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Testimony to the Assembly Committee on Higher Education

State Policy Issues Concerning Graduate Education and Research  
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I appreciate the invitation to comment on policy issues concerning the state's investment in graduate education and research. With all of the recent interest in undergraduate education, it is appropriate that your committee is devoting attention to issues of graduate education and research. I would like to make three points.

1. State investment in graduate education and research is vital to state economic health, yet the direct benefits are not easy to document
2. California's performance in areas related to the state's investment in graduate education and research is fairly strong – but depends to a large degree on the state's ability to import highly educated persons from other states and countries
3. Internal trends raise strong concerns about the state's ability to “grow its own” highly educated individuals to sustain continued strong economic growth

1. State Economic Health Requires Strong Investment in Graduate Education and Research

The benefits of investing in graduate education and research are well understood in one sense: we understand *implicitly* and *anecdotally* that such investments have been instrumental in the development of California's highly competitive information-based economy. We know that businesses and industries that are central to the information economy typically choose to locate in areas with access to strong research universities. We know that states across the country are scrambling to succeed in the highly competitive global economy – and see investments in certain graduate and professional fields as central to that success, in part because of the external research and development funding that accompanies such programs. We know that the United States is falling rapidly behind other countries in the production of advanced degrees in science and engineering fields and national experts are warning policy leaders that this bodes poorly for national economic strength.

The higher education community does not yet have a good handle on how to quantify the benefits from graduate education and research. As state accountability efforts across the country increasingly include data on preparation for college, participation in college, college completion, and benefits, it is the latter category that lacks clear-cut measures of success that can be directly linked to a state's investment in higher education, particularly its investment at the high end in graduate education and research. Institutions compute the economic impact of their institutions on the economy, and report on patents and other spin-offs from research, but policymakers tend to interpret these as self-serving. I would hope that the inexact nature of our understanding of the social and economic benefits of graduate education and research does not impede efforts to invest in these components of our higher education system.

The National Center for Public Policy and Higher Education, which issues the 50-state report card on higher education performance, includes as one measure of “public benefit” of a state’s higher education investments, a state’s rating on the “New Economy Index.” This is a measure of the competitiveness of a state’s economy, calculated by the Progressive Policy Institute based on a variety of indicators that measure types of employment and industries, education levels of the workforce, investment and opportunities in the high tech industry, and other related factors. The National Center justifies the use of this measure with the following language about the essential interdependence between higher education and economic development:

A vibrant economy provides more high paying jobs for college graduates and attracts college graduates from other states. In turn, a postsecondary education system that generates high levels of external funding for research, is responsive to employer and community needs, and attracts top-notch faculty, helps to generate and maintain a vibrant economy.

## 2. California’s Performance is Fairly Strong Yet Depends on Importing Knowledge Workers

The following measures, many of which are used by the National Center in assessing state performance, indicate that California is doing fairly well, nationally, in terms of the benefits it receives from its “high-end” investments in higher education:

- California ranks 3<sup>rd</sup> on the New Economy Index, after Massachusetts and Washington
- California ranks 14<sup>th</sup> in the share of working-age adults with a graduate or professional degree
- California receives the highest dollar amount of federal research and development funds generated by postsecondary institutions of all 50 states, although it ranks 19<sup>th</sup> when those dollars are put in per capita terms
- California ranks 4<sup>th</sup> in the percentage of higher education degrees issued that are in science and engineering fields, and is above the national average in the percentage of those degrees that are at the graduate level
- California ranks at the top of all states in the number of academic patents awarded per 1,000 science and engineering degree holders in academia, and 2<sup>nd</sup> in the number of patents awarded per 1,000 individuals in science and engineering occupations

However, it is clear that California is highly dependent on importing talent to sustain even this somewhat moderate level of performance:

- California is the highest net *importer* of working-age adults with a graduate or professional degree
- California is a particularly high net importer of computer specialists, scientists, engineers, and management professionals with graduate degrees—workers essential to maintaining the state’s high tech economy

### 3. Internal Trends Raise Concerns about Future Economic Health

While the ability to attract highly-educated talent from out-of-state is a strength of California, a reliance on imported workers to sustain economic health puts the state in a vulnerable position. As more states focus on their own economic competitiveness, and as California's housing prices continue to soar, raising barriers to relocation from outside the state, policymakers would be wise to improve the state's ability to "grow its own" cadre of highly educated workers, particularly in fields that support the information economy. Trends in this regard are cause for concern:

- Substantially lower college participation rates among Latino young adults, if not increased, could result in an overall decline in the state's college participation rate over the next decade as the share of the population that is Latino increases dramatically
- There is even greater under-representation of Latinos at the graduate level, with Latino students representing 15% and 26% of undergraduate enrollment at UC and CSU, respectively, but only 9% and 20% of graduate enrollment
- California is tied for *last place* in the science proficiency of 8<sup>th</sup> graders as measured by standardized tests and is only slightly better in math proficiency
- California ranks near the bottom of all states in the share of high school students enrolling in the advanced math and science courses that are strongly associated with college enrollment and success

If California is to produce sufficient numbers of individuals with graduate degrees in key fields, there is much groundwork to be done to increase the number of Californians prepared to enroll and succeed in these areas.