Chapter XXII
Socio Economic Influence on Information Technology: The Case of California

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ABSTRACT

This chapter examines the influence of socio-economic factors on the employment, payroll, and number of enterprises of three technology sectors for counties in California. Based on correlation and regression analyses, the results reveal that factors that are important correlates of technology sectors are professional/scientific/technical services, other services, and educational services, ethnicity, and college education. As a whole, the findings emphasize the importance of the association of socio-economic factors with the per capita magnitude of the technology sectors. This chapter suggests steps that can be taken by the state of California and its county and local governments to foster technology and reduce the digital divide.

INTRODUCTION

During recent years the rapid change in information technology (IT) and its impact on society have been the concern of academia, industry leaders, government officials and policy makers. There is no doubt that the impact of technology on society is profound and that it has long lasting effects financially, politically, and culturally. But the growing abundance of literature and projects concerning the social consequences of the IT and the Internet underscore the need for a better understanding of the forces at work.

Technological change has been central to the U.S. economic growth and is the major force in raising the nation's factor productivity at an

accelerated rate. Information technologies (IT) are reshaping every aspect of organizations and business enterprises, such as work processes, decision-making, workforce, employment structures, teamwork, and products. "Indeed, the potential of the ICT revolution to transform the global economy has been at the centre stage in international forums and discussions…" (ILO, 2001, p. v). For companies to stay viable and competitive, adjusting to an ever-increasing pace of change is a must. The rapid development of new technologies in the information age and the unequal ability of societies across various segments to adjust to and assimilate these constant changes has been recognized as a source of problems for the old socio-economic structures because it creates potentially disruptive frictions.

This information gap is expressed by the term "digital divide," which is generally defined as "unequal access to information technology" (Light, 2001, p. 709). The effective utilization and accessibility of IT is the subject that some of the recent studies are trying to address. As Katz (2002, p. 4) puts it: "Having knowledge of what is there with no means of obtaining it or having technology but no knowledge of how to use it does not constitute access."

The continued existence of the "digital divide" and the increasing inequality of wages in the U.S. during the last two decades pose considerable challenges to policy makers. California, with its talented and diverse workforce, has a unique role in this equation. The long-term expansion of California's high tech, even with its recent slowdown, has and will depend on its skilled workforce (CCST, 2002). It has been recognized as the leading high-tech state in the U.S. (AEA, 2001). In the year 2000, among all states, it ranked first in high-tech employment, number of high-tech industry establishments, high-tech exports, R&D expenditures, and venture capital investment (AEA, 2001). It led the nation in all high-tech industry segments except photonics, and was second in high-tech per capita wage (AEA, 2001). Furthermore, 77 of its 1,000 private sector workers were employed by high-tech firms (AEA, 2001). Its R&D expenditure in 1998 was $43.9 billion, which was 19% of the nation's (AEA, 2001). California's leadership position in the technology sector justifies the importance of studies that analyze its sectoral growth in more detail and at smaller geographical scale, such as for counties in this chapter.

California slowed down in 2001; in particular the high-tech industry grew in California only by one percent, down sharply from 1999 and 2000, although this rate of growth varied from county to county (AEA, 2002). The slowdown is exacerbated by a large state government budgetary shortfall, which came to a head in 2002 and 2003, requiring stringent cutbacks and other actions. However, it is likely the state will recover from this problem in several years, and that it will not take away its technology leadership.

At the same time, there is a long-term weakness in its educational capability and readiness. "California is lagging behind other states in workforce readiness. Therefore its economic activities and slowdown, which include the Silicon Valley, much of the entertainment industry, and 48 federal government research labs, have repercussions on a global basis. If California cannot meet industry's demand for skilled labor, it could lose science and technology jobs to other states" (CCST, 2001; Conrad, 1999, p.1).

A recent study by CCST (2002) examined the reasons why California, even before the budget crisis, has fallen short in providing the requisite science and technology education to fulfill the high demand. This report points to substantial gaps in supply of skilled labor. For instance, the report points to a gap of 14,000 science and engineering works at the bachelor's degree level, out of 20,000 such degrees (CCST, 2001). Demographic growth has led to a huge increase in K-12 enrollments in the state, surging with a large proportion of immigrant students, while the education being provided is problematic (CCST, 2001). The report