Economic Prosperity in Maine:

Held Back by the Lack of Higher Education

by Philip A. Trostel

Maine lags the nation in economic prosperity and in education attainment, and there is little doubt that the relative lack of higher education in Maine is a leading factor holding back the state's prosperity growth. In this article, Trostel looks at each of the three sources of Maine's relatively low education attainment: the net emigration of college graduates (who are presumably in search of employment opportunities elsewhere); relatively fewer students going on to college; and the net emigration of high-school graduates leaving Maine to attend out-of-state postsecondary schools. While all three factors have happened in Maine to some extent, the net emigration of Maine's high-school students is by far the biggest factor explaining the state's low levels of education attainment. After analyzing some of the data related to public support for education and cost, Trostel concludes that higher education in Maine is not a good enough deal relative to other states to keep a high proportion of its traditional-aged, college-bound youth here. To reverse this trend, Trostel says we need to lower tuition costs and substantially increase the quality of our higher education.

INTRODUCTION[1]

It is well known that Maine lags behind the rest of the country in terms of economic prosperity. In 2000, Maine ranked thirty-sixth among the 50 states in per capita income; 14% below the national average, and 29% below the New England average. Annual income per person in Maine was $4,089 less than the United States average, and $10,404 less than the New England average. Moreover, although economic prosperity has generally increased in Maine, it did not match that in the rest of the country and in the rest of New England. That is, although lagging prosperity is not a new problem for Maine (in 1990, Maine ranked thirty-first in per capita income; 11% below the national average, and 24% below the New England average), it is an increasing problem. The state fell a little further behind over the last decade.

Although many factors are behind Maine's relative economic performance, one factor stands out: Maine lags behind the rest of the country in higher education attainment. In fact, Maine's relative standing in per capita income mirrors almost exactly its relative standing in attainment of bachelor's degrees. In 1998-2000, the proportion of Maine's working-age population with at least a bachelor's degree was 18% below the national average, and 29% below the New England average. Maine ranked fortieth among the 50 states in attainment of bachelor's degrees. Moreover, although average educational attainment has increased in Maine, it too has not kept pace with the rest of the nation or New England. Lagging educational attainment is an old—and increasing—problem for Maine (in 1988-90, Maine ranked twenty-ninth in its proportion of working-age adults with at least a bachelor's degree; 7% below the national average, and 25% below the New England average). As with per capita income, the state fell a little further behind in higher education attainment over the last decade.

Given the remarkable similarity between Maine's numbers for per capita income and for higher education attainment, and given that income increases significantly with educational attainment on average, it is tempting to conclude that the lack of higher education is the reason for lagging prosperity in the state. Although this single explanation oversimplifies a complex and multifaceted issue, there is little doubt that the relative lack of higher education attainment in Maine is a substantial factor in holding back the state's prosperity growth.

This notion is hardly new. Recently the Maine State Planning Office argued that the "[p]ercent of adults with at least a four-year college education is perhaps the most important variable in explaining the variation in per capita incomes among states. By itself, it accounts for 51% of the differences among the 50 states."[2] It is becoming increasingly clear to policy professionals that the development of a higher-skilled workforce is one of the most important issues, if not the most important issue, for prosperity growth in this state (and in every other state).

Most Mainers also appear to be aware of this: over 40% of both households and businesses surveyed last year listed "educated workforce" as *the* most important issue for long-run economic growth in the state, and more than three-quarters of household respondents and over two-thirds of business respondents listed "educated workforce" as either the first or second most important item.[3] Still, Mainers' awareness of the importance of education for economic prosperity has not translated into a great deal of public support for higher education. Nor has it led to marked improvement in Maine's higher education attainment rate.

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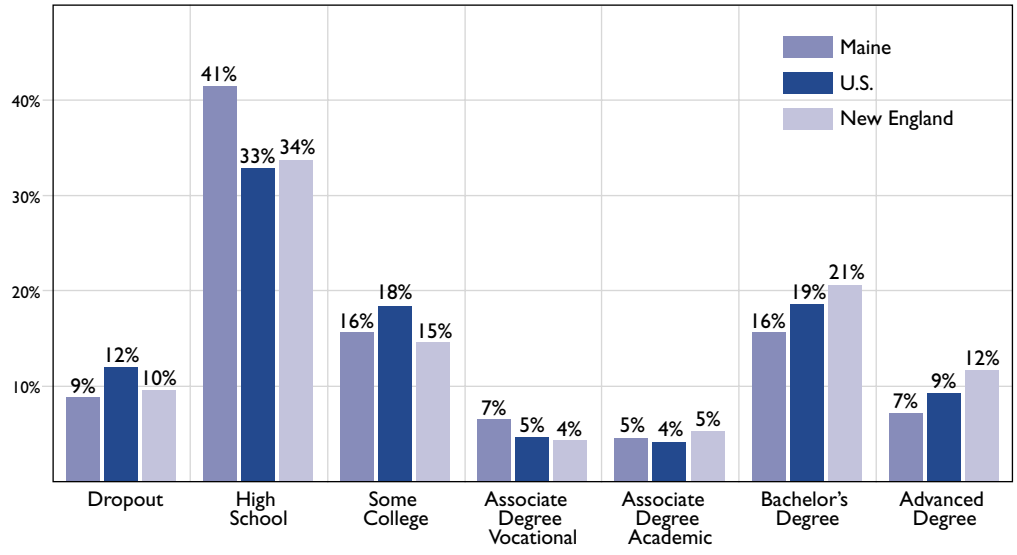
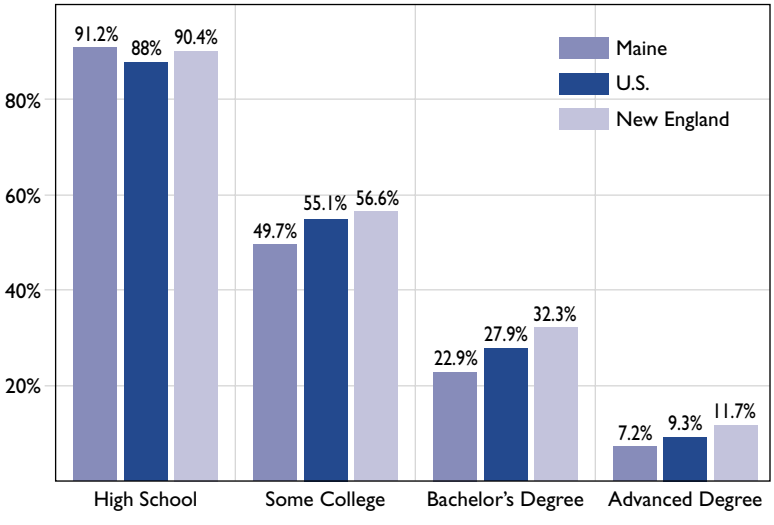
This article examines this difficult problem in greater detail. The picture that emerges suggests Maine's situation is largely a result of choices we

Figure 1: Highest Education Level, 1998-2000



Source: U.S. Census Current Population Survey

Figure 2: Educational Attainment, 1998-2000



Source: U.S. Census Current Population Survey

have made. Moreover, altering current trends will require bold new policy choices, especially in a time of fiscal crisis.

