An Assessment of Institutional Research Productivity in MIS

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Abstract

In this study, major MIS research institutions are identified and ranked based on their contributions to quality MIS publication outlets. Over 10,000 pages of research generated over the past decade (1982-1991) are credited to over 190 institutions. The top 50 institutions are ranked. The method followed is similar to other studies conducted in well-established research areas in business, such as finance, marketing, and economics. The results provide objective and useful information to the profession.

INTRODUCTION

A recent feature article in the US News and World Report (1991) ranked 25 business schools based on a variety of factors such as academic reputation, student selectivity, graduation rate, etc. Rankings of this type, which are based primarily on opinion surveys, have frequently been conducted. While these surveys are useful, they do not necessarily reflect true assessment of quality. Factors such as general reputation of school, size of graduating body, personal loyalties to alma maters and personal experiences all potentially bias results. Thus generalizations become particularly weak when used to evaluate specific programs or departments where it is necessary to survey a large sample of experts from the program area. However, few will deny the importance of evaluating programs, as objectively as possible, in order to facilitate career choices by faculty and students, and disseminate knowledge among other decision making groups.

Leading programs are those that attract the best students and retain the most capable faculty. In many institutions, a powerful measure of faculty capability is research productivity. Productive faculty integrate their findings with those of other observers in order to further knowledge in their chosen field as well as bring current theory and practice into the classroom. Their research findings are also disseminated in significant scholarly publications around the world. Researchers and practitioners within the area learn much from the reading and subsequent discussion of findings and theories presented in these journals. Such scholarly activity brings visibility and prestige to the authors and their affiliated institutions. While it takes more than publications to make a quality program, it is certainly an important element in the equation for excellence.

There are numerous opinions in the academic world regarding the best programs in the MIS area. However, little effort has been undertaken to rigorously evaluate the field in terms of research contribution by institution. A plausible explanation of this state-of-affairs is the relative youth of our field. Many of the "core" MIS journals such as MIS Quarterly, Journal of MIS (JMIS), and Information Systems Research (ISR) have "come of age" only in the last eight to ten years. While such a time frame seems minute in terms of more-grounded scientific disciplines such as economics or physics, enough time has passed and enough research has been generated to pause and take note of the discipline's top centers of scholarly activity. This study undertakes such an evaluation. Similar to other studies conducted in general business (Niemi, 1988), management (Stahl, et. al., 1988), marketing (Hoverstad, et. al., 1991; Niemi, 1988) and finance (Klemkosky and Tuttle, 1977; Ederington, 1979; Niemi, 1987), this study ranks institutions based on research productivity as measured by page presence in the field's leading journals. Such assessment provides a more objective criterion on which to identify established as well as "up-and-coming" centers of scholarly research in the area of MIS.

MEASURING RESEARCH PRODUCTIVITY

The majority of prior studies surveyed credit pages of published research in selected journals to the institutions represented by the authorship (Niemi, 1987; Niemi, 1988; Hoverstad, et. al., 1991). Some studies credit the number of articles instead of pages (Stahl, et. al., 1988). Little or no rationale is given for using one over the other. If journals have a limited variance in the number of pages per article published, these two measures should be highly correlated. In either case, credit is given to an institution depending on the con-
tribution of authorship. For instance, in the case of a three 
author paper with two authors from institution A and one from 
institution B, institution A will get credit for two thirds of an 
article or two thirds of the pages of the article the remainder 
is credited to institution B.

A second difference noted in prior studies is the use of 
institutional productivity vs. per capita productivity. While 
most studies assess overall productivity credited to an institu-
tion, some studies calculate publications per faculty. In a 
recent article in the Journal of Finance, Niemi (1988) dis-
cusses his rationale for using the former measure:

"The research rankings of institutions reflect the 
total volume of published scholarship. There has 
been no attempt to produce rankings that take into 
account size differences among programs. The total 
volume of scholarship measure provides an ac-
curate representation of the centers of significant 
research over the past decade. Unfortunately, 
smaller departments are not likely to stand out in 
this type of measure. One disadvantage of per 
capita indicators is their sensitivity to the work of a 
small number of individuals in small departments. 
Faculty and graduate students are more likely to be 
interested in leading centers of research rather than 
departments with high per capita levels of research. 
In addition, department sizes have changed consid-
erably over the past decade and it would be very 
difficult to come up with an accurate annual 
measure of finance researchers at each institution."

