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*It's Not Just the ATMs:
Technology, Firm Strategies, Jobs, and
Earnings in Retail Banking*

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The Wharton School
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ABSTRACT

The authors examine trends in job content and earnings in selected jobs in two American banks. Firm restructuring and technological changes resulted in higher earnings for college-educated workers. The banks followed different strategies in implementing these changes for lower-skill jobs, with different effects on bank tellers in particular. The authors conclude that technology enables workplace reform but does not determine its effect on jobs and earnings; these effects are contingent on managerial strategies. This focus on organizational processes and managerial strategy provides a complementary approach to accounts of growing inequality that center solely on the role of individual skills and technological change.

Introduction

Explanations for growing wage inequality over the past three decades have made much of the role of technology. College graduates have seen their wages rise, while workers with less education have seen their wages stagnate and even decline. This pattern is consistent with an account in which technological innovation has significantly increased the demand for skilled workers in the American labor market, but direct evidence on this relationship remains rare. Most often, the effect of new technology has been inferred from the growing wage differentials themselves, a strategy that is ultimately “too crude to give us much insight into the actual nature of the changes that are occurring” (Bound 1996:155).

In this paper, we discuss changes in a subset of key jobs, and their associated earnings, in the retail banking industry. During the 1980s and 1990s, banking saw a dramatic influx of new information technology, as well as pronounced changes in the organization of work. Drawing on case studies of the branch jobs in two large American banks, our goal is two-fold: to examine the extent to which the stylized account of skill-biased technological change actually holds with respect to these jobs, and to identify additional organizational factors that may help to explain why some branch workers’ earnings have risen while others’ have dropped.

Specifically, we ask the following questions: To what extent did technology drive the workplace restructuring in our case study banks? Did the implementation of new technology result in similar changes in job titles, job content, and earnings in the two banks? Or were there significant differences in how technology was implemented, and therefore in the effects on worker outcomes? Finally, did managerial strategies also have an independent effect on the redistribution of skill requirements, responsibilities, and earnings within the organization?

Our study begins with the premise that decisions governing the distribution of new technologies in the workplace are not determined solely by the skill requirements of the technology itself. Managers also consider the larger dictates of business strategy, and their decisions about technology must be considered in the context of strategically driven work restructuring. These strategic considerations may also result in a differential distribution of rewards, even among workers who participate in technological upgrading. Our industry-focused case studies examine these managerial decisions, with the goal of providing a deeper and more nuanced understanding of some of the mechanisms that have contributed to rising inequality.

Technology, Strategy, and Earnings

The structure of jobs and earnings in the American labor market has changed significantly in the past two decades. Starting in the 1970s, average earnings stagnated or even declined. Though college graduates largely escaped these trends, those with less education did not, and earnings inequality increased dramatically.¹ Technological change has emerged as the leading explanation for this increase. From this perspective, substantial numbers of American workers are not meeting the demand for technological acumen and thus find their wages declining, while at the same time, skilled workers are reaping the benefits of their qualifications.²

The empirical evidence supporting this intuitively appealing explanation remains sketchy and mixed. Industry-level (Autor, Katz and Krueger 1998; Berman, Bound and Griliches 1994) and establishment-level (Doms, Dunne and Troske 1997) research suggest that computers and skilled

¹ For reviews of these trends, see, among others, Danziger and Gottschalk (1993), Freeman (1997); Katz and Murphy (1992); Levy and Murnane (1992); or Mishel, Bernstein, and Schmitt (1997).

² The globalization of trade, the decline of union representation, and a decline in the real value of the minimum wage have also played a role. The relative weight of each remains in some dispute (Freeman 1997).

labor are complementary. Analyses of individual earnings data are less definitive: some evidence suggests that jobs in higher-technology workplaces require higher levels of skill and thus command higher wages (Krueger 1993), but there are alternative explanations for these relationships (DiNardo and Pischke 1997). Further, research focused more directly on jobs tends to show that technological change has indeterminate effects. Technology may upskill jobs, deskill them, or render them obsolete, even within the same firm (Adler 1992; Adler and Borys 1995; Cappelli 1996; Hirschhorn 1984; Moss 1999; Rule and Attewell 1989; Zuboff 1988). Levy and Murnane (1996), for example, show that one bank's changes in formal skill requirements for back-office accountants were not easily explained by changes in computerization.

The picture is further complicated because technological change as defined in the inequality literature typically refers to a broad but vague assortment of unobserved changes in the production process. The term "technological change" can refer not only to changes in machines, computer hardware and software, but also to changes in the way that work is organized (Bresnahan, Brynjolffson, and Hitt 2000; Hunter and Lafkas 2000). Thus organizational restructuring – including the introduction of new work practices – may also have implications for skills and earnings (Cappelli et al. 1997; Fernandez 2000; Smith 1997).

Finally, changes in technology and work practices may themselves be driven by managerial business strategies. For example, research in the service sector has shown growing use of market segmentation strategies. Segmentation strategies, in guiding the deployment of technology and the reorganization of work, can lead to job stratification. An association between higher wages and better opportunities for workers, and higher-value customer segments, has been observed in a diverse range of industries, including fast-foods and retail sales (Bailey and Bernhardt 1997; MacDonald and Sirianni 1996), computers and high-tech (Colclough and Tolbert 1992);

telecommunications (Batt and Keefe 1998; Batt 2000); nursing homes (Eaton 2000; Hunter 2000) and financial services (Keltner and Finegold 1996).

Given this complexity, evidence from the ground – the firms, and workplaces in which restructuring occurs and technology is actually implemented – may advance our understanding of the underlying processes that have led to increased inequality. This evidence is critical, for it has become clear that firms are responding to increased competition and restructuring work in ways that are not easily captured by deterministic views of technology. The business press abounds with examples of innovative companies that have created high quality and well-paid jobs, yet just as prevalent are accounts of low-wage strategies, deskilled jobs, and substitution of contingent for full-time workers. Firms may also use technology to differentially reorganize jobs: upskilling in some parts of the organization, automating and routinizing in others. Thus restructuring and technology can interact to produce different outcomes for workers, within the same industry and even the same firm. Firm-level research is required to shed light on some of the *mechanisms* that have produced the aggregate trends in wages, showing in more detail the ways in which technology is introduced into the workplace and how it transforms job content and skill requirements, and adding explanatory power to our accounts of change in the labor market based on surveys of individuals or industries.

In this paper, we therefore examine the strategic and technological trends that have led to changes in front-line banking jobs, drawing on both industry-level analysis and case studies of two large American banks. We note that changes within organizations can affect earnings outcomes through two routes: they may change the distribution of workers across jobs with different wages, or they may alter the content of particular jobs and thus the wages that those jobs command (Cappelli 1996; Attewell 1987). Our study concentrates more directly on the second

route and less directly on the first; to fully capture changes in the distributions of workers would require an equilibrium-style account of net effects on the wage structure both within and across firms (as well as beyond the banking industry). Instead, our case studies examine how technology is actually implemented in the workplace (with an eye toward variation), and the extent to which managerial strategy plays an independent role in that process. Our goal is to deepen current understanding of the forces underlying the polarization of wages and jobs.

