

THE BUSINESS BENEFITS OF SKILLS

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Introduction

Two powerful economic forces—technological change and globalization of markets—have rapidly shifted the sources of competitive advantage. These forces have converged to create a growing “skills premium”—both for individuals and organisations. The growing skills premium, in turn, has profound implications for nations’ evolutionary paths—particularly those that have historically been “high wage.” The continued ability of nations, firms and individual employees to enjoy high wages and high profits will increasingly depend on the efficacy of policies and practices—both public and private—that promote skill development and the optimization of human capital.

This paper addresses these issues. The paper begins with an introduction that elaborates on the impact that technology and globalization are having on both employees and employers. The second section discusses economists’ understanding of these developments, both from a theoretical and empirical perspective. The third section lays out the logic (and evidence) that points to the conclusion that the future competitive advantage of both firms and individuals in high-wage, developed nations will depend upon superior human capital management and development. The final section outlines the implications for both public policy and private (organizational) policies and practices.

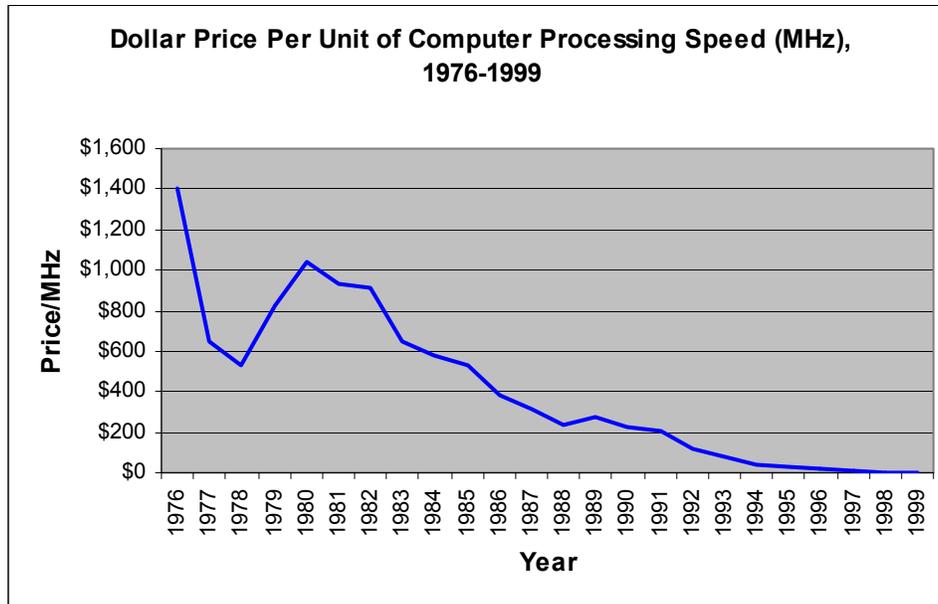
At the outset, we should note that the paper is decidedly “U.S.-centric,” relying heavily on U.S. data and scholarly publications. This is driven in no small part by the fact that this is the perspective and scholarship with which we are most familiar. But it is also driven by our belief that there is much for other high-wage nations to learn from the U.S. experience. The U.S. economy, while high-wage, is not the most highly educated/skilled. In essence, it is an economy that has enjoyed a high-wage, high-profit, (somewhat) low-skill equilibrium. As the argument that follows suggests, this equilibrium is unsustainable, with ample evidence that it is already eroding. Hence, other relatively high-wage/low-skill developed nations may benefit from this perspective on the U.S. economy.

I. Technology, Globalization and Skills

The past quarter of a century has brought with it dramatic changes in technologies. Tremendous increases in computing power have been accompanied by equally significant reductions in the price of that power. Research by Berndt, et al. (2000) finds that the average processing speed of a desktop computer is over 300 times greater in 1999 compared to 1976. And adjusted for quality change, their best estimate is that the price of personal computers has fallen by a factor of about 1,000 during the same time period. See Figure 1 for a graph of the decline in price per unit of processing speed.

The resultant increases in digital capacity and accompanying declines in the price of that capacity have caused fundamental and dramatic shifts in the very nature of work. The tremendous power of significant computing ability, now increasingly available to all organisations, has changed the way work is done, the way business is conducted, and even what products and services are offered by organisations.

Figure 1.



SOURCE: Berndt, et al. (2000).

These technological and other shifts have helped to drive an increase in demand for “skilled” labor – those individuals who have the cognitive capacity, along with the skills and knowledge, to work in this new, digital environment. At the same time, there has

been a decrease in demand for “unskilled” labor—particularly those categories of workers for which machines can, with increasing cost-effectiveness, be substituted for brawn. This has contributed to the increase in the “price” of brains (and a decrease in the price of brawn). Table 1 shows inflation-adjusted hourly wages by different education levels (with education serving as an admittedly imperfect proxy for skills). Real wage for college graduates increased by approximately 19 percent from 1973 to 2003, while wages for high school graduates were almost identical in the two years, and wages for workers with less than a high school education declined by over 14 percent.

Table 1.
Real Hourly Wages, by Level of Education (2003 dollars)

Year	Less than High School	High School Graduate	College Graduate
1973	\$11.83	\$13.56	\$19.77
1978	11.62	13.44	19.09
1983	11.01	12.83	19.14
1988	10.73	13.06	20.80
1993	9.84	12.43	20.24
1998	9.76	12.85	21.91
2003	10.12	13.57	23.44

SOURCE: Mishel et al. (2005), Table 2.17.

