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ABSTRACT

This volume contains an introduction and four policy option papers that explore key issues affecting the economy and state options to address the issues within the context of the U.S. workplace. "Introduction" (David Bedford, Evelyn Ganzglass) discusses the issues identified in the first phase of the governors' initiative on Excellence at Work and outlines a state action agenda. "State Strategies for Manufacturing Modernization" (Brian Bosworth) provides a framework for considering state government policies to encourage modernization among small and medium-sized manufacturing companies and promotes a review of state policies and programs for helping train workers and managers. "State Strategies for Building Market-Based Workforce Preparation Systems" (Robert Sheets, David Stevens) argues that the challenge for states in the 1990s is to refine and integrate the use of various performance standard systems and other related market incentives into comprehensive market-based workforce preparation systems. "The Flexible Workplace: Implications for State Employment Policy and Regulations" (Barney Olmsted, Stephen Trippe) discusses the changing relationship between employers and employees and the demands of workers for more flexible working conditions to accommodate family and other responsibilities. "Health Benefits in a Changing Economic Environment" (John Luehrs) discusses the ways in which concerns about health care delivery and financing have affected the U.S. workplace. An index is provided. (YLB)

EXCELLENCE AT WORK

POLICY OPTION PAPERS FOR THE NATIONAL GOVERNORS' ASSOCIATION

Evelyn Ganzglass, Editor

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Contents

1
Introduction

David Bedford and Evelyn Ganzglass
National Governors' Association

No greater challenge faces the United States as we approach the twenty-first century than reinvigorating our nation's economy. Still the most productive nation in the world, this country's leadership in innovation, productivity, and creativity is threatened by aggressive global competitors. The international forces reshaping the economic environment in which the American entrepreneur and worker must compete are characterized by four major trends: internationalization of markets, accelerating technological advances, cost-efficient transportation, and information and communication advances.

At the same time, dramatic changes are occurring in the American labor market. These changes—projected labor and skill shortages, an aging workforce, increased participation of women, and greater reliance on minorities and immigrants—will affect markets for workers, influence the flexibility of the workforce to adapt and relocate, and alter traditional employment relationships. The economic changes and national demographic trends shaping America's future ultimately converge in the American workplace.

The National Governors' Association launched its initiative on Excellence at Work to explore ways to address these diverse pressures affecting the U.S. economy and to recommend state-level strategies for promoting excellence in the American workplace. The initiative was a three-part effort carried out in consultation with the primary players in the economy—business, labor, government, and education. The first step was to catalogue the challenges affecting workers and workplace productivity. These were presented in a report entitled "Excellence at Work: The Issues."

The second phase of the initiative was a series of roundtable discussions on the issues identified to assess the viability of state policy options for developing a competitive economy. The discussions, conducted during the summer of 1990, included business leaders, union representatives, educators, researchers, and state policymakers. Results of these discussions are reported in "Excellence at Work: Principles and Options for State Action."

The final stage of the initiative was the formulation by the Governors' Forum on Excellence at Work of specific recommendations for state policy action. These were incorporated into the final report of the initiative, "Excellence at Work: A State Action Agenda," and presented at the National Governors' Association 1991 winter meeting. The report suggests ways in which states can better integrate their human resource, economic development, and job-training programs to stimulate increased productivity within the American workplace.

The governors embarked on the initiative assuming that stimulating economic competitiveness will require multifaceted solutions that cut across the traditional boundaries of state economic development and human resource development policy. They recognized that no single participant in the economy can produce the changes needed. The future economic success of the United States will require concerted action of business, unions, individual workers, government, and education to develop integrated, value-adding strategies to strengthen America's competitive position in the global economy.

The governors concluded that state governments should act as catalysts to encourage and assist small and medium-sized firms to increase productivity and improve quality. To do this, state governments will have to reevaluate the kinds of human resource and economic development services they provide to individual workers and firms and the ways these services are organized and delivered.

In the human resource policy area, the objective should be to create a more flexible and responsive workforce development system out of the fragmented array of programs that now exist to prepare young people for work, educate and train people within second-chance programs, and help members of the existing workforce upgrade their knowledge

and skills. While diversity in service provision is desirable, the diverse missions, performance expectations, and funding incentives driving these programs result in service gaps and other inefficiencies that diminish opportunities for workers and businesses to take advantage of affordable and easily accessible services.

Changes are also needed in how our economic development resources are invested and how private sector modernization and quality improvement efforts are supported. State economic development policies should seek to create a comprehensive support network linking technology, management, marketing, financing, and training assistance for small and medium-sized firms.

In both the human resource and economic development arenas, state efforts should complement those of the private sector, recognizing that the degree to which states can directly influence these issues varies considerably across problem areas. For example, business must necessarily lead the implementation of new ways of organizing work and the introduction of technology, although the public sector can promote and facilitate such change. Conversely, the preparation of the American workforce remains primarily the responsibility of the public sector, even though business invests billions of dollars each year in training programs.

The policy option papers presented in this volume were commissioned by the National Governors' Association as background papers to guide the governors, business and union leaders, educators, and policymakers in their deliberations. They explore a number of key issues affecting the economy, as well as state options to address the issues within the context of the American workplace.

A consistent theme running through the papers is that government, along with the private sector, must adopt the principles of continuous improvement, flexibility, high productivity, and a devotion to quality in the way it deals with its customers—the individuals, firms, and communities served by its programs.

For government as well as the private sector, these increased expectations must be achieved without the expenditure of additional resources. Significantly, these papers argue for systemic reforms, not

new programs. They make the case for the importance of setting clear policy goals, targeting resources, and organizing the delivery of services to maximize economic return on the states' investments. The papers explore market strategies to improve accountability and the responsiveness of the services government provides. The papers also focus on ways in which states can use their regulatory powers related to healthcare, workplace safety, worker compensation, and worker pay to create new workplace conditions that are more responsive to the changing needs of workers and employers.

The papers propose new partnerships between government, employers, and workers that would redefine the traditional role of government *vis a vis* the economy. Among these is the role of government as catalyst for forging cooperative arrangements among firms to address common needs.

Consistently, the papers focus on the unique needs of small firms as they try to adjust to changing demographics and competitive pressures. Small firms are the least likely to have the resources or expertise to modernize and make necessary investments in human resource development on their own. Small firms are also the least likely to provide health insurance and other benefits to their employees because of cost and other considerations. The authors argue that state governments can achieve their greatest impact by focusing services and reforms on the needs of this important sector or the economy.

"State Strategies for Manufacturing Modernization," by Brian Bosworth, provides the framework for much of the state action plan that emerged from the governors' initiative. It argues that modernization strategies should be a central feature of state economic development programs. In developing these policies, states should recognize the multidimensional nature of the modernization process and create systems of applied research, technology deployment, finance, education, and training that are responsive over time to the changing requirements of firms. Furthermore, the objectives of these strategies should be defined at the level of industrial sector and services targeted to states with small firms.

"State Strategies for Building Market-based Workforce Preparation Systems," by Robert Sheets and David Stevens, argues that the challenge for states in the 1990s is to refine and integrate the use of various performance standard systems and other related market incentives into comprehensive market-based workforce preparation systems. The authors urge states to provide leadership in policy coordination through a renewed emphasis on strategic planning, performance objectives and quality standards, national-state competency-based credentialing systems, consumer information systems, competitive contracting, and capacity building.

"The Flexible Workplace: Implications for State Employment Policy and Regulations," by Barney Olmsted and Stephen Trippe, discusses the changing relationship between employers and employees and the demands of workers for more flexible working conditions to accommodate family and other responsibilities. This paper generated a number of specific recommendations on how states can encourage the adoption of nontraditional work arrangements and continue to provide traditional worker protections to those employed under such arrangements. The issue of family-responsive employment policies has subsequently been identified as a priority area for further policy development by the Committee on Human Resources of the National Governors' Association.

Finally, "Health Benefits in a Changing Economic Environment," by John Luehrs, discusses how concerns about health care delivery and financing have impacted the American workplace. Spiraling health care costs have placed some U.S. industries at a competitive disadvantage in the international marketplace and have priced insurance coverage beyond the means of small businesses and individuals. The paper offers suggestions regarding what states can do through health policy development and regulatory reform of the small business insurance market to address these problems. These recommendations and others form the basis for a policy statement adopted by the governors in August 1991. They are also presented in a separate report on options for state action entitled, *Rx for a Healthy America.*

Excellence at Work: The Issues

The issues identified in the first phase of the governors' initiative fell into four categories: work structures, training the existing workforce, workforce preparation, and employment support.

Work Structures

In their efforts to become more competitive, U.S. businesses have begun to explore new ways of organizing work. Business organizations characterized by greater specialization, flexibility, and flatter organizational structure, which provide autonomy to work units and empower employees to take greater responsibility, are becoming more commonplace.

To remain competitive, U.S. firms must also continually increase the speed with which they adopt new technological processes and introduce new products. Rapid technological change requires a workforce that is adaptable to learning new machines, techniques, and processes and is sufficiently knowledgeable to contribute to future improvements. An adequate supply of scientists, engineers, and technicians will be critical. Training will become an ongoing process increasingly centered in the workplace. Management will need to become better attuned to changes in technology, understand the advantages of commercialization and deployment, and accept the need for continuous and rapid technological upgrade.

The problem is that U.S. firms have been slow to adopt new production processes and methods of organizing work. It has been estimated that only 5 percent of U.S. companies can be classified as high-performance organizations. This is particularly true of small and medium-sized manufacturing firms, which have experienced the greatest growth in the last several years. There is a 30 percent productivity and wage gap between small and medium-sized manufacturing firms and their larger counterparts, according to the Industrial Technology Institute in Ann Arbor, Michigan. As a result, U.S. companies have had difficulty

in producing higher quality products and responding to rapidly changing markets.

Training the Existing Workforce

In workplaces undergoing modernization, restructuring, and accelerating technological change, workers with adaptable skills and the capacity for retraining are a prerequisite for success. Accelerating demands for new and advanced skills necessary for the competitive global economy will require greater access to relevant skill upgrading for all workers throughout their careers. While business expends billions of dollars each year on training, this investment represents less than 2 percent of total personnel costs. Only 11 percent of workers receive any formal training, and this is generally targeted to those with the most education. Training is frequently not directly connected to the actual processes of technological advance, deployment, and modernization in the workplace.

Finally, workers and employers lack the type of information necessary to make decisions about training and career development. To meet the need of business for the continuous upgrade of the skills of its workforce and the need for workers to gain marketable skills, training and education must be financially accessible, responsive to the marketplace, and able to provide the fundamental learning skills necessary to pursue additional training.

