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TRENDS IN THE EVOLUTION OF SCHOLARLY ACCOUNTING THOUGHT: A QUANTITATIVE EXAMINATION

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Abstract: Contemporary Accounting Research (CAR) has expanded substantially in scope over the past two decades. This paper provides an overview of these trends using both quantitative techniques from statistics and exploratory data analysis (EDA). Articles in CAR are classified into taxonomies and the literature tracked over 22 years.

Analysis focuses on four taxonomies: foundation discipline, school of thought, research method and mode of reasoning. The paper first examines journals vis-a-vis article publication frequency and dominant taxonomies. Secondly, three assertions concerning the relative posture of the Journal of Accounting Research and the literature are examined. Next the context of the literature is examined through major taxonomies and a crosstabulation of research method vs school of thought. The last part of the analysis focuses on trends within the taxonomies in the 1963-1984 period.

1. INTRODUCTION

The past two decades have witnessed a rigorous process of paradigm development, interdisciplinary "borrowing", hypothesis testing, and theory refinement in the literature of accounting. Both the volume and breath of this research have created difficulties in understanding its current trends, applying its results, and generating a coherent set of accounting theories that are grounded in its history.

Notwithstanding this difficulty, numerous surveys have provided extensive classification and evaluation of this body of research. However, the focus of these surveys has been typically on an accounting area (e.g., auditing, budgeting) or a school of thought (e.g., human information processing, agency

theory). Little effort has been made to examine a larger subset of the literature or to evaluate its results in the light of the entire literature.

1.1 Research Issue

The major goal of this paper is to systematically examine the historical evolution of certain key characteristics of recently published accounting articles. Such examination facilitates a better understanding of the nature, scope and trends of modern accounting research. Specific attention is given to the nature of scholarly journals, the content of journal articles, and certain trends of the literature (within specific taxons).

1.2 Method

A common set of multiple taxonomies identifies the important characteristics of 2136 published articles included in the multiple taxonomy databank (MTDB). The large sample allows for the generalizability of our findings to the scholarly accounting literature as a whole. In addition, Exploratory Data Analysis (EDA) [Tukey, 1977] techniques in conjunction with traditional confirmatory statistics and graphics [Chambers et al., 1983; Becker and Chambers, 1984] provide specific insights into the development of the literature.

2. PREVIOUS CLASSIFICATION AND EVALUATION EFFORTS

Most previous accounting research surveys focused on an accounting area, a school of thought, or a research methodology. Different taxonomies were developed by each author(s) to facilitate their evaluation. Budgeting and auditing are two accounting areas that have received classification and evaluation attention. Ijiri, Kinard, and Putney [1968] surveyed the budgeting literature, classifying articles along two taxonomies: areas of application and techniques. Felix & Kinney [1982] surveyed the audit literature focusing their review on the opinion formulation process.

Schools of thought that have been classified and evaluated include behavioral accounting research, human information processing research, and security price research. Hofstedt [1975, 1976] examined behavioral accounting research and classified articles along two taxonomies: accounting versus nonaccounting, and research versus practice. Gonedes and Dopuch [1974] focused on security price research and classified

the articles in terms of research methodology. Ashton [1982[and Libby and Lewis [1977, 1982] reviewed the human information processing literature, dividing the field into a set of paradigms and examining the literature by evaluating articles according to their membership in these paradigms

Research methodologies have been also surveyed. Ball [1971] and Hakansson [1973] surveyed empirical research. Ball [1971] attempted to develop a comprehensive index of accounting topics very similar to the index of an accounting textbook. Hakansson [1973] surveyed empirical research along general accounting issues. In addition, the 1982 supplement of the JAR examined the state of the art of current research methodologies.

Surveys from other points-of-view can also be found in the literature. Several articles in the *The Accounting Historians Journal* have examined the historical evolution of specific accounting topics.[1] The *Journal of Accounting Literature* is dedicated to the survey of accounting research studies. Articles published in the JAR are typically oriented towards the evolution of the literature in a field of endeavor within the accounting literature.[2]

Two recent studies [Brown & Gardner; 1985, 1985a] adopted a different approach. They examined the impact of articles and journals as well as the research contributions of faculty and doctoral programs through citation analysis.

Dyckman & Zeff [DZ] [1984], adopted yet another approach. They focused on a comparison between the Journal of Accounting Research and the broader accounting literature. Their classification scheme is displayed in Table 1.

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[1]For example Rayburn [1986] examined the authoritative literature on Interperiod Tax Allocation.