Similarly, regression analysis by Mishel et al. (2005) finds that, after controlling for various demographic variables, the wage premium for college graduates relative to high school graduates increased by 16.2 percentage points for males between 1973 and 2003, and by 8.4 percentage points for females, all else being equal. Similar comparisons of high school graduates versus individuals with less than a high school education found that the wage premium for high school graduates increased only slightly over the same time period.

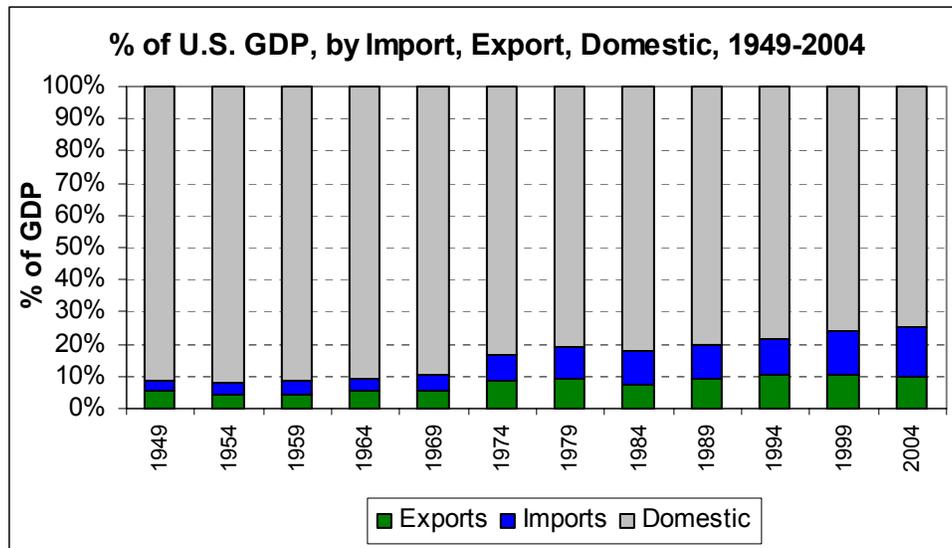
In a nutshell, the technological change that developed nations have experienced is what economists refer to as “skills-biased”¹ – by increasing demand for more highly skilled workers, the changes favor those workers with higher skill levels (such as college

¹ See, e.g., Berman, et al. (1998); Machin and Van Rens (1998).

graduates), while disadvantaging less skilled workers (such as those with less than a high school education, and increasingly, high school graduates as well).

At the same time that these technological changes have been underway (and no doubt in part because of these changes), economies have become much more globalized. For example, as can be seen from Table 3, the percentage of the U.S. economy that consists of imports or exports has increased quite dramatically over time, from less than 9 percent of GDP in 1949 to over 25 percent of GDP in 2004 (see Figure 2).

Figure 2



As markets for goods and services have become more globalized, so too have the labor markets that support the production of those goods and services. The globalization of labor markets is largely independent of the movement of people/workers across national boundaries. Rather, it is driven by the movement of products and services across boundaries. As economies have opened, and manufacturing (and more recently service) jobs have moved from high-wage, developed nations to low-wage, developing nations—labor markets have *de facto* become globalized.

This globalization of labor markets has two effects for both individual workers and for their employers. First, it increases the size of the market available for the products and services being produced. This has the effect of raising wages and profits for the workers

and employers. Second, it increases the numbers of competitors—both for workers and for employers. This has the effect of lowering wages as well as profits.

For workers and employers in high-wage, developed economies, the net effect of these two offsetting forces appears to vary across the skill distribution. For low-skill workers and their employers, the second effect appears to dominate the first. Hence, while the size of the market for the goods/services they produce has increased because of globalization, competition has increased more. Hence, those employees (and some of their employers) at the bottom of the skill/education distribution in high-wage economies have suffered (as noted previously in Table 1).²

Employers have options available to them to counter these forces that are not available to the majority of workers. Employers can move their operations across national boundaries, an alternative that is typically not available (or desirable) to low-skill workers. The increase in “offshoring,” while currently still relatively limited,³ is testimony to the power of the globalization forces heretofore noted.

It is possible, indeed even likely, that offshoring itself (despite the prediction of some expected overall economic gains from economic theory⁴) is only a stop-gap solution for employers in high-wage, developed economies that rely on low-wage labor in developing economies. As local knowledge and expertise grows as a result of increased offshoring, this strategy for preserving profits may become less viable as the world economy continues toward ever-greater globalization.

² Firms that operate in sectors of the economy that are impervious to international competition—those whose products and or services must be locally produced—are buffeted from the negative consequences of globalization. The workers in these sectors, however, are not immune from these forces, since they must compete with workers who are being dislocated from import-sensitive industries.

³ U.S. Department of Labor data indicates that about 2.3 percent of all extended layoffs were due to companies relocating work out of the country (Brown 2004). (This affected approximately 10,700 jobs in the first three quarters of 2004.) A policy brief by the Brookings Institution, on the other hand, used existing estimates to assess the possibility that offshoring could result in 250,000 layoffs per year, yielding a large effect on the labor force over time (Brainard and Litan 2004).

⁴ For a discussion of the theory and current contradictory evidence on this topic, see Brainard and Litan (2004).

At the other, very high, end of the skills distribution, the net effect of increased market size accompanied by increased competition would be expected to be the reverse. In other words, the positive effects from the increase in the size of the market for the goods/services that highly skilled workers and their employers produce tends to outweigh the negative effects of increased competition. These employees and their employers might continue to view the world as “their oyster,” even as low-wage workers find themselves in an increasingly difficult economic position.

