

Economic Education's Roller Coaster Ride In Hawaii, 1956-2006

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Abstract

During the early 1960s a few of Hawaii's public high schools began to offer economics courses, and they gradually became popular social studies electives. By 1999, over 46% of public high school seniors completed a one-semester course in economics. From this peak, enrollment rates would plummet to just 11% in 2003, before rebounding to 27% in 2005 and 2007. Our analysis searches for an explanation by identifying large changes in key variables and public policies that determine demand for and supply of economic education in Hawaii's schools. We conclude that changes in the incentives facing large Hawaii businesses, University of Hawaii faculty and administrators, and bureaucrats in the State of Hawaii Department of Education have reduced the supply of qualified teachers and student enrollment rates.

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I. Introduction

In 1965, economics was not part of the K-12 curriculum in Hawaii's or any other state's public schools. This would change dramatically over the next two decades, as 28 percent of U.S. high school seniors in 1982 and 25 percent of Hawaii public high school seniors in 1986 would graduate with at least a one-semester course in economics.¹ The U.S. and Hawaii rates rose in tandem through the late 1990s, to 46 percent in Hawaii's public high schools in 1999 and 50 percent in U.S. public high schools in 2000.² Enrollment rates of U.S. public high school seniors fell slightly to 48 percent in 2005, while enrollment rates in Hawaii plummeted, bottoming out at just 11 percent in 2003. Hawaii's enrollment rates would recover to 27 percent in 2005, 20 percentage points below the peak level achieved just six years earlier.

Our analysis focuses on understanding the variation in Hawaii's enrollment rates between 1965 and 2006. Since there are insufficient data to conduct either a careful time series analysis for Hawaii or a panel data analysis for the 50 states, we instead identify plausible factors that contributed to Hawaii's three decades of enrollment increases and then consider whether changes in one or more of these factors might be responsible for Hawaii's enrollment declines after 1999. We pay particular attention to the role played by two highly interdependent organizations—the Hawaii Council on Economic Education (hereafter “Hawaii Council”) and the University of Hawaii Center for Economic Education (hereafter “UH Center”)—in providing subsidized professional development courses for teachers interested in economics.

We find considerable evidence that the declines in economics enrollments were due to changes in a few critical determinants of supply. These include the Hawaii State Department of Education's (hereafter “Hawaii DOE”) reallocation of teaching resources to tested core subjects, the decline in resources available to the UH Center to provide and subsidize in-service training of K-12 teachers in economics, and the flagging interest from Hawaii's major corporations and the University of Hawaii in K-12 economics education.

II. Enrollments in High School Economics Courses in the United States and Hawaii

A. U.S. Enrollment Rates

¹ We do not count consumer education courses as economics course, although some part of an economics course is often devoted to consumer education. Some economics courses also include material on entrepreneurship or civics.

² Our enrollment figures are for academic calendar years—“September 1998 to June 1999” or “AY1998-1999.” For simplicity of exposition, we use the last year of the academic year, e.g., “1999” represents academic year “1998-1999.”

Economics classes began to be widely offered in U.S. high schools during the 1950s.³ Approximately 16 percent of high school graduates had taken an economics course in 1961, and enrollment steadily increased through the 1960s and 1970s, reaching 20 percent in 1973, and 22 percent in 1977 (Walstad 1992). The first *High School Transcript Study* for U.S. high schools was conducted in 1982, and it showed that 27.4 percent of high school graduates had completed an economics course (NCES 2007; Table 1). After a rapid climb to 47.3 percent in 1990 and a more gradual rise to 49.2 percent in 2000 (Table 1, Panel B), enrollment rates fell to 45.8 percent in 2005.⁴

Some of the enrollment increase was due to the enactment of state mandates requiring a semester-long course in economics.⁵ While some states experimented with a mandate and later rescinded it, the number of states with a mandate nonetheless rose from 2 in 1961 to 7 in 1982 to 15 in 1998 and to 17 in 2007. We note also that enrollment rates in economics courses in public and private high schools have both gradually increased over time but have exhibited slightly different patterns since 1998. Private school enrollment in economics courses was 3.7 percentage points smaller than public school enrollment in 1982 (24.1 and 27.8 percent) but by 1998 private school enrollment exceeded public school enrollment by 4.6 percentage points (50 and 45.4 percent). The period after 1998 reveals a sharp decline in private school enrollments, which fell to 37.1 percent in 2000 and then to 30.6 percent in 2005 (Table 1).⁶

B. Hawaii Enrollment Rates

Hawaii high schools began to offer semester-long economics courses in the 1960s. Enrollment rate data are available beginning in 1986 when 25 percent of high school seniors graduated with a course in economics.⁷ Enrollment rates steadily climbed, reaching a peak of 46 percent in 1999 (Figure 1).

³ See Walstad (2001) and Walstad and Rebeck (2001) for full reviews of economic education in U.S. high schools.

⁴ Table 1 contains two variations of series for high school students earning credits in economics courses. Panel A provides summary statistics on the percentage of high school graduates with *any* credits in economics on their transcript. Panel B provides summary statistics on the percentage of high school graduates with *at least .5* credits (one semester) of economics on their transcript. We note the higher standard errors for both data series of private school enrollment.

⁵ Some of the mandated courses are not solely focused on economics but include other topics such as personal finance and entrepreneurship.

⁶ Also notable is an expansion in the number and percentage of U.S. high school students taking advanced placement (AP) economics courses and the AP test in economics. In 1989, when the first AP economics exams were given, 2,583 students took the microeconomics test and 3,198 students the macroeconomics test. By 2002, 23,108 high school students took the microeconomics AP exam and 32,184 the macroeconomics AP exam (Melican and Goodman 2003).

⁷ Hawaii data source for 1986: Personal communication with UH-Manoa Center for Economic Education Director Gail Tamaribuchi, June 2003.

