DEFINING AND MEASURING
HIGH TECHNOLOGY IN GEORGIA

The purpose of this study is to define and measure the high technology sector in Georgia in order to assist in targeting, attracting, and retaining technology-intensive jobs for the state. A need exists for a common definition upon which to base an assessment of the state’s technology standing.

To develop this definition, we first consulted with an Advisory Panel of Georgians involved in economic development. In addition, we reviewed journals and government agency documents, both published and online. We then compiled and cross-referenced efforts of fifteen other states, as well as national and international agencies that have sought to measure the technology sector, and we communicated with a number of officials regarding these reports and statements.

Based on this research, the following definition of a technology-intensive industry was selected. An industry is considered to be technology intensive if 1) firms in that industry spend a higher proportion of their budget on research and development than is typical of all industries, and 2) firms in that industry, relative to other industries, have a high proportion of scientific and engineering labor who spend the majority of their time engaged in research and development activities. A further distinction is made between those industries defined as "high-intensive technology," i.e., those industries whose scientific and engineering personnel and whose research and development investment are both much higher than the average industry, and the "medium-intensive technology," i.e., industries that have 1) a high level of scientific and engineering personnel, 2) a high level of research and development expenditures, or 3) processes that involve research and development intensive machinery, but who engage a less educated workforce doing more routine tasks.

We relied on the studies we reviewed that use this definition of technology intensity in order to identify technology-intensive industries, as defined by Standard Industrial Classification (SIC) codes. The size of the technology sector is measured by the level of employment in that sector. For each SIC code that we identified as being part of either the high- or medium-intensive technology sectors, we used data from the Georgia Department of Labor to determine the number of establishments and the number of workers in each industry by year for the period 1979-1999.

While Georgia's strong and modernizing economy permitted an increase in employment in both the high- and medium-intensive technology sectors, the high-intensive technology sector increased more rapidly across the period 1979 to 1999 than either total state employment or technology jobs in general (Figure 1).
We ranked industries by employment level and several clear areas of strength emerge from this ordering. In addition, we identified clusters of high technology industries which can be targeted by the state for attention. Technology intensive jobs are spatially clustered in the state, with a distinct majority of high-intensive technology jobs being found in the state development regions containing metropolitan Atlanta and the coastal counties. However, the statewide distribution of technology jobs combining both high- and medium-intensive sectors reveals a picture representative of the range of jobs impacted by the "new economy" (Figure 2). The resulting measurements of Georgia's technology strengths following from the adopted definition accurately reflect the wide range of Georgia's high technology sector, permit policy formulations on a sound basis, and indicate areas for future economic development.

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FIGURE 2. TOTAL TECHNOLOGY – INTENSIVE EMPLOYMENT IN GEORGIA, 1999

Jobs per Region
- 5313 - 12,148
- 12,149 - 16,391
- 16,392 - 25,523
- 25,524 - 292,619
- 292,620 +

1. WALKER
2. SUMTER
3. COBB
4. FULTON
5. GWINNETT
6. DEKALB
7. RICHMOND
8. TALIAFERRO
9. MONTGOMERY
10. IRWIN
11. WARE
12. TATTON

Georgia State Counties Map with regions indicated.
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