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Changes in the Academic Labor Market for Economists

Abstract
[Excerpt] American colleges and universities are increasingly substituting non-tenure track full-time and part-time faculty for full-time tenured and tenure track faculty. Moreover, institutions of public higher education, where almost two-thirds of the full-time faculty members at four-year institutions are employed, are under severe financial pressure. The share of state budgets devoted to public higher education is declining. The salaries of economics department faculty members at public higher education institutions have fallen substantially relative to the salaries of their counterparts at private higher education institutions and it is becoming increasingly difficult for the publics to compete for top faculty in economics. Moreover, it is at the economics departments in public institutions where the greatest increase in the usage of non-tenure track faculty has also occurred. This article begins by presenting levels of Ph.D. production, and then discusses factors determining demand for economics departments, differences between public and private universities, and the range of pay between departments within universities.

Keywords
higher education, academic labor markets, faculty composition, faculty compensation

Comments
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Revised Draft (March 9, 2004)

Changes in the Academic Labor Market for Economists

Ronald G. Ehrenberg

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American universities are currently graduating about 1,000 to 1,100 Ph.D.'s in economics, econometrics and agricultural economics each year. Combining these newly minted Ph.D.'s with those who are looking to make a change, several thousand economists are looking seriously for academic jobs. Recent years, have not been good ones for job seekers; as an example, the number of new jobs listed in *JOE* declined from 2650 in calendar year 2000 to 2101 in calendar year 2003.[1] This decline was undoubtedly due to the decline in the stock market and the recession that took place during this period, both of which impacted upon public and private higher education, as well as upon nonacademic employers.

Current Ph.D. students in economics, who will be looking for the positions in future years, should have some reasons for optimism. After all, American college faculty are aging and, in spite of some postponement of retirements due to the ending of mandatory retirement and the decline in the stock market at the start of the twenty-first century, one might expect that the replacement demand for faculty positions would be large. College enrollments that are projected to increase substantially throughout the first decade of the twenty-first century, which might also be expected to lead to increased demand for faculty.

However, the job picture ahead is far from sunny. American colleges and universities are increasingly substituting non-tenure track full-time and part-time faculty for full-time tenured and tenure track faculty. Moreover, institutions of public higher education, where almost two-thirds of the full-time faculty members at four-year

[1] New job listings in *Job Opportunities for Economists* are summarized annually in a report that appears in the May issue of the *American Economic Review*- the data presented in each year's issue are for the previous calendar year. The 2003 data were provided to us by John Siegfried, Secretary-Treasurer of the American Economic Association.

institutions are employed, are under severe financial pressure. The share of state budgets devoted to public higher education is declining. The salaries of economics department faculty members at public higher education institutions have fallen substantially relative to the salaries of their counterparts at private higher education institutions and it is becoming increasingly difficult for the publics to compete for top faculty in economics. Moreover, it is at the economics departments in public institutions where the greatest increase in the usage of non-tenure track faculty has also occurred.

This article begins by presenting levels of Ph.D. production, and then discusses factors determining demand for economics departments, differences between public and private universities, and the range of pay between departments within universities.

Ph.D. Production

The number of new economics Ph.D.'s granted by American universities in economics (including those granted in econometrics and agricultural economics) rose dramatically starting in the late 1960s, rising from just over 600 in 1966 to 1,100 by 1970. From that peak, as shown in Figure 1a, the number of new economics Ph.D.'s hovered at just under 1,000 per year for most of the 1980s before rising to around 1,000 to 1,100 per year during the last few years.

However, this apparent stability in the number of new Ph.D.'s produced conceals a different underlying trend: the probability that an American college graduate goes on to receive a Ph.D. in economics has substantially declined. Between 1970-71 and 2000-

2001, the number of bachelor's degrees granted per year by American colleges and universities rose by about 50 percent from 840,000 to 1,244,000. On average, about 2 percent of all bachelor's degrees in the United States are granted annually to students majoring in economics, although there are cycles in the relative popularity of economics as an undergraduate major (Margo and Siegfried, 1997). Approximately three-quarters of all economics Ph.D.'s are granted to students who majored in economics as undergraduates (Siegfried and Stock, 2003). But despite the rise in the number of economics majors, traditionally the main feedstock of economics Ph.D.'s, the number of economic Ph.D.'s has not been rising.

