Graduate Students in Economics, 1940–74

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Since 1904 an annual list of "Doctoral Dissertations in Political Economy in American Universities and Colleges" has appeared in this *Review*. The characteristics of theses in progress during 1904–05 with respect to subject matter and the author's academic origin were tabulated and published in a series of three articles by Lewis Froman. Our examination employs techniques similar to those used by Froman, although we have chosen to include only Ph.D. recipients during 1940–74 rather than all candidates. The data will trace the production of economists by graduate and undergraduate schools, the shift in area of specialization in dissertations, and the changing status of women in the profession since 1904.

The top twenty institutions in terms of quantitative output of Ph.D.s in economics during 1904–74 are listed in Table 1.[1] Their relative contributions during various subperiods are shown to allow the appraisal of each school's importance over time.[2] It is obvious from Table 1 that an individual school's importance is subject to considerable temporal variability. In the earliest era, 1904–39, Columbia was by far the leading producer of economists. During the next twenty years Harvard, Columbia, Wisconsin, and Chicago jointly dominated the field. In the past fifteen years, however, some new leaders in Ph.D. production have joined the elite, notably, Berkeley, Michigan State, Indiana, and Purdue. In fact, between 1970 and 1974, Berkeley was the most productive source of dissertations in economics. Michigan State, which first became a member of the top forty during the 1960's, exhibits the greatest change in rank with its movement to third place for the period 1970–74. New entries in the top twenty for 1970–74 include Princeton, Oregon, George Washington, and UCLA.

As the composition of the leading Ph.D. schools has changed, so has their degree of monopoly in the production of economists. There has been a substantial decline in the concentration of study at the top twenty and top forty schools. The top forty Ph.D. schools produced 99.2 percent of the candidates during 1904–39, 90.5 percent of the degree recipients during 1940–59, and only 51.9 percent of the Ph.D. recipients during 1970–74.[3] This trend is similarly evident for the relative contribution of the top twenty schools from 1904 to 1974, and may be explained in part by the growing availability of Ph.D. programs over time. The rise of New York University, Michigan, Indiana, and Berkeley to the top ten in place of Cornell, Yale, Illinois, and Johns Hopkins in comparing the 1904–39 and 1940–74 periods is demonstrative of the democratization of Ph.D. study in economics and the mobility of graduate programs in the production of economists.

The shifts in the subject areas of dissertations over time indicate that the areas

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[1]The percentages after 1940 are for conferred degrees, whereas the percentages for 1904–39 include all candidates. In addition, Froman's data for 1928 included a significant duplication which has been corrected. The data for the period 1904–39 are from Froman and data from 1940 were directly compiled for all tables.

[2]The 1904–39 listing excludes Johns Hopkins, Northwestern, Princeton, Iowa, Catholic, Brookings, and Radcliffe, which were in the top twenty during that period. Northwestern, Princeton, and Iowa were also in the top twenty during 1940–59; and UCLA ranked sixteenth for 1960–74.

[3]During 1904–28, the top three schools produced 50.8 percent of the candidates. This figure was only 15.5 percent for the most recent period analyzed, 1970–74.

TABLE 1—THE TOP TWENTY PH.D. SCHOOLS
(Shown in Percent)

	1904–39	1940–59	1960–69	1970–74	1940–74
1. Harvard	8.7	12.7	6.3	5.3	8.0
2. Berkeley	2.4	4.5	6.5	6.2	5.8
3. Columbia	20.8	9.4	5.6	1.6	5.1
4. Wisconsin	9.3	8.5	2.6	3.7	4.7
5. Chicago	13.4	7.6	3.2	2.8	4.4
6. N.Y.U.	1.0	5.0	2.7	2.0	3.2
7. Indiana	.2	4.2	3.8	1.3	2.9
8. Michigan	2.0	2.3	3.6	2.4	2.9
9. Minnesota	3.4	3.5	2.9	1.5	2.7
10. Pennsylvania	6.3	3.0	3.0	1.9	2.7
11. Iowa State	[a]	3.2	2.2	2.5	2.6
12. M.I.T.	[a]	2.0	3.4	1.5	2.5
13. Cornell	4.1	2.0	2.4	2.6	2.4
14. Michigan State	[a]	[a]	2.4	4.0	2.2
15. Stanford	1.5	.5	3.3	2.2	2.1
16. Ohio State	2.5	3.0	2.0	1.4	2.1
17. Texas	.3	3.2	1.8	1.3	2.1
18. Purdue	[a]	.6	2.1	3.5	2.0
19. Yale	2.6	1.5	2.5	1.8	2.0
20. Illinois	3.1	1.9	1.3	2.4	1.8
Top 20	91.7	82.3	63.6	51.9	64.2
Top 40	99.2	90.5	84.4	67.8	84.2
Others	.8	9.6	15.6	32.2	15.8
Total Number of Degrees Granted	5620.0	3918.0	5339.0	3535.0	12792.0

[a] Denotes the school is not in top forty during the era.

of economic history and history of thought have declined substantially; also declining is the area of welfare and consumer economics which was classified as social problems in the earlier periods. This can be accounted for by the increased specialization in subject areas and the deemphasis of dissertations in institutional economics. This shift is not nearly so predominant in the professional literature over this time period, as noted by Martin Bronfenbrenner's study, but the direction of change is consistent in both trends.

