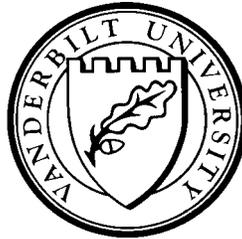


**INTERNATIONAL TRENDS IN ECONOMICS DEGREES DURING THE 1990S**

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## ABSTRACT

Australia, Canada, Germany, and the United States experienced a substantial decline in undergraduate degrees in economics from 1992 through 1996, followed immediately by a modest recovery. This cycle does not conform to overall degree trends, shifts in the gender composition of undergraduate populations, or changing interests of female students in any of the four countries. There is no evidence that changes in the "price" of a degree to students, tightened marking standards or degree requirements, or changes in pedagogical methods caused the cycle either.

Jobs for economics graduates declined in the U.S. between 1988 and 1990, and thereafter recovered. With a two-year recognition lag, the pattern of employment prospects fits the U.S. slump in economics degrees perfectly. Unfortunately, employment patterns in the other three countries are inconsistent with the degree cycle. The explanation that fits the economic degree pattern best is interest in business education.

Undergraduate economics degree counts for the U.S. updated through June 2000 are reported in the appendix.

Key words: undergraduate economics degrees

JEL code: A22 Teaching of economics, undergraduate

The interest of American undergraduates in studying for an economics degree has dropped precipitously three times since World War II (Margo and Siegfried 1996). Following a rapid build up after the war, the number of degrees awarded in economics fell a staggering 56 percent from 1950 to 1955. In the first half of the 1970s, the number declined again, but this time by just 18 percent. More recently, the number of undergraduate economics degrees awarded in the U.S. dropped by 29 percent from 1992 to 1996.

After each drop, the number of economics degrees began an immediate recovery, although at a slower pace than the directly prior decline. As Margo and Siegfried (1996) observed, it appears that the share of economics degrees in the U.S. exhibits "mean reversion" - the tendency to return to a fixed proportion of degrees awarded, at about 2.1 to 2.2 percent. Although this mean reversion suggests that a self-equilibrating mechanism is present, it does not reveal how that mechanism operates. If students can switch majors freely, or if students' preferences among disciplines affect the administrative allocation of places among disciplines, equilibration will depend on students' perceptions of the relative benefits and costs of majoring in economics. The most significant benefits of a degree in economics will be manifested through the enjoyment of studying the subject and through the labor market rewards attained by graduates; the principal costs will be reflected in the rigor of degree requirements and the time required

to earn the degree.

Academic economists have raised considerable concern about the recent decline in undergraduate economics degrees, perhaps fearful that decreasing demand by undergraduates to study economics portends downward pressure on the demand for economists' services, which may diminish employment and earnings prospects for economics faculty. Some have called for broad efforts to improve the content, management, and pedagogical style in introductory courses so as to attract more majors (Bartlett 1995; Becker 2000). Others quietly have attacked the problem at the micro level, analyzing their own departments in an effort to turn around declining enrollments that have put the reauthorization of vacant faculty positions at risk. In order to attract more students, they have proposed strategies that involve changes in advising, revamping the content and pedagogy of their introductory courses, relaxing their grading standards and degree requirements for a major, and the adoption of new technology.

Even if contractions in economics majors are only a temporary phenomenon, the disruptions they cause, especially if fluctuations are mistakenly perceived as permanent, can be costly. The fluctuations may prompt irrevocable faculty appointment, retention, or retirement decisions that are regretted later. They may induce expensive investments in technology that are not warranted on the basis of permanent benefits and costs. And they may erode

standards that are difficult to reestablish.

We try to accomplish two objectives in this article. First, we have gathered roughly comparable data on the number of undergraduate degrees in economics awarded in four different countries over most of the 1990s. Second, we assemble in one place a list of various hypotheses that have been offered as explanations for fluctuations in the number of undergraduate economics degrees, and review the evidence bearing on each. Also, in the appendix we update through June 2000 the tabulation of undergraduate economics degrees in the U.S.

International comparisons of trends in degrees provide an opportunity to identify reasons for fluctuations in interest in economics. If trends in the number of degrees differ among countries, it may be possible to relate those differences to potential causes that also vary among the countries. If the trends are similar across countries but fluctuate over time, it may be possible to relate the fluctuations to potential causes that have varied over time consistently among the countries.