While the chance that an economic major continuing on to a Ph.D. in economics has declined, the probabilities that he or she goes on to receive either a law degree or a masters' degree in business have gone up substantially. From 1970-71 and 2000-2001, the number of masters' degrees granted in business administration almost tripled, growing from 42,000 to 116,000 and the number of first professional degrees granted in law more than doubled, going from 17,000 to 38,000 (*Digest of Education Statistics*, 2002 (2003), Tables 246, 253 and 259). Large and growing earnings differentials between academia and the professions have undoubtedly played a large role in these changes (Bok, 1993; Hamermesh, 1995).

In fact, the decline in the probability of American college graduates going on for Ph.D.'s in economics is even larger than that suggested by the relatively constant number of Ph.D.'s granted in economics at American colleges and universities, because the share of Ph.D.'s in economics granted to foreign students has dramatically increased. As Figure 1b indicates, the percentage of Ph.D.'s granted to foreign students has grown from a little

over 20 percent in 1966 to about 56 percent in 2002. This growth in the share of Ph.D.s granted to foreign students is not unique to economics; similar changes have occurred in many physical science and engineering fields.

Foreign Ph.D.'s in economics are less likely to stay in the United States and seek employment after graduation than are their American counterparts. In 2002, about 47.3% of temporary resident Ph.D.'s in economics found at least temporary employment in the United States. Furthermore, an increasing share of economics Ph.D.'s, including U.S.-born Ph.D.s, are finding employment outside the academic sector (Siegfried and Stock, 2003). In recent years, only about half of all new economics Ph.D.s who found employment in the United States did so in the academic sector; this is down from about 70 percent in 1991. As a result, American colleges and universities are increasingly turning to foreign Ph.D.'s to staff their economics faculties.

There has been some controversy over how this increase in foreign faculty has affected the quality of education. Faculty from other nations can enrich the educational experience of American students by offering them perspectives from different cultures. However, some foreign Ph.D.'s (and foreign Ph.D. students in their role as teaching assistants) may lack command over the English language, may come from an educational background that does not encourage the questioning of professors by students, or may come from a culture that undervalues the role of women. Hence, foreign Ph.D.'s, on average, may be less effective undergraduate instructors than their American counterparts. Two recent studies have found conflicting evidence on the effectiveness of foreign-born teaching assistants in economics. Borjas (2000) found that undergraduate students with foreign-born teaching assistants at one major research university learned

less in principles of economics classes than undergraduate students with American-born teaching assistants, but Fleisher, Hashimoto and Weinberg (2002), who studied another university, found no such evidence.

The Demand for Economics Professors

In 1996, about 14 percent of all four-year college faculty members were between the ages of 60 and 69 in 1996 and this percentage, plus the percentage of faculty over age 69, are both likely to rise throughout most of the first decade of the twenty-first century (Ashenfelter and Card, 2002). Although the elimination of mandatory retirement has caused some faculty to postpone retirement at institutions with defined contribution pension plans, voluntary retirements of older faculty, coupled with increasing enrollments in higher education, might lead one to expect that the demand for faculty members in economics would grow in the years ahead.

Increasingly, however, colleges and universities are substituting relatively cheaper part-time and full-time non-tenure track faculty members for full-time tenure and tenure track faculty.[2] Table 1 presents data from a survey of economics departments at four-year American colleges and universities that was undertaken by the Cornell Higher Education Research Institute (CHERI) during the spring and summer of 2003 that suggests that economics departments have not been immune to this type of substitution. Between 1982-83 and 2002-2003, the share of economics department faculty members at survey

[2] Ehrenberg (2003a, Table B) presents data on the dramatic growth of full-time lecturers and part-time faculty members at the State University of New York (SUNY) system during the 1985 to 2001 period. Ehrenberg and Klaff (2003) show that the substitution of full-time non –tenure track faculty for tenured and tenure track faculty within the SUNY system was related to the declining relative cost of the former.

respondents that were full-time tenure and tenure-track faculty members fell from 75.2 percent to 57.6 percent. The decline was greater for public than private institutions, due in large part to the declining relative financial position at these institutions (Ehrenberg, 2003b). It was very pronounced at the large research universities – institutions at which many new Ph.D.s in economics hope to find employment.[3] During the period, the share of full-time tenure and tenure track faculty at these departments fell from 72.3 percent to 54.5 percent.

