

THE FUTURE OF HUMAN CAPITAL AN EMPLOYMENT RELATIONS PERSPECTIVE

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Introduction

The development and effective utilization of human capital serves as an increasingly vital source of value and competitive advantage for individual firms as well as for the economies in which they operate. While access to fertile land, raw materials, financial capital, and physical technologies may have been the dominant sources of competitive advantage in agrarian and industrial-era economies, knowledge, learning, and a set of reinforcing employment practices are the critical requirements to transform the term 'knowledge economy' from rhetoric to reality. In fact, research has demonstrated rather clearly that even all those observed performance and welfare gains that at first appear to be driven by state-of-the-art computers and information technology (IT) can just as well be ascribed to the human and organizational capital that makes those technologies so effective (Brynjolfsson and Hitt, 2003, Brynjolfsson *et al.*, 2002).

The preceding chapters in this volume do a thorough job of showing how theories of human capital moved from their early-stage emphasis on individual, supply-side decisions regarding investments in education and training, to debates over when and why firms might share some of the costs of investing in workforce development, to more recent views on the relationship between human capital, social capital, firm strategies, and organizational design. We build on these points about the changing roles of individuals and firms, but add another: the importance of considering how *employment relationships* are changing and how labor-market institutions that have historically played key roles in addressing human capital-related challenges are now, too, eroding. As such, we pose a paradox. Just as human capital is growing in importance to individuals, firms, and national economies, many of the changes taking place in employment relationships and labor-market institutions are actually weakening both the incentives and the pressures on individual firms to invest. Resolving this paradox will require broadening the firm-centered approaches that dominate current analysis of human capital to give greater weight to extra-firm relationships, labor-market institutions, and the role of the state in overcoming market failures and encouraging business strategies that emphasize human capital as a source of competitive advantage. In line with this argument, this chapter draws on the employment relationship—not firms nor workers—as its unit of analysis.

It is not surprising that most theories of human capital treat the firm as the key unit of analysis, given the deep imprint that Becker (1964 [1993]) left with his early efforts to distinguish between general and specific human capital. It is especially understandable for research that focuses on American institutions and practices. Ever since the passage of the New Deal employment policies of the 1930s, firms have been assigned central roles in the delivery and financing of a variety of labor-market services,¹ including the provision of workforce training and development (Osterman *et al.*, 2001). Most of the chapters in this volume reflect this emphasis by exploring how individuals and firms allocate the costs and share the benefits of human capital, incorporating human capital development into alternative theories of the firm (such as transaction cost, resource-based, agency, entrepreneurial, and knowledge-based perspectives), and how human capital plays into emerging research on social capital, organizational capabilities, learning, and human resource strategies and architectures. But, as Chapters 12, 22, and 23 each suggest, firm-centric theories, particularly those founded upon the neoclassical economics framework, need to more fully take into

account how firm boundaries, strategies, and practices relate to other institutions in society. This is particularly important given the changes in employment relationships that are acting to reduce the labor-market functions served by individual employers. In short, the central argument of this chapter is that a more up-to-date theory of the changing nature of employment relationships is needed to understand whether and how human capital is to serve as a source of competitive advantage in a modern economy—even one as decentralized as that of the US.

In the sections that follow we introduce a basic theoretical framework used to guide employment relations theory and research, and outline several assumptions about the nature of that system that have implicitly guided development and use of human capital within that system during the height of the industrial era—essentially the four decades after enactment of the New Deal legislation of the 1930s. Then, we note how changes in this system pose difficulties for the traditional actors and institutions to continue to perform their functions of developing and making full use of human capital today. Finally, we suggest a set of changes in organizational practices, labor-market institutions, and public policies that will be needed in order to realize a human capital or knowledge-driven economy. We undertake all of this by relying on three particular human capital-related issues that challenge our existing understanding of the way that employment relationships function: human capital investment and development, work-life integration, and technologically engendered changes in work.

Basic Features of an Employment Relations System

Much of researchers' understanding of the employment relationship has been shaped by Dunlop's concept of an 'industrial relations system' (Dunlop 1958 [1993]). According to Dunlop, workers and their representatives bargain implicitly or explicitly with their employers to determine a wide set of observable outcomes encompassing everything from wages to work structures to workplace norms. These interactions, and the resulting 'web of rules', were influenced by three aspects of the bargaining context: the technological characteristics of the work itself and of the wider society, the economic factors impacting upon labor, product, and factor markets, and the locus and distribution of power in society. As an illustration, imagine a major technological breakthrough allowing for easy substitution of capital for labor. Workers would find it difficult to maintain their wages and employment, unless, perhaps, one of the components of the new capital were to witness an inordinate price increase. Therefore, the system would have to process these two opposing forces—potential efficiencies arising from technological change and the potential costs attendant to capital substitution—as it recalibrated to a revised set of outcomes. Extensions to Dunlop's original framework make it useful for explaining a wide range of strategic decisions (for example, Budd, 2004; Kochan *et al*, 1984)—such as the choice to produce in-house or to outsource, or the choice to use technology in a way that is 'upskilling' or in a way that is deskilling (Hunter *et al*, 2001). Among the attractive features of this framework is its respect for market forces and the forces of technological change, but insistence that these forces alone cannot and should not determine outcomes.

