

Play the space between the notes just like you play the notes and never play the same thing twice.

--*Miles Davis*

## **INTRODUCTION**

The end of the twentieth century ushered in a period of remarkable economic change in the United States. The dramatic development and diffusion of the World Wide Web, accelerating processes of globalization, a record period of sustained economic growth, an impressive stock market boom followed by an unprecedented crash in technology stocks, and a wave of new companies, industries, and business models—all provided indications of deep transformations in our economy and society. At the core of these transformations are three inter-related processes. First, the spatial boundaries of economic activity are changing, associated with the increasing globalization of the economy. Second, forms of economic organization are shifting, with a decline in vertically integrated firms and growth in complex network production systems. Third, forms of competition are being modified with the increasing importance of innovation to long-term economic success. All three processes are integrally linked with, and indeed are only made possible by, the dramatic developments in information technologies of the past three decades. Information technologies' fundamental task is to process information, and since all social and economic relations are predicated on the need to communicate, information technologies have a singularly utility to almost the entire realm of human activity and permeate all economic activity. Thus, it is not at all an exaggeration to say that we are in the midst of an *information revolution* as significant for changing economic and social structures in the 21<sup>st</sup> century as the first and second *industrial revolutions* were for the 19<sup>th</sup> and 20<sup>th</sup> centuries.

As in previous economic transformations, work is central to understanding the social implications of these changes. The technological and managerial transformation of work and employment, along with the related transformation of labor markets, is the central means by which most people experience and are affected by broader economic changes. This is not to deny that people's experiences as consumers and their political, cultural and social interaction aren't also dramatically affected by these economic changes—they clearly are. Nonetheless, paid employment (including self-employment) is the primary means of survival for the vast majority of the population and remains a primary arena of social interaction and human experience. Understanding the dramatic changes in work, employment and the structure of labor markets is thus critical for understanding the broader implications of these dramatic economic changes people at all levels of society.

The importance of understanding these changes in work is underscored by the insecurity workers' feel in the face of the heightened instability of the information economy. This instability is driven in part by the rapid pace of change in information technologies themselves, with new developments potentially disrupting existing processes of economic interaction and creating entirely new economic opportunities, with all the attendant booms, speculative manias, subsequent contractions and creative destruction to be expected. Globalization, networked production relations and the increased importance of innovation all further reinforce the unstable tendencies of the information economy, as intense competition and constantly shifting markets and production relations undermine economic stability at a disconcerting pace. Firms and industries may come and go, but the vast majority of people depend on regular and predictable work as their main if not sole source of economic survival. Thus, the instability of work is more than simply an interesting economic phenomenon, but strikes at the core of human security. This

makes the task of understanding the nature of this transformation of work even more urgent—an essential step in improving levels of economic security for large sectors of the workforce.

The purpose of this book is to help contribute to that understanding of the transformation of work in the information age. It is a study of labor markets in Silicon Valley, a region known globally as a center of innovation and diffusion in global information technology industries. Silicon Valley is an important context for examining trends in work for two fundamental reasons. First, its very origin as an industrial region lies in information technology industries, which have developed primarily in the last half century. The relative newness of Silicon Valley's industrial structure and the dominance of these industries in the regional economy make especially visible patterns of work that are associated with the rise of information technology. Second, Silicon Valley is a global center of innovation and production in information technology industries. New products and process innovations are adopted in the region rapidly, allowing these industries to develop innovative management and human resource practices, which then often diffuse onto world markets and into other industries.

Understanding these changes in work, however, is a complex, difficult, and multi-faceted endeavor. It requires challenging old assumptions about the nature of work and employment, while developing and strengthening new analytical tools and concepts that are appropriate for current patterns. Is a job a 'social artifact' more appropriate for an industrial era of factories and stable routine work than an information age of shifting work tasks and on-line networked relationships (Bridges 1994)? Who should be considered the real 'employer' in complex sub-contract and temporary employment relationships in which the company signing employees' paychecks has no control over working conditions (Gonos 1997)? What is 'work' and what is 'leisure' in a context in which technology is binding the world of work and the world of home in

ways that redefine what it means to be in each and in which human nature itself is becoming commoditized (Carnoy 2000; English-Lueck 1998; Hochschild 1983)? These are questions that have no easy answer, but clearly require us to think about work and employment in new, different and creative ways. In addressing these questions in the context of Silicon Valley's labor markets, this book is divided into three parts, analyzing three inter-related issues: labor market flexibility; labor market intermediaries; and careers in the information economy.