## TRENDS IN ECONOMICS DEGREES IN FOUR COUNTRIES

As a first step, we assembled data<sup>1</sup> on the trends in economics degrees over the 1990s from Australia, Canada, Germany, and the United States. The 1990s is a particularly useful decade during which to examine international trends in interest in studying economics because in the four countries it is a decade that begins with stability, and then experiences a significant cycle in the number of bachelor=s degrees awarded in economics.

The trends are reported in Table 1. Because the academic years in the Northern and Southern Hemispheres differ, we have lagged the Australian data by a half-year.

There is a remarkable similarity in trends among the countries. Following a decade of stable modest growth, U.S. economics degrees dropped 29 percent from 1992 (i.e., 1991-92) to 1996, and then immediately began to recover, rising by 14 percent from 1996 to 1999. Australian economics degrees plummeted by 34 percent from 1992 to 1996<sup>2</sup>, but recovered by 13 percent from 1996 to 1998<sup>3</sup>. Following a decline of 34 percent from 1991 to 1996, Canadian economics degrees recovered by 12 percent in the three years after 1996. The amplitude of the cycle is less severe in Germany, and appears to lag the others by about a year, but the German numbers were already somewhat depressed going into the decade of the 1990s (Gärtner 1998). German economics degrees fell only 14 percent from 1993 to 1997. In the succeeding two years the

annual number of German undergraduate economics degrees stabilized but did not begin to recover.

Each of the four countries suffered a decline in interest in studying economics from about 1992 through 1996 that was almost immediately reversed thereafter. Because students in the U.S. declare a specialization about two years prior to graduation, and those in Australia, Canada and Germany choose their specialization about three years prior to earning a degree, there appears to have been a uniformly sharp global decline in interest in economics that began in 1989 or 1990 and lasted until about 1994. It was followed by an immediate, although less sharp, reversal in the trend. The data suggest that causes of the fluctuations may lie among factors that experienced similar changes among the countries. What happened during the first half of the 1990s to dampen the interest of undergraduates in economics throughout the world, and what may have arrested the decline?

#### **POSSIBLE EXPLANATIONS FOR THE FLUCTUATIONS**

Trends in the Overall Number of Degrees.

The most obvious explanation for fluctuations in the number of undergraduate economics degrees is comparable fluctuations in the number of overall degrees awarded. If economics maintains a constant share of all degrees, trends in economics degrees will

depend directly on trends in all university degrees. The latter, of course, depend on both demographic trends and on the propensity of potential university students to enroll. The most significant incentive to attempt a post-secondary degree program, in turn, is the relative job prospects enjoyed by and relative wage premium earned by university graduates relative to high school graduates.

This explanation does not hold much promise to enlighten us about the cycle in economics degrees, however. In both Germany and in the United States, the share of total degrees awarded accounted for by economics declined in the first half of the 1990s (Gärtner 1998; Margo and Siegfried 1996). In the U.S., overall university enrollments rose persistently during the most recent downturn in economics degrees. Using U.S. data from 1990 through 1996, Siegfried (1997) found no evidence that economics enrollments follow national enrollment trends. Gärtner's (1998, 105) analysis of Germany reached the same conclusion.

Fluctuations in the total number of bachelor's degrees awarded in Australia and Canada are inconsistent with trends in economics degrees awarded in those countries, also. In Australia total degrees rose steadily through 1994 and then leveled out, while economics degrees plunged 34 percent from 1992 to 1996 (Department of Employment, Education, Training and Youth Affairs 1997). In Canada total bachelor's degrees were virtually constant from 1994 to 1996, while economics degrees fell 24 percent; then, just when

the slide in economics degrees was arrested, total degrees started to drop. From 1996 to 1998 the total number of undergraduate degrees in Canada slipped 4 percent, but economics degrees rose by 1 percent (Statistical Canada 1991). There is obviously more to the cycle in economics degrees than simply tracing broader trends in university attendance.

#### Changing Gender Mix in University Students.

Estimates of the proportion of economic degrees that are awarded to women are available in Table 2 for three countries - Australia, Canada, and the U.S. The proportion is roughly comparable across countries. About a third of those who concentrate in economics in Canada and the U.S. are female, while the proportion in Australia is closer to 40 percent. The fraction has been relatively steady throughout most of the 1990s in Australia, while inching upward a few percentage points in North America.