One reason for this shift to part-time and nontenure positions is as a reaction to tight state finances. At private institutions, tuitions typically increase 2 ½ to 3 ½ percent above inflation each year, but state appropriations per full-time equivalent student at public institutions of higher education institutions are roughly the same in real terms in 2003-2004 as in the early 1990s. Other reasons relate to the fiscal strains that all academic institutions face from their need to finance student financial aid, library costs, renewal of aging facilities and rising health insurance costs.

Another reason is that economics and other departments face heightened competition for funds from science and engineering research. The costs of such research have increased substantially at many large universities in total and as a share all educational and general operating expenditures. For example, between 1976-77 and 1999-2000, research expenditures as a share of all educational and general operating expenditures grew from 18.4 to 22.4% at public universities (*Digest of Education*

[3] We also asked the chairs to provide us with data on the share of undergraduate credit hours generated by tenure and tenure track faculty in their departments during 1992-93 and 2002-2003. A smaller number of departments provided responses to these questions. However, the pattern of changes was very similar to those reported above with larger decreases in the shares being reported for publics than for privates and for research universities than for other institutions. The share of all students enrolled in economics classes being taught by tenure-track faculty was 71.2% for all courses and 67.6% for principles classes in 2002-2003.

Statistics, 2002 (2003), table 350). Moreover, the share of research costs paid for by universities out of institutional funds (as opposed to external grants) has risen from 11 percent in the mid 1970s to over 21 percent by 2000 (Ehrenberg, Rizzo and Jakubson, 2003). Much of these costs come in the form of start-up costs for scientists and engineers that average $300,000 to $500,000 for new assistant professors in science and engineering fields at the major research universities -- and are much higher for senior faculty members (Ehrenberg, Rizzo and Condie 2003). Undergraduate students appear to be bearing part of these costs in the form of more lecturers and part-time faculty members.

To date, however, only few studies have address the impact, if any, on undergraduate students of being taught by a greater proportion of part-time and full-time nontenure track faculty members. While Bettinger and Long (2003), using longitudinal student-record data from all public academic institutions in Ohio, find no evidence that part-time faculty adversely impact upon undergraduate students, in work in progress Liang Zhang and I are using panel data from College Board's *Annual Survey of Colleges* and are finding that increases in the share of part-time faculty at an institution are associated with increases in the institution's first-year student drop out rate and decreases in its six-year graduation rate.

Comparisons across Different Types of Institutions

Inequality in average faculty salaries across academic institutions has increased for at least the last two decades. Average salaries of professors at public doctoral

universities, which stood at 91% of their private sector counterparts' average salaries in 1978-79, declined relative to the average salaries of professors in private doctoral universities by about 14 percentage points between 1978-79 and 2003-2004 (Ehrenberg, 2004): this widening gap makes it harder for the publics to attract and retain top faculty members. Data on continuation rates of associate professors collected annually by the American Association of University Professors shows that voluntary faculty turnover is higher at the publics than it is at the privates (Ehrenberg, 2003c). For example, the average turnover rate of associate professors at doctoral universities during the 1996-97 to 2001-2002 period was about 9% and during the period the rate at public doctoral universities was about 2 percentage points higher than that at private doctoral universities.

Since the mid-1970s, the American Economic Association has collected data on the average salary of faculty in economics department annually in its Universal Academic Questionnaire survey. The departments that respond to the survey vary from year to year and, in recent years, some departments have reported their average assistant professor salaries but not their average full professor salaries. Figure 2 tracks, by rank, the ratio of the average salary of economists employed at public Ph.D. granting institutions to the average salary of economists at private Ph.D. granting institutions from 1975-76 to 2001-2002.[4] To minimize problems relating to year-to-year changes in the sample, the ratios reported are three-year moving average of the annual ratios.