[2]For example Baiman [1982] examined agency research in managerial accounting, Kelly [1983] focused on positive theory research and Waller & Jiambalvo [1983] scrutinized normative models in the HIP literature.

TABLE 1. Dyckman & Zeff's Taxonomy

1. Recent Interdisciplinary Borrowing
- Nonmath
- Math.
2. Mathematical Modeling (other than the above)
3. Conceptual Development
4. Empirical
5. Normative Policy Prescription
6. History
7. Education
8. Other

The objective of the DZ article was to "gauge the contribution of Journal of Accounting Research during its first 20 years, 1963-1982." (p. 225). It examined the research environment prior to the JAR, the position of JAR in its first decade and various measures of its impact (through circulation, ratings, citations, award winning articles, citations in FASB Discussion Memorandums, and university interest). Among their findings were conclusions that:

- " . . . JAR and its Supplements have hastened the integration into the accounting literature of ideas and methods from other disciplines,"
- "JAR . . . has played a primier role in establishing a tradition of empirical research in accounting. . "
- " . . . there is a virtual disappearance of historical research from JAR."

Overall, the accounting literature provided extensive taxonomization efforts within particular research areas but little efforts in generalizing results to the entire accounting research domain. This study is intended to fill the void. Furthermore, this study adds to the literature by attempting to provide quantitative analysis and results that can be replicated in the evaluation of issues that often are only analyzed in qualitative terms.

3. THE SAMPLE

The sample consists of the main articles[3] published in the

[3]In addition to main articles, a few selected Accounting Review notes and Capsules from the Journal of Accounting Research were included in the sample. This subsample inclusion criterion was primarily judgmental.

1963-1984[4] period, in six[5] refereed accounting journals. It includes 2,136 articles (as described later in Table 1). The methodology of taxonomization adopted in the MTDB is discussed in Vasarhelyi, Bao & Berk [1985] and Brown and Vasarhelyi [1985]. A brief discussion of the categories used in the MTDB follows.

4. TAXONOMIES

The taxonomies of the MTDB were developed to describe three research dimensions (paradigms, research tools, and date reference set) of each article. *Paradigms* are the basic building blocks of any science [Kuhn, 1962] and are examined through two taxonomies: foundation discipline and school of thought. The *research tools* dimension (used to develop or test the paradigm) is examined along two taxonomies: research method and mode of reasoning. The *data or reference set* dimension (used in working with the paradigm) has three taxonomies: accounting area, treatment, and information. Each taxonomy consists of several taxons. Appendix A lists all the research dimensions, taxonomies, and taxons. This paper, however, focuses only on the paradigms and research tool dimensions of research. The analyses based on the data or reference set dimension are too lengthy to fit into this study.

The advantage of having a perfect set of taxonomies [Johnson, 1972], in an information theoretic sense, is its succinctness of description. Unfortunately, a perfect set of taxonomies implies orthogonality among the taxonomies, mutual exclusiveness among these taxons, comprehensive coverage by the classes, and perfect information content (adequate description) by the set of classifications. These features are not easily achievable. For example, Table 6 examines research method versus school of thought using a chi-square technique and shows these taxonomies as not independent. Taxonomies and taxons, therefore, are operationally defined but classifications are judgmental in nature.

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[4]1963 is the year of establishment of Journal of Accounting Research.

[5]The Accounting Review (TAR), Journal of Accounting Research (JAR), Accounting, Organizations and Society (AOS), Journal of Accounting, Auditing and Finance (JAA), Journal of Accounting and Economics (JAE), and Auditing: A Journal of Theory and Practice (AUD).

5. ANALYSIS

The ensuing analysis will first concentrate on journals (and subsequently the above mentioned three DZ findings), then on the content of the literature, and finally on the trends within the database.

5.1 Nature of the Journals

Table 2 presents the number of articles published by the six journals in the 1963-1984 period. The Z value [Lehmann, 1975, pp. 290-297][6] at the bottom of the table is a summary statistics relating the 22 year trend in the data. The table, however, aggregates numbers on a three-year-period basis except for the four-year period of 1963-1966.

TABLE 2. Journal by Year Frequency

Year	AOS	TAR	AUD	JAA	JAE	JAR	TOTAL
63/66		295				69	364
67/69		183				71	254
70/72		147				83	230
73/75		128				68	196
76/78	67	134		14		68	283
79/81	72	87	5	57	27	109	357
82/84	71	93	42	67	29	150	452
TOTAL	210	1067	47	138	56	618	2136
Z-value	+0.75	-4.40	+1.73	+2.60	+1.85	+4.03	
Significant trend		decr.				incre.	

