IS Faculty Research Productivity: Influential Factors and Implications

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Why are some faculty members more productive than others in academic research? We constructed a number of hypotheses about faculty research productivity based on the life-cycle model of academic research and previous studies. Tests were conducted using data collected via a national survey of information systems (IS) faculty. The results show that while there are only two significant factors contributing positively to the research productivity—the time allocated to research activity and the existence of IS doctoral programs—many other factors appear to have significant adverse effect on research productivity, such as the number of years on faculty, the teaching load when exceeding 11 hours weekly, and non-IS, non-academic employment experience. The results also suggest that some of the commonly proposed influential factors, such as tenure status, academic rank, school type, as well as IS-related employment experience, have no significant effect at all. The implications of these findings and the limitations of the study are also discussed.

INTRODUCTION

What makes a faculty member more productive in academic research? This is a question of great interest to many tenure-earning and tenured faculty members in academic institutions where faculty performance is evaluated heavily based on research productivity. Productive faculty not only further the knowledge in their professional fields by integrating their findings with those of others via scholarly publications disseminated around the world, they also bring visibility and prestige to themselves and their affiliated institutions, which in turn attracts research grants and more qualified faculty and graduate students (Grover, Segars, and Simons, 1992; Levitan and Ray, 1992). Because of this, academic institutions are increasingly emphasizing research productivity when evaluating tenure, merit, funding, and salary decisions (Lane, Ray, and Glennon, 1990; Levitan and Ray, 1992; Im and Hartman, 1997).

As a consequence, it is no surprise to see a growing interest in studying the factors affecting research productivity of individual faculty members as well as institutions (e.g., Niemi, 1988; Lane, Ray, and Glennon, 1990; Levitan and Ray, 1992; Grover, Segars, and Simon, 1992; Hancock et al., 1992). Two distinctive research approaches can be identified in the literature of research productivity. One approach examines the collective characteristics of all academic researchers by focusing on the motivation of research, as represented by the life-cycle model (Diamond, 1986; Levin and Stephan, 1991; Goodwin and Sauer, 1995). This model posits that research productivity of a researcher is determined by the interaction of investment motivation and consumption motivation modulated by the process of aging and career maturity. The other approach emphasizes the effects of institutional and personal characteristics on the research productivity, such as teaching load, time management, and tenure status (Lane, Ray, and Glennon, 1990; Levitan and Ray, 1992; Hancock et al., 1992).

Although these studies have significantly improved our understanding of academic research productivity, the findings are often inconsistent, sometimes even conflicting, depending upon the research approach undertaken and the
academic disciplines being studied. In this study, we examine the institutional and personal factors affecting the research productivity of information systems (IS) faculty in the United States based on the results of a national survey. Our data and test model show that factors influencing research productivity of junior and senior IS faculty members differ, although many factors, such as teaching load and time allocation for teaching, research, and service, are common to both groups. We found that prior IS-related employment experience shows significant positive correlation with research productivity of junior faculty members, but has no relationship to that of the senior faculty. On the other hand, we found that the affiliation with an IS program that offers a doctoral degree is significantly positively correlated with the research productivity of senior faculty members, but has no apparent effect on that of the junior faculty members. These findings, augmenting previous ones, should help administrators and faculty members alike make informed decisions in evaluating performance, managing time, and balancing teaching, research, and service loads.

REVIEW OF RESEARCH PRODUCTIVITY

As higher education institutions compete with each other in getting funding for research and teaching programs and attracting quality faculty and students, it has become increasingly important for academics to be more productive in their research fields. Being classified as a “research university” is often perceived as an indication of quality programs, faculty, and students. Very often such classification is based on the research productivity of faculty members or specific programs of a university. In the area of information systems, there have been regular publications comparing the statistics of faculty research productivity of various IS programs in this country (Vogel and Wetherbe, 1984; Lending and Wetherbe, 1992; Swanson and Ramiller, 1993). Grover, Segars, and Simon (1992), for instance, studied the publications by IS faculty members of more than 190 institutions in “core” MIS journals. The top 50 institutions were ranked based on a weighted page count of articles published by their IS faculty. The study, however, did not provide any analysis of why these institutions achieve higher research productivity and if they share any common characteristics that contributed to the high productivity.

There are many reasons why academic institutions want to be ranked high in these types of studies. Prestige is one thing, but enhanced ability to attract funding for various research and teaching programs from public and private sources may be even more important. To achieve sustained high productivity, an institution can either keep hiring productive faculty members for their programs, which is often impractical due to high cost, or try to identify the factors that most significantly influence the productivity of faculty members. It is the second issue that is the primary interest of this study: What factors make a faculty member more productive? And closely related to the first question: What can an institution do to help its faculty members to be productive?

One of the well-established theories of research productivity is the life-cycle model which posits that the interaction between two major factors dictates the behavior of an academic researcher, modulated by the process of natural aging: investment-motivated research and consumption-motivated research (Diamond, 1986; Levin and Stephan, 1991). The investment hypothesis states that an individual engages in research because of the perceived significant future financial reward for the research activity. The consumption hypothesis stresses an individual’s fascination with research and the satisfaction associated with solving research puzzles. The life-cycle model suggests that early in the career, the strong investment incentive for research complements a researcher’s puzzle-solving urge, resulting in an initial surge in research productivity. But as the researcher ages, and the present value of the investment declines, they become less productive.

The life-cycle model is appealing in explaining aggregated productivity data across institutions. But it fails to address individual and institutional differences. It is not unusual for some individuals to remain productive throughout their career, while others quickly drop out of the race after a promising start. Goodwin and Sauer (1995) studied 140 tenured economic faculty members in seven research-oriented academic departments. They found that in general the research productivity of an individual researcher follows the basic pattern of the life-cycle model: the productivity rises sharply in the initial stages of a career, peaks at the time of tenure review, and then begins a decline. However, the rate of the decline is slower than that predicted by the life-cycle model. Several factors were examined in explaining the different declining patterns. It was found that the post-peak decline in productivity is quite modest for the high publication rate group compared to the low publication rate group, which is consistent with the hypothesis that early recognition provides the so-called reputation capital, which yields positive returns in subsequent periods. Career choices of individual researchers after tenure also were found to significantly affect the decline patterns: those who took academic administrative positions, such as department head, dean, or journal editor, showed a significant drop in productivity compared to their colleagues. The study also found a strong tendency for institutional productivity equalization: those who graduated from the top economics Ph.D. programs were significantly more productive than others, and faculty in one institution tended to be more productive than those of another across the board.

While these findings are informative, they offer few insights for individual faculty members and administrators seeking to improve research productivity in a given institutional environment. Levitan and Ray (1992) provided a more detailed description of the personal and institutional charac-