The abrupt declines in economic enrollments in Hawaii public high schools that began in 2000 represented a sharp break from the previous three decades of gradual enrollment growth. Between 1999 and 2003, enrollment rates in economics courses plummeted, from 46 percent in 1999 to just 11 percent in 2003. Part of this precipitous decline was due to a fall in the number of public high schools offering economics, from 33 schools in 2001 to just 14 in 2002 (Figure 2).⁸ We estimate that 18.39 percentage points of the 36 percentage point decline was due to the fall in the number of schools offering an economics course.⁹ The number of schools offering economics rebounded to 22 in 2003 and to 34 in 2004. Although the number of public high schools offering economics returned to the levels observed in the early 1990s (e.g. 34 public high schools in 1992 offered economics), enrollment rates in public high school economics courses never recovered their historical peak (46 percent) but rather appear to have stabilized at roughly 27 percent, the rate observed in the last two years (2005 and 2007) for which data are available.

How do Hawaii's public high school economics enrollment rates compare with national rates? They trailed national public high school enrollment rates by ten percentage points in the mid-1980s (United States at 34.7 percent in 1987 and Hawaii at 25 percent in 1986) but by 1998 had almost fully converged to national enrollment rates (United States at 45.4 percent and Hawaii at 44.4 percent).¹⁰ Over the next seven years, however, divergence emerged, with a 9.5 percent gap opening in 2000 (United States at 50.4 percent and Hawaii at 40.9 percent) and a 20.2 percent gap in 2005 (United States at 47.5 percent and Hawaii at 27.03 percent).

Comparison of the Hawaii and the overall U.S. enrollment rates could be misleading, as the State of Hawaii does not require that public high school students complete an economics course to graduate while many other states require an economics course for graduation. To enable a better comparison, we decompose the U.S. public high school series into two series: one for states with mandated economics courses and a second for states with elective economics courses.¹¹ Figure 1 shows that the enrollment rate series for the states with elective economics courses is substantially lower than the overall U.S. series. From an initial value of 21.1 percent in 1981, the series rises in the

⁸ Charter schools are not included in our analysis.

⁹ Our estimate proceeds by assuming that enrollment rates at public high schools that dropped economics would have followed the same path as enrollment rates at public high schools that continued to teach economics.

¹⁰ In 2005 just one of Hawaii's 45 public high schools and three of Hawaii's 40 private high schools offered AP economics.

¹¹ Since enrollment rates are not available for most non-mandate states, we derive them from overall national enrollment rates by subtracting graduate-weighted enrollments in states that require economics for graduation.

1980s and falls in the 1990s before peaking in 2000 at 25.5 percent and then falling in 2005 to 17.9 percent.

Comparison of the Hawaii enrollment series with the enrollment series from the non-mandate states paints a very different picture than the comparison with all states. Figure 1 reveals that the difference between Hawaii and U.S. non-mandate state enrollment rates increased from 2 percentage points in 1987 to 16.3 percentage points higher in 1994 and to a peak of 24.3 percentage points higher in 1998. The gap declined in 2000 to 15.3 percentage points and in 2005 to 9.1 percentage points. From this perspective, it becomes clear that Hawaii achieved much higher enrollment rates than other non-mandate states during the late 1980s and 1990s and that despite steep declines in its enrollment rates between 1998 and 2005, Hawaii continues to have higher enrollment rates than other non-mandate states.

III. Supply-side Explanations for Changes in Economics Enrollment in Hawaii

How could enrollment rates in economics courses at public high schools in Hawaii decline so quickly after over 30 years of solid growth and then stabilize at much lower levels? We proceed by identifying four supply-side candidates for the sudden enrollment declines and then investigate to determine whether they are consistent with the available evidence. The four candidates are: (1) changes in national education policies that specified penalties for below-standard student scores on tested core subjects; (2) retirements of skilled economics teachers at several large Hawaii high schools; (3) reductions in in-service workshops and courses for K-12 economics teachers offered by the UH Center and funded by the Hawaii Council; and (4) reduced interest in K-12 economic education by the University of Hawaii and Hawaii's major corporations.

A. The Hawaii State DOE: Incentives and Priorities

The State of Hawaii is the only state with a single-district, state-wide public school system. Decisions by the Hawaii State Board of Education or Hawaii DOE administrators have the potential to generate substantial changes in enrollments in economics courses, as parents do not have the option to send their children to schools in a different district. Instead, they would have to incur substantial additional costs to send their children to a private school or move to the mainland United States.

Decisions by the Hawaii State Board of Education and the Hawaii DOE could affect public high school economics enrollments if they reallocate resources to other subjects, reduce incentives for schools to offer economics courses, or place increased emphasis on achievement goals and new diplomas that do not include economics as a core or elective subject.¹² Hawaii's public schools have recently become more focused

¹² Consider, for example, the DOE's participation in the Hawaii P-20 program. The P-20 program is a public-private partnership with the objective of strengthening the educational pipeline from early childhood through higher education. Despite its professed goal of promoting a "high school diploma that counts," its plan for an improved diploma does not incorporate a course in economics or even consider how economics could be incorporated in various courses required for its improved diploma. Instead, the enhanced diploma

on improving the performance of students on standardized tests in mathematics and reading. Concern in the mid-to-late 1990s about the below-average performance by Hawaii's students in standardized tests covering core subjects was bolstered by the 2001 passage and 2003 implementation of the federal government's No Child Left Behind Act (NCLB) Act.¹³ It requires states to establish academic achievement goals by setting academic standards in core subjects (one of which is economics); to measure progress using tests aligned to state standards;¹⁴ and to have "highly qualified" teachers in classrooms.¹⁵ When the test scores for a school system or schools within the system fail to meet NCLB standards, the school system is required to provide costly special services to students enrolled in failing schools and to provide students enrolled in these schools with an option to transfer to other schools.