Table 2 shows that, in terms of number of articles published, TAR dominated other journals until 1979 when JAR became dominant. TAR shows a significant decreasing trend while JAR shows a significant increasing trend. Significance is considered at the 0.01 level.

The significant decrease in quantity by TAR since the 1979-1981 period followed editor change. Stephen Zeff became the editor of TAR in 1979 and decided to segregate TAR's articles into main articles and notes. The notes section contained articles that "hitherto were published as main articles" [Zeff, 1979, p. 132], and most of the notes are not included in the MTDB. The significant increase in quantity by the JAR

[6]Lehman [1973] devised a nonparametric statistical method to test the increasing or decreasing trend in data. In this study, a yearly trend is tested. This method is a revised version of the Wilcoxon test. The sign of the Z values indicates the direction of the trend. The level of significance is determined through a normal probability distribution table.

beginning in the 1979-1981 period may be explained by the change in the JAR's editorial board. Besides the editor, JAR had fourteen editorial members before 1979, and twenty-six members thereafter. The board expansion might have accelerated the review process and therefore stimulated the interest of potential authors.

5.1.1 Publication Taxons by Journals

Table 3 examines the journals' predominant taxons.[7] It displays the major taxons for four taxonomies and the percentage of occurrence of the dominant taxons. Cramer's V values which measure the degree of association of journals and taxonomies are also reported.[8]

Although the journals are different in characteristics, they can be classified into three groups by examining the percentages of the major taxons: TAR and JAA, JAR and JAE, and AOS and AUD. TAR and JAA have the same major foundation disciplines, schools of thought, and research methods.

However, the secondary modes of reasoning are different. TAR is more analytical while JAA is more descriptive. This probably can be explained by the fact that about half of JAA's board of advisors and contributors were practitioners who specifically solicited articles from practitioners whose emphasis was not the technical aspects of accounting research, until a change in editorship in 1986.

JAR and JAE have the same major foundation disciplines, schools of thought, and research methods. However, JAR is more analytical while JAE focuses more on regression analysis. JAE is also more economics/finance oriented. Its editorial policy and editors guide it to a narrow and specific line of research. The journal's title emphasizes the links of economics and accounting.

AOS and AUD have the same major foundation disciplines. However, AOS is more behaviorally and qualitatively oriented while AUD is more quantitative. In addition, AUD focuses on auditing while AOS includes all areas of accounting.

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[7]A similar analysis, concentrating on comparing AOS to other journals can be found in Brown, Gardner & Vasarhelyi [1987].

[8]Phi's and contingency coefficients are also calculated. however, only the most conservative Cramer's V values are reported.

TABLE 3. Journal versus Taxonomy

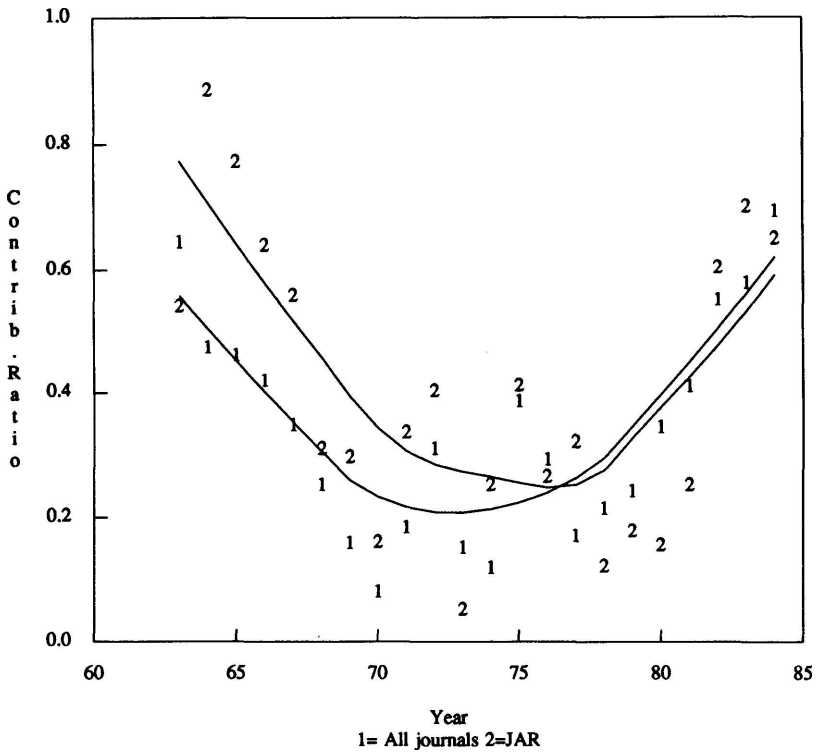
Taxonomy	Cramer's V	Journal	Major Taxons	Percentage
Foundation discipline	0.34	AOS:	accounting	31%
			psychology	25%
		TAR:	accounting	45%
			economics/ finance	33%
		AUD:	accounting	85%
			psychology	4%
		JAA:	accounting	69%
			economics/finance	15%
		JAE:	economics/finance	66%
			accounting	23%
		JAR:	accounting	38%
			economics/finance	18%
School of thought	0.27	AOS:	behavioral	49%
		TAR:	accounting theory	31%
		AUD:	statistical modeling	47%
		JAA:	accounting theory	42%
		JAE:	statistical modeling	86%
		JAR:	statistical modeling	50%
Research method	0.21	AOS:	analytical - internal logic	41%
			opinion - survey	20%
		TAR:	analytical - internal logic	64%
			archival - primary	15%
		AUD:	analytical - internal logic	36%
			empirical - laboratory	23%
		JAA:	analytical - internal logic	58%
			archival - primary	26%
		JAE:	archival - primary	57%
			analytical internal logic	25%
		JAR:	archival - primary	35%
			analytical - internal logic	32%
Mode of Reasoning	0.20	AOS:	qualitative	51%
			quantitative-descriptive statistics	12%
		TAR:	qualitative	46%
			quantitative-analytical	31%
		AUD:	quantitative-analytical	30%
			qualitative	23%
		JAA:	qualitative	49%
			quantitative-descriptive statistics	20%
		JAE:	quantitative-regression	36%
			quantitative-analytical	18%
		JAR:	quantitative-analytical	35%
			quantitative-descriptive statistics	14%