Workforce Preparation

Economic growth has always required a steady stream of new workers equipped with the skills needed to perform in the workplace. With impending labor shortages and demands for greater skills, the education and training of students must produce workers with a high level of adaptability and competence. Business requires a pool of new job entrants who are capable of performing within the work environment, mastering essential job skills, and demonstrating the ability to take advantage of advanced training and skill upgrading to adapt to changing market realities. To ensure employers that new job entrants are pre-

pared for work and to facilitate the success and productivity of new workers, education and training programs must include methods that integrate school and training with the world of work. The confluence of business, workforce, and government interests may be strongest with respect to the basic educational skills provided to the future workforce.

Employment Support

To recruit and retain a stable base of employees among certain segments of the labor force—such as workers who balance their jobs with family responsibilities, single heads of households, and older workers seeking partial employment—employers will need to explore flexible working hours, job sharing, family leave policies, and work-at-home job structures. The availability of qualified and affordable dependent care services is essential to the participation of a growing portion of the labor force.

Health care and retirement are also playing an increasingly important role in employment. As health care expenditures continue to increase at an alarming rate, purchasers are struggling for ways to control costs. Large corporations are looking for ways to limit their financial exposure; small firms are unable to find health insurance at a reasonable price; and governments are trying to limit the growth of public expenditures. Employees are becoming increasingly restive about changes that diminish their benefits. In addition, the issues of attachment of workers to a single employer, integrity of retirement accounts, and the rising costs of provision of benefits have produced concerns about the maintenance of employee-sponsored retirement benefits.

Labor market exchange and unemployment compensation will become more important in an increasingly fluid labor market. In addition to providing temporary income maintenance for workers between jobs, the system of publicly provided labor exchange must have the ability to assess the workforce requirements of employers and the aptitudes, abilities, and skill levels of job seekers to match workers with jobs and employers.

Finally, several workplace regulations, developed in response to corporate activities in restraint of trade and the work practices of the 1920s and 1930s, are proving to be barriers to the implementation of more flexible workplaces. For instance, regulations governing overtime and standard workdays inhibit the ability of employers to offer flexible hours and compressed workweek schedules to some of their employees. Antitrust provisions prevent firms within an industry from collaborating on matters of production. A regulatory environment that is conducive to the more flexible work structures emerging in the current economy and preserves traditional worker protections is necessary to modernize the workplace.

Excellence at Work: A State Action Agenda

The strategic action agenda developed by the National Governors' Association contains specific actions states can take to reshape their existing economic development and workforce preparation systems in order to increase the productivity of workers and firms and maximize the return on public investment.

Modernization

To increase the percentage of U.S. firms that are high performance work organizations characterized by quality, flexibility, and productivity, states can:

- promote the concept of total quality and provide education and technical assistance to firms implementing quality improvement programs;
- encourage the development of participatory workplaces;
- develop a state delivery system that links technology, management, marketing, financing, and training assistance for small and medium-sized firms;
- organize services for groups of firms rather than individual establishments;

- support the creation of industry-managed intermediary organization;
- promote collaboration among firms.

To ensure that small firms have adequate access to information on domestic and foreign markets, states can:

- facilitate access to market information.

Technology

To facilitate the deployment of technology and modern management practices, particularly in small and medium-sized firms, states can:

- make technology diffusion an integral component of state development strategies;
- link technological assistance with training, marketing, and management assistance.

Financing

To ensure the availability of capital to meet the needs of small modernizing firms, to acquire new equipment and machinery, and to invest in worker training, new market development and new distribution and service systems, states can:

- redirect state development financing programs to include financing for modernization efforts;
- create new financial institutions/mechanisms to make higher risk capital available for modernization.

Workforce Quality

To ensure that the workforce development system is responsive to the ongoing needs of firms and workers, states can:

- establish an ongoing dialogue with employers to establish workforce competency standards that reflect the changing skill requirements of the workplace;

- work with business to reach consensus on what skills and levels of proficiency should be achieved by those preparing to enter the workforce and by existing workers.

To encourage firms to enhance their employee training efforts, states can:

- provide technical assistance to businesses in planning, conducting, and evaluating retraining programs;
- use customized training programs to provide financial incentives to companies who undertake quality work-based retraining programs on a scale and timetable that otherwise would not occur;
- aggregate the demand for training among small and medium-sized firms so that the public sector can more effectively help them address their training needs;
- work with employers and educators to expand opportunities for structured work-based learning.

To create an easily accessible, comprehensive service delivery system for individual workers and firms, states can:

- promote better integration of workforce preparation services.

To assure quality workforce preparation programs, states can:

- establish measurable performance standards;
- create a common framework for skill assessment within the public and private sectors;
- use competitive contracting to stimulate improvement in service provider performance;
- promote informed consumer choice to encourage system responsiveness and efficiency;
- strengthen counseling, assessment, and information services.

Employment Support

To maintain the participation of employers in the health care system by ensuring access to coverage at an affordable cost, states can:

- encourage the development of insurance and employer arrangements that facilitate the provision of employer-based health insurance.

To increase the involvement of employers in enhancing workers' access to child care services, states can:

- develop a comprehensive child care policy for employer-sponsored child care;
- help employers establish job-site care centers.

To continue providing traditional workers protections to those employed under nontraditional work arrangements, states can:

- revise labor standards policies to account for emerging employee-employer relationships.

To encourage the adoption of nontraditional work arrangements, states can:

- develop family-responsive employment policies.

Conclusions

Restoring American world leadership in productivity requires addressing issues as diverse as job training, child care, workers' compensation, and technology deployment. State programs housed in a variety of agencies deal independently with most of these issues. For state governments to contribute more effectively to economic growth, they will need to change the way they do business.

Since increasing productivity depends upon making multiple improvements simultaneously, states must organize themselves to provide essential services in a coordinated, comprehensive manner. Integration of services will require organizational structures that facilitate client access and awareness of needed services, regardless of the initial inquiry point. Complementary services provided by more than one agency should be coordinated in such a way as to maximize the effect of each on increasing productivity.

States must be dedicated to improving the quality of the services that support the productivity of the economy. State government must explore ways to promote an ongoing dialogue between government and its clients, and modify its services to meet those needs. Perfor-

mance management systems should be used in all programs, with performance standards providing the basis for program evaluation and funding decisions.

Finally, states must increase the productivity of state services to maximize the return on public investment. Whenever possible, public investments should leverage or complement private resources. In an era of limited resources, states should target efforts to those businesses and sectors for which state services can be most helpful in adding value to the economy.

A world-class economy will require high-performance firms and workers. Consequently, the public and private sectors must make a commitment to increase the quality of goods and services produced. For states, this means integrating human resource and economic development policies to foster an economy of excellence.

2
State Strategies for Manufacturing Modernization

Brian Bosworth
Economic Development Consultant

This paper is designed to provide a framework for considering state government policies to encourage modernization among small and medium-sized manufacturing companies. It is also aimed at promoting a review of state policies and programs for helping to train workers and managers of manufacturing concerns. The report synthesizes what we think we know about these matters, challenges a few generally accepted notions, and offers recommendations for improving state economic development efforts.

Some topics are addressed only in a summary fashion, assuming that most readers have a general familiarity with economic development issues at the state government level. Readers are also assumed to have a passing acquaintance with many of the principal issues of technology development, finance, education, and training as they relate to the manufacturing sector.

There is no discussion in this paper of industrial policy at the federal level. It is assumed that whatever the federal government now does or does not do, it will not change. That assumption seems safe. The focus here is on the strategic choices that face state governments.

The first section summarizes some of the reasons why this is an important issue. The second offers some context—a way to understand the economic changes that American manufacturers are confronting. The third, fourth, and fifth sections discuss some of the principal issues of technology, capital, and human resources, respectively, that are caught up in the competitive problems of American manufacturing firms. The sixth section outlines some basic goals and principles that

should lie at the foundation of efforts to build a strategy. The final section recommends some key elements in fashioning a comprehensive strategy for modernizing America's small and medium-sized manufacturing establishments.

The Problem of Manufacturing Modernization

In the past few years, a consensus has begun to form around the notion that America's industrial base is in trouble. Our manufactured products are not competing well in international markets. Persistently high deficits in the merchandise trade balance can no longer be blamed on an overvalued dollar. When the dollar declined in the middle of the 1980s, the deficits decreased, but not by very much, and they most certainly did not go away.

The trade deficits are dangerous for what they imply—a weakening industrial sector—and for what they will bring about—a skid in the standard of living in the United States relative to other countries. There is some evidence that such a skid is already underway. The trade deficits cannot be attributed simply to unfair trading practices by our chief competitors. Consumers right here in America have been making the same judgment as consumers in other nations; in several key industries, they prefer foreign-made goods to those made domestically.

Average annual productivity growth in the United States has lagged well behind that of Japan and somewhat behind that of several European nations for the past several years. While it is true that those economies had been growing from a lower base, it is nonetheless clear that the relative productivity growth of those nations has translated into increasing market share and a rising standard of living relative to the United States.

Macro indicators of slow relative productivity growth do not always tell the whole story and can be subject to varying interpretations. However, these macro indicators tend to be borne out by direct observation. Anyone who has recently visited and compared manufacturing establishments in America, Japan, and Germany cannot fail to be deeply

impressed by visible differences in the level of technology, the skills of workers, the strength of management systems, and the quality of final product. Most American plants lag behind.

This is not to suggest that there are no "best-practice" manufacturing firms in America. Indeed, in virtually every industrial sector, there are high-performing firms in America who can consistently compete at the front edge of the market with any firm anywhere in the world. Our problem is not one of best practice; it is one of common practice. Our common-practice manufacturing establishments tend to lag well behind the industry leaders. That common-practice gap appears far wider in America than in several nations of the Pacific Rim and Western Europe. The gap is most observable at the high end of the market where higher level technology and higher level skills produce the highest value-added products.

As illustration of this, several major industries that have been very important to the American economy have lost major market share in the United States and in foreign markets to competitors from other nations. Automobiles, steel, machine tools, footwear, textiles, and apparel are examples of old-line industries that have suffered in international competition, especially at the high end of the market. Consumer electronics has virtually disappeared in the face of intense global competition.

Several newer, technology-intensive industries are also suffering an erosion of global market share. Telecommunications, semiconductors, computers, and pharmaceuticals all have lost ground in the past few years. This erosion of competitive position is costing us jobs. Manufacturing employment has dropped sharply in America during the past several years. Some of that job loss came from the introduction of automation technology during the 1970s and 1980s; some can be attributed to the restructuring of major industries during the latter half of the 1980s. But a good deal of the job loss in manufacturing has been the result of the loss of competitiveness and market share of many American manufacturers.

There is evidence that the persistent competitive problems of American manufacturing have affected the standard of living of workers in

this sector. Average wages in manufacturing are not growing as rapidly here as in Europe and the Far East. While the average American family's income shows little change in the past decade, there have been changes in the distribution of that income. Only in the top 20 percent of family income were there increases in the period 1977 to 1988. In each decile of the lower 80 percent, family income declined over the 12 years; the lower the income, the greater the decline (see Office of Technology Assessment (OTA) 1990).