The proportion of economics degrees awarded to women is less than the proportion of overall university students in each country that is female. Not only do women account for more than 50 percent of each birth cohort, but, in addition, there are now proportionately more women than men attending post-secondary institutions.

When the number of women in the overall undergraduate

population grows faster than the number of men, as has been the case during the last decade, the share of degrees accounted for by economics can fall even if the proportions of men and women who select economics remain constant. Economics can lose share because the demographic group most likely to choose an economics degree (men) diminishes in relative importance.

This hypothesis, however, does not fit the data. In Australia, Canada, and the United States the proportion of university students who are female grew steadily throughout the decade, from 53 to 59 percent in Australia, from 56 to 58 percent in Canada, and from 53 to 56 percent in the U.S. This demographic shift implies a steadily declining share for economics over the entire decade. But the evidence in each country reveals a sharp decline in economics degrees from 1992 through 1996, followed by a modest recovery. The initial decline in economics degrees is too sharp to be explained by the changing demographic profile of university students and the subsequent recovery in economics degrees is inconsistent with the continued growth in the share of women among all post-secondary students.

#### Changing Interests of Male and Female Students.

Even if the mix of male and female students in the overall student population remains stable, differences in interest between

men and women might affect total economics enrollments. A "chilly" atmosphere for women (Bartlett 1995), for example, could affect enrollments.

In order to explain the recent cycle in economics degrees, women would have had to have experienced abruptly falling classroom temperatures about 1990, followed immediately by a heat wave commencing around 1994. Complaints about the chilly reception accorded women by the economics profession have been steady, however. They do not fit the cyclical enrollment pattern. The proportion of economics degrees awarded to women does not follow a pattern compatible with a major role for classroom atmosphere in driving the total number of degrees. In Australia, Canada and the U.S. the proportion of economics majors that is female has been relatively constant over the 1990s, with only a slight increase experienced late in the decade.

Furthermore, the longer-term pattern of interest in economics by women in the U.S. does not track overall undergraduate economics degrees. The proportion of undergraduate economics degrees awarded to women rose about a percentage point per year from 1975 to 1985, from 25 to 35 percent. It then immediately reversed, losing a percentage point annually until stabilizing around 30 percent in 1990. It has been roughly constant since. Total economics degrees, however, rose steadily from 1975 until the early 1990s, throughout the period when interest in economics by women first

rose rapidly and then abruptly reversed itself. Then, during the 1990s, interest by women seemed to track interest by men, with both groups first experiencing a severe decline and then a recovery.

It is sometimes argued that the interest of undergraduate women in a discipline is driven by the availability of role models, although Rosen and Canes (1995) found no empirical evidence of such a link. In any case, the proportion of U.S. economics faculty at graduate departments that is female does not match the proportion of undergraduate economics degrees awarded to women over the past 25 years<sup>4</sup>. Although the issue of interest in economics by women is important, it appears to be a better candidate to explain levels rather than cycles in economics degrees.

#### Changing Interest in Business Education.

The relationship between undergraduate business education and economics is complex. The choice of institution dominates the choice of major for some students; they choose a major from among the offerings at their preferred institution. For other students, however, the institution is of secondary importance; students select their college or university from among only those offering a course of study in their preferred discipline. For this reason it is necessary to examine a large sample of diversified institutions to accurately assess trends in student interest among disciplines.

For students whose choice of institution dominates the choice

of major, and who attend an institution that does not offer a business or commerce degree, economics may serve as a substitute for business (Conrad 1996). If so, declining interest in business would be accompanied by concurrently declining enrollment in economics by those students who were using economics as a surrogate for business.

For students whose choice of major dominates their choice of institution, the effect of declining interest in business on economics enrollments is less obvious. There should be no effect on such students attending institutions that do not offer a business (or accounting or commerce) degree because those students enrolled in economics have already revealed their lack of interest in business by selecting an institution without such offerings. A general decline in interest in business education should have no effect on economics majors in such circumstances.

Students who attend institutions offering both business and economics degrees are not constrained by their preference among the two disciplines at the time they elect the institution to attend. Thus, those who prefer economics will be unaffected by reduced interest in business education; they had already abandoned business and were not using economics as a surrogate. Indeed, a diminished overall interest in business may lead some students who otherwise would have elected a business or commerce degree to migrate to

economics, thereby boosting economics enrollments.