American Banking in the 1980s and 1990s

Competition and Technology

From the 1940s until the early 1980s, competition in the American banking industry was restricted. The Bank Act of 1933 (usually called the Glass-Steagall Act) established commercial banking as a distinct entity by separating both the ownership and the activities of commercial banks from those of other financial service providers. The Federal Deposit Insurance Corporation insured individuals' deposits against bank failure, banks with FDIC charters were prohibited from offering investment and insurance products, and many states had strict regulations prohibiting or limiting interstate banking. The resulting stability in the industry especially characterized its retail side, which provided financial products and services to individuals and small businesses through local branches.

The 1980s and early 1990s, in contrast, have been characterized as “the most turbulent period in banking since the Great Depression” (Berger, Kashyap, and Scalise 1995). Banks introduced a vast array of new information technology: hardware, software, and telecommunications equipment, spending about \$60,000 per employee on information technology over the 1980s (Keltner 1995). The introduction of Automatic Teller Machines (ATMs) and new back-office

processing technologies dramatically decreased the costs associated with handling and processing individual transactions. New software dramatically improved the ability of banks to manage their huge stores of customer data. Telephone banking, and more recently PC-based banking, also appeared as alternative channels for delivery of retail financial services.

These new technologies interacted with gradual deregulation³ to reshape the industry. Deregulation had three major effects. First, it prompted consolidation of the industry. The loosening of interstate banking laws allowed banks to expand their operations across state lines and encouraged a wave of banking mergers. Improvements in technology made consolidation more desirable, allowing economies of scale and reducing the costs associated with back-office processing. Thus the banking industry shrunk from over 12,000 banks in 1987 to only 8,000 banks by 1995 (Berger, Kashyap, and Scalise 1995), and consolidation continues to this day. Second, deregulation heightened price competition among banks. New technologies intensified the competition, improving banks' ability to adjust prices and terms of financial products. Basic financial services began to resemble commodity products. As margins on these standard products diminished, reducing payroll costs through tighter and more flexible staffing arrangements became integral to survival in the industry.

Third, as deregulation broke down barriers between banks and other financial services providers, banks began to offer investment products through their branch networks, often in partnership with mutual fund companies. They also explored partnerships with insurance companies (witness the 1998 merger of Citicorp and Travelers). Increasingly, banks had to compete for their traditional deposit customers with brokerage houses and money market funds, each of which began to offer standard products such as checking accounts. With this opening of

³ In a formalization of this process, the Glass-Steagall Act has recently been repealed.

markets, banks began to develop and introduce technologies designed to make the cross-selling of multiple financial products efforts more effective. Integrated databases provided more complete information on customer relationships and transaction patterns, and more sophisticated software helped banks to identify sales opportunities and to act on those opportunities (by prompting employees to make sales inquiries, for example).

These new systems also enabled banks to sharpen their customer segmentation strategies. Banks directed “transaction-based approaches” (Keltner and Finegold 1996) toward customers with low profit potential, seeking to lower costs by replacing teller service with ATMs and telephone banking. By contrast, “relationship banking” strategies targeted wealthy customers, small business clients, and others with profit potential. These customers were provided with the individualized service and financial advising that in the past had been reserved for corporate clients. Banks sought to increase the number of high-end customers and to boost revenues from their accounts by providing a wide range of financial services, such as insurance and investment products.

Employment and Earnings

After peaking at nearly 1.6 million in 1990, the total number of workers in American commercial banking fell to just under 1.5 million by 1998 – contrast this with a 16.4% rise in employment for the economy as a whole.⁴ The decline in banking jobs was largely driven by consolidation and technological changes, for even as the workforce shrank, the number of banking transactions skyrocketed, enabled by the introduction of ATMs (Berger, Kashyap, and Scalise

⁴ Time series data from the National Current Employment Statistics (NCES), Bureau of Labor Statistics (U.S. Department of Labor). This figure includes full-time, part-time, and temporary employees.

1995). Over this period, the relative proportion of higher-paying occupations in the industry increased while the share of lower-paying positions decreased (Demsetz 1997).

Despite the pace of change in the industry, however, trends in front-line retail banking featured gradual rather than dramatic shifts in employment patterns. Projections by the Bureau of Labor Statistics in the mid-1990s suggested the number of tellers would fall precipitously in the late 1990s (Morisi 1996), but these were misleading: after falling by 41,000 between 1985 and 1995, teller employment leveled off. The BLS counted 560,000 bank tellers in the U.S. in 1998 (compared to 559,000 in 1994), and revised BLS projections predict only small changes in this level to the year 2008 (Braddock 1999). A partial explanation for the plateauing of teller employment is provided by the steady, gradual decrease in the average number of hours worked by tellers, with a striking increase in the prevalence of part-time work, especially among bank tellers, over 90 percent of whom are women.⁵ From the mid-1980s to the early 1990s, the percentage of tellers working part-time went from almost zero to 60 percent (Keltner and Finegold 1996).

Consistent with the wage stagnation that has characterized the broader economy, real hourly wages for non-managerial workers remained flat from the early 1970s through the late 1990s. In 1998, the average hourly wage was \$10.40.⁶ Median weekly earnings of full-time tellers were \$315 in 1996; ten years previously bank tellers were earning the inflation-adjusted equivalent of \$327.⁷ Low wages for non-managerial employees in the industry are attributable in

⁵ The sex composition of the teller occupation is reported in Current Population Survey statistics, Bureau of Labor Statistics (U.S. Department of Labor).

⁶ Time series data for commercial banking from the National Current Employment Statistics, Bureau of Labor Statistics (U.S. Department of Labor). This figure includes full-time, part-time, and temporary employees.

⁷ Unpublished time series data from Current Population Survey statistics, Bureau of Labor Statistics, 1998 (U.S. Department of Labor).

part to the weak and poorly coordinated industrial relations system in banking. In 1993, union membership density in the banking industry was less than one percent; contract coverage density was about one and one-half percent. Ten years previously these percentages were only slightly higher (Hirsch and McPherson 1993).

Work Organization⁸

Until the early 1980s, retail banking jobs were typically embedded in traditional internal labor markets. Numerous job titles were organized into four clusters – tellers, back-office personnel, platform workers, and local managerial positions. Bank tellers and back-office workers occupied the base of the job pyramid, and these branch jobs comprised routinized, time-consuming tasks and transactions. Most tellers performed a limited number of simple services, such as cashing checks and processing deposits. Back-office work was performed at the branch or within the region by a staff of clerks, who were roughly equal to tellers in status and career potential.

“Platform” workers, one level up in the hierarchy, typically opened accounts, provided more advanced services, and after gaining experience, served as specialists in particular products (for example, mortgages or automobile loans). Above these employees were layers of local and then remote branch management, as well as specialists in such areas as small business accounts.