The pattern one observes for economists are similar to the patterns observed for all academics nationwide. At the full professor level, the average salary of economists in

[4] I am grateful to John Siegfried, Secretary Treasurer of the American Economic Association for granting me access to these data and to Charles Scott of Loyola College (Maryland) for taking the time to provide me with the data.

public Ph.D.-granting institutions was about 96 percent of the average salary of economists at private Ph.D. granting institutions in 1975-76. By 1993, this ratio had fallen to about 81 percent and, after rebounding during the mid and late 1990s (which were relatively good times for public higher education), it fell to about 83 percent in 2002-2003.[5] At the associate professor level, average salaries were roughly equal between the two sectors in 1975-76; by 2002-2003 the ratio of average public to average private salaries was about 87 percent in 2002-2003. Finally, at the assistant professor level, the average salary of economists in economics departments at public universities was about 7 percent higher than those of their private counterparts in 1975-76. However, by 2002-2003, their salaries were about 5 percent lower. So at all ranks, the average salaries of economists in departments at public universities have fallen relative to those of their counterparts at private universities. That the differential between private and public universities is largest at the full professor level is undoubtedly due to the fact that assistant professors are more mobile than full professors and thus entry level salaries must more closely reflect market conditions.

About two-thirds of all full-time faculty members (across all disciplines) at four-year institutions in the United States are employed at doctoral-granting institutions and it is reasonable to believe that the same percentage of academic economists is employed at them. But what about comparable salaries for economists who work at institutions that grant masters' and bachelor's degrees? The American Economic Association collects average salary data by rank for these institutions, but the sample sizes are smaller and the

[5] These data may understate the decline in the relative salaries of full professors in economics departments at public universities because it appears that the departments in private institutions that report assistant professor but not full professor average salaries in recent years are departments whose average full professor salaries were among the highest in the sample in years that they did report these data.

data cover a smaller number of years, so I have not used these data in this paper. We do know, however, that nationally the average salary of faculty (across all fields) at doctoral universities has grown relative to the average salary of faculty at masters' and bachelor's degree-granting institutions during the last 15 to 20 years. For example, in 1984-85, the average salaries of full professors at doctoral universities was 18.8 percent higher than those at masters' universities and 34.4% higher than those at bachelor's institutions; by 1999-2000, these differentials had grown to 29.9% and 50.0%, respectively (Bell, 2000, table 5). Thus, it seems probable that the pay gap between economists at private doctoral-granting universities and economists at institutions that grant masters' and bachelor's degrees has also increased.

The decline in the average salaries of economists at public doctorate degree granting universities relative to their private university counterparts leads to fears that it is becoming increasingly difficult for departments in public universities to attract and retain the very best faculty. When one regresses the change in an economics department's National Research Council faculty quality rating that took place between the 1980s (Jones et al., 1982) and the 1990s (Goldberger et al., 1995) on the department's 1980s faculty quality rating and the percentage change in average full professor salary at the institution (across all fields) between 1982 and 1993, one finds that for departments ranked in the top half of all economics departments in the 1980s in terms of faculty quality, the association between average faculty salary changes and faculty quality rating changes is positive. Put another way, economics departments at universities in which average faculty salaries did not increase as much as their competitors' average faculty

salaries experienced a decline in the ratings of their economics department faculty quality by the National Research Council.

Economics and Other Disciplines

How have academic economists' salaries fared relative to the salaries of their colleagues in other disciplines at the same universities? Each year the Office of Institutional Research at Oklahoma State University conducts a survey for the National Association of State Universities and Land Grant Colleges (NASULGC) of academic salaries by detailed field of study. These institutions are primarily public institutions, although a few privates that are land grant institutions, such as Cornell and MIT, also participate in the survey.

Figure 3 traces the ratio of the average salaries of full professors and new assistant professors in economics to the average salaries of their faculty counterparts in English literature at NASULGC institutions from 1985 -1986 to 2001-2002.[6] Again, because the institutions participating in the sample vary from year-to-year, all of the ratios are three-year moving averages. In 1985-86, the average full professor in economics at these institutions earned 14 percent more than the average full professor in English. By 2001-2002, this advantage had risen to 28 percent. At the new assistant professor level, the comparable change was from 33 to 49 percent. Economists have done increasingly better

[6] I am grateful to Lee Tarrant, Office of Institutional Research at Oklahoma State University, for granting me access to the national average salary figures, which are published in annual NASULGC publications, and for preparing special tabulations for me on the distribution of the ratio of economists to English faculty members' salaries across institutions.

relative to lower paying humanities fields during the period, with the salary advantage being greatest at the entry level. The data in figure 3, of course, relate only to salaries, there may well have been an increased divergence in the magnitudes of teaching loads, research accounts, summer salaries and other pecuniary and nonpecuniary types of compensation paid to faculty in the two disciplines.