EDUCATION ATTAINMENT

Figure 1 shows the distributional breakdown of highest education credentials for those between the ages of 25 and 64 in Maine, the United States, and New England using 1998-2000 data from the U.S. Census' Current Population Survey.[4] Relative to New England and the rest of the country, Maine had disproportionately more adults with only a high school diploma, and disproportionately less with at least some college. Maine also had relatively fewer high school dropouts.[5]

Figure 2 presents the same data in a different way. It shows the percentages of those with at least certain education levels. Relative to the rest of the country in 1998-2000, Maine ranked sixteenth in the percentage of the 25-64 population with at least a high school diploma, but only forty-third in the percentage with at least some college, and fortieth in both the proportion with at least a bachelor's degree and the proportion with an advanced degree.

Educational attainment is typically shown by using charts such as Figures 1 and 2. However, these figures do not adequately reveal the extent to which Maine lags behind in higher education. For example, as shown in Figure 2, the proportion of Maine's population with at least a bachelor's degree was five percentage points below the national average; yet this is 18% below the national average [(22.9 - 27.9)/27.9 = -17.9%]. Likewise, the proportion of Maine's population with an advanced degree was 4.5 percentage points below the New England average; but this is a staggering 38% below the New England average. These percentage differ-

ences, as opposed to percentage-point differences, are shown in Figure 3. As can be seen, Maine does relatively well in ensuring high school completion, but relatively poorly in ensuring higher education completion.

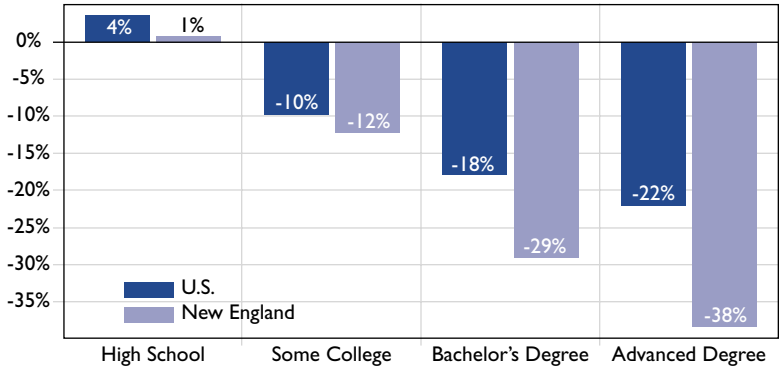
MIGRATION

There are three sources of Maine's relatively low attainment of higher education: a net emigration of holders of college degrees (presumably because of the state's relative lack of good jobs), relatively fewer Mainers going to college, and a net emigration of potential holders of college degrees. The evidence suggests that all three of these have happened in Maine to some extent. Although there are insufficient data to conduct an exact decomposition, it appears that the third source—net emigration of college-bound students—has been the most important.

Migration data from the U.S. Census' Current Population Survey over the period 1992-2001 indicate that Maine suffered a net loss of workers with at least some college. The net loss of adults in the labor force between the ages of 18 and 64 with at least some college was just under 575 per year. Although, on an annual basis, this had a minimal impact on college attainment in the state (575 is less than 0.1% of the state's 18 to 64 workforce), sustained over a decade, this had a noticeable impact on average educational attainment; 5,750 is just under 1% of the state's working-age population.

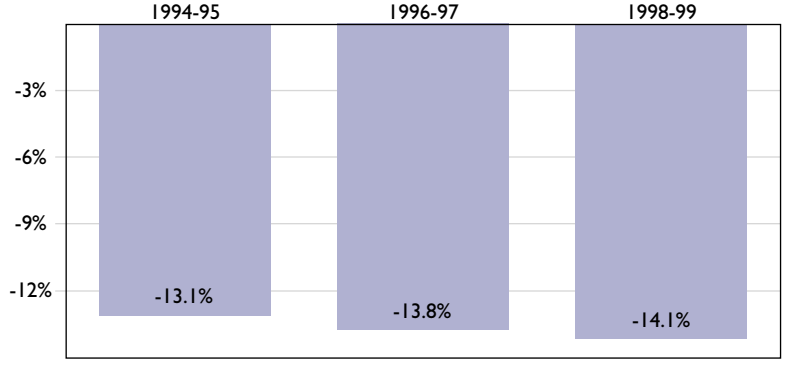
The second factor—Maine's somewhat low rate of entry to college (in any state)—also is part of the reason for the state's low attainment of higher education. Students from Maine entering college as a percentage of the state's high school graduating class in the previous year is slightly less than the national average. If this ratio were equal to the national ratio of 58.4% instead of Maine's 53.9%, then about 600 more Mainers would have enrolled in college per year.[6] Again, on an annual basis, this has a minimal impact on average higher education in the state, but it is an important impact if sustained over a period of decades.

Figure 3: Maine's Percentage Difference in Educational Attainment



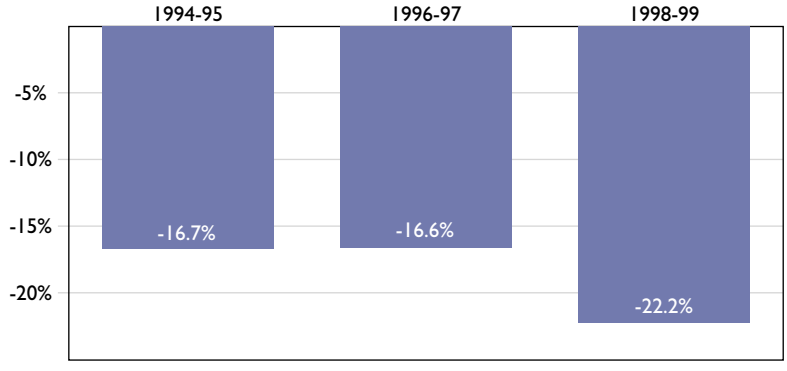
Source: U.S. Census Current Population Survey

Figure 4: Maine's Net Migration of First Year College Students



Source: U.S. Department of Education

Figure 5: Maine's Relative Net Migration of High School Graduates Going to Four-Year Colleges



Source: U.S. Department of Education

The major explanation for the state's low attainment of higher education is that college attendance *in Maine* is low compared to the rest of the country. That is, college attendance within the state is much lower than the college attendance of Mainers overall. This is because Maine is a net exporter of college students. Figure 4 shows the net migration of all new first-year college students. The average over the three years shown is 13.7 suggesting there has been practically an exodus of Maine's college-bound young people.