The NCLB Act does not require that high school students take or pass standardized tests in economics,¹⁶ and the Hawaii State DOE has not instituted standardized testing in economics at any grade level in Hawaii's public schools. The combination of the NCLB's new penalties for low test scores in core subjects and no NCLB testing in economics gave the Hawaii DOE clear incentives to devote more resources towards improving test scores in core subjects and fewer resources to untested subjects such as economics. Since the NCLB Act was enacted in 2001 and implemented in 2003, we would expect to see economics enrollments in Hawaii fall during this period and remain at lower levels. Economic enrollment rate data from Hawaii's public high schools are consistent with this implication, as the 2005 enrollment rate is well below levels observed in 1998 (44.4 percent) and 2000 (40.9 percent).

Since the NLCB Act provides the same penalties for each state for below-standard test performance in core subjects, we would expect to see declines in enrollments in other

requires an additional course in mathematics, which reduces the number of possible electives a student is able to take. The enhanced diploma may therefore have the unintended consequence of reducing enrollments in economics and other elective social studies courses. For more information on Hawaii's P-20 program, see <http://www.p20hawaii.org> (last accessed on 12 November 2008).

¹³ Public Law 107-110.

¹⁴ Hawaii's assessment program is anchored by the Stanford 8 tests, used to assess all students in grades 3, 6, 8 and 10 in the areas of language arts, mathematics and reading. This test assesses only basic skills and not the rest of the curriculum. Also required is the Hawaii State Test of Essential Competencies (HSTEC), a criterion-referenced, multiple-choice high school exit exam given in grades 10, 11, and 12. Students must pass the HSTEC exam to graduate.

¹⁵ A highly qualified teacher is fully certified, has a B.A. degree, and has a demonstrated competence in the subject area. See <http://www.ed.gov/nclb/methods/teachers/hqtflexibility.html> (last access on February 19, 2009).

¹⁶ The first National Assessment for Educational Progress (NAEP) economics assessment test was given to high school seniors across the United States during January-March 2006. The test was developed to assess whether high school seniors had achieved economic literacy as defined by standards developed by the National Assessment Governing Board. See NAGB (2006). Results were released in July 2007 for roughly 11,000 students in 600 schools; state-by-state results have not been made public.

non-mandate states.¹⁷ There were 35 non-mandate states in 2000 and 33 in 2005. Table 1 shows a decline in the non-mandate state enrollment rate from 25.5 percent in 2000 to 17.9 percent in 2005—a decline of 7.6 percentage points. Enrollment also declined in Hawaii over the 2000-2005 period; the 14.5 percent enrollment decline, from 41.5 percent in 2000 to 27 percent in 2005, Hawaii started from a higher enrollment base. While other factors besides the NCLB Act could be responsible for the two series' movements (e.g. changes in demand for economics courses, changes in supply of economics teachers, etc.), the co-movement provides a hint that common factors could drive both series during this period.¹⁸

B. High School Mandates, Teacher Retirements, and Enrollments

The State of Hawaii does not require a course in economics to graduate from high school.¹⁹ Students are required to complete four credits (8 semesters) of social studies courses. Since 3 credits are taken up by required social studies courses, students complete their one elective social studies credit with two semester-length courses chosen from social studies electives offered by their high schools, e.g. psychology, geography, economics, consumer education, or European history.²⁰

Although Hawaii lacks a state-imposed economics mandate, some public high schools require economics for graduation. From the early 1990s to 1998, two large public high schools with popular economics teachers on the faculty required economics for graduation. These two schools enrolled approximately 15 percent of all graduating seniors in Hawaii. For 1998, we estimate that the economics requirement at these two large high schools added roughly 9.5 percentage points to Hawaii public school enrollment rates between 1992 to 1999.²¹

¹⁷ Within the constraints of the mandate, school districts could transfer better teachers from economics to core subjects, spend less on economics textbooks, and provide teachers with less support.

¹⁸ NCLB could, however, still have an influence on DOE attitudes toward economics. NCLB tests in economics, originally scheduled to start in 2006, have been postponed to 2012. The postponement further reduces DOE incentives to pay attention any time soon to this subject.

¹⁹ State school boards often set minimum requirements for high school graduation. Over the period 1980 to 2007, the number of states requiring an economics course for high school graduation increases from 12 to 17. We estimate that this increase raised the national enrollment rate in economics courses by approximately 9 percentage points.

²⁰ The Hawaii State Board of Education requires that high school students earn four credits in social studies courses to graduate. Among the required courses for ninth graders entering in 2007 are Modern History of Hawaii (0.5 credit), Participation in a Democracy (0.5 credit), United States History (1.0 credit), World History (1.0 credit), and 1-2 elective courses (1.0 credit).

²¹ In 2005, a smaller public high school offered just two social sciences courses—one of which was economics—for students to complete their two-course social science requirement. Unless the student took a summer school course in social sciences or transferred with social science credit, an economics course was an implicit requirement for graduation.

Public high schools with graduation requirements in economics began to reconsider them as the cohort of popular teachers, many of whom taught 3-6 sections of economics per semester, began to retire. When these schools failed to fill these positions or filled them with teachers only willing to teach 1-2 sections of economics per semester, they adjusted by dropping the requirement. Other schools with large enrollments and popular teachers also had difficulties replacing these teachers as they retired. We have identified eight high schools that experienced huge enrollment declines between 1999 and 2002. At least three of these high schools dropped the course because their economics teacher had retired or resigned.²² The problems with staffing economics courses went, however, far beyond these 8 schools, as between 2001 and 2003, nineteen public high schools temporarily stopped teaching economics.²³

Why was it so difficult after 1999 to find teachers willing and able to teach economics? One hypothesis is that the mechanism used in Hawaii to educate teachers in economics began to break down in the mid-1990s. Like many other states, most Hawaii high school teachers who have taught economics had little knowledge of the subject when they began teaching in the Hawaii public schools. They acquired their substantive and pedagogical skills in economics by taking in-service courses and workshops organized by the UH Center for Economic Education and, occasionally, from national organizations providing in-service economics education, e.g. the Foundation for Teaching Economics.

