if they are able to negotiate they will arrive at the most efficient solution, and share the surplus created by doing so.

Suppose that prior to forming the employment relation, the employee values his job at $50,000, but the employer would pay $70,000 for the right to discharge him. Even under a just cause rule, if bargaining is allowed, the parties could negotiate a severance pay agreement to replace the just cause standard. If they agreed to a $60,000 severance payment, both sides are sharing the surplus and are better off than if they did not cooperate. Under an employment at-will rule, the employee would have to bargain for the just cause standard. The choice of legal rule does, therefore, determine the initial assignment of rights, but the efficient result (termination at-will) is obtained regardless of the rule chosen.

Interestingly, the Model Act implicitly recognizes this principle by explicitly allowing the parties to bargain for a severance payment agreement in lieu of the good cause standard.[34] The Pennsylvania Act does not explicitly allow for such agreements, but neither does it specifically forbid it. If employers want to be free of the Act's strictures, they may bargain for a contract of at least two year's duration which provides for six month notice of termination.[35] Thus, the rule will not affect the outcome, but will affect the amount the employer has to pay. It will also affect the transactions costs, including negotiating costs, costs of the arbitration process, if any, and litigation costs.

The choice of a legal rule, then, should be based on an attempt to ascertain the most efficient rule, in balance, and make the initial assignment of rights accordingly.

Efficiency Concerns.

Though freedom is unquestionably an important value in its own right, it is also valuable as an instrument of efficiency in the employment context. Businesses need flexibility to reduce labor costs during slow periods, and to remove inept and disruptive employees. Freedom of contract also promotes efficiency by allowing the employee to maximize his preferences through private exchange. An employee may prefer a higher wage or other benefits rather than just cause protection. A mandated just cause standard forces all employees to accept that benefit instead of others they might value more highly.[36]

The two central efficiency issues are: 1) Does the at-will doctrine lead to the most economically efficient use of labor resources; and 2) Does the at-will doctrine lead to the most efficient use of judicial resources?[37]

Employment contracts whose binding nature is legally imposed rather than expressly bargained-for may hinder a business in its ability to effectively control costs by reacting to changing economic conditions through lay-offs, or by the termination of inefficient workers. Thus, it can be argued, by giving the employer maximum flexibility the employment at-will doctrine maximizes efficient use of resources.

A similar argument can be made for allowing an employee the maximum flexibility to quit her job. When an employee finds that terminating the relationship is in her best interest, under the at-will doctrine she can make the most efficient use of her

"human resources" by unilaterally quitting and proceeding to the better opportunity.[38]

In the absence of fraud or duress, the free marketeer would argue, the parties should be held to whatever bargain they are able to make for themselves. According to this principle, the law should not be interested in disturbing existing imbalances of bargaining power. There is nothing intrinsically unfair in the fact that one party to a transaction has more economic power than another.[39]

Upon entering into an employment relationship, employers and employees have the opportunity to forge a contract that indicates a definite duration or a standard for termination. If they say nothing about these issues at the inception of their relationship, what is the most reasonable presumption of their intentions? It seems reasonable to conclude that the at-will contract they have struck is what they both intended, and knew they were getting. Therefore, presuming that intent will be efficient. It will avoid litigation, since under such a presumption employees are unlikely to win, and therefore unlikely to pursue a cause of action. And when the employee does attempt to make a case, the presumption guards against the prejudice of juries, which are likely to be composed mostly of employees.[40] The judge can, and as the cases indicate will, dispose of the majority of such cases on motion to dismiss or for summary judgment.

Although on the surface it may appear that under an at-will standard the employer has the power to abuse employee rights, the doctrine's defenders argue that there are forces at work which cause the rational employer to act efficiently and therefore fairly. Most importantly, and most obviously, it is in the employer's best interests to retain those employees who are in fact competent, productive, and well-behaved. The employee's power to quit operates as a threat similar to the employer's threat to fire. When the employer is being abusive, the threat to quit keeps her in line.[41]

The employer who acts irrationally, and fires the productive employee without cause, creates an atmosphere of insecurity in the workplace. Some employees, perhaps those with the most marketable skills, will look elsewhere for jobs. At the same time, the firing of *undesirable* employees has the *salutary* effect on the other employees of removing the burden of uncooperative or unproductive co-workers, making their work lives more productive and enjoyable.[42]

Abuses by both employer and employee occur. Not only do employees sometimes embezzle, sell trade secrets, and commit other infractions which obviously give cause to terminate, but they might also shirk tasks, perform at a minimal level, and act sullen and disrespectful to co-workers and superiors. Management can also be abusive.[43] "[M]ore than one firm has been known to terminate employees on the day prior to pension vesting."[44] Rather than focus entirely on employer abuse and employee security, the correct approach must also attempt to minimize the sum of 1) employer abuse; 2) employee abuse; 3) the administrative costs of their contracting practices; and 4) the administrative costs of judicial enforcement of those practices.[45] If employer abuse is limited by the forces noted above,[46] the focus should now turn to the transactions costs and litigation costs associated with an at-will rule compared to a just cause rule.

The at-will rule allows both parties the maximum flexibility to terminate their relationship. It can be an intelligent response to the uncertainty that exists at the time of contracting, because it allows the parties to respond to the evolving situation as information becomes available to them, such as when the job is making the employee miserable, or the employee is "not working out."[47]

Moreover, in a long-term relationship, the incentives become much greater to both sides to maintain the relationship. There is more surplus to be shared by both parties, and more severe dislocations to each if the relationship is severed. The employee loses his human capital investment and the employer loses it as well.[48] These potential losses act as a threat that each party can use to keep the other from being abusive. The credibility of the threat depends upon keeping the costs of termination low. This is achieved through the ability to withdraw from the venture at any time, without cause, as most partnership agreements provide.[49]

An at-will rule, it is argued, can be administered at low cost compared to a just cause rule. At issue is the amount of litigation that either rule will engender.

It would appear that a just cause rule would create a justiciable issue in almost every termination. Moreover, resolving the issue of just cause could require extensive discovery into the employer's policies and their implementation, and into the employee's personal life.[50] Either significant judicial resources would have to be devoted to such cases, as well as significant expenses for the parties to bear, or else some bureaucracy to arbitrate the cases would have to be created, as the Pennsylvania Act would envisions. Against these costs must be weighed the chances of actually finding an innocent employee who has been wronged by his employer. One must wonder if there are enough such cases to justify placing all employees in the state under a just cause standard.

A just cause rule may also have a negative effect on the hiring of marginal employees. If an employer becomes convinced that once hired an employee cannot be fired without provable just cause, the hiring process now becomes crucial.[51] Where an employer might have been more willing to take on risky employees under an at-will rule, he will now be less willing to do so under the just cause rule because any subsequent demotion or dismissal will be an open invitation to a lawsuit by an aggrieved employee.

Judicial Efficiency

There are those who criticize the way the courts have developed employment doctrine over the years. Some argue that the courts, in applying employment at-will, are merely making political choices in favor of employers and at the expense of employees.[52] Some commentators wonder whether the courts are competent to develop or alter such an all-encompassing public policy.[53]

I argue here, however, that a compelling case can be made that the appropriate venue for reforming the employment at-will doctrine is that same judiciary that developed the doctrine.[54]

The political process can be painfully slow.[55] Legislatures must do more than simply ascertain the fairest and most efficient policy. Political realities require them to consider the interests of powerful lobbies. It is not unlikely that a paralysis could set in, as the legislators, anxious not to offend employers, employees, or organized labor,[56] find it more prudent not to act at all.[57]

Organized labor has its own agenda, and therefore its own reasons for supporting or opposing legislation to protect at-will employees. Unions are anxious to organize non-union shops. One of their best selling points is the job protection afforded by collective bargaining agreements that at-will employees are unable to bargain for independently. It would seem at first blush, therefore, that unions would oppose a legislative initiative that would give all employees in the state similar protection, eliminating one of the best reasons for certifying a union as bargaining representative. Whether organized labor will in fact decide to support these initiatives remains to be seen.

The judicial approach has the advantage of being able to make incremental adjustments over time, rather than a complete revamping of relationships and contractual expectations. If it is employer abuse that is of greatest concern, the courts can, through the application of traditional contract[58] and tort[59] principles, avoid such abuse while allowing the widest possible freedom to contract. If it is inefficient for all (or even most) employment to be subject to a just cause standard, requiring it may do more harm than good, especially to those employees who are the intended beneficiaries of the statute, the marginal or unskilled employee, who is likely to find her job prospects more limited.[60]

Once a just cause standard is adopted for terminations, it is not inconceivable that it could then be expanded to include such notions as "constructive dismissal" for the employee who quits because the work has become unattractive.[61] Before long, even such traditional employer domains as promotions and discipline short of termination are all watched much more closely, because of the need to avoid the constructive dismissal charge.

The meaning of "just cause", regardless of attempts to define it in the statute,[62] is going to be problematic, and ultimately left up to the judges or arbitrators who must enforce the statute. Should the jury, or arbitrator, be allowed to substitute its opinion for that of the employer? If not, then does the just

cause standard lose its force? If so, then when will an employer be certain that she is within her rights to terminate a "shirking" employee?

CONCLUSION

Under the employment at-will doctrine,[63] the employee has the burden of proving that his termination was wrongful. Under a just cause standard, the burden would shift, and would be placed on the employer to show that there was a valid reason for the termination.

For those cases in which the termination was in fact wrongful, the same result would be reached under either standard. In those cases in which the termination was in fact justified by incompetence, poor conduct, or other cause, the same result would obtain under either standard. Those cases in which the parties bargained for employment of a definite duration of two years or more would not be affected by a just cause statute. Nor would the Act affect those employees subject to collective bargaining agreements, which generally require just cause despite the absence of a legal requirement to do so. Those cases in which positions are being eliminated due to a downturn in business would probably be excluded from the coverage of the statute.[64]

The cases that would be affected by the legislative mandating of a just cause standard are those in which the employer no longer desires the services of a particular at-will employee, but the employee has not behaved badly, the position is not being eliminated, the employer is not violating any public policies by terminating the employee, the employer is not acting maliciously, the employee has not given special consideration for his employment, he has not been induced to change his position to his detriment, he has not relied on the implied promise of continued long-term employment,[65] and he has not been treated unconscionably by his employer.

Cases such as these, which would arguably be decided differently under a just cause standard than under the existing at-will standards, do not offend one's sensibilities. There may be personality conflicts. The employer may be making a determination that the employee, although minimally productive, could be replaced by someone who would do a much better job. The employer may in fact be acting irrationally and inefficiently. Should she be forbidden from acting irrationally? Or should she be allowed to determine her own preferences as to whom she will employ?[66]

It is those cases that do offend one's sensibilities that should concern us. Courts can identify each kind of employer (and employee) misconduct and overreaching, and can modify the employment at-will doctrine accordingly, while leaving employers and employees free to enter into contracts of their own choosing, according to the bargaining power that each party can bring to bear. In this way we can promote the best balance of freedom, justice, and efficiency in our employment law.

END NOTES

[1]Peacock v. Cummings, 46 Pa. 434 (1864).

[2]Wood, H. G., A Treatise on the Law of Master and Servant (Albany, 1877).

[3]Employees have the reciprocal right to quit without reason. Any statute that would place significant burdens on this right would conceivably run afoul of the constitutional prohibition against involuntary servitude. U. S. Const. art. XIII, §1.

[4]It has been estimated that as many as 40-45 states now recognize at least one of the theories modifying the doctrine of employment-at-will. See Model Employment Termination Act (1991), prefatory note, p. 3.

[5]"A wrongful act. . . done willfully or purposely to injure another." Black's Law Dictionary, 5th Ed. Pennsylvania courts favor the phrase, "specific intent to harm." See Geary v. U. S. Steel, 319 A.2d 174, 180 (1974). While recognizing that a malicious discharge could be actionable, the court found that "... Geary had made a nuisance of himself, and that the company discharged him to preserve administrative order in its own house." The Pennsylvania courts have recently served notice that the "specific intent to harm" exception may be on its way out. See Hershberger v. Jersey Shore Steel Col, 575 A.2d 944 (Pa. Super. 1990); Yetter v. Ward Trucking Corp., 585 A.2d 1022 (Pa. Super 1991). These cases cite Paul v. Lankenau Hospital, 569 A.2d 346 (1990) and Clay v. Advanced Computer

Application, 559 A.2d 917 (1989) as indicative of the Pennsylvania Supreme Court's antipathy to the use of tort theories to find a termination to be wrongful when the employment is at-will. In a concurrence in Clay, at 922, Nix, C. J. offered his opinion that no action exists for wrongful discharge for any reason. The other justices, however, seem to be willing to recognize the continued vitality of the public policy exception to employment-at-will, and at least two justices would have extended that exception to gender discrimination based on the Pennsylvania Equal Rights Amendment, Pa. Const. Art. I §28. The Federal courts, interpreting Pennsylvania law in diversity cases, have also joined in declaring the malicious discharge theory dead. See Redick v. Kraft, 745 F. Supp. 296 (E.D. Pa. 1990) (employee fired immediately upon giving notice he was quitting); Asko v. Bartle, 762 F. Supp. 1229 (E.D. Pa. 1991).

[6]Pennsylvania courts appear to have limited the public policy exception only to "a violation of a clearly mandated public policy which strikes at the heart of a citizen's social rights, duties, and responsibilities. . ." Hershberger v. Jersey Shore Steel Col, 575 A.2d 944, 948 (Pa. Super. 1990). The only recognized public policy exceptions are: Field v. Philadelphia Electric Co., 565 A.2d 1170 (1989) (discarding an employee for making a statutorily required report): Reuther v. Fowler & Williams, 386 A.2d 119 (1978) (Discharging an employee for serving on jury duty): Hunter v. Port Authority of allegheny County, 419 A.2d 631 (1980) (discharging an employee upon discovering a criminal conviction, for which the employee had received a pardon). In a recent case the Superior Court has broadened the public policy exception. In Macken v. Lord Corporation, 585 A.2d 1106 (Pa. Super. 1991), the court recognized a cause of action for discharge in retaliation for the filing of a worker's compensation claim.

[7]Hereinafter The Representatives.

[8]H.B. No. 2154 Pa. H.R. (1991) [Hereinafter The Act.] Similar bills virtually identical in their substantive provisions, and also given the short title of "The Unjust Dismissal Act" were proposed as early as 1981, and again several times thereafter. See H.B. No. 1742 Pa. H.R. (1981); H.B. No. 2105 Pa. H.R. (1984); H.B. No. 1020 Pa. H.R. (1985). The tenacity of the sponsors of these bills indicates that they will continue to introduce similar bills until the legislative climate favors passage.

[9]E.g., bills have been introduced in Michigan, California, Wisconsin, Ohio. See Richard A. Epstein, In Defense of the Contract at Will, 51 U. Chi. L. Rev. 947, 951 n.9 (1984); Henry H. Peritt, Wrongful Dismissal Legislation, 35 UCLA L. Rev. 65, 72 (1987). Only Massachusetts, Alaska, Oregon, and Montana have adopted the view that good faith or just cause are required in all discharges. 133 U. Pa. L. Rev. 227, 246 (1984).

[10]Model Employment Termination Act (1991) §3(a), (b)(1991). "Good cause" is defined in the Model Act as '. . . (i) a reasonable basis related to an individual employee for termination of the employee's employment in view of relevant factors and circumstances, which may include the employee's duties, responsibilities, conduct on the job or otherwise, job performance, and employment record, or (ii) the exercise of business judgement in good faith by the employer, including setting its economic or institutional goals and . . . determining the size of its work force . . . .' The Model Act would allow employers and employees to substitute a severance pay agreement for the good cause standard. Id., §(c) (1991).

[11]Model Employment Termination Act (1991) (Background and Summary of the Act 8).

[12]See Lawrence Blades, Employment At Will vs. Individual Freedom: On Limiting The Abusive Exercise of Employer Power, 67 Colum. L. Rev. 1401 (1967); Summers, Individual Protection Against Unjust Dismissal: Time For a Statute, 62 Va. L. Rev. 481 (1976); Kurt Decker, At-Will Employment in Pennsylvania: A Proposal For Its Abolition and Statutory Regulation, 87 Dick. L. Rev. 477, 479 (1983); Kurt Decker, At-Will Employment in Pennsylvania After Banas and Darlington: New Concerns for a Legislative Solution, 32 Vill. L. Rev. 101 (1987).

[13]E.g., it is difficult to ascertain the position that organized labor might take on such a bill. See text, infra., following n. 57.

[14]H.B. No. 2154 Pa. H.R. §2 (1991).

[15]The Model Act takes a more balanced approach. Its underlying theme is compromise between employee and employer rights. It ultimately suggests a tradeoff. Employees are granted the choice of: 1) the right to dismissal only for good cause, or 2) a severance pay agreement, with the amount set by the statute, depending on the employee's pay scale and length of service. In exchange for this protection employees give up the right to pursue either compensatory or punitive damages for wrongful termination. Model Employment Termination Act (1991) (Background and Summary of the Act 4).

[16]H.B. No. 2154 Pa. H.R. §3 (1991).

[17]Id.

[18]Id. (emphasis added).

[19]However, it is far from certain that this is the interpretation that is intended, or that will ultimately prevail. It is not unreasonable to assume that the Representatives intend to allow employers flexibility in setting the size of their workforces. Any other interpretation is politically unpalatable.

[20]H.B. No. 2154 Pa. H.R. §4 (1991). Bills recently introduced in California, Illinois, Michigan, and New York also utilize the phrase "just cause." Model Employment Termination Act (1991) (Background and Summary of the Act 8).

[21]Unfortunately, the Act gives no definition of "just cause." See infra. text at n. 23. One is left to conjecture whether under the Act the employer's determination of a need for a reduction in force due to a down-turn in business would strike a particular arbitrator as just cause.

[22]But see Decker, supra, n. 12, at 496. In his proposal Decker would hold employees liable for quitting without just cause. He suggests that "resignations that include usurping corporate opportunities to work for a competitor or to compete against the employer" may be improper. However, as a practical matter, such concerns realistically apply only to management or professional employees. Employers should be able to foresee such eventualities, and they can protect themselves with an appropriate written contract, and where they have not protected themselves, existing common law doctrine balances the employer's need to protect its competitive interests against the employee's interest in her career.

[23]H.B. No. 2154 Pa. H.R. §4 (1991).

[24]For an indication of the complexity inherent in the term "just cause," see Kurt Decker, Supra, n. 12, at 116. "Absent precise definitions, cause or just cause may be considered any combination of the following: 1) the "law of the shop" as to the particular offense; i.e., showing a consistent pattern of response to that offense in a certain manner, as requiring severe or less than severe discipline, 2) a consistent pattern of enforcement of rules and regulations and of making known the rules to all employees, 3) case histories of other incidents of enforcement, 4) known practices of severe discipline for certain offenses because of the product manufactured or safety consideration, 5)offenses calling for immediate suspension and those not requiring removal, 6) on-premises and off-premises offenses, and the differences in their treatment, 7) general 'arbitral authority,' derived from publication of awards, articles, etc., 8) the arbitrator's own sense of equity and his/her subjective judgment as to the significance, seriousness and weight to be given the incident involved, the record of the employee, or the circumstances causing their termination, 9) the severity of the facts of the case, 10) attempts made to rehabilitate the employee by the employer, 11) progressive discipline steps that may or may not have been taken, 12) the discipline penalty imposed as it relates to the facts of the case, 13) whether a "second chance' is warranted from the employee's prior record or 140 whether the employee is unreclaimable as indicated by his/her prior record, facts of the case, etc."