Between the two extreme ends of the skills continuum, the net effect becomes more difficult to predict. It is undoubtedly very much influenced by technological change. Although the movement toward offshoring began with production jobs, it soon extended into some areas in the low end of the service industry. Data processing jobs were among the first to move overseas, followed by call centers and programming positions. Now, even some accounting and R&D jobs are being offshored.⁵

This sequence suggests that the net negative effect of globalization on wages will have a growing effect on service workers higher up in the skills distribution with the passage of time. The title of a provocative 1995 article asked “Are Your wages Set in Beijing?”⁶ It seems increasingly likely that the answer to that question will be “Yes” for a growing segment of the labor force.

And ultimately, if some pundits are correct, not only may high wages be in jeopardy, but so too high profits, as offshoring enables developing, low-wage economies to more easily develop the expertise necessary to out-compete companies and industries that have turned to offshoring as a current solution.

If this (admittedly dreary) line of argumentation turns out to be correct, there are only two options for sustaining high profits and high wages in developed nations. The first is to work relentlessly to escalate the skill levels of individuals and societies. The second is to

⁵ For an additional summary of offshoring trends, including non-production jobs, see the white paper prepared by the Office of Senator Joseph Lieberman (2004).

⁶ Freeman (1995).

develop superior capacity for managing those skills and “human capital” more broadly. Employers’ decisions and capabilities will be instrumental in determining whether either or both of these avenues proves successful. The two sections that follow explore each of these areas in additional detail.

II. The Economics of Employer-Provided Skills⁷

Theory

The Nobel prize-winning economist, Gary Becker, produced the seminal work on the economics of employer-provided training. The predictions that emerge from Becker’s model, in which he describes the incentives that workers and firms face for investing in human capital (Becker 1964), are the following:

- Firms and workers “share in” investments in training workers to develop firm-specific skills that are productive at the current firm but not at other firms. Firms finance such training, but the cost is also borne partially by workers who are paid lower wages than they could earn elsewhere if they were not receiving training. After training, these workers receive a wage that is higher than they could earn elsewhere, but lower than the value of the product/service that they produce (hence enabling the firm to recoup the value of that portion of the training that was firm-financed).
- Firms are unwilling, however, to invest in general skills training (that which has uses at a variety of firms) for their workers, because they cannot recoup their investments in general skills training because workers can simply move to new firms if they are paid less than their marginal value product. As a result, workers themselves must bear the cost of any general skills training that they receive, either directly or by accepting lower wages.

A number of recent refinements to the standard Becker model have been suggested, to help explain why firms might still opt to invest in general skills training. These

⁷ Portions of this section were excerpted from Bassi et al. (2004).

hypotheses focus on “frictions” (deviations from perfect competition) in the labor market that enable firms to capture part of the returns to general skills training (Acemoglu and Pischke 1998, 1999a,b), as well as the role of training in screening worker ability (Autor 2001). The key thrust of these more recent developments in the literature is that firms as well as workers may be willing to pay for general skills training, although in general we would still expect that only firms would be willing to pay for firm-specific training.

Evidence on the Effects of Training on Workers

Becker’s arguments (as well as most subsequent arguments) assume that training enhances the productivity of workers and their firms. Empirically determining the degree to which this is true in practice has proven to be difficult. That firms voluntarily train workers might be viewed by some as *prima facie* evidence that training produces a sufficiently large gain in productivity to justify the costs. Yet private training may simply be a form of worker consumption, as appears to be the case with employee involvement programs (Freeman and Kleiner 2000). Alternatively, training may simply serve as a signaling device for productive worker attributes that are difficult for firms to observe directly (Spence 1973, 1976).

Much of the research to date on the effects of private training on productivity has relied on micro-data for individual workers, in which productivity is typically measured through wages.⁸ This type of analysis, however, will miss any gains in productivity that arise from training that are captured by the firm rather than the worker, as may occur when there are labor market frictions (Acemoglu and Pischke 1998, 1999a,b),⁹ or may confound the effects of training with those of worker ability.¹⁰

⁸ These studies relate the training participation and productivity of individual workers using data obtained from surveys of either individuals directly, or of firms (who are then asked to report on selected workers). See for example Barron, Black and Loewenstein (1989), Brown (1989), Lillard and Tan (1986), Holzer (1990), Booth (1991), Bartel (1992), Lynch (1992), Mincer (1993), Groot, Hartog and Oosterbeek (1994).

⁹ Studies by Bishop (1994) and Bartel (1995) attempt to address many of the problems with wages by focusing on worker performance as judged by subjective supervisor ratings (either on a survey or as part of the company’s performance scoring system). Krueger and Rouse (1998) supplement earnings and subjective productivity assessments with other productivity measures such as job attendance, although these data are only available for employees in two firms.

¹⁰ Bartel (1995) attempts to address this endogeneity problem by using the employee’s salary relative to others within the firm in the same job category as an instrument for training participation.

Moreover the micro-data that have been used in this literature are limited in a number of ways (Brown, 1990). First, many studies obtain individual-level data by asking firms to report information on the most recently hired worker. This practice may lead studies to understate both the prevalence and effects of private training if workers in high-turnover jobs are less likely to receive or benefit from training (Lynch and Black 1998). National population surveys such as the Panel Study of Income Dynamics and the National Longitudinal Survey may provide more representative samples of workers, but typically provide relatively little information about respondents' firms (Brown 1990; Lynch and Black 1998). And most studies rely on workers to self-report their training experiences, which may lead to substantial measurement error with the key explanatory variable of interest (Bartel 1995).