## **Flexibility**

Part one examines labor market flexibility. Clearly labor market flexibility itself is not new, and in fact, as Sabel and Zeitlin (1997) point out, 'the experience of fragility and mutability which seems so novel and disorienting today has been, in fact, the definite experience of the economic actors in many sectors, countries and epochs in the history of industrial capitalism'.<sup>1</sup> Flexibility, however, is a highly contested and value-laden concept. The very term 'labor market flexibility' holds different meanings for those analyzing it, and has taken on a variety of different meanings over the years: "Production flexibility, technical flexibility, organisational flexibility, labour process flexibility, time, wage, financial, marketing flexibility—all these issues are presumed to have a connection".<sup>2</sup> This lack of clarity has prompted the observation that "rarely in international discourse has [a term] gone so directly from obscurity to meaninglessness without any intervening period of coherence".<sup>3</sup>

Yet certain aspects of labor flexibility are critical to the competitive success of Silicon Valley and thus understanding the nature of this labor flexibility is essential for understanding work and employment patterns in the region. Much of the recent literature on labor market flexibility makes a distinction between internal (functional) flexibility and external (numerical) flexibility, using the firm as the basic unit of analysis. This approach, however, results in a core-

periphery perspective that misses important aspects of how labor markets are changing. What I try to argue instead is that much of the confusion and conflict around the issue of labor market flexibility arises from the failure to make a distinction between *flexible work* and *flexible employment*. *Work* refers to the actual activities workers perform, the skills, information and knowledge required to perform those activities, and the social interaction involved in the process of performing that work. *Employment*, on the other hand, refers to the contractual relationship between employer and employee, including compensation systems and management practices. Clearly both work and employment have been changing in important ways, but the forces leading to those changes, along with their implications for both workers and employers in the regional labor market, are significantly different. Rapid changes in *work*—in the quantity of work, in the skills, information and knowledge required to perform that work, and the social interactions involved in that work—are largely rooted in the dynamics of competition in information technology industries, in which continual innovation is central for competitive success. This importance of innovation is related to the increasing importance of information and knowledge in the economy, and the rapid change inherent in producing information and knowledge as commodities. These dynamics are particularly evident in information technology industries but also have applicability in a wide range of other industries as well—wherever information (both in analytical and aesthetic form) is an important part of the value of the commodity or service being produced. In essence, flexible work is an essential component of competitive success in the information economy.

In contrast, rapid changes in *employment*—including high levels of turnover, shorter periods of employment, and widespread contingent employment contracts—are only partly shaped by the importance of flexible work. The nature of the employment relationship is also

largely shaped by a legal, institutional and organizational environment that is deeply rooted in an older industrial economy. This older model was built largely by policies implemented in the New Deal era and in the years following World War II, an unusual period of relatively clear and long-term relationships between employer and employee. Many labor market institutions that developed during that period are poorly adapted to the changing nature of work in the information economy. This helps allow many individual firms to pursue flexible employment relations for a variety of reasons, such as simply cutting costs or shifting risk, that in many ways undermine the long-term competitive success of the region.

Chapter one elaborates on this theoretical framework for analyzing flexibility in work and employment. Chapter two provides empirical evidence of the rise of flexible work and employment patterns in Silicon Valley in the 1990s. It documents the rise of various forms of non-standard employment, while also exploring the ways that work patterns and employment relationships in 'standard' employment have changed dramatically as well, becoming more tenuous and temporary. It discusses the links between these flexible labor markets and the character of competition in the region's high-tech industries, tracing changes in the major industries in the Valley, including internet/software, hardware, semiconductors, and the defense industry.

### **Intermediaries**

Part two examines the increasingly important role of labor market intermediaries in shaping the structure and dynamics of work and employment in Silicon Valley. The term "labor market intermediary" covers a wide-range of organizations that mediate work practices and broker employment relationships between workers and employers. These organizations build relationships on both sides of the labor market, bringing employers and workers in contact and

effecting the nature and content of that relationship. Labor market intermediaries are not entirely new nor are they unique to Silicon Valley. Temporary help firms, employment agencies, recruiters, labor contractors and the like have played an important role in a number of industry sectors and portions of the labor force for a long time. The rapid changes and unpredictability of Silicon Valley labor markets, however, is leading both workers and employers to place a greater reliance on a wide range of different types of intermediaries to help them navigate through this increasingly complex and shifting labor market. The activities of these intermediaries, in turn, shape the behavior of both workers and employers and the complex dynamics of their mutually-dependent and also at times antagonistic relationship. Flexibility in regional labor markets contributes to the growth of intermediaries, which in turn help facilitate labor market flexibility—in essence labor market intermediaries are a fundamental feature of labor markets in the information economy.