[25]H.B. No. 2154 Pa. H.R. §11 (1991).

[26]U.S. Const., 14th Amendment.

[27]See, e.g., John Stuart Mull, On Liberty (AHM Publishing, 1947); Friedrich Hayek, Studies in Philosophy, Politics and Economics (Reprinted in Donaldson & Werhane, Ethical Issues in Business, 3rd Ed.); 1988, John Rawls, Distributive Justice, Philosophy, Politics, and Society, 3rd series, ed. by Peter Laslett and W. G. Runciman (1967); Michael Sandel, Liberalism and the Limits of Justice (1982).

[28]Yaindl v. Ingersoll-Rand, 422 A.2d 611, 620 (Pa. Super. 1980) provides the following elaboration of the values underlying employment termination doctrine: 1) The employee's interest in making a living, 2) The employer's interest in running his business, 3) The employer's motive in discharging the employee, 4) The manner of effecting the discharge, and 5) The public policies implicated.

[29]"Freedom of contract is an aspect of individual liberty, every bit as much as freedom of speech, or freedom in the selection of marriage partners or in the adoption of religious beliefs or affiliations.... If government regulation is inappropriate for personal, religious, or political activities, then what makes it intrinsically desirable for employment relations? ... [P]eople who are competent enough to marry, vote, and pray are not unable to protect themselves in their day-to-day business transactions." See Epstein, supra, n. 9.

[30]Cooter and Ulen, Law and Economics, (Glenview, IL, 1988) p. 105.

[31]Ronald Coase, The Problem of Social Cost, 3 J. L. & Econ. 1 (1960).

[32]Cooter and Ulen, supra, n. 30 at p. 105.

[33]Id. at p. 101, citing Coase, supra, n. 31.

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[35]H.B. No. 2154 Pa. H.R. (1991) §2.

[36]The Model Act would allow employers and employees to bargain for and substitute a severance pay agreement for the good cause standard. Model Employment Termination Act (1991), §4(c) (1991).

[37]Epstein, supra, n. 9, at 953. A legal presumption that reflects what parties do intend most of the time should reduce and simplify litigation by putting the burden of proof on the party who seeks to show that a different contract was intended.

[38]"But the fact that employees could also quit at will makes it difficult to see in the at-will device the exploitation of the working class...." Epstein, supra, n. 9, at 966 n. 34.

[39]See, Freidrich Hayek, supra, n. 27, at p. 278. But see Catherine MacKinnon, Toward a Feminist Theory of the State, (Harvard University Press, 1989), p. 165, for the proposition that such inequalities, if based on sexism, racism, or other subjugation of the relatively powerless is inherently unfair, and requires positive state action to remedy it.

[40]"By the same token, jury sympathy with aggrieved plaintiffs may result in a very large number of erroneous verdicts for employees." Epstein, supra, n. 9, at 970. One wonders if it is also necessary to guard against the prejudice of juries composed of consumers, insureds, or patients.

[41]"[E]mployees who work within a firm acquire specific knowledge about its operation and upon dismissal can transfer only a portion of that knowledge to the new job. ...[T]he employer must find, select, and train a replacement worker who may not turn out to be better than the first employee. ...[F]irms must bear the costs of voluntary turnover by workers who quit, which gives them a frequent reminder of the need to avoid self-inflicted losses. ...The right to fire is exercised only infrequently because the threat of firing is effective." Epstein, supra, n. 9, t 964.

[42]Epstein, supra, n. 9, at 968.

[43]"Racism, sexism and domination, however, may be important enough to some people to indulge in even at some expense; employers and employees are often motivated by factors other than wealth maximization or economic self-interest. There is, in fact, evidence suggesting that middle and lower tier supervisors may get a great deal of satisfaction from abusing their subordinates, with the resulting economic costs

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invariably borne by employers." Gary Minda, The Common Law of Employment At-Will in New York: The Paralysis of Nineteenth Century Doctrine, 36 Syracuse L. Rev. 939, 959 (1985).

[44]Sherwin Rosen, Commentary: In Defense of the Contract at Will, 51 U. Chi., L. Rev. 983, 987 (1984).

[45]Epstein, supra, n. 9, at 957.

[46]See supra text accompanying note 35.

[47]"[C]ontracts at will are desirable...when the gains from exchange that induce the contract are of uncertain duration and this uncertainty is common knowledge among the participants. ...In an employment contract, the worker may get a superior offer whose value exceeds that of the existing job. ...Similarly, the firm may suffer adverse fortunes that cannot be foreseen. ...If the point in time at which the gains from the relationship will vanish is foreseeable, then a definite duration can be written into the contract; but when the appropriate point for termination cannot be foreseen so precisely, the agreement should be open-ended and at-will. ...A contract at will...tends to save resources because it does not have to specify all possible contingencies, of which there may be millions." Rosen, supra, n. 44 at 983.

[48]Epstein, supra, n. 9, at 975.

[49]Id. at 961.

[50]Id. at 970.

[51]When a professor is granted tenure, she can thereafter be terminated only for just cause. Is a just cause rule for all employment therefore, the same as granting life-tenure to all employees? The "academic freedom" rationale for the existence of tenure in academe is not present in other employment contexts.

[52]"[J]udicial determinations in the employment at-will area have not been matters of logical deduction, but rather, have been the result of highly problematic political choices concerning the necessity and desirability of restricting employee interests in their jobs." Minda, supra, n. 43, at 944.

[53]"The judicial chamber is ill-equipped to determine what effects such a sweeping policy change [at-will employment] would have on society. Such a change would best be accomplished by the legislative process, with its attendant public hearings and debate." Decker, supra, n. 12, at 124, citing Martin v. Capital Cities Media, 511 A.2d 830, 841 (Pa. Super. 1986).

[54]"[C]ourts have a responsibility to remedy clear-cut violations of established public policy even in the absence of a specific statutory obligation or legislative directive. ...[N]othing...prevents the court from reforming its own common law of employment at-will. The rule was judge-made and hence always subject to judicial modification. ...[It has] always been open to the Legislature to change what the court had done through legislation. Nor should judicial modification of common law rules wait for legislative action when it is clear that the rules are out-of-date and in need of reform. Judicial reticence can lead to paralysis by way of legislative inertia...." Minda, supra, n. 43, at 1011.

[55]In Pennsylvania, for example, bills virtually identical in their substantive provisions, and all given the short title of "The Unjust Dismissal Act," were proposed as early as 1981, and again several times thereafter. None has been adopted. See H.B. No. 1742 Pa. H.R. (1981); H.B. No. 2105 Pa. H.R. (1984); H.B. No. 1020 Pa. H.R. (1985); H.B. No. 2154 Pa. H.R. (1991) (currently in committee).

[56]The trade-off for unions is that employers would be less likely to resist unionization if they were already obligated to fire only for just cause, but employees would be less likely to see the benefit of union dues. As of this writing, the AFL-CIO has not yet taken a public position on the Model Act. See Decker, supra, n. 12, at 127.

[57]Minda, supra, n. 43, at 943.

[58]E.g., unconscionability, promissory estoppel, and consideration. See Howard Ellis, Employment-at-Will and Contract Principles: The Paradigm of Pennsylvania, 96 Dick. L. Rev. (forthcoming June 1993).

[59]E.g., malicious discharge and violations of public policy. See supra, n. 5 and 6.

[60]An example of such well-meaning but flawed policies is rent control. Rent control fails of its essential purpose of providing low cost housing for the poor because its economic consequences were not well-understood. Because the mandating of below market rents destroys incentives to supply additional housing, a shortage of low cost housing results, the effect of which is devastating to those urban poor who are now more likely to be homeless.

[61]Epstein, supra, n. 9, at 972.

[62]No attempt is made in the Act to define "just cause."

[63]As modified by (contract theories) promissory estoppel, consideration, and unconscionability, and (tort theories) malicious discharge and public policy violation.

[64]This interpretation of the Act is problematic, however. See supra text at n. 19.

[65]"The longer one continues in a particular position, the greater that reliance becomes since with age the employee has decreasing opportunities to obtain an alternative position and over time the employee's skills can become specialized to the demands of his particular job." Donald H. J. Herman and Yvonne S. Sor, Property Rights in One's Job: The Case for Limiting Employment-At-Will, 24 Ariz. L. Rev. 763, 767 (1982).

[66]"[It] is hardly likely that remote public bodies have better information about individual preferences than the parties who hold them." Epstein, supra, n. 9, at 954.

INTERACTIVE TECHNOLOGY: A POWERFUL PARTNER FOR HUMAN INTERACTION

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ABSTRACT

The paper attempts to outline the role of multimedia in computer aided instruction. This socio-technical phenomenon facing educators is a matter deserving serious attention. In the past, computer aided instruction (CAI) was used for training or concept drilling in business and education. However, CAI's inability to provide visual realism inhibited its usefulness as an interdisciplinary learning tool. In contrast, the benefit derived from multimedia is that it provides a shorter and more efficient instructional medium for the classroom and other training environments. It is especially effective when television-like environments. It is especially effective when television-like images are combined with stereo sound and drama. The purpose of this paper is to place factors related to this phenomenon in perspective.

INTRODUCTION

Many people in the academic and business worlds have begun to focus their attention on multimedia technology. This technology links computer-based information systems with audio, full motion video, animation, graphics, and text to produce a teaching and presentation system with crude cinematic effects. A unique feature of multimedia is that is creates a multisensory environment that enhances problem solving, critical thinking, and learning retention (Brandt et al., 1989; Dunkin, 1991; Friedlander, 1989; Hilderbrand, 1991).

In the past, computer aided instruction (CAI) was used in training or concept drilling in business and education. However, CAI's inability to provide visual realism inhibited its effectiveness as an interdisciplinary learning tool.

In contrast, multimedia promises a shorter and more efficient instructional medium for the classroom and other training environments. This is especially true when television-like images are combined with realistic stereo sound and drama. Furthermore, these learning models can be tailor made for various viewing audiences (Anderson et al, 1991; Bentley, 1990; Blackwell, 1991; Elliot and Matchett, 1991).

HISTORY AND BACKGROUND

Historically, computer based information retrieval systems relied on text, like documents. The text's origin can be traced to the 15th century and Johann Gutenberg's typesetting invention. He is credited with the discovery in 1450 of the durable lead typeface and, most important of all, the very concept of printing and the art of typography itself (Encyclopedia Britannica, 1992). He employed printing from movable type and produced the Bible about 1455, showing his mastery of the craft. The text evolution reached a milestone in the 19th century when high speed printing used in the rotary press was invented in 1845 and the first photoengraved halftone was published (Hoban and Wanger, 1992).

While the text evolution was taking place, other audiovisual technologies were experiencing breakthroughs. In Europe, for example, documentaries had studied the extension of information storage and retrieval beyond text with the development of photography and the recording of images. The contributors to this technology are Gaimbattista della Portou, who demonstrated the use of camera obscura with the help of a lens in the late 16th century, and Johann Heinrich Schulze of Germany, who in 1727 laid the basis for the principle of photographic film (The New Encyclopedia, 1991). An outgrowth of this development has been the invention of the concept of projecting pictures.

The illusion of movement--from a series of still pictures--was first conveyed by a machine in 1832. Fifty-seven years later, Thomas A. Edison developed the Kinetoscope, the ancestor of present-day motion picture mechanisms (Hoban and Wanger, 1992). This invention, along with Edison's earlier invention of the phonograph in 1877, and Graham Bell's 1876

telephone demonstration, confirmed that the development of sound technology had already taken a momentum.

The sound technology reached new heights when Guglielmo Marconi aired his first messages in 1895 (Brandt et al., 1989; Herron), and when John L. Baird in 1926 employed the same technique by creating an illusion of motion and electrically transmitted moving pictures on a screen at a rate of 25 to 30 pictures per second (Hoban and Wanger, 1992). The latest attempt was the development of a cathode-ray tube (CRT) by Radio Corporation of America (RCA) in 1932. All these developments led Otlet in 1934 to believe that a document with objects or forms could have three dimensional representation and he initiated the integration of the CRT with a computer-based information retrieval system to display graphs and pictures (Bucklanc, 1991). This concept was further refined in 1944 when the US Navy backed the MIT's Whirlwind machine that was virtually the first graphics computer because of its ability to display information retrieval as related to texts, but with access to evidence (Bucklanc, 1991). In the 1950's, under MIT's Machine-Added Cognition/MultipleAccess Computer project, the first computer graphics system emerged (Bissell, 1990; Bucklanc, 1991).

The microminiaturization of memory chips in the mid-70's and the introduction of personal computers paved the road for the application developers to integrate audio, video, text, special effects, and artificial intelligence with the personal computers. Gutenberg, Marconi, Baird, and Otlet can be credited then as the forefathers of multimedia. Because of their insight we are able to combine text, graphics, sound, and pictures into one sophisticated unit, thus bringing about the emergence of the multimedia (Anderson et al., 1991; Brandt et al, 1989; Friedlander, 1989; Harney, 1991; Scholder, 1963).

MULTIMEDIA AND TEACHING

Modern education evolved with Gutenberg's invention of the printing press. This allowed mass production of writing and therefore the printing of textbooks. Now, in the 20th century, the computer has given rise to the Information Revolution. We no longer have knowledge alone, but the personal access to knowledge (Amthor).

Human beings learn the most by using "sensory interaction" with the environment. Multisensory experiences involve as many senses as possible for learning. Researchers are in agreement that people retain 20 percent of what they hear, 40 percent of what they see and hear, and 75 percent of what they see, hear and do (Alexander, 1991; Amthor). So we can see that the more senses that are involved, the better the learning experience. This is why human beings are more adaptive to learn through " interactive multimedia."

"Interactive multimedia organizes knowledge by mirroring the structure of human thinking" (Amthor). It allows the user to branch from one thought to another related thought through the use of hypermedia. Hypermedia is the "interlinking of related information through instantaneous connections, or hyperpaths" (Amthor). This gives the user the ability to have knowledge on demand.

In a project conducted by three students of the New York City's School of the Future using a Macintosh PC, they created a multimedia presentation of the digestive tract. The opening screen is a graphic of the digestive organs and by pressing a button on an organ depicted on the screen, detailed functions and working of the chosen organ is shown (Schwartz, 1991). Or perhaps a student takes a trip to a Mayan ruin in southern Mexico by using Palenque, a hypermedia tool designed for paleogeography courseware. The student can navigate through buildings, rooms, and hieroglyphics and by clicking a button can receive commentary by a Mayan specialist and tour guide (Soloway, 1991).

IBM recently introduced a show case multimedia application that represents the largest integrated set of interactive courseware ever produced. The title is "The Illuminated Books and Manuscripts" and it contains a complete language arts system. Through this application, students can study Shakespeare's "Hamlet," Alfred Tennyson's "Ulysses," Martin King's "Letter from Birmingham Jail," John J. Neihardt's "Black Elk Speaks, and the American Declaration of Independence." Students are provided not only with the text of the works, but also with definitions, context, interpretations, methods of literacy devices and patterns, and links of universal themes. By selecting an icon, students have all of this information at their finger tips. The hope is that

by using these tools, students will get more out of literature (Amthor). Multimedia can also act as a "tool for nonlinear thinking." Instead of going through a formal path chosen by the teacher, the student can learn at his/her own pace (Schwartz, 1991).

It is still too early to know if multimedia is improving scores on the standardized tests given to rate students' performances. However, attendance has improved at the New York City's School of the Future. The school's attendance is 98 percent compared to a city-wide average of 86.5 percent (Schwartz, 1991). Also, a Department of Defense study has found that interactive multimedia improves achievement by 38 percent over more conventional instruction, while reducing time to competency by 31 percent (IBM Product Information, 1991).

The applications of multimedia for education are vast, but they are based upon the teachers' needs. For example, it is important to involve the content expert in the beginning stages of a program development to avoid creating an "over-designed application which no one wants to use" (Friedlander, 1989; Hawkins, 1989; Reisman and Carr, 1991).

One area for which multimedia applications have been created is textbooks. Because of multimedia's versatility to store and retrieve files (e.g. 340,000 typed pages minimum), its feasibility as a learning tool increases, and it provides the instructor with the ability to monitor the integrity of content by assuring that the presentation materials are up-to-date with current trends. For example, science and engineering can be made more interesting and interactive through the use of "Mathematica." Medical students can perform simulated clinical diagnoses by using GUIDE from OWL International or other multimedia software products. Legal simulations complete with text, audio, and video can recreate a pseudo courtroom (Phillips, 1991).

Universities across Canada are becoming significant users of multimedia technology. York University has been a pioneer in creating educational material using computer video technology. This technology has the ability to achieve, modify and recycle tried material for longer use. Students and faculty at Concordia University use the Amiga Vision multimedia programs to develop interactive courseware for training (Broadus, 1990; Ryan, 1990).

TRAINING RELEVANCY

Many companies today realize that to remain competitive it is necessary to effectively train and retrain employees regardless of their field. To meet these needs, businesses are discovering the value of computer-aided methods as part of their overall training. The answer for these corporations is training through multimedia workstations. A noteworthy characteristic of multimedia is its application in simulations and in problem solving. "Interactive training increases retention, decreases costs and lessons the amount of time needed in training sessions" (Alexander, 1991; Fritz, 1991; Heathman and Kleiner, 1991; Morris, 1991).

Some examples of successful multimedia training programs are illustrated in approaches taken by Pizza Hut, New York Life, and Andersen Consulting in Dallas. The Automated Restaurant Management System (ARMS) is a new labor management application that has been installed in all of the Pizza Hut restaurants. ARMS helps managers order food and supplies, project sales and write labor schedules. However, ARMS is a complicated system and requires special training in order to enable the restaurant managers to use it. When situations such as these have occurred in the past, Pizza Hut conducted three day classroom training sessions in a central location. But after analyzing the travel costs involved and the loss of productivity in the restaurants due to the absence of a manager, Pizza Hut chose a different approach (Smola, 1991).

The technical training team implemented a multimedia store-based computer training program. The program utilized an easy to understand video in order to present the overall basic concepts. This was followed by the hardcopy materials used for information updates. Computer based training was also implemented for complex subjects such as analysis and decision-making skills. After the multimedia training program was completed, a study was done comparing the results of the new training method to that of the formerly used classroom training. Overall, the trainees tested on the new method completed their training on time, had very few questions or problems and produced the correct ARMS output. Although the initial costs of multimedia training are expensive, Pizza Hut feels the savings realized in ongoing training justifies the initial investment (Smola, 1991).

New York Life is another company that has caught the multimedia bug. They have developed a recruitment application on Intel's Digital Video Interactive (DVI) multimedia platform. The program allows users to gain information about the company and the Boston office in particular. The perspective employee can witness conversations between managers and agents discussing what it is like to be a part of the New York Life team (Pastore, 1991). Management feels the recruitment application will not only save the company money in terms of one or two full-time personnel positions, but it will also increase the company image in terms of potential recruits (Pastore, 1991).