National averages may give a very misleading impression, however, of how much higher economists' salaries are relative to another discipline's faculty salaries at different institutions. For example, suppose we order institutions in the NASULGC survey by the magnitude of the percentage salary advantage that assistant professors in economics have over assistant professors in English in 2001-2002, with the institution with the smallest advantage being placed at the 1st percentile and the one with the largest advantage being placed at the 100th percentile. The data indicate that the advantage for new assistant professors in economics at the 25th percentile institution was 34 percent, while the advantage at the 75th percentile institution was 65 percent, a spread of 31 percentage points. Thus, there is no single relative salary advantage that economists automatically earn across institutions. Research has yet to be undertaken to explain why such a wide range of salary differentials between two disciplines exist, but at least five possible explanations exist: perhaps the salary differential between the economics and English departments at a university will be larger when faculty in the two departments are employed in different colleges at the university, so that head-to-head comparisons are more difficult; perhaps the range of differentials occurs because the rankings of the economics and English departments are similar at some schools but different at others; perhaps the salary differential is larger at private universities in which individual salary

information is more likely to be kept confidential; perhaps the salary level is differential is larger when there is a separate business school at the university that may put pressure on economists' salaries in the economics department; or perhaps the salary differential is higher the lower the average salary level at the university because economists have better nonacademic alternatives than English Ph.D.s and that puts a lower bound on the salaries that can be paid to economists.

Interestingly, the salaries of economists have declined relative to some of the higher-paying fields in academia, such as business. At the full professor level, economists' average salaries declined from 96 to 90 percent of business professors' salaries at NASULGC institutions from 1985 -1986 to 2001-2002. At the new assistant professor level, the salaries of economists as a share of the salaries of business professors declined from 83 to 74 percent. However, even if economists did not keep pace with business professors, the ability of at least some economists to consider offers from a business school probably helped to hold the pay of economists up relative to the pay of English literature professors and others who had no similar alternative career paths within academia.

Speculating About the Future

The increased use of low wage part-time and full-time non-tenure track faculty in higher education is leading to growing pressure for collective bargaining coverage for these faculty members. Poorer job market prospects for graduate students have already led to increased collective bargaining coverage for graduate assistants in public higher

education and the beginnings of coverage for graduate assistants in private higher education (Ehrenberg, Klaff, Kezsbom and Nagowski, 2004). To the extent that these movements succeed in improving the earnings of non-tenure track faculty and the stipends of graduate teaching assistants, we may see a reduction in the substitution of these groups for tenure-track faculty in the future. This would lead to improved job market prospects for new economics PhDs and might help to stop the decline in the supply of U.S born Ph.D.s in economics.

The job market for new economists also depends upon the ages at which senior faculty members retire. The decline in the stock market during the 2000 – 2002 period undoubtedly caused many faculty members in defined contribution retirement systems to postpone their retirements. If stock market prices increase in the future, so too may academic retirements in the years ahead, which would lead to improvements in the job market for new academic economists. Many institutions are also addressing whether, in response to the end of mandatory retirement they need to alter their retirement policies to encourage faculty retirements (Ehrenberg 2001) and these deliberations may affect the job market for new economists as well.

Finally, financial pressures have led academia to increase its usage of part-time and full-time non tenure-track faculty. We know surprisingly little about what the effects of the substitution of these types of faculty for full-time tenured and tenure-track faculty are on students' educational outcomes. Much more research is needed on this topic to help frame the debate over the desirability of such substitutions at the institutional level and at the state level, where decisions relating to the financing of public higher education institutions are made.