Chapter three provides a conceptual framework for analyzing these intermediaries. It begins by providing a general description of the services they provide to both workers and employers related to both shaping work practices and employment relationships. Intermediaries play a critical role in job brokering, helping employers recruit workers and workers search for job opportunities, frequently shaping the character of that employment relationship. They also play a critical role in shaping changes in *work*, facilitating rapid adjustments in the quantity of particular work demands in the labor market and qualitatively shaping the nature of that work. On a theoretical level, this chapter argues that intermediaries perform four essential functions in the labor market for both workers and employers: reducing transaction costs, shaping compensation levels, mediating risk, and building networks.

I then turn to an analysis of three broad types of intermediaries in the Silicon Valley labor market. Chapter four focuses on private sector intermediaries—those that ultimately have to make a profit in order to survive, including temporary help agencies, contractor brokers, on-line job boards, and professional employer organizations. These intermediaries are oriented towards the demand side of the labor market, responding primarily to employers’ recruiting, hiring and human resource management needs. Chapter five examines the rise in membership based intermediaries, including both professional associations and union initiatives. These organizations respond primarily to the needs of workers, and help workers build and maintain their *employability* in the broader labor market while also providing them with the networks and connections with employers to navigate the complex labor market. Chapter six examines the efforts of public sector institutions to increasingly play an intermediary role in the labor market. Some of these public-sector initiatives are modest compared to intermediaries in the private and membership-based sphere, and are hindered by being based in institutions and programs that were built to address a more stable and predictable labor market. Nonetheless, some public intermediary initiatives, particularly those linked with adult education institutions, have grown rapidly and play a critical role in certain occupations and skill sets.

## **Careers**

Part three then turns to an examination of the implications of this flexibility and intermediation for the careers of workers in the region. Certain aspects of the flexibility of Silicon Valley labor markets have been a critical component of the region’s economic success. Flexibility in work practices, for instance, helps ensure rapid adjustment to changing technologies and market opportunities, while also providing valuable learning opportunities for large sectors of the workforce. The high levels of volatility, however, make workers vulnerable

to labor market shocks. Many workers with the right skills and good social networks thrive in this environment, building successful multi-firm careers. Other workers, however, are threatened by skill obsolescence, periods of unemployment, and stagnating wages with few career opportunities. This vulnerability is frequently exacerbated by flexible employment practices that weaken the tie between worker and employer, requiring workers to absorb many of the risks of economic uncertainty. These contradictory tendencies are also reflected in the activities of intermediaries, which can both contribute to and undermine career opportunities for workers in the region.

Chapter seven provides an empirical examination of the implications of the structure of Silicon Valley's labor markets for the livelihoods of workers in the region. It acknowledges the critical importance of these new labor arrangements for economic development and innovative growth in the region, and suggests that for many workers in the regional labor market these flexible labor relations provide dynamic opportunities for learning, and highly remunerative careers. The chapter emphasizes, however, the significant underside to this flexibility, documenting growing inequality and insecurity in the regional labor market in the 1990s and showing the potentially disruptive consequences for workers. It also explores the contradictory role of intermediaries in shaping these labor market outcomes. It argues that some intermediaries play a critical role in improving workforce development systems, improving firms' employment practices, building multi-firm career ladders, and ensuring skills enhancement and learning across firms. On the other hand, the use of some intermediaries also puts workers at greater economic risk, and in some cases undermines skill enhancement through an under-investment in training and learning opportunities on the part of firms.

Finally, chapter eight explores the implications of this flexibility and the activities of intermediaries for efforts to improve labor market outcomes for workers. It begins by suggesting the need for a series of conceptual changes in the focus of labor market policy: focusing on industry and occupational clusters, rather than firms; learning, rather than training; communities and social networks, rather than individuals; and careers, rather than jobs. I then go on to argue that the increasing importance of labor market intermediaries creates opportunities for public policy intervention. Traditional labor market policy focuses on either the demand or supply sides of the labor market—either regulating employers in their labor practices or trying to assist workers, primarily through investment in skills development. Intermediaries, however, can play a critical role in shaping labor market outcomes, for both workers and employers. Public policy directed at intermediaries can provide support for the more beneficial aspects of their operations, while restricting or hindering their more pernicious activities.