Advancement generally occurred within particular occupations, via seniority and multiple job grades. The system also allowed for some advancement across occupations (albeit less frequently), even for tellers with only a high school diploma. Education beyond high school was not always required for managerial positions, and experience within a specific bank or the broader

⁸ A more extensive account of these trends in the U.S. can be found in either Keltner and Finegold (1999) or Hunter (1999). Regini, Kitay, and Baethge (1999) provide a global survey.

industry counted for much. The internal labor market was structured, but not closed to the external market: workers with higher levels of education or industry experience could enter the bank by way of a platform or managerial job.

The introduction of new service strategies, ushered in by deregulation and enabled by technology, required changes in work organization. On the one hand, the transaction approach relied on technology to routinize and speed up work, and often to replace human labor altogether. On the other hand, relationship banking required the selling of a wide range of financial services by knowledgeable bankers to repeat customers. Such relationship-based service could be provided by single, broadly-skilled employees or by teams of cross-trained employees (Keltner and Finegold 1996; Hunter and Hitt 1999).

Labor market data indicate that this restructuring of the branch workplace was accompanied by significant shifts in the distribution of earnings. In Appendices A and B, we use Current Population Survey data to examine earnings in commercial banking in 1979 and 1996. By several measures, earnings inequality in the industry increased over this period. The ratio of the 75th to the 25th percentile increased from 1.75 to 1.95; the ratio of the 90th to the 10th percentile increased from 3.19 to 3.72. Furthermore, results from standard wage regressions show that the returns to education increased by 58% between 1979 and 1996, and that average wages declined markedly. The banking industry thus shares the key trends in the earnings distribution that have characterized the broader economy.

Case Studies: National Bank and Global Bank⁹

Research Methods

In order to better understand the connection between firm strategies, new technology, workplace redesign, and worker outcomes, we turn next to case studies of two of the largest commercial banks in the United States, GlobalBank and National Bank. Our research at GlobalBank centered on its retail banking division in a large metropolitan region (the division accounts for about half of the firm's U.S. workforce). At Global, we interviewed human resource managers and recruiters at bank headquarters; conducted site visits to two branches serving different client bases, interviewing branch personnel at all levels; and interviewed trainers and observed classes at a separate training facility. At National Bank, we interviewed executives and human resource managers at national and at several regional headquarters. We also conducted site visits to twenty-seven branches, interviewing employees and local managers. We supplemented this fieldwork with background data on each bank, and from National Bank, we also gained access to archival personnel records for five geographic areas.

Restructuring Strategies

Twenty years ago, National Bank and GlobalBank focused on activities typical for American commercial banks. The retail division employed the majority of employees in each bank, emphasizing checking and savings accounts, with profits arising from deposits, mortgages, and simple consumer lending. The retail division also served as the engine through which funds could

⁹ Both names are pseudonyms.

be gathered cheaply to support the other, more profitable activities of the bank (for example, serving large corporate customers), so that the direct profits and losses of the retail division were relatively unimportant.

Over the 1980s and 1990s, GlobalBank and National faced increasing competitive pressures. Retail banking grew enormously in its relative importance to the overall strategy of each bank, yet traditional retail products such as checking accounts and consumer loans became available elsewhere. And while each bank began to offer new investment services and products, these also faced competition, from brokerage houses such as Merrill Lynch and Charles Schwab.

GlobalBank and National Bank responded to the new competitive landscape similarly. Their retail divisions sought to increase revenues by selling a broader range of credit and investment products. New technologies enabled each bank to track its customers and thus to concentrate more attention on those that were most profitable. This tracking was intended to allow each bank to target in-depth relationship banking to customers who were considered good sales prospects, and to shift less profitable customers into lower-cost distribution channels, such as ATMs and telephone call centers. In order to implement this segmentation strategy, GlobalBank and National reorganized their branch systems in similar ways: diminishing the autonomy of regional structures while at the same time establishing local units as profit centers; moving the branch system toward a uniform set of products, processes, and jobs; and consolidating back-office functions.

GlobalBank, managing a historically large network of branches, was often an industry leader in innovation. Reorganization at GlobalBank began in the 1980s, before which the system had been divided into separate geographic markets and branch networks, each its own organizational fiefdom. Over several years, the bank centralized this system, reducing operational costs and

staffing, and creating one coherent strategy. Branch operations, products, training, hiring, and job definitions were made uniform.

Before 1990, National was considerably smaller and relatively less innovative than Global, but the bank grew rapidly through a series of acquisitions in the 1990s. At National Bank, restructuring and process reengineering were implemented recently, beginning in 1996, and in a more concentrated fashion than at Global. National's condensed restructuring allowed us to examine in real time the sorts of changes that accumulated over a much longer period at Global, where our research was, of necessity, more historical.

The changes at National were driven in part by a 1995 consulting report which documented an accumulation of administrative work in the branch system. The consulting study argued that branch employees spent too little time on sales-related activities, and too much time on simple transactions, routine service, and administrative tasks. National therefore introduced a new organizational design for its retail division, with changes similar to those implemented at Global. National centralized and standardized both products and processes across regions, with two goals in mind: to reduce costs in the branch system, and to transform its hundreds of branches into retail stores focused on the sale of financial services.

For both banks, process reengineering and the emphasis on sales were to large extent made possible by new technological capabilities. As an industry leader in technological innovation, GlobalBank was one of the first to introduce ATMs on a large scale in the 1980s, but the continual upgrading of the bank's technological infrastructure was just as important. GlobalBank centralized account information, linking customers' entire banking profiles and making these records accessible nationally, including data on accounts, credit cards, loans, mortgages, and investments. This technology aided the bank in cross-selling, account management, and more

precise identification of the market segments into which individual customers fell. Information technology also automated tedious processing tasks, freeing up more time for sales efforts. These innovations were critical for National Bank as well, though it was a relatively late adopter of the same technologies.

At both banks, technology also enabled the consolidation of back-office functions into national customer service centers.¹⁰ Global moved all customer service, operations, and investigations functions to one location, and also centralized consumer credit management and mortgages. Similarly, at National, customers dialing the same number they always had used to contact the branch began to find their calls routed to a central call center. Managers envisioned that ridding the branches of these activities would not only cut costs, but also strengthen the sales focus of the remaining employees. Centralizing this work also reduced overhead, allowed scale economies, and created uniform practices.

Restructuring at each bank had important effects on the staffing, task content, and quality of jobs in branches. Tables 1 and 2 summarize these changes, and we describe them further in the following sections. Table 1 summarizes the effects of restructuring at GlobalBank from the mid-1980s to 1997, in the large metropolitan region that constitutes the core of the bank's market and that was the first to implement the bank's new strategies. Table 2 summarizes the labor market effects of the 1996-1998 restructuring at National Bank.¹¹

¹⁰ The case studies presented here do not focus on the jobs in telephone call centers. Jobs in telephone call centers are themselves currently the subject of industry-focused case studies; see Fernie and Metcalf (1999) or Batt, Hunter, and Wilk (1999).