The following three subsections deal with the three issues raised by DZ relating JAR to the accounting literature observed in this study: interdisciplinary integration, empirical research, and historic research.

5.1.2 JAR and Interdisciplinary Integration

Figure 1 displays the comparison of foundation disciplines between all the journals and JAR. The vertical axis displays the "contribution ratio" reflecting the proportion of articles having accounting as a foundation discipline. Therefore the lower the ratio the more articles having a non-accounting discipline as their foundation.

Figure 1. Contribution from other Disciplines: JAR vs All



The ratio of all articles (plotted with a 1) is lower than that of JAR (with a 2) until 1976 when JAR turns further towards the integration of other disciplines. The lines drawn in the chart use a 2/3 factor for smoothing the point fit.[9] This graph does not show that the JAR has hastened integration to a great extent. It was below the average in its integration index during

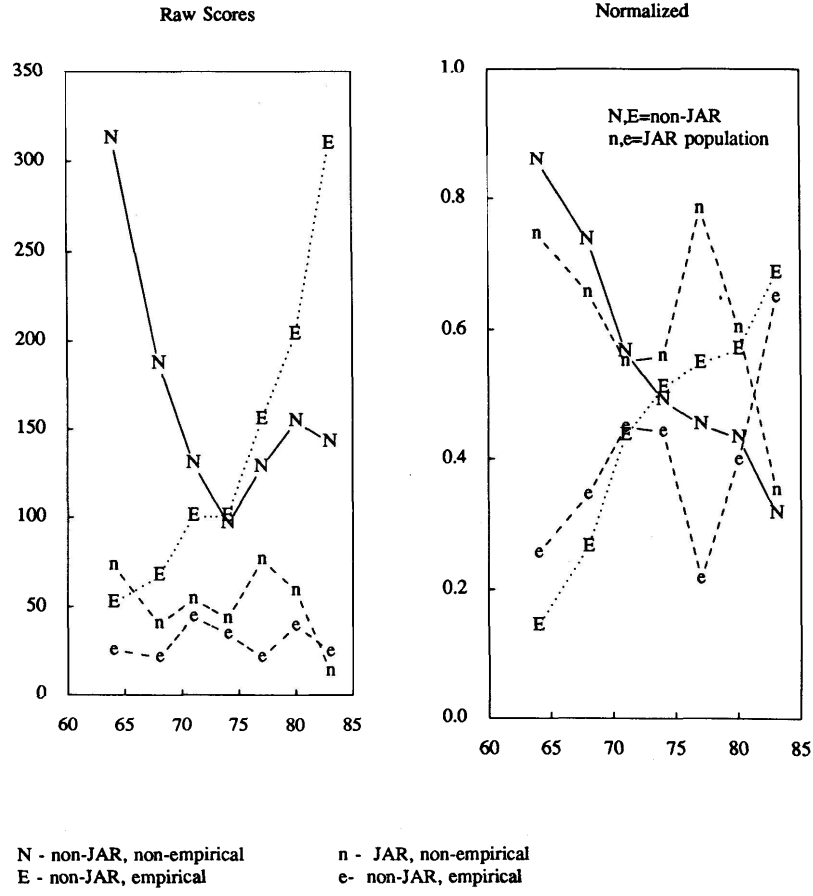
[9]See Becker and Chambers [1984] for the lowess procedure.

the first 13 years. Each of these journals published numerous articles with a non-accounting foundation discipline. In addition, the majority of AOS and JAE articles had a foundation discipline other than accounting.

