

## Perspectives

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# Expanding the Mission of State Economic Development

**State technology programs need to extend their reach to give more people the skills needed for the new economy.**

State technology-based economic development (TED) programs need an integrated dual agenda. Most states have two quite different and rarely joined economic agendas: an economic development agenda and an economic-social agenda. Through the use of business incubators, university research "centers of excellence," research parks, and all manner of research and technology institutions, TED programs have advanced economic development by helping to stimulate the formation of new companies, the creation of high-paying jobs, and the growth of wealth. But few such programs even begin to address the economic-social agenda that aims to reduce income inequality, alleviate poverty, and close the racial and class divide.

My research in Georgia and other states finds that most TED programs produce significant benefits with relatively modest investments. But my concern is less with the amount of the benefit from TED programs than with the distribution of benefit. Many states are booming and busting at the same time. The relatively advantaged portion of the population is enjoying unprecedented income growth, whereas the relatively disadvantaged portion is struggling with stagnant wages and longer working hours. A dual agenda, much more challenging than traditional economic development goals, requires technology-based economic development to work hand-in-glove with social economic development, with the objective of leaving no one behind.

Stimulating economic development, even during a boom period, is a challenge. But an even greater challenge is to contribute to more widely distributed growth that reaches each state's working poor. It is time to take up a dual agenda: economic development and economic equity. My rationale for doing this is bald self-interest. With labor shortages, increasing reliance on immigrant labor, low unemployment, and a still-growing economy, states and their businesses cannot afford the luxury of poorly trained workers or untapped potential. The economy, especially today's new knowledge-based economy, voraciously consumes skilled workers. With unemployment rates at 5 percent or lower in many states, most of the skilled workers have been consumed, and economies are limited by zero-sum human capital competition.

## Boom and bust

The problem is not just that some people are doing very well and others, especially those who do not have a strong educational background, are progressing at a slower rate. The problem is that many Americans are making no progress or even falling further behind. For the poorest 20 percent of the

U.S. population, real income actually declined by 9 percent between 1977 and 1999. The number of full-time year-round workers with incomes below the poverty line increased by 459,000 in 1998 (the most recent data). The median wage earner has advanced relatively little during the past two decades, gaining only an 8 percent increase in income. For male workers, the real median wage actually declined slightly between 1988 and 1998.

This is not only a humanitarian concern. A poorly prepared labor force acts as a ceiling on economic development. With low unemployment, that ceiling and its unfortunate consequences have become more visible. The working poor in particular require attention. Many in this group work below their skill potential and for wages that have them falling further and further behind, especially when compared to college-educated workers. The income gap between high-school graduates (many of the working but underemployed poor) and college graduates is well beyond historic rates. In 1979, the median full-time weekly wage for men with college degrees was 29 percent higher than for men with only a high-school degree. By 1998, the gap had increased to 68 percent. Many of the manufacturing jobs that were once key to the fortunes of high-school graduates have long ago migrated to low-income nations. The U.S. economy seems to be settling on high-end, high-value-added services and products, which require little muscle or physical durability but considerable work discipline and technical skill. There is a shortage of labor for many such "new economy" jobs at the same time as there is a lagging and underskilled mass of working poor.

Georgia is an instructive example of simultaneous boom and bust. The unemployment rate in Georgia has been below 5 percent since 1995. For the past three years, it has been less than 4 percent. State revenues nearly doubled between 1990 and 1999, recently having exceeded one billion dollars per month. Manufacturing earnings have grown consistently from 1985 to today, even in the face of labor supply problems. In 1998, an average of more than 16,000 jobs per month went unfilled even as Georgia continued to have one of the highest rates of inbound labor migration. The number of new corporations created each month more than doubled from 1,763 in 1985 to 3,766 in 1998. The economy is hot.

In 1997, the median family income for whites in metropolitan Atlanta was nearly \$50,000, whereas it was \$17,000 for African Americans. The divergence between metropolitan Atlanta and rural Georgia is just as sharp. Georgia is hardly unique in this respect. An examination of income distribution in the United States between 1970 and 1996 (before the peak of the boom) shows that only the top income quintile has been increasing steadily since 1970. People in the lower four quintiles have been declining or just holding their own. Between 1973 and 1997, the income of families at the 10th percentile fell 7 percent, whereas the income at the 90th percentile grew 38 percent.

The reasons for increasing income inequality and stagnant lower- and middle-income wages have begun to receive considerable attention. Factors cited include a shift to a service economy, an increase in single-parent households, increased opportunities for highly skilled workers (at the same time as decreased opportunities for unskilled and less skilled workers), global competition, the "knowledge economy" with its increased importance of computer skills, and greater use of part-time workers. Although state

economic development policy is not relevant to some of these maladies, to others it is, or at least it could be.

## Rethinking economic development

In 1999, Georgia allocated \$51.7 million to R&D-based TEDs. These expenditures were divided among a Traditional Industries Initiative, the Economic Development Institute (located at Georgia Tech and including the Advanced Technology Development Center and the Georgia Industrial Extension Service), and the Georgia Research Alliance.

The most widely heralded and most expensive component of Georgia's TED programs is the Georgia Research Alliance (GRA), which was founded in 1990 as a three-sector partnership of the state's research universities, the business community, and the state government. Its mission is to foster economic development within Georgia by developing and leveraging the research capabilities of research universities within the state and to assist and develop scientific and technology-based industry, commerce, and business. In FY 1998, GRA received \$ 42.4 million from the state government, which was a little more than 80 percent of Georgia's TED investment. A major element of GRA is attracting world-class scholars to Georgia, with the presumption that the scientists and engineers will build up the scientific and technical base of the state and permit the research universities to play a key role in working with industry. The GRA programs are centered on major research centers, including the Georgia Center for Advanced Telecommunications Technology, which oversees university-based research (including my work in developing an evaluation plan for GRA) that helps shape and support the emergence of the advanced telecommunications industry.