Evidence on the Effects of Training on Firms

Findings in Europe

Other research uses firm-level data to identify the impact of human capital investments on firm performance. Two reviews of this research are particularly noteworthy. The first literature review concludes that “increasingly, studies provide evidence that training generates substantial gains for employers. The most compelling evidence is presented in several recent papers connecting training investment with changes in productivity, profitability, and stock market performance.” This review (Hansson et al. 2003) highlights six specific studies that most strongly support this general conclusion: Barrett and O’Connell (1999), Dearden et al. (2000), Groot (1999), Hansson (2001), d’Arcimoles (1997), and Bassi et al. (2001).

The Hansson review is the most comprehensive review of the firm-level evidence. We would also note that, with the exception of the last article cited above, all of the key articles cited by Hansson et al. used data from one or more European countries. This reflects the fact that there is generally better data on firms’ investments in employee development available in Europe than there is in the United States.

The second recent review of literature that uses firm-level data focuses primarily on U.K. research (Tamkin et al. 2004) summarizes the main findings of that research as follows:

- “The evidence is that the benefits to the firm exceed the wage costs paid back to the individual.
- High performing firms employ better educated people than low performers.
- Better educated workforces are associated with higher productivity and other organizational outcomes.
- Matched plant research has suggested skills are an important component of the skills gap with competitor nations.
- Higher levels of training are associated with positive business benefits in several studies but not all
- There is mixed evidence regarding the kinds of training and their link to business outcomes.
- Evidence suggests consistent trainers achieve greater returns.”¹¹

Findings in the United States

The firm-level data that served as the basis for the studies summarized in the two literature reviews noted above have been unavailable to most researchers on U.S. firms, and hence, most of the U.S.-based literature has been confined to examining aspects of firms’ training other than the actual spending level on training. Nonetheless, there are important conclusions that have emerged from the analysis in the United States as well.

Effects on productivity, sales, and profitability: Bartel (1994) presents one of the first attempts to estimate the effects of training on productivity in U.S., using a 1986 sample of 495 U.S. manufacturing firms. She finds that the provision of training programs between 1983 and 1986 is positively correlated with firms’ 1986 sales per employee. However, the key explanatory variable of interest in her analysis is simply an indicator for whether the firm provides any formal training to employees, and not the dollar amount spent on training.

Holzer et al. (1993) analyze data for 157 Michigan manufacturing firms that had applied for state subsidies to support private training programs. They find that receipt of a training subsidy increases training hours within a firm by a factor of two to three in the

¹¹ Tamkin, et al. (2004), p. 29.

short term, and reduces output “scrap rates” by around 13 percent. The dollar value of this reduction in scrap rates is between \$30,000 and \$50,000 per year. The survey does not, however, identify the training costs actually borne (invested) by the firm.

Black and Lynch (1996) analyze data from the National Center on the Educational Quality of the Workforce (EQW)’s national 1994 telephone survey of 2,945 private firms with more than 20 employees.¹² Respondents were asked to report on a variety of 1993 firm characteristics, as well as questions about training practices such as whether the firm provides any formal or structured training or any informal training to its employees. The survey does not include information on firm training expenditures, or any information that would enable us to convert the available indirect training measures into dollar terms. Black and Lynch find that the log of the number (or proportion) of workers who are trained in either 1990 or 1993 does not have a statistically significant correlation with the log of the firm’s 1993 sales for either manufacturing or non-manufacturing firms. The provision of computer training has a positive, statistically significant correlation with sales for non-manufacturing firms (although only at the 10 percent significance cutoff), but not for manufacturing establishments. Interpretation of these estimates is complicated further by the fact that the EQW provides only cross-sectional data on firms, which limits the authors’ ability to control for unmeasured firm characteristics.¹³

In one of the few U.S.-based studies that analyzed actual training expenditures, a recent analysis of financial institutions conducted for the American Bankers Association (2004) found that those financial institutions with higher-than-average training expenditures per employee subsequently had better outcomes than other institutions on five key financial measures examined: return on assets, return on equity, net income per employee, total assets per employee, and stock return.

¹² Our discussion of the EQW survey data draws on Black and Lynch (1998); also see www.irhe.upenn.edu/~shapiro/.

¹³ For further discussion of this literature see Bartel (2000).

Effects on employee retention: Heskett et al. (1994) found that one of the most important predictors of whether an employee will stay with his/her current employer is the employee's satisfaction with the opportunities provided for learning and development. Further, the same study found that a firm's ability to retain its key employees is, in turn, a fundamental determinant of a number of important outcomes, such as customer satisfaction, sales per employee, and market capitalization.

Effects on customer retention: Research by ASTD (2000) found that there is a powerful correlation between training expenditures per employee and firms' customer retention rates. This can have a significant effect on firm performance. One study found that a 1 percent reduction in customer attrition can add as much as 5 percent to a company's bottom line (Peppers and Rogers 1993).

Other Significant Factors Affecting Firms' Training Decisions

Current Accounting and Reporting Treatment

It is an accepted tenet of economics that a necessary condition for maximizing profitability is for the firm to invest in each "factor of production" – labor, capital, natural resources, etc. – up to the point at which the marginal return on an additional dollar spent is the same for each of the factors. Over-investment in any particular factor will result in a lower return on that factor. Similarly, an under-investment in a factor will result in a *higher* return on that factor.¹⁴

To put it another way, if a business is allocating its scarce resources efficiently, it would find that, at the margin, its "return" on investments in its people is identical to its returns on investments in its other factors of production. If returns on certain factors are higher than returns in other areas, we would conclude that the firm is under-investing in that factor. As discussed in the following subsection, this is exactly what we find in the area of human capital investments. Specifically, our research suggests that returns to

¹⁴ The marginal return is higher on factors in which there has been under-investment (i.e., an inefficiently low level of investment) because additional higher returns could have been achieved with additional marginal dollars of investment.

investments in employee training are consistently “super-normal.” This suggests that there is a general under-investment in human capital; the average firm tends to invest less than the efficient amount in its people.