¹¹ Table 2 draws on interviews and personnel data, and summarizes the experience of the five geographic areas that we studied. Breakdowns for each of these regions (available on request) yielded few meaningful differences between the geographic areas: the effects of the restructuring initiative were similar across the regions.

From Service to Sales: Changes on the Platform

Foremost among the changes was the upskilling of platform jobs at each bank. Part of GlobalBank's move toward higher-quality customer service was a consolidation of platform job titles, in which platform workers were recast as "Personal Bankers." GlobalBank regarded Personal Bankers as Officers, a clear increase in status since the designation also applied to branch supervisors and managers. The Personal Banker position emerged as a complex, somewhat autonomous, skilled occupation combining sales duties with the role of consultant. While some informal distinctions between platform workers remained, the reduction in titles allowed more flexibility, so that Personal Bankers could move across product specialties and between management, sales, and even teller supervision.

The bank's redesigned, centralized information system gave Personal Bankers access to all customer account information. Personal Bankers could manage multiple accounts for a given customer, and make referrals to specialized investment brokers when appropriate. The great diversification of consumer banking products required Personal Bankers to possess knowledge and expertise in a number of fields. Above all else, they cultivated skills in cross-selling, one of the foundations of relationship banking: the primary job of a Personal Banker was to encourage individuals to add products and services to their accounts over time. Tellers took over most of the routine service tasks (such as changing addresses, issuing cards, and adding new accounts), so that Personal Bankers could focus on sales to these high-level accounts.

Personal Bankers in the restructured GlobalBank typically had four-year college degrees, in sharp contrast to platform employees of the 1970s and 1980s, who had usually had a high school diploma and perhaps some college. Underlying the college degree requirement was the desire to change and upgrade the image that platform employees presented to the customer. GlobalBank

expected Personal Bankers to spend much of their time selling a range of financial services to relatively high net-worth customers. These upper-segment customers, the bank believed, were likely to expect “professional,” college educated employees in these roles.

Global paid Personal Bankers substantially more than it had the previous platform employees.¹² The compensation package also began to include performance bonuses. Recruits for Personal Banker positions were rarely drawn from the ranks of tellers. More commonly, the bank focused its hiring efforts on outsiders, particularly on individuals with proven sales savvy. Incumbents (including tellers trying to work their way up) could, however, sign onto sales and product workshops at their own initiative.

The changes at National Bank were remarkably similar, although they took place in a more condensed period, between 1996 and late 1998. The bank consolidated a variety of platform positions into one job, titled “Financial Specialist,” focused on sales of a diverse array of products, and required the Specialists to pursue National Association of Securities Dealers Series 6 licensure for the sale of investment products (which required passing an examination). National increased Specialists’ responsibility for using sales-supporting technology; other technological changes were designed to liberate the Specialists from routine account servicing.

The new emphasis on sales at the expense of service, the increased variability in pay, and the licensure requirements led many incumbents to leave the job, and heightened the importance of external recruiting in establishing skill requirements. In what were already tight labor markets, National actually tightened its hiring criteria on the platform, and emphasized differentiating the new platform position from the old one. The official job description for the Financial Specialists

¹² We were not able to gain access to personnel records at Global and therefore do not have precise figures for platform pay in the 1980s. However, all our interviews at both headquarters and the branches consistently yielded the same information, that platform pay had risen substantially.

included language indicating that a college degree was preferred, though sales experience could substitute for educational credentials. Those coming in with financial sales experience and, especially, Series 6 licenses, were attractive to the bank. They were thought to be more likely to meet sales quotas and to be comfortable in passing routine service requests off to other channels rather than addressing these requests themselves.

A shortage of workers with sales experience in many of its local markets, however, led National to focus much of its recruiting efforts on recent college graduates. National expected that college graduates would be capable of mastering quickly the broad range of knowledge required to sell bank and brokerage products, and that their study skills would also allow them to prepare effectively for the licensing exams. Recruiters also explicitly drew connections between the college degree requirements and the more professionalized, polished image they hoped to project through the new position. National, like Global, believed that customers' expectations of financial planners meant that college educated workers would be much more effective. The bank expected that the Specialists would take more responsibility for initiating sales efforts with customers, working by appointment rather than in response to walk-in traffic; again, the belief was that college educated workers would do better in this role.

As a result, the Financial Specialist position commanded about 25 percent higher base earnings than did the platform jobs prior to restructuring. National Bank also accelerated its use of performance bonuses, with incentives even greater than those at GlobalBank, providing opportunities for workers to earn up to 50 percent more than their base pay through sales incentives. Through these commissions and other bonuses, employees reassigned to these jobs from the platform could as much as double their former earnings.

At both banks, workers' gains in earnings came at a price. Many of the Financial Specialists at National Bank began to work well over forty hours a week in order to reach the ambitious sales targets required to keep their jobs, or to earn greater levels of incentive pay. Similarly, at GlobalBank, Personal Bankers consistently spoke of greater pressure to meet monthly sales goals and to earn their performance-based pay.

Tellers: Job Enrichment or Simplification?

In contrast to their similar approaches to restructuring the platform positions, the banks took different routes with respect to their tellers. Each bank consolidated multiple job grades within the teller position. But while National sought to simplify the teller job, Global instead looked to upgrade its tellers' jobs, trying to move them into a more sales-oriented role.

Restructuring at National separated sales tasks and complicated product knowledge from the teller function. The tellers continued to use terminals and databases dedicated solely to simple transactions; the teller systems were not fully linked to the integrated systems available to the Financial Specialists. Reengineering further simplified the tellers' jobs by creating a Customer Relations Manager (CRM) position. The CRM greeted customers entering the bank, and helped them to address concerns that tellers could not meet effectively (for example, in providing explanations of particular charges or fees).

These innovations were intended to realize cost efficiencies. National expected that it could convince many customers to rely less on in-person routine transactions and services, and to move to low-cost telephone centers and ATMs. One early consultants' forecast, for example, specifically projected a 65 percent decrease in the number of tellers required in the branch system over a two-year period. The projected savings were revealed to be wildly optimistic. Though

customer migration to alternative technologies proceeded steadily, well over a year after implementation most of the local branches had seen only small changes in teller staffing levels. Teller costs were contained, however, because wages remained low. Even before restructuring, full-time tellers earned less than \$17,000 annually. As Table 2 shows, mean earnings of full-time tellers actually fell slightly after the restructuring, because well-educated and experienced tellers used restructuring as an opportunity to bid into Financial Specialist or CRM positions.

Inside National Bank, this simplification of the teller job was controversial. Many local managers argued that tellers were key to National's ability to provide excellent customer service and to boost sales. But the advocates of simplification won out, arguing that only substantial investments in compensation, training, hiring, and screening would ensure that tellers could contribute positively to relationship banking and sales. They further argued that the bank was not prepared to make such an investment, given the pressures to contain costs, and that these constraints meant that the teller position was likely to remain high-turnover (historically, teller turnover across the bank had been about 30 percent annually).