GRA has been quite successful in its core mission of supporting eminent scholars, helping to launch new companies, attracting research funds from outside sources, winning matching funds from local industry, and training advanced students. Equally impressive, however, are related areas in which it has had no effect.

Consider education. Georgia Tech was rated by a set of experts as the leading university in the nation in technology-based economic development. The university's growing reputation for academic excellence is helping it attract better students. The university's incoming freshman class had the highest average SAT scores of any public university in the nation, and 12 entering freshman had perfect scores of 1600. However, among the 50 states and the District of Columbia, Georgia high-school students' average SAT score ranked 50th. The message of the importance of academic excellence has not penetrated deeply into the state's high schools.

**A poorly prepared labor force acts as a ceiling on economic development.**

It is easy to be highly successful in economic development and, at the same time, have little positive effect on social change. Just as important, the prospect of Georgia sustaining economic growth when it depends on a young workforce whose education does not match up well against the rest of the nation is at best problematic. These statistics are about the most compelling case one can make for a dual agenda in economic development.

## A dual agenda

The best way for TED programs to get involved in a dual agenda is for them to exploit a management strategy they have adeptly used so many times before: leveraging. Most TED programs take pride in doing much with little; the way they achieve results is to look for leverage points and to encourage resource sharing. Most previous efforts have been aimed at leveraging resources to promote technology and small business. I am suggesting that similar approaches be taken to promote the growth of "scientific and technical human capital": the skilled labor needed by new-economy companies. The best candidate for leveraging? The state's education system, from kindergarten through graduate school.

In many regions of the country, the economy has progressed about as far as possible with the existing pool of skilled labor. When unemployment rates are quite low, the remaining available workforce almost by definition is composed largely of the hard-core unemployed. Employers are forced to either leave some jobs unfilled or to hire people who lack the skills that the job requires and adjust their expectations downward. The case of Georgia is instructive. Among people who have worked in their jobs long enough to qualify for unemployment insurance (that is, the most stable and skilled workers) the unemployment rate is 0.7 percent. The available labor pool is the more than 65,000 adults who have left the Georgia welfare rolls since 1994; these people typically have the skills to assume retail and services jobs but not the manufacturing, technology, and knowledge economy jobs that are spurring economic growth. For now, the vast numbers of skilled workers moving to Georgia from other states and nations is permitting it to tread water. But as Labor Commissioner Michael Thurmond notes, "Right now, the number-one obstacle to continued economic growth is a shortage of skilled workers." This situation is not unique to Georgia. In virtually every region, the limits of the labor force put a cap on the prospects for accelerated or even continued economic growth.

Although many state education departments and universities have effective cooperative technology education programs, these are rarely, if ever, connected to state TED programs. It is easy enough to do so. If companies benefiting from state funds are encouraged to invest in cooperative education, either at the high school or college level, it is highly likely that progress could quickly be made. The benefits could be considerable. If students are brought in to work with companies at the beginning stages, the companies receive the advantage of cheap labor and, in the case of university students, significant skills at a time of their greatest need. The students could benefit immeasurably not only by developing work skills needed in any cooperative technology program, but also by receiving object lessons in entrepreneurship and the challenges faced by individuals starting new businesses.

The mythology of centers of excellence programs is that by providing money to attract world-class professors and their research programs, industry will receive technological benefits, will be attracted to the region, and will work closely with university researchers to expand existing businesses or create new ones. We do not know for certain which parts of this story are true, but it does seem certain that the centers do somehow provide an important economic development stimulus. And if we believe what industrial leaders tell us and the empirical research done on the topic, one aspect of the centers

that does appear to be of indisputable value is their role in training students. These students serve as a particularly valuable reservoir of new technical leaders for existing companies as well as a source of entrepreneurs who will start new businesses. Many of the centers of excellence are thus living up to their name when it comes to the education and training of graduate students. However, they can do more. A few centers are demonstrating that they can serve as an even more productive community resource by reaching out to a broader audience.

Recently, we conducted a case study of the University of Michigan's Center for High Performance Optics, one of the leading centers for laser research in the world. As part of their proposal to the National Science Foundation, they included a meaningful community outreach component. They recruited an internationally known senior physics researcher who is African-American to serve as associate director for community programs. He has made it his mission to bring high-school students, especially ones from disadvantaged backgrounds in nearby Detroit, to work as interns at the center. In addition, the center provides programs for high-school science classes, both at the center and in the community. So far, no one has systematically evaluated this activity, but the anecdotal evidence is certainly encouraging. It seems to be at least as good an investment as midnight basketball.

For many years it has been even easier than usual to engage in benign neglect of income inequality, assuming that by some miracle of trickle-down economics the poorest citizens would be lifted up by the same robust economy that has enriched those at the upper end of the economic spectrum and made millionaires commonplace. And indeed, the national economic boom has shored up the living standard of many of the working poor, albeit often through their taking a second job or working more overtime. But now many regions are coming up against the economic ceilings resulting from a shortage of skilled workers. The use of immigrant workers has postponed the day of reckoning, but there are limits to this supply as well. The number of foreign worker visas is at its highest level since the 1920s, up 17 percent in the past year alone. Better-trained U.S. workers are essential to maintaining the economic health of the country. TED programs, working in concert with the core state education efforts, must answer the call.

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