(pp.1390)

The arguments of Niemi are reflected in this study. The 
objective is to use the department as the unit of analysis, rather 
than the individual. While admittedly, some departments 
prosper on the basis of one or two highly productive faculty, 
an overall measure is more useful in identifying departments 
that contribute the most to MIS journals. Further, the multi-
disciplinary nature of the field and the "housing" of MIS 
faculty in various umbrella departments, makes the problem 
of accurately identifying the relevant number of MIS faculty 
in each institution very difficult.

SAMPLE OF ARTICLES

Given the diversity of the MIS field, it is difficult at best 
to select a set of journals that is palatable to all MIS scholars. 
Clearly, in studies of this nature the selection of journals must 
be based on widespread opinion in order to eliminate biases 
inherently contained in self-selected samples or samples 
based on "expert opinion". A recent study by Gillenson and 
Stutz (1991) provides the objectivity and wide-ranging 
sample necessary to satisfy this criteria. These authors ranked 
38 MIS publication outlets based on a survey of 269 AACSB 
accredited business schools. The resultant mean journal 
scores and rankings reflect the combined opinion of 135 
chairmen/senior professors in the IS area. The top five re-
search journals and their associated mean scores (4, 3, 2, 1, 0, 
from top to nil) according to this survey are: Management 
Science (score=3.61), MIS Quarterly (3.54), Communica-
tions of the ACM (3.39), Decision Sciences (2.93) and the 
Journal of MIS (2.84).

This set of journals is used in the analysis presented here. 
In addition, rather than assuming equal importance of each 
journal, the average score for each journal is used to weight 
the importance of each research contribution. Thus pages and 
articles appearing in Management Science are weighted 
higher than those of Journal of MIS etc. These journals reflect 
quality MIS outlets and also represent the consensus of prior 
studies (Lending and Wetherbe, 1992; Shim, et. al., 1991; 
Ramesh and Stohr, forthcoming; Vogel and Wetherbe, 1984; 
Hamilton and Ives, 1983). Information Systems Research 
(ISR), a relatively new journal sponsored by TIMS (which 
also publishes Management Science), is also regarded by IS 
academics as a high quality outlet and was included in our 
sample with a weighting equivalent to Management Science 
(Gillenson and Stutz, 1991). Few would argue that this set of 
journals has played a significant role in shaping the MIS field 
over the past decade.

All articles from core MIS journals (MISQ, ISR, JMIS) 
were selected. Only MIS articles from Management Science 
and Decision Sciences were selected based on keywords. 
Articles that included Information Systems, MIS, DSS, 
Human Information Processing, Information Economics, etc., 
as keywords were chosen (Barki, et. al., 1988; Alavi, et. al., 
1989). For CACM, only articles that appeared in the "social 
impacts of computing", "management of computing" and 
"human aspects of computing" were included. The classifica-
tion code H (Information Systems) and K (Computing Milieu, 
i.e., K6: Management of Computing and IS) includes these 
categories. All articles from 1982-1991 were selected in the 
sample. Since JMIS started in late 1984, only articles in the 
1985-1991 issues were chosen. Book reviews, dissertation 
abstracts, letters, opinions and editorials were excluded from 
the sample.