Perhaps most remarkable about the original framework is its perceived stability. The roles of employee and employer were clearly defined—unlike in today's economy that acknowledges the ubiquity of self-employment, contracting, and contingent work, among other unconventional arrangements. In Dunlop's world, the parties assumed one another a permanent fixture of the relationship—a sometimes disagreeable partner with whom they would have to engage in order to weather cyclical or structural changes in the world around them. Intensified competition for the company's product, for example, impacted both parties. Changes in production standards meant that factories and workers might need to be retooled or retrained. But, through it all, the employment relationship would weather the storm, internalize the costs and the benefits of resulting adjustments, and partition them across workers and firms. We argue that this industrial relations system, which today we might call an 'employment relations system' or a set of work arrangements, can no longer be assumed an effective processor of the environmental changes affecting the development and use of human capital, even as we transition into an economic era in which it serves as the chief driver of value and competitive advantage. We turn next to identifying the set of assumptions that underpin our existing notions of the employment relationship—assumptions that must be changed if we are to effectively leverage human capital.

Inherited Assumptions Underpinning the Employment Relationship

Whether or not we realize it, researchers and policy-makers bring a set of assumptions to bear on their study of the employment relationship. By and large, these assumptions go unstated and unnoticed until systems that once behaved reasonably well in light of the assumptions—maybe an outlier here or an anomaly there—start to produce as many unexplainable outcomes as they do explainable ones. Our central argument is that the very future of human capital hinges on a large-scale recasting of several key assumptions regarding the employment relationship, away from those developed in the context of an industrial economy to a new set that promotes competition on the basis of workers' productive skills and accumulated knowledge.

The first assumption regarded the geographic scope of competition. Industrial-era theories of employment relations, Dunlop (1958 [1993]) included, assumed that national economies were self-contained. Therefore, it was reasonable for states to set and enforce minimal standards for wages and working conditions and for unions and other labor-market institutions to effectively 'take wages out of competition' (Commons, 1909). Firms may not have welcomed these regulatory floors or the pressures associated with unions and collective bargaining, for example, but these policies and institutions did help to level the competitive playing field within both product and labor markets. Second, clear boundaries were drawn between the economy on the one hand, and households on the other. Their only intersection in the labor market was the dominant male wage-earner, or 'breadwinner'. His wages and benefits were the family's primary support, complemented by the contributions of wives and mothers to non-economic, 'home production'—a role to which they were assumed to be just as committed as men were to their paid work. Third, the job held by the male head of household was assumed to be full-time, long-term, stable, and usually with a very large industrial employer. The fourth assumption dealt with these employers, assuming them to be corporations housing clear, well-understood hierarchies of 'managers' and 'workers' within, and well-defined boundaries between themselves and the external product, labor, and capital markets in which they participated. One consequence of this was that anybody who 'worked for' the firm was an employee, and not a contingent worker, a contractor, nor any other classification that today we might refer to as 'non-traditional'. Finally, out of the New Deal regulations and institutional arrangements emerged an implicit social contract in which long tenure and good performance in an organization were rewarded with wages and employment security that generally grew in tandem with profits and productivity. This social contract served as the glue holding the entire system together.

As noted above, the constellation of institutions that make up incumbent employment systems once effectively internalized many of the costs and benefits of a functioning labor market, including those associated with three areas that are critical to the development and effective use of human capital—phenomena that we will use to illustrate how the system is changing. These tasks are (1) human capital investment and development, (2) utilization of human resource investments in the labor market, with particular emphasis on the changing role of women and work-life practices and policies, and (3) organizational strategies and practices that serve as complements needed to generate the full benefits from human capital—in particular, the role of technology and technological change. Examination of these phenomena reveals the gaps in our present approach to the employment relationship.

Human Capital Investment and Development

Investments in education and training are obviously critical to economies founded upon human capital—a point driven home by the previous chapters in this volume. However, as Blair notes in her chapter, the earliest pronouncements of what came to be regarded as human capital theory—most notably, Becker (1964 [1993])—theorized that much of the human capital required of workers would be systematically underprovided by the normal functioning of a competitive labor market. At the time, however, casual observation, not to mention data, repudiated the theory (for example, Berg, 1970 [2003]). Many employers offered what could only be categorized as general training—confident that their employees, the objects of their investment, would remain with them long enough to deliver anticipated economic benefits. In this way, employment arrangements even managed the provision of continuing education and the training of adult workers. Thus, as the chapters in Part II of this volume emphasize, a deeper and more nuanced theory of the relationship of human capital and firm behavior

was needed to explain this seemingly irrational behavior on the part of employers.

The problem that Becker's theory addressed was that of 'poaching'—a phenomenon forestalled by the once-prevailing stability of employment relationships. But what happens when employment relationships cannot be assumed so stable? To the extent that a single firm invests in training and development, or what is now being called 'life-long learning', and to the extent that some or all of the skills developed are general enough to have value on the external labor market, competitors can 'poach' these workers, leaving the investing employer to bear the costs while the recruiting employer gains the benefits of the newly formed human capital—just as Becker theorized. The way that firms mitigated this market dilemma in the industrial era was through the social contract described above. Firms implicitly promised long-term employment opportunities within their organizations in which employees would gain greater status, job security, income, and retirement benefits, and thus have incentives to stay with the firm. These promises were partly based on trust and norms, but were also reinforced by practices that Doeringer and Piore (1971) labeled 'internal labor markets' (ILMs).