Several companies are developing programs for sales training in which trainees can actually perform role-playing with the help of computers (Heathman and Kleiner, 1991). This is accomplished with multimedia programs. The program interacts with the trainee, acting as the customer and giving the trainee the opportunity to respond, while a video tape records the interaction. After several practices the trainee may be evaluated by a supervisor viewing the recording.

This approach of using multimedia for training is being utilized by Andersen Consulting in Dallas. The program being used teaches customer service representatives how to use on-line customer information systems and how to improve their customer service job skills (Fritz, 1991). Multimedia computer concepts can enhance an individuals interpersonal skills through simulation and role-playing. This creates a more experiential ability to apply one's problem solving techniques in situations of uncertainty.

In summary, multimedia training provides the following advantages (Burleson, 1988):

1. *Consistency*. Success no longer depends on the competency of the individual instructors.

2. *Learner Pacing*. Over-training and under-training aren't issues when the learner controls the pace.

3. *Immediate, Individualized Feedback*. Response driven lessons assures learners the remediation or advancement they need to facilitate learning.

4. *Active Involvement*. Frequent opportunities to solve problems, practice skills, and/or participate in simulations.

5. *Guaranteed Mastery*. Trainees can't complete the lesson until they have successfully demonstrated the required skill or knowledge.

6. *Performance Based Lessons*. The design of the session is based on specific and measurable objectives.

7. *Easy Administration and Record Keeping*. Automated management support gives business better information about the effectiveness of their training programs.

8. *Effective Time Management*.

9. *Acceptance*. Studies show that trainees like the participation and control they have over their training.

The primary disadvantage with multimedia training involves the large initial cost incurred in purchasing the hardware and software, but this cost is recovered over the long run.

CONCLUSION

There is little doubt that educators face challenging demands in how to develop powers of critical thinking, participation in human culture, and to impart ethical standards. The technology we are dealing with has vast possibilities in education--whether in college, experiential learning or on-the-job training.

One may surmise that multimedia will provide structures that will improve individuals learning preferences and knowledge (Davis, 1990). However, one should not ignore that this technology must be treated with responsibility; that is, if unchecked it will eventually lead itself to deliberate manipulative presentations, thereby controlling current events and thoughts (Brandt et al., 1989; Crabb, 1990; The Economist, 1990).

Furthermore, if this process becomes the only means for knowledge acquisition, it is possible that the constant use of multimedia may create unwarranted

reliance on it. It is effective in conveying information because it captures user's attention and emotions. While that quality is commendable, it is also threatening to users (Hawkins, 1989). Under such circumstances, multimedia could be used to influence people in making decisions. It can be further used to manipulate a person's thought. For example, multimedia could be used as a propaganda tool to influence a person's ideology in the political area or belief. It also can curtail users' imaginative and problem-solving abilities. If properly designed, the technology may provide so many differing and divergent opinions that it may inhibit the individual creativity (Hawkins, 1989; Rash, 1992; Reisman and Carr, 1991). A final note about this technology is that it should be seen as an ancillary function that augments human problem-solving, and that it is not a cure for every learning experience.

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A SURVEY OF PENNSYLVANIA FIRMS FOR TEACHING JUST-IN-TIME IN PRODUCTION AND ACCOUNTING

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ABSTRACT

The rapid acceptance of just-in-time (JIT) principles, concepts and applications in many successful organizations has prompted conducting a survey on various issues--nature of operations, applicability across-the-board, quality, inventory, and most importantly, accounting implications of JIT. The purpose of the paper is to educate students and practitioners in the use of and understanding of JIT production and its relevance to accounting principles and concepts that result in reduction in work-in-process, lead times, costs, and promotion of overall improvement in quality of the processes and products.

INTRODUCTION

For the last ten years or so, a broad range of industries in the U.S. and abroad have tested and subsequently implemented just-in-time (JIT) concepts and ideas in a variety of settings and stages as they appeared to fit in their respective organizations. Along with success stories, problems and issues unfolded on the nature, relevance, and wide-spread usage across-the-board for just-in-time principles and ideas. Books, articles, and presentations on the topics of JIT discuss core principles, philosophies, and benefits (Goddard, 1986; Hay, 1988; Schonberger, 1987). Consequently, the nature of teaching production and accounting should reflect these changes. This paper provides an overview, an assessment of current practices of Pennsylvania firms based on a survey, and relates the issues and concerns with accounting implications. JIT organizations, do in fact change their accounting entries as they relate to inventory, work-in-process, and other activities related to movement of materials in various stages of production.

WHAT IS JUST-IN-TIME?

Just-in-time or its popular acronym JIT, is often a misunderstood concept of a management approach. One of the major difficulties is the name itself. What a manager wants is not each activity occurring just-in-time, but the results and benefits of JIT. The essence of JIT can be stated in two expressions: the "continuous improvement" and the "elimination of wasteful practices." Applying JIT principles to the manufacturing process may result in: 1) Minimizing inventory investment, 2) Shortening production lead times, 3) Reacting faster to demand changes, and 4) Uncovering any quality problems (Dear, 1988; Garvin, 1988).

JIT BENEFITS

It is generally misunderstood as an inventory technique. However, its applicability is universal -- profit and non-profit, manufacturing and service organizations. Why Just-In-Time? Figure 1 illustrates that visibility or exposure triggers problem-solving processes. Figure 2 shows by eliminating wastes and problems, JIT is less disruptive and enhances smooth flow of processes to satisfy customer demands (Suzaki, 1987).

JIT promotes the following: total visibility, synchronization and balance, respect for people, flexibility, continuous improvement, responsibility for the environment, holistic approach, and simplicity. These goals and ideas are easily applicable to service operations as well. Broadly the JIT technique can be classified as follows: organize problem-solving groups, upgrade housekeeping, upgrade quality, clarify process flows, revise equipment and process technologies, level the facility load, eliminate unnecessary activities, reorganize physical configuration, introduce demand-pull scheduling, and develop supplier networks. Service organizations like McDonald's, Speedy-Lube, and Federal Express have benefitted from JIT techniques.

JIT benefits are further enhanced when integrated with electronic data interchange (EDI). Some of the benefits derived from this integration are: electronic communication of purchase orders, billing, production planning and control. EDI provides timely information for JIT in its quest for continuous improvement. The marriage between JIT and EDI makes computer integrated manufacturing (CIM) more productive and profitable for a variety of organizations.

JIT SURVEY

In order to elicit various opinions, experience, benefits, and expectations on JIT, a survey was conducted during the summer of 1989. The initial sample consisted of about 150 organizations: small to large firms, service as well as manufacturing, and work force ranging from 30 to 400. The usable responses realized were around 60. Tables 1 and 2 show the results.

A SUMMARY OF THE SURVEY RESULTS

From Table 1, it can be seen that the areas covered are broad and varied: degree of computerization, formal procedures for production and operations management, material requirements planning (MRP) system implementation, and human resource management. Table 2 indicates impact of JIT practices and issues related to inventory policies, quality management and training programs, statistical process control, supplier relationships, and purchase order contracts. Of those responded, 34% were unionized, and 66% were not, about 36% were large batch or mass assembly, 7% continuous production, 40% small batch, and the rest used combination of processes. A large number, about 80%, used some computer software for managing production and inventory control. About 45% of the respondents had scheduling techniques that helped them to identify potential bottlenecks, 20% did not and 35% had no response. As far as inventory accuracy goes, 80% of them had reported over 80% of inventory accuracy. This may be due to the fact that most of them practiced ABC analysis, cycle counting, and periodic physical counting of inventories. About 40% of them use a JIT inventory management technique. Only a small percentage of them use JIT accounting which is reported in written comments.

On an average, less than 70% of their vendors shipped via their own trucks and 30% of the suppliers frequently helped to design/improve the product. Due to purchase order contracts, 50% reported increases in their order quantities. In addition, the reliability of their delivery schedules has improved. The production wastage and lead times have been reduced at least by 20%. The top management in 55% of the organizations do understand the benefits of total quality management. This is reflected in their implementation of statistical process control and quality circles.

ACCOUNTING IMPLICATIONS

From the foregoing discussions, it can be gleaned that JIT production includes the following features (Bierman et al., 1990):

1. The production line is run on a demand-pull basis, so that activity at each work station is authorized by the demand of downstream work stations.

2. Emphasis is placed on minimizing the production lead time of each unit. The production lead time is the interval between the first stage of production and the time that the finished good comes off of the production line.

3. The production line is stopped if parts are absent or defective work is discovered. Stoppage creates an urgency about correcting problems that cause defective units. Each employee puts a premium on minimizing potential sources of stoppages (such as defective raw-material parts).

The core principle of JIT is the simplification of the production processes. This means that only essential value-added activities are performed. This simplification is extended to the internal reporting of the accounting systems. The bill of materials in several JIT plants has only two entries: first, when raw materials are put on the start of the production line; and second, when finished goods leave the production line. Because of JIT usage, raw materials and work-in-process inventories are minimized resulting in monitoring and recording of costs simplifications. Due to the reductions in lead time and demand pull nature of JIT, work-in-process constitutes a lower percentage of the total cost of production. Under JIT costing, sometimes called

Backflush Costing, entries for all production costs are made directly to an asset account called Inventory: Raw and In Process (denoted by RIP), rather than to Raw Materials or an Inventory stores account. The second and final entry transfers the cost from RIP to Finished Goods Inventory. This entry is made when the activity is completed. The JIT system avoids those entries that issue materials from stores to operating departments and transfer work-in-process from one operation to another. Under JIT cost accounting there is no need for either work orders or the detailed tracking of the materials, labor and variable overhead across operations. All manufacturing overhead, including direct labor, are entered directly into finished goods (Horngren & Foster, 1987).

CONCLUSIONS

Even though the survey was conducted for the Northeastern Pennsylvania region, the results are typical across the United States. The aspect of ongoing improvement and the elimination of non-value added activities are catching up in both manufacturing and service industries. As the results indicate, education and training are crucial for the management to enhance quality, productivity, inventory accuracy, and lead-time reductions. In addition, JIT accounting promotes simplicity and accuracy in recording costs.

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TABLE 1
JUST-IN-TIME SURVEY RESULTS
Observations on a Broad Range of Issues

	CRITERIA	YES	SOMEWHAT	NO	N/A[1]
1.	Production completely computer controlled	10%	60%	20%	10%
2.	Used techniques to identify bottlenecks	45%	---	20%	35%
3.	POM[2] is formally organized	65%	25%	10%	---
4.	MRP[3] users still using hot lists	25%	35%	---	40%
5.	Computer software used for inventory control	80%	---	20%	---
6.	Workers viewed change as a threat to job security	70%	15%	15%	---
7.	Use group and individual incentives	35%	25%	35%	5%
8.	Had a "no lay-off" policy	10%	10%	65%	15%
9.	Use procedures to receive input from employees	55%	25%	5%	15%
10.	Emphasized workgroups over individual assignments	25%	---	55%	20%
11.	Emphasized group decision making	40%	---	45%	15%
12.	Employee morale high	15%	85%	---	---

[1]N/A = Not Applicable
[2]POM = Production and Operation Management
[3]MRP = Material Requirements Planning

TABLE 2
Observations on the Impact of JIT Principles in Accounting

	CRITERIA	YES	SOMEWHAT	NO	N/A[1]
13.	Used JIT management technique	40%	---	50%	10%
14.	Had a "zero inventory" goal established	10%	---	70%	20%
15.	Took steps to reduce safety stocks	40%	---	30%	30%
16.	Had reliable delivery schedules	30%	65%	5%	---
17.	Had vendor rating system	40%	---	50%	10%
18.	Committed to total quality control	55%	35%	10%	---
19.	Needed for high-skilled workers	20%	65%	10%	5%
20.	Need for product to be of high quality	95%	---	---	5%
21.	Used statistical process control	45%	---	35%	20%
22.	Procedures for crediting workers for high quality	35%	---	40%	25%
23.	Had a "zero-defects" goal	30%	---	65%	5%
24.	Used "quality circles"	10%	---	80%	10%
25.	Had a preventative maintenance program	55%	25%	10%	10%
26.	High level training for production positions	5%	85%	5%	5%
27.	Had formal grievance procedure	50%	10%	35%	5%
28.	Had formal job description for each position	50%	45%	---	5%
29.	Used job rotation	5%	45%	40%	10%
30.	Geared more toward long-term vs short-term profits	40%	---	35%	25%

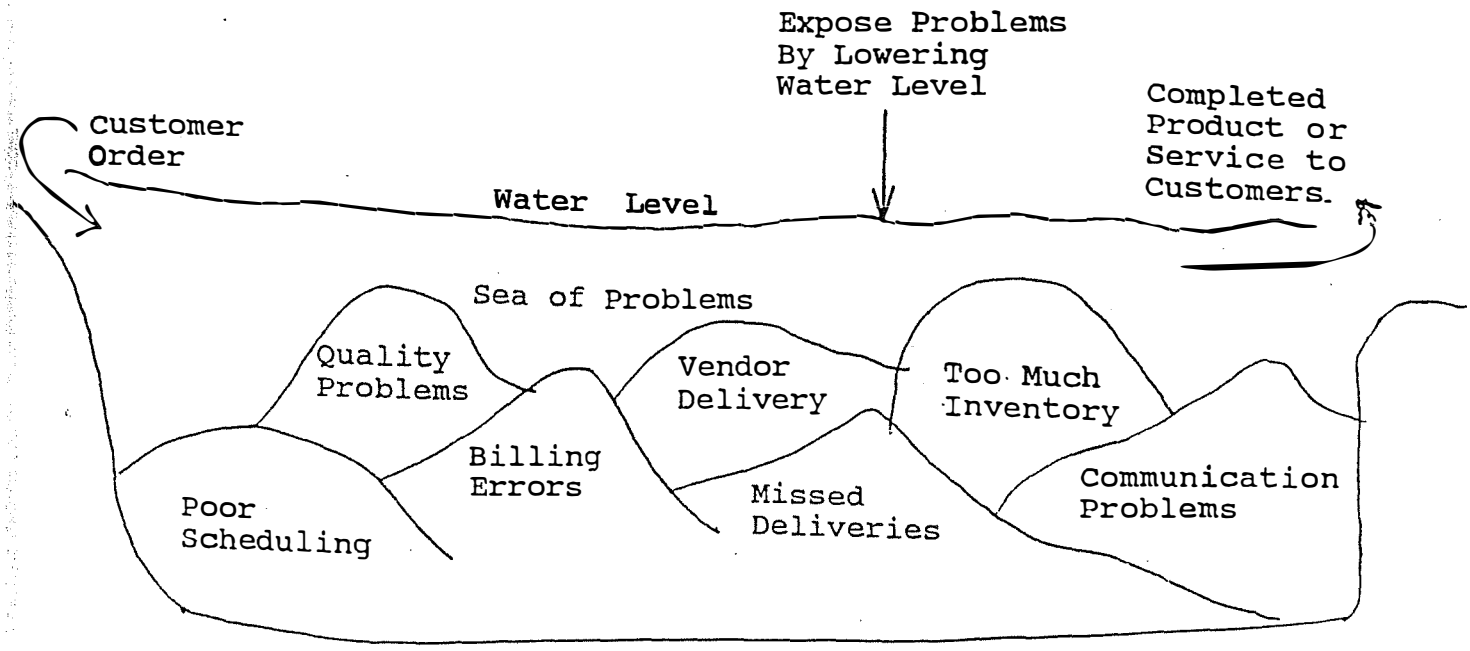
[1]N/A = Not Applicable

TABLE 2
Observations on the Impact of JIT Principles in Accounting
(continued)

	CRITERIA	FREQUENTLY	SELDOM	NEVER	N/A[1]
31.	Techniques used:				
	a. to reduce work-in-progress	55%	15%	5%	25%
	b. to improve inventory turnover	65%	20%	5%	10%
	c. to increase machine utilization	70%	10%	5%	15%
32.	Lower level management active in planning	55%	10%	15%	20%
33.	Suppliers help improve product design	30%	40%	30%	---
34.	Over three years:	**INCREASED**	**STABLE**	**DECREASED**	**N/A**
	a. purchase order quantities	50%	35%	15%	---
	b. supplier base	50%	30%	20%	---
	c. production waste	10%	40%	45%	10%
	d. product quality	65%	25%	---	10%
		95%-100%	**85%-95%**	**65%-85%**	**N/A**
35.	Inventory accuracy	30%	50%	10%	10%
36.	Parts availability	55%	30%	5%	10%
		90%-100%	**80%-90%**	**70%-80%**	**<70%**
37.	Location of vendors within 60-mile radius	---	10%	20%	70%
38.	Materials delivered via common carrier	50%	30%	10%	10%
		< = 1 year	**> 1 year**	**> 2 years**	**N/A**
39.	Purchase order contracts	75%	10%	10%	5%

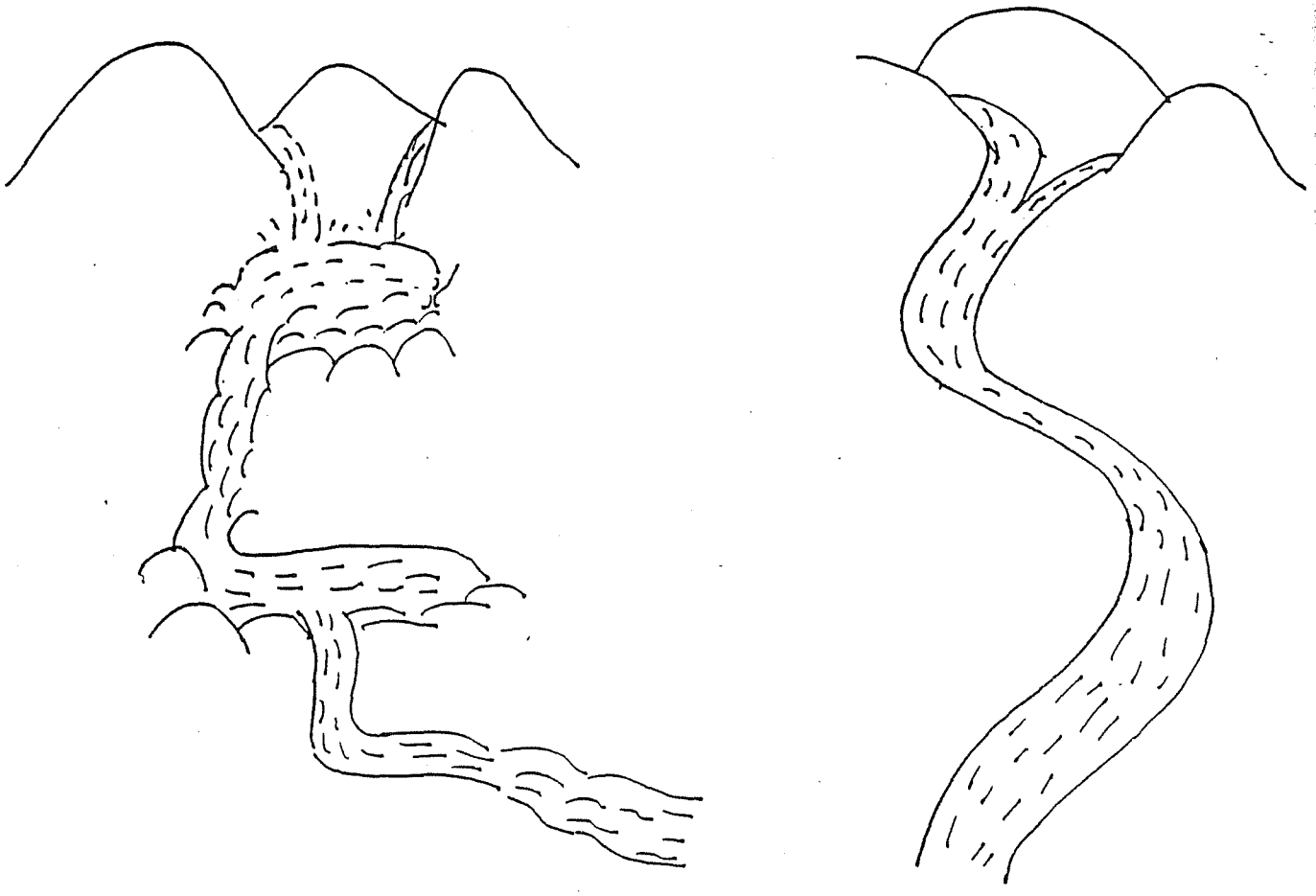
[1]N/A = Not Applicable

FIGURE 1
WHY JUST-IN-TIME?