Before we discuss why in-service economics education became less effective (see Section 3.C), we need to consider why private and public high schools in Hawaii did not hire freshly minted college graduates with a degree in education and a major in economics. Consider the potential supply of teachers with an economics major from the University of Hawaii-Mānoa. The annual flow of students graduating with a B.A. from UH-Manoa and an economics major dropped from an average of 64 over the 1986-1997 period to just 38 over the 1998-2003 period.²⁴ While the sharp decline in the flow of new economics graduates from 1997 is roughly consistent with the timing of enrollment declines, we have concluded that it is unlikely to contribute substantially to the decline. This is because only a handful of these graduates choose to enter teaching in either period. Between 1986 and 2000, the Director of the UH Center for Economic Education could identify only six teachers who graduated with a B.Ed. from the UH College of Education and a major in economics. The composition of teachers graduating from the

²² Personal communication from UH Center Director Gail Tamaribuchi.

²³ During the Fall 2000 and Spring 2001 semesters, the Hawaii State DOE changed the sequence in which some courses were offered. At some high schools, this may have resulted in a particular course not being offered during the following academic year. Another possible factor behind the temporary fall in the number of schools offering economics may have been the Hawaii State DOE's push to have high schools offer more advanced placement courses. Since the World History AP course and the U.S. History AP course are both one-year courses, students must take one of their two social science elective courses during the summer semesters; economics courses are rarely offered during the summer.

²⁴ Institutional Research Office (2008).

University of Hawaii is important, as the majority of public school teachers in Hawaii are UH alumni. The Hawaii State DOE can, of course, recruit qualified teachers from the U.S. mainland. While this seems like a plausible alternative, low starting salaries for public school teachers have severely limited the out-of-state supply of teachers. In 2000, the entry level annual salary for a teacher with a BEd was \$29,204, which exceeded the national average of \$27,989.²⁵ However, once we make a crude adjustment for Hawaii's high cost of living, the Hawaii starting salary drops to \$22,995.²⁶ The combination of low salaries and Hawaii's high cost of living ensures that the supply of qualified teachers without a previous connection to Hawaii will be small. Furthermore, the Hawaii DOE contract with the Hawaii State Teachers Association (the union representing public school teachers) does not allow for salary premiums to be paid to recruit teachers who majored in specific fields or agree to teach courses in specific fields.

C. The Hawaii Council and the UH Center on Economic Education

Two organizations in Hawaii have collaborated closely since 1965 to provide workshops and courses in economics for Hawaii's K-12 teachers. The Hawaii Council on Economic Education is a coalition of business executives, government officials, union leaders, public and private school teachers, economists, and college administrators that sponsors activities to promote economic education and to finance professional training courses and workshops in economics for K-12 teachers. The Hawaii Council has traditionally worked in close collaboration with the University of Hawaii Center for Economic Education, a small unit within the College of Education at the University of Hawaii-Mānoa. The UH Center, with financing from the Hawaii Council and the College of Education, designs and offers workshops and courses in economics for K-12 teachers and assists public and private teachers with developing and upgrading courses in economics.

The Hawaii Council is part of a network of 45 state councils formed during the 1960s and 1970s to promote economic education by providing financing to university centers that provided free or highly subsidized professional development courses in economics.²⁷ Similar networks for other academic disciplines either do not exist or are very small. Why, then, did such a network form to provide free teacher training in the field of economics?

²⁵ *Digest of Education Statistics* (2002), Table 79.

²⁶ Since there are no state consumer price indexes or state GDP deflators, adjustments for Hawaii's higher cost of living are more guesstimates than estimates. The *2002 State of Hawaii Data Book*, Table 14.06, reports calculations from the Bank of Hawaii for an "annual intermediate budget for a family of four on Oahu" and a U.S. family of four. The last reported calculation is for 1998 when the Hawaii budget was 27.1% more than the U.S. budget. While there are no budget figures for the last decade, we note that from 1998 to 2007, the Honolulu CPI rose at about the same rate as the U.S. CPI (all urban consumers).

²⁷ The councils have also lobbied state legislatures and state school boards to require economics courses as a graduation requirement.

We argue that the state council and center(s) for economic education can be usefully understood as a mechanism for internalizing the positive spillovers that arise when an additional K-12 student becomes literate in economics. High school students may not be the only ones who gain when they become more literate in economics. Owners and employees of corporations may transact with better informed consumers who understand complex contracts; professors employed by university economics departments and business schools may encounter more freshmen who have an interest in and a basic grasp of economic concepts; and politicians may find that voters are more likely to support efficient public policies. Because students typically do not take into account the benefits that their economic literacy confers upon corporations, politicians, and professors, too few students enroll in economics courses.

These types of spillovers are known as “network externalities” as the positive spillovers from a student’s education can be simultaneously enjoyed by numerous individuals and organizations. If more students could be induced to become literate in economics, numerous individuals and organizations could reap gains. Public and private measures for inducing more students to take an economics course include (1) publicly-provided subsidies to high school students enrolling in an economics course; (2) privately-provided subsidies to high school students paid by organizations that experience positive spillovers from an increase in the percentage of economically literate consumers; (3) privately-provided subsidies paid to economics teachers or schools offering economics; and (4) a federal, state, school district or school regulation requiring that a high school student complete a course in economics to graduate.

Options one and two are rarely observed in U.S. public or private high schools. Option three is widely used, as economics teachers working at public and private high schools frequently enroll in professional development courses that are heavily subsidized by a state-wide coalition of private foundations, corporations, colleges, and universities.²⁸ To be successful, such coalitions must overcome the free-riding problem, as beneficiaries of the additional economic education cannot be excluded if they do not join the coalition. Since it is costly for coalition members to administer punishment to their free-riding peers (who may retaliate in other forums), the coalitions focus instead on positive incentives, issuing a blizzard of special awards and public praise for any and all politicians and school administrators favoring a required course in economics, corporate leaders contributing company funds, and economic professors lending credibility to the coalition’s work. Since these coalitions are small presences in most states, their success is typically enhanced when the group has a charismatic leader and the state economy is prospering. Option four is also widely used. In 1961, only two states required a high school student to complete a one-semester course in economics to graduate; 17 states required economics in 2007.