Acknowledgements

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Table 1

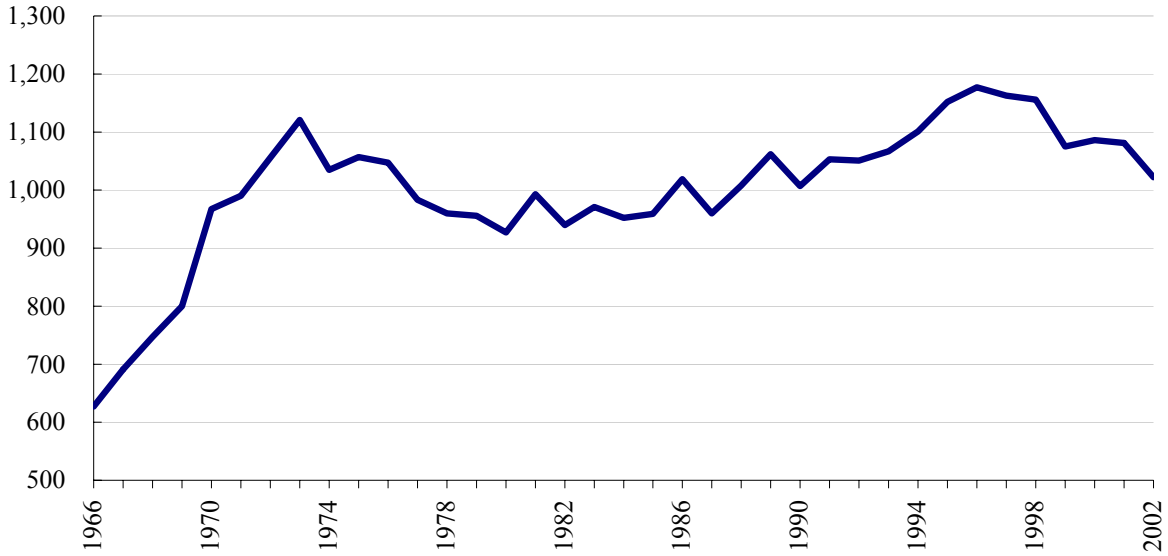
Full-Time Tenured and Tenure Track Faculty Members as a Percentage of Total Economics Department Faculty Members

Year	All Institutions	Public Institutions	Private Institutions	Research Universities	Liberal Arts Colleges
2002-2003	57.6	51.7	65.4	54.5	70.3
1997-1998	68.6	67.0	70.9	62.1	75.1
1992-1993	70.8	68.9	73.3	64.0	77.2
1987-1988	74.8	73.4	76.5	71.0	79.9
1982-1983	75.2	74.8	75.8	72.3	78.4

Source: Cornell Higher Education Research Institute (CHERI) Survey of Economics Department Chairs at 799 American 4-year colleges and universities undertaken during the spring and summer of 2003. The response rate to the survey was about one-half for the Research I and Research II institutions, but the overall survey response rate was about one-third. As a result, one should be cautious about generalizing its findings to the entire population of four-year American colleges and universities. A more complete summary of the survey findings is available on the web at <http://www.ilr.cornell.edu/cheri>. Nationwide, in 1998 full-time faculty in public institutions represent about 66% of all full-time faculty employed at 4-year institutions. The comparable percentage for research universities was about 42% and for liberal arts colleges about 11% (*Digest of Education Statistics, 2002* (2003), table 229)