We cannot look to the growth on the service side of the economy to offset our industrial decline. The export of services represents a small fraction (10 to 12 percent) of the total value of goods and services that are imported. Total exports of services are an even smaller fraction of the total value of manufacturing purchased in the United States from both domestic and foreign sources. Any notion that America can even come close to offsetting its deficit in merchandise trade by increasing the export of services is fantasy.

The employment shift away from manufacturing tends to be overstated. The apparent shift does not account for the statistical reclassification of large numbers of American workers. Many of these workers perform in what now is classified as a service establishment (because it has been separated from the production facility) the same functions they used to perform as manufacturing employees in the old production establishment. Others perform under contract as service workers the same tasks that used to be provided by direct employees classified as manufacturing workers.

Manufacturing is important to the economic health of America. It continues to supply almost as much of our national income now (about one-fourth) as it did 20 or even 30 years ago. Manufacturing buys as inputs, according to some estimates, about 17 percent of the outputs of the services sector. It is essential to our national defense.

The issue, as posed by the MIT Commission on Industrial Productivity (1989), is not whether America will be a manufacturing nation, but rather if it will compete as a low-wage manufacturer or a high-productivity producer.

The competitive arena will not become easier for American manufacturers in the years ahead. Japanese manufacturing companies show no evidence of forgetting about continuous product improvement or slowing their efforts to increase market share. Other Pacific Rim nations are increasing their industrial productivity by applying Japanese practices and producing skilled workers. The emergence of a unified market in Western Europe, the economic unification of Germany, and the opening of Eastern and Central European markets will further accelerate already impressive economic gains of several European nations.

American manufacturers can also look forward to a gradual deterioration in what has been their largest and safest market over the past several years—the Department of Defense. By some estimates, Defense purchases over 20 percent of the gross product of American manufacturers. Its purchases from high-tech firms are estimated at one-third of the gross product of those industries. While it is difficult to estimate very accurately how political/security needs in the years ahead will affect military spending, it is probably safe to assume some significant reduction in growth. Given the immense size of this special market, even a modest slowdown will have enormous consequence for American manufacturers.

It is difficult in this summary analysis to pinpoint the precise reasons for the decline in the relative competitive position of American manufacturing. As a general matter, relative to manufacturers in several other nations, most American goods producers simply are not making things that are good enough to lead the market in their sectors. American manufacturing has been losing position especially in making market-leading, high value-added goods. This results from a failure to modernize strategies and production systems to accommodate marketplace demands. More specifically, three observations can help to explain these issues in terms that can contribute to state government policy formulation.

First, many American manufacturing firms, especially the smaller ones, do not employ the level of technology to enable them to produce goods of the quality, reliability, or precision the markets demands.

Second, many firms appear to have difficulty in financing modernization strategies. Firms of all sizes tend pay a higher price for capital than do competitors in other nations, and smaller firms face additional problems of access to financing.

Third, and most important, most manufacturing firms report serious problems—an emerging crisis—in obtaining and organizing the skilled workers and managers needed for competitive production

This paper will review these issues in more detail and suggest priorities for state government action and state governor leadership. It will outline best-practice thinking and present a few new ideas on the question of how state economic development systems should seek to modernize America's industrial base.

Two biases should be noted in advance. The first is a conviction that the question of how young people and adult workers can be better prepared for excellence at work is fundamental to America's future. The second bias is toward policies that promote collaboration among businesses. The vast majority of manufacturing firms are unconnected with each other and therefore unconnected with reciprocal learning systems that can help them to recognize and solve their common problems. Connecting them enables firms to learn from each other.

The Context of Global Economic Change

The competitive position of American manufacturing in the world economy has changed because so many firms—and the educational and financial institutions and government policies on which they depend—have failed to adjust satisfactorily to changes in the world economy. These changes have been enormous in scope, fundamental in consequence, and almost unbelievably rapid in speed. They have radically reshuffled the relative position of wealth and opportunity among nations, industries, and peoples. This restructuring of the global economy may be understood as the result of interrelated changes in markets, products, industrial technology and business structures.

Changes in Markets

Mass national markets have been replaced by segmented international markets. The revolution in information processing, transportation, and telecommunication technologies, propelled by divergent consumer tastes, has produced an increasingly niche-oriented marketplace. Rising affluence worldwide has contributed to highly articulated demand for consumer goods and, in turn, for the producer goods to make them. What used to be mass markets of undifferentiated demand have shattered into narrow fragments, each representing specialized demand for specialized product. Standardized products find little acceptance in this segmented-demand environment.

This market segmentation has been accompanied by an incredibly rapid market internationalization. Intense foreign competition now pressures businesses that have always seen themselves as on top of the international market or isolated from it. Manufacturers in America can elect not to export their products, but they cannot opt out of international competition. Goods produced in other countries now compete in virtually every corner of the American market. Many American firms are finding that if they have not honed their competitive edge in the export market, they cannot hold their own in the domestic market.

Businesses and governments in such Pacific Rim nations as Japan, Singapore, and Korea and in such European nations as Germany, Denmark, and Italy, have proactively sought to develop an export-based economy. Most manufacturing firms there of all sizes have learned what it takes to compete in international markets. In America, even the large firms have been slow to develop the ability to meet international standards of quality, delivery, reliability, and price. Small firms have lagged much further behind in learning to compete in a context of global standards.

Changes in Products

Standard products are giving way rapidly to customized products. Purchasers of standard, mass-produced goods that American manufacturers were very good at making were willing to accept products that

came close to meeting some of their needs. But niche demand requires highly differentiated products that precisely satisfy the very narrow application requirements of the buyer. Customized products, therefore, must embody higher levels of skill, knowledge, and technology than did standardized products. Customized products usually require application of sophisticated manufacturing equipment organized into sophisticated systems and operated by sophisticated personnel.

Niche markets are often volatile; therefore, customized products aimed at these markets tend to have very short life cycles. They tend to be either quite new items, tailormade for the buyer, or quite mature products, greatly specialized to particular applications. Such products do not compete principally on the basis of cost. They compete rather on the basis of quality, precision, and reliability of delivery as well as performance. Time is frequently more important than price to the buyer.

Cost continues to be an important, while not determinant, factor in competitiveness. However, cost control normally cannot be found in the scale of production. Instead, it must be found in design, in manufacturability, in the logistics of supply, delivery, and service, and in the quality and dependability of workers and managers.

Changes in Industrial Technology

The process of manufacturing is changing rapidly from the routine to the flexible. Hard automation technology of the past several decades involved capturing and building it into single-purpose machines and single-purpose systems. Flexibility was sacrificed for efficiency.

However, newer manufacturing technology has aimed at flexibility in production to accommodate a wider variety of customized products for the niche markets. The technology of microelectronic controls and reprogrammable automation is aimed at economies of scope, not scale. Multiple products, each tailored for different applications, can be produced almost as cheaply—or sometimes even more cheaply—in combination by the same machine or system of machines as separately by different machines or systems of machines. Computer-numerically-

controlled machines and computer-integrated manufacturing systems permit variety and flexibility of product without reducing efficiency.

This newer technology also reduces production time, improves quality, and slashes inventory. Computerized planning, inventory, and group technology systems can track multiple products through the factory while computer-based process control systems can assure uniformly high levels of quality. The industrial technology itself both undergirds and propels the changes to narrower market segments and customized products.

Changes in Business Structures

Rapid changes in markets, products, and processes are driving enormous changes in the structure of manufacturing establishments. Firms are shrinking in size, shedding overhead, and stripping away embedded layers of management hierarchy. Businesses must react quickly to rapid demand shifts in volatile niche markets. They must respond promptly to innovation in technology and to the demand for more specialized, higher quality, and shorter-lived products. The need for speed and accuracy in that response is driving a general decentralization of organization.

Larger manufacturing companies are devolving into smaller, more autonomous business units. Headquarters staffs are shrinking rapidly. Many firms who have had as many as 12 or even 15 layers of management between the chief executive and frontline supervisors are cutting back to six, or five, or even less. With good use of good information systems, managers who used to think they could properly supervise only a dozen employees at most are finding that they can effectively communicate with as many as 200.

A flatter structure within the manufacturing organization permits greater communication and cooperation among different divisions of the corporation. This in turn facilitates the increasingly sensitive, internal, and vertical communication needs crucial to processing the huge volume of information necessary to understand complex, volatile markets and technologies. These new structures require new ways of assigning tasks and new forms of organizing work. Managers and pro-

duction workers need a broader span within which to exercise group and individual authority. Organizational systems which emphasize horizontal communication place greater reliance on negotiation and collaborative decisionmaking.

In many industries, these trends are contributing to a disintegration of production systems. Many end product firms are "hollowing out"—out-sourcing an increasing percentage of the component requirements. This encourages specialization among their suppliers. As special opportunities or special problems emerge, they are addressed not by rebuilding large production groups, but by *ad hoc* task forces, special consultants, outside service vendors, and new, specialized suppliers.

The Special Issue of Small Manufacturing Companies

One of the consequences of this structural change is the relative growth of small manufacturers compared to larger ones. In virtually all manufacturing sectors, small establishments have increased their share of total establishments, total employment, and total value of production. Smaller organizations may often have a decided advantage over larger ones. They can be more agile, more immediately able to respond to market or technology shifts, and more nimble in spotting emerging market niches.

Smaller firms, however, can also lack the "sensing mechanisms" of larger companies. Their small scale normally precludes the maintenance of worldwide marketing and distribution systems that have enabled larger firms to spot market shifts rapidly. Meeting the needs of one narrow market niche may present special problems to the small firm in discerning the emergence of new niches.

Small firms also face difficulties in learning about technological change. They may not be able to support research departments and are less likely to participate in university-based research laboratories. They are less likely to hire new workers or technicians who could be expected to transfer new technologies, and they lack the flexibility of larger firms to send current workers to off-site training programs to develop familiarity with new technologies.

Around the world, small businesses are learning to solve these problems through collaboration. They have evolved new institutional arrangements for this collaboration—for performing on a joint basis those functions which they cannot perform efficiently on an individual basis. Similar patterns are beginning to emerge slowly in America. On the whole, however, American manufacturers are not well accustomed to cooperation. Especially among smaller firms, entrepreneurship tends to be an individualistic activity. Businesses have been fiercely competitive in local markets. The kind of manufacturing economy that dominated in America has not fostered inter-establishment cooperation. Cooperative links among small businesses, and between them and their larger customers, are developing more slowly in America than elsewhere in the industrialized world.

Responding to These Changes

American firms of all sizes have tended to respond more slowly to changes in the international economy than have competitor firms in other nations. The sheer size of the domestic market may have had the effect of insulating American manufacturers from the pressures facing more export-oriented firms in Europe and the Pacific Rim.