Simplification of the teller job carried the day at National, but the reverse proved true at GlobalBank, where tellers were renamed "Customer Service Representatives." As at National, GlobalBank tellers continued to perform basic transactions, albeit more quickly and efficiently with the help of full access to new information systems. GlobalBank's centralized computer system consolidated all account information and history, generated applications automatically, transferred money electronically without paperwork, and did the end-of-the-day balancing (an extremely time-consuming process in the past). This technology, in combination with job enrichment, allowed tellers to take on new tasks, including many aspects of routine servicing of accounts, so that Personal Bankers could focus on high-level accounts. Tellers generated ATM

cards and personal identification numbers on the spot, changed addresses, processed ATM envelopes, and arranged for electronic payments and transfers. Tellers could also make account changes, such as adding a savings account to a pre-existing checking account, and became responsible for helping customers understand the different vehicles they could use to access their money, such as ATMs, and telephone and on-line banking. At National, tellers did not perform these functions.

The result was that tellers at Global experienced real wage gains, while those at National did not. Average teller earnings at GlobalBank rose from \$18,000, an amount roughly similar to National, to \$24,000 over a five year period. Similarly, part-time tellers at GlobalBank started at roughly \$11 an hour in 1997, compared to about \$8 an hour in 1992.¹³

GlobalBank explicitly intended to involve tellers more significantly in the bank's selling process. The characterization of this shift, used by managers and workers and emphasized by trainers, was that tellers were going to change from "order-takers" into "sales people." GlobalBank focused on developing tellers' interpersonal skills, enabling them to contribute directly to the relationship banking strategy through "referrals." Tellers evaluated customers that came to their service windows, and when account information indicated a profile for a particular product, referred them to a personal banker or investment officer. A savings account balance of \$70,000, for example, would indicate a referral to investments. Potentially, then, referrals required product knowledge and selling skills far removed from the teller job of the past. Screening processes for tellers became more rigorous at Global. Prior to restructuring, Global had roughly 3 applicants for every teller hired (about the same ratio as at National Bank both pre-

¹³ Contrast this with what Kusterer found in a 1978 study of a bank branch. Starting pay for part-time tellers was \$3.00 per hour (\$6.20 in 1992 dollars, \$6.93 in 1997 dollars), which was only fifty cents per hour more than the

and post-restructuring). After restructuring, the ratio at Global grew dramatically, to 10:1. The increased screening of tellers was intended to identify quality workers with selling and service experience, and to reduce turnover. The bank sought applicants who could present a professional image – meaning good communication skills, friendliness, and appropriate dress. Recruiters informed new candidates that they needed a “sales orientation” and stressed the relationship banking strategy. Finding strong applicants who were also willing to follow instructions in a traditionally low-status job proved to be a challenge. Recruiters considered college graduates to be overqualified, but applicants with less education often lacked the skills needed for the bank’s new emphasis on service and selling. The result was that GlobalBank increasingly tried to recruit workers with some college experience or a community college degree.

Consistent with an increased investment in recruiting and screening, GlobalBank significantly lengthened the training process for tellers. National executives had hoped that restructuring would simplify the recruiting of tellers, and that they could eventually reduce the introductory training of tellers from ten days to five. By contrast, training at Global was extended from 12 days in the late 1980s to 20 days in the late 1990s, and the cost per teller rose from \$3,000 to \$4,000. Global required of tellers (both incumbents and new hires, both full-time and part-time) not only transaction-oriented skills but also a wide range of selling and “soft skills,” attributes pertaining to personality and attitude (see Moss and Tilly (1996)). Also important were mastery of the integrated computer system and a basic understanding of a wide range of banking products and their features.

going rate for part-time retail clerks. The job of teller, like that of retail clerk, required only a high school degree and no specialized knowledge or skills.

GlobalBank's increased investment in its entry-level workers was clearly aimed at recruiting and retaining quality labor, and these measures brought turnover down to 35 percent annually. The comparison with National here is instructive. The 35 percent turnover figure at Global continued to be a subject of concern among managers (and may well have indicated that teller pay, while higher than in the past, was not commensurate with the increased responsibilities). By contrast, at National Bank, annual rates typically exceeded 50 percent in urban labor markets similar to the one we studied at Global, and National Bank executives expected turnover to increase even further as a result of restructuring. The acceptable rate at National, though in dispute, was clearly higher than at Global, with some executives telling us they were willing to live with turnover rates as high as 100 percent before they believed remedial action would be required.

We should note, however, that differences between the teller positions at GlobalBank and at National were not as sharp in practice as they were in design. On balance, GlobalBank's strategy of job upgrading was disproportionately concentrated on higher-skilled workers, similar to National's. The pay gap between tellers and personal bankers, though less dramatic at Global, widened significantly at both banks. And tellers' earnings at Global, while higher than at National, were still quite low, especially for a large metropolitan region with high living costs. Further, the importance of sales referrals in the teller job varied considerably *within* each of the two banks, depending on the views of local management and the client base served by individual branches. At Global, just as at National, there was a strong consensus among branch workers that accuracy in transactions and organizational skills remained the key attributes of a good teller. During periods of high customer volume, no one expected or wanted tellers to make referrals,

since doing so necessarily slowed down service – and hurt customer satisfaction.¹⁴ And tellers at National Bank, like those at Global, could also make referrals and had small pay incentives for doing so; some regional managers emphasized this role more than did others. The branch redesign at National, however, actually decreased the importance of referrals, with those responsible for redesign arguing that tellers should focus primarily on efficient service. At National, unlike Global, there was no coherent strategy to involve tellers in sales or in relationship banking; redesign of the teller jobs was aimed at cutting costs.

Segmentation and Part-Time Work

The two banks pursued different strategies with regard to their tellers, with only Global upgrading the position. But given the necessity of cost containment, a key part of the GlobalBank model was extensive use of part-timers. More than half of the tellers at Global were part-time workers, in stark contrast to the past, when virtually all tellers were full-time. Following restructuring, almost all tellers began as part-time employees, and their starting hourly wages were less than those of full-timers (\$11 versus \$13, respectively). Moreover, tellers waited on average one full year to achieve full-time salary and status. This new and strong reliance by GlobalBank on part-timers was a conscious strategy to cut costs associated with transaction-oriented customers.

National, by contrast, did not use part-time tellers for the purpose of cost cutting. Hourly wages paid to part-timers were roughly the same as those paid to full-timers. Benefits were pro-rated, with some part-timers receiving additional pay in lieu of benefits. Part-time work was more likely to be voluntary, and designed to match individuals' schedules to local branches' staffing needs.

¹⁴ Some types of referrals, for example, such as suggesting a credit card application, were more common and were easy for tellers to make. More difficult referrals to lucrative investment products were not commonplace.

This approach was sensible, in light of the already low wages paid to full-time tellers. Had wages for part-timers been any lower, the bank believed, it would have been impossible to recruit effective, trustworthy part-time tellers.