The situation is different, however, if the movement by students among majors (degrees) is constrained. In many U.S. institutions, students matriculate into a (usually) two-year general studies program and enter specialized business studies for their final two years of undergraduate study. In many Australian universities the supply of places for new students in each discipline is set administratively. Because the demand for particular disciplines often changes more rapidly than faculties can adjust their staff and the supply of places, a shortage of opportunities in business may develop. Such shortages have frequently been resolved by using entrance requirements to ration the scarce places in the U.S. and Australia (Salemi and Eubanks 1996; Lewis and Norris 1997).

When there is a shortage of places, minimum entrance credentials are elevated and some academically weaker students who are denied entry to the business program seek a place elsewhere. During the rapidly escalating demand for business degrees in the U.S. from 1965 to 1985 (Willis and Pieper 1996), many such "business wannabe" students who could not gain admission to a business program enrolled in economics as a second choice. In such circumstances strong demand for business education can increase the number of economics majors.

Following a long period of steady growth up to 1991-92, the

number of undergraduate business degrees has waned in the U.S., declining from 257 thousand in 1991-92 to 227 thousand by 1995-96 (U.S. Department of Education 1998). It then leveled out. When interest in business programs declines, those programs can replace some of their lost enrollment by relaxing academic entrance requirements. Former business wannabes are admitted to the business program and, accordingly, the number of economics majors declines. The academic quality of the remaining economics majors could rise or fall, depending upon the academic rank of those who secure admission to the business program. This explanation fits well with the 12 percent decline in business degrees in the U.S. from 1991-92 through 1995-96 (U.S. Department of Education 1998). Lowering admission standards in order to maintain enrollment levels, business schools opened their doors to some students who otherwise would have majored in economics.

Undergraduate degrees earned in business and commerce in Germany exhibit a pattern similar to the United States. Following ten years of annual growth exceeding 10 percent, the number of undergraduate business degrees earned in Germany virtually leveled out from 1992 through 1998, the same period when economics degrees were falling in Germany<sup>5</sup>.

There is also some cross-section evidence relating interest in business education to economics enrollments. Using regression analysis to explain the proportion of a student population that

majors in economics, Siegfried and Wilkinson (1982) found that the presence of a competing undergraduate business major at the same university is likely to reduce the number of economics students by more than the entire average-size economics program, ceteris paribus. This implies that the introduction of a business degree would virtually wipe out an economics department if everything else were held constant. Fortunately for economics departments, other things (e.g., curriculum) seldom remain the same. In a similar analysis, Willis and Pieper (1996) found that institutions offering an undergraduate degree in business had only one-fourth as many economics majors as institutions that did not offer a business major.

In a careful case study of the University of North Carolina at Chapel Hill (UNC), Salemi and Eubanks (1996) discovered that, on average, "discouraged business majors" accounted for one third of UNC's economics majors between 1983 and 1994. Using a conservative definition of discouraged business majors, they concluded that such students accounted disproportionately for the economics degree cycle that occurred at UNC over the period of their analysis.

Brasfield et al. (1996) gathered data about the change in economics degrees from 1989-90 to 1993-94 from a survey of 200 U.S. economics departments. They asked whether the economics program competed directly with an undergraduate business program. Their period of analysis included the first two years of sharp declines

in the aggregate number of economics degrees in the U.S. Their sample included 137 institutions whose economics degrees declined by at least 5 percent and 51 whose economics degrees increased by at least 5 percent over the period.

They found that institutions without an in-house business degree were at greater risk of losing majors over the period. Because this was a period of declining interest in business degrees, their evidence lends support to the idea that economics may be a close substitute for business at such institutions. They also observed a net loss in economics degrees among institutions that offered both business and economics, but it was smaller. This is consistent with a set of institutions that offer both degrees being divided into some that ration access to the business major -- they would lose economics majors -- and some that do not -- economics would be unaffected.

In short, there appears to be some support for all of the hypotheses that have been advanced to relate interest in business education with interest in economics. Unfortunately, isolating the number of business majors for Australia and Canada is difficult, and so the empirical evidence is limited to time-series from the U.S. and Germany and cross-section studies from the U.S.