A Developed Flow is Less Disruptive

FIGURE 2
JUST-IN-TIME IS LESS DISRUPTIVE



AN EXPLORATORY ANALYSIS OF THREE ENVIRONMENTAL CORRELATES OF CAPITAL GAINS TAX POLICY IN INTERNATIONAL BUSINESS: LEVEL OF ECONOMIC DEVELOPMENT, RATE OF INFLATION, AND STOCK MARKET ACTIVITY

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ABSTRACT

The present study explores the relationship between three environmental variables--economic development stage, inflation rate, and stock market activity--and the type of capital gains tax treatment in a sample of 85 out of 147 nations of the world. Three types of capital gains tax policy are possible when the policy is considered in the role of stimulus, whether the policy relates to businesses or individuals.

INTRODUCTION

With the current downturn in the world economy, interest has once again been focused on governmental policies which may stimulate business. One important aspect of tax policy, which has historically been considered such a stimulus within the national economy, is favorable capital gains tax treatment, both for corporations and for individuals. How many of the world's nations use such a policy to stimulate their economies? Are there any identifiable environmental variables associated with the nations that use a favorable capital gains tax policy? Such information would be useful to international businesses who are monitoring the environment in an effort to locate prospective markets with good business climates and to the governments interested in attracting foreign investors, if conventional wisdom regarding this aspect of tax policy is correct (Goodman, 1988; Albertine, 1985; Marsden, 1983).

First, nations that have no tax rate on capital gains strongly encourage investment; second, nations that have a capital gains tax rate which is lower than that on ordinary income will slightly encourage investment, while still bringing in revenue; and, third, nations that have a capital gains tax rate which is the same as that on ordinary income will neither discourage nor encourage investment.

In order to determine whether or not the tax policy is used as a stimulus cross-nationally, its dependence or independence on environmental variables which reflect investment decisions by foreign investors must be examined. The three environmental variables, high level of economic development, low rate of inflation, and availability of a stock market, all are likely to be characteristic of the presence of strong capital investment in an economy and therefore should be correlated with successful capital gains policy.

In an earlier empirical study of general taxation's effect on annual rate of growth of GDP for 20 countries during the 1970's, Marsden (1983) confirmed the relationship between lower taxation and higher growth. In his explanation for these results, Marsden suggests that lower taxes had this effect through a chain of higher savings, investment, work, and innovation, which, in turn, raised total output. He further cautioned that the effect on development is not immediate and that there are some discontinuities where highly developed countries have higher taxation rates (p. 43). Building upon his findings, we should expect to find a correlation between level of economic development and any taxation policy which is growth-related, like capital gains tax policy in a fuller set of nations. In addition, we should be able to explore the extent of such discontinuities with a larger set of countries. We should also expect to find a correlation between capital gains tax policy and other environmental variables related to growth or stagnation, like stock market activity or inflation rate.

Nations which enjoy a higher stage of economic development and are richer in capital accumulation will be more likely to have a strongly preferential

capital gains tax policy; conversely, less developed nations will be more likely to have a neutral or only mildly favorable treatment. Similarly, nations with stock markets and nations with low or no inflation will be more likely to have such a preferential treatment; conversely, those without stock markets and with moderate or high rates of inflation will be more likely to have neutral or only mildly favorable treatment. Is conventional wisdom on this policy correct or incorrect?

METHODOLOGY

To explore whether or not capital gains tax policy is related to these three environmental variables, the set of hypotheses that appear in Table 1 were formulated and four sets of secondary data were collected from a variety of sources. As with much secondary data, there are inherent sources of error because not all series were available for the same year, the environmental data series are slightly older than the tax treatment series, and occasional missing data points reduced the number of countries to 85 out of 147 originally searched. Classifications for stage of economic development in 1987 were obtained from the World Bank country rankings as high income, high middle income, low middle income, and low income (Terpstra and Sarathy, 1991); for presence or absence of a national stock market (no date given) from Francis (1991); for rate of inflation from the cpi index growth rates between 1980 and 1987 (less than double, double but less than 5 digits, 5 digits or more) in Table 22 of the 1987 Statistical Yearbook (United Nations, 1990); and, for the treatment from the 1992 International Tax Summaries (Coopers and Lybrand, 1992). As mentioned above, no capital gains tax was considered the best possible treatment for investment; a less than ordinary rate was considered as preferential; and, a rate equal to the ordinary rate was considered average. Higher than ordinary rates were not reported in the tax summaries for any of the countries studied; therefore, that type of treatment was not considered possible (or even reasonable).

Using Items 3 (corporations) and 11 (individuals) from each country article, the authors determined the treatment of capital gains. Two conditions determined a coding as no capital gains tax: (1) if the item specifically stated that there was no tax or (2) if no mention was made of capital gains. A coding of lower than average was determined, if the item quoted a rate or percent which was lower than their average. A coding of average was determined if the item reported a tax which was the same as that on ordinary income.

RESULTS

Each of the six hypotheses was separately tested in a contingency table with a chi-square test. The results are reported in Table 2. Only one null hypothesis could be rejected at the .10 level or better. The corporate capital gains tax treatment is not independent of level of economic development. The results are, however, surprisingly weak. In order to explore further the possible reasons for such results, the countries studied are all listed by level of economic development and tax treatment type in Table 3.

The distribution of countries is not well balanced across levels of economic development. Thirty countries (35%) are classified as high income; 13 countries (15%) as high middle income; 27 countries (32%) as low middle income; and, the remainder as low income. Among the high income countries, the number having only an average treatment is almost the same as the number having either no tax or a somewhat favorable tax. Furthermore, there are more low income or low middle income countries that have no tax (18) than have only an average tax (13). When no tax and preferential tax groups are combined for the low and low middle income groups, there is an even larger majority of favorable tax countries (29) versus average tax countries (13).

CONCLUSION AND LIMITATIONS OF THE STUDY

The relationship appears to be inverse, rather than direct. These results are therefore similar to Marsden's (1983) even when many more countries are considered and a very brief time period is examined. However, the environmental variables studied are much less important than other variables which were not included, since the relationship is relatively weak. If the capital gains tax treatment is used as a stimulus to investment in these global markets, it is apparently being used by developing rather than developed countries, and a time-lag for the anticipated development in these countries should be expected, as Marsden suggested. Perhaps the revenue producing characteristic of this tax may be

more important in the developed countries. Future research should include a fuller set of environmental correlates and the passage of time.

The study was intended for exploration, and can really be used only in that sense. Many factors, (limitations on availability of data for more than 85 countries; difficulties in gaining the same year of data across all measures; and, limitations on the number of environmental variables included), introduce possible bias into the analysis. Clearly, the selection of capital gains tax treatment is a much more complex governmental decision, which taps more than environmental variables.

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TABLE 1
HYPOTHESES

H1:	There is no relationship between type of capital gains tax treatment for individuals and level of economic development in global markets.
H2:	There is no relationship between type of capital gains tax treatment for corporations and level of economic development in global markets.
H3:	There is no relationship between type of capital gains tax treatment for individuals and rate of inflation in global markets.
H4:	There is no relationship between type of capital gains tax treatment for corporations and rate of inflation in global markets.
H5:	There is no relationship between type of capital gains tax treatment for individuals and the presence or absence of a national stock market in global markets.
H6:	There is no relationship between type of capital gains tax treatment for corporations and the presence or absence of a national stock market in global markets.

TABLE 2
RESULTS OF CHI-SQUARE TESTS OF INDEPENDENCE

	HYPOTHESIS	RESULT
H1:	Individual tax treatment & stage of economic development	Failed to reject
H2:	**Corporate tax treatment & stage of economic development**	**Rejected at .10**
H3:	Individual tax treatment & rate of inflation	Failed to reject
H4:	Corporate tax treatment & rate of inflation	Failed to reject
H5:	Individual tax treatment & stock market activity	Failed to reject
H6:	Corporate tax treatment & stock market activity	Failed to reject

TABLE 3
CLASSIFICATION OF COUNTRIES STUDIED BY LEVEL OF ECONOMIC DEVELOPMENT AND CORPORATE CAPITAL GAINS TAX TREATMENT

	HIGH INCOME	HIGH MIDDLE INCOME	LOW MIDDLE INCOME	LOW INCOME
NO TAX	UAR Bermuda Singapore Neth. Antilles Kuwait Bahamas Hong Kong	Malta Barbados	Swaziland S. Africa St Vincent St Lucia Malaysia Vanuatu Jamaica Fiji Dominica Chile Bolivia Costa Rica Dominican Rep.	Zambia Uganda Solomon Islands Malawi Kenya
PREFERENTIAL TAX	Ireland Canada Belgium France Finland Germany United Kingdom	Trinidad & Tobago Taiwan Portugal Greece Panama	Zimbabwe Turkey Mexico Philippines	Bangladesh Ghana Pakistan Nigeria Tanzania Sudan India
AVERAGE TAX	USA Denmark Australia Austria Iceland Israel Italy Japan Luxembourg Netherlands New Zealand Norway Saudi Arabia Sweden Switzerland Spain	Argentina Brazil Cypress Korea Uruguay Venezuela	Egypt Botswana Columbia Guatemala Ivory Coast Papua N. Guinea Paraguay Peru Senegal Thailand	Indonesia Liberia Sri Lanka

INTERNATIONAL MARKETING INFORMATION SYSTEMS A STRATEGIC FRAMEWORK

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ABSTRACT

Recent technological advances in computer based information systems have dramatically changed approaches to marketing management. These advances, which included the microcomputer revolution and the development of fourth generation languages (4GL's), brought computer capabilities to virtually all marketing organizations. Continuing advances in information technologies are moving marketing managers into the spotlight of strategic planning and providing marketers with new tools with which to respond to market opportunities (Boone and Kurtz, 1989; Churchill, 1987; Kotler, 1988; Kotler and Armstrong, 1987; McCarthy and Perreault, 1987; Robinson, 1989; Rubinstein, 1989). Marketing information systems (MKIS) is one such tool. This paper synthesizes literature from the fields of information systems and marketing management to develop a model approach for the development of MKIS's.

INTRODUCTION

Perhaps the greatest impact of "computer" advances on marketers has been the development of "end user computing." This has often been manifest in marketing departments by the development of a variety of personalized computer applications. Such applications range from sales forecast models, product tracking models, and lead systems, to advertising impact models and the competitor monitoring. However, in many cases such developments have been carried out solely within the marketing department and without the formal support of the organization's management information systems (MIS) professionals. Where this occurs, the organization's marketing efforts may fail to take full advantage of the organization's internal data resources. Furthermore, systems developed on an ad hoc basis may be short lived and of uncertain reliability, and may fail to address systematically the strategic needs of the organization. While isolated, self-reliant marketing developments may be understandable given the dominance of accounting, production, and financial management concerns in conventional MISs (Moriarty and Swartz, 1989), today marketing information systems are recognized as key strategic and tactical tools for competitive businesses (Eisenhart, 1988; Keon, 1987; Robinson, 1989; Wiseman, 1988; Bagozzi, 1986).

If marketers are to exploit fully modern information science technologies for the strategic benefit of their organizations, well planned systems must be developed. Such systems may involve microcomputer applications and end user development, but will certainly go beyond isolated, ad hoc systems. They should involve linkages to central systems, in organization-wide databases, and a team approach encompassing marketing and information systems professionals, representatives of related departments, and top management. The critical challenge for marketing professionals is to understand the processes of systems development and planning and the conceptual view of systems from the perspective of the information system's professional. The challenge facing information system professionals is to understand the requirements of marketing professionals. This challenge is particularly problematic because marketing management and decision making often require ad hoc inquiries and analyses whereas traditional MIS approaches have centered on systematic data processing and routine, fixed reporting.

THE NATURE OF MARKETING INFORMATION SYSTEMS

Even a cursory review of literature regarding MKISs reveals great variety in what is meant by "marketing information systems." Some writers apply the term to sales support tools such as systems for lead and prospect tracking, telemarketing, and customer support (Datapro Reports, 1989; Dobrozdravic, 1989; Eisenhart, 1989; Keon, 1987; Moriarty and Swartz, 1989; Snyder, 1988). Others emphasize market intelligence and planning (Churchill, 1987; Fletcher,

1988; Rubinstein, 1989) or focus on formal management tools such as expert and decision support systems (Churchill, 1987; Dyer, 1989; Robinson, 1989). All are potential aspects of a MKIS but each may be viewed as a subsystem within an integrated framework. Furthermore, the MKIS needs of a specific organization depend upon its unique circumstances, its relations with its environments and customers, and the marketing mixes and strategy which it has developed. Instead of defining MKISs in terms of specific applications, we propose to emphasize system objectives and the information needs of the organization. A marketing information system may be defined as a formal system designed with the objective of creating an organized, regular flow of relevant information for use and analysis by marketing decision makers. This definition is similar in content to definitions by Boone and Kurtz (1989), Churchill (1987), Cox and Goode (1967), McCarthy and Perreault (1987), and Schoner (1975).

Five aspects of the definition may be noted. First, the definition does not specify computer hardware or software. Although computer based systems will typically be used, the emphasis is placed on the provision of relevant information rather than the use of computers per se. Second, the definition calls for organized, regular flows of relevant information. A MKIS is not an ad hoc development to serve an isolated management demand. An MKIS is created to provide predictable flows of information in terms of content, format, elements, and meaning. This characteristic separates the MKIS from primary data collection by market researchers (Churchill, 1987, p. 867; Cox and Goode, 1969), but primary research may provide important data sets that could be included in a MKIS's database system. Third, the information is to be relevant to marketing decisions. High level marketing decision markers must be included in planning the information requirements. These managers are an integral part of the system. Fourth, marketing managers are expected to carry out further analyses of the information provided by the system. The system must provide the analytical resources needed by marketing decision makers. These may involve statistical and mathematical modeling and qualitative analysis tools, as well as provisions for interpreting and reporting findings, drawing conclusions, and making recommendations (Bagozzi, 1986, p. 271; Johnson et al., 1973). Finally, the definition emphasizes marketing decision making and not operational management. This distinguishes the MKIS as a planning and decision support system from logistical support systems such as telemarketing, order entry, and sales management. The latter are seen as external to the MKIS but important sources of MKIS data.

STAGES OF SYSTEMS PLANNING

As with most systems efforts, the successful development of an MKIS will depend upon a well conceived planning process (Cox and Goode, 1967). An understanding of the systems planning process is more important to marketing managers than technical hardware and software skills. Furthermore, as a strategic resource the MKIS must be developed to support the organization's strategic business plan. For this reason the MKIS plan should describe the information systems needed to support the organization's marketing goals and objectives at both the tactical and strategic levels. This will help to assure that sales and other internal logistical systems will be integrated so as to allow all relevant internal data to be used by the MKIS. Without such planning, organizations' systems all too often evolve as independent discrete programs supporting specific operations but without interfaces and commonalities that allow the available information to be used as needed. Worse yet is the situation in which marketing managers and support personnel depend upon piecemeal development of personal, end user modules which are undocumented, involve redundant rekeying of internal data, and provide no systematic assurance of data or programming integrity.

Assuming coordination with the organization's strategic plan and the related strategic marketing plan, five broad steps of the MKIS planning process may be delineated. These steps must be viewed as elements of a dynamic process with feedback and the ability to return to earlier steps as necessary. The five steps include: (1) preparation of the organization (Cox and Goode, 1967) involving (a) obtain top management support and commitment, (b) review the marketing organization and its policies, (c) establish an organization to coordinate MKIS development, and (d) set organizational goals and expectations; (2) develop "Macro" specifications with senior staff and line managers; (3) design databases and the relationship of the MKIS to existing information systems; (4) specify and develop components including user interfaces; and (5) prototyping and incremental implementation.

Organizational Preparation

The importance of top management support and commitment is not always recognized. Even when systems development directives emanate from top management, top management may not understand the critical need for active involvement. There are several reasons why this is critical. First, MKIS development is costly in both personnel time and financial terms. During development, these resources may be demanded for other activities. Without a clear understanding of the costs, top management may send conflicting directives which result in disruption, work overloads, and low morale. Second, when the MKIS is implemented it may change approaches to decision making and have an impact on organizational culture. Because cultural change is difficult, top management's confidence in the benefits of the system must be conveyed throughout the organization. Third, the MKIS data requirements will cross departmental boundaries and political turf. Top management must resolve resulting disputes.

Top management support is also critical if the review of the marketing organization and its policies and procedures is to proceed without creating anxiety among staff members. The intention is to allow system planners to understand how information systems may facilitate and support marketing decision making and planning. This review may also lead to a revision in the marketing procedures. If so, improvements in procedures should be developed before the MKIS so as to allow coordination with the new approaches.

The third step in preparing the organization for the planning and development of the MKIS is the appointment of a team to coordinate MKIS activities. It is important that this team be led by a high level manager who has the clear confidence of top management and a firm understanding of marketing activities and strategic goals. These qualifications are more significant than expertise in computer systems. The political and resource issues require that this responsibility not be delegated to a lower level manager or to a manager who has narrow experience in the organization. Other members of the team should be selected from the departments that will use the system or be involved in the development process. Finally, the need for teamwork between the computing and marketing professionals cannot be overemphasized. Members of the MKIS development team must understand one another's needs, vocabulary, and work. Formal plans, perhaps involving outside consultants, should be made for education to remove any "us-versus-them" barriers before progress can be made.

Because useful systems often fail due to dissatisfaction resulting from unrealistic expectations, it is important that both senior managers and line managers be involved in developing realistic goals and expectations for the MKIS. Goals and expectations should focus on the technical functions desired by top management and marketing managers and realistic estimates of the time frames and resources required. By being involved in this process early on, it is more likely that management will remain committed and will be satisfied with the outcomes. Any tendency to glorify the benefits of an "ideal" system to obtain commitment and support must be avoided as must commitments to incorporate each manager's wish list of desired functions. Expectations and goals should be based on the information needs of the organization and actual decision making processes rather than on technological fascination.