ILMs were a common way of structuring work in the industrial era. In their purest form, the firm initially appoints workers at the bottom rung of a tall, rigidly defined job ladder, ascending in title, wages, and responsibilities according to an accepted set of rules, norms, and customs within the firm. Each function or department has its own ladder, and workers are not expected to cross functions—let alone jump off of one firm's ladder and onto another's. In fact, with this model, job tasks are clearly delineated and arranged in such a way that each job prepares the incumbent for the next, higher job he or she will be holding. Were a worker enticed by another employer, he or she would be reluctant to give up their accrued benefits and seniority, so they became loyal, long-term employees. In the event of an economic slowdown, employers would not want to lay off the human capital in which they had invested, lest they create empty rungs in well-functioning job ladders. This made for loyal, long-term employees. Therefore, as long as ILM structures were stable, a great many employers provided workers with the sort of general training that should have made their workers ripe for poaching. Under the stylized version of the employment relationship described above, an expectation of long-term employment among both employers and employees engendered a level of certainty regarding which parties would benefit from workers' increased productivity—the employer providing the training and the worker in whose mind the newly created human capital would reside. Just how the incremental surplus would be split between labor and capital was probably not completely settled *ex ante*, but workers, often with the help of their unions' role in collective bargaining, could anticipate their accruing some share of these productivity gains in the form of real wage increases. What is more, these investments on the part of firms actually reinforced the strength of existing employment relationships, as employers were more likely to hold onto excess labor through cyclical slowdowns. As noted above, laying off a worker, aside from its violation of norms, meant forgoing any and all future returns to the firm's investment.²

Workers also absorbed human capital in informal ways as they moved through their respective ILMs. Promotions arose, in part, from one's willingness to accept and pass on largely firm-specific skills. Furthermore, more-senior workers felt protected from competition from below, and were thus willing to train those employees on lower rungs of the job ladder. What resulted was an efficient system for training and retraining workers (Osterman and Burton, 2005)—a system that did not even need to appear explicitly on the firm's books.

Firms, however, did not necessarily invest in human capital purely of their own volition—a point often underemphasized in standard economic models of the firm as well as in the more recent transaction-cost, resource-based, and agency models discussed in this volume. Organized labor, for its own part and sometimes in conjunction with firms, played an active role in maintaining and growing the economy's human capital stock. Industrial unions leveraged their bargaining power to demand that workers' training be kept up to date. Some of this training, as we will discuss, was specifically intended to protect against employee displacement resulting from capital substitution. However, in the presence of job security provisions, employer-funded 'upskilling' also served the firm's interests. Along a parallel but separate track, craft unions such as those encompassing plumbers, electricians, and other building trades developed and funded apprenticeship programs, often in partnership with industry-wide employer organizations as well as the state. In sum, the institutions that scaffolded the employment relationship bolstered human capital formation in ways unimaginable under standard neoclassical assumptions of a 'spot market' for labor.

Work-Life Integration

Perhaps less obvious, but equally important to the healthy functioning of a human capital-intensive economy, are the ways it manages the integration of labor's working and non-working lives.³ The term 'work-life integration' most often refers to the costs exacted upon workers and their families from the intensification of the demands placed on them by their employers. Surprisingly, however, there is little discussion in the human capital literature of the fact that many economies have allowed a significant portion of their human capital investment to be underutilized because of assumptions and practices concerning the appropriate division of labor between men and women. This becomes an even bigger problem now than in the past as a clear majority of university degrees in the US are awarded to women, bringing the stock of this one particular form of human capital to within sight of gender equality (US Bureau of the Census, 2008).

We have already seen the benefits of long-term employment for human capital formation. Another upshot of long-term employment was a perception among employers that corporate investments in workers' non-work lives would bring returns to the firm. This view was most notably illustrated in 1913, by Henry Ford's introduction of the five-dollar day—part of a larger benefits package that included what we think of today as profit-sharing. The argument was that by the payment of a higher wage, not only would turnover be reduced, but male employees would earn enough to care for their families (Jacoby, 1985). This way, workers' wives, whom Ford also presumed to be the mothers of workers' children, could attend to home and family duties. That these wages were also high enough for his workers to afford his product was no accident. Suffice it to say that it was beneficial for employers to set wage levels sufficiently high such that the income of a single family member—the man—could dovetail with a woman's full commitment to 'home production' in meeting the needs of family life. In the US it also meant the provision of health and retirement benefits to fill in the gaps left by government programs—a practice later reinforced by public policy. This sort of solution was highly presumptive with respect to workers' preferences regarding the household division of labor, but it implicitly guided employment relations practices for much of the industrial era. It had the negative effect, however, of underutilizing the human capital investments which society made in women's education. Not surprisingly, women were systematically less likely to gain access to employer-sponsored education and training opportunities (Lynch, 1992). This was less of a problem for the overall economy, however, as long as women were willing to specialize in homework and view their paid labor-market activities as secondary to their husbands'. As the educational attainment of women increased and family structures became more varied, the demands to modify this 'male breadwinner' model of employment intensified. Thus there gradually developed the pressure to develop better work-life policies that allow women and men to fully utilize their human capital in the paid labor force.

There are a number of reasons why labor-market forces cannot solve this problem on their own. Drago and Hyatt (2003) point out that a market failure occurs in the production of work family benefits similar to that of human capital investments. Left purely to the market, firms will not provide a sufficient level of benefits to facilitate work-life integration. An individual employer will generally opt not to offer on-site childcare, for example, because they (and those employees without children) would absorb its full costs. That is, prospective employees anticipating demand for the benefit would flock to the firm, but would probably leave the firm once they no longer needed the services of on-site childcare. Therefore, a program that may well provide a net social benefit would prove unprofitable to individual employers. Of course, if all employers offered or contributed equally to the provision of this benefit, prospective workers would spread themselves more or less evenly across the firms, and the problem would vanish.