5.1.3 JAR and Empirical Research

DZ also argue that the JAR has played a premier role in fostering empirical research. In Figure 2 we label research as empirical when its "research method" subcategory is empirical (case, field & laboratory), archival (primary & secondary) and

Figure 2. Empirical Research: JAR vs Others



opinion (survey).[10] Consequently, non-empirical "research methods" entail the analytical subcategories of internal logic ("apriori" and analytic) and simulation studies.

Figure 2 compares the publication of empirical (case, field, laboratory, archival, and opinion) vs. nonempirical (analytical) research in JAR versus other journals. The charts show overall frequencies and percentages of articles by period.

The JAR behaves in a similar pattern to the rest of the literature prior to the 1970-1972 period in the overall frequency chart. Further examination of this issue, using a percentage plot, indicates that JAR started with a higher percentage of empirical papers than other journals before 1970 but had a lower percentage thereafter. Since that time the other 5 journals have had a higher average percentage of empirical articles than the JAR. For the 1963-1974 period the data entail only JAR and TAR therefore the chart depicts merely a comparison of these two journals. It shows that until 1974 the JAR had a higher percentage of empirical research. It is because prior to 1974 JAR published annually an issue of Empirical Research in Accounting (the title of its annual research supplement). Since 1974, the JAR decided to expand its annual supplement to include "other types of research" [Dopuch, 1974, p. ii]. Another puzzling observation, in Figure 2, is the sharp decrease in empirical research published in the JAR during the 1976-1978 period complemented by an analogous increase in the non-JAR population. This effect is difficult to explain considering the continuity of the JAR's editorial policy and the reversion back to "normal levels" in the next period.

5.1.4 Historical Research

Figure 3 displays the number of articles dealing with accounting history topics. The picture shows a small but steady percentage of accounting history research in the literature. The numbers reported in Figure 3 for accounting history are conservative since the field developed its own journal, *The Accounting Historians Journal,* during this time period, and the journal is not represented in the database.

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[10]Archival primary research relates to the use of empirical data from databases (e.g. COMPUSTAT) and/or financial reports. Data in this case are not generated and recorded by the researcher as in laboratory studies. Archival secondary studies relate primarily to literature studies where the source is articles that discuss a particular topic. This taxonomy was adopted from Buckley [1976] and is discussed in detail by Vasarhelyi, Bao and Berk. [1985, p. 10].