Compared to other states, Maine's public contribution for K-12 education is strong, while its public contribution for higher education is weak.

Worse still, Figure 5 shows just the net migration of Maine's four-year college-bound high school graduates relative to the rest of the nation. The average of the three academic years shown is 18.5%. (This percentage is worse because the original average included older and two-year college students for whom interstate migration is substantially lower.) However, regardless of which measure is used, Maine ranks forty-seventh out of the 50 states in net migration of college students.

Another way to illustrate the problem is to compare the number of new first-year students *from* Maine to the total number of new first-year students in Maine's colleges and universities (see Endnote 6). Based on data from 1994-98, the number of new first-year college students from Maine was 53.9% of the number in Maine's high school graduating class (thirty-second in the country), while the number of new first-year students attending college in Maine was 45.6% (forty-seventh in the country). Moreover, Maine's low relative rate of net migration appears due to a high emigration of high-school seniors as opposed to a low rate of immigration into Maine's colleges. That is, the immigration of college students into Maine is somewhat higher than the national average, but Maine's emigration of traditional-aged college students far exceeds the national average.

Finally, although there are currently no available data on the numbers of Maine students returning to the state after college, it is extremely likely that Maine college graduates are similar to other American college graduates, and American college graduates tend to stay in the state where they went to college much more than the state where they went to high school.[7] In fact, given that there has been an emigration of college graduates in Maine, it is likely that Mainers are less likely than other Americans to return to their state. In any event, there are also some of Maine's out-of-state college graduates who remain here after college and some college graduates from other states who migrate here. If non-Mainers and Mainers are similar in these respects, then what matters for the state's average college attainment is the net inflow (outflow in Maine's case) of college students. For example, if Maine's net inflow of new college freshmen were equal to the national average of 1.7% (instead of -13.7%), then about 1,490 more students would enroll each year in Maine's colleges and universities. This is 2.5 times as large as the estimated 575 per year that are due to the state's somewhat low rate of college attendance. It also greatly exceeds the estimated 600 per year due to emigration of college graduates.[8]

ASPIRATIONS

There is a popular notion that Maine's attainment of higher education is relatively low because of Maine's "culture" or a lack of college aspirations in Maine. That is, higher education is not valued as highly here as elsewhere in the country. The preceding evidence seems to dispel this myth. Large numbers of students enrolling in expensive out-of-state colleges (and expensive in-state colleges) do not suggest a lack of aspirations. Despite the relatively high cost of higher education facing Maine's college-bound students, Maine's rate of college entry is not far below the national average.[9]

There is some evidence, however, that Maine high school graduates are generally not as ready for higher education as those in the rest of the country and, especially, in the rest of New England. In 1998-2001, Maine ranked thirty-ninth in average SAT score.[10] Also, according to the National Center for Public Policy and Higher Education, "a very low proportion of (Maine's) eleventh and twelfth graders perform well on Advanced Placement tests, and a small proportion do well on college entrance exams."[11] They gave Maine a "D" for its performance on college entrance exams (forty-third in the country, which only exceeded states in the deep South and West Virginia), and an "F" for its performance on advanced placement exams.

Thus, although the lack of aspirations does not appear to be the root of the state's low attainment of higher education, there appears to be room for improvement in the state's secondary schools in preparing our young for further education.

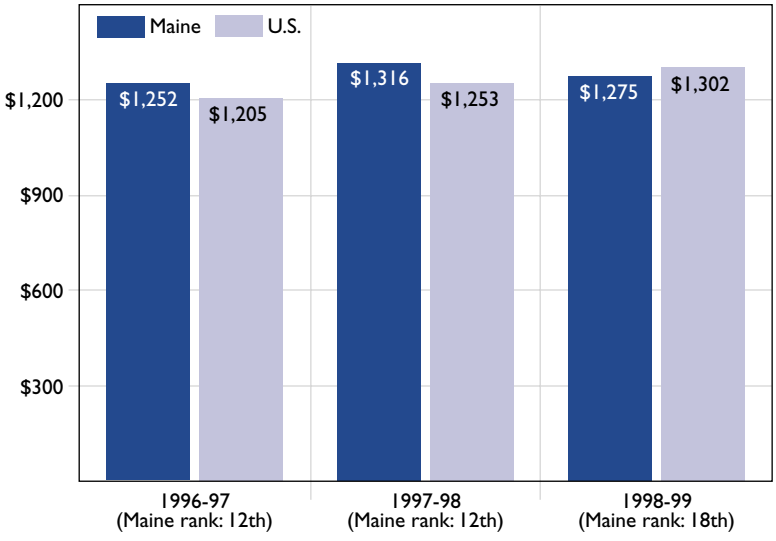
PUBLIC SUPPORT OF EDUCATION

Another factor to consider is Maine's public support for education. Here the story is mixed. Compared to other states, Maine's public contribution for K-12 education is strong, while its public contribution for higher education is weak. This is shown here in several sets of figures that illustrate public support of education measured in different ways using the latest-available data.

Figures 6 and 7 show state and local government spending on education *per state resident.* Over the three fiscal years 1996-99, Maine ranked fifteenth in the nation in per capita public spending on primary and secondary education, and forty-sixth in per capita public spending on higher education. Public spending per capita on K-12 was slightly more than 2% higher than the national average, while public spending on higher education was almost 20% below the national average.