Aside from some sort of legal mandate, another way to deal with market failures is via coordination through collective bargaining that spreads common rules or patterns across competitors. This point, too, has been underdeveloped in most theoretical models and empirical studies of human capital. Collective bargaining facilitates work-life integration in a number of ways. To the extent which it boosts salaries and workers' expectations of long-term financial security, it softens the opportunity cost attendant to one's reallocation of time and energy from work to non-work activities. Union wage structures, characterized by the Tate for the job' mantra, also standardize pay and benefits. In conjunction with rigid, transparent rules regarding staffing and promotions, this system for wage determination guards against the sort of 'Tat race' that ensues in workplaces in which pay and promotions are determined solely by individual-level and often crude measures of

performance, such as 'billable hours' (Landers *et al*, 1996,1997).

Alternatively, some unions such as the Harvard Union of Clerical and Technical Workers (HUCTW) negotiate explicitly for these benefits. In its contract with Harvard University, it prioritized the delivery of work and family benefits to its members, securing thirteen weeks of paid maternity leave (extremely generous by US standards) with flexibility to use additional time accrued through unused vacation and sick days. Other unions have negotiated with multiple employers to construct more far-reaching programs. For example, the Service Employees International Union (SEIU) Local 1199 in New York City responded to its members' demands for childcare benefit by negotiating with several employers for the creation of an omnibus program jointly funded and administered by labor and management. It now includes over 350 employers, providing childcare centers, tuition vouchers, and even a summer camp for about 8,000 children every year.⁴

Government's role with respect to work-life integration is to 'remove from competition' those aspects of the employment relationship deemed valuable from a social standpoint that could fall victim to market forces. For example, one can argue that even if an individual employer does not benefit from encouraging working parents to take leave around the birth of a child, the long-term benefits to the child, the working parent, the present and future employers of the working parent, and the foregone long-term costs to the state 'net out' to a positive social benefit. Moreover, to the extent that effective work-life policies allow more continuous attachment to the labor force among women, prior public investments in their education and development should reap higher rates of return and potential skill shortages should be reduced. There is tremendous cross-country variation in the degree to which states have undertaken this responsibility by mandating or funding various forms of paid and unpaid leave for childbirth, child-rearing, elder care, and so on, with the US and Australia lagging behind other advanced industrialized nations with respect to these sorts of progressive policies. With some national exceptions, it is fair to say that even under the old social contract of the employment relationship, governments abdicated much of their policy-making responsibilities to employers, who themselves pushed the costs onto the families of their employees. Nonetheless, the employment relationship processed these issues in such a way that working people could afford to work a reasonable number of hours each week without abdicating non-work responsibilities and commitments.

Technological Change

In the industrial era, technology and technological change were largely viewed as capital substitution through automation, resulting in a debate over the net economic and social effects of technological change. To the extent that firms felt committed to their workers, the automation decision rested, in part, on the costs of redeploying labor to other parts of production still requiring labor input. In this way, decisions regarding new technologies, on the one hand, and training and retraining, discussed above, became inextricable. Furthermore, any particular manifestation of new technology could end up being harmful or beneficial to workers, depending upon how the innovation worked its way through the employment relations framework. That is, a particular machine was not in and of itself 'upskilling' or deskilling.

Unions recognized, as one of their chief goals, the protection of workers from the adverse impact of technological changes, including the substitution of power-driven equipment for human strength or investments in machines that are faster and less prone to need repair. Contrary to what some may believe, outright opposition of unions to technological change was just one of many ways in which unions protected their members. In most cases, union leaders envisaged some path by which the rank and file could capture a share of the incremental gains resulting from the new technology. Frequently, union negotiators would elicit a job security pledge from employers in exchange for a promise that workers would be encouraged to embrace the new technology. This allowed managers the freedom, within this one constraint, to decide how labor should be redeployed as well as the nature and scope of programs for training and retraining the incumbent workforce. Unions also bargained for the creation of so-called Automation Funds'—the most well-known of which resulted from the mechanization of the meat-packing industry in the 1960s (Shultz and Weber, 1966). With seed money provided by Armour & Co., the fund, administered by a joint labor-management committee, undertook extensive examination of the adverse effects of 'modernization, yielding a number of creative solutions to keep workers whole. Aside from training and a program of interplant transfers, the committee

embarked on an aggressive placement program, going so far as to visit prospective employers and to make the case for hiring former meat-packers. Programs like this one foreshadowed more extensive programs negotiated by the United Auto Workers (UAW) and the International Association of Machinists (IAM), among others, two decades later.

The public sector has the toughest role of all with respect to workplace technological change. On the one hand, it must maintain a regulatory regime that encourages product market competition, in part, on the basis of technological and production innovations. On the other hand, it has to pick up where existing market and institutional forces leave off with respect to maintaining workforce readiness and dispersing costs associated with technological displacement. As noted above, the responsibility falls on the public sector to realign the system providing workers with general skills training—in this case, the foundational skills required to interact with the new technology or to meet the skill demands of other employers. There are a number of ways to socialize the costs of technological progress. For example, the use of experience rating with respect to unemployment/redundancy benefits places some of the displacement burden on those employers benefiting from new technologies, and some of the remaining share onto those taxpayers presumably benefiting as consumers from the new technology. Laws such as the Worker Adjustment and Retraining Notification (WARN) Act in the US, or the Transfer of Undertakings/Protection of Employment (TUPE) Regulations in the UK, though meant to apply to a broader set of reasons for displacement, exemplify the type of regulations meant to mitigate technological displacement. They do so by providing workers with either severance pay or with time to begin the search for new employment. Finally, it is government's responsibility to fashion and enforce the set of procedures by which workers can unionize, availing themselves of the benefits of collective bargaining in this area, described above. In sum, the institutions defining the employment relationship were able to ensure that steady technological progress came not at the expense of any one party, but instead benefited workers, employers, and society at large.

