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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.

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.

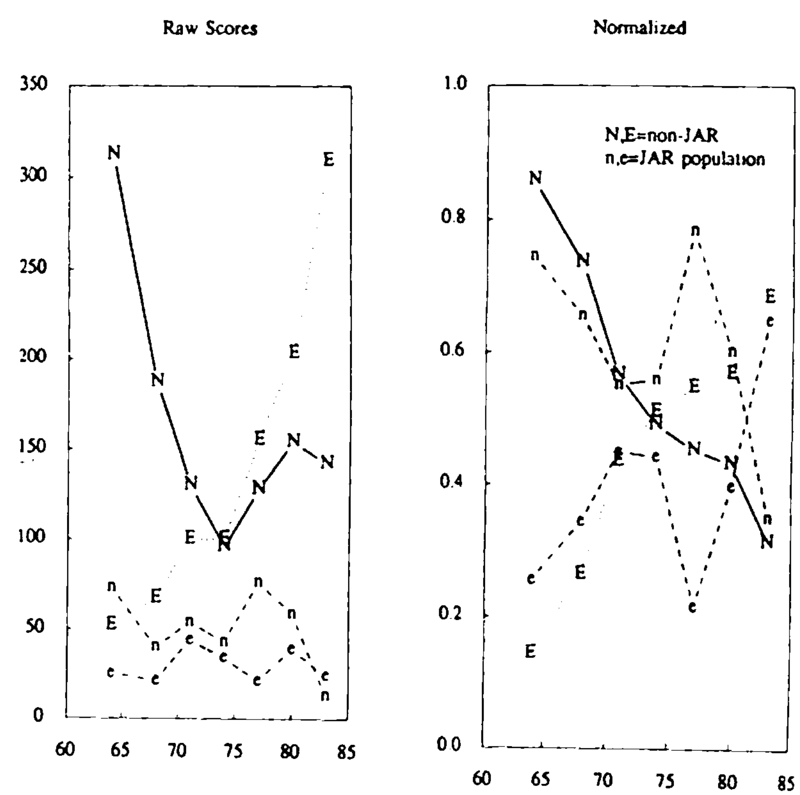
[5] The Accounting Review (TAR), Journal of Accounting Research (JAR), Accounting, Organizations and Society (AOS), Journal of Accounting, Auditing and Finance (JAA), Journal of Accounting and Economics (JAE), and Auditing: A Journal of Theory and Practice (AUD).

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

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 oc-

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	[illegible]
-SIMUL	2	1	47	8	0	2	4	[illegible]
ARCHIVAL								
-PRIMARY	4	5	324	45	4	28	33	[illegible]
-SECOND.	4	10	26	13	20	7	9	[illegible]
EMPIRICAL								
-CASE	1	6	7	13	0	3	4	[illegible]
-FIELD	1	21	10	2	0	0	3	[illegible]
-LABORAT.	87	88	21	11	0	2	3	[illegible]
OPINION								
-SURVEY	5	56	8	14	0	17	11	[illegible]
TOTAL	124	226	727	528	59	170	134	[illegible]

* 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.

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[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

The analyses presented in Table 7 show the significa trends for the twenty-two-year period. They, however, do n show the configurations of the trends. A different, but substa tially more detailed analysis can be performed using graphics. For illustration purposes, the percentage trends accounting theory and human information processing a shown in Figure 4.

Figure 4. Percentage Trends

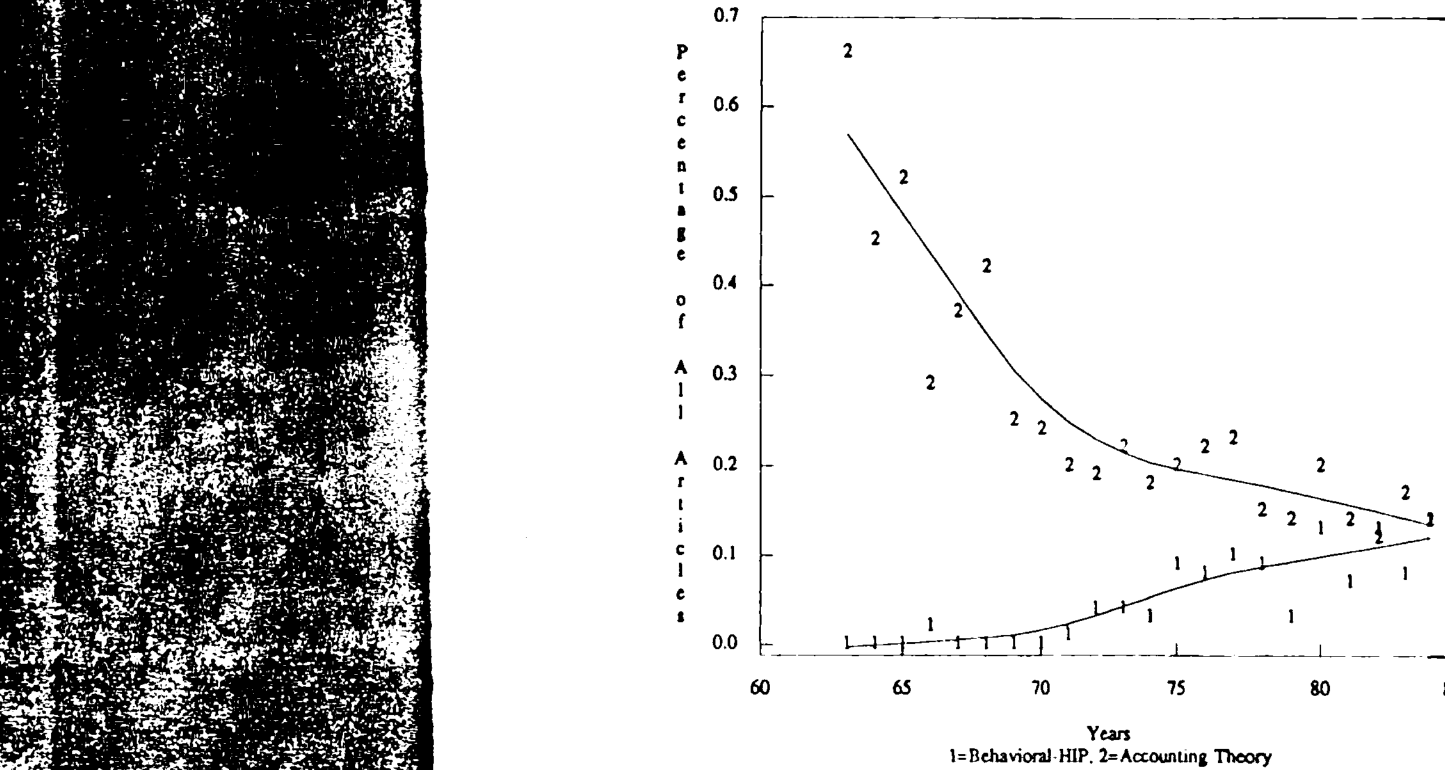

Figure 4 shows a steep decrease in the percentage of ac counting theory studies over the years, particularly the 196 1975 decade. Behavioral-HIPs studies, show a significant ir crease since 1970, then a new area of research.

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

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

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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