METHOD

The selected articles resulted in over 10,000 pages of 
research that were credited to over 190 respective institutions. 
Similar to previous studies, pages were credited to an author 
based on the proportion of authorship. In addition, articles 
were credited to an author on a similar basis. The disclosure 
of articles as an alternative measure to pages provides insight 
for those who might debate the validity of a page measure. 
(Note: A Spearman's rank correlation run on the institutional 
rankings based on pages and articles was computed as 0.92, 
significant at p=0.000). Since page and font size differed for 
each journal, pages were standardized as per the style of MIS.
This was done by counting the number of words on 10 pages of text for each journal and dividing them by the number of words on ten pages of the MIS Quarterly. The pages of each journal were then multiplied by these quotients to reflect the number of "standardized pages". These could then be added among journals. An overall weighted measure was computed (in points) based on the weighting given to each journal page as indicated above.

An institution received credit for an article based solely on the affiliation listed on the publication. Some articles might have been written at one institution, yet credited to another (e.g., visiting appointments, job commitment to another institution, etc.). Given the time frame of analysis (10 years) and the large number of institutions considered, it is assumed this does not significantly bias the results (Stahl, et. al., 1988).

RESULTS

To observe overall as well as incremental changes in institutional productivity over the decade, two 5 year periods (1982-86 and 1987-91) and a single 10 year period (1982-91) were considered. Table 1 ranks the top 50 MIS research institutions. Productivity measures (number of standardized pages, percentage of total pages within period and number of articles) are provided for the complete decade and for each 5-year period. Ranks are based on the respective weighted scores for each institution. These scores are derived by multiplying the number of standardized pages by the associated journal weight. These values are then summed for each institution. For instance, 10 pages of MIS Quarterly of which 1/2 is authored by a faculty member of institution A would result in a score of 3.54 X 10 = 35.4 X .5 = 17.75 being added to that institution's existing sum. Current MIS faculty counts as indicated by the 1992 Directory of MIS Faculty are also provided.

The change in rank for each institution over the decade can be seen from Table 1. The dominance of the University of Minnesota is apparent, with approximately 8% of total MIS page contribution for the decade examined. They are followed by Arizona and MIT, which have made contributions of about 7% and 5.5% respectively to the MIS literature. Interestingly, the top 15 institutions have contributed over half of the total pages analyzed in both time periods examined.

A Spearman’s rank order correlation was computed for the two sets of institutional rankings (1982-86 and 87-91) as 0.19 (not significant at p). This suggests that the relative productivity of institutions has changed over the two periods. In fact, on observing Table 1, it can be seen that many institutions experienced large improvement (e.g., Pittsburgh, Colorado - Boulder, Georgia, SMU) or decline (e.g., Southern California, Texas A&M) in rank. It could be assumed that this is often due to turnover or hiring of productive faculty rather than a sudden decline in productivity of existing groups.

In all, 10,214 pages of MIS research were attributed to 195 various institutions. Broken down by time period, 3,436 pages were authored between 1982-86 and 6,778 pages between 1987-91. This represents a change of over 97%! While some of this variation can be attributed to the addition of newer journals such as Journal of MIS and ISR, the authors noted a significant increase in the number of core MIS articles appearing in "mixed" discipline journals such as Decision Sciences, CACM, and Management Science in the latter time period. This increase in knowledge attests to the growing importance of the discipline to business practitioners and its appeal to scholars from various reference disciplines.

CONCLUSION

Well-established research fields such as finance, management and marketing have continuously attempted to objectively evaluate institutional productivity within their domain. Within the field of MIS, important studies have tracked research in terms of type, quantity, and outlet (Vogel and Wetherbe, 1984; Lending and Wetherbe, 1992) In this study we compliment and extend the efforts of these works by objectively weighting article contributions based on journal quality. Doing so allows the dissemination of information that could lead to consistency in identifying major contributors to the profession. Lack of objective information could lead to misconceptions based on institutional stereotyping, parochial interests and personal experiences. This could adversely influence individual decisions that involve choice of institution.

The decade analyzed (1982-91) has been significant for the MIS field. The first International Conference on Information Systems was conducted in 1980. Since then, MIS has made progress both in terms of quality and quantity of research contribution. As the discipline has evolved, doctoral programs in MIS have increased. In addition, the core journals have become more prominent and have increased in number and size. All this bodes well for the field, its contributors and its prominence within the institution.
REFERENCES