Signs of Stress on Incumbent Employment Systems

The social contract that held the industrial-era employment system together was far from perfect. Even at its best it was predicated, in large part, on employers' ability to push a great many costs onto women. And it depended on employer behaviors that lasted only as long as labor was strong enough to demand them (Kochan *et al.*, 1984; Jacoby, 1985). Customers also shouldered costs arising in the course of the three phenomena outlined above. In particular, a smaller number of producers with market power—a hallmark of the industrial era—could leverage product market power resulting from relatively inelastic demand for goods produced. Nonetheless, it is only through the social contract's unraveling that we begin to understand the assumptions on which it was based, and there is ample evidence that this process is well under way. Consider the differences in the behavior of America's largest employer before and after the unraveling. General Motors (GM) was America's largest private-sector employer from the 1950s through the 1970s. Its 1950 contract with the UAW provided an 'annual productivity factor' of 2 percent (3 percent in later years) as a way of rewarding workers for productivity increases, over and above regular cost-of-living adjustments. The firm also introduced pensions, health insurance, and joint training funds, establishing a standard that its competitors had little choice but to meet. Thus, GM served as a force for incrementally ratcheting up employment conditions and living standards. Today, Wal-Mart serves as America's largest, private-sector employer. Like GM in prior years, it provides shareholders with demonstrated growth and profitability, and its competitors likewise face pressure to follow the company's employment model (Dube *et al.*, 2007). However, the standard that Wal-Mart sets differs substantially from the standard established by GM in the 1950s. It pays wages that are 30 percent below the national average, and less than half its employees are covered by health insurance or retirement benefits. It has adamantly resisted unionization, and has found itself embroiled in suits over gender discrimination in pay and promotions, refusal to comply with statutory laws regarding overtime pay, and even well-documented cases of locking overnight cleaning crews into their stores (Lichtenstein, 2006).

This contrast highlights some of the longer-term trends revealing cracks and now outright gaps in employment systems. The surge of blue-collar layoffs beginning in the first half of the 1980s signaled that employers were willing to abdicate their historical duty to shield workers

from market vicissitudes. A similar increase in layoff rates for white-collar workers came in the early 1990s, and hinted that ILMs may have begun to change for these workers as well. These layoffs had a source over and above intensified product market competition. Management's middle layers, in particular, found that their roles in communication and coordination could be substituted for with ever-cheapening computing power. The diffusion of IT also contributed to the growth in non-traditional, explicitly short-term and *ad hoc* forms of employment.

Without a long-term mindset, employers no longer view the formation and maintenance of human capital as their responsibility (Cappelli, 1999), implying, as Berg (1970 [2003]) has argued, that Becker's propositions regarding general training may have finally found some support in the data. The resulting training gap, aside from its obvious consequences for the economy, proves problematic for an additional reason. Employers actually set skill requirements and choose the technological tools that workers must learn to use. In other words, employers not only had the incentive to train—which now must be internalized some other way—but also had information on the composition of training demands, beneficial to the entire economy.

The widening distribution of incomes offers the most obvious manifestation of the ensuing general skills gap (Autor *et al.*, 2008). What is more, the adoption of new technologies, namely IT, in the workplace appears to be one of its chief causes, producing a phenomenon which economists label 'skill-biased technological change' (SBTC) (Acemoglu, 2002; Krueger, 1993). SBTC refers to the widening of the income distribution with respect to workers' stock of general human capital, typically measured as years of education. According to this theory, increases in earnings inequality result from the introduction of new technologies—computers and other forms of IT—which then increase demand for the highly skilled workers who use them. Just as employers increase their demand for highly skilled workers, they find it easier to substitute the new, inexpensive technology for their low-skilled workers, further exacerbating earnings differentials with respect to skill. Therefore, it appears that at the very time employers are abdicating what had been their responsibility to provide general human capital, technological change has actually made some of this human capital increasingly indispensable to both firms and workers.

Even this perverse consequence resulting from our outmoded, industrial era employment system could potentially be forestalled by the presence of trade unions. Depending on the particular circumstances, unions would probably accept, if not encourage, management's embrace of IT. However, they would also work to negotiate employment security as well as programs for training, retraining, and the redeployment of low-skilled workers. This would enable the technology to deliver its intended increases in productivity while spreading the costs of technological adjustment. However, in the wake of the precipitous decline in trade union density across Anglo-Saxon economies, most workers cannot rely on collective bargaining in this way. The result has been a crisis of life-long learning—potentially crippling for an economy rooted in human capital.