Thus the two banks pursued cost reduction in different ways, with different effects. GlobalBank upgraded its teller position but dramatically increased its use of cheaper, part-time tellers.

National simplified its teller position but continued to offer full-time work to many of its entry-level employees. Both strategies had their drawbacks. At GlobalBank, lack of access to full-time work (and by extension, access to higher positions) led to discontent among tellers, especially given the increased job requirements; part-timers quit in frustration while waiting for promotion to full-time. Global's managers, recognizing this talent loss, eventually began to brake the increase in part-time positions, but it was unclear whether they would be able to provide enough positions to make full-time opportunities realistic. At National, on the other hand, the sharpest segmentation was not between part-time and full-time tellers, but between the teller job and other jobs in the branch system. Thus there was ongoing debate about whether branches could be profitable without involving tellers in the bank's relationship management and sales strategies.

Branch Management: The Strategies Diverge Further

Yet another difference between the two banks was their approach to local management. The desire for cost containment and service standardization led National Bank to eliminate the position of local branch manager – these managers had often authorized idiosyncratic treatment of individual customers, including preferential account fees and interest rates. The new “Customer Relations Managers” (CRMs) were severely circumscribed in their ability to bend National Bank

rules and procedures. The CRMs also no longer had direct supervisory authority over tellers or Financial Specialists; remotely sited managers now performed this function.

In the past, the main requirement for the branch manager position had been work experience with National Bank. The Bank had considered a degree an asset but not a requirement for this job, and many branch managers had gained their positions after working as tellers and platform employees. After restructuring, CRMs earned wages comparable to those of the Financial Specialists (though without the same incentive opportunities), but nearly \$10,000 to \$20,000 less than branch managers had. Criteria for the CRM position included either a college degree or two years of managerial experience. Some of the former branch managers did bid into the CRM jobs (as incumbents, they were not required to take pay cuts); others sought Financial Specialist positions; many, however, left the bank for managerial positions in other organizations.

The job hierarchy at GlobalBank looked different from that at the restructured National. College-educated branch managers at Global continued to be responsible for branch profitability, and retained considerable authority and autonomy. GlobalBank also created a Customer Relations Manager position. Typically, CRMs at Global had some college education, and their earnings were closer to those of tellers than to Personal Bankers. The CRM position was relatively less important to Global's strategy than to National's. The CRM duties at Global, like those at National, involved greeting customers and directing them to different areas in the branch, but the CRM at National was charged with enforcing customer segmentation at the branch level. National CRMs more aggressively enforced a policy of limited access to the Financial Specialists and tellers, ensuring that workers in each position could focus on their separate duties.

The Decline of Internal Labor Markets

Restructuring changed the banks' internal labor markets. Process reengineering, technological change, and the restructuring of work led to a sharp reduction in the number of job titles within each occupation, diminishing the possibilities for advancement through seniority. At National Bank, tellers saw their chances for advancement out of the teller position nearly evaporate upon restructuring – Financial Specialist positions required either college degrees or two years of sales experience, and the teller job itself did not provide sufficient sales experience to qualify workers for the position. CRM positions were often filled by long-serving employees who had little intention of leaving their job, so that openings in this slot were rare. In any event, there was no way for tellers to gain the requisite managerial experience while working as tellers; as with the Specialist job, a college degree was the only route to promotion.

At GlobalBank, teller movement up the job ladder also became harder, especially for those without some college. Moves were predicated on reaching full-time status: this itself was not easily accomplished. There were, however, a few more opportunities than at National. Since Global tellers received a substantial amount of training, they could move up to the CRM position and receive significant increases in pay and status, though it is important to keep in mind that most branches had only one or two CRMs. Also, because Global consciously tried to hire tellers who had some college experience, those workers were then in a better position to try to move into higher-level jobs (since they could more easily complete a college degree).

In the longer run, mobility opportunities were also greater because Global retained its branch manager position, while National eliminated it. The elimination of the local branch manager had profound consequences for National workers: in the past, high school graduates could become branch managers and earn \$50,000 or more. The loss of this position diminished opportunities

even for employees with degrees: there were fewer remotely sited management positions than there had been branch manager jobs.

Analysis: Drivers of Change

New technologies in the form of hardware, software, and telecommunications had profound effects on retail banking over the 1980s and 1990s. To what extent did technology drive the workplace restructuring in our case study banks? Was technology implemented in the same way, resulting in similar changes in job titles, job content, and earnings? Or did managerial strategies also have an independent effect on the redistribution of skill requirements, responsibilities, earnings, and opportunities within the organization?

We note that we did not study the entire hierarchy of jobs and earnings inside (or beyond) our two banks, so we cannot draw conclusions about the effects of the changes we studied on the overall demand for skills, or the distribution of jobs. We did not, for example, have data on the effects on jobs and wages in the telephone call centers that were likely to bear an increased share of the customer traffic as a result of restructuring. Our case studies, however, allow us to identify the effects of managerial choices on key jobs in the branch system.

Our evidence suggests that while technology clearly had a profound impact on front-line banking jobs in these two organizations, it cannot explain the divergence in job content, earnings, and opportunities within and between the two banks. Managerial decisions about business strategy and its implementation mattered as well. Two lessons in particular stand out. First, decisions about how to distribute new technologies in the workplace were not wholly driven by skill considerations. Second, even among workers who participated in technological upgrading, the dictates of market strategy resulted in some workers being rewarded better than others.

The Deployment of Technology in the Workplace

The first lesson comes from our comparison of how tellers fared at each of the two banks. When National and Global began to restructure their workplaces and introduce new information technologies, they were facing essentially the same skill sets in their tellers – high school graduates, with varying degrees of firm-specific experience. At Global, however, restructuring resulted in tellers earning more than they did at National. Tellers at Global also faced more promising opportunities within the bank.

Differences between the banks arose from managerial decisions about how to restructure the workplace and how to distribute access to technology. While technology set broad limits on what was possible, there was considerable room for maneuver. Comparing our two cases, variability in strategies governing the *deployment* of technology drove the effects on tellers' earnings more directly than did the requirements of the technology itself. The two banks made different decisions about the tellers' role in their relationship banking strategies. National Bank did not give tellers access to the sophisticated information system that workers higher in the organization used. GlobalBank did, so that the same management information system was used by everyone, from entry-level teller on up.

Further, while Global increasingly sought tellers with some college experience, a significant part of its teller workforce consisted of high school graduates, and this composition did not change quickly. Global brought these workers into the fold by dramatically increasing the amount of training that tellers received. This stood in sharp contrast to National, where an explicit goal of restructuring was to reduce the amount of training given to tellers. At Global, this training was

provided in the context of an internal labor market; at National, internal promotion opportunities for tellers were nearly eliminated.