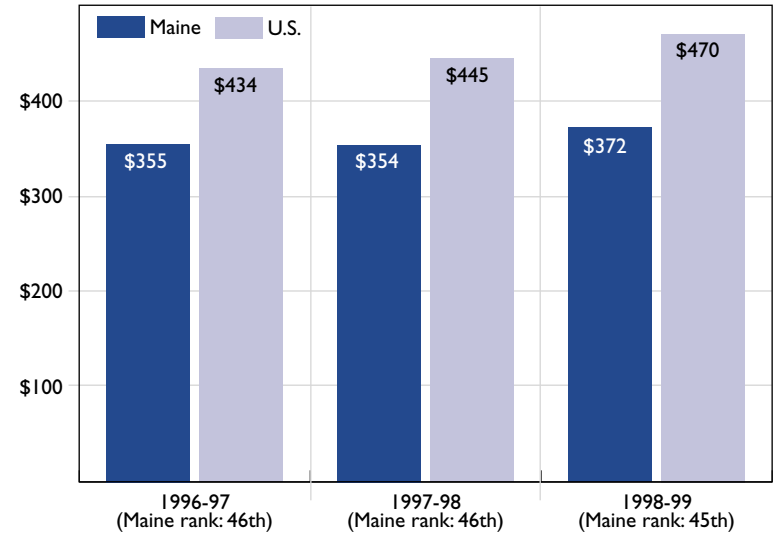
Figures 8 and 9 show state and local government spending on education *relative to state income.* Per capita income in Maine is significantly lower than in the rest of the country; thus, this measure better reflects the relative commitment of Mainers to public education.

Figure 6: Per Capita Public Spending on Primary and Secondary Education ***Adjusted for Inflation, in 2000 $***



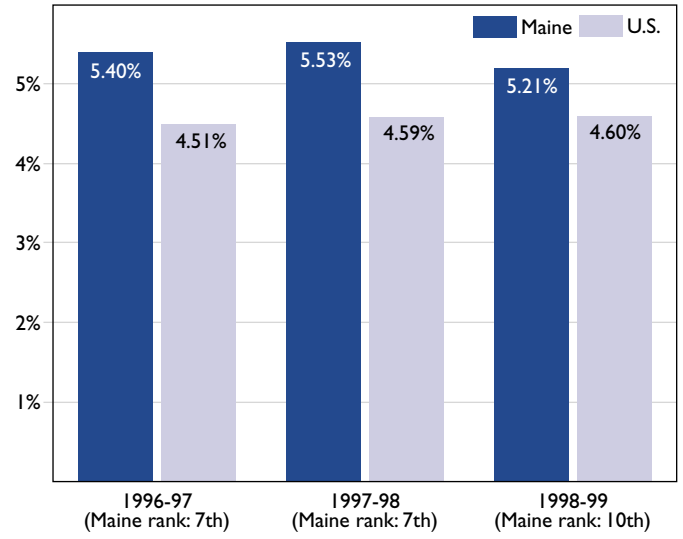
Source: U.S. Census Bureau

Figure 7: Per Capita Public Spending on Higher Education ***Adjusted for Inflation, in 2000 $***



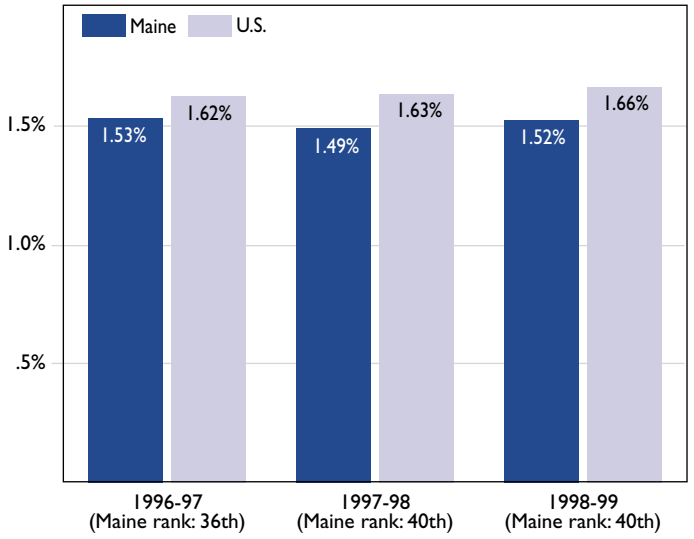
Source: U.S. Census Bureau

Figure 8: Percentage of Total State Personal Income Spent on Public Primary and Secondary Education



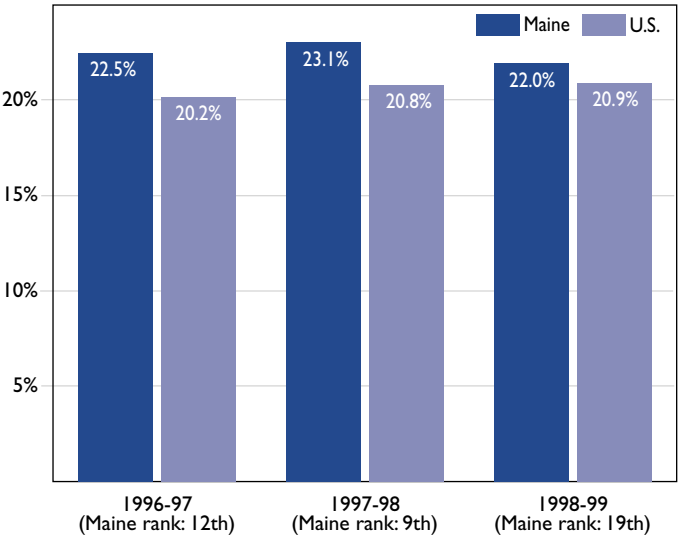
Source: U.S. Census Bureau

Figure 9: Percentage of Total State Personal Income Spent on Public Higher Education



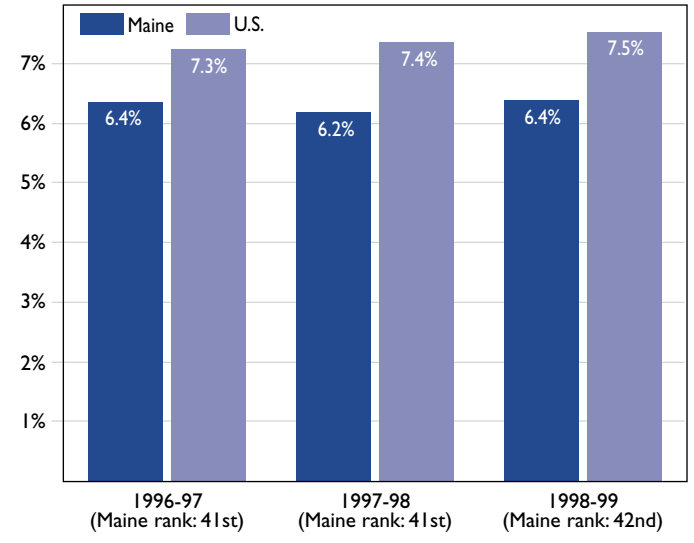
Source: U.S. Census Bureau

Figure 10: Percentage of State and Local Government Expenditures on Public Primary and Secondary Education