Figure 3. History Articles in CAR

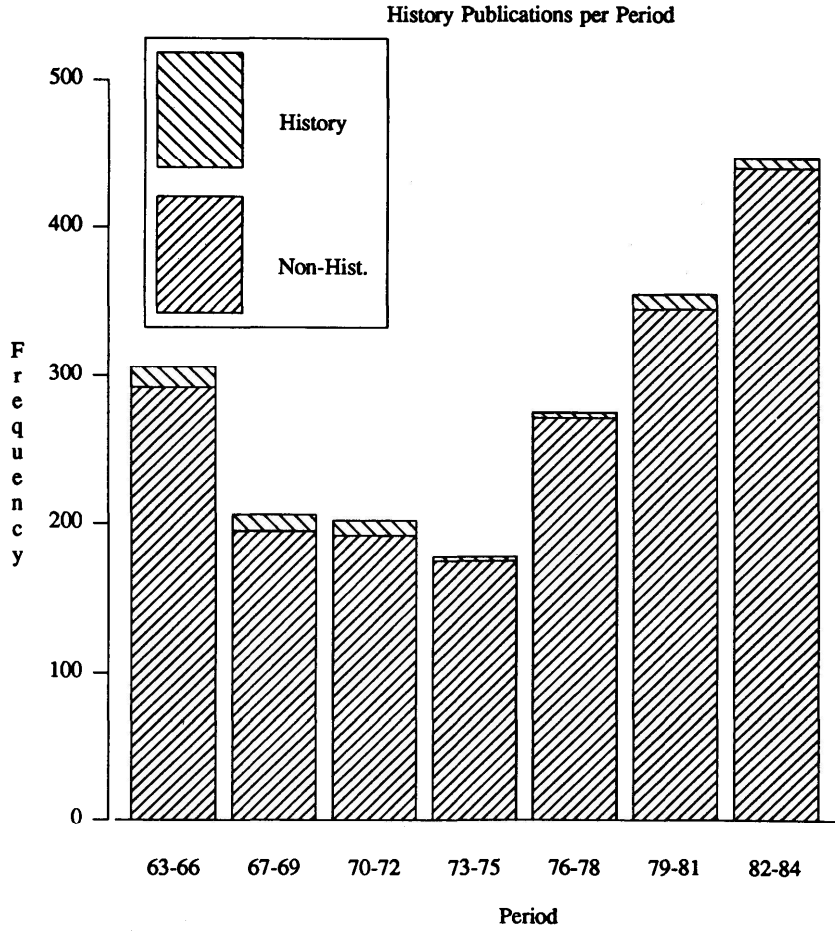

Figure 3 can be contrasted with the 17 occurrences of the history articles in the JAR shown in Table 4.

TABLE 4. Accounting History Articles in the JAR and non-JAR

Year	63-66	67-69	70-72	73-75	76-78	79-81	82-84
JAR	5	6	5	1	0	0	0
non-JAR	9	5	5	2	4	10	7

The comparison of non-JAR and JAR confirms DZ's assertions vis-a-vis the JAR, but not vis-a-vis the entire sample. The increase in history articles in the non-JAR population since 1979 resulted from Zeff encouraging this type of research when he became editor of TAR [Zeff, 1983, p. 134].

5.2 Content of Accounting Research

The content of accounting research in the MTDB can be examined through the composition of taxons within the four paradigms and research tool taxonomies. Table 5 presents the major taxons (taxons with the higher frequency of occurrence) in each taxonomy.

TABLE 5. Major Taxons

Taxonomy	Taxons	Percentage
Foundation discipline	accounting	44%
	economics	18%
	psychology	12%
	mathematics/decision/game theory	6%
School of thought	statistical modeling	34%
	accounting theory	25%
	behavioral-other	11%
Research method	analytical-internal logic	51%
	archival-primary	22%
	empirical-laboratory	10%
Mode of reasoning	qualitative	36%
	quantitative-analytical	28%
	quantitative-descriptive	11%

Table 5 shows foundation discipline — accounting, school of thought — statistical modeling, research method — analytical-internal logic, and qualitative mode of reasoning dominating their respective taxonomies. The major imports are from economics and psychology. This partially explains the heavy adoption of archival-primary, empirical-laboratory research methods, statistical modeling, and behavioral schools of thought taxons as shown at the right column and bottom row of Table 6.

Futher insight can be obtained by examining multivariate effects among these categorical variables. Table 6 tabulates research method versus school of thought. Cells contain frequencies with bold numbers emphasizing high frequency occurrences.

TABLE 6. Research Method vs School of Thought

	BEH. -HIP	BEH. -OTHER	STAT. MODE	ACCNTG. THEORY	ACCNTG. HIST.	INSTITU- TIONAL	OTHER	TOTAL
ANALYTICAL								
-INT.LOGIC	20	39	284	422	35	111	67	978
-SIMUL.	2	1	47	8	0	2	4	64
ARCHIVAL								
-PRIMARY	4	5	324	45	4	28	33	443
-SECOND.	4	10	26	13	20	7	9	89
EMPIRICAL								
-CASE	1	6	7	13	0	3	4	34
-FIELD	1	21	10	2	0	0	3	37
-LABORAT.	87	88	21	11	0	2	3	212
OPINION								
-SURVEY	5	56	8	14	0	17	11	111
TOTAL	124	226	727	528	59	170	134	1968

* 166 values missing
chi-square = 643
degrees of freedom = 42

Research is clustered in the internal-logic accounting theory, primary archival-statistical modeling, and internal logic-accounting theory combinations.

The high chi-square value suggest that the two dimensions are not independent and indicate that the taxons are not fully orthogonal. They also reflect the real effects of preferences and biases by researchers. Further research may be needed to examine the effect of editor or editorial policy change over time upon the clustering shown in Table 6.[11]

5.3 Trends within the Database

Table 7 examines the significant current trends of particular taxons in the literature. Two types of trends are examined. The first is the trend in absolute number of articles, and the second is the relative trend of percentage of publications.

[11]For example Zeff [1983] expressed concern about the effect that the application of modern empirical and analytical research methods may have over the development of thought along classical approaches, in particular accounting history.