The absence of unions as a countervailing power is felt in yet another way. In the industrial era it was assumed that technological change would naturally result in capital substitution were it not for the strong tactics and demands of trade unions. In this way, collective bargaining dislodged notions of technological determinacy. When unions held sway over employers, firms had little choice but to undertake a 'high-road' strategy with respect to technological change. If firms wanted to adopt new technology, they generally had to find a way to do it with their existing workforce. As noted above, this meant that new technology brought increased investments in human capital. However, it also meant that labor would receive a prenegotiated share of the gains resulting from the technology, leaving the remainder of the pie—however big or small—to the firm's owners. Therefore, investments in technology actually drove managers to better manage all production inputs, including labor.⁵ This meant, among other things, reorganizing work to make optimal use of the technology, incentivizing workers, and often empowering them with increased shop-floor authority to use the technology as they saw fit. Those plants that followed this path, introducing new technologies alongside innovative employment practices, indeed performed better than plants which attempted to manage without workforce buy-in or work reorganization, revealing performance complementarities occasioned by simultaneous investments in both human and technological capital (MacDuffie, 1995). Moreover, those plants that took the 'low road' were generally forced to compete on price (Arthur, 1992). As previous chapters have shown, when firms can draw on less expensive labor from developing countries, this is much less likely to be a source of sustainable competitive advantage relative to competition rooted in product quality or some other form of product

differentiation.

It is with respect to work-life integration that the strains on legacy employment systems are perhaps most acute. After all, 'family-friendly' policies or other attempts at so-called 'flexibility' did not appear at GM until late in the 1990s, long after the firm's reign as model employer had passed. The public sector has only recently taken action in Australia, and is yet to do so in the US. Nonetheless, the challenges of work-life integration appeared relatively contained through the 1970s, due largely to the plurality of mothers and wives willing to specialize in home production. In the US, 70 percent of mothers in two-parent families now work in the paid labor force. Women with children in families near the median income have added, on average, 535 additional hours (about thirteen weeks) of paid work per year since 1979—an increase of nearly 56 percent! Men in this same category also saw increases, though much smaller in magnitude, netting out to an 18 percentage point jump in the number of annual hours worked per family. Given that three-quarters of the increases in family incomes come from the additional work hours of wives and mothers, it is safe to say that women have been used as an economic 'safety valve' over the last two decades (Mishel *et al.*, 2007). Indeed, employers mitigate the effects of trading off time at home for time at work by introducing 'family-friendly' benefits. However, these benefits are disproportionately made available to managers and professionals (Kochan, 2005). Even for these white-collar employees, career concerns and workplace culture have discouraged their use (Baird and Litwin, 2005; Eaton, 2003).

Revisiting Assumptions

Contrasting GM and Wal-Mart has crystallized much of what has been detailed earlier in this volume on the distinctions between industrial economies and human capital or knowledge economies. Those chapters also detail the causes, not just the consequences, of the transition. What is clear for us, however, is that the basic assumptions underpinning the employment relationship require revision.

Globalization—particularly the dissolution of borders with respect to the movement of capital, labor, and product—undermines the power of individual nations to regulate their labor markets in ways that encourage the right kinds of competition. Employers are correct when they argue that artificial floors on wages, benefits, and working conditions challenge their ability to compete in the product market. Thus, in one sense, former Wal-Mart CEO H. Lee Scott is right to dismiss our comparisons to the GM of an earlier era.

Some well-meaning critics contend that Wal-Mart should be setting the pace for wages and benefits for the entire economy, just as a unionized General Motors was said to have done in the postwar period, helping usher in the great American middle class that this country is so proud of and rightfully so. The facts are that retailing doesn't perform that same function in the economy as GM does or did. Retailing has never occupied the top tier of wages in this country, or in any country. (Greenhouse, 2005)

It is also true that many employers, particularly in the service sector, now create opportunities for those other than the full-time, long-term, 'ideal worker' envisioned in an earlier era, perhaps appealing to second and third earners—homemakers and students—in their households. This begins to compensate for the fact that full-time positions often pay too little to support a family. Finally, it is now the case that firms grow and shrink their employment rolls in response to market shocks—layoffs or redundancies. But they also do so in response to temporary and immediate demands for specific skills: human capital. Due in great part to IT, these human capital demands can often be more easily and more conveniently met not by establishing a conventional 'in-house' employment relationship, but by outsourcing—taking advantage of one of the new, harder-to-define forms of employment assumed away in the conventional picture of employment. And it is the various forms in which these 'human capitalists' present themselves—-independent contractors, freelancers, or temporary/contingent workers—that most obviously breaks the mold formed by existing assumptions. If they are not employees, how can they bargain collectively? What rules govern their interactions with firms, guaranteeing the rights and benefits more easily delivered under the held-over model of employment? More specifically, how will the economy once again cultivate labor's knowledge, skills, and abilities? How will it alleviate the stress, frustration, and insecurity attendant to emergent employment systems? And how can economies ensure that new technologies—particularly IT—allocate gains to a wide range of stakeholders? How managers and policy-makers respond to these sorts of questions determines the future of human capital, and begins with a thorough recasting of the assumptions underpinning the employment relationship.