Table 2 shows the distribution of theses by topic for three distinct periods. The subject categories in this table are a synthesis of the various general topical breakdowns used in the *AER* dissertation lists from 1904 to 1974.[4] The categories used by the *AER* to classify theses by subject have fluctuated considerably in some instances. Careful judgment was of the essence in combining categories so as to be certain that these were consistently classified, thereby allowing an intertemporal comparison of topical emphasis.

Table 2 indicates that the intensity of investigation of different economic topics varies tremendously over time. From 1904 to the present, business administration, international economics, and economic growth and development have grown in stature as dissertation topics. Concurrently, the institutional areas of economic history, the history of economic thought, and welfare and consumer economics have declined in importance. These trends coincide with the tendency to the preparation of dissertations employing more advanced empirical techniques.[5] The trends in choice of dissertation

[4] Categories were synthesized using the *Index of Economic Articles* classification system.

[5] Gabriel provides an interesting breakdown of dissertations by technique and method between 1904 and

TABLE 2—DOCTORAL DISSERTATIONS BY SUBJECT AREA
(Shown in Percent)

	1904–28	1929–40	1970–74	1940–74
Economic Theory	5.9	5.6	6.0	6.0
Economic History and History of Thought	13.2	6.9	3.0	4.0
Agriculture	9.1	12.9	10.0	13.0
Industrial Organization	8.9	8.8	9.0	10.0
International Economics	4.3	5.6	9.0	8.0
Business Administration	8.1	10.9	9.0	14.0
Economic Systems	3.3	3.9	1.0	1.0
Labor	12.7	8.9	9.0	10.0
Monetary Theory and Institutions	6.4	12.5	8.0	7.0
Fiscal Theory and Public Finance	8.4	9.0	4.0	6.0
Population and Urban-Regional	3.8	2.4	8.0	3.0
Welfare/Consumer Economics	13.8	10.4	5.0	3.0
Statistics and Econometrics	1.9	2.2	5.0	3.0
Economic Growth and Development	–	–	13.0	11.0
Total	99.8	100.0	99.0	99.0

topics are also generally consistent with the movement of journal article subject emphasis.[6]

Table 3 provides a breakdown of the dissertation production of the leading twenty schools from 1940–74 according to the subject area distribution. The percentages in the table show each school's share of the total dissertations in each respective subject area. The bottom row shows each school's overall contribution of dissertations during 1940–74.

The instances in which a school contributed a portion of the theses in a given subject area which was at least twice as great as its overall percentage of dissertations indicates some degree of specialization in the given topic by the respective institution. This criterion suggests that M.I.T. and Yale concentrate their efforts in the general theory area. Illinois is the relative leader in the history of economic thought. Economic history is dominated by Chicago, Columbia, and Yale. Yale alone specializes in economic systems. Purdue and Michigan produce a disproportionate number of econometrics dissertations. Pennsylvania and Illinois dominate the field of social accounting, and business administration studies are prevalent at Indiana, Michigan State, and Stanford. Stanford, Yale, and Illinois prevail in industrial organization while Iowa State, Minnesota, Purdue, Cornell, and Ohio State demonstrate superiority in agricultural economics. Not surprisingly, these five schools are all land-grant institutions.[7] Finally, the areas of labor economics and economic welfare are both dominated by Wisconsin. The other areas do not have any one top twenty school which meets the criterion of producing twice as many dissertations in the respective categories as its overall output of Ph.D.s. Princeton, which ranks twenty-first for the period, does show this relative concentration in population studies. U.S.C., twenty-fourth for the period, exhibits a similar strength in economic systems. And Duke, which ranks twenty-sixth overall for 1940–74, shows relative specialization in the history of economic

1974. This study also has more complete data from which the summary tables in this paper were developed.

[6]Note Bronfenbrenner's study on journal topics over time.

[7]Table 3 shows that Harvard produced a surprising number of dissertations in agricultural and natural resources areas; Harvard produced one-fifth of the dissertations in this field during the 1940's. This would seem to discount Orville Freeman's claim that the only reason he was Secretary of Agriculture under President Kennedy was because Harvard didn't produce agricultural economists or have a school of agriculture.