## Changes in Other Competing Degree Programs.

Anecdotal evidence suggests that business is not the only program that may compete with economics. The last several decades have witnessed a proliferation of programs that are related to economics, but often do not require as much economic theory or quantitative work as is required to major in economics. The smaller cohorts of high school graduates that predictably hit American higher education in the mid 1980s induced numerous institutions to construct new interdisciplinary programs to cater to student demands.

Public policy programs, hybrid business economics degrees, international studies, and area studies programs, among others, allow students to get to applied economics courses faster than the typical highly structured economics major permits. They attract students who see economics as an instrument to learn about policy or global markets or to help them get a job, rather than as a way of learning methodological approaches to problems that may have long run benefits. Such programs frequently are marketed as including "economics", but often do not require intermediate micro and intermediate macro, two courses that undergraduates frequently find difficult and boring. As such, these programs are sometimes referred to as "economics without tears."

Siegfried (1997) attempted to relate the decline in economics degrees in the U.S. from 1990 through 1996 to the introduction of

competing majors, including business as well as other programs such as international relations. He found that economics degrees declined 30 percent at 20 institutions whose economics departments reported that a new competing major had recently been introduced, but declined only 26 percent at 131 institutions that reported no change in their local competition. Although no statistical tests were performed, it is doubtful that the difference is meaningful.

Willis and Pieper (1996) found that those economics majors lost from a sample of departments at 21 U.S. liberal arts colleges from 1983 to 1992 migrated primarily to other social science disciplines. Among the faster growing social sciences over that period were criminology, anthropology, and international relations.

However, as Willis and Pieper note, these programs existed at the beginning of the period in the institutions they studied and thus can explain where the lost economics majors went, but do not by themselves explain why the majors left economics.

Fluctuations in the Academic Price of an Economics Degree.

Anecdotes usually have economists vying with natural scientists for the harshest grading standards at most universities.

At least that is the economists' version of the story. There is systematic empirical evidence that both absolute and relative grading standards affect the number of students who major in economics (Sabot and Wakeman-Linn 1991). For grading standards to

explain the economics degree cycle, however, they would have had to have been tightened up significantly about 1990, and then relaxed roughly four years later in all of the countries for which we have economics degrees data. Although we do not have direct evidence on the average grades earned by economics students and by all other students each year in any country, it is plausible that grading standards would have remained tight in economics relative to other disciplines up through 1990 because many economics departments were overrun by students in the late 1980s and thus had no reason to follow the general trend toward easier grading. Departments also may have started to relax grading standards by 1994 as they realized how rapidly their number of majors was falling (Becker 1997, 1357).

Some students might also view curriculum requirements as a "price" they must pay to earn a particular degree. We have encountered numerous economics departments that were considering a strategy of relaxing degree requirements to attract additional students, and several others that instituted a required econometrics course only when enrollments were overwhelming their teaching capacity. When Siegfried and Wilkinson (1982) looked at this question systematically in a cross-section regression analysis, however, they uncovered little evidence that curriculum requirements affected student choices among majors in 1980. Recently, Siegfried (1997) found virtually no difference in

enrollment trends among colleges and universities in the U.S. that had increased, decreased, or not changed their economics major requirements.

#### Changing Teaching Methods.

In the early 1990s economists appeared to be out of step with educational psychologists and instruction specialists regarding the value of active learning techniques (Becker 1997, 1359). The Commission on Graduate Education in Economics, for example, concluded that "the appropriate style of professional communication is something (graduate) students can figure out for themselves by watching their teachers" (Krueger 1991, 1049). The teachers those future instructors were observing spent about 83 percent of their class time lecturing (Becker 1997, 1352). Because economics departments were generally overburdened by students around 1990, there was little reason for faculty to invest the time required to adopt teaching methods that emphasized active learning.

One might have expected the sharp decline in economics majors that began about 1990 to have improved the payoff to faculty investments in learning how to use more effective and more popular (with students) pedagogical techniques than traditional "chalk and talk." Consistent with this expectation, Becker and Watts (2001) found in surveys of about 600 economics faculty that the median proportion of time full-time professors devoted to teaching

increased from 50 percent in 1995 to 60 percent by 2000. Respondents also reported that for both promotions and annual raises, they perceived about a 5 percentage point increase in the median weight given to teaching from 1995 to 2000.

