Economics of Education Review 49 (2015) 42–54

Contents lists available at ScienceDirect

Economics of Education Review

journal homepage: www.elsevier.com/locate/econedurev

Changing salary structure and faculty composition within business schools: Differences across sectors and state funding levels

John J. Cheslock [a,*], Trina M. Callie [b,1]

[a] Pennsylvania State University, 400 Rackley Building, University Park, PA 16801, United States
[b] University of Arizona, Eller College of Management, 1130 E. Helen, Tucson, AZ 85716, United States

ARTICLE INFO

Article history:
Received 18 October 2013
Revised 16 July 2015
Accepted 2 August 2015
Available online 8 August 2015

JEL classification:
I22
J31

Keywords:
Faculty salaries
Salary wage differentials
State and federal aid
Resource allocation

ABSTRACT

We employ new data to examine how public higher education institutions adjusted the salaries and composition of their business faculty during a financially challenging period. The data's multilevel structure allows us to describe changes in between-institution inequality, within-institution inequality, and their interaction. To examine the role of finances, we compare public and private institutions and employ difference and fixed-effects models to study the effect of state appropriations. Our results indicate that financially stressed publics almost matched the salary increases of their competitors between 1999 and 2006, but reductions in the number of professors–especially full professors–accompanied this salary growth. The salary gap across public institutions increased, while within institutions, salary compression and salary inequality within rank grew.

1. Introduction

The financial situation facing most higher education institutions is daunting. As ratings agencies, like Moody's Investors Service, have highlighted in reports, the traditional revenue sources sustaining higher education institutions, governmental funds and tuition and fees, are eroding (Kiley, 2013). Few higher education institutions have access to substantial amounts of revenue from other sources. Accompanying this challenge is the cost structure underlying higher education institutions. As Archibald and Feldman (2011) skillfully explain, higher education is a personnel-services industry that relies heavily on highly educated skilled labor and cannot easily reduce costs through technological progress. For industries with these characteristics, costs will naturally rise over time.

With problematic revenue trends and steadily increasing costs, colleges and universities must take active steps to balance their budgets. This paper will examine how colleges and universities adjust their instructional personnel in response to financial challenges. As we will document later, institutions can adjust their instructional personnel in a variety of ways to reduce expenditures. They can reduce the overall size of their instructional faculty, reduce the share of their faculty that is tenure-stream, and/or increase the share of tenure-stream faculty that is assistant professors. Compensation per faculty can also be changed, which can lead to reductions or slow growth in average salary, salary compression across ranks due to slow salary growth for faculty who have not recently engaged the market, and/or changes in the differentiation of salaries within rank.

* Corresponding author. Tel.: +1 814 865 9739; fax: +1 814 865 3638.
E-mail addresses: jjc36@psu.edu (J.J. Cheslock), tmcallie@me.com (T.M. Callie).
[1] Current address: Raytheon Corporation, 3360 E. Hemisphere Loop, Bldg M10/9, Tucson, AZ 85706, United States.

http://dx.doi.org/10.1016/j.econedurev.2015.08.001
0272-7757/

We examine these potential adjustments using data on business school faculty from an Association to Advance Collegiate Schools of Business (AACSB) survey that contains faculty-level salary data for all full-time faculty at a large number of colleges of business within the United States. This data set is – to our knowledge – the only one that contains faculty-level observations for a sizable number of faculty per institution, a large number of institutions, and the same set of institutions across multiple years. These traits allow us to examine the wide range of changes that higher education institutions can make to the composition and compensation of their faculty.

We use two types of comparisons to relate employment changes to the financial pressures facing colleges and universities. Our first comparison is between public and private higher education institutions during a period in which the revenue sources disproportionately supporting private institutions fared better than the primary revenue sources supporting public institutions. We richly describe each of these sectors and the differences between them by exploiting the multilevel structure of our data set so that we can examine between-institution salary differences, within-institution salary differences, and the intersection between the two. Our second comparison is between public institutions experiencing very different trends in state appropriations. By employing difference and fixed-effects regressions, we examine how changes in salaries and faculty size and composition relate to changes to an institution's level of state appropriations. For both types of comparison, we present graphical depictions of results for all 99 salary percentiles, which allow us to examine questions pertaining to the shape of the full distribution of faculty salaries.