Recasting Work Arrangements for a Human Capital-Intensive Economy

So, how can we encourage the right work arrangements for this post-industrial, human capital-based economy? The answer must begin by highlighting the assumptions that require change as economies move from a more national-based industrial economy dominated by male breadwinners, to a global knowledge-driven economy with a diverse workforce and varied family arrangements. However, we first consider the one assumption that fits employment systems old and new the centrality of trust. We use 'trust' here in its broadest sense to mean the ability of two or more parties to share strategic or valuable information with each other without fear that it will be used to undermine one's interests. This type of trust is essential to sustaining productive interactions both within and across organizations. It is trust itself that has decayed and must be restored if organizations and national economies are to transition from industrial-era shareholder-dominated corporations to knowledge-based, human capital-centered companies capable of thriving under the new paradigm. Without trust, employers would have to abandon much of the human capital 'value proposition' articulated in previous chapters. For example, one way that human capital drives value is by pushing decision-making authority out to the front lines, empowering workers to use their own discretion to solve problems and to meet customer needs. This transforms the role of supervisor to one of coach and mentor, himself or herself guided by the idea that those closest to the work and to the customer are best positioned to make key decisions. It also requires that the organization and its managers respect and reward employees based on their contributions of human capital to the firm's goals. In this volume, Chapters 11 and 15 touch on the range of empirical substantiation for the performance effects of innovative employment practices that now abounds in the literature.⁶ The importance of trust also carries over into supplier relations. MacDuffie and Helper (2006) have demonstrated that an important part of Toyota's competitive advantage over US auto companies lies in the trust which the company has built in supplier relationships—trust that allows for information-sharing and joint efforts to improve products and processes. The alternative—focusing solely on price reductions as one might with spot-market transactions—led to lower trust relationships, lower quality, and further loss of competitiveness in this industry. The implication is that trust continues to matter as a source of value, even when human capital is delivered by 'suppliers' rather than by employees *per se*.

Organizations, alternatively, can forgo the implementation of innovative employment practices, instead maintaining a 'command and control' or 'low road' approach in which workers defer to their managers for instruction and withhold their knowledge, expertise, and ideas. While unions may no longer be able to pressure firms into taking the 'high road' business strategy—a deliberate choice on the part of managers and their organizations—will be a key determinant of whether or not the new economy generates more efficient and more equitable outcomes than is currently the case. Empirical research conducted in retail banks (Hunter *et al*, 2001; Autor *et al*, 2002; Hunter and Lafkas, 2003), call centers (Batt, 1999, 2002), and machine shops (Kelley 1990), among other settings, has shown that management shapes how similar or identical forms of IT are applied in production, either to boost workers' skills, productivity, and earnings, or to reduce labor's power and role in production. IT can play an important role in promoting a knowledge economy by making it relatively inexpensive to push previously centralized information to frontline workers (Brynjolfsson and Mendelson, 1993). This enacts aforementioned complementarities between human and technological capital—complementarities that obtain even where technology allows for highly standardized work if, for example, variation exists in customers' expectations, needs, and potential value to the organization. Likewise, complementarities obtain where the technology generates output that requires human interpretation before this information can be communicated to the customer (Batt, 2002). Under these circumstances, attempts to deploy the technology without adopting the human capital elements of the new work system—usually some form of decentralized decision-making, team-based production, and incentive pay—generate little or no performance benefit (Brynjolfsson *et al.*, 2002; Bresnahan *et al*, 2000,2002). The lesson is that while unions are no longer able to pressure firms into taking the 'high road', firms ought to be encouraged by the prospect of complementarities to make this choice on their own. From either macroeconomic or organizational perspectives, it is clear that complementarities between human capital and IT rather than computers *per se* have been the real engine of economic growth (Black and Lynch, 2004; Bartel *et al*, 2007).

All of these fruits of a human capital-centered economy turn, not surprisingly, on workers being well-trained and well-prepared for their

new roles. It is therefore somewhat ironic (and unfortunate) that the old employment model was better poised to provide workers with human capital. As noted above, the onus fell largely on employers willing to invest in workers, based on mutual expectations of a long-term employment relationship. Given the decline in expected duration of employment as well as the increasing share of work done outside the boundaries of traditional employment, it is no longer a safe bet for workers to rely on their employers in this way. Thus, more of the investment burden now falls on individuals, extra firm labor-market institutions, and government.

Trade unions, as noted above, have historically played an active role in training initiatives. Where they remain, many continue in this effort to keep their members' 'current' and employable. The IAM—one of the more pioneering industrial unions on this issue—has worked with one its largest employers, the Boeing Corporation, to develop a number of training programs (Long and Barrett, 2004; Barrett *et al*, 2003). These are designed around structural and technological changes in the industry—namely, the shift from traditional materials to so-called 'composites', and the firm's goal to devote US production facilities to the high-value-added parts of the fabrication process. Without these training programs, managers would face a discrepancy between the skills they need and those of their incumbent workforce. Likewise, those low-seniority workers made redundant by competitive pressures would at least re-enter the labor market with cutting-edge, in-demand skills.

Unfortunately, the training needs of those working under the less conventional and less permanent arrangements characterizing the new human capital economy are not accommodated by the traditional industrial union model. Indeed, it is this idea that motivates Chapter 12 above, which details two of the ways that firms now go about acquiring human capital rather than developing it in-house. Of course, that still begs the question of who will invest in and develop this general human capital. These workers must take charge of monitoring and maintaining their own skill sets. However, inspiration for the new types of institutional support comes from two sources: craft unions and professional associations. This is not surprising. Both of these organizational forms, even in an industrial economy, serve the needs of those whose primary contribution to the economy is knowledge rather than physical strength or dexterity. Both serve workers who are likely to feel at least as much of a long-term commitment to their craft or their profession as they do to the actual organization for which they work. Craft unions and professional associations are also well-positioned to maintain and signal high standards and to leverage scale economies in the delivery of training. Perhaps even more critically, these organizations can provide advantage for their members by forecasting technological changes and innovations and anticipating the resulting and ever-changing skill requirements.