Developing Macro Specifications

Macro level specifications refer to broad definitions of system capabilities required by the intended users. Macro specifications address analytical tools for planning and decision support, interfaces to internal and external data and to other systems, and general requirements for user interfaces. Marketing managers develop methods of making decisions based on available information and experience and these often reflect personal style and technique as well as formal procedures. The effective design of an MKIS requires that the planning team understand how the users of the final system will interact with the applications to be developed. Planners must also anticipate how the MKIS may change the current decision making methods and how these may change during the time that the system is being developed. The long-term nature of the project requires that the development process and system be adaptable to new user needs. The complexities of the system and the ad hoc nature of marketing inquiries may require that the design team conduct primary research into the informational and psychological methods used by the marketing managers. This will involve studying

issues faced by marketing managers and intuitively determining and graphically representing the decision making processes until all marketing decision makers verify the technical description of how decisions are made. In this phase it may be useful to have consultants conduct focus group meetings to explore the decision making processes.

In addition to specifications that reflect the decision making process, the MKIS team must design requirements that address linkages with other information systems in the organization and the accommodation of uncontrollable external data (Buzzell et al., 1969; Mayros and Werner, 1982). Internal systems may include order entry systems, inventory management, production, billing and possibly DSSs and ESSs used by other functional departments. In addition, because market planning draws on data regarding such external environmental factors as competitors, suppliers, channel members, and industry trends, subsystems will be needed to systematize the gathering and use of quantitative and qualitative environmental data. Because these requirements can result in a very extensive system, it may be necessary for marketing managers to help the team focus on the key decision making issues and to decompose the "ideal" MKIS into feasible modules which can be prioritized for phased development and implementation.

Databases and Sources

Because the MKIS will draw on both internal and external data, the MKIS plan must provide for systematic interfaces between the MKIS and existing internal data systems and flexible approaches for systematizing the coding and entry of "unsystematic" data derived from external data sources. This is to say that the decision support components of the MKIS must be "data and software independent." They cannot be constrained by decisions involving data aggregation or elimination which are made within software applications which are external to the MKIS. Further, changes in such software systems must not change the nature of the data available to the MKIS.

Internal data sources may include records derived from sales and order entry systems, manufacturing quality control, advertising monitors, telemarketing response records, leads, sales commissions, inventory patterns, and so forth. Figure 1 illustrates how such information from throughout the organization may relate to the MKIS. The ability of marketing managers to draw on such data will require that these internal information sources be developed as "relational databases" maintained at the lowest practical level of aggregation (Cox and Goode, 1967). The objective here is to avoid constraining marketing analyses to predefined categorization schemes such as geographic territories, product classes, sales teams, etc. Decision makers must be able to respond quickly to changing market dynamics and this will change the nature of analytical inquiries. The resulting hardware and software requirements may make low level of aggregation, relational databases seem inefficient to business programmers use to traditional MIS approaches. Such approaches often use hierarchical file structures which minimize data storage and CPU requirements, and are appropriate for fixed reports and tree style searches of individual records. But, hierarchial files are inefficient when applied outside of fixed reporting and may fatally constrain the analytical capabilities required by marketers.

Planning for "data and software independence" is crucial to the successful MKIS. If the MKIS databases and linkages to other systems are adequately specified, they will be able to serve not only marketing inquiries but also DSSs, ESSs and other inquiry systems throughout the organization. It will be necessary to develop a comprehensive data dictionary and to plan new file layouts and relationships to guide the creation of the necessary MKIS files. The resulting files should be stable and controlled by a high level manager. This person can serve as a data administrator to assure file security and data integrity if the logistical systems which will feed the MKIS files must be changed in the future (Laudon and Laudon, 1988).

Modifications may need to be made to the logistical systems which will provide data to the MKIS but this is not to say that these systems will have to be discarded or disrupted. Often the necessary MKIS database files may be created by inserting new output modules within existing logistical systems to allow these systems to record the necessary data files before discarding, aggregating or otherwise modifying data. Also, the process of defining the data needs of the MKIS may reveal opportunities to collect additional valuable data through the logistical systems. For example, a system for recording customer problems

might be enhanced to include the place of purchase. Where such opportunities are found, the input portions of an existing system might be enhanced without disrupting the original functions of the system itself.

Approaches to managing external data may be more difficult to specify. External data is not so easily controlled as internal data and is likely to be unsystematic. Even when regularly obtained, externally derived data may be provided in printed rather than machine readable form and may frequently be qualitative rather than quantitative. Even if quantitative, data definitions may be unclear and different sources may refer to specific information by the same names but use different definitions, if definitions are available at all. In the interest of data integrity it will be necessary to specify the critical external data elements to be maintained in systematic databases. Because organizations often do not have an explicit model of external data used in market planning and decision making, the MKIS development team may be called upon to work with the marketing department, the market research group, and product managers to create an appropriate model of external information.

MKIS Components and User Interfaces

Several authors have suggested approaches to identifying the components of an MKIS. Schoner (1975), taking a technologically based view, distinguishes application and support systems. Support systems include market research, data gathering, programming, data processing, and related activities which build the MKIS databases discussed in the preceding section. Application systems include the analytical and reporting tools which draw on those databases. Such tools would include decision and executive support systems (DSSs, ESSs), statistical analysis systems, etc.

Other writers have distinguished MKIS components from an organizational structure view. Bussell, Cox and Brown (1969), for example, separate marketing management systems, marketing information systems, and marketing support systems. Kotler (1988) has suggested a similar approach. In this approach "management system" includes organizational arrangements, position responsibilities, and planning and control procedures which will govern the analysis and presentation of information to support decisions. The support system includes procedures for acquiring, processing, retrieving, and transmitting information.

A third approach distinguishes the functional areas of the marketing organization. O'Brien (1988) has used this approach to suggest six MKIS functional areas; sales order processing, sales management, advertising and promotion, sales forecasting, market research, and marketing management control. Although in this paper the sales order entry system is viewed as external to the MKIS, O'Brien's approach sensitizes the reader to the need to consider the organization's functional divisions which may have different data, analysis, and reporting requirements.

Adequate specifications of systems components will require consideration of control components, data acquisition support components, application components, system users (including their functional positions), and user interfaces. Such a model is presented in abbreviated form in Figure 2. Control components address system management responsibilities and the organizational and technical systems that will govern system access, data integrity, and system security. This aspect of the system is represented in Figure 2 by the MKIS Administrative Group. It is useful to consider two major types of controls: system controls and procedural controls. System controls may be manual or computerized and are designed to ensure that data are entered, processed, and reported in an accurate, relevant, and error free manner. These controls include such techniques as entry logs, control totals, data item range checks, multi-dependent item record validation, and checkpoints. System controls may be subdivided into input, processing, output, and storage control methods. Procedural controls specify how personnel and related departments interact with the system with regard to data accuracy and security, and program development. Procedural controls define methods for inter-departmental data sharing, quality control monitoring, documentation, program review and approval, system backups, and data archives.

Support systems for data acquisition address the technological interfaces and personnel work assignments that allow the MKIS to draw on internal data from throughout the organization and provide for the systematization and entry of external data. These components link the organization's logistical systems to the MKIS databases. An internal data acquisition

component is noted in Figure 2. Similarly, work assignments and data entry programs for external environmental data are data acquisition support components which will operate in conjunction with appropriate systems controls to assure accurate data entry.

Application components cover the range of subsystems which marketing professionals will use to access MKIS databases and carry out the necessary inquiries, analyses, report writing, and graphical displays. Forecast models, statistical packages, graphics and report generators, simulations, expert systems, and decision support systems may all be considered potential application components of an MKIS. The specific components to be implemented will be determined in the MKIS plan. Because the objective of the system is to provide information to marketing managers to support decision making, decision making users may be seen as components of the system. All other components must be compatible with the users for the system to be effective. Planning and development activities must therefore consider the needs of marketing users in their respective functional (i.e. department) areas, and the desired user interfaces and system outputs.

Specifications of user interfaces must consider: (1) who will be the users and their functional and managerial positions, (2) how the MKIS analytical and output capabilities will affect decision making process, and (3) issues related to computer literacy such as familiarity with computer systems, principles of information systems, training needs, and documentation, and (4) current computer tools. Although the current tools may be isolated microcomputer approaches developed by end users, these "systems" can be a good starting point from which to consider user interfaces and output capabilities. The proposed MKIS must not be perceived as taking capabilities away or making work more difficult. Ideally, the MKIS will be seen as an enhancement to current approaches and developers should try to build on those methods.

User friendly interfaces that demand minimal computer literacy will enhance acceptance. Today, friendly interfaces have become synonymous with menu and icon presentation systems which allow users to carry out eclectic inquiries with minimal training. Such approaches are especially valuable since they can, if well planned, guide the analytical process. However, the underlying systems and the options presented must be sufficiently flexible so as not to constrain the user's analytical approach or the decision making process.

While a totally flexible system cannot be developed, careful understanding of the eclectic nature of marketing information analysis will help developers to incorporate software options that will meet most needs or to plan for system interfaces to special 4GL analytical and reporting tools desired by the users. It may often be most efficient to provide 4GL software packages for many of the desired analytical, reporting and graphics capabilities.

Implementation Procedures and Stages

The comprehensive MKIS system development approach described in this paper will be an extensive, long-term effort. The work of marketing planning and management must continue during this process and many of the information system needs of marketing managers cannot realistically await the development and installation of an entire system. Fortunately, efficient systems development will involve modularization of the operational components. Once the critical data bases have been defined, programming of individual component modules may proceed independently. This offers the possibility that after holistic system planning, the MKIS may be developed in a modular, phased-in manner. The primary components needed to support marketing management can be developed and implemented first. This has the advantage of providing significant benefit to marketing decision making in a shorter time frame and of allowing decision makers to work with and recommend modifications to components before additional work is done on other system modules.

Early in the actual development process, prototypes of modules, user interfaces and output samples should be developed and tested with real users. This will allow user interfaces to be improved to assure comfortable acceptance during actual implementation. The experience of working with prototypes also allows users to clarify their needs and requirements. Such sample "systems" can alert users and developers to misunderstandings which may have occurred during the planning and specification process. After

prototype testing, developers may proceed with programming actual modules to be brought on line as they become available.

Successful implementation will also require user training. Ideally, users of the MKIS will have been involved in the design stage as sources of information and in some cases as members of the design team. Other users will have been exposed to system modules during prototyping and testing. Nonetheless, formal training should be planned for all users to assure that system modules are well received, to set expectations, and to obtain feedback for improvements. In some cases user training may have to be carried out on a one-on-one basis. This is likely to be the case when higher level managers are involved. Adequate user training and acceptance will also require that users be provided with well developed documentation written in language which reflects their own work rather than the jargon of information systems. Details of training will be forgotten, but manuals will always be a critical reference tool.

Once modules have been brought "on-line" and are being used by the marketing professionals, the implementation process should continue with formal efforts to assess user satisfaction, to identify "bugs," and to provide such further training as may be necessary to support individual users. User support should be planned as an ongoing effort to be monitored by the MKIS administrator and coordinated with the professional MIS staff. Where possible, ongoing user training should be carried out by members of the marketing staff experienced with the relevant modules. Such peer support may be particularly helpful at lower management levels but may be more problematic at higher levels.

SUMMARY

Marketing information systems are potentially valuable resources for organizations faced with competitive and changing environments. The complexities of marketing environments today often require that managers develop plans and make tactical decisions based on a wide variety of internal and external data sources, and use complex analytical procedures. As organizations grow and expand product lines, markets, and distribution channels, the need for formal analytical support tools and rapid data access increases. Information systems advances involving approaches to systems planning and development, and technical aspects of hardware and software, offer great potential for marketing professionals. Achieving this potential will require that marketing professionals work closely with the organization's information systems specialists to plan, develop, and implement ongoing systems that allow marketing managers to make the best use of available data in a timely and efficient manner. The conceptual frameworks and development processes reviewed in this paper offer a model to guide the coordinated work of marketing managers and information systems professionals. But this is only a model. Each organization must work to identify its own information needs and the processes and procedures by which decisions are made.

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ANALYZING THE GOLD MARKET

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ABSTRACT

A gold price rule as a guide to monetary policy has received much attention in recent years. Because gold is a commodity it's price is subject to supply and demand forces. This analysis attempts to estimate a long-run supply curve for gold. The results indicate that the long-run gold supply curve is highly inelastic. This suggests that the gold market is largely demand driven. If a strong relationship exists between gold demand and expected inflation, then monetary policy tools have a definite link to gold prices.

INTRODUCTION

In the last ten years, the use of a short-term "price rule" as a guide to formulating monetary policy in the United States has received much attention (Genetski, 1982; Hafer, 1983; Garner, 1985; Cayton, 1986). More recent attention on such a policy has been connected with the efforts to create a convertible ruble in the Former Soviet Union (Angle, 1992; Brooks, 1992; Hanke, 1992; Shelton, 1990; Shelton, 1991). Such a price rule requires that the monetary authority attempt to maintain a chosen price index within a particular range by varying the stock of money to offset short-term price changes (less than a year). Popular among such suggestions is to choose a group of commodities or a single commodity, such as gold, whose market price(s) are considered to be a determinant or leading indicator of the general degree of prices within a narrow range. The commodity price(s) would represent an intermediate target for monetary policy with the ultimate objective being long-run price stability.

Because of the auction nature of commodity markets, sensitive commodity prices respond quickly to aggregate supply and demand conditions. Commodity prices may thus reflect a broad range of macroeconomic information. There are also direct linkages between commodity markets and the aggregate economy. The production of commodities affects real income and aggregate expenditures. Monetary policy influences real economic activity which in turn affects the current consumption and industrial use of commodities. Policy action also affects interest rates and expected inflation which affects the expected return on commodities such as gold (Garner, 1985).

The intent of this paper is to examine one specific commodity market--the market for gold. The linkage between the aggregate money supply and the price of gold is not well understood. Such an understanding is essential before any consideration of a price rule concerning gold can be made. The first step in discovering these linkages is to examine the nature of the gold market itself since gold prices, like those of all commodities, are subject to supply and demand considerations. Specifically, in this paper I will attempt to estimate the long-run supply curve for gold. At a later date I will extend this study to an estimation of the long-run demand curve for gold.

DATA BASE

Demand and supply data on the global gold market is prepared on an annual basis by Consolidated Gold Fields PLC, London. No other source is believed to prepare and distribute more frequent or more complete data. This study will rely very heavily on this data. The period under consideration will be 1972-1990. This period reflects the free market for gold that evolved after the central bank gold pool was broken up in 1968 and the United States ended official convertibility between gold and the dollar in August 1971. U.S. annual GDP is used as a proxy for Western World income. The average annual yield on ten year U.S. Treasury bonds is used as a proxy for expected inflation.

THE MODEL

In attempting to estimate a long-run supply curve for gold, the identification problem, originally analyzed by Working (1927), must be addressed. Since markets can be assumed to clear, the observed data points corresponding to price and quantity supplied and quantity demanded are actually observed intersection points of short-run supply and demand curves. Scatter diagrams of these points do not mark out aggregate supply or aggregate demand curves, but the points at which they intersect.

The identification problem can be dealt with by using a model of simultaneous equations. The positions of the supply and demand curves in each period are determined by shifting the true supply and demand curves by the amount of their respective disturbances for that period. We can estimate the true supply curve by introducing exogenous variables into the demand equation. The demand function now shifts in response to changes in the exogenous variables as well as to changes in the disturbance term. This creates a scatter of observations that may allow us to identify the supply curve (Kennedy, 1987, pp. 129-130).

In simultaneous-equation models there are a number of endogenous variables and a number of exogenous or determining variables. Consider the following model for the gold market:

$$q = a_1 + b_1p + c_1y + d_1 + u_1 \quad \text{demand function [1]}$$

$$q = a_2 + b_2p + u_2 \quad \text{supply function [2]}$$

In this model q is the quantity of gold, p is the price of gold, y is United States GDP, r is the yield on ten year United States Treasury bonds and u_1 and u_2 are the disturbance terms. Here q and p are the jointly determined endogenous variables and y and r are the determining variables that will shift the demand curve. GDP is included to reflect the effect of real economic activity on the demand for gold. The interest rate is included to reflect the effect of expected inflation on the demand for gold. In this model the demand function is over-identified and the supply function is just identified. An equation is just identified if the number of identifying restrictions placed on the model is the minimum needed to identify the equation; an equation is over-identified if there are some extra restrictions beyond the minimum necessary to identify the equation (Kennedy, 1987, p. 131).

If we solve equations [1] and [2] for q and p in terms of y and r we get:

$$q = (a_1b_2-a_2b_1/b_2-b_1) + (c_1b_2/b_2-b_1)y + (d_1b_2/b_2-b_1)r$$

$$p = (a_1-a_2/b_2-b_1) + (c_1/b_2-b_1)y + (d_1/b_2-b_1)r$$

$$\text{or} \quad q = \pi_1 + \pi_2y + \pi_3r \quad [4]$$

$$p = \pi_4 + \pi_5y + \pi_6r \quad [5]$$

We can now use the indirect least squares method to estimate the supply curve. Estimating equations [4] and [5] using OLS methods gives us two estimates of a_2 and b_2 in the supply function equation [2]. For each of these, the estimate of a_2 is $\hat{a}_2 = \hat{\pi}_1 - \hat{b}_2\hat{\pi}_4$. The two estimates of b_2 are $\hat{b}_2 = \hat{\pi}_2/\hat{\pi}_5$ and $\hat{b}_2 = \hat{\pi}_3/\hat{\pi}_6$. These two estimates need not be equal (Maddala 1977, pp. 220-222).

RESULTS

Before estimating equations [4] and [5], the data on gold prices was converted to price per ton to be consistent with the supply and demand data. All of the data was then converted to log linear form so the elasticity of the supply curve could be estimated.

In an efficient market, the market should clear in such a way that quantity supplied equals quantity demanded. Because of estimates used in determining some components of quantity demanded and quantity supplied of gold, the two quantities are not the same for the various years. For this reason the quantity equation was estimated using first quantity supply and then quantity demanded.

The following are the estimates for the two equations. The t-ratios are in parenthesis.