²⁸ For example, the Foundation for Teaching Economics provides a wide variety of free professional development courses to U.S. high school teachers. Course offerings include 4-7 day residential courses, one-day seminars, and on-line classes. See <http://www.fte.org>.

In Hawaii, option three has prevailed, as two organizations, the Hawaii Council and the UH Center, have worked closely together to promote economic education in Hawaii and to provide highly subsidized in-service courses in economics for K-12 teachers. From 1965 to the mid-1990s, the Board of Directors of the Hawaii Council featured high-level executives from Hawaii's largest and most prominent corporations,²⁹ the Superintendent of the Hawaii State Board of Education, the Dean of the UH College of Education, faculty from the UH Department of Economics, the President of the University of Hawaii, and leading union leaders.³⁰ Prominent community members were solicited to be members of the Hawaii Council. The Council financed the Center's in-service education programs for K-12 teachers from individual and corporate donations and grants from Hawaii foundations (e.g. the Hawaii Community Foundation) and national foundations (e.g. the Kaufmann Foundation). Courses and workshops were offered in collaboration with economics faculty from the UH-Mānoa Department of Economics and education faculty from the UH Center for Economic Education. The University of Hawaii provided space and utilities for the offices and library of the Hawaii Council and the UH Center as well as a 50 percent reduction in the number of courses assigned to the Center director each academic year.

The UH Center's activities were bolstered in 1991 when the Hawaii DOE assigned a resource teacher in economics to the UH Center. The addition of a full-time resource teacher to the UH Center meant that Center staff could make outreach visits to high schools teachers and their classes on the neighbor islands of Maui, Kauai, Lanai, Molokai, Hawaii, and to high schools in rural Oahu. Enrollment rates in public high school economics classes surged from 25 percent in 1986 to 40 percent in 1992; we attribute at least part of this increase to the presence of the resource teacher.

From 1975 to 1985, the director of the UH Center also served as the executive director of the Hawaii Council.³¹ After his departure in 1985, the Hawaii Council had a series of volunteer executive directors who each served for 1-to-3 years and devoted 5-10 percent of their professional time to the Hawaii Council. Among the executive directors

²⁹ For example, Hawaiian Electric, Hawaiian Telephone, Frito-Lay, Alexander and Baldwin, and Chevron contributed both money and executives' time to the Hawaii Council.

³⁰ The Hawaii Council has not included a union leader on its executive committee since the late 1990s.

³¹ Filling the top posts in the Hawaii Council and the UH Center with the same person allows for better coordination of the two groups' activities. At the same time, it also makes it more difficult for the Hawaii Council, which provides funding for UH Center activities, to monitor the UH Center's activities to ensure that its programs use funds to achieve objectives set forth in its resolutions approving funds for UH Center programs.

A former executive director of the Hawaii Council noted to us that the Hawaii Council had functioned more effectively in the 1980s and early 1990s when the members of the executive board served longer terms and often were drawn from the top management teams at Hawaii's leading corporations. In the mid-1990s, terms for members of the executive board were shortened, leading to more turnover on the board and less influential members. In conjunction with Hawaii's "lost decade" of the 1990s, this may have led to a reduced capacity for the Council to raise money to support in-service training.

during the 1985 to 2003 period were three UH-Mānoa economics faculty, several business leaders, and a staff member from the College of Business Administration. High turnover in the position of executive director made it more difficult for the Council to cope with Hawaii's "lost decade" of the 1990s.

From 1991 to 2001, Hawaii Gross State Product grew at less than 0.1 percent annually, while U.S. GDP increased at an annual rate of 3.6 percent. Private contributions to the Hawaii Council from businesses and individual supporters declined significantly from the mid-1990s; they did not recover their real FY1996 level until FY2004. In-kind contributions to the UH Center also suffered. In 1994 the Hawaii State DOE's decision to end its support for a resource teacher assigned to the Center markedly reduced the Center's capacity to support K-12 teachers in developing and teaching economics courses. The 1992 decision by the President of the University of Hawaii to end his office's support for a secretary to support the UH Center made it more difficult for the single remaining faculty member to organize UH Center activities and to communicate with economics teachers and community supporters dispersed over 8 islands.

Figure 3 provides a measure of the services provided to economics teachers by the UH Center. The large increases in services over the 1992-1994 period coincide with the DOE's assignment of a talented resource teacher to the UH Center. After the teacher's reassignment in 1995, services provided for the next four years (1995-1998) reverted to the levels observed in the period (1988-1991) prior to the resource teacher's stint with the UH Center. From this baseline, services provided to teachers fall sharply in 1999 and 2000, eventually stabilizing during the 2000-2004 period at about 50 percent of the levels observed in the 1988-1991 and 1995-1998 periods. We note that the sharp decline in services offered to economic teachers during 1999 and 2000 occurred just prior to the period (2001-2003) when the number of high schools offering economics courses plunged.

D. Hawaii's Economic Recovery and its Diminished Economics Enrollments

In 1999, Hawaii's economy began to rebound, starting a decade of strong economic growth. From 1998 to 2007, gross state product grew at an average annual rate of 2.5 percent.³² We argued above that the declining economy reduced the resources available to the Hawaii Council and the UH Center, thereby reducing the number of teachers trained and assisted by the UH Center, and ultimately constraining schools to offer fewer economics courses and forcing students to take other social science courses. Invoking a symmetric response to increases in Hawaii's gross state product from 1998, we would expect to see more schools offer economics and a higher percentage of graduates with a course in economics. While the number of public schools offering economics does snapback to historical levels, enrollment stabilized at roughly 27 percent over the 2005-2007 period, well below the 40-45 percent rates observed in the mid-to-late 1990s.

³² Hawaii GSP was deflated by the Honolulu CPI.

We have already concluded (see Section III.A above) that the Hawaii DOE's reallocation of resources to tested core subjects could explain some of Hawaii's post-2001 enrollment declines as well as the Hawaii State DOE's decision to end its assignment of a resource teacher to the Center. Declining commitments to economic education from the UH College of Education, the UH Department of Economics, and the Hawaii business community were also important, as they reduced the capacity of the UH Center for Economic Education to provide in-service courses and workshops for Hawaii's teachers.