Moreover, the institutional framework within which American manufacturing operates—institutions of education, training, labor exchange, research, industrial relations, finance, and government regulation—has contributed to the slow recognition of the nature of these changes and slower still response to them. Even when industry leaders recognize the need to adopt newer technology or develop more highly skilled employees, this institutional framework, like an unwanted anchor, drags innovation and slows the pace of change.

Economic development is about helping American firms and these other institutions respond to changes in the world economy. It is about helping to equip them with the modern strategies to compete in the modern economy. That requires that we have a clear understanding of *who* we are seeking to help and *how* we will know if we have been successful. These points will be explored in more depth in the next section.

Summary

1. The world economy has been radically and rapidly transformed toward highly segmented, international market niches demanding customized, high value-added products which are produced through flexible, computer-based technologies.
2. Searching for agility and flexibility, businesses have downsized, flattened out, hollowed out and decentralized.
3. Small companies who employ best-practice technology and who learn to develop improved sensing mechanisms through collaboration can do very well in this new economy, but not many small manufacturers in America have done this.

The Technology Dimension of Modernization

Most state government economic development programs recognize the importance of technology to the development process. Most states are spending significant amounts of money under the general rubric of technology. However, most of the money goes to programs of applied research and technology development—usually university-based—that usually have very little to do with the modernization needs of most manufacturers.

A 1988 survey of state technology programs by the Minnesota Department of Trade and Economic Development (cited by the OTA (1990) in "Making Things Better") estimated that 44 of the 50 states have some kind of technology development program, and that they spend an average of $12.5 million per year. However, only about 2 percent of this seems to be going to programs of technology/managerial assistance while another 8 percent is allocated to technology transfer defined as "transmitting new technologies from the laboratory to the private sector." Almost 70 percent of the $550 million of state funding has gone to research grants or technology research centers.

In *Promoting Technological Excellence: The Role of State and Federal Extension Activities* (1989), the National Governors Association (NGA) concluded that most state government funds are going to programs of research and development. Yet, most program managers surveyed by the NGA project felt that the firms with which they worked required not new research and development, but better access to existing technology.

Most of the money spent by state government for technology development programs consists of grants to state universities for R&D activity. The grants often require consortial links with private industry. Yet, there is little evidence that such consortia have much direct effect on product innovation in these industries, even among the large manufacturers. In *The New Alliance: America's R&D Consortia*, Dan Dimancescu and James Botkin (1986) conclude that these state-supported programs have not yet yielded significant results of new product development.

One observer has termed this the "spaghetti effect." In *Stalemate in Technology*, Professor Gerhard Mensch (1979) of the University of Berlin writes:

> The spaghetti effect explains the lack of innovations as the result of inertness of captains of industry. If you move one end of a limp piece of spaghetti, the other end will not move.A large fund of knowledge is building up, but it is affecting actual practice at a very slow rate. It is a well-established finding of innovation research that "technology push" is an inferior way to introduce new technologies on the market; "demand pull" is a major factor for successful innovation. If this demand is lacking, the rate of innovation is low. (p. 155)

Dimancescu and Botkin conclude that "American enterprises must rethink the business of managing technology so that, when opportunities arise out of industry-university partnerships, they can tap the potential." They conclude that R&D consortia have not provided impressive results in offering a mechanism for such learning. The consortia tend to concentrate on creating new technologies; they spend relatively little effort in managing the transfer.

If major manufacturing companies are poorly equipped to manage the process of technology transfer from the R&D consortia, small companies face nearly hopeless odds. Sometimes, a "spin-out" can create new small, innovation-oriented manufacturing companies, but this happens very rarely. Most university-based R&D supported by state governments has little practical effect on the modernization needs of small American manufacturers.

This is not to argue that states ought not to invest in university-based consortia for technology research and development. But such investments probably have more to do with strengthening the research mission of the university and contributing to its instruction and community service missions than they do with technology transfer. This is frequently true with respect to the large companies who typically join these consortia. It is almost always true with respect to smaller companies who rarely can indulge in the luxury of university-based research consortia.

The problems of technological competitiveness in the small firm sector of America's industrial base are not problems of basic or applied research. Small firms rarely learn about technology from university-based R&D programs. Nor should they. They learn about technology from the market and from their relationships with other firms in that market. Modernization strategies should help to improve the way that these firms link to the market and to each other. Later sections of this report will offer suggestions on how to do this.

At a macro level, there does seem to be a problem with the extent to which large industry is investing in development of *new* technology. But, the problem of America's small manufacturers is their failure to apply *current* technology. Small American firms are not adopting the levels of "off-the-shelf" technology that are in widespread use among companies in other parts of the industrialized world and among the better-practice larger establishments in their sector right here at home.

Japan has a large network of technology demonstration and assistance centers to help small companies assess new technology. According to the OTA (1990) report, there were in 1985 about 185 testing and demonstration centers with 7000 employees and an annual budget of

about $470 million providing advice to small firms on issues of advanced technology and technology adaptation.

In *Old World, New Ideas: Business Ideas From Europe*, Joseph Cortwright (1990) offers a useful distinction between *technology transfer*—moving laboratory breakthroughs to their first commercial application—and *technology diffusion* (or deployment)—making sure all firms use techniques that are as close to best practice as possible. The American manufacturing sector as a whole may be underinvesting in research and development and may have a serious problem with technology transfer. But small firms, in particular, are suffering what may be a crisis in technology diffusion. Most state programs are either not aimed at this problem or not funded to provide much help.

Two recent studies of the patterns of technology use among small manufacturing companies have reached a similar conclusion: the vast majority of these companies do not employ the level of technology that larger firms have found necessary to compete in the world economy. (See Industrial Technology Institute 1987 and Kelley and Brooks 1988.)

The Industrial Technology Institute study examined the use of 13 computer-based technologies among a large sample of durable goods manufacturers in the Midwest. A Harvard study (Kelley and Brooks 1988) reviewed the use of programmable machine tools among a national sample of metalworking firms. The two studies reached strikingly similar conclusions about the technology gap of small manufacturers in America. There were dramatic differences in the rates of utilization of the technologies between the larger plants and their smaller counterparts.

The Harvard study found, for example, that 95 percent of branch plant establishments of over 500 employees have adopted programmable technology in several applications. But of the single establishment shops of under 50 employees, less than half had installed even one programmable machine. Of the 13 technologies analyzed in the ITI study, only one (computer-based production planning and inventory control) was in use by over half of the small firms in the sample. Fewer than 20 percent of the small shops of less than 50 workers had adopted any of the other technologies and six of the 13 were being used by fewer than

10 percent of these small companies. However, for the larger companies, adoption rates ranged from a low of 26 percent for material handling systems to a high of 86 percent for planning and inventory control systems. The Harvard and the ITI studies also both revealed considerable underutilization of technologies even by those relatively few small companies who had chosen to employ them.

These two large studies tend to confirm the results of other more discrete studies carried out on a state-to-state basis. In Indiana, a 1987 study of technology strategies among small manufacturing companies (Indiana State University 1987) revealed very low rates of adoption of computer-based machines and systems that were widely used by larger companies. In Pennsylvania, a survey of small firms in metalworking, electronics, and medical devices revealed low levels of deployment of advanced technology and little planning by the small firms to use them in the future (see Osborne 1989).

The Harvard study further confirmed that rates of technology adoption are lower in the United States than in Japan. According to the study, in 1987 roughly 30 percent of all production equipment in Japan was computer controlled. The study estimated that only 11 percent of machine tools in America are computer controlled. Most observers agree that small firms are more technically advanced in Germany and Japan and that the technology deployment gap between large and small firms there is not nearly as great as in America.

The OTA (1990) report reaches similar conclusions. The rate of diffusion of modern manufacturing technology—most notably numerically controlled and computer numerically controlled machines—has been much greater in Japan and Germany than in America. Smaller establishments account for most of this difference.

In a few cases, the lack of computer-based technologies in smaller firms is not too worrisome. Some of these systems may not be nearly as appropriate to low volume shops as they are to larger establishments who have much more inventory coming in and much more product going out. On balance, however, the information on technology utilization by small manufacturing companies is discouraging. Economic conditions are creating new opportunities for innovative and flexible

small companies to develop custom-made goods for international market niches. Larger companies are finding more reasons to downsize, decentralize, and out-source, but most small manufacturing companies in the United States are failing to adopt the technology needed to produce the variety and quality demanded by the market or by those who assemble for that market.

Why don't small companies adopt the technology needed to produce quality-based, customized goods for a segmented, international market? The reasons are fairly simple and quickly evident by walking through these small shops and talking to the owners and their employees. Some owner/managers still don't see the need to use these technologies; some don't know how to choose or manage the machines or systems; some can't get the financing for them; most don't have workers who can operate them.

Most of the problem of technology deployment among small goods producing firms is on the demand side. Generally, the supply of technology is at hand; it is known to the owner/manager; and while assistance on how to select and install appropriate technology may not be easy to use, it is not that hard to find. It is organized demand for the assistance that is lacking.

Most small companies in America are not well-linked with sources of information about technology deployment. They are not able to take advantage of the unstructured information and assistance available to them. They are too busy putting out today's fires to worry about tomorrow's. They don't know precisely where to get the help that is available. They are intimidated by "experts." They don't trust vendors. They don't think they can afford new equipment. They don't think their workers can operate these new systems and they don't know how to train them to learn. They think they can squeak by on what they have, doing things the same way they have always done them. They don't think they can manage the process of modernization. They are so focused on how things are that they lack the vision of how things could be. And most of all, they don't have the collaborative relationships that enable them to learn from the experiences of other companies.

The absence of strong horizontal linkages among small firms and of strong vertical linkages between small supplier firms and their larger customers helps to explain the low technology adoption rate. As noted above, in Japan there are extensive systems of government-provided and subsidized information and technical assistance programs. In fact, to get public financing under many of the extensive lending programs, management and technical analysis by one of these sources is usually required. Yet, even in Japan, most small businesses report that they get most of their information about technologies from other firms. This pattern of interfirm linkages and shared information systems is also highly developed in Germany, Italy, and other European nations. In America, by contrast, a cultural and institutional bias against collaboration has prevented the emergence of these learning systems.

Summary

1. Small firms lag behind the large, best-practice American firms in their sectors and far behind their counterparts in Japan and Europe in the rate of adoption of modern manufacturing technology.
2. Most technology program spending is not aimed at diffusing currently available technology.
3. Technology deployment strategies need to recognize the "cultural" aspects of the small firm environment that retard collaboration, discourage reciprocal learning, and slow the pace of technology adoption.

The Financial Dimension of Modernization

Relative to other industrialized nations, the capital required to finance modernization efforts is more expensive in the United States. Real interest rates are generally higher than in Japan or Europe. They are higher because our large budget deficit forces extensive govern-

ment borrowing and because the domestic savings rate is far below that of most other industrialized nations.