The increased faculty effort devoted to teaching does not appear to have influenced teaching methods, however. The median proportion of class time devoted to traditional lecturing remained virtually constant from 1995 to 2000 (although the mean proportion declined by a few percentage points). Becker and Watts' (2001) results "suggest that the reward structure has moved slightly toward more emphasis on teaching, and that academic economists are now spending more time on teaching or preparing to teach, [b]ut the method of choice for teaching economics...is still chalk and talk."

Thus, there appears to be no basis to attribute the increase in economics degrees during the latter half of the 1990s to changes in pedagogical methods that were provoked by the immediately prior drop in numbers.

#### Changing Relative Labor Market Returns to an Economics Degree.

Since the late 1970s, undergraduates have been intensely interested in their job prospects upon earning a degree, viewing college and university education primarily as an instrument to gain an advantage in the labor market. Accordingly, changes over time in the employment prospects and earnings of students with various

degrees could alter the relative attractiveness of different majors to undergraduate students.

Siegfried and Raymond (1984) found that the finance, insurance, and real estate (FIRE) sector employed 38 percent of young economics graduates in 1980. Willis and Pieper (1996) reported that the share of civilian employment accounted for by the FIRE sector in the U.S. peaked at 11.3 percent in 1988, just two years before student interest in economics apparently began to evaporate. The share fell to 10.6 percent by 1992 and then began a modest recovery from 1992 to 1997 (OECD 1998, 94-95). This employment pattern closely fits the pattern of U.S. economics degrees if there is a two-year recognition lag from changes in employment outcomes to changes in student choices among majors and another two-year lag between student choices and degree outcomes. Unfortunately, in Australia, Canada, and Germany, FIRE employment has increased steadily from 1986 through 1997 (OECD 1998, 54-55, 150-151, 274-275), exhibiting no hint of a lagged relationship with the number of bachelor's degrees awarded in economics in any of the three countries. FIRE may not be the dominant employer of economics graduates in Australia, Canada, and Germany, however.

## CONCLUSION

Among the hypotheses that have been suggested to explain the decline and partial recovery in the number of economics majors in the 1990s, the effect of interest in business education and the influence of grading standards appear to show the most promise for additional investigation. Of course, pinning the blame on declining interest in business then raises the question of why interest in business has waned. Further examination of the role of labor market returns also may be worthwhile.

In sum, there appears to be no convincing explanation for the 1992-96 decline in interest in economics among undergraduates.

**TABLE 1. Undergraduate Degrees in Economics**

Canada/Germany/U.S.		88-89	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	97-98	98-99
Australia		1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Australia <sup>a</sup>	N	1,157	1,186	1,329	1,428	1,340	1,266	1,079	938	1,049	1,062	-
(n=14)	%Δ		+2.5	+12.1	+7.4	-6.2	-5.5	+14.8	-13.1	+11.8	+1.2	-
Canada <sup>b</sup>	N	-	-	1,740	1,537	1,559	1,517	1,364	1,154	1,138	1,170	1,291
(n=10)	%Δ	-	-	-	-11.7	+1.4	-2.7	-10.1	-15.4	-1.4	+2.8	+10.3
Germany <sup>c</sup>	N	19,841	21,252	21,211	23,765	25,379	25,258	23,831	22,080	21,832	22,178	21,889
(n=population)	%Δ	-	+7.1	-0.2	+12.0	+6.8	-0.5	-5.6	-7.3	-1.1	+1.6	-1.3
U.S. <sup>d</sup>	N			11,298	11,250	10,187	9,116	8,152	8,007	8,176	8,596	9,095
(n=170)	%Δ	-	-	-	-0.4	-9.4	-10.5	-10.6	-1.8	+2.1	+5.1	+5.8

<sup>a</sup> The 14 Australian universities in the sample are: James Cook, Queensland, Murdoch, Western Australia, Flinders, Tasmania, Australian National University, Macquarie, New England, Newcastle, New South Wales, Wollongong, LaTrobe, and Royal Melbourne Institute of Technology.

<sup>b</sup> The 10 Canadian universities in the sample are: Dalhousie, Laval, McGill, McMaster, Memorial University of Newfoundland, Montreal, Queen's, Simon Fraser, Western Ontario and York.