The UH Center for Economic Education is based in the UH College of Education. The College's primary support for the UH Center stems from its commitment to pay the salary of the UH Center Director and to waive a portion of the usual course teaching load for a specialist faculty in the College of Education. The waiver from teaching obligations provides the UH Center Director with time to work with the Hawaii Council Executive Director to obtain institutional and corporate funding for UH Center programs, to organize workshops and courses, to consult with teachers regarding their teaching and lesson plans, and to visit schools on Oahu and the neighbor Islands. In 1986, the UH College of Education provided its newly hired Center Director with a six-course waiver from an eight-course annual teaching requirement. The College of Education reduced the teaching waiver to 4 courses in 1994, and to 1 course in 2003. These changes are particularly important for our analysis, as the UH Center has essentially been a one-person operation since the Hawaii State DOE reassigned the UH Center's resource teacher in early 1995.³³

The UH-Manoa Department of Economics has also reduced resources allocated to the UH Center. Until 2007, the Department of Economics provided 500 square feet of space to the UH Center that were used to provide offices for the UH Center Director, office staff, and the resource teacher; a meeting area for small workshops; and display and storage of its multi-media library holdings. The Department of Economics has never contributed any faculty release time to the UH Center and its 2007 Strategic Plan makes no mention of K-12 economic education. Given the lack of priority assigned to K-12 economics education by UH economics faculty, it is unsurprising that they have not worked with the UH Center Director to develop and offer either undergraduate or graduate courses tailored to the needs of aspiring or certified economics teachers.³⁴ The State of Hawaii requires that economics teachers in the public schools complete a graduate course as part of their recertification; however, such a course is not offered by any private or public university in Hawaii. The end result is that Hawaii's economics teachers must choose from a menu of alternatives that includes taking an on-line graduate

³³ The Hawaii Council purchased one course of release time for the UH Center Director in 2002, 2003, and 2004, thereby partially offsetting reduction in course release time by the UH College of Education.

³⁴ On the other hand, why would undergraduates enroll in these classes when they have access to positions that pay considerably more than a K-12 public high school teacher?

course from other universities, finding ways to “game” the Hawaii DOE’s certification rules, or switching their teaching orientation to a different subject.

As resources allocated to the UH Center have declined, it should come as no surprise that it has provided fewer services to Hawaii’s economics teachers (see Figure 3). The Center has rarely utilized the internet or other digital technologies to provide workshops, courses, or teaching materials to teachers. As of 27 February 2009, the UH Center did not have a web page. Similar centers in other states use their web page as a resource to link economics teachers to state and national resources for teaching economics.³⁵ We note also that the UH Center has never offered an on-line workshop or course. It does not record its workshops and courses for later on-line viewing by teachers on other Hawaiian or Pacific islands. Visits by the Director of the UH Center staff to Hawaii’s elementary and secondary declined dramatically after 2003 when UH College of Education assigned the Center Director to virtually full-time teaching and administrative duties that did not encompass the UH Center for Economic Education.

IV. Diminishing Support and Increases in Competition

We conclude that there are multiple reasons for the decline in enrollment in public high school economics courses in Hawaii. We do not have enough data from Hawaii and other states to conduct a careful econometric analysis to determine their relative magnitudes and plausibility. Instead, we have conducted a comparative analysis that uses enrollment data from Hawaii’s private high schools and from the other non-mandate states to determine whether the turning points in the Hawaii public school data have counterparts in these series. Our analysis focuses on changes in the supply of economics courses, as changes in the two comparison series are consistent with this hypothesis. We acknowledge, however, that an alternative hypothesis—that students and parents placed a high value on courses in other social science subjects, such as psychology, geography, or Hawaiian studies—is rejected on the basis of solid reasoning yet very thin evidence: a single observation, the 2003 enrollment in economics courses in private high schools in Hawaii. In June 2003, one of the authors (Burnett) conducted a phone survey of 40 private high schools in Hawaii. This survey found that 45 percent of seniors in private high schools were enrolled in or had completed at least a one-semester course in economics.³⁶ Since this time, enrollment rates have increased for at least one private high school.

Our analysis clearly documents declining support to the UH Center from the Hawaii DOE, the University of Hawaii, and Hawaii’s business community. The declining support from the Hawaii DOE is relatively easy to understand. DOE support of

³⁵ The time cost for a K-12 economics teacher to visit the UH Center is considerable, as many schools are located at a considerable distance from the Center or other islands, traffic on Oahu’s major highway (H1) is heavy, and there is a lack of public parking for visitors at the University of Hawaii-Manoa.

³⁶ The high private enrollment rate is particularly striking when we consider that some small private high schools did not offer a semester-long course in economics during the survey period and therefore had zero enrollment rates.

the UH Center declined in the 1990s because the state's severe recession in the mid-1990s prompted reallocation of DOE resources to higher priority subjects. While the Hawaii economy began to recover in 1999, DOE support for teaching economics fell after 2001 because of the incentives provided by the federal government's No Child Left Behind regulations to shift resources from non-tested subjects (economics) to tested subjects (mathematics, reading, writing, and natural sciences).

The decline in support offered by the Hawaii's business community during the 1990s is also surely connected to the state's mid-1990s recession. However, two other forces were also important. First, the Hawaii Council and the UH Center had considerable coordination problems from 1992-2003 due to a revolving door of volunteer council directors who generally served less than 2 years each. Second, the Council and the Center began to face competition from other groups to internalize the economic education externality discussed above. These groups took a different approach, focusing on providing personal finance workshops to young and middle-age adults rather than providing education to high school students. They typically focused on a particular issue, e.g. home mortgage, 401(k) investment, and credit card management, and were often directed to particular groups, e.g. Native Hawaiians, veterans, first-time homebuyers, and active duty military.