		Adjusted R-squared	
q_s = -6.68327 + 1.76921y - .202622r		.90259	
(-6.123)	(12.866) (-2.324)		[6]
q_d = -5.89218 + 1.67904y - .216844r		.90518	
(-5.791)	(13.097) (-2.668)		[7]

$$p = 1.42854 + 2.59756y + 1.55490r \quad .84613 \quad [8]$$
$$(.419) \quad (6.054) \quad (5.717)$$

All of the coefficients, except for the intercept term in equation [8], are significant at least at the 5 percent confidence level. As can be seen above, there was not a significant difference when using either the supply or demand data. Since Consolidated Gold Fields used more estimated components in constructing the data on gold demand, it was decided to use equation [6] in estimating a_2 and b_2. The following two estimates of b_2 were found:

$$\hat{b}_2 = \hat{\pi}_2/\hat{\pi}_5 = 1.76921/2.59756 = .68110$$

or

$$\hat{b}_2 = \hat{\pi}_3/\hat{\pi}_6 = -.202622/1.55490 = -.13031$$

The estimate for a_2 is $\hat{\pi}_1 - \hat{b}_2\hat{\pi}_4$. Since we have two estimates of b_2, we also have two estimates of a_2:

$$\hat{a} = \hat{\pi}_1 - \hat{b}_2\hat{\pi}_4 = -6.68327 - .68110(1.42854) = -7.65625$$

or

$$\hat{a} = \hat{\pi}_1 - \hat{b}_2\hat{\pi}_4 = -6.68327 - (-.13031)1.42854 = -6.49712$$

The results of the estimation of b_2 in the supply function gives of two estimates of b_2. The first, $\hat{b}_2 = .68110$, suggest that while very inelastic, the long-run supply curve for gold is a normal upward sloping curve. The second estimate, $\hat{b}_2 = -.13031$, suggest a highly inelastic downward sloping long-run supply curve for gold. If this were the case it would certainly make the gold market unique. Without supporting evidence that the gold market is indeed unique, the first estimate of b_2 seems the most compelling. The corresponding a_2 is -7.65625. Thus, the estimated long-run supply curve is:

$$q = -7.65625 + .68110p + u_2$$

CONCLUSION

A highly inelastic long-run supply curve for gold would suggest that the amount of gold supplied in the Western World market is not very responsive to changes in price. It also suggests that relatively small changes in the demand for gold could elicit relatively large changes in gold prices. This tends to support contentions that the gold market is largely demand driven (Sherman, 1986). This is a highly significant finding. Since gold holdings do not pay interest, some components of gold demand--specifically gold bullion and gold coin demand--stem primarily from attempts to hedge against expected inflation. This suggests a strong link between monetary policy tools and the price of gold.

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BACK TO THE BASICS OF HOUSEHOLD DECISION MAKING

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ABSTRACT

Given changes in American society, tied to the baby-boom, an age-cohort analysis of marital roles and values is needed. This study explores differences in allocation of nineteen tasks between husbands and wives and differences in instrumental and terminal values between two cohorts of importance to American marketers--the baby-boom cohort and their predecessor cohort in a national probability sample of 440 usable questionnaires with complete item response. Differences appeared in role specialization (table setting, dish washing, floor, bathroom cleaning, and grocery shopping) and values (cleanliness, broad-mindedness, and imagination, happiness, mature love, and social recognition).

INTRODUCTION

Given the changes in American society since World War II, which have been often tied to the large number of members of the baby-boom and the strong influence of their behaviors, an age-cohort approach to the analysis of marital roles and values would appear to be warranted. Have the aging baby-boom families allocated household tasks between husbands and wives any differently from their predecessors? Are the values of the baby-boom families any different from their predecessors? Has egalitarianism between the sexes increased or not?

LITERATURE REVIEW AND DEVELOPMENT OF HYPOTHESES

The study of household decision making has a long pedigree in both consumer and family research. A classic review of household decision making, which is still the foundation for present thought, appeared as early as the 1970s (Davis, 1976) in the marketing literature. The seminal empirical study of marital role perceptions in marketing (Davis and Rigaux, 1974) was also conducted in the 70s. The basic four-way classification of marital roles into autonomic, syncratic, wife dominant, and husband dominant and the corresponding four-part triangle which displays the relative influence of husbands and wives as well as the extent of role specialization between husbands and wives still inform modern thought on this subject.

Newer directions in household decision making have included: the variability in female roles in decision making (Green and Cunningham, 1975); the determinants of influence including the impact of presence of children and husband's income (Filiatrault and Richie, 1980), sex role, sex role attitude and education in modern families (Schaninger, Buss, and Grover, 1982; Rosen and Granbois, 1983; Meyers-Levy, 1988), wife's employment and income (Strober and Weinberg, 1977; Spiro, 1983; Schaninger and Allen, 1981); the contribution to household decision making of adolescents (Foxman, Tansuhaj, and Ekstrom, 1989); and, most comprehensively, a theoretical model of the process of household decision making (Qualls, 1987) and a review of the modern literature (Moore-Shay and Wilkie, 1988).

Most importantly, for this study, the differences expected in modern families because of working wives, level of income, presence of children, and influence contributed by children and others are all parts of the behavior and characteristics of the baby-boom cohort in contrast to their predecessors. Cohorts have already been employed in family studies (Uhlenberg, 1974; Borland, 1982; White, 1984). To all appearances, there is no family decision making study in the marketing literature yet that focuses on the differences between the baby-boom families in contrast to their predecessors, although the activities and purchase patterns of the baby-boom segment are frequently tracked.

Underlying cohort analysis is the assumption that the experiences and values of age groups who are born in roughly the same period and then grow up together will make them more similar to each other than they are to other age groups--or, that the individual year of birth is not as important as the generation in which one is born. Cohort analysis and values analysis should therefore be interrelated. In the consumer behavior literature, since the adoption of Rokeach's sets of instrumental and terminal values (1968) by marketing scholars (Vinson, Scott, and Lamont, 1977) and of other approaches to the measurement of cultural values (Henry, 1976), the study of cultural values has assumed increasing importance. Currently, the direction is towards differences in values by subculture (Valencia, 1989).

The purpose of the present study is to explore the differences in perception of marital roles and in subcultural values for two age cohorts of great importance to marketing--the baby-boom cohort and their predecessors' cohort by examining the role allocation of nineteen household tasks and the relative importance of Rokeach's instrumental and terminal values to the two groups.

Three compound hypotheses can therefore be framed, as follows:

H1: There is no difference between the baby-boom cohort and the predecessor cohort in task allocation.

H2: There is no difference between the baby-boom cohort and the predecessor cohort in instrumental values.

H3: There is no difference between the baby-boom cohort and the predecessor cohort in terminal values.

The values will than be used to guide interpretation of the allocation of household tasks in the two cohorts.

METHODOLOGY

A national probability sample was collected by mail with one follow-up for U.S. households from married female respondents in order to study the changing patterns of marital roles and values. Out of the 1,788 questionnaires sent, there were 551 usable responses. After weighting duplicate responses and males respondents, there were 477 usable responses (440 with complete item response of questions used in the present study). Since the defining segmentation variable in the present study was respondent's cohort membership in the baby-boom (1946-1964) or the predecessor cohort, respondents who did not indicate age (n = 14) and respondents who were in a younger cohort (n = 23), were eliminated. Therefore, there were 440 respondents in the present study, with 248 in the baby-boom cohort and 192 in the predecessor cohort. Given the smallness of the sample size, the base will vary slightly during the analysis because of item non-response.

Table 1 provides a profile of the two cohorts. There are significant differences in major demographic characteristics for the two cohorts, as indicated by the probability of the chi-square statistic at values lower than .10 on family composition, race of respondent, household income, reason for respondent's unemployment and reason for spouse's unemployment. The baby-boom cohort has more children still at home; has more minority respondents; has more families in higher income categories; has fewer wives who are unemployed and, of these, more wives who define themselves as homemakers, students, or between jobs rather than as homemakers or retired; and has fewer spouses who are unemployed and, of these, more spouses who define themselves as between jobs and/or ill or disabled and fewer who define themselves as retired. The presence or absence of children and the labor demands on husbands and wives when both are working are important differences to note, since these will likely affect the allocation of household tasks.

In addition to the standard demographics discussed above, three sets of variables are important to this study. The study used Rokeach's two sets of 18 instrumental and 18 terminal values to measure the respondent's cultural values, but with a 5-point rating scale (1= not at all important and 5 = very important), rather than as a ranking in order to reduce the respondent's effort and to increase response rate. The third set of variables defined 19 common household tasks as follows: help with child's homework, disciplining children, playing with children, talking care of sick children, shopping for groceries, actual cooking, setting the table, washing dishes after a meal, cleaning the kitchen afterwards, cleaning the floors, cleaning the bathroom, cleaning

the stove or oven, vacuuming the carpets, cleaning the yard, gardening activities, repairing things, maintaining the check book, preparation of taxes, and budgeting household finances. These tasks are common in consumer and household research as well as among American families, in general, and American subcultural families. Each respondent was asked to indicate the degree of role specialization using the response categories, which could parallel those of Davis and Rigaux (1974), as follows: 1 = always husband; 2 = mostly husband; 3 = husband and wife equal; 4 = mostly wife; and 5 = always wife. In addition, two off-scale response categories were added to reflect the increasing importance of children's, friends', domestic workers', and others' influence, as follows: 7 = employees and 8 = other people. In order to display the aggregate results in the triangular style of Davis and Rigaux (1974), which can distinguish the extent of role specialization among husbands and wives as a percentage (from 0% to 100%) of tasks which are equally shared by the two marital roles, and which can distinguish the relative influence of husbands and wives on a three point mean rating scale (1 < 1.5 = husband dominant; 1.5 - 2.5 = joint or syncratic; > 1.5 - 3 = wife dominant), the 5-point scale was collapsed to three points and the off-scale responses were re-coded as zero, in order not to inflate the mean response on each of the nineteen tasks. Since families may use the labor of children, employees, or others instead of just husbands and wives and, by so doing, they may affect the roles allocated to husbands and wives, the aggregate percentage of others' role specialization was not eliminated.

RESULTS

Table 2 reports the results of the nineteen cross-tabulations of the rating (0, 1, 2, or 3) for each of the tasks against the two age cohorts (predecessor or baby-boom). Item non-response causes slight shifts in the valid number responding to each task. The relative influence column shows the mean rating for each task for the amount of influence generally exerted by husbands versus wives. The extent of the joint H/W role specialization column shows the percentage of respondents reporting equal participation. The extent of the other's role specialization column shows the spread of the labor away from husbands and wives to others. The last column shows the probability of the chi-square statistic that there is a difference in the mean rating on participation in the task for the two cohorts.

This relative influence of H/W column also corresponds to the vertical axis in Figure 1. Tasks which fall into the husband dominant category have a mean rating lower than 1.5. Tasks which fall into the autonomic category have a mean rating from 1.5 to 2.5, and fewer than half the respondents report equal participation. Tasks which fall into the syncratic category also have a mean rating from 1.5 to 2.5, but half or more than half of the respondents reporting equal participation. Finally, tasks which have a mean rating higher than 2.5 fall into the wife dominant category. The originating point of the arrow reflects the mean rating on the task for the predecessor cohort and the head of the arrow reflects the mean rating on the same task for the baby-boom cohort, in order to more clearly display the role differences between the two cohorts.

As Table 2 indicates, only five of the nineteen tasks show a significant difference at the .10 level for the two cohorts: shopping for groceries, setting the table, washing the dishes, cleaning the floor, and cleaning the bathroom. The baby-boom wives are more dominant than their husbands in comparison to predecessor wives in shopping for groceries, cleaning the floor, and cleaning the bathroom, even though more of them are working outside the home. The baby-boom wives are receiving more help from their husbands in setting the table and washing the dishes, in comparison to predecessor wives, however.

As Tables 3 and 4 indicate, there are also some differences in values between the two cohorts which may help to explain the household task role shifts. On three of the eighteen terminal values and three of the eighteen instrumental values, there are significant differences on the two-tailed t-statistic for the two cohorts. Baby-boom cohort respondents have a higher mean than respondents in the predecessor cohort on the terminal values of happiness and mature love, and a lower mean on the terminal value of social recognition. Baby-boom cohort respondents also have a higher mean on the instrumental value of being imaginative, but a lower mean on being broad-minded and clean.

DISCUSSION AND SUGGESTIONS FOR FUTURE RESEARCH

The increase in amount of wife dominance can be interpreted in different ways: 1) egalitarianism between the sexes is backfiring and baby-boom wives are having to shoulder an even heavier burden of household tasks (with the husbands increasing their help only on the tasks which involve relatively little energy--setting the table and washing dishes), 2) baby-boom wives may be accomplishing more tasks but putting less effort into them (lessening the importance of the value of cleanliness or perhaps even entertaining less and downplaying the importance of social recognition), or 3) baby-boom husbands may not be more egalitarian at all and baby-boom wives may be enlisting children or others to set the table and wash the dishes (the percentages on others' role specialization for these activities could help to explain why wife dominance in these activities is falling).

The differences in cultural values are suggestive, but certainly not conclusive, of these possibilities. Future research could use more context-specific values instead of global values to test the linkage between values and role allocation directly. Similarly, more research is needed on the children's participation in household tasks. In this study, there were too few minority respondents to analyze marital roles and values for subcultures other than age cohort; however, future research could be addressed to role and values differences by subculture, as well.

This study could not address true longitudinal differences in the cohorts. Therefore the different demographic characteristics of the two age cohorts could be confounding its results. In addition, attitudinal and lifestyle variables, which were not included, could help to provide insight into why these differences in values and marital roles have occurred. In these sense, this study must be seen as exploratory groundwork for later research, rather than as conclusive.

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TABLE 1
PROFILE OF SAMPLE IN TWO COHORTS:
FAMILIES OF THE BABY-BOOM AND THEIR PREDECESSORS

CHARACTERISTICS OF SAMPLE	FAMILIES IN TWO COHORTS		PROB. OF CHI-SQUARE
	Predecessor	Baby-Boom	
NUMBER OF RESPONDENTS	187	244	
FAMILY COMPOSITION			
% with child < 5	1.0	30.7	.00000
% with child 6-11	2.1	43.2	.00000
% with child 12-17	9.4	41.6	.00000
RACE OF RESPONDENT			
% White	91.1	89.7	
% Black	1.1	2.6	
% Hispanic	1.1	3.9	
% American Indian	0.0	0.4	
% Asian	0.6	1.3	
% Other	6.1	2.2	.09081
HOUSEHOLD INCOME			
% 0-5,000	1.6	0.9	
% 5,001-10,000	3.1	2.2	
% 10,001-20,000	11.8	5.6	
% 20,001-30,000	24.3	14.4	
% 30,001-40,000	15.3	24.7	
% 40,001-50,000	9.3	13.7	
% 50,001-60,000	9.3	12.4	
% 60,001-75,000	9.3	11.2	
% 75,001-100,000	8.4	9.4	
% 100,001 and up	7.5	5.4	.04434
# UNEMPLOYED RESPONDENTS	116	79	
% between jobs	0.0	6.3	
% student	0.0	6.3	
% home maker	45.0	82.3	
% retired	48.9	0.0	
% ill or disabled	2.6	1.3	
% other	3.5	3.8	.00000
# UNEMPLOYED SPOUSES	98	18	
% between jobs	2.6	50.0	
% student	0.0	0.0	
% home maker	0.0	0.0	
% retired	82.6	11.1	
% ill or disabled	11.8	27.8	
% other	3.1	11.1	.00000

TABLE 2
PERCEPTION OF MARITAL ROLES IN NINETEEN HOUSEHOLD TASKS IN TWO COHORTS
FAMILIES OF THE BABY-BOOM AND THEIR PREDECESSORS

HOUSEHOLD TASK BY FAMILY COHORT	VALID N	MISSING N	RELATIVE INFLUENCE OF H & W	EXTENT OF JOINT H/W ROLE SPECIALIZATION	EXTENT OF OTHER'S ROLE	PROBLEM OF CHI-SQUARE
1 HELP WITH HOMEWORK						
Predecessor	132	60	2.504	36.1%	1.7%	.48883
Baby-Boom	189	60	2.444	42.1	1.6	
2 DISCIPLINE CHILD						
Predecessor	128	64	2.315	59.1	0.0	.79687
Baby-Boom	212	37	2.238	60.6	0.5	
3 PLAY WITH CHILD						
Predecessor	128	64	2.313	59.4	0.0	.87376
Baby Boom	212	37	2.269	59.4	0.9	
4 TEND SICK CHILD						
Predecessor	127	65	2.692	27.7	1.5	.26141
Baby-Boom	215	34	2.795	18.1	0.5	
5 SHOP GROCERIES						
Predecessor	182	10	2.490	30.0	0.6	.01603
Baby-Boom	243	6	2.663	18.9	0.0	
6 ACTUAL COOKING						
Predecessor	182	10	2.777	14.0	0.6	.40645
Baby-Boom	240	9	2.706	14.0	0.4	
7 SET TABLE						
Predecessor	181	11	2.623	22.7	2.8	.00000
Baby-Boom	239	10	2.098	15.7	23.4	

TABLE 2
(continued)

HOUSEHOLD TASK BY FAMILY COHORT	VALID N	MISSING N	RELATIVE INFLUENCE OF H & W	EXTENT OF JOINT H/W ROLE SPECIALIZATION	EXTENT OF OTHER'S ROLE SPECIALIZATION	PROBLEM OF CHI-SQUARE
8 WASH DISHES						
Predecessor	181	11	2.529	30.5	1.7	.00094
Baby-Boom	239	11	2.333	20.5	10.5	
9 CLEAN KITCHEN						
Predecessor	183	9	2.696	17.3	1.1	.31930
Baby-Boom	241	9	2.588	17.7	4.0	
10 CLEAN FLOOR						
Predecessor	187	5	2.381	12.1	10.2	.01694
Baby-Boom	243	6	2.636	10.5	6.2	
11 CLEAN BATHROOM						
Predecessor	187	5	2.501	12.3	9.7	.06641
Baby-Boom	244	6	2.653	6.6	8.0	
12 CLEAN OVEN						
Predecessor	187	5	2.558	7.8	7.5	.72420
Baby-Boom	243	6	2.650	6.6	5.3	
13 VACUUM CARPET						
Predecessor	184	8	2.291	19.3	9.2	.11631
Baby-Boom	239	11	2.442	18.7	8.6	
14 CLEAN YARD						
Predecessor	175	17	1.454	27.7	8.6	.71586
Baby-Boom	237	13	1.372	25.8	11.8	

TABLE 2
(continued)

HOUSEHOLD TASK BY FAMILY COHORT	VALID N	MISSING N	RELATIVE INFLUENCE OF H & W	EXTENT OF JOINT H/W ROLE SPECIALIZATION	EXTENT OF OTHER'S ROLE SPECIALIZATION	PROBLEM OF CHI-SQUARE
15 GARDENING						
Predecessor	172	20	1.747	28.2	5.2	.21374
Baby-Boom	230	20	1.810	36.2	6.5	
16 REPAIR THINGS						
Predecessor	182	20	1.082	9.9	11.0	.31220
Baby-Boom	240	10	1.171	15.0	7.5	
17 KEEP CHECKBOOK						
Predecessor	187	5	2.316	16.4	0.5	.53595
Baby-Boom	243	6	2.387	18.1	0.0	
18 PREPARE TAXES						
Predecessor	185	7	1.439	12.5	19.0	.99199
Baby-Boom	243	6	1.432	13.2	18.5	
19 BUDGETING						
Predecessor	181	11	2.249	34.6	0.6	.57819
Baby-Boom	241	8	2.201	35.5	0.0	