Figure 1a

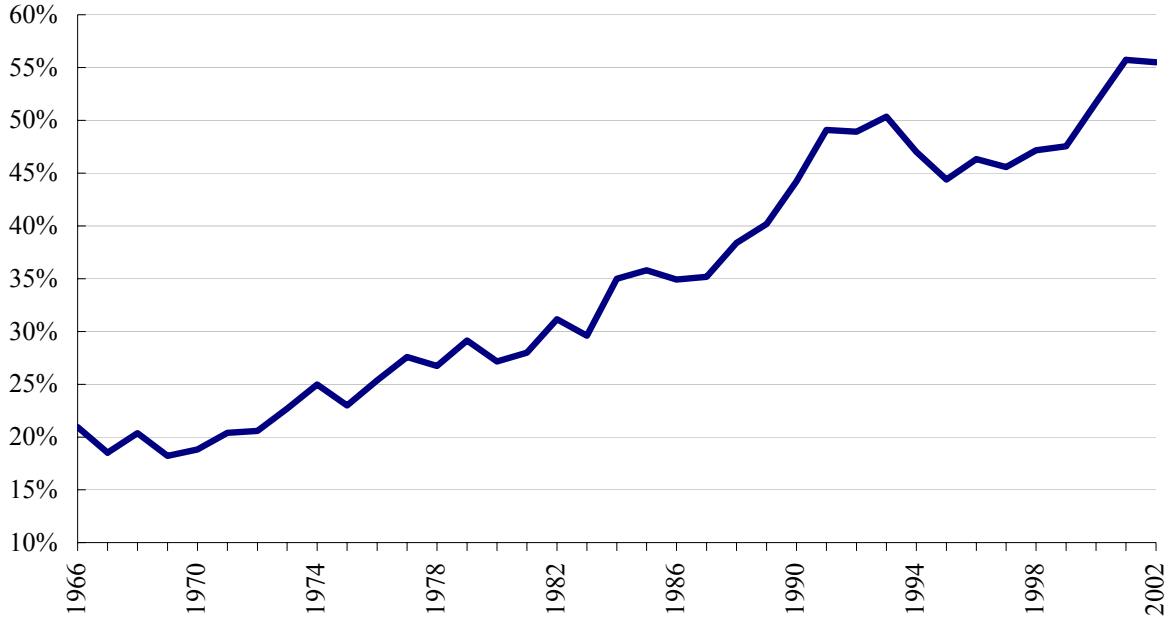
Number of New Economics Ph.Ds Granted by American Universities *(Academic Years Ending 1966-2002)*



Source: Doctorate Records File. From Survey of Earned Doctorates via WebCASPAR (http://caspar.nsf.gov).

Figure 1b

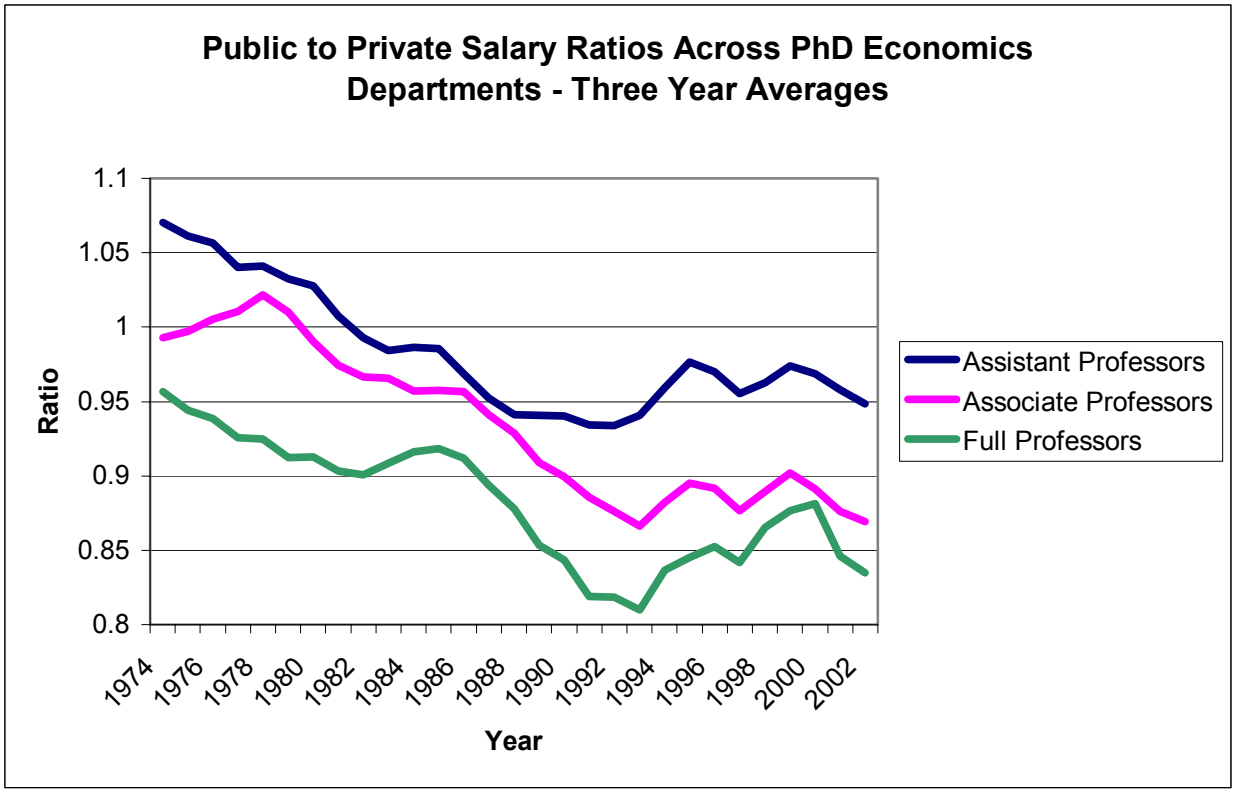
Share of New Economics Ph.Ds Granted by American Universities to Temporary Residents *(1966-2002)**