Why would firms ignore the obvious and under-invest in this particular factor? One primary explanation is that financial markets pressure firms to minimize any investment that is accounted for as a “cost.” Consider two organizations that are identical in all but one respect: Company A makes substantial investments in skills, while Company B does not. What will be evident to an investor comparing the companies’ income statements is that Company A has higher overhead (selling, general, and administrative expenses, or SG&A) and correspondingly lower reported earnings than Company B. What will not be evident, however, is that some of what was classified as an expense for Company A is actually an investment in future productivity.¹⁵ Consequently, Company A’s stock prices would be expected to be lower – at least in the short-run – than Company B’s. The decision of Company A to invest in learning and development thus occurs *despite* pressures from financial markets. All firms – even those that have made significant human capital investments in the past – continually face this structural pressure to cut those investments in the short run to generate temporary increases in earnings. This pressure creates behavior that yields a “super-normal” return on human capital investments.

Moreover, as noted above, workers’ mobility (i.e., the possibility that the investment can “walk out the door” one day and not return) hinders firms’ ability to recoup their return on investments in human capital. This introduces a unique element of risk into human capital investments, above and beyond the usual level of risk inherent in any form of investment. To the extent that firms are risk-averse, the disincentives to invest in human capital development noted above are compounded.¹⁶

¹⁵ Research and development investments are also accounted for as expenses. However, unlike training investments, they are separately reported.

¹⁶ If firms are risk-neutral, as is typically posited in the classical theory of the firm, the risk that results from worker mobility would not have the effect outlined above.

Evidence on Training's Impact on Stock Prices

It has proven quite difficult to identify the effect of training on stock prices, precisely because the current invisibility of firms' investments in developing their employees is a root cause of the under-investment in them. As noted above, unlike all other major categories of investments that firms make to enhance their future productivity and profitability (e.g., physical plant and equipment, research and development), investments in developing human capital are neither separately accounted for, nor are they publicly reported. These investments are thus essentially invisible to most investors (with the important exception of the fact that they raise costs in some indeterminate way)

Over the course of the past 10 years, we have been systematically collecting data on how much firms spend on employee education and training. This effort has allowed us to cast some light on this invisible investment for some firms and some years for research purposes. The authors first began collecting data on firms' investment in employee development in 1996, when both worked in the research department at the American Society for Training and Development (ASTD), a large membership organization that represents the individuals responsible for workplace employee development inside of corporations.

At the time the work began at ASTD, little was known about how much firms were spending on employee development. In fact, there wasn't even common agreement about the definition of what should constitute spending or investment on employee development. We worked with a consortium of large firms to correct the definitional deficiencies, and established a system to collect comparable data across a large number of organizations. (The system included a key incentive for firms to report their data to ASTD: each would receive a free customized benchmarking report that analyzed their investments relative to other comparable organizations.) Over the course of a few years, the database grew to over 3,000 organizations from both inside and outside the United States, including for-profit firms, not-for-profit organizations, and government agencies. Of these 3,000 organizations, 575 of them were publicly-traded firms that were based in the United States. As publicly-traded firms, each of them was required to publicly report

extensive financial information each year. In combination with data on financial performance, the database of training expenditures, therefore, provided the opportunity to examine whether the economic logic outlined above was correct.

Our analysis found that those firms that made large investments in employee development subsequently outperformed the stock market, with returns that were significantly higher (“super-normal”) relative to those for other factors of production.¹⁷ Training and development expenditures per employee proved to be an important leading indicator of future stock prices.

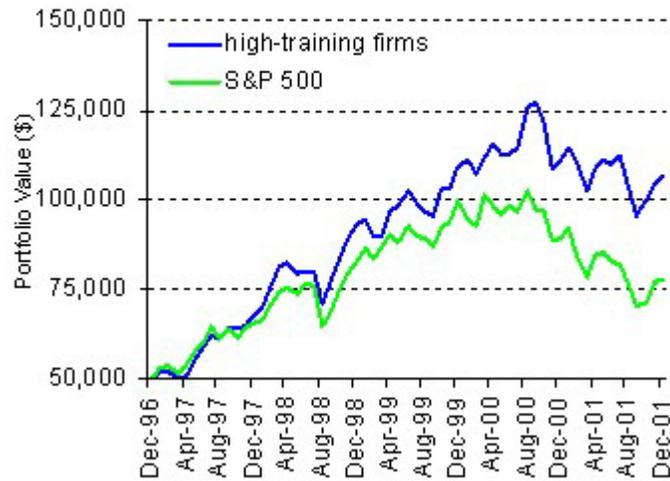
As part of the analysis, we created a series of hypothetical annual portfolios of firms that made the largest investments in employee development between 1997 and 2001 (see Figure 1 below). We discovered that these firms *subsequently* outperformed the S&P 500 index by more than a factor of two in the years following the investment (117 percent versus 55 percent). This corresponds to an annualized return of 16.3 percent over the five years for the “high investors,” compared with an annualized return of 9.2 percent for the S&P 500 for the same period. Although these results held true in both bull and bear markets, and across sectors of the economy, they must nonetheless be interpreted with caution.¹⁸

¹⁷ See Laurie Bassi, et al., “Human Capital Investments and Firm Performance,” white paper, June 2001. Available in the Research section of www.bassi-investments.com.