Professional associations serving accountants, nurses, and civil engineers, and even lower-skilled occupations such as nurses' assistants and home healthcare attendants, provide good models of 'continuing education' (Kochan, 2005).⁷ So do craft unions, with their well-developed apprenticeship systems.⁸ Indeed, increasingly, craft unions are extending their reach to provide skills training to previously disenfranchised minorities to prepare them for 'green-collar' jobs in residential construction and building retrofitting (Pollin *et al*, 2008). This may be one way in which unions and professional associations redefine and reassert their role in the contemporary economy. An additional avenue by which professional associations could assert themselves is as 'representatives' of, or at least suppliers of, resources for those working under non-traditional employment arrangements. The most prominent and successful attempt to undertake this responsibility in the US is a New York City-based group founded as Working Today and now called Freelancers Union. Freelancers Union provides its members with much of what craft unions provide for their members—namely, different forms of health and welfare benefits. Unlike a standard craft union, the Freelancers Union serves those with a wide mix of skill sets. However, the group does provide, among other things, training around issues common to freelancing, such as self-promotion through new media, budgeting for a 'business of one', and legal and tax issues around freelancing.

Finally, how can we ensure that the new economy addresses work-life integration better than it does at present, and more equitably than the institutions that appeared to address these issues in the industrial era? On the one hand, government can enact and fund paid forms of leave around childbirth and other major life events and responsibilities. However, even the most cooperative firms will find career-driven employees reluctant to take advantage of these benefits unless norms support their use. Thus, once again a collective action problem must be faced. This can only be done if employees collectively begin to voice their preferences and needs for flexibility to integrate their work and

family responsibilities. While this need not and may not take the form of a traditional union, some functional equivalent of an employee voice mechanism may be required.

Toward the Future

The message from this reassessment is that significant institutional and policy reform will be needed in economies that want to grow, raise living standards, and achieve a more equitable distribution of income by making full use of all their human capital resources. We have focused on three challenges once addressed by the employment relationship that now require institutional and/or policy changes. The first is that paradoxically, just as human capital is becoming more critical to both individual firms and national economies, the decline in the expected duration of employment relationships and the weakening of union pressures reduces the willingness of individual firms to be a source of human capital investment. As Cappelli *et al.* note in Chapter 12, new external institutions—search firms and temporary help agencies— will need to play a bigger role in identifying and allocating talent. Professional associations and unions will need to expand their training, development, and placement roles. Government policy-makers will need to encourage formation of industry and/or labor-market networks that pool investments in training.

Second, the central role which women now play in the paid labor force implies the need to modify traditional assumptions about work and family life, norms, and expectations to support flexible work arrangements, and public policies to ensure that flexibility is widely available across the labor force. Failure to adapt to changes in work-family patterns risks systemic underutilization and low rates of return on women's human capital.

Third, new technologies need to be implemented in ways that not only deal with worker concerns for potential or real displacement, but in conjunction with changes in work practices needed for these technologies to generate their highest returns. This requires a different mindset—one in which technology and human capital are seen as complements rather than as substitutes.

All three of these changes in turn require new roles for government, employers, and labor organizations. Government will need to play a stronger role in coordinating private actions to overcome the market failures inherent in individual-firm-based human capital investment decisions. Labor unions, professional associations, and other groups that emerge to represent workers, will need to expand their roles as providers of education and training and as networks that link members to changing job opportunities. Finally, employers will need to become more engaged in the networks of firms, associations/unions, educational programs, search firms, and others that are becoming key sources of human capital development and allocation. In short, the key to achieving and benefiting from a human capital-led economy lies in developing modern extra-firm institutions in addition to innovative public policies. Indeed, this is needed to overcome classic market failures that arise from the competitive behavior of firms operating without institutional constraints. Thus, taken together, the changes in the economy, workforce, and workplace practices reviewed here illustrate that a complete theory of human capital and its role in the modern economy requires going beyond firm-centered theories to incorporate the full range of features that constitute an employment relations system.

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Notes

1. Chief among these in the US are healthcare, pensions, and paid time off—much less the province of the public sector than they are in other Anglo-Saxon economies.
2. Cappelli's (2004) analysis of the corporate provision of general training shows firms to be concerned primarily with the deleterious effect of layoffs on the firm's stock of social capital, and Nahapiet's Ch. 2 above provides more detail on the intersection of human and social capital.
3. Frequently labeled 'work-family balance', we prefer the phrase 'work-life integration'. This underlines that workers have idiosyncratic preferences for how they allocate their time and energy between work and non-work activities (Rapoport *et al.*, 2002). It also allows for workers' non-familial but also non-working interests to figure into consideration, for example, community volunteering and civic responsibilities (Gomez and

Gunderson, 2003).

4. Kochan (2005) details these and other initiatives.
5. This process, often referred to as the 'union shock effect', is usually attributed to Slichter (1941). However, Verma (2005) points out that Slichter never actually used this phrase.
6. Boselie *et al.* (2005) catalogue much of the empirical work to date in this area, and pay special attention to the varied methodological and theoretical paths taken by researchers.
7. Osterman *et al.* (2001) provide detailed examples of some of the government, institutional, and hybrid arrangements that have emerged in the US.
8. It is also worth noting Autor (2001) finding that temporary help supply (THS) firms often fund workers' computer training. While this service is welfare-enhancing and particularly valuable to its participants, the model does not readily extend to life-long learning. It is also predicated on workers' self-selection as a signal of their latent ability, suggesting that it would break down entirely were it to be institutionalized as a method for workers to develop their human capital.

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