As a consequence, capital investment in the United States has tended to lag that of other industrialized nations. Both large and small manufacturers sometimes find the high cost of capital a disincentive to financing the advanced equipment associated with best-practice technology.

The high cost of capital is exacerbated by the often observed tendency of American manufacturers to focus on short-term gains to the neglect of longer-haul strategies where technology development and deployment policies might play a more prominent role. A high percentage of the capital of public American firms is owned by institutional investors whose managers tend to turn over their stock holdings frequently in order to optimize the current return on their investment. Businesses tend to seek to maximize their short-term profitability in order to maintain their attractiveness to these institutional investors on whom they depend for so much of their investment capital. Smaller, privately held companies generally mimic the behavior of the larger firms

Further, there is some evidence that outmoded accounting practices in America discourage new capital investment in advanced manufacturing technology. Cost-accounting techniques that ignore the benefits of improved quality, reduced inventories, and quicker introduction of new or improved products may have the effect of undervaluing investment in new technology. When applied by company accountants or bank lending officers, these accounting principles can suggest less payback from new investment than is required by conventional lending standards to justify borrowing.

In contrast, a high percentage of the equity capital of manufacturing companies in Europe and Japan is held by private investors (such as other manufacturing companies) who are not so concerned with short-term profitability. Moreover, European and Japanese firms tend to raise a greater share of their investment needs in the form of debt from banks and insurance companies. Often these financial institutions hold a major share of the equities in the companies to which they lend.

In several nations of the Pacific Rim and Western European nations, government industrial policies strengthen the manufacturing sector and promote the deployment of advanced technology. These have the effect of reducing the risk of lending as seen by the financial institutions. This cushioning of risk for the lender reduces the cost of lending to the borrower.

Federal government-subsidized lending is dramatically higher in other industrial nations. In Japan, federal government direct loans to small and medium-sized business (not just manufacturers) amounted to about $27 billion in 1987. Loan guarantees were even larger—about $56 billion. By contrast, federal direct loan assistance to small business in the United States in 1987 amounted to just $47 million, and loan guarantees totaled only about $3.6 billion (OTA 1990).

The Japanese government provides other forms of financial assistance to small manufacturers specifically to acquire modern technology. The Equipment Modernization Loan Program made 6,000 loans in 1987 for a total of $293 million, all to firms with fewer than 100 employees. It provides interest free, no collateral loans for up to one-half the cost of new manufacturing equipment. The Equipment Leasing System provides low-cost funds for very small companies (fewer than 20 employees) to lease equipment. In 1987 this program provided 4,500 loans amounting to about $350 million. (see OTA 1990.)

These are staggering numbers. With this kind of assistance available from the federal government, it is little wonder that the rate of technology diffusion among small manufacturers in Japan far exceeds that of the United States. While comprehensive research is not available on small business lending in Germany or other European nations, there is anecdotal evidence of substantial government lending to promote technology diffusion in the small manufacturing sector.

There is little likelihood of significant easing in the federal budget deficits which might contribute to lower interest rates in America. As long as the economy remains so greatly dependent on foreign capital, interest rates will probably remain high. These same problems make it highly unlikely that the federal government will instigate new financing programs aimed at accelerating the rate of technology diffusion. In

fact, there is growing likelihood that the current programs of the Small Business Administration (which have never been very popular with banks and borrowers) may be cut back in the years ahead. Moreover, the concern about laxity in government oversight of savings and loan company lending practices seems to be contributing to more stringent industrial lending policies by banks.

There is little that state governments can do to affect interest rates or the supply of savings available for capital investment in new machinery and equipment. Special fiscal inducements for capital investment and technology development are difficult and expensive policy choices for state governments. State policies can have limited effect on accounting practices. However, state governments seeking to help with financing problems of American manufacturers can find creative ways to increase the supply of capital and reduce its cost to companies seeking to raise money for modernization strategies. Many states have a long history of small business financing. Unfortunately, few states now target their financing strategies of manufacturing modernization.

No reliable information is available on the extent to which state development finance programs are associated with manufacturing modernization programs. In most states, however, development finance programs are widely separated from the more technically focused modernization programs. The overall level of all business financing available from all the states does not approach the level of Japan or Germany.

Most states that see themselves as providing special financing for technology programs label this financing as "seed" or "venture" capital. The Minnesota study summarized in OTA (1990) identified 18 such state programs in 1988 spending a total of about $37 million. The NGA study, *Promoting Technological Excellence* (1989), identified $41 million of state funds and $59 million of "private" (presumably leveraged) funds going into seed capital activity associated with technology programs. It seems unlikely that very much of this money is going to help small manufacturing companies acquire manufacturing technology.

The financing challenges facing small modernizing companies go beyond the acquisition of technology itself. Technological upgrading is frequently accompanied by the need to retrain employees at the managerial and production levels. Modernization strategies often require firms to invest heavily in the development of new markets, to strengthen sales and marketing efforts, and to develop new systems for the distribution and service of products. These are expensive investments for small firms. They frequently cannot be satisfied by commercial banks. Often the credit requirements of small modernizing firms exceed conventional risk limitations of lending institutions. The borrowing needs can exceed the risk parameters of term, equity, and assets.

Yet, equity financing is not a realistic alternative for these small firms. Few small companies can satisfy or afford the regulatory constraints on public equity financing. Private equity is very expensive. Venture capital firms typically look for a return on their equity investment in the range of 30 to 40 percent. Most modernizing small companies cannot demonstrate the level of growth to support that kind of return. Even those who can are often unwilling to pay the price of giving up much of the ownership and control of their company.

There is an important gap in the capital market between the low-risk, low-return conventional lending of commercial banks and the high-risk, high-return investment of venture funds. Creative state policies and programs could narrow this gap. A few states have sought to develop new programs to meet this market need. Michigan has created a new category of private, nondeposit-based lending institutions known as Business and Industry Development Corporations (BIDCOs). Indiana has provided for the establishment of a private and for-profit consortia of banks to pool their higher-risk lending and structure that debt in innovative ways. Ohio and Michigan have experimented with a public subsidy for the loan loss reserve fund of private banks who are willing to exceed their conventional credit limits for firms in this mid-risk range.

Summary

1. The cost of capital for modernizing a manufacturing company in America is higher than in the nations with which we most directly compete, and this is not likely to change.
2. Federal government subsidies for capital investment and lending in America fall well behind those of our competitor countries, and this is not likely to change.
3. State government development finance programs are not well targeted to the needs of small modernizing manufacturing companies, but new initiatives are beginning emerge.

The Human Resources Dimension of Modernization

The United States confronts a deepening crisis in the supply of skilled workers. Employers in virtually every business sector report increasing difficulty in bringing the skills of current workers up to the levels required by the sophistication of the modern workplace. They are even more discouraged by problems in recruiting young, new workers with these higher level skills. Nowhere is this crisis more apparent or more serious than in the manufacturing sector.

In *Made in America: Regaining the Productive Edge*, the MIT Commission on Industrial Productivity (1989) concluded two years of extensive research on issues of competitiveness in the U.S. economy with the following observations:

> Without major changes in the way schools and firms train workers over the course of a lifetime, no amount of macroeconomic fine-tuning or technological innovation will be able to produce significantly improved economic performance and a rising standard of living. . . .
>
> The issue is not mainly what workers will do when motivated but rather what they can do, given weaker basic education and the kind of work experiences provided by companies that have low regard for training and few institutional resources to provide it.

Problems of worker preparation result from a number of economic, technological, and demographic shifts which have not been supported by compensating improvements in education, training, and employment policies.

Jobs Require More Skills and Different Skills

Workplace changes have profoundly increased the number and altered the variety of skills required of workers and managers. Complex machines and systems demand greater technical proficiency as well as the flexibility to react quickly and accurately to changes in market and production. The way that tasks are assigned, the way that work is organized, and the way that technological improvements are introduced all require workers with more skills and higher level skills.

The application of modern technology to the manufacturing workplace has not resulted in the "de-skilling" predicted by some several years ago. Instead, the effective utilization of modern technology demands workers with the technical abilities to operate sophisticated machinery and systems. Skills required of new workers have increased enormously even in America's most basic industries. The president of one of the nation's largest steel companies put it recently: "Virtually every major [steel] mill that survived the upheavals of the 1980s, did it by changing steel from a low-tech, strong-back industry to one that's on the cutting edge in applying everything from computerized process control to employee involvement."

That statement applies equally in virtually every sector of manufacturing. New employees in the steel industry and other basic manufacturing industries will require very high levels of technical skill. They will be expected to operate integrated processes and sophisticated equipment. They will work in autonomous teams of co-equals without foremen. They will need to make decisions quickly and solve problems independently of management hierarchy.

The American Society for Training and Development concludes from its research on job training and education issues that workplace skills in all occupations will require specialized job-related skills built on a base of the following seven "generic competencies":

1. Foundation skills—learning how to learn
2. Academic competencies—reading, writing, and computation
3. Communication—listening and speaking
4. Adaptability—creative thinking and problemsolving
5. Personal management—self-esteem, goal-setting, motivation, and personal career development
6. Group effectiveness—interpersonal skills, negotiation, and teamwork
7. Influence—organizational effectiveness and leadership

American Students and Workers Have Not Been Well Prepared for These Changes

Most of our students and workers have been poorly prepared for the economic and job changes of the past several years. A number of recent studies have pointed to lagging educational achievement levels and lagging worker skill levels in the United States relative to other industrialized nations.

Education reforms in the 1980s focused on improvements in teaching elementary concepts through more standardized testing, aggressive accountability, stricter teacher certification, increased pay, curricula reforms, and longer school days and years. Some improvements in basic math and reading skills are discernible in some. Yet, national assessments of student and graduate achievement show that students are not using their knowledge effectively in thinking and reasoning.

The National Assessment of Educational Progress (NAEP) found that practically all young aoults who finish high school are able to use printed information to accomplish routine and uncomplicated tasks. For many, however, these skills are so rudimentary that comprehension and ability to utilize the information is minimal. The NAEP found that only 11 percent of high school students can properly read a bus schedule. Only 10 percent can compute the cost of a meal from a menu or find specialized information in a news article. Only about 5 percent can

understand specialized information likely to be found in a professional or technical working environment.

These educational deficiencies relative to work requirements have existed for several years and now permeate the adult workforce. As far back as 1982, a survey of basic skills in the workforce conducted by the Center for Public Resources found that 50 percent of companies surveyed reported managers and supervisors unable to write paragraphs free of grammatical errors; 50 percent reported skilled and semiskilled employees unable to use decimals and fractions; and 63 percent reported that deficiencies in basic skills limited the job advancement of employees who were high school graduates.

America Lacks Systems of School-to-Work Transition

Among the industrialized nations of the world, the United States may be the only country with no organized program of school-to-work transition. When noncollege-bound youth graduate from high school, if they do, most simply drift for four or five years or more through a succession of generally low-paying jobs with little career opportunity and practically no skill development. This period of floundering helps to explain the high rate of self-destructive behavior among young Americans relative to their counterparts in other industrialized nations.