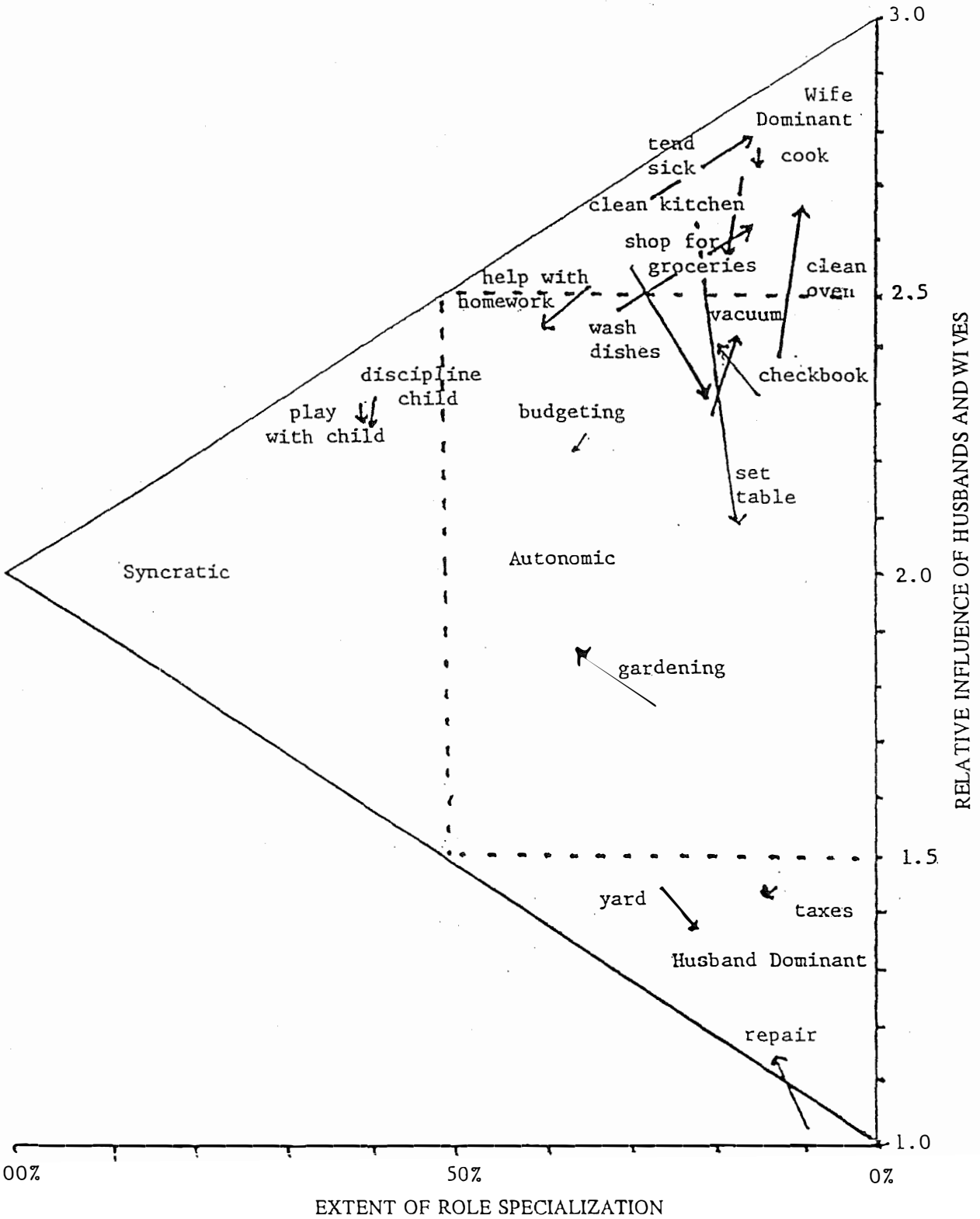
TABLE 3
PROFILE OF TERMINAL VALUES IN TWO COHORTS:
FAMILIES OF THE BABY-BOOM AND THEIR PREDECESSORS

TERMINAL VALUE	FAMILIES IN TWO COHORTS				2-TAIL PROB. OF T-VALUE
	Predecessors		Baby-Boom		
	N	MEAN	N	MEAN	
1 A comfortable life	189	4.2149	244	4.3135	.204
2 An exciting life	186	3.8032	244	3.8791	.428
3 A sense of accomplishment	186	4.2830	243	4.3292	.584
4 A world at peace	188	4.6373	243	4.5844	.473
5 A world of beauty	188	4.2320	242	4.1116	.197
6 Equality	186	4.3774	244	4.3750	.979
7 Family security	188	4.7813	244	4.8586	.164
8 Freedom	186	4.7089	244	4.7336	.711
9 Happiness	188	4.6347	242	4.7562	.066
10 Inner harmony	186	4.6280	243	4.6029	.721
11 Mature love	184	4.3951	240	4.6063	.007
12 National security	186	4.6146	242	4.4339	.021
13 Pleasure	186	4.1267	241	3.9793	.109
14 Salvation	184	4.2534	242	4.1054	.213
15 Self-respect	189	4.7321	242	4.7169	.806
16 Social recognition	185	3.6694	243	3.4835	.070
17 True friendship	189	4.5119	243	4.5288	.813
18 Wisdom	189	4.5146	243	4.3930	.103

TABLE 4
PROFILE OF INSTRUMENTAL VALUES IN TWO COHORTS:
FAMILIES OF THE BABY-BOOM AND THEIR PREDECESSORS

INSTRUMENTAL VALUE	FAMILIES IN TWO COHORTS				2-TAIL PROB. OF T-VALUE
	Predecessors		Baby-Boom		
	N	MEAN	N	MEAN	
1 Ambitious	189	4.1698	247	4.2773	.178
2 Broad-minded	188	4.3979	248	4.2601	.060
3 Capable	189	4.5040	248	4.5343	.628
4 Cheerful	192	4.2812	247	4.2551	.733
5 Clean	191	4.3629	247	4.2024	.045
6 Courageous	191	4.5171	248	4.4496	.323
7 Forgiving	191	4.4777	246	4.4085	.337
8 Helpful	192	4.3316	247	4.7915	.719
9 Honest	192	4.7728	247	4.7915	.719
10 Imaginative	190	3.7388	247	3.9008	.078
11 Independent	191	4.4199	247	4.3482	.338
12 Intellectual	191	4.2625	246	4.2215	.596
13 Logical	189	4.3156	245	4.2551	.434
14 Loving	190	4.6016	246	4.6689	.257
15 Obedient	192	3.9817	245	3.8959	.378
16 Polite	192	4.5091	246	4.5203	.866
17 Responsible	192	4.7467	247	4.7692	.661
18 Self-controlled	192	4.4569	246	4.3943	.381

FIGURE 1


3.0
Wife Dominant
tend sick
cook
clean kitchen
shop for groceries
clean oven
help with homework
2.5
vacuum
wash dishes
checkbook
discipline child
play with child
budgeting
set table
Syncratic
Autonomic
2.0
gardening
1.5
yard
taxes
Husband Dominant
repair
1.0
100%
50%
0%
EXTENT OF ROLE SPECIALIZATION
RELATIVE INFLUENCE OF HUSBANDS AND WIVES

LEASE ACCOUNTING AND OFF-BALANCE-SHEET FINANCING: ECONOMIC EFFECTS AND IMPLICATIONS

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ABSTRACT

In light of continuing interest in off-balance-sheet financing, this study explores the economic impact of the 1970s changes in lease disclosure requirements. The research issues consider shifts in systematic risk and the association of these shifts with lease capitalization under SFAS 13. Econometric modeling is used to explain these risk shifts using underlying economic and financial variables. Results indicate that among lease noncapitalizing firms a grater number of significant risk shifts occurred than among lease capitalizing firms, and that two variables were significant in explaining these shifts: the amount of noncapitalized leases prior to SFAS 13, and changes in the debt/equity ratio. This supports the inference that managers of affected firms reduced their debt/equity ratios in an attempt to disguise the effects of lease capitalization. These actions may have undesired consequences. This finding will be important to financial statement users as off-balance-sheet financing is restricted in the future.

INTRODUCTION

Few accounting issues drew as much attention or created as much debate as accounting for lease disclosures in the late 1970s. The most significant aspect of the lease issue was the controversial ability of companies to use leases as a means of off-balance-sheet financing. Recently, because of new financial maneuvers, off-balance-sheet financing continues to be a highly controversial area in the standard setting arena. Since the debt to equity mix in the capital structure of the company affects the risk of the firm (Hamada, 1972; Beaver, et al., 1970), serious questions have been raised about the adequacy of accounting disclosure in this area. As a result, financial instruments and off-balance-sheet financing continue to be important agenda items for the Financial Accounting Standards Board (FASB). In light of the continuing interest in off-balance-sheet financing, a reexamination of the economic impact of the changes in lease disclosure requirements is warranted. This should be particularly useful to investors, creditors and labor unions who are the consumers of the financial statements of affected companies. Corporate financial decision makers, as well, should take heed as they measure their response to future changes in their ability to use off-balance-sheet financing.

BACKGROUND

Off-balance-sheet financing, in its various forms, allows a company to keep both assets and liabilities from being reported on the balance sheet. However, the real effect is more difficult to assess. Whether lenders, investors and other financial statement users ignore or utilize information about off-balance-sheet debt financing may depend on several considerations, including the nature and extent of disclosure. It is clear, nevertheless, that the management of many companies behave as though such debt is going to be ignored. If users rely on accounting-based indicators of financial risk, failure to include off-balance-sheet debt distorts the financial statement.

During the early 1970s leasing was the most common way for companies to use off-balance-sheet financing. Beginning with the SEC's Accounting Series Release 147 (ASR 147), and continuing with the FASB's Statement of Financial Accounting Standards (SFAS) 13, lease accounting was the focus of increasing attention from the business and financial community as well as the accounting profession.

In 1973, the SEC released ASR 147, its major pronouncement on lease accounting. Although the disclosures mandated by ASR 147 were quite significant, they were not part of the primary financial statements, and leasing remained a popular form of off-balance-sheet financing. In 1977 the FASB, with SFAS 13, finally moved to put an end to the "off-balance-sheet" aspect of lease financing. SFAS 13 required the capitalization on corporate balance sheets of financial leases meeting specific criteria, and supplemental disclosures under ASR 147 were now incorporated into the primary financial statements.

SFAS 13 was the culmination of years of research and deliberation by the FASB and represented the first attempt to tighten disclosure requirements for off-balance-sheet financing, which in its various forms presently remains a vexing problem. The most significant aspect of SFAS 13 was to require the capitalization, as both assets and debt, of leases which were previously reported only in the footnotes to the financial statements. The extensive disclosures initially required by the SEC as supplemental information became a part of the primary financial statements under SFAS 13. Hence, the use of leases for the purpose of keeping debt off the balance sheet was largely circumscribed.

PRIOR RESEARCH

The prevailing opinion in the financial press and the business community at the time was that SFAS 13 would have dire negative consequences, chief among them the apparent deterioration of debt-to-equity ratios or financial leverage of firms affected. Barron's, in 1977, reported concerns about possible curtailment of credit lines and contraction of expansion plans. Dieter (1979) suggested that companies would try to circumvent SFAS 13 in various ways. Abdel-Khalik et al. (1981) discussed possible management actions which, undertaken in response to SFAS 13, might tend to mollify its effects.

Several important research studies related to the effects of lease accounting have been done. Ro (1978) investigated the information content of the ASR 147 lease disclosures, and found that these did significantly affect the distribution of security returns, although the study did not specifically consider the effect on the systematic risk of the firms. Bowman assessed the debt equivalence of leases, both theoretically (1979) and empirically (1980) and concluded that leases were significantly associated with market risk. However, Finnerty et al. (1980) considered the impact of SFAS 13 on the systematic risk of firms affected by the statement, but were unable to detect significant shifts in risk for a relatively small sample of firms involved.

The major study of the issue was the FASB's Study of the Effects of Accounting for Leases (SEAL) project (Abdel-Khalik et al., 1981). In addition to developing rationale for possible managerial actions in response to SFAS 13, they test this empirically and conclude that many companies with substantial lease commitments appear to have taken unusual actions to change their financial structures. They believe these actions were at least made more appealing, and perhaps primarily motivated by SFAS 13. Additionally, they found that firms in heavy leasing industries which took action to reduce the effect of SFAS 13 on debt ratios did have significantly greater declines in systematic risk than firms not taking such action.

RESEARCH ISSUES AND SAMPLE IDENTIFICATION

This study was prompted by the need to extend the results of prior research in the leasing area. While prior research studies have addressed the leasing issues in several ways, there has been no full development of a model to explain the reaction to mandatory lease accounting changes.

Research Issues. The systematic risk of the firms affected by SFAS 13 is the key variable studied in this research. Insofar as the riskiness of an individual security can affect the risk of portfolios held by investors and because transaction costs are incurred in adjusting portfolio risk, changes in risk are important events to investors. Therefore, two primary research objectives are undertaken in this study. First, reconsideration is given to changes in systematic risk associated with the FASB's requirement of lease capitalization in SFAS 13, with additional assessment of the sensitivity of these results to research methods. Second, a model integrating the results of prior research as well as relevant theory is developed to test the association of the observed shifts in risk with underlying economic and financial variables in an attempt to explain the reaction to SFAS 13.

With a mandatory accounting change such as SFAS 13, there are several possible ways in which the event may have an economic impact. First, new information may be available to the market as a result of the change. Second, corporate management may take action in response to the mandatory change in order to moderate the effects of the change. Third, capital markets may respond, either to new information or to the action of management. With SFAS 13 it is not clear whether new information on

leases would be available to the market; however, it seems likely given the reports in the press and the findings of prior research, that management would respond as though SFAS 13 was a substantive accounting change. As a result, it can be argued that SFAS 13 might precipitate either increases or decreases in systematic risk, possible increases resulting from new information about a firm's capital structures or decreases resulting from changes in capital structure induced by SFAS 13. This research, therefore, considers first the possible changes in systematic risk associated with SFAS 13, and second an explanatory model for such changes.

Sample of Firms. To identify an appropriate sample of firms for this research, it was necessary to choose companies with relatively large amounts of noncapitalized leases prior to the issuance of SFAS 13. Firms with noncapitalized financing leases exceeding 5% of reported total assets were selected from firms with data available on both the Compustat Price Dividend and Earnings (PDE) and Center for Research in Security Prices (CRSP) data bases. While any threshold is arbitrary, this criterion has been used by Abdel-Khalik et al. (1981), and is more conservative than that used by Finnerty et al. (1980). This resulted in the identification of 106 sample firms. Summary financial characteristics for these firms are presented in Table 1.

As a control against possible confounding effects, a matching procedure was undertaken to identify a control sample of firms. In order to have an appropriate comparison group, firms selected would have to be similar to the firms under study except for the accounting method chosen for leases. The group of potential control firms, therefore, included those in the same industry, as defined by the Standard Industrial Classification (SIC) Code, with substantial amounts of leases, but with those leases capitalized on a voluntary basis. There were not a sufficient number of potential control firms in each industry against which to match all of the noncapitalizing firms. Ultimately, 46 of the 106 firms were matched with companies having substantial capitalized leases. The procedure matched the firms having noncapitalized leases with control firms in the same industry, which were as similar as possible in size, relative risk and financial leverage.[1]

Differences in these variables have been shown in prior research to explain differential capital market reactions across firms. Therefore, the matching was to lessen the likelihood that any observed differences are unrelated to the leasing method used. A firm profile analysis, as suggested by Foster (1980), comparing the noncapitalizing sample with the capitalizing sample is presented in Table 2. This analysis, using the non-parametric Mann-Whitney U test indicated no significant differences between the groups on the matching variables at the .05 level of significance.

Results of tests of the first research question are reported for the full sample of 106 noncapitalizing firms, as well as for the subsample of 46 noncapitalizing firms and the control sample of 46 capitalizing firms. The relevant sample for the second research question is the full sample of 106 noncapitalizing firms.

TESTS OF SHIFTS IN SYSTEMATIC RISK

Research Method. The first research issue addressed was whether a shift in systematic market risk (beta) occurred around the issuance of SFAS 13 for firms affected by the statement. The tests on this issue are based on the wealth-relative form of the market model:

$$\ln(1+R_{it}) = a_i + B_i \ln(1+R_{mt}) + e_{it}$$

In the above model:

R_{it} is the return on security i in period t;
R_{mt} is the return on the market index in period t;
a,B are parameters of the model; and
e_{it} is the random disturbance term for period t.

A measurement issue that arises with this model is the choice of the appropriate market index of the several available to serve as proxy for the market portfolio. Elgers and Murray (1981) note that an appropriate market index cannot be identified on an a priori basis. As a result, the Chow tests were run using each of three commonly available market indices: Standard and Poors (SP), CRSP Value-Weighted (VW), and CRSP Equal-Weighted (EW).

In assessing whether a change in systematic risk has occurred around the issuance of the new leasing standard, the Chow test method was used. This method, first described by Chow (1960), has been applied in accounting research by Simonds and

Collins (1978) and has been applied to the lease question by Finnerty et al. (1980) and Abdel-Khalik et al. (1981). This tests specifically for statistically significant shifts in the coefficients of a linear time series regression between two non-overlapping time periods. The event date was August 1975, the date on which the first exposure draft of SFAS 13 was issued. This represents the first date on which information was publicly available about the proposals in SFAS 13.[2]

The Chow statistic calculated is an F test based on a comparison of the residuals from a pooled regression to the residuals of the separate regressions on data from before the event date and data from after this date. The regressions incorporated a dummy variable to allow the intercept to vary between the sub-periods. The Chow statistic was used to test the null hypothesis of no change in the beta coefficient (systematic risk) from the period prior to the event date to the period subsequent for each of the firms in the samples:

$$H_0: \ B_1 = B_2$$

The tests of shifts in systematic risk were done around the August 1975 event date. Ideally, this date should reflect the first time that information about SFAS 13 reaches the market. If some uncertainty about the date exists, however, this could confound the results. A central period of five months was therefore excluded in running the Chow tests. As illustrated in Figure 1, the pre-event period included monthly returns from January 1972 to June 1975 while the post-event period included monthly returns from December 1975 to December 1979.

Results. The results of the Chow tests are summarized in Table 3. These give a clear indication of the changes in systematic risk for the firms which were most affected by SFAS 13. When tested at the .05 level of significance, the total sample of 106 noncapitalizing firms had a large number of significant risk shifts, ranging from 11 using the SP and the VW indices to 19 using the EW index. This is from two to four times the number that would be expected by chance. The results are more dramatic when a comparison is made between the smaller noncapitalizing sample and the capitalizing control sample.

The control sample produced only one significant risk shift using the SP index, none using the VW index and two using the EW index. This does not differ from what would be expected by change at that significance level. The smaller sample of 46 noncapitalizing firms produced only one significant shift using the SP index, but four using the VW index and seven using the EW index. While the SP index results do not indicate a difference between the two samples, the number of significant shifts is twice what would be expected by chance using the VW index and three times what would be expected when the EW index was used.

Discussion. Several observations are of interest. Most importantly, the thrust of the results indicates that among the noncapitalizing firms a greater number of significant risk shifts occurred than among the capitalizing firms, although the results are not as strong using the SP index as they are using the other indices. The EW index produced the most striking results. The literature on the choice of market index in capital market research is not extensive,[3] but further consideration of this point exceeds the scope of this study. Additionally, it is important to note that, while both noncapitalizing samples had larger numbers of shifts in risk, the direction of the shift was not consistent. There are significant risk shifts in both directions among both the total noncapitalizing sample and the smaller sub-sample, although results again vary by index. This makes the findings both interesting and somewhat ambiguous, leading to the further empirical questions addressed next.