Source: Doctorate Records File. From Survey of Earned Doctorates via WebCASPAR (http://caspar.nsf.gov).

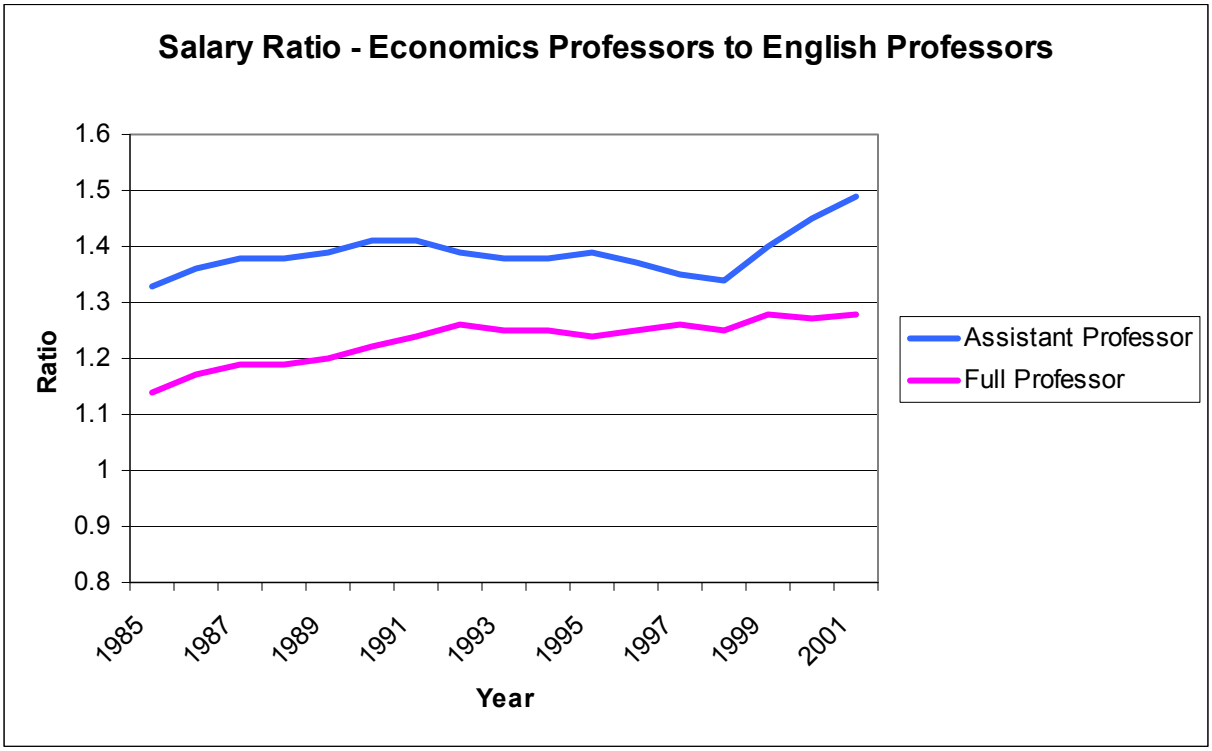
*Some new Ph.Ds fail to report their citizenship status to the National Science Foundation each year (on average 4% of respondents per year). The computation of the percentage of new Ph.Ds granted to foreign residents excludes these individuals from both the numerator and the denominator.

Figure 2



* Three-year averages centered on the year. The ratios for the first (1974) and last (2003) year are two-year averages

Figure 3


Salary Ratio - Economics Professors to English Professors
1.6
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
Ratio
1985
1987
1989
1991
1993
1995
1997
1999
2001
Year
Assistant Professor
Full Professor