¹⁸There are limitations inherent in any hypothetical results, including the fact that the results do not represent actual trading and may not reflect the impact of material economic and market factors on qualitative decisions that investors (or their advisors) might make when managing assets. Moreover, hypothetical results may not include the performance of securities and classes of securities that would be included in actual portfolio recommendations, and any revisions to the model may affect future results. Finally, hypothetical performance is not a guarantee of future results, and is not indicative of actual results for any past or present clients. S&P 500 performance is based on published data of S&P 500 price change index.

Figure 3

**Growth of \$50,000 Invested on 1/1/97, through 12/31/01,
Hypothetical Portfolio of Firms with High Training
Investments, vs. S&P 500**



In sum, we found that firms' investments in employee development were the single most powerful predictor of future stock prices.

Explaining the Evidence on Training's Impact on Stock Prices

How could information on education and training investments represent such a powerful predictor of stock performance? The answer can be found in a mainstream model of how the stock market works. In general, the stock market behaves quite efficiently. As Burton Malkiel has convincingly demonstrated in his well-known treatise *A Random Walk Down Wall Street*, stock price movements are, in general, impossible to predict because markets are quite efficient in rapidly incorporating all known relevant information about a firm into its current share price. Hence, all known information quickly ceases to predict *future* prices. Consequently, leading indicators of stock prices are virtually impossible to find, precisely because the market is so efficient at reflecting all available information in current prices.

Given this efficiency, two conditions must be met in order for a piece of information to represent a leading indicator of future stock prices. First, of course, the information must be relevant (i.e., material to a firm's future performance). Second, this information must *not* be publicly known (because if it were, it would already have been incorporated into

the share price). Information about firms’ investments in employee development meets both of these conditions. Indeed, not only is information on investments in employees unknown to market observers, but it actually appears to be something very different. As noted in the thought experiment above, “high-investment” firms actually appear to analysts to be “high-cost” firms, and they are actually penalized in the short-run, rather than rewarded, for these investments (which are instead seen simply as high costs).

Convincing the Skeptics

Skeptical readers are no doubt at this point wondering why these findings have not been put to work in the market. The authors are actually working on it, and have thus developed additional data on the relationship between training investments and stock market performance. The research findings outlined above have been combined with additional ongoing data collection and analysis, forming the research foundation for an investment management firm that manages a series of recommended portfolios. The first was launched in December 2001, and the other two were launched in January 2003. The live track record of these portfolios is summarized below in Table 2.

Table 2
Performance of Recommended Portfolios¹⁹

	Return since 1/2/03*	Return since 12/3/01*
Portfolio A (created December 2001)	51.1%	16.6%
Portfolio B (created January 2003)	54.3%	n/a
Portfolio C (created January 2003)	53.8%	n/a
<i>S&P 500**</i>	<i>46.4%</i>	<i>14.9%</i>

*Portfolio performances as of 9/30/05, includes fees and dividends.

**S&P 500 price change index; provided for comparison only.

We believe that these results represent the best available “real world” evidence in support of the logic outlined above that there is widespread under-investment in employee development. Caution is, of course, in order. First and foremost, we would be remiss if

¹⁹ These three portfolios are managed by Bassi Investments, the investment firm founded by the authors. For full information on these portfolios, contact info@bassi-investments.com. Nothing in this description should be interpreted as a recommendation to buy or sell specific securities.

we failed to point out that past performance is not a guarantee of future results, and that it is always possible to lose money. And the evidence is currently based on results from a relatively short period of investment.

Summing Up

Although we must wait for additional years of evidence before we can definitively state – based on the highest statistical standards – that there is an under-investment in employee development in the United States, we do believe firmly that the preponderance of the evidence points to precisely that conclusion. And we believe that the logic outlined above is applicable outside the United States as well, although similar evidence is not yet available from other countries.

In summary, pressures from financial markets are likely to create incentives for publicly-traded firms to under-invest in employee development. Paradoxically, such investments appear to earn a high return for those firms that resist existing pressures and make significant investments in their employees' learning.

It should be noted, however, that the evidence presented earlier in this section suggests, that this under-investment is probably *not* limited only to publicly-traded companies. If firms that make investments in employee education and training perform better than comparable firms that don't, then why don't more firms make larger investments? Pressures from financial markets can't explain the under-investment that seems to occur in privately-held companies or other organizations. This issue is addressed in the next section.

III. Beyond Training: Superior Human Capital Management

Employee skills, however necessary, are not sufficient to generate productive and profitable workplaces. Most of us have been in situations, at one time or another, where we were unable to put our skills to their maximum use because the work environment made it impossible to be highly productive. Put differently, the development of

employees' skills is only a part (albeit a very important part) of the larger set of issues associated with the management of employees.

The complexity and difficulty of getting these broader “human capital management” issues right may also help to explain why there appears to be a fairly consistent tendency to under-invest in human capital across all types of organizations. To some extent, this under-investment may be the result of a rational (although perhaps unconscious) decision not to invest because the other human capital practices and processes that are essential to enable an organization to make good use of its employees' skills are often not in place.

Evidence on Importance of Human Capital Management

The “high performance work practices” literature seeks to address this set of issues by examining the bundles of human capital practices that, taken together, optimize performance. In addition to training, the practices that have been examined in this literature include: profit and gain sharing, employee participation in decision making, team work, job design, and worker autonomy. Identifying the effects of these practices, either separately or in groups, has proven to be quite challenging. A big part of the challenge is that these practices do not arise in a vacuum, but rather are in response to a set of business circumstances that a firm faces. Hence, it can be quite difficult to isolate and separate out the effects of these circumstances from the effects of the human capital practices that arose as a result of them.