TABLE 3—SUBJECT AREA OF DISSERTATION FOR TOP INSTITUTIONS, 1940–74
(Shown in Percent)

	Harvard	Berkeley	Columbia	Wisconsin	Chicago	N.Y.U.	Indiana	Michigan	Minnesota	Penn	Iowa State	M.I.T.	Cornell	Mich. State	Stanford	Ohio State	Texas	Purdue	Yale	Illinois	Others
General Theory	10.0	5.6	4.0	1.6	4.3	1.6	1.0	2.0	2.7	2.7	.7	7.3	1.0	.7	3.7	.7	2.0	2.7	4.3	2.0	39.4
History of Thought	3.8	4.8	7.6	5.7	4.8	3.8	1.9	.9	.9	1.9	.9	.9	1.9	.6	.9	.9	2.9	.9	.6	4.8	48.6
Ec. History	9.3	4.1	10.3	4.1	15.5	3.1	2.1	.4	.4	2.1	2.1	1.0	1.0	.4	1.0	1.0	3.1	3.1	4.1	1.1	31.7
Ec. Systems	15.5	5.2	4.1	1.1	6.2	1.0	1.1	.4	.3	.4	3.1	1.1	1.1	.4	1.0	1.1	4.1	1.1	4.1	1.1	46.5
Growth/Devel.	10.0	8.2	4.1	4.0	2.1	3.0	1.9	2.0	3.2	.9	2.0	3.1	2.9	3.9	1.9	3.1	2.8	1.1	3.2	1.8	31.4
Fluct./Forecasting	15.7	7.2	10.0	3.4	6.6	1.0	3.2	3.8	2.0	2.9	.4	2.9	.8	.9	.9	1.0	2.0	1.0	3.1	.9	30.2
Econometrics	6.1	6.1	2.0	4.1	4.0	4.0	1.9	6.0	3.1	2.1	2.2	3.0	2.1	3.1	.8	1.0	2.1	6.1	2.0	2.1	26.1
Social Acct.	6.7	7.7	4.8	6.6	1.9	.3	.4	3.8	2.9	8.7	3.8	1.9	.7	3.6	1.8	.8	1.9	1.9	.9	3.8	35.1
Monetary Theory	6.8	4.2	6.0	2.8	7.4	4.0	3.9	2.9	2.8	3.0	3.1	3.0	.7	.9	2.1	2.0	3.3	1.8	2.1	2.0	35.2
Fiscal Theory/ Pub. Fin.	6.9	3.1	7.2	8.0	3.0	5.2	2.9	3.0	1.9	.9	.9	2.0	.9	.8	.8	.9	2.0	.9	1.9	3.1	43.5
International	9.2	4.1	6.1	4.0	6.2	2.9	.8	2.9	1.1	2.0	.8	4.1	2.0	3.1	3.1	1.8	1.7	.8	3.1	1.9	38.2
Bus. Adm.	6.9	4.9	5.0	2.0	2.9	6.1	6.0	4.9	.8	4.8	1.1	1.0	1.0	4.9	4.9	3.9	3.9	1.9	1.0	1.0	32.0
Ind. Org.	12.7	9.8	1.9	.3	5.8	3.9	4.0	3.8	.4	4.0	.2	1.9	.3	.4	7.8	.2	3.9	.4	5.8	3.9	32.2
Agriculture	7.2	8.4	2.1	6.2	4.1	.6	.7	.3	10.3	1.0	12.4	.6	5.2	3.1	2.1	5.2	.8	6.2	.2	2.1	21.2
Labor	6.3	6.2	5.4	9.8	5.3	3.4	1.5	2.4	1.5	3.4	.4	4.4	3.9	.4	.7	1.5	1.5	.4	.5	1.4	39.4
Population	5.9	4.8	9.1	2.8	7.2	5.1	.8	3.8	1.1	3.0	.2	2.0	3.9	1.0	1.0	.3	2.1	.4	.9	1.0	47.3
Urban/Regional	3.9	3.8	2.0	2.1	3.1	.8	.8	2.9	1.0	2.0	2.9	1.9	2.0	.8	3.0	1.0	.3	.9	2.0	3.1	59.7
Welfare/Consumer	8.1	6.0	5.1	9.1	3.9	2.8	2.7	2.9	2.8	2.7	3.0	1.9	2.1	1.9	1.8	2.1	2.0	1.9	2.0	2.1	33.1
Percent of Total	8.0	5.8	5.1	4.7	4.4	3.2	2.9	2.9	2.7	2.7	2.6	2.5	2.4	2.2	2.2	2.1	2.1	2.0	2.0	1.8	35.8

thought, economic systems and population studies.

It was previously noted that there has been a dispersion of the production of Ph.D.s in economics with respect to graduate institution attended. Simultaneously, the concentration particular schools possessed in certain subject areas prior to 1940 has also been lessened. Although there is demonstrable specialization by particular schools, no one school dominates a field to the extent common of dissertation production prior to 1940. The data for successive decades show a progressive tendency away from the monopolization of particular fields by a few schools and continuing growth in dispersion.