<sup>c</sup> The German data are a census.

<sup>d</sup> Sample U.S. institutions are: Ohio State, California-Berkeley, Wichita State, North Carolina-Greensboro, Carnegie-Mellon, Stanford, Davidson, and Pomona.

Sources: Described in text.

**TABLE 2. Percentage of First Degrees in Economics Earned by Women.**

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Canada/US	88-89	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	97-98	98-99
Australia	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999

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Australia <sup>a</sup> (n=13)	37.2	38.3	37.7	39.1	39.9	39.3	40.5	38.4	40.4	39.1	-
Canada <sup>b</sup> (n=6)	-	-	28.4	32.4	30.8	29.9	31.1	33.2	31.3	33.4	33.7
U.S. <sup>c</sup> (n=170)	-	-	29.8	29.1	29.7	27.8	29.4	29.5	30.4	31.4	33.1

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<sup>a</sup> The Sample includes the 14 Australian universities in Table 1 less the Royal Melbourne Institute of Technology.

<sup>b</sup> The 6 Canadian universities in the sample are: Memorial University of Newfoundland, McMaster, Montreal, Queen-s, Simon Fraser, and Western Ontario.

<sup>c</sup> The sample of U.S. institutions is the same as for Table 1.

Sources: Described in text.

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## ENDNOTES

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1. Our data are derived from various sources. The North American numbers are taken from a supplemental questionnaire that accompanied the Universal Academic Questionnaire administered annually to U.S. and Canadian universities by the American Economic Association. We rely on sample rather than government data for both Canada and the United States, because government data appear only with a substantial lag. For the years when both are available, the sample data closely track the government census (Siegfried 2000, 299). The Australian data are from the Australian Department of Employment, Training, and Youth Affairs, supplemented by survey data acquired directly by the authors. The German data were obtained by direct correspondence with the Federal Office for Statistics of Germany for us by Manfred Gärtner of the University of St. Gallen. The German data comprise a census.
  2. The Australian data include only two universities in Victoria. Because Lewis and Norris (1997) found economics enrollment trends in Victoria have deviated from the rest of Australia, we sought more data from Victorian universities. Ross Williams and John Freebairn provided information for the University of Melbourne. Economics students are difficult to distinguish at the University of Melbourne because over half of them take

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combined degrees. This, plus a flexible course structure and the fact that those who combine an economics major with a second major in another discipline do not undertake all of their level three (senior year) subjects in the third year means that Melbourne economics majors are not well defined. One possibility is to count students who take the level three required micro and macroeconomic theory courses in any one year. Those numbers rose steadily, almost tripling from 1988 until 1992, then fell precipitously, almost in half, over the next two years. Subsequently, they leveled out from 1994 through 2000. Based on this indicator, the decline in economics undergraduates is more severe at the University of Melbourne than at the other Australian universities in 1993 and 1994, but while other universities continued to lose economics majors in 1995 and 1996 the numbers at Melbourne stabilized. The average decline in the level three micro and macro courses at Melbourne was 36 percent from 1992 to 1996; the comparable decline in economics degrees at the thirteen other Australian Universities reported in table 1 is 45 percent.

3. Economics degrees data are available for six additional Australian universities (Adelaide, Curtin, Monash, Sydney, Victoria, and Western Sydney) from 1993 through 1998. The

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pattern of degree trends is the same for these six as for the 13 reported in table 1; but the amplitude of the fluctuations is greater. The decline reported in table 1 for 1993 to 1996 is 30 percent; for the six additional universities it is 47 percent. The recovery reported in table 1 for 1996 to 1998 is 13 percent; for the six additional universities it is 26 percent.

4. From 1975 to 1985, while the proportion of undergraduate economics degrees awarded to women in the U.S. rose rapidly from 25 percent to 35 percent, the proportion of faculty in graduate departments of economics who were women rose slowly but steadily. From 1985 through 1990, while the proportion of undergraduate degrees awarded to women fell from 35 to 30 percent, the proportion of faculty in graduate departments of economics who were women continued to increase (Blank 1994). Since 1990 both trends have been modestly upward (Bartlett 2000).
5. These data were provided in private correspondence from Statistisches Bundesamt, Referat Hochschulstatistik, Gruppe VII C, Wiesbaden, Germany, 65180.