A recent review of this literature concludes that, “Despite these methodological questions and concerns, the weight of evidence and the consistency of the general direction of results—even if not the finer detail—presents a strong and persuasive case that skills embedded within other HR practices do make a difference to business performance. The critical value of the research in high performance work systems is in highlighting the importance of considering investment in skills and workforce development in the context of the broader company structure, practices and company strategy. It is important to see

skill as one input, which in combination with a number of other inputs, can make a positive contribution to organizational performance.”²⁰

A few additional U.S. studies—not discussed in the literature review noted above, are also particularly noteworthy because they are based on large scale empirical studies and employ consistent measurement methodologies.

One study used a sample of 750 large, publicly-traded firms and found that organizations with the best human capital practices provide returns to shareholders that are three times greater than those of companies with weak human capital practices (Pfau and Kay, 2002).²¹

Another study examined the importance of “intangible” factors in firms’ performance, and found that the quality of a firm’s human capital is one of the four most important determinants of a firm’s future financial performance (Low and Kalafut, 2002).

And a study by the Gallup Organization found that the quality of management was a key factor in determining employee retention, customer satisfaction, and productivity (Buckingham and Coffman 1999).

Measuring Human Capital Management

Over the past four years, we have been building on the results of the high performance work literature (with particular attention to the three specific studies cited above) to delve systematically into those aspects of human capital management that are leading (i.e., predictive) indicators of future business performance. Our methodology approach has been designed to deploy the take the best elements of a variety of research designs and combine them into one. Our analysis has the following characteristics:

²⁰ Tamkin, et al. (2004), 37.

²¹ The Pfau and Kay study also reported that a group of human resource practices that they generally label “Prudent Use of Resources” is associated with a decrease in market value. Some have incorrectly interpreted this finding to mean that there is a negative relationship between market value and training and development expenditures. The name of the category is highly misleading, however, as only two of the six specific elements in the category are in any way related to training and development, and neither captures more than an extremely small slice of any firm’s overall investment in training.

- Has used a consistent human capital measurement strategy *across* a wide variety of organizations (ranging from global manufacturing firms to a school district of moderate size)
- Developed highly “disaggregated” human capital metrics within each of these organizations, thereby enabling us to analyze the drivers of productivity and profitability differentials *within* a given organisation
- Has been repeated within and across organizations *over time*, thereby enabling us to analyze the true drivers of improvement (as opposed to the spurious correlates of performance)

We believe this approach has resulted in an enhanced understanding of the human capital drivers—including, but not limited to, employee training—that enable organisations to benefit from the investments that they make in their workforces. From this analysis we have identified five “human capital indicators” and twenty-three underlying factors that drive business results. These five indices—leadership practices, employee engagement, knowledge accessibility, learning capacity, and workforce optimization—and the definitions of the factors that they consist of are summarized below in Table 3.

Table 3
Human Capital Indicators and Their Underlying Factors

Leadership Practices

	Definition
Communication (Managers)	Managers are open and honest in their communications; have an effective process in place for communicating news, strategies and goals to employees and; do a good job of letting employees know what is expected of them.
Communication (Executives)	Executives are open and honest in their communications; have an effective process in place for communicating news, strategies and goals to employees and; do a good job of letting employees know what is expected of them.
Inclusiveness (Managers)	Managers seek and use employee input, work in partnership with employees, and treat them with respect.
Inclusiveness (Executives)	Senior executives seek and use employee input, work in partnership with employees, and treat them with respect.
Supervisory Skills	Managers demonstrate organizational values, eliminate unnecessary barriers to getting work done, provide constructive feedback, provide employees with performance appraisals, and inspire confidence.
Executive Leadership	Senior executives demonstrate organizational values, eliminate unnecessary barriers to getting work done, provide constructive feedback, and inspire confidence.
Systems	Systems and processes for identifying and developing the next generation of leaders and ensuring smooth leadership transitions.

Employee Engagement

	Definition
Job Design	Work is effectively organized, makes good use of employees' talents and skills, and is interesting and meaningful. Employees have appropriate responsibility to determine how best to do their work, and creative job design is used to help makes jobs "fit" employees' needs.
Commitment to Employees	Employees' jobs are secure, employees are recognized for their accomplishments, and employees are provided with opportunities for advancement.
Time	The work load allows employees to do their jobs right, make thoughtful decisions, and achieve an appropriate balance between work and home.
Systems	Systems and processes that help to retain good performers by continually evaluating trends in employee engagement. The information from these systems is used to determine the key drivers of productivity and customer satisfaction.

Knowledge Accessibility

	Definition
Availability	People have the information they need to do their jobs, the necessary manuals and job tools are available, and there are procedures in place that enable employees to access training when they need it.
Collaboration & Teamwork	Teamwork is encouraged and enabled, places are provided for people to meet informally, and time is set aside time for people to share with and learn from one another.
Information Sharing	Best practices and tips are shared and improved, and circulated across departments.
Systems	Systems and processes are in place that collect and store information and make it available to all employees who might need it.

Learning Capacity

	Definition
Innovation	New ideas are welcomed, employees are encouraged to find new and better ways to do work, and employees' input is sought in solving problems.
Training	Training is practical and supports organizational goals and employees receive training on work-related technologies.
Development	Employees have formal development plans in place, and these plans are used to help them achieve their career goals.
Value & Support	The behavior of leaders consistently demonstrates that learning is valued in our organization, and managers consistently make learning a priority.
Systems	A learning management system exists that automates the administration of all aspects of training/learning events, provides reports to management, and includes features such as content management and skill or competency management.