Source: U.S. Census Bureau

Figure 11: Percentage of State and Local Government Expenditures on Higher Education



Source: U.S. Census Bureau

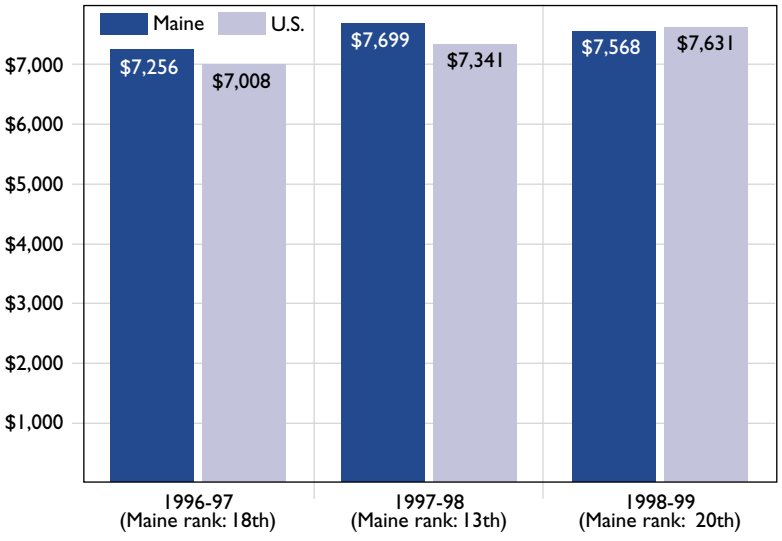
Using this measure, over the three fiscal years Maine ranked ninth in per capita public spending on primary and secondary education, and fortieth in per capita public spending on higher education. Public spending relative to income on K-12 was a little less than 18% higher than the national average, while public spending on higher education was almost 8% below the national average.

Figures 10 and 11 show public spending on education *as a percentage of all state and local government expenditures.* These graphs are meant to illustrate the budget priorities in the state. The state's budget priorities are consistent with the earlier figures. Over the three-year period Maine ranked thirteenth in percentage of public spending devoted to primary and secondary education, and forty-second in percentage of public spending devoted to higher education. The percentage of public spending on K-12 education was over 9% higher than the national average, while the percentage of public spending on higher education was more than 14% below the national average.

Figures 12 and 13 show public spending *per student.* Consistent with the other figures, Maine's public spending per K-12 student exceeded the national average by 2.5%, ranking Maine seventeenth among the states. Public spending per college student also exceeded the national average by almost 8%, which placed Maine twenty-second highest among the states. Although one might conclude from this that Maine actually has relatively high support for higher education, this would be incorrect. Unlike public primary and secondary education, revenues from tuition and fees are generated in higher education. Thus, although Figure 13 shows public spending per college student, it does not show *net* public spending per college student. In reality, Maine's *net* public spending per college student was less than 54% of the total shown in Figure 13 (compared to over 58% nationally). The state's net public spending per college student averaged $5,905 over the three fiscal years 1996-99, which was slightly less than 1% below the national average (placing Maine thirtieth among the states). In terms of net public spending, Maine spent 83.7% as much

Figure 12: Per Student Public Spending on Primary and Secondary Education

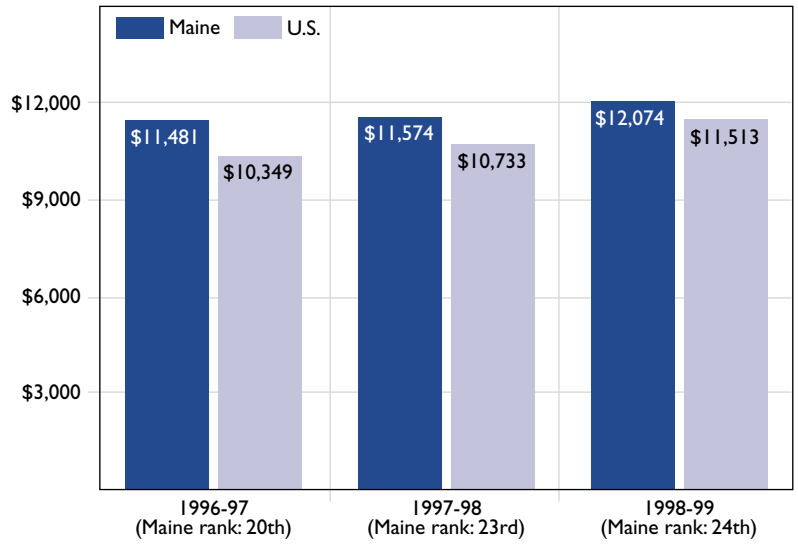
Adjusted for Inflation, in 2000 $.



Source: U.S. Census Bureau and U.S. Department of Education

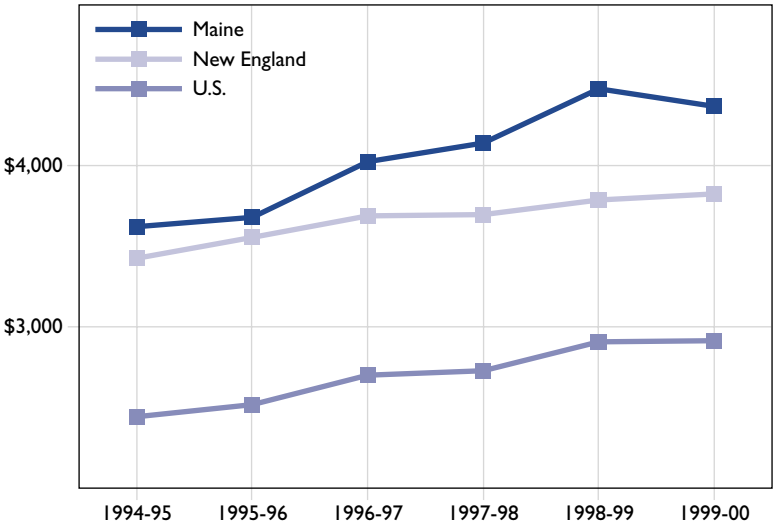
Figure 13: Per Student Public Spending on Higher Education

Adjusted for Inflation, in 2000 $.