Why was there less support after 2000 from the UH College of Education and the UH-Manoa Department of Economics for in-service training of economics teachers? The answer is easier for the UH College of Education, as it drastically reduced its support for the UH Center to focus more on producing more teachers skilled in core subjects subject to national standardized testing. The answer is more difficult to pin down for the UH Department of Economics. One possibility is that the Department saw less connection between enrollments in its principals of economics courses and enrollments in economics courses in Hawaii public schools. Another more likely explanation is that changes in incentives provided to faculty at the University of Hawaii between 1990 and 2008 raised the relative value of research output and extramural funding relative to teaching and service contributions. In response, faculty and administrators rationally increased time and effort allocated to research and reduced their support for economic education in Hawaii's high schools.

V. Conclusion

The objective of this paper was to document and offer explanations regarding enrollment declines in economics courses in Hawaii's public high schools. If high school economics courses indeed lead to spillover benefits to society, a logical next step is to identify mechanisms for correcting the underallocation of high school students enrolled in economics in Hawaii and other states.³⁷

³⁷ We note that evidence regarding the utility of a high school economics course is mixed. Belfield and Levin (2004) find that the average SAT score for students who have taken a mandated economics course is lower than the average score of equivalent students who do not. Brasfield et al. (1993) report that high school economic education is positively correlated with students' introductory economics grades in college, while Walstad and Rebeck (2001) discuss the low level of economics achievement by students who have recently completed a high school economics course.

The in-service education of existing teachers in economics was a moderately effective mechanism for providing a supply of qualified economics teachers to public schools from 1965 to 1991. Over the last 18 years, the mechanism for providing in-service courses to retrain teachers in economics has broken down due to sharply declining levels of interest and support for this activity by the Hawaii State DOE, the UH-Mānoa College of Education, the UH-Mānoa Dept. of Economics, and the Hawaii business community. Today, the UH Center does not have sufficient faculty or staff to develop and implement in-service education programs commensurate with the needs of K-12 schools. The Hawaii Council has adjusted to the UH Center's decline by refocusing its support to several valuable activities supporting economics education in the schools, such as a classroom stock market game, an annual one-day economics competition between teams of high school students, and a "cadre" program in which senior teachers mentor junior teachers.

It may, however, also be worth asking whether the traditional model of in-service education for developing high school economics teachers is still viable in Hawaii and other non-mandate U.S. states with low enrollments in economics courses. One alternative to the traditional model is for the University of Hawaii to develop an undergraduate degree program in economics education and for the DOE to raise the salaries of economics teachers. A second alternative is for the K-12 schools is to reduce their involvement in economics education and to leave such education to the increasing number of programs covering personal finance now offered by the private and non-profit sectors. In any case it is time for states to take a close look at their economic education programs, as most other non-mandate states are facing similar pressures and policy dilemmas.

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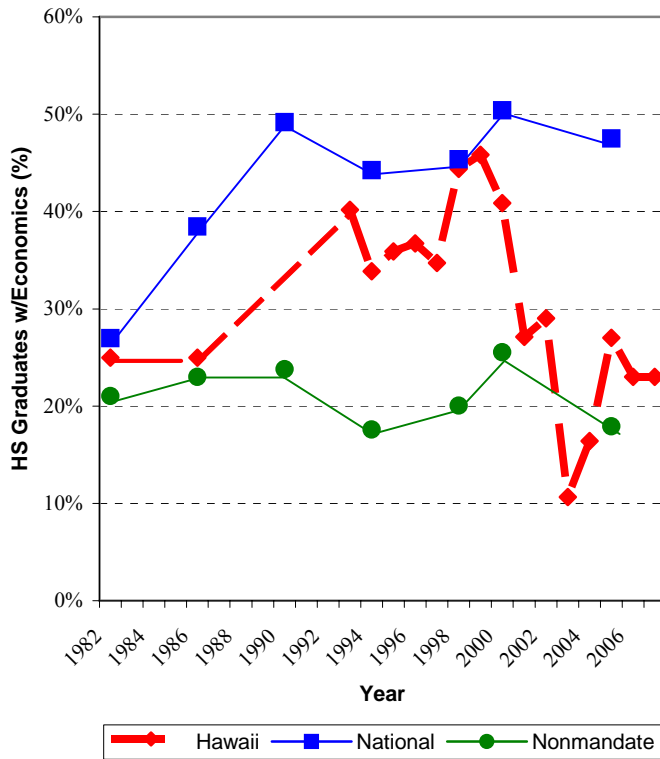
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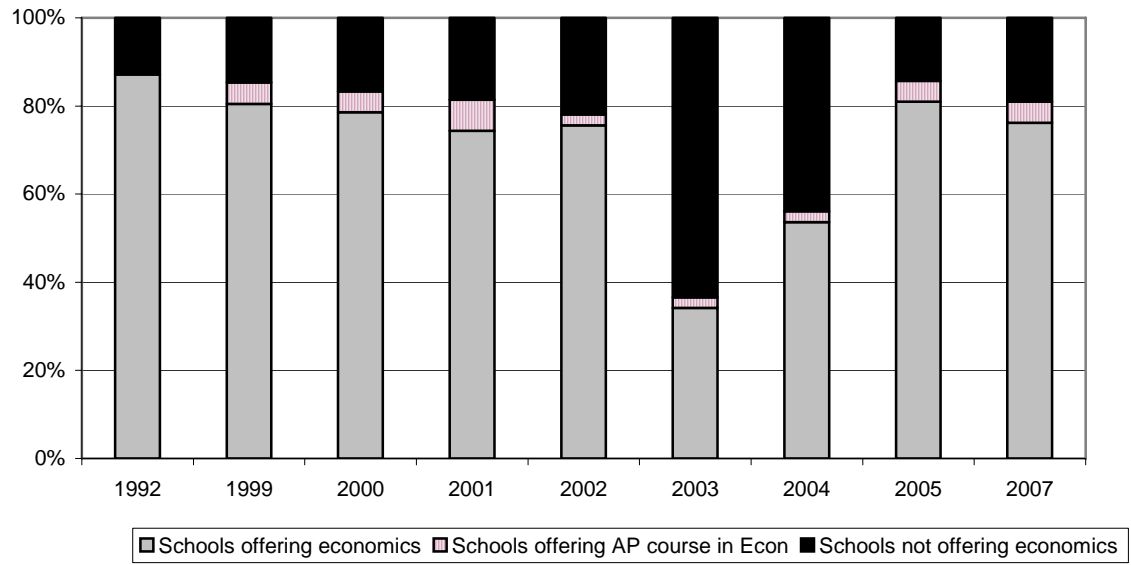
Figure 1: High School Enrollment Rates in Economics Courses



Source: State of Hawaii Department of Education, and National Center for Education Statistics, *High School Transcript Study* (1998, 2000, 2005).