Table 4 shows the top twenty schools for granting bachelor's degrees to those that received the Ph.D. There has been some dispersion in undergraduate origin of Ph.D.s, but only in the last thirty-five years. Undergraduate schools not in the top twenty accounted for 65.3 percent of the 1904–28 doctorates, and only 59.3 percent of the 1929–40 Ph.D.s. During the past thirty-five years, however, the small decrease in the dispersion of undergraduate study between 1904 and 1940 was strongly reversed. Seventy-two percent of the economists who received their Ph.D.s during 1940–74 studied as undergraduates at schools other than those in the top twenty.

The percentage of Ph.D.s who received their undergraduate training at foreign schools increased from 6 percent in the 1904–40 era to 13 percent between 1940 and 1974. Foreign-born economists who received their doctorates in the United States have not been discriminated against by the more prestigious institutions. The top ten institutions granting doctorates to the foreign born are all listed in the top twenty Ph.D. schools for 1970–74. The forty-three schools in the "chairmen's group" produce approximately 75 percent of the doctorates and 83 percent of the foreign-born economists. The shift in the top bachelors' schools has been from the liberal arts schools prior to 1940 to state universities since 1940. From 1904 to 1928, fifteen of the top forty were liberal arts institutions, but only Oberlin, Swarthmore, Amherst, and Williams remain in the top forty for 1940–74. However, when undergraduate school's contribution of Ph.D.s was standardized for enrollment differences, thirty of the top forty schools were liberal arts institutions. Berkeley and Cornell were the only state universities which remained in the top forty

TABLE 4—TOP TWENTY SCHOOLS GRANTING BACHELOR'S DEGREES TO ECONOMICS DOCTORATE RECIPIENTS, 1940–74

	Number	Percent
Berkeley	170	2.4
Harvard	170	2.4
C.C.N.Y.	138	2.0
Illinois	113	1.6
Wisconsin	110	1.6
Michigan	105	1.5
Minnesota	104	1.5
Cornell	99	1.4
Columbia	91	1.3
N.Y.U.	86	1.2
Chicago	83	1.2
Texas	82	1.2
Pennsylvania	76	1.1
U.C.L.A.	73	1.0
Iowa State	73	1.0
Ohio State	67	1.0
Oberlin	66	.9
Brooklyn College	66	.9
Yale	65	.9
U. of Washington	64	.9
Others	5069	72.4

Note: This total includes only those who listed their school in the various editions of the *Handbook* of this *Review* or were in the *American Men and Women in Science: Economics, 1974*.

after the adjustment for enrollment differences, and the other eight schools were private universities. The undergraduate training has been divided equally between private and public institutions.

Table 5 presents the distribution of Ph.D.s during 1940–74 by sex.[8] Froman first collected data on the sex of 1929–40 degree recipients. During those years, an average of 8.0 percent of the Ph.D.s were women, and the percentage ranged annually from 4.7 to 12.9 percent. The proportion of doctorates in economics who have received their degrees since 1940 and are female has declined substantially. An average of only 5.2 percent of the 1940–74

[8]These female-grouping data were obtained by classifying by feminine first names; however, we are aware of the "Sally Frankel" phenomenon that W. Lee Hansen and Burton Weisbrod discovered after Mr. Frankel was placed on their elite list of women who had published in economic journals.

TABLE 5—WOMEN DOCTORATES IN ECONOMICS, 1929–74

	Total	Percent
1929–40[a]	225	8.0
1941–45	27	5.2
1946–50	49	6.9
1951–55	76	5.1
1956–60	70	4.5
1961–65	88	4.0
1966–70	161	4.4
1971–74	163	6.1
1940–74	636	5.0

[a]The 1929–40 numbers are from Froman (1942, p. 825).

Ph.D. recipients were women. The percentage ranged from an annual high of 11.2 percent in 1947 to a low of 2.5 percent in 1940. There may be a trend to greater participation by women, however. During the 1960's only 4.0 percent of the Ph.D.s were females, but this statistic rose to 6.0 percent for 1970–74. The undergraduate training of women economists has been very concentrated as one-fourth of the degrees have been from the seven sister institutions; however, their graduate training has been distributed among the top-rated schools in a proportional manner.

To summarize: the most prolific producer of economists in the 1970's has been the University of California at Berkeley. The most intensively investigated subject areas of economic doctoral dissertations are currently economic growth, development, and planning, and the economics of natural resources and agriculture. The great majority of these recent dissertation authors received their undergraduate preparation at private and state universities which are not among the major graduate schools. And over 90 percent of these economists who received their Ph.D.s in the last twenty-five years are male.

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