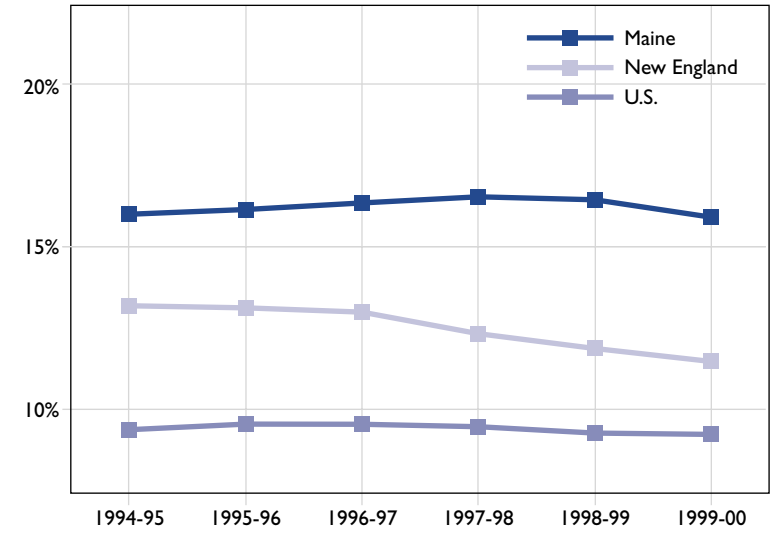
Source: U.S. Census Bureau and U.S. Department of Education

Figure 14: Annual In-State Tuition and Fees per Full-time Undergraduate Student
Adjusted for Inflation, in 2000 $.



Source: U.S. Department of Education

Figure 15: Average Annual In-State Tuition and Fees as a Percentage of Per Capita Income



Source: U.S. Department of Education

on its postsecondary students as it did on its primary and secondary students. In contrast, in the United States as a whole, the net subsidy to college students was 86.5% as much as that for K-12 students. Moreover, given the large net emigration of Maine's college students, the state's net public spending per Maine college student, as opposed to per college student in Maine, was smaller still.

TUITION

Maine's relative lack of public support for higher education causes tuition and fees in its public universities and colleges to be relatively high. Perhaps some of the high tuition is due to some higher-than-necessary costs, but it is clear that low public support is the main reason. As shown in Figure 14, from 1994-2000, average in-state tuition and fees per full-time undergraduate student in Maine were 50% higher than the national average, and 10.5% higher than the New England average. Indeed, average in-state tuition and fees per full-time undergraduate student in Maine were the fourth highest in the country. Similarly, as a proportion of average income, Maine's in-state college students pay 72% more than in-state college students in the country as a whole, and 30% more than in-state college students in New England (see Figure 15).

These figures do not tell the whole story, however. From 1994-2000, even though average tuition and fees in Maine's public *four*-year programs was the fourteenth highest in the nation (23.3% higher than the U.S. average), it was 13.5% *lower* than the New England average (see Figure 16). Moreover, in terms of average tuition and fees in public *two*-year programs, Maine had the fourth highest cost among the states, 97.1% higher than the U.S. average and 18.4% above the New England average (see Figure 16). Not surprisingly given its high relative cost, Maine has the ninth lowest proportion of students in higher education enrolled in two-year programs. Because two-year programs, in Maine as elsewhere, are considerably less expensive in absolute dollar amounts than four-year programs, having relatively more students in four-year programs makes Maine's average college tuition appear relatively higher. As illustrated in Figure 17, from 1994-2000,

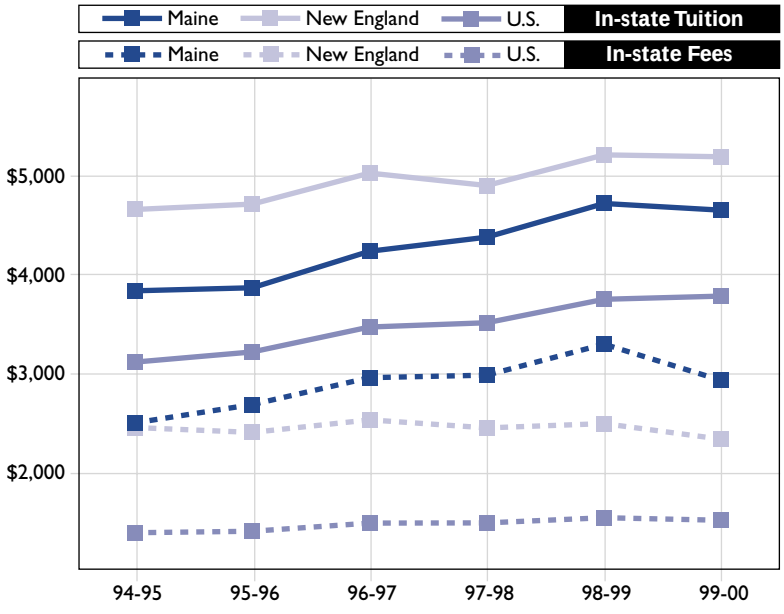
Maine had only 17% of its college students enrolled in two-year programs, compared to the national average of 38% and the New England average of 30%. Thus, it is the combination of high tuition in four-year programs, very high tuition in two-year programs, and a low proportion of two- to four-year students that causes higher education to be so expensive in Maine relative to other states.

The problem of relatively high tuition and fees is compounded by the fact that student financial aid is relatively low in Maine (see Figure 18). Although Maine ranked seventeenth nationally in need-based scholarships and grants per student over the 1994-98 period, its average amount was 24% below the national average (because almost all of the top states in the category have large numbers of students). Maine had the second lowest level in New England (above New Hampshire), and it was 36% below the overall New England average. Moreover, this situation is again even worse when comparing these numbers to average state income, and to average tuition. Given the relatively high tuition and low incomes in Maine, clearly there is more of a need for financial aid in the state.