The comparison between the banks is especially interesting because both had adopted similar restructuring and business strategies in the face of intensified competition. Both banks fundamentally reorganized their branch systems: diminishing regional autonomy; standardizing products, processes, and jobs; automating where possible; and consolidating back-office functions. Each began to segment customers more explicitly, reserving in-depth personal service for lucrative customers, while hoping to move the lower end of the market toward conducting basic transactions via ATMs and telephone call centers.

Beyond these broad similarities, however, divergence in implementation of the strategy led to important differences in branch-level jobs and opportunities across the two banks. The banks had differing views of how best to organize their branches in the service of similar strategies. Upper-level managers at National, and their consultants, believed several things that managers at Global did not, and the absence of obviously superior models for structuring jobs allowed the banks to take different paths, based on these beliefs.

National believed that its strategic goals of sales enhancement and cost containment could be achieved through remotely managed branches with no direct supervision of employees, that its Customer Relations Managers would be able to enforce a strategy of customer segmentation, and that customers would respond well to the personal attention of the CRM. Further, they believed, customers would appreciate the focus of tellers on routine transactions, and of Financial Specialists on more complex issues. Global, on the other hand, held that restricting tellers' access to technology was likely to irritate customers. Global saw tellers as representatives of the bank, responsible for understanding the bank's range of products and able to initiate sales efforts.

Global also believed that increasing sales and reducing cost would require a person in each branch with authority and with direct responsibility for profitability, and therefore maintained the more traditional branch hierarchy.

At least one further difference between the banks may have been important: National's recent history of growth by acquisition. This history meant that National had to introduce more changes in a shorter period of time than did Global. The time constraint was particularly important with respect to decisions governing the teller jobs. Internal training was relatively less feasible as a vehicle for skill development than it might have been at Global, and job simplification was correspondingly more attractive. The pressures for immediate cost containment associated with the acquisitions further mitigated against training investments.

In neither case, however, did it appear that human resource concerns were central to strategic choices. Other research (e.g. Osterman 1994) shows that the extent to which top managers value employees influences the design of work systems, but our interviews turned up no evidence that the more investment-oriented approach of GlobalBank was driven by such values. Rather, key decision makers simply had different views of how to increase sales and customer satisfaction.

Explaining returns to education and skills

A second lesson comes from contrasting the experiences of tellers with those of platform workers. At first glance, the growing earnings gap between tellers and platform workers seems a simple function of the growing skill requirements for the latter position – in each bank, management decided to require college degrees for the platform job. But this decision was not driven solely by the requirements of the new technologies. Nor was it driven solely by the

introduction of new financial products: even before restructuring, platform jobs had required bank-specific product knowledge and the ability to match products to the needs of customers. True, the new products of recent years required additional knowledge, and sales skills and techniques for prospecting for customers became more important. But much of this would have simply required an upgrading of platform jobs with additional training and licensing, not a wholesale shift to four-year college degrees.

The banks aimed to professionalize the platform (hence the new titles of “Personal Banker” and “Financial Specialist”). The desire for higher levels of soft skills -- department, ability to communicate, initiative – were closely associated with the banks’ higher educational requirements for these jobs. Soft skill requirements followed in turn from the strategic segmentation of the customer market. Segmentation required the splitting of services, between low-yield customers who were relegated to ATMs and tellers, and high-yield customers who received personalized, relationship-style services. Both banks tried to meet their customers’ expectations by using college degrees as a screen, hoping to select polished workers with a more professional demeanor. They hired into these jobs workers who would be effective in carrying out the new roles associated with platform work: less time spent on routine services, and more spent on sales efforts and financial counseling.

On the other end of segmentation, the teller function was targeted for cost savings. The banks’ strategies led them to associate the teller role with costs, not revenues. Even at Global, where all employees used the information systems designed to support relationship banking, the tellers spent much of their time with these systems on routine transactions which the bank did not believe led to customer satisfaction, sales revenues, or profits. The segmentation of services in each bank

encouraged managers to keep teller wages low and to keep staffing lean; Global also increased its use of lower-wage part-timers.

Thus some share of the widening pay gap between tellers and personal bankers was associated with the role that each group played in the segmentation strategy. The effects of these strategies, like those of technology, involved a mix of market-oriented determinism and managerial choices.

While competitive mandates and customer preferences clearly drove some of what the banks were doing, choices remained important because neither bank had found a clear solution to the challenges posed by the new competitive environment. The banks' strategies themselves were still works in progress, and neither model had emerged as clearly superior either in generating sales revenue or in lower costs. While increasing sophistication in marketing, data-mining, and modeling had allowed the banks to improve their ability to segment customers, each bank still had far to go in this area, and each continued to search for matches between customers' demands, models of organizing work, and skill criteria for the various jobs. Neither bank had discovered a mix of relationship- and transaction-based approaches that contained costs effectively yet took full advantage of the sales opportunities associated with different customer segments.

The transformation of platform workers into well-educated, multi-skilled, and well-paid financial consultants was virtually complete at both banks we studied, and was unlikely to be reversed.

Neither the eventual nature of the teller job, however, nor the ultimate structure of the branch job ladder were clear at the time we completed our research. With respect to tellers, GlobalBank may eventually come up against the limits of its strategy: the lean staffing and cost containment still associated with the teller job raise obstacles to involving tellers more fully in relationship banking. Whether GlobalBank responds by investing still further in its human resources, or by abandoning the upgrading experiment, is an open question.

On the other hand, National may find that the sharp segmentation that it hopes for among its customers and its employees will not prove effective in practice, and that tellers' efforts to identify and to serve potentially profitable customers must be fostered. Further, the more radical changes in branch management structure at National, if effective in enforcing standardization and containing costs, could eventually force its competitors' hands. Such superiority, however, had not yet been demonstrated.

Conclusions

Deregulation, and consolidation intensified competition in retail banking in the 1980s and 1990s. New technologies profoundly changed the ways in which banks conducted their business and interacted with their customers. Change in banking continues: alternative channels for delivery of financial products are likely to grow in popularity, and more effective models to organize branches for sales and service may emerge.¹⁵ The evolution of competition and of work organization, in turn, will carry further implications for jobs and earnings.

More generally, our close examination of two large American banks provides a sketch of what recent skill-biased technological changes look like inside organizations. In these two banks, new technologies were clearly associated with increased returns to skills in the jobs we examined. The introduction of new technologies accompanied explicit changes in educational requirements, and other kinds of skills, especially for platform jobs. Some aspects of these new information systems, such as those that supported sales efforts, were intended for direct use by the employees in question. Other technological changes enabled the automation or relocation of routine tasks

¹⁵ This process may take decades. For example, see David's (1990) discussion of technological change, attempts to reorganize industry after electrification, and the analogies to computerization.

for these same employees, freeing platform workers from routine functions and moving them into roles requiring higher levels of education.

Here we recall the earlier argument that “skill-biased technological changes” might encompass a variety of organizational changes. A full accounting of these changes considers not only technology as conventionally understood – automation, telecommunications, and increasingly sophisticated computer hardware and software – but also the relationships between technology, work practices, and skill requirements (Bresnahan, Brynjolffson, and Hitt 2000; Hunter and Lafkas 2000). Much of what is termed skill-biased technological change is more properly understood as a set of technological and organizational changes that have been accompanied by increased returns to formal education and other skills.