Most schools do little to counsel the noncollege-bound young person in how to prepare for the world of work. Students are not introduced to concepts of employment and employability as a part of their schooling. Nor are there nonschool institutions that help young people to learn systematically about different career opportunities and about the kind of preparation necessary for those career options.

Noncollege-bound youth, in particular, have seen little incentive to do well in high school, little incentive to work hard to master basic skills. They get few messages that strong basic skills and hard work have much to do with their life after high school. While research does indicate that educated workers are more productive (and that includes those who achieve higher grades in high school), a wage advantage does not materialize until several years after leaving high school.

Those gains are not apparent to young people while there are still in school.

Vocational education programs are achieving only limited success in helping to improve the job readiness of noncollege-bound youth. The MIT (1989) study, *Made in America*, argues that high school vocational education in the United States has had a "disappointing performance" and is not viewed by employers as a source of skilled or even trainable workers. As a result of the limited effectiveness of vocational education and the absence of a viable apprenticeship program outside the construction industry, the study concludes that: "there is no systematic path to training for the non-college bound. This lack of a structured transition from secondary schools to work results in weaker skills than those of European and Japanese workers. In this area American workers and firms are at a serious competitive disadvantage."

The Supply of New Workers Will Drop Sharply

The number of new workers entering the U.S. labor force—barring dramatic changes in immigration policy—will drop significantly over the next 15 years from the unusually high levels of the past three decades when baby boomers and women entered the labor force in record numbers.

Many current attitudes and behaviors regarding education, work, and training were influenced by this unusually large influx of workers, lasting as it did for nearly 30 years. Personnel policies and training priorities were shaped for a generation of workers, managers, and businesses by this surplus labor market. Young workers came in at the bottom rungs of the employment ladder and not much was expected of them in terms of educational attainment or skill proficiencies. Seniority, not performance or skill, was the chief criterion for advancement to better paying jobs.

While demographics have changed, the mind set of many employers has not. The coming dearth of young workers could substantially constrain the ability of companies to grow rapidly or respond quickly to sudden new market opportunities. Yet, most employers still report that they tend to fill new jobs at all levels, except within the managerial

class, by hiring new employees from the outside rather than by retraining and filling from within. With the labor market changes in store over the next few years, this will be a very risky strategy.

The manufacturing sector, in particular, is having a tough time recruiting new job entrants who might have the educational proficiencies required for technically demanding jobs. The school age population and their parents have heard so frequently of the demise of American manufacturing that they have begun to believe it. The poor reputation of manufacturing as a career has led to sharp reductions in industrial vocational education enrollments, particularly in metalworking occupations. With the overall supply of new workers dropping so sharply, manufacturing companies will find that their image—providing relatively few, low-skilled and "dirty" jobs for those unable to do well in white-collar occupations—will seriously impair their ability to attract workers out of the top-skilled 50 percent of new job entrants.

Demographic Changes Will Reshape the Composition of the Workforce

While the reduced supply of new workers will retard rapid change in overall skill levels, demographic changes will profoundly alter the composition of the workforce. Over the next 20 years, the workforce will undergo continual change in three key attributes: race, gender, and age.

Native-born white males, who now constitute 47 percent of all workers will constitute only 15 percent of the net new additions to the labor force during the balance of this century. The "feminization" of the workplace will continue; women will fill 6 percent of the net new job openings between now and the end of the century.

The sharp reduction in the proportion of the workforce comprised of young workers and the continued movement of the huge generation of baby boomers through the population have resulted in an aging workforce in all sectors of the economy. However, in the manufacturing sector, these demographic trends coincided with a dramatic slowdown in new hires as a result of the restructuring of most industries in the 1970s and 1980s. Moreover, the general notion that manufacturing is no place

for a young worker to get ahead has dampened the recruitment of job entrants. These factors have left many manufacturing firms—particularly the older basic industries—in a precarious position: the average age of workers in the Pennsylvania machine tool industry is 57. The average age of Indiana's 35,000 steel workers is 55.

These older workers, who represent a reservoir of skills, will soon leave the workforce in huge numbers. Many of them are highly skilled workers who, while they may have lower educational attainment than their younger co-workers, came into their trades at a time when craft skills were carefully developed and perhaps more highly valued. Their departure will strip many companies of their best workers. The next generation of skilled workers in some important industries is thin to nonexistent.

American Employers Lack a Tradition of Strong Employee Training

When jobs were simple and skill requirements modest, most American employers did not have to invest very much time or money in training their factory workers (except in the skilled craft trades with a tradition of apprenticeship). Most technology improvements were labor saving. Machines were relatively easy to operate. Most workers had the limited educational proficiencies demanded by the workplace. As work became more complex, few manufacturing firms were prepared to invest significantly in employee training. In late 1988, the Joint Economic Committee of the Congress issued a report, "Competitiveness and the Quality of the American Work Force," citing evidence that American firms, on average, spend a little over 1 percent of payroll for continuing education and training of their employees. Japanese companies spend between 2.5 percent and 3 percent, while European firms spend about 2 percent of payroll on keeping their employees' skills up to date.

Recent studies by the American Society for Training and Development (ASTD) have established that annual investments in formal, employer-sponsored or employer-provided training are about $30 billion annually. That represents about one-tenth the annual investment in

plants and equipment. The ASTD estimates that the majority of that training investment (and another $100 billion in informal training expenditures) probably occurs in fewer than 200 large firms.

Companies tend to train their most highly educated workers and thereby accentuate differences in educational levels among their employees. For example, recent ASTD research reveals that 79 percent of college-educated workers have received training from their employers. Of those who have completed high school, about 71 percent have received at least some training. But only 49 percent of non-high school completers have received any training from their employer.

Small firms tend to spend less on training than their larger counterparts. Since the educational level of employees in small firms lags that of workers in large establishments, and since small firm share of total employment and production is increasing rapidly in the United States, this suggests some special problems of skill development in the economy.

The relatively low level of employee training is particularly dangerous because of the growing concentration of sophisticated technological, managerial, and organizational information within private companies. One observer has referred to this phenomenon as the "privitization of knowledge." Frequently, such knowledge is viewed as part of the private capital of the company. While it is rarely proprietary in the sense that it is not also available to other private companies, it is increasingly not public. Educational institutions and public programs of skill formation have limited access to new technologies and therefore to the skills they demand.

Skill Formation and Technological Improvement Are Blocked by Organizational Culture

Improving the technical skills of workers to operate new computer-based technology without changing workplace organization is likely to be counterproductive for many manufacturing companies. Many technologies fail because outmoded corporate cultures ignore the human dimensions of their operations. Sophisticated technologies require skilled workers. These workers will need to be more intimately

involved in company management than their lower-skilled predecessors. It does not make sense to ask for workers with high skills but treat them as components on the assembly line. A worker asked to develop skills of teamwork and problemsolving is going to expect to be treated as an equal member of the problemsolving team. If workers are to learn from each other, they need to be provided with flat organizations and horizontal systems of communication.

A 1989 study, *Made in America II: The People Dimension* by Coopers and Lybrand, found that 96 percent of 400 manufacturing executives surveyed agreed that they should adopt participatory management principles; 65 percent believed that participatory management is the key to successfully implementing advanced technology. Yet, 55 percent of those executives said their own companies had not done enough about it. Most continue to cling to top-down management styles that are not compatible with the requirements or the capabilities of advanced manufacturing technologies. As the study put it: "Overall, manufacturers must realize that long term productivity improvement starts with cultural change enabling true participatory management. The sooner they start to make these changes, the sooner they will begin to reap the full benefits of the advanced manufacturing technologies."

Summary

1. The effective application of modern technology requires workers with higher skills.
2. American education is not producing job entrants with these skills.
3. There is little connection between school and work.
4. The supply of new workers is dropping sharply.
5. Most current workers are not being adequately retrained.
6. Many companies are not well enough organized to utilize more highly skilled employees.

Some Guiding Principles in Pursuit of Policy

This section outlines some suggested principles which might guide the design of a comprehensive modernization strategy. These principles seek to gather the diagnoses of problems and opportunities of the preceding sections into a general framework that can help to establish the direction and to order the priorities for state action.

Make Industrial Modernization Strategies a Central Feature of State Economic Development Programs

Most states have some programs of technology development as key elements of their economic development systems. However, only a few states are addressing comprehensively the issues that surround the competitiveness of America's industrial base. Even in states that appear to focus their development strategies around the needs of existing firms and new enterprise development, issues of manufacturing modernization are often obscured by R&D programs oriented to new technology development.

Some states appear to have written off their existing manufacturing base as "sunset" industry in favor of developing new technology and new businesses to commercialize it. This is not a reasonable strategy. The view that traditional manufacturing will somehow wither away to be replaced by a new set of growth industries suggests a flawed understanding of the economic changes now under way in the world. The issue is not somehow to capture growth industries; rather, it is to help existing firms develop the ability to make and sell products for which there is a strong market.

Given the diversity of America's manufacturing base, it would not be realistic or even useful to suggest here which particular sectors within manufacturing should receive special attention from state modernization programs. It is important for each state to analyze its own industrial base with a view toward understanding the relative contribution of different sectors to employment and production and toward understanding the linkages among the various sectors.

This analysis need not be bogged down by ideological concerns about picking winners and losers. The notion that certain industries are irreversibly in decline—and therefore merit no attention from development agencies—while others ascend—and therefore are somehow deserving—cannot be supported from the microeconomic perspective of individual states. In virtually every industrial sector in almost every state, there are best-practice American firms competing successfully at the high end of the international market.

The issue is not picking winners or avoiding losers; it is understanding the problems of technology, finance, training, marketing, and organization that affect different industry groups differently and developing programs that can help. Some of these industry groups will be more important than others in terms of their overall contribution to state employment and income. Some states will wish to reflect this relative importance in allocating resources. Some states will not narrowly target specific sectors. All states should seek to analyze the issues of modernization in terms of how they affect different manufacturing groups.

Target Small Manufacturing Firms

Most advocates of modernization strategies argue persuasively for targeting state government policy toward small industrial base firms. There are about 340,000 manufacturing establishments in the United States who employ more than five and fewer than 500 workers. Most of these are quite small. About 95 percent employ fewer than 250 people and 75 percent employ fewer than 50. Two-thirds have fewer than 20 workers.

Manufacturing establishments of fewer than 500 employees employ over 60 percent of the workers in America's manufacturing sector. As noted earlier, they represent a steadily growing share of total manufacturing establishments, production, and employment. They now account for well over half the value added in American industry.