Our data set, which contains business school faculty, does not allow us to make direct statements about other fields of study, but the business school context is an important entity to understand by itself and the results may have applicability to similar contexts. Business schools may not be as reliant on governmental funds because they can charge relatively high prices for executive education, MBA programs, and other educational initiatives (Zell, 2001). If the business school is able to keep a substantial share of tuition dollars they generate or if the institution invests more heavily in units with revenue potential in response to governmental funding cuts, then the budgets for business schools may not be seriously affected by funding cuts. Business schools, however, do not always see their total revenues increase when their tuition and fee revenues increase as their institution may use a substantial share of these tuition dollars to help fund other parts of the institution (Friga et al., 2003). Furthermore, salary adjustment programs and hiring freezes are set at the organization level at many universities, which means that the personnel policies at many business schools will be affected by the general fiscal health of their institutions.

2. Past research

At the start of the 1980s, private and public institutions offered roughly similar salaries to their faculty on average, but a gap emerged during the 1980s and grew in the subsequent years (Alexander, 2001; Thornton, 2011). The growing salary gap between public and private institutions has made it difficult for publics to attract and retain top professors. Zoghi (2003) finds that the lower salary increases at publics were not offset by increases in other work-related benefits. Because Ehrenberg, Kasper, and Rees (1991) demonstrate that professors are less likely to continue at a school when their salaries are lower, it is not surprising that Ehrenberg (2003a, 2003b) finds that continuation rates were lower at publics relative to privates during the 1990s.

Several studies suggest that inequality in average faculty salaries increased across institutions within both the public and private sectors (Bell, 2000; Ehrenberg, 2003a, 2003b). By examining the 5th, 50th, and 95th percentiles, Bell (2001) provides evidence that this increase in inequality is due primarily to the highest-paying institutions further increasing their salary advantage. Closer examination of these trends suggests that much of the increasing inequality across publics is due to growing inequality in state appropriations and much of the increase across privates is due to growing inequality in endowment assets (Ehrenberg, 2003a, 2003b).

Several recent studies could partially explain these patterns. Kim, Morse, and Zingales (2009) find that the positive effect of being affiliated with a top 25 university on an individual faculty member's research productivity disappeared in the 1990s. They attribute this result to a reduced importance of physical access to productive research colleagues due to innovations in communication technology. Importantly for our purposes, they show that these trends caused some leading institutions to increase their faculty salaries. Another explanation for growing salary differences across institutions is the rapid increase in wealth at elite private institutions (Carbone & Winston, 2004; Winston, 2004). Brown, Dimmock, Kang, and Weisbenner (2014) find that doctoral universities alter the compensation, size, and composition of their faculty in response to fluctuations in endowment levels.

We know less about how salary differences within institutions have changed. Some evidence suggests that differences across certain academic fields have grown (Ehrenberg, 2004). Other research has documented an unexplained salary gap between male and female faculty that has mostly persisted over time (Porter, Toutkoushian, & Moore, 2008). Monks (2003) finds that within-institution salary inequality has grown in general; he reports large increases in within-institution salary inequality between 1987 and 1998 for both the public and private sectors. For any individual year, the literature has demonstrated that private institutions have greater salary inequality than public institutions, and this phenomenon has been partially attributed to the greater dissemination of salary information in public institutions (Card, Mas, Moretti, & Saez, 2012; Pfeffer & Langton, 1988).

The literature has clearly demonstrated that higher education institutions are increasingly employing fixed-term faculty (Baldwin & Chronister, 2001; Thornton, 2011). For example, Ehrenberg and Zhang (2005) find that between 1989 and 2001 at 4-year institutions, there has been an increase in the share of full-time faculty that are non tenure-track, the share of all faculty that are part-time, and the share of new-hires that are non tenure-track. Zhang and Liu (2010) find that the composition of an institution's faculty is related to the faculty salary levels provided. Institutions that offer