Given these data it is easy to fall into the trap of overstating the effect of tuition on college enrollment. Enrollments in higher education have risen in recent years, and many families are willing to pay the very high costs of private colleges. Nonetheless, the correlation between Maine's low public support for higher education and Maine's low enrollment in higher education is undeniable. The state's relatively high tuition and fees probably have two effects: first, they most likely suppress enrollment in the state's public two-year programs; second, they most likely make out-of-state *four*-year programs and private universities relatively more attractive to our best and brightest young students. Because these students are mobile in their higher education decisions, they are responsive to tuition differentials across states.[12] In other words, the detrimental effect of Maine's high tuition and fees

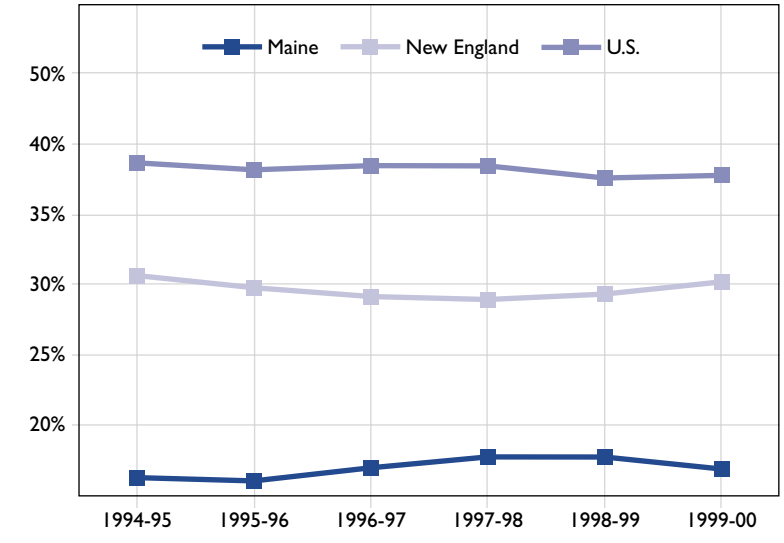
Figure 16: Average Annual In-State Tuition and Fees

Adjusted for Inflation, in 2000 $.



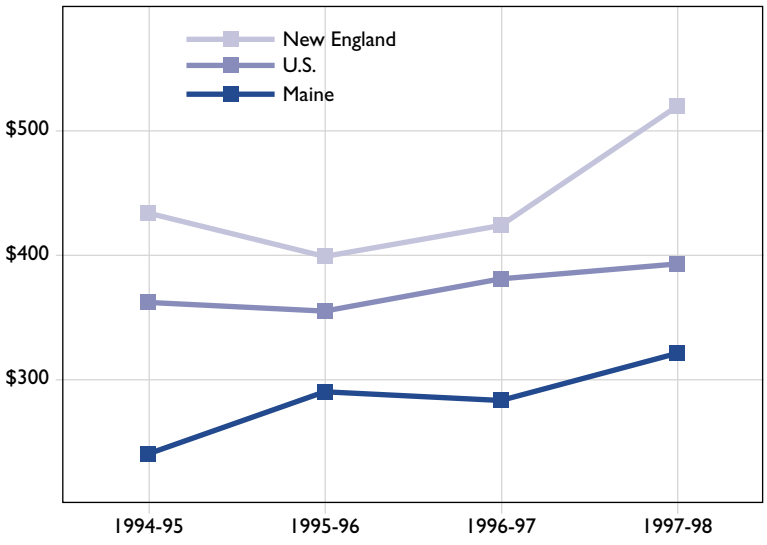
Source: U.S. Department of Education

Figure 17: Percentage of Public Undergraduate Students Enrolled in Two-Year Programs



Source: U.S. Department of Education

Figure 18: State Need-Based Scholarships and Grants per Student ***Adjusted for Inflation, in 2000 $.***



Source: U.S. Department of Education

is more likely to be that it drives our high school seniors out of state for college than drives them away from college altogether.

PUBLIC OPINION

Although high tuition is the most obvious culprit for the large net outflow of our college-bound young, it is not the only possible explanation. Expensive Ivy League schools have no shortage of applicants. Clearly, many students and their families are willing to pay high tuition if the quality is high enough. As with just about everything that we buy, what really matters is the relative cost along with the relative quality. Hence, another possible explanation for the low enrollment in higher education in Maine is the quality of our institutions of higher education. However, if public opinion is an accurate guide, then low quality does not appear to be the problem. In general, Maine citizens and business managers are not displeased with the quality of higher education in the state.

Annual surveys of Maine households and businesses conducted by the Maine Development Foundation (1996-2000) found that 82% of businesses ranked the University of Maine System good or better, and 84% ranked the Maine Technical College System good or better. Maine citizens expressed similar views: 75% of citizens in the 1996-2001 surveys agreed that the University of Maine System offers a quality education, and 75% of citizens in the 1995-97 surveys agreed that the Maine Technical College System offers a quality education (this question was only asked in 1995-97). Although these questions are clearly leading, they suggest that quality is not the main reason for Maine's large net loss of college students. In this regard, 56% of Maine citizens expressed agreement with the statement that students do not need to leave the state to obtain an excellent education in their chosen field. However, given the large out-migration of Maine's four-year college-bound high school graduates, this is surprising. A survey of these students and their families might yield different results.

Further, despite having the fourth highest tuition in the county, many Mainers believe that the cost of public higher education in-state is affordable. The Maine Development Foundation's annual surveys from 1996-2001 found that almost 40% of households agree that the University of Maine System is affordable, and almost 46% agree that the Maine Technical College System is affordable. On the other hand, these questions are also leading as over 30% of the respondents disagreed with the question for the universities, and over 20% disagreed with the question for the technical colleges.[13]

CONCLUSION

Maine lags well behind New England and the rest of country in higher education attainment, and the facts suggest that if we really want to move economic prosperity in Maine closer to that of the rest of the country, then we need to move our investment in higher education closer to the national average.

This is important because, for the most part, economic prosperity does not come from natural resources or other endowments. It comes from investment in its various forms (i.e., physical capital, human capital, research and development, infrastructure, and so

forth). Indeed, recent economic growth "miracles" such as in East Asia are not miracles at all. Such periods of remarkable economic growth have been, and almost certainly will continue to be, the result of high levels of sustained broadly defined investment.[14] Moreover, investment in human capital appears to be the most important category of investment.[15] Indeed, the spectacular experience of Ireland over the last three decades offers particularly compelling evidence for these ideas.[16]

Investment in human capital is even more important if the goal, as has been often asserted, is to attract more high-paying jobs to the state rather than just any jobs.[17] Although it is commonly supposed that taxes, regulations, and so forth are the keys for attracting high-wage jobs, in today's economy, the most important key is a highly skilled workforce. This is because high-paying businesses tend to gravitate to where the high-skilled workers are being produced. It is no coincidence that high-tech clusters are located near important universities. Although those with more education tend to migrate toward higher-paying regions, it is equally if not more true that high-wage jobs move toward regions with higher-skilled workers. In other words, if we build a highly skilled workforce, high-wage jobs will come.

It is also commonly supposed that many students take their college education, at great cost to Maine's taxpayers, and find jobs outside the state. Although many state-supported college students do leave the state, the net impact of this is probably much smaller than is commonly believed. There is little evident relationship between the relative number of new college graduates produced in a state and the state's net migration of college graduates. That is, on average, states producing relatively high numbers of college graduates are not net losers of college graduates.