Larger firms tend to have the resources to address their problems of modernization. They are unlikely to be dependent on state government for advice and assistance on issues of technology, market positioning, finance, or human resource development. Any help that they may

receive from state economic development programs is likely to be much further out on the margin and therefore significantly less important to them than it would be to smaller firms. Moreover, it is often hard for any state to secure a reasonable share of the assistance benefits it provides to a large corporation with establishment located all over the world. There is simply too much opportunity for the fruits of these benefits to leak out of the state to other facilities elsewhere.

Yet, these larger establishments are themselves increasingly dependent on the strength of the smaller foundation firms. The larger final-assembly companies look to the smaller firms for dependable and quality-based components, for reliable delivery, and for reasonable costs. To the extent that smaller firms can capitalize on their potential for agility, flexibility, and innovation, the larger firms profit right along with them.

Smaller manufacturing firms tend to lag their larger counterparts in utilizing appropriate technology, training and organizing (and paying) their workers, developing global marketing strategies, gaining access to capital on reasonable terms, and learning from the experiences of other firms. If American manufacturing is to regain a more competitive position in the world economy, it is the performance of the smaller firms that must improve. It is in the smaller firms that the gap between best practice and common practice is most evident.

All of this supports the conclusion that small manufacturing firms employing fewer than 500 workers (or perhaps even fewer than 250) should be primary targets of state programs of manufacturing modernization.

Define Objectives for Modernization at the Level of Industrial Sectors, Not Individual Firms

Policymakers engaged in setting manufacturing modernization standards must improve their ability to establish clear performance objectives. Thinking clearly about objectives tends to encourage the setting of performance measures at the sector or regional cluster of establishments level rather than at the individual firm level.

What constitutes modernization in a small manufacturing establishment? How are we to know when it has been achieved? Current state government programs of technical, financial and training assistance—even the best of them—do not seem to have explicit goals in mind when they work with firms. "Jobs created" or "jobs retained" are not appropriate measures of progress in helping small manufacturers gain and maintain the ability to compete successfully in international markets. Most modernization strategies are unlikely to lead to the establishment of net new jobs. To claim to retain jobs as a result of some brief engagement with a firm is hardly credible. Yet, it does not seem adequate merely to count the contacts.

There are sharp limits to how much effect any state government program can reasonably claim to have on the behavior of any single firm. No state government has the resources to even touch more than a fraction of the small manufacturing firms within its borders. At best, state government programs may be able to provide directly some expert services to only a few hundred firms annually.

Measuring improvements in the competitive behavior of firms and in the behavior of allied systems or institutions is tricky business. It can be done only over significant time periods and only by looking at the aggregate behavior of a number of firms within a particular sector or geographic region where the modernization strategies have impact. Noting a rise or fall in the performance of any single firm touched by some part of a state program is hardly adequate for evaluating the benefits of modernization programs.

As states set goals for modernizing their manufacturing base they should seek to change the behavior of industrial sectors or clusters of firms rather than individual firms. States should also develop goals that address the behavior of those institutions or systems that small firms look to for information and help.

Organize Services for Groups of Firms, Not Individual Establishments

Just as goal setting should be at the level of the sector or cluster, so too should the actual provision of services. In "Making Things Better,"

the OTA (1990) suggests that it might be a reasonable goal for industrial extension programs to reach 24,000 firms—7 percent of the small American manufacturing companies—annually. It is unclear, however, what "reaching" these firms really means.

According to the OTA study, the Georgia Institute of Technology Industrial Extension Office, the oldest of the state industrial extension programs, typically spends two to five days per firm at an average cost of $4,000 each. The Michigan Modernization Service provides a much more intensive contact, averaging six consultant days per firm at an apparent cost of $20,000.

The OTA study suggests that one-on-one contact between technical specialists and company managers is the bedrock of industrial extension. That is, of course, the model of agricultural extension. It worked well in its time for agricultural modernization and it may be useful for some manufacturing firms some of the time. It is not at all clear, however, that the old agricultural extension model of one-on-one contact is wholly appropriate to the current economic context or to the issues facing the manufacturing sector. Rapid changes in markets and technology create such a fluid environment for the small manufacturer that single-event contacts with a visiting expert, costing $4,000 to $20,000 per contact, may be of sharply limited utility.

Modernization programs that have as their exclusive goal reaching individual firms on individual issues of technology application are probably not terribly efficient, and they may not be very effective. Becoming and staying competitive in the international economy is not a single-dimensional problem of engineering or equipment. Isolated and infrequent engagement with an engineering extension agent about machine problems does not somehow magically produce a competitive company.

None of this means that industrial extension programs have no place in state development strategies. On the contrary, such programs can be an integral part of a comprehensive strategy; they can provide a major share of the delivery system for a wide array of information and technical services. But one-on-one engagements focused around a single problem, firm-by-firm, do not appear to be very efficient or lasting

techniques. Single contacts by outside experts may be a part of a modernization strategy, but they are unlikely, by themselves, to trigger and maintain the process of modernization. The extension service model appears to be a little more effective if it can work with firms on a comprehensive basis to address interrelated problems of technology, finance, marketing, skill development, and organization. However, this kind of approach can still be very expensive if the unit of analysis and the target of service is the individual small firm.

Work at the Scale of the Problem

One of the common afflictions of state development programs is the tendency to work simultaneously at dozens of admirable goals with very limited resources. Too frequently, this well-intentioned effort to serve multiple constituencies means that no program even approaches the scale of the problem it seeks to resolve. At best, resources get so badly fragmented that programs which deserve serious attention get nothing but token support. At worst, policymakers convince themselves—and seek to convince others—that they are really doing something important. That can mean that real problems get covered up or swept away.

Industrial modernization efforts should be sized to the scale of the problems they seek to ameliorate. Industrial extension efforts that have a minimal amount of contact with a few hundred establishments in a state with several thousand small and medium-sized manufacturers will not do much good, and by not focusing on building *systems* of technology information exchange, finance, and worker training, they may end up being harmful.

Understand Modernization as a Multidimensional Problem Requiring New Systems, Not Programs

The small manufacturing firm seeking to modernize its operations doesn't need more programs; it needs systems that work. Programs will rise and fall and come and go depending on the availability, year to year, of resources or the interest of a few people in key positions. Nei-

ther businesses nor state economic development programs suffer from a shortage of programs. Relying on industrial extension workers to provide sporadic contacts with a small fraction of the small firms needing advice and assistance on issues surrounding the effective use of modern technology may be a good program. It is not much of a system.

Technology diffusion and industrial modernization are not, at their core, engineering problems. Most small establishment owner/managers understand the appropriateness of computer-based equipment and other advanced manufacturing technology even if they themselves lack the technical background to install it. The fact that most of the technology appropriate to small and medium-sized firms has been around for several years and nonadopting small firms have regularly made decisions not to use it underscores the fact that the issue here is rarely *technical*. It is sometimes *financial* and most often *human*.

Modernization is not an event; it is a process, a way of being over time. It is not some static threshold; it is continual adjustment to changing conditions of market and technology. Modernization policies for a state mean creating *systems* of applied research, technology deployment, finance, education, and training that are responsive over time to the changing requirements of the firms. Modernization programs should reflect the multidimensional nature of the problem they seek to solve. That means that programs of information, technical assistance, finance, and training should be closely integrated. Loan programs, for example, should be tied to technical/managerial/market assessments and to the provision of skill training.

Helping small firms in a particular sector to form a consortium that will pursue, over time, their common needs for market information, worker training, and shared special-purpose technology is an example of creating a system. Helping to strengthen vertical linkages between major customer firms and their supplier network by investing in supplier certification training programs represents a systemic approach to problems of communication among firms in a production relationship. Creating systems of manufacturing modernization means working with lending institutions to create new arrangements for financing equipment purchases. These new arrangements either aim to reduce risk, and

therefore reduce the cost of loans, or to recognize risk, and therefore increase the return on lending. Direct state lending programs are not systemic.

Customized job-training programs typically are provided firm by firm to develop relatively narrow skills for particular operations associated with using new technology. This kind of training does not constitute a system of skill formation that will provide continuous support to modernizing manufacturing establishments. These firms will need multiskilled, flexible workers who combine a solid educational foundation with technical proficiency and learning-to-learn skills. When states spend money to help companies train workers, these are the kind of skills they should aim for.

Involve the Users of Modernization Programs in Rationing Resources to Highest Priority Needs

No state is likely to be able to allocate huge new amounts of money to the problems of the small manufacturers who need to modernize their operations. Given limited resources, it is crucial that states employ rationing principles to assure that the money spent goes to highest needs. One good way to ration resources is to insist that users pay for the assistance they receive. Many state modernization programs do not ask for even modest contributions from the user, sensing that the price might constitute an insurmountable problem for the small firms. This is probably not true. In fact, it is likely that the majority of small business owner/managers will see free services as not valuable services. While some subsidy may be appropriate, some fee seems equally so.

Over time, states should seek to turn full ownership of technical assistance efforts over to the firms who use them. States may continue to subsidize the technical assistance programs, but ownership by the firms themselves will involve them directly in making decisions about the services they most need. Even more important, the joint management of shared assistance programs will involve firm owner/managers in the consortial behavior that will enable them, over time, to start learning from each other.

Promote Collaboration Among Firms

A central thesis of this analysis suggests that small firms seeking to capitalize on current economic trends must develop learning systems that sense market and technology changes. Promoting group behavior among small manufacturers can create economies of scale for providing services. However, promoting collaboration among small firms is more important because it can create a collective intelligence, a way that one firm can learn from the experience of another.

In an economic era of volatile markets and rapid technological change, there is too much information available for any one small firm to grasp it adequately. If firms continue to behave as autonomous units, unconnected with each other, and if economic development systems continue to treat them as autonomous, unconnected units, it will be very difficult for them to acquire the intelligence to prosper in the global economy. State government programs can help by encouraging, even requiring, that firms in need of assistance group themselves together for those common purposes.

Redefine the Relationship Between Work and Education

Meeting the skill requirements of the changing workplace will require radical rethinking about the traditional division of responsibility between school and work. Conventional wisdom suggests that "if the schools would just properly educate young people, businesses will train them." Regrettably, this conventional wisdom does not hold up to close inspection.

First, even when schools do educate young people properly, most businesses do not really train them—at least not very much or very well. Second, schools probably will not educate them properly. Given the realities of demographics and culture in America in the 1990s, and given the record of school improvement in the 1980s, it is unlikely that schools will be able to bring about any significant gains in the achievement level of their graduates. Third, work requirements will continue to evolve rapidly, forcing most adults to see themselves always as learners as well as workers.

Finally, it is not likely that the skills required to be a successful learner in the workplace can be formed in the schoolplace. Problem-solving, motivation, negotiation, and leadership are skills so intimately connected to the context of the learning environment that they probably can be developed only in the workplace. The nature of work is changing so dramatically that it fundamentally alters the historic division between school and work. State government modernization strategies should recognize and act on the need to reduce the boundaries between these institutions.