Workforce Optimization

	Definition
Processes	Well-defined processes exist to get work done, employees are well trained on these processes. And efforts are made to continually improve these processes.
Conditions	Employees have access to the materials and technologies they need to be effective, and working conditions contribute to good performance.
Accountability	Employees are held accountable for producing quality work, promotion is based on competence, poor performance is appropriately handled, and employees trust their co-workers to get the job done.
Hiring Decisions	Selection is based on skill requirements; new hires receive adequate orientation, induction, and a description of required skills; and employees provide input into hiring decisions.
Systems	Systems and processes are in place for managing employees' performance and talents. This system enables managers and leaders to view the overall proficiency of the workforce, helps employees realize their full performance potential in their current jobs, identifies development opportunities for those experiencing performance difficulties, and prepares motivated employees to progress in their career fields.

We use employee survey techniques to collect detailed data on each of these twenty-three human capital factors, which are then aggregated into the five, overarching human capital indicators.²² The lessons that we have learned during the course of deploying these surveys in a wide variety of organisations are as follows:

- By posing factual statements and asking employees to evaluate the extent to which these statements do or do not apply to their work environment, we have discovered that employee surveys can be used to create valid human capital metrics that predict future business results.

²² For a more detailed discussion of an application of this methodology see Bassi and McMurrer (2005).

- An advantage of employee surveys is that they can quickly and inexpensively be used to generate highly disaggregated measures of the variations in the quality (or “maturity”) of human capital management both within and across organisations.
- These measures of variations in human capital management can then be used to systematically identify opportunities for reducing the undesirable variation – essentially introducing six sigma techniques into the domain of human capital management.
- Although this is not necessarily an exhaustive set of human capital metrics, it is a “core” set; we have found that this set of human capital factors has the capacity to predict key organizational outcomes (both financial and non-financial) in a wide range of sectors of the economy—from education to manufacturing.
- Statistical analysis of the relationship between these factors (and their sub-elements) has revealed that the leadership practices are consistently among the most important determinants of business results, followed closely by factors measuring learning capacity and knowledge accessibility.

This suggests that the leadership practices noted above are often a “binding constraint.” In other words, the absence of these leadership practices in many organizations is a key factor that may be limiting both the use of, and the return to, employee skill building. Its effect can be seen on both formal (captured in “learning capacity” measures) and informal (captured in “knowledge accessibility” measures) methods of developing employees’ skills.

This finding has led us to the following conclusions:

- The leadership skills that are necessary to optimize the return on investments in employee training are in short supply.
- This shortage, at least in part, explains why organisations tend to under-invest in employee training.
- Due to their effects on these other human capital factors, investments in leadership skills that would lead to improved human capital management are

likely to yield an exponentially high return for organizations that have a deficiency in this regard.

IV. Implications for Public and Private Policies and Practices

The ongoing evolution of the “human capital era” requires a shift and expansion of policies that individuals, organizations, and nations must pursue if they are to survive in this era. This shift will require that an increased priority be assigned to human capital strategies, both at a corporate and public policy level.

Public policies related to human capital have typically focused at the level of the individual. While the creation and augmentation of individuals’ skills is of vital importance, those organizations and nations that will be successful over the long term must have an even broader focus, seeking to foster superior human capital management – of all forms – at the organizational level. Those organizations and nations that pursue a *laissez-faire* strategy in this regard will almost certainly lag behind those that don’t.

The “low-road” to profitability, in which employees are viewed primarily as costs, and firms pursue a low-cost, low-margin strategy, becomes a less viable path to long-term success. Except for producers in the lowest wage nations, it is a sustainable strategy only for those in sectors that are impervious to foreign trade. Hence, a coherent set of “human capital strategies” that encourages firms to pursue the “high road” to profitability needs to be implemented. On the high road, competitive advantage depends on superior human capital management; it creates and depends on a “virtuous cycle” of high wages, high skills, and innovation.

There are three categories of policies that governments should implement to encourage employers to pursue this high road to profitability:

- 1. Improving the education and skill levels of individuals*

The need for this type of intervention is already widely accepted within most developed nations, which typically have a wide array of programs and policies for

advancing educational attainment and promoting skill development. These programs range from public provision of education for children to subsidization of education and skill development for working age adults. The level of funding for the latter is, however, often perceived as inadequate. The evidence presented in the earlier sections of this paper strongly suggests that fostering ongoing education and training—especially for those adults with low levels of educational attainment—will continue to grow in importance, as will the need for funding of public programs that underwrite adult learning.

2. *Improving human capital management by promoting managerial capacity*

The preceding discussion suggests that managerial capability with regard to human capital management is likely to be a constraint that impedes some (perhaps many) employers from pursuing the high road. Hence, while improving the education and skill levels of front-line workers may be a necessary condition for higher wages/profits, it may not be a sufficient condition. Consequently, public policy may need to underwrite the development of those managerial skills that are necessary for achieving superior human capital management. While this is a less traditional form of public policy intervention than that which is outlined above in #1, it is not entirely without precedent. For example, publicly-sponsored industry cooperatives that focus on improving managerial competence within an industry (such as manufacturing) are an example a vehicle that governments can and have used. Moving forward, however, it is likely that these types of programs will need to be expanded, with additional emphasis being placed on superior human capital management.

3. *Addressing information deficiencies in financial markets*

Both economic logic and empirical evidence indicates that financial markets are contributing to an underinvestment in workplace education and training. By failing to distinguish these investments from “costs,” analysts under-estimate short-run earnings, which in turn, causes them to under-value firms that are making unusually large investments in workplace training. This under-valuation,

in turn, is likely to result in a chronic tendency to under-invest in training among publicly traded firms. This situation could be remedied by requiring publicly traded firms to report their spending levels on training.

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