Moreover, most of Maine's loss of young people is occurring when, not after, they go to college. The net loss of traditional-aged, four-year college-bound students was a staggering 22.2% in the 1998-99 academic year (and rising). The evidence also suggests that most of these young people are not going to return to Maine upon finishing college (see Endnote 7). Thus, many of Maine's best and brightest are leaving prior to obtaining a college education. In addition, they are taking their state-paid primary and secondary education with them. Relatively low public support, and hence relatively high tuition, is an important part of the reason why many students evidently feel that higher education in Maine is not a good deal. Still, it should be kept in mind that the crucial issue for higher education in Maine is not just affordability (and not just quality). The key issue is the cost and quality of our public higher education compared to the alternatives. As with other things that people buy, what matters is the relative cost compared to the relative quality. Although public-opinion data suggest that public higher education in Maine is a good deal, migration data suggest that it is not a good enough deal compared to other states to keep a high proportion of our traditional-aged, college-bound young here. The behavior of Maine's college-bound young indicates that higher education in Maine is not a good deal relative to higher education in other states. To reverse this trend, we must substantially lower our tuition from being the fourth highest in the country and/or we must substantially increase the quality of our higher education.

The upshot of this is that our current economic situation in Maine is largely the result of the choices that we have made. In particular, we have chosen a relatively low amount of investment in higher education, and as a result we are poor relative to the rest of the country and, especially, relative to the rest of New England. The problem is not a lack of aspirations or the "culture." Despite the relatively high costs (and relatively low income) facing Maine's college-bound young and their families, the proportion of young Maine high school graduates continuing on to college is only slightly below the national average. Low college attainment in Maine is mainly due to low college attendance *within* the state, not low college attendance by young Mainers. The problem is that many of Maine's young with high aspirations are driven out of the state by our lack of commitment to providing them with the skills needed to compete in a modern world. Moreover, the truly troubling part of this conclusion is that, at present, there is little sign that this trend will change without significant intervention.

In summing up, I offer only two short caveats to this assessment. First, I do not recommend simply

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devoting more public resources to higher education. We must demand significantly better performance from our colleges in return for greater resources. Second, we must be aware that the payoff to investment in education, like most other investments, is a long-term proposition. Unfortunately, we cannot expect greater investment in education (or anything else) to cause an immediate turnaround in Maine's relative economic performance.

ENDNOTES

1. This paper is based on "Workforce Development in Maine: Held Back by the Lack of Higher Education," a report to be published in 2003 by the Margaret Chase Smith Center for Public Policy at the University of Maine. The work was funded by the U.S. Economic Development Administration. Helpful research assistance was provided by Ewa Kleczyk.

2. See "30 and 1,000: How to Build a Knowledge-based Economy in Maine and Raise Incomes to the National Average by 2010," Maine State Planning Office, 2001: 16. Also see "Final Report of the Blue Ribbon Commission on Postsecondary Educational Attainment," State of Maine Legislature, 2002; and Frances C. Lindemann, "Higher Education for All People," Maine Center for Economic Policy, 2002.

3. Maine Development Foundation, 2001 surveys of Maine citizens and businesses. Survey results do not reflect the views of the Maine Development Foundation. http://www.mdf.org/mdf/order_form.php.

4. To increase the reliability of averages for the individual-state averages, the U.S. Census Bureau combines three years of data. I have followed this approach; however, unlike the U.S. Census Bureau, I do not show the attainment of everyone over the age of 24. I believe it is more relevant to focus on the educational attainment of the typical working-age population. Thus, the numbers do not correspond exactly to those published elsewhere.

5. In the latest data available from the U.S. Department of Education, Maine placed third in the proportion of 18 to 24 year olds with a high school diploma (92.9% in 1997-99, compared to the national average of 85.5%). Further, according to the Maine Department of Education, Maine ranks first in even more recent data, with a high school completion rate of 94.5%, compared to a national average of 86.5%.

6. These are approximate numbers calculated from 1994-98 data from the Maine Department of Education. Data on freshmen enrollment and graduation from private high schools are only collected biannually and in the same academic years (while data on graduation from public high schools is available every year). Hence, exact

numbers of graduates from private high schools in the year prior to entry into college are not available. Thus, these numbers are estimated by interpolating between the adjacent years. Given that over 89% of the total graduates are from public schools, these approximate numbers are probably pretty accurate.

7. See Louis Tornatzsky et al., "Who Will Stay and Who Will Leave?" Southern Growth Policies Board, 2001. Also see Yolanda Kodrzycki, "Migration of Recent College Graduates: Evidence from the National Longitudinal Survey of Youth." *New England Economic Review.* 1 (2001).

8. The number for the state's emigration of college graduates is the only one of the three numbers discussed here that is particularly uncertain. Although the samples in the Current Population Survey are huge (more than 130,000 observations per year on average), only small percentages live in Maine and move in a particular year. Thus, the relevant sample size is relatively small and hence the estimate is not very precise.

9. For more on this issue see Scott Brezovsky and David Silvernail, "Types of Barriers Maine High School Students May Face in Fulfilling Post-Secondary Educational Aspirations." Maine Education Policy Research Institute, 2000.

10. The comparison to the rest of the country is somewhat misleading because many states, university systems do not require the SAT. All the top states in average SAT score have very low percentages of test takers. Nonetheless, the performance of Maine seniors is still relatively low (particularly if racial composition is considered).

11. See "Measuring Up 2000: The State-by-State Report Card of Higher Education." National Center for Public Policy and Higher Education, 2000.

12. For elaboration on this see Yolanda Kodrzycki, "Geographic Shifts in Higher Education." *New England Economic Review.* 4 (1999).

13. These responses are roughly similar to those reported in "Measuring Up 2000." It reports that 19% of Maine citizens thought that the price of college was out of reach in the state (which, surprisingly, is lower than the national average of 24%).

14. See Alwyn Young, "The Tyranny of Numbers: Confronting the Statistical Realities of the East Asian Growth Experience." *Quarterly Journal of Economics.* 110:3 (1995).

15. See Gregory Mankiw, "The Growth of Nations." Brookings Papers on Economic Activity. 1 (1995).

16. See Paddy McDonagh, "The Irish Education System and the Economy." *Maine Policy Review.* 9:1 (2000). Also see Amity Shlaes, "A Tiger Slumbers in Maine's Northern Woods." *Financial Times.* 14 August 2001.

17. See, for example, "Gaining Good Jobs." Maine Department of Labor and Maine Economic Growth Council, 1999.