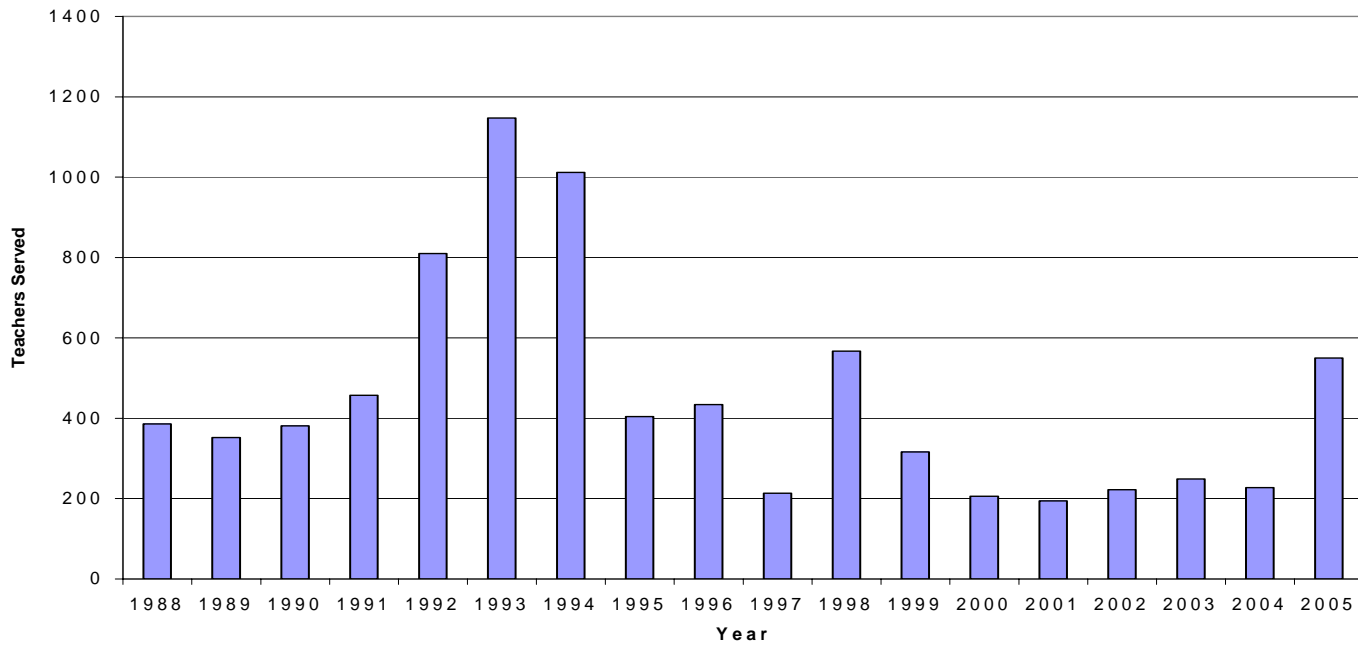
Note: The last *High School Transcript Study* was conducted in 2005. National enrollment rates refer to the percentage of high school graduates in the United States with an economics course on their transcript. Non-mandate enrollment rates refer to the percentage of high school graduates in states without an economics mandate who have an economics course on their transcript. Hawaii enrollment rates refer to the percentage of active high school students who enrolled in an economics course during their junior or senior year.

Figure 2: Economics Courses in Hawaii's Public High Schools



Source: Department of Education, State of Hawaii.

Figure 3: Teachers Served by the UHM Center for Economic Education



Source: UH Center for Economic Education.

Table 1. High School Graduates Receiving Course Credit in Economics, 1982-2005

Percentage of high school graduates earning credits in economics courses, by school type														
	1982		1987		1990		1994		1998		2000		2005	
	Mean	s.e.	Mean	s.e.	Mean	s.e.	Mean	s.e.	Mean	s.e.	Mean	s.e.	Mean	s.e.
All schools	29.6	1.70	34.0	3.02	48.2	3.42	45.9	2.65	46.8	4.33	49.3	3.25	46.2	1.79
Public schools	30.0	1.87	35.5	3.42	50.0	3.56	46.5	2.76	46.4	4.64	50.4	3.34	47.8	1.69
Private schools	26.4	3.26	19.9	8.22	30.7	4.61	38.8	8.13	50.5	9.59	37.1	7.52	31.8	5.42

Percentage of high school graduates earning minimum course credits in economics courses by school type														
Economics (0.5)	1982		1987		1990		1994		1998		2000		2005	
	Mean	s.e.	Mean	s.e.	Mean	s.e.	Mean	s.e.	Mean	s.e.	Mean	s.e.	Mean	s.e.
All schools	27.4	1.59	33.2	2.95	47.3	3.45	44.5	2.80	45.8	4.38	49.2	3.25	45.8	1.78
Public schools	27.8	1.79	34.7	3.35	49.1	3.59	45.1	2.91	45.4	4.68	50.4	3.34	47.5	1.68
Private schools	24.1	3.04	19.0	8.19	29.3	4.52	38.5	8.24	50.0	9.84	37.1	7.52	30.6	5.40

Sources: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, *High School Transcript Study* (HSTS), various years, 1987-2005; *High School and Beyond* (HS&B), 1982.