TABLE *7. Significant Trends of Taxons

Taxonomy	Taxon	Trend Absolute Number	Trend Percentage
Foundation Discipline	Psychology	I	
	Economics/Finance		I
	Accounting	I	I
School of Thought	Behavioral-HIPS	I	I
	Behavioral-Other	I	
	Statistical Modeling-EMH	I	I
	Statistical Modeling-Time Series	I	
	Accounting Theory	D	D
	Accounting History	D	
	Institutional		D
Research Method	Analytical-Internal Logic		D
	Archival-Primary	I	I
	Archival-Secondary	I	
	Empirical-Laboratory	I	I
	Opinion-Survey	I	
Mode of Reasoning	Quantitative-Regression	I	I
	Quantitative-ANOVA	I	I
	Quantitative-Factor Analysis	I	I
	Quantitative-Nonparametric	I	
	Quantitative-Analytical	I	
	Qualitative		D

*I = Significant increasing-trend at the level of 0.01
D = Significant decreasing-trend at the level of 0.01
The trends are determined by the Z-values [Lehmann, 1975, pp.290-297].

Most of the significant trends shown are increasing occurrence of taxons. However, one taxon (accounting theory) has a decreasing trend in absolute number and in percentage. One taxon (accounting history) has decreasing trend in absolute number while three taxons (institutional, analytical-internal logic, qualitative) have a decreasing percentage trend.

Table 7 also confirms that the absolute number of studies with a psychology foundation discipline is significantly increasing while the percentage of studies with an economics/finance foundation discipline is significantly increasing. Archival-primary and empirical-laboratory studies are increasing significantly in absolute number and in percentage. Accounting history studies in the database are decreasing in numbers but have neither a significantly increasing nor a decreasing trend in percentage.

Quantitative-regression, quantitative-ANOVA, and quantitative-factor analysis studies are significantly increasing in absolute number and in percentage. Analytical-internal logic, qualitative studies are decreasing significantly in percentage.

The analyses presented in Table 7 show the significant trends for the twenty-two-year period. They, however, do not show the configurations of the trends. A different, but substantially more detailed analysis can be performed using a graphics. For illustration purposes, the percentage trends of accounting theory and human information processing are shown in Figure 4.

Figure 4. Percentage Trends

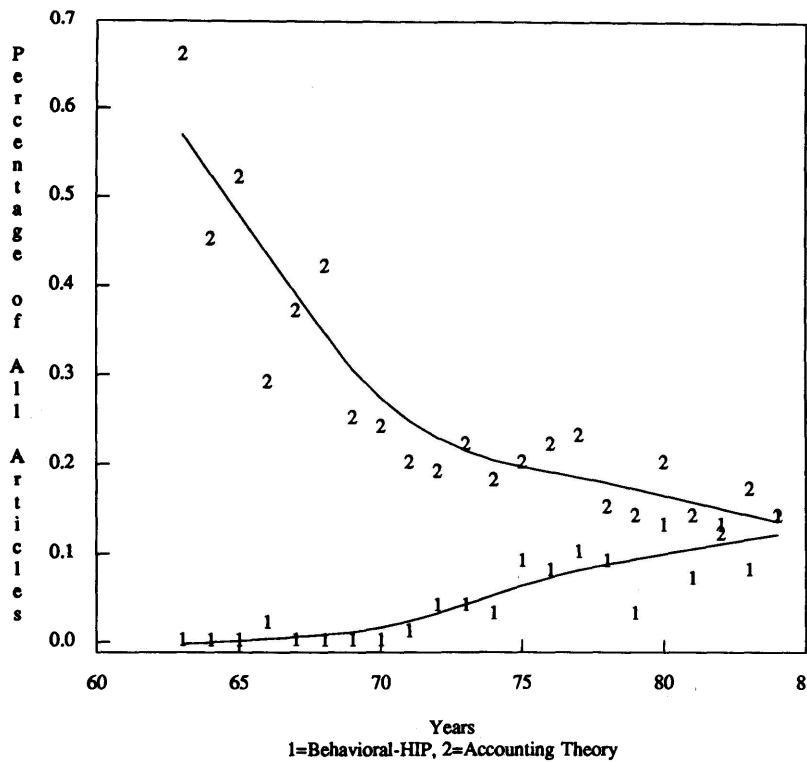

Figure 4 shows a steep decrease in the percentage of accounting theory studies over the years, particularly the 1965-1975 decade. Behavioral-HIPs studies, show a significant increase since 1970, then a new area of research.