Our case studies also indicate important limits to accounts that rely heavily on technological change to explain changes in jobs and earnings. Aggregate analyses of the returns to education indicate central tendencies; case study research of the sort we present here contributes to an understanding of the variance around these tendencies. Our study, which examined a subset of jobs in two organizations in a single industry, requires complementary work in order to understand its generalizability and its limits. The results here, however, suggest that not only technology, but business strategy, market segmentation, and customer preferences may have implications for the earnings distribution. New strategies may be in part enabled by technology; changes in the regulatory and competitive environment are also important considerations.

More complete accounts of changes in the earnings distribution will therefore include further attention to business strategy and managerial decisions. Such decisions affect the deployment of technology, the content of workplace restructuring, and the interaction of

technology and restructuring, and have consequences for jobs and their associated earnings. In American banking, managerial action may have been especially important because of the absence of strong workplace institutions: there were no unions with which to negotiate changes in wages or work rules, and no established mechanisms outside the firm for developing the skills of lower-level employees.¹⁶ In other settings, managerial strategies and decisions might also be considered in relation to existing workplace institutions.

¹⁶ By contrast, in Germany two-year banking apprenticeships are available. See Keltner (1995) for a discussion. See also Regini, Kitay, and Baethge (1999) for cross-national institutional comparisons.

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Table 1
Jobs at GlobalBank before and after restructuring in one major market*

Job Title	Proportion of branch employees #		Starting annual base earnings †		Performance bonuses		Hiring criteria for new hires	
	Before	After	Before	After	Before	After	Before	After
Past: Teller Present: Customer Service Representative	More than present no part-timers	50% more than half are part-time	\$18,000 full-time \$8/hr. part-time	\$24,000 full-time \$11/hr. part-time	Not tied to branch performance	\$150-\$200 per quarter Tied to branch performance	High school diploma	High school diploma and preferably some college experience or Associate's degree
Past: Platform Employee Present: Personal Banker	Same as present	26%	Significantly lower than present	\$38,000-42,000	Not tied to branch performance	\$500-\$600 per quarter Tied to branch performance	High school diploma, some college helpful	4-year college degree
Past: — Present: Customer Relations Manager (new position)	—	13%	—	\$29,000	—	Tied to branch performance	—	Filled by tellers with experience and cross-job training
Past: Branch/Assistant Managers Present: Branch/Assistant Managers	Same as present	11%	Not disclosed		Closely tied to branch performance	Closely tied to branch performance	4-year college degree very helpful	4-year college degree

* “Before” refers to mid-1980s, “After” refers to 1997.

† Earnings are not adjusted for inflation.

Excludes back-office workers; not FTE corrected.

Table 2
Jobs at National Bank before and after restructuring in five markets*

Job Title		Proportion of branch employees #		Mean annual base earnings †		Performance bonuses		Hiring criteria for new hires	
Before	After	Before	After	Before	After	Before	After	Before	After
Teller	Teller	64% 27% part-time	65% 14% part-time	\$16,948 full-time part-timers earn same hourly rate	\$16,430 full-time part- timers earn same hourly rate	3-5% based on referrals	3-5% based on referrals and branch performance	High school diploma	High school diploma
Platform Employee	Financial Specialist	27%	23%	\$26,641	\$33,729	5-15% of base salary, based on individual sales	0-50% of base salary, based on individual sales	High school diploma, college somewhat helpful	College degree or two years sales experience preferred; at least one required in practice
Branch Manager (eliminated by restructuring)	Customer Relations Manager (new position)	9%	11%	\$48,757	\$29,140	5-15% of base salary, based on branch performance	5-10% of base salary, based on branch performance	High school diploma, college very helpful	High school diploma, college very helpful

* “Before” refers to the period just before restructuring, which ranged from early 1996 in the case of two markets which piloted the new design, to June 1998 in the case of the market which was last to implement the new design. “After” refers to a date one year following the implementation of the new design in each market.

† Earnings taken from personnel records, not adjusted for inflation.

Excludes back-office workers; not FTE corrected.

Appendix A

Comparison of Earnings Distributions for American Banking Workers

	1979	1996
10 th percentile hourly wage	6.61	6.50
25 th percentile hourly wage	7.89	8.00
Median	9.75	10.85
75 th percentile hourly wage	13.79	15.63
90 th percentile hourly wage	21.08	24.22
Ratio of 90/10	3.19	3.72
Ratio of 75/25	1.75	1.95

Source: Current Population Survey, 1979 – 1996, subset of workers employed in U.S. commercial banking.

Appendix B
Ordinary Least Squares Regression Results
Earnings of Workers in U.S. Banking

Variable	1979 mean (s.d.)	1996 mean (s.d.)	1979 OLS estimates dependent variable: ln hourly wage	1996 OLS estimates dependent variable: ln hourly wage
Years education	13.03 (1.97)	13.72 (1.95)	0.0619 (0.0036)	0.106 † (0.005)
Potential Experience	17.12 (13.71)	19.08 (12.16)	0.0255 (0.0015)	0.0332 † (0.0024)
Potential Experience ²	481.0 (652.9)	512.0 (574.3)	-0.0004 (0.0000)	-0.0005 † (0.0001)
Female	0.721 (0.448)	0.734 (0.442)	-0.313 (0.018)	-0.256 † (0.021)
Married	0.618 (0.485)	0.638 (0.481)	0.0186 (0.0135)	-0.0249 (0.0182)
Black	0.078 (0.268)	0.096 (0.294)	-0.0613 (0.0230)	-0.0528 (0.0288)
Hispanic	0.027 (0.163)	0.047 (0.211)	-0.0536 (0.0371)	-0.0405 (0.0386)
Other race	0.030 (0.170)	0.059 (0.237)	-0.108 (0.036)	-0.0867 (0.0364)
Veteran	0.129 (0.335)	0.059 (0.237)	0.153 (0.024)	0.0441 † (0.0391)
> 35 hours weekly	0.886 (0.318)	0.867 (0.340)	0.161 (0.020)	0.1885 (0.0251)
Constant term			1.524 (0.058)	0.768 † (0.079)
Regional Dummies Included			YES	YES
R-squared (adjusted)			0.462	0.409
N	3154	2355	3154	2355

† : coefficients statistically different ($p < 0.05$) between 1979 and 1996

This table reports results from ordinary least squares models estimating cross-sectional correlates of earnings for individuals working in the U.S. banking industry in 1979 and in 1996, with data taken from the Current Population Survey. In each model, the dependent variable is the natural logarithm of the hourly wage, adjusted for inflation as indexed in the CPI. Predictor variables include reported years of education, potential labor force experience (measured as age-(years of education+5)), and dummy variables for gender, marital status, race, veteran status, geographic region (not reported), and fulltime employment status.