In the final section, I explore the policy implications of the distinction between flexible work and employment. In contrast to some analysts, who characterize flexibility as the growing ‘individualization’ of work, I argue that what we are witnessing instead is the growing individualization of *employment*, alongside an increasing *socialization* of work. This disconnection between the nature of work and the nature of employment contributes significantly to the insecurity that many workers face in the information economy. Overall the information economy is highly dynamic and capable of producing high levels of economic growth and opportunity, yet many workers are excluded from the benefits of the information economy by their individualized employment relationships. The challenge is to develop compensation systems that recognize the increasing socialization of work in the information economy, while

also helping to minimize insecurity by cushioning the effects of the inevitable ups and downs of the information economy.

## Research Data

A brief note on data and research methods is important here. The evidence presented in this book is based on both quantitative and qualitative research methods. The quantitative analysis was essential for understanding broad trends in employment and wage patterns in Silicon Valley, and is presented in Chapters two and seven. It is based on a variety of publicly collected labor market data available for analysis at a regional level, which are identified where appropriate in the text and tables.<sup>4</sup> The qualitative analysis of the activities and implications of labor market intermediaries, presented in Chapters four, five, and six, is based on a variety of sources, including: interviews with 75 owners, managers, program officers, and clients of labor market intermediaries; one focus group with 12 program officers from various workforce development and training institutes; participant observation in the creation of the Working Partnerships USA temporary worker employment project; and the review of a wide range of written material on the various intermediaries, including program descriptions, web-based descriptive material, and secondary descriptions of the programs. The intermediaries examined were chosen to reflect the range of organizations involved in intermediary activity.

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<sup>1</sup> Sabel and Zeitlin (1997):3

<sup>2</sup> Pollert (1988)

<sup>3</sup> U.S. Secretary of Labor Robert B. Reich, remarks, ILO High Level Meeting on the World Summit for Social Development, Geneva, June 10, 1994, as cited in Brodsky (1994).

<sup>4</sup> This includes:

- **U.S. Census Public Use Microdata Sample (PUMS)**—The PUMS data set used was selected to cover the broader Silicon Valley, not simply Santa Clara County. The specific area chosen includes all of Santa Clara County (PUMAs 3401-3411) along with the neighboring cities of Fremont, Newark and Union City in Alameda County (PUMAs 2103-2104) and the cities of Burlingame, Hillsborough, Milbrae, San Bruno, Foster City, San

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Mateo, Belmont, Redwood City, San Carlos, Atherton, East Palo Alto, Menlo Park, Woodside, Portola Valley, and North Fair Oaks in southern San Mateo County (PUMAs 2203-2206)

- **California Department of Finance Demographic Projections**—These are available from the Demographic Research Unit, at <http://www.dof.ca.gov/html/Demograp/druhpar.htm>. They are the most reliable inter-census demographic estimates. Data reported in this dissertation are for Santa Clara County only.
- **California Employment Development Department Labor Force Data**—The CA Labor Market Information Division is the primary source of labor market information for the state, county and some city-level data. Specific data include current and historical industry employment, hours and earnings, size of firm, historical and currently labor force, employment and unemployment data. This data is available to the public at: <http://www.calmis.cahwnet.gov>
- **Current Population Survey-Outgoing Rotation Group**—The sample used is a subset of the national sample including all households living in Santa Clara County, and is the primary source of national data on employment, unemployment, unionization, household income and employee earnings. I use the same sample as that used by the Economic Policy Institute in their regular publication *The State of Working America* (Mishel et al, 2001). The Census Bureau does not recommend using this data source for local level analysis, given the small sample size in many local areas. It is the only source of data available, however, to calculate hourly earnings distribution at a local level, and Santa Clara County is large enough to make the sample size reasonable. The total sample size ranges from 908 households in 1979 to a low of 447 in 1985, and rising to 626 in 1998. In order to test the representativeness of the sample for Santa Clara County, the Economic Policy Institute compared the gender and age characteristics for our sample in 1989, compared to the County population as reported in the 1990 census, and found no significant statistical difference.
- **US Census of Manufacturers**—from the U.S. Department of Commerce and Bureau of the Census.