The graphic analysis has also been applied to other taxons although the graphs are not presented. The graph for foundation discipline taxonomy shows that accounting is a dominant foundation. The curve is U-shaped with its dominance in the

1963-1969 and the 1976-1984 periods, and is supplanted by economics/finance and psychology based studies in the middle period.

The graph for the school of thought taxonomy shows a steeply decreasing trend in accounting theory research prior to 1972, and a much flatter decreasing trend thereafter. Both the behavioral and the statistical modeling taxons show a steadily increasing trend, although the latter dominates the former, during the twenty-two-year-period. Both accounting history and institutional research show a flat pattern.

The graph for research method taxonomy shows that both archival and the empirical research taxons have a steadily increasing trend. The analytical research taxon shows a continuously decreasing trend, dominates other taxons until 1981 when it is supplanted by archival research. Opinion research shows a flat pattern.

The graph for mode of reasoning taxonomy shows that quantitative research has a steadily decreasing trend prior to 1975, and a flat pattern thereafter. It dominates other taxons until 1972. The quantitative taxons, in general, have a steadily increasing trend during the twenty-two-year period.

6. Conclusions

This paper examined Contemporary Accounting Research through the classification of articles in this literature along four taxonomies. Both exploratory graphic techniques and confirmatory non-parametric statistics focused the examination on a set of issues to depict the recent development of the accounting literature. In addition, data were presented in such a manner to allow futher examination of other issues by the readers.

Journal analysis led to the pairing of journals in their nature. TAR and JAA were matched, as well as JAE and JAR, and AOS and AUD.

DZ's assertions about the JAR, quoted earlier, are examined. There has been increased integration into accounting of ideas and methods from other disciplines by both the JAR and other journals. There is a clear increase of empirical research in the sample and the JAR led this pattern through the 1963-1969 period. There is substantial decrease in historical research in JAR but not in the entire literature.[12]

[12]The advent of the Accounting Historians Journal, and non-inclusion in the MTDB sample leads to the indications that the percentage of history articles in the literature must have substantially increased.

It was found that accounting imports its theories primarily from economics and psychology, particularly since 1976. Modeling studies cover about one-third of the literature. Despite its decreasing emphasis, a priori studies still comprise a substantial part of the literature leading to a large number of qualitative studies.

The analyses of time patterns show many significant increasing trends in frequency and some noteworthy decreasing trends. The most significantly and steadily increasing trends since 1963 are the behavioral, statistical modeling, archival, empirical, and quantitative studies. There was a significant decrease in accounting theory, analytical-internal-logic and qualitative studies since 1963. All of the above indicate a decreased emphasis on a priori studies.

The analysis and discussion in this paper barely scratched the richness of the data in the MTDB. A series of research questions such as the transition and evolution of basic paradigms, and the prediction of trends still require extensive studies.

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APPENDIX A: Elements of Research

Dimension	Taxonomy	Taxon	Abbreviation
Paradigms	* Foundation Discipline	Psychology	(P)
		Sociology	(S)
		Economics/ Finance	(E)
		Engineering/Communication	(eN)
		Mathematics/Decision/Game Theory/Statistics	(M)
		Law	(L)
		Accounting	(A)
		Management	(mnGt)
	* School of Thought	Behavioral	(B)
		-Human Information Processing (HIP)	
		-Other	
		Statistical Modeling	(S)
		-Efficient Market Hypothesis	
		-Time Series, Econometrics	
		-Inform. Economics / Agency Theory	
		-Mathematical Programming	
		-Other	
		Accounting Theory	(T)
		Accounting History	(H)
		Institutional	(I)
Research Tools	* Research Method	Analytical -Internal Logic	(Anl)
		-Simulation	
		Archival -Primary	(aRc)
		-Secondary	
		Empirical -	(Emp)
		-Case	
		-Field	
		-Laboratory	
		Opinion Survey	(Opi)
	* Mode of Reasoning	Quantitative -Descriptive Statistic	(D)
		-Regression	(R)
		-ANOVA	(A)
		-Factor Anal., MDS, Probit, etc.	(F)
		-Non-parametric Statistics	(N)
		-Correlation	(C)
		-Analytical	(aNl)
		Qualitative	(Q)
Data or Reference Set	Information[12]		
		Financial Statements	(F)
		Internal Information	(I)
		External Information	(E)
		Market Based Information	(M)
	Accounting Area	Tax	(T)
		Financial	(F)
		Managerial	(M)
		Audit	(A)
		Information Systems	(I)
	Treatment[13]		

12 This taxonomy was examined in an abbreviated form as described above.

13 See Brown & Vasarhelyi (1985), pp.418-420.

* This taxonomy was focused in this paper.