TESTS OF CROSS-SECTIONAL MODELS OF RISK SHIFTS

The finding of a significant risk shifts among the noncapitalizing firms around the date of SFAS 13 is interesting in itself, but the more important issue is understanding the phenomenon. To accomplish this, explanatory theories are considered, and a possible explanatory model is proposed and tested.

Theory and Model Development. Abdel-Khalik et al. (1981) discussed a theory that could lead to an explanatory model of the risk shifts. The theory, based on managers' beliefs about the sophistication

and knowledge of financial statement users, posits that managers may have been motivated to try to moderate the apparent affects of SFAS 13. This might be accomplished if managers take actions to reduce financial leverage and/or the amount of leasing, such that the apparent financial leverage ratios would not deteriorate as much as management feared. These actions would alter the firm's true capital structure, and the theoretical link between a firm's capital structure and the systematic risk of its common stock, as measured by beta, is well established. Both Hamada (1972) and Bowman (1979, 1980) developed models demonstrating a relationship on a theoretical level between financial leverage and systematic risk, and were able to support their models empirically.

Firm size and the relative size prior to SFAS 13 of off-balance-sheet leases are also suggested by Abdel-Khalik et al. as affecting the firm's motivation to reduce apparent financial leverage. Firm size affects the flexibility to act, and the relative size of noncapitalized leases affects the desirability of such action.

Additional factors include the presence or absence of debt covenants that may be affected by the capitalization of leases because of the effect on financial statement ratios, and the presence of management incentive plans based on accounting data which may be similarly affected. These may have had an impact on management decisions in response to SFAS 13. Both have been discussed extensively by Collins et al. (1981) in the context of another mandatory accounting change on oil and gas accounting.

Research Method. Since this second research issue involves the development of a model to explain risk shifts among noncapitalizing companies, the sample included all 106 companies originally identified, all of which had substantial noncapitalized leases prior to August 1975. The tests of hypotheses were performed by running a cross-sectional regression model on data from these firms:

$$\Delta\hat{\beta}_j = d_0 + d_1x_{1j} + d_2x_{2j} + d_3x_{3j} + d_4x_{4j} + d_5x_{5j} + d_6x_{6j} + d_7x_{7j} + u_j$$

where

$\Delta\hat{\beta}_j$ is the change in the estimated beta coefficient measuring systematic risk for an individual firm (j) from the January 1971-June 1975 period to the December 1975-December 1979 period;

x_1 is firm size for each firm j, measured as total assets in the year prior to the SFAS 13 exposure draft (1974);

x_2 is the existence of a debt or loan covenant prior to 1975 which would be affected by lease capitalization, such that $x_2 = 0$ if no covenant existed or $x_2 = 1$ if a covenant did exist;[4]

x_3 is the existence prior to 1975 of a management compensation plan, which was based on performance measures that could be affected by lease capitalization, such that $x_2 = 0$ if no plan existed or $x_2 = 1$ if a plan did exist;[5]

x_4 is the present value of noncapitalized leases for each firm j in the year prior to the SFAS 13 exposure draft (1974);

x_5 is the debt to equity ratio[6] for each firm j in the year prior to the SFAS 13 exposure draft (1974);

x_6 is the change in the debt to equity ratio for each firm j from the year prior to the SFAS 13 exposure draft to the year subsequent;

x_7 is the percentage change in leasing for each firm j from the year prior to the SFAS 13 exposure draft to the year subsequent; and

u_j is the random disturbance.

The coefficients of this model were estimated using ordinary least squares (OLS) regression.

Hypotheses. The following hypotheses were tested for the dependent variable in the model.

1. For firm size (x_1), Abdel-Khalik, et al. have suggested that larger firms have more flexibility to act in response to lease capitalization. Since actions to reduce the apparent affects of lease capitalization would reduce the firms' real financial leverage, the hypothesized relationship is negative:

$$H_0: d_1 = 0$$
$$H_a: d_1 < 0$$

2. For debt covenants (x_2), a priori reasoning suggests that the presence of these covenants increases the likelihood that management may try to moderate the effects of lease capitalization. A negative relationship therefore is hypothesized:

$$H_0: d_2 = 0$$
$$H_a: d_2 < 0$$

3. For management incentive plans (x_3), Abdel-Khalik et al. and others have suggested that the presence of these plans increases the likelihood that management may try to moderate the effects of lease capitalization. A negative relationship therefore is hypothesized:

$$H_0: d_3 = 0$$
$$H_a: d_3 < 0$$

4. For the present value of noncapitalized leases (x_4), Abdel-Khalik et al. have suggested that relatively large noncapitalized leases increases the likelihood that management may try to moderate the effects of capitalization. A negative relationship therefore is hypothesized:

$$H_0: d_4 = 0$$
$$H_a: d_4 < 0$$

5. For the debt-equity ratio, (x_5), used as a proxy for financial leverage, Hamada (1972) and Bowman (1979) have found a positive relationship between financial leverage and systematic risk. Higher debt-equity ratios would increase the likelihood of management response to lease capitalization. However, information in debt-equity ratio could reflect prior adjustments in financial leverage, which may or may not be related to lease capitalization. Therefore, since the relationship is ambiguous the hypothesis is non-directional:

$$H_0: d_5 = 0$$
$$H_a: d_5 \neq 0$$

6. For changes in the debt-equity ratio, (x_6), used as a proxy for changes in financial leverage, the work of Hamada and Bowman has found a positive relationship between financial leverage and systematic risk. Therefore, a positive relationship is hypothesized:

$$H_0: d_6 = 0$$
$$H_a: d_6 > 0$$

7. For the percentage change in leasing, (x_7), empirical work by Bowman (1980) has found that noncapitalized lease information is impounded in measures of systematic risk. A priori reasoning, therefore, leads to an hypothesized positive relationship:

$$H_0: d_7 = 0$$
$$H_a: d_7 > 0$$

In addition to these hypotheses testing the regressors individually, the null hypothesis that the regressors as a group are equal to zero is tested.

Results. In Table 4 the results are presented for the models tested with the dependent variable measured as the change in beta ($\Delta\hat{\beta}_j$) for each firm in the sample. Since these changes were measurable using three different market indices the tests were run separately with $\Delta\hat{\beta}_j$ measured using each index: SP, VW and EW. In each case the model F statistic was significant, at .05 in the case of the SP index and at .01 in the cases of the VW and EW indices, although the R^2 statistics are not as impressive. Nevertheless, this is clear evidence that the model has some explanatory power. (See Table 4.)

Of more interest, however, are the tests of the coefficients of the individual variables. These results are striking and relatively consistent across the models with $\Delta\hat{\beta}_j$ measured using each index: SP, VW and EW. The constant (d_0) and the coefficients on total assets (d_1), debt covenants (d_2), incentive plans (d_3), and changes in leasing (d_7) were significantly different from zero. The coefficient on noncapitalized leases (d_4) was significant in all three models: at .05 in the SP model, and at .01 in the VW and EW models, and the sign on the coefficient was in the hypothesized negative direction. The t tests of the coefficient on the change in debt/equity ratio (d_6) were significant at the .01 level in all three index models, and the positive sign is consistent with the hypothesis. The results regarding the debt/equity ratio are less clear. Only when $\Delta\hat{\beta}_j$ was measured using the EW index was the t test significant, at .05, and the sign was positive.

The results were fairly consistent across the models using different market indices to measured $\Delta\hat{\beta}_j$; however, to assess further the impact of the measurement of the dependent variable on the results, the models were retested using signed F statistics

from the original Chow tests as the dependent variable. Signed F statistics were calculated by multiplying the sign of the beta change, positive or negative, by the F statistic from the Chow test for each individual firm. Tests of these models are presented in Table 5, again run separately using each index: SP, VW and EW. The results are substantially the same for the models as they were using the $\Delta\hat{\beta}_j$ dependent variable, except that the SP model is significant at .01 rather than .05 and the VW model is only significant at .05 rather than .01. Tests of the individual coefficients are likewise substantially the same, except for d_4 (noncapitalized leases) which was significant at .01 rather than .05 in the VW and EW models, and d_5 (debt/equity ratio) which was significant at .05 in the SP model in addition to the EW model. The exceptions noted are minor and the results do not seem to be especially sensitive to this measurement issue.

Discussion. Several important inferences and conclusions may be drawn from these findings. Two variables clearly emerged as significant in the regressions, the amount of noncapitalized leases (d_4) prior to SFAS 13, and changes in the debt/equity ratio (d_6). While neither result is surprising, each is important in that it further supports the belief expressed by many that companies would try to circumvent SFAS 13, either by realigning their capital structure or by renegotiating their lease agreements. Although reductions in debt or other changes in capital structure cannot be unequivocally attributed to SFAS 13, the joint finding of significance of the amount of noncapitalized leases and changes in the debt/equity ratio lends a great deal of support to the inference that managers of firms most affected by SFAS 13 reduced their debt/equity ratios in an attempt to moderate or disguise the effects of lease capitalization. The finding that debt covenants and incentive plans were not significant explanatory variables is also not surprising. The language in the various annual reports and 10-Ks examined was unclear about how noncapitalized leases were to be treated in restrictive covenants. Less clear, finally, is the finding of a significant relationship between the debt/equity ratio and changes in beta in some models but not others. A possible explanation is that other capital structure changes prior to the event date may have occurred, and these may or may not be related to SFAS 13.

SIGNIFICANCE AND IMPLICATIONS

These findings are important in their implications for managers as well as users of financial statements as more accounting changes for off-balance-sheet financing loom. During the 1980's the FASB addressed the issues of pension disclosure and the consolidation of previously unconsolidated finance subsidiaries. Consideration of other obligations and long term commitments not presently recognized in the balance sheet is on the horizon. These findings imply that the management of companies whose balance sheets would change most under lease capitalization may have taken actions to moderate or disguise its apparent effects. These actions may be irrational, given the efficiency of the stock market, and in fact may themselves have undesired consequences. These undesired consequences, however, need not be laid at the doorstep of the FASB, but rather with the management of the corporations which have tried to circumvent the best intentions of the FASB.

When SFAS 13 was released there were ominous predictions about the inability of firms to borrow incrementally or to continue expanding. While this has not happened, it does seem that capital structure adjustments have been made in some cases. Advocates in the corporate sector have raised similar fears about further curtailment of the ability to use off-balance-sheet financing. Affected firms may undertake capital structure adjustments similar to those done by many lessees. For this reason, it is critical for the users of financial statements to be aware of this possibility. Smaller investors in particular may be affected, as well as many employees covered by stock option plans. The prospect of sub-optimal corporate financial decisions exists, and corporate management needs to be aware of the ultimate effects of such decisions. The mission of the FASB is not to guide corporate financial decision making, but rather to establish standards of financial reporting which result in credible, concise, understandable and useful information. The ultimate responsibility for corporate decision making in this regard must lie with corporate management, and circumvention of fair accounting disclosure is not responsible decision making.

ENDNOTES

[1]The technique used to match the capitalizing firms with noncapitalizing groups was based on the minimization of the Mahalanobis distance measure D^2. The D^2 measure was used to compute the distance of each potential match firm from the noncapitalizing firms simultaneously on three variables: 1) total assets for each firm in 1975 as a measure of firm size, 2) beta calculated using 60 monthly returns from 1971-1975, as a measure of systematic risk prior to SFAS 13, and 3) financial leverage in 1975, as measured by the ratio of the carrying value of total liabilities and preferred stock to the carrying value of total liabilities and preferred stock plus the market value of common equity. Firms were matched based on the minimum D^2 within the four digit SIC code.

[2]The selection of an event date is often problematic when dealing with FASB pronouncements. Several possibilities were available: 1) August 1975, the first exposure draft of SFAS 13, 2) July 1976, revised exposure draft, 3) December 1976, press release of SFAS 13, and 4) January 1977, effective date of SFAS 13. Because of the evidence on the efficiency of the stock market in quickly reacting to new information, the earliest date on which details became available about proposed required lease capitalization was chosen.

[3]See Elgers and Murray (1982) for a thorough discussion of the issue.

[4]This information was gathered from annual reports and 10-K filings with the SEC. Interestingly, four loan agreements specifically included limits on further leasing as well as other debt, or formally included leasing in the measurement of debt prior to SFAS 13.

[5]This information was gathered from annual reports and from proxy statements filed with the SEC.

[6]The debt to equity ratio was measured as the ratio of the carrying value of total liabilities and preferred stock to the market value of common equity.

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FIGURE 1
CRITICAL DATE AND TEST PERIOD FOR SFAS 13 CHOW TESTS

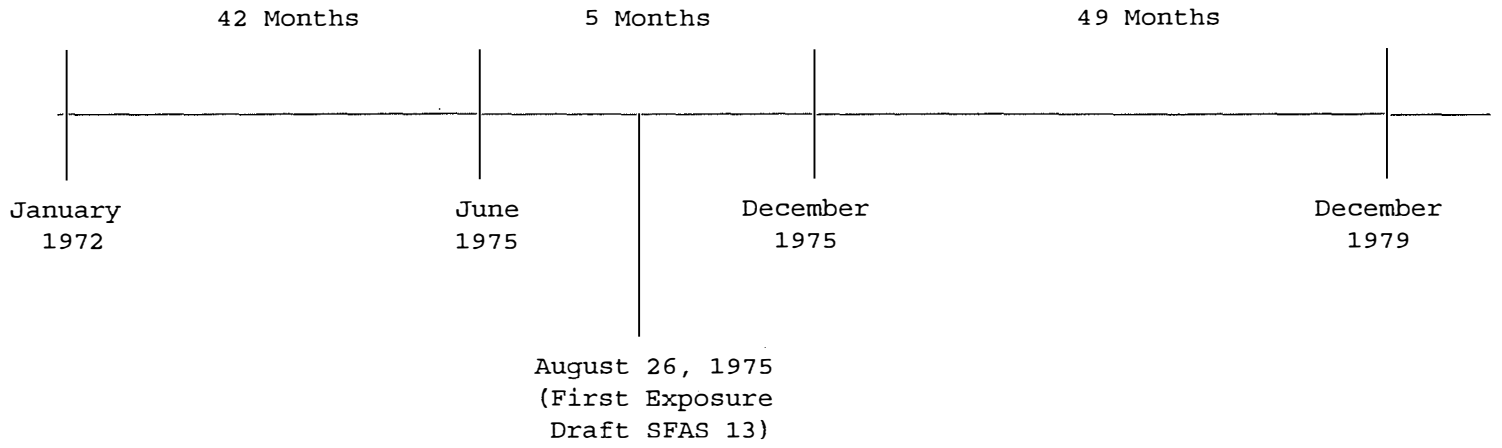

TABLE 1
SUMMARY STATISTICS
106 NONCAPITALIZING FIRMS

	MEAN	MEDIAN	RANGE
Total Assets (MM$)	411.0	81.27	11,339.4 - 9.6
Debt Ratio	.568	.568	.910 - .331
Noncapitalized Leases to Reported Total Assets	.262	.138	1.225 - .050

TABLE 2
FIRM PROFILE ANALYSIS
NONCAPITALIZING FIRMS vs CAPITALIZING (CONTROL) FIRMS

VARIABLE	NONCAPITALIZING Mean	NONCAPITALIZING Median	CAPITALIZING Mean	CAPITALIZING Median	Z-STATISTIC FOR MANN-WHITNEY
Total Assets (MM$)	166.7	58.0	193.3	73.6	0.916
Debt Ratio	.675	.713	.673	.698	0.659
Systematic Risk (Beta)*	1.18	1.18	1.15	1.20	0.066
Current Ratio	2.27	2.09	2.51	2.35	1.106

*Non significant at .05 level.

TABLE 3
SUMMARY OF CHOW TEST RESULTS

SAMPLE	NUMBER OF FIRMS	MARKET INDEX	BETA SHIFTS Average	BETA SHIFTS Positive	BETA SHIFTS Negative	SIGNIFICANT BETA SHIFTS Total	SIGNIFICANT BETA SHIFTS Positive	SIGNIFICANT BETA SHIFTS Negative
Total	106	SP	-.185	41	65	11	1	10
		VW	+.157	60	46	11	7	4
		EW	+.059	52	54	19	9	10
Noncap	46	SP	+.015	22	24	1	0	1
		VW	+.361	35	11	4	3	1
		EW	+.241	33	13	7	6	1
Control	46	SP	-.085	22	24	1	0	1
		VW	-.124	29	17	0	0	0
		EW	+.090	31	15	2	2	0

*Significant at .05 level.

TABLE 4
ESTIMATED $\hat{\Delta\beta_j}$ MODEL RESULTS

ESTIMATED PARAMETERS
(t-statistics)

Market Index	Constant	Total Assets	Debt Covt.	Mgt. Inc. Plan	Noncap. Leases	D/E Ratio	Change in D/E Ratio	Change in Leases	MODEL R^2(Adj.)	MODEL F-Stat
Hypothesized Sign	(?)	(-)	(-)	(-)	(-)	(?)	(+)	(+)		
Parameter	d_0	d_1	d_2	d_3	d_4	d_5	d_6	d_7		
SP	-.297	.000	.029	.085	-.001	.408	2.16	.642	.164	2.75*
	(-1.23)	(1.42)	(.26)	(.74)	(-2.02)*	(1.25)	(3.36)**	(.49)	(.105)	
VW	-.139	.000	.196	.006	-.001	.559	1.94	.250	.196	3.41**
	(-.56)	(.58)	(1.65)	(.05)	(-2.34)*	(1.69)	(2.97)**	(.19)	(1.38)	
EW	-.222	.000	.157	-.036	-.001	.527	1.75	.786	.241	4.45**
	(-1.19)	(.63)	(1.72)	(-.39)	(-2.23)*	(2.09)*	(3.52)**	(.78)	(.187)	

*Significant at .05 level.
**Significant at .01 level.

TABLE 5
ESTIMATED SIGNED F-STATISTIC MODEL RESULTS

ESTIMATED PARAMETERS
(t-statistics)

Market Index	Constant	Total Assets	Debt Covt.	Mgt. Inc. Plan	Noncap. Leases	D/E Ratio	Change in D/E Ratio	Change in Leases	MODEL R^2(Adj.)	MODEL F-Stat
Hypothesized Sign	(?)	(-)	(-)	(-)	(-)	(?)	(+)	(+)		
Parameter	d_0	d_1	d_2	d_3	d_4	d_5	d_6	d_7		
SP	-1.67	.000	-.165	.250	-.005	2.56	7.34	1.75	.186	3.20**
	(-1.95)	(1.70)	(-.40)	(.61)	(-2.15)*	(2.07)*	(3.23)**	(.38)	(.128)	
VW	-.619	.000	.048	.425	-.007	2.24	7.24	-2.04	.163	2.73*
	(-.60)	(.51)	(.10)	(.86)	(-2.49)**	(1.61)	(2.64)**	(-.37)	(.103)	
EW	-1.76	.000	.442	.219	-.008	3.47	10.22	1.51	.206	3.64**
	(-1.91)	(.63)	(.73)	(.36)	(-2.57)**	(2.06)*	(3.07)**	(.22)	(.150)	

*Significant at .05 level.
**Significant at .01 level.