Summary

1. Modernization strategies should be a central feature of state development programs.
2. Modernization strategies should target small firms.
3. The objectives of industrial modernization strategies should be defined at the industrial sector level rather than the individual firm level.
4. Services should be organized around industrial sectors or clusters of firms.
5. State programs should be sized to the scale of the problem.
6. States should see modernization as a multidimensional problem requiring new systems, not just more programs.
7. The users of modernization programs must be involved in allocating resources.
8. Inter-firm collaboration is essential.
9. Work and education need to be integrated in new ways.

A Strategy for Manufacturing Modernization

The following recommendations incorporate the chief features of a state-level strategy for manufacturing modernization. These suggestions will not be uniformly applicable for all states and may be gratuitous for states that have sophisticated strategies. These ideas are not intended to be comprehensive; they are not a step-by-step blueprint. Rather, they seek to identify major points of attack to build on the principles of the previous section.

Planning and Organizing a Strategy

1. **Analyze the industrial base.** Designing a modernization strategy should begin with a careful audit of a state's manufacturing base, conducted on a sector-by-sector or cluster approach.

A sector audit would identify firms in each sector and survey them to (a) establish the extent to which they now use technology appropriate to their markets; (b) determine the key issues that confront them, by region if appropriate; (c) measure the extent to which collaborative mechanisms for resolution of these issues now exist; (d) identify the arena of competition (i.e., do they compete mostly among themselves within the region, nationally with firms from other states, internationally with firms from other nations, or what mix of each?); and (e) determine the most important strategies that they should pursue to expand market opportunity and enhance their competitive position.

Only a few states—Michigan, Ohio, and California are examples—have attempted rigorous and comprehensive sector analysis for more than one or two key industries. A model for development of this analysis is the Manufacturing and Innovations Network (MAIN) initiative of the Commonwealth of Pennsylvania, Department of Labor and Industry. This project has selected four industries—plastics, apparel, foundry, and machine tooling—important to the economic base of the state. It is encouraging group approaches to the identification and resolution of common problems.

The MAIN project was inaugurated by the state through a Request for Proposals (RFP) which encouraged industry groups, trade associations and regional economic development organizations to carry out what the RFP termed a "strategic audit." The audit was to identify opportunities to retain and expand markets and to determine what the firms should be doing individually and collectively to capitalize on those opportunities. The RFP required that groups responding to the solicitation develop a plan of "shared services" around which the firms could cluster. Examples of those shared services were market information, technology, training, procurement, quality improvement, finance, and exporting.

This need not be an expensive process. The Pennsylvania project limited state support to $100,000 per industrial cluster selected to participate. The firms were required to put in some of their own money to demonstrate commitment.

2. **Identify best-practice firms as models.** If, as is argued in this report, firms learn best from the experience of other firms, it will be important to identify and hold up to inspection and emulation the best practices within the industry.

The MIT Commission (1989) study, *Made in America*, identified the following six key similarities among the best-practice firms studied.

- A focus on simultaneous improvements in cost, quality, and delivery
- Closer links to customers
- Closer relationships with suppliers
- Effective use of technology for strategic advantage
- Less hierarchical and less compartmentalized organizations for greater flexibility
- Human resources policies that promote continuous learning, teamwork, participation, and flexibility

These are the best practices that should be offered as models of behavior for small manufacturing companies. They can also serve to focus the technical and information assistance of state modernization programs.

3. Develop industry steering groups for sector-based strategies. Government-assisted modernization efforts will be more successful to the extent that industry leaders participate in their design and execution. That principle is well recognized in the exemplary systems of business modernization in Europe—particularly in Northern Italy and Germany—and in Japan. In some industry groups, it may be hard to establish leadership organizations. That may be an indication of which sectors are likely to be more concerned with and receptive to modernization initiatives.

The MAIN project in Pennsylvania offers an example. The state required that each project be industry-driven. The steering committee for each group is led by firm owners, managers, and union leaders.

Choosing the Target and Focus of Modernization

1. Target small manufacturers and their linkages with other firms. As has been previously argued, smaller companies are more likely to need and benefit from state government modernization strategies than big ones. Also, it is in the small firm sector that the gap between best practice and current practice is widest. Further, America's larger manufacturing companies are increasingly dependent on the quality of design, engineering, production, and delivery in smaller firms.

The stake that larger companies have in the fortunes of their smaller supplier base represents an important linkage that is often overlooked in state business assistance efforts. Many of the larger companies have developed major programs of technical assistance and training aimed at their smaller supplier base. State modernization efforts should consider these customer-supplier relationships as opportunities to help organize the demand for services they can provide. Similarly, linkages among small firms that might be geographically clustered in a particular area or grouped around a core of larger companies should be seen as opportunities to focus modernization efforts.

2. Concentrate technology programs on diffusion. It is argued here that the problems of technology facing small manufacturers throughout America have far more to do with technology diffusion

than with technology development or technology transfer. However, as we have seen, most state technology spending has been in applied research and development or in moving the results of this R&D effort to the commercial sector.

States need to refocus their efforts on the somewhat more prosaic, but certainly more rewarding, questions of how small establishments can be persuaded to use the level of currently available technology that their competitors in other nations are learning to use.

This does not argue for dismantling programs that several states have established to spur the formation of new manufacturing firms using new technology. Helping to seed the existing industry base with new firms who are drawing on the latest and highest technology available is a generally sound strategy. To the extent that it does not divert resources from higher and better use for technology diffusion, this approach out to be continued. It tends to be a very expensive strategy because states are rapidly drawn into financing programs such as providing grant funds to supplement the federal Small Business Innovation Research initiative or providing seed and venture capital to assist these new firms as they launch their new products. To the extent that this then inhibits the development of systems to aid current manufacturers, it may retard modernization strategies.

3. **Provide comprehensive and integrated modernization services.** As has been repeated above, industrial modernization is not just an engineering problem. In many cases, it is not even primarily an engineering problem. It is a set of issues that involve technology, finance, worker and manager skills, markets, and organizational culture. Not every firm needs information, advice, or help in each of these areas, but all of these factors will be important to some firms.

States need to find ways to help the modernizing process without segmenting problems into narrow categories to fit within the institutional boundaries between agencies or programs. One way to do this is to use the firm owners themselves as a funnel for services. If industry associations or groups of firms with similar problems or opportunities were to play a larger role in the design and delivery of modernization

service programs (see below), they might be able to serve as program synthesizers or integrators.

Delivering Services

1. **Provide support to industry associations.** States should consider some form of challenge grant program which would encourage the emergence of strong trade and industry associations for each of the key sectors identified in the audit. Chambers of Com-‸erce or other broad-based membership organizations can provide value to their membership on general issues of public policy concern, but they will seldom be able to play an activist role in the modernization efforts of particular sectors.

State modernization programs need strong private sector partners. It will not be possible for states to plan and carry out long-range strategies of technology development, training, and finance, targeted to the specific needs of key sectors, if public officials are required to rely on volunteers. Sporadic contact with task forces or committees or general purpose business organizations who typically are unfamiliar with the needs of special sectors will not be good enough.

Creating staff expertise within the private association of firms in the most important manufacturing clusters is important to do even if full support from the members of that cluster is not immediately available. It will take time for the small manufacturers who are not well accustomed to consortial activity to see the benefit of such common effort. It will take time for the concern about competition within the group to give way to a concern about how the group can cooperate to enhance their individual ability to compete outside their region.

The emergence of strong intermediary organizations supported by firms in the sector will come only gradually, and in some sectors perhaps not develop. But the willingness of firms within a sector to contribute to the development of such organizations may be a predictor of the extent to which that sector will gain and maintain a competitive position in the international market.

Again, the Pennsylvania MAIN initiative offers experience and suggests a model which other states may wish to adapt. The Pennsylvania

Foundrymen's Association, one of the key groups involved in the MAIN project, historically has not play a major role in analyzing the market, technology, finance, and human resource issues confronting its member firms. It has focused primarily on nonshop-floor issues like insurance and environmental restrictions.

However, the Association's recent sponsorship of the strategic audit has begun to change the face of this more than 25-year-old organization. First, the Association has gained direct access to examining shop-floor problems, access that state agencies or university programs probably could never get. Further, it is emerging from the strategic audit process with a new and sophisticated awareness of the hard issues and real service needs of its members. Most important, the Association is developing a collective resolve among the members to pursue joint programs to meet these needs.

2. **Deliver industrial extension services through the industry groups.** Advice regarding technology deployment is more likely to be effective to the extent that it is seen as reflecting the judgment of other firms in the sector.

The creation and strengthening of intermediary organizations to act as "retailer" of technical information and hands-on assistance will help to assure that resources spent on firms in that grouping are aimed at what the firms see as the most important issues.

Delivering services through industry-managed intermediary groups should direct the assistance toward more fundamental issues facing the industry. Assistance delivered directly by state industrial extension agents on a firm-by-firm basis inevitably tends to be skewed toward the special needs of the firm requesting help, sometimes to the neglect of dealing with such fundamental issues as how that firm positions itself to deal with the market and with technology. When the role of the state is as a "wholesaler" of assistance, the intermediary organization is pushed to develop a consensus within the industry around these fundamental issues.

In the previously cited MAIN initiative in Pennsylvania, firms that became involved in four sector-focused programs (apparel, plastics, foundries, and machine tooling) seem to be able to drive quickly

through the more specialized problems to their common concerns such as training skilled workers, managing chemical and industrial wastes, finding new markets, developing new products, and deploying new technology.

Building Development Finance Programs for Modernizing Firms

1. **Provide financing for the costs of modernization.** Most state development finance programs are aimed at reducing the cost of capital for firms buying fixed assets. The costs of modernization sometimes are grouped around the acquisition of capital equipment such as computer-numerically-controlled (CNC) machinery, but frequently the fixed assets are only a small portion of the costs. Often there are substantial other costs of a working capital nature—training, developing new quality control systems, marketing, establishing distribution and service systems, etc. States need to reexamine development lending programs to consider their applicability to these capital requirements.

2. **Develop financing systems for the mid-risk capital gap.** As previously argued, many small manufacturing firms are limited by the scarcity of capital for mid-risk borrowing. Often, these firms are able to pay a higher cost for their borrowing than is required by the conventional low-risk, low-return loans of commercial banks. However, these heavily regulated, deposit-based lenders are seldom interested in expanding loan risk parameters even for the prospect of a higher return on their money. If the borrower's credit requirements do not fit within the narrow parameters of low-risk, low-return lending, the borrower is usually forced to do without the capital or look to equity markets for the money required for modernization efforts.

A few states have begun to explore new strategies to encourage the establishment of pools of nondeposit funds for higher risk lending. The BIDCO initiative in Michigan is an example. The state has helped to seed these funds but they are mainly financed by private investor groups. While it is too early to fully evaluate the BIDCO initiative, it promises to meet some of the need in that mid-risk market where many manufacturing companies are looking.

A few other states have worked with commercial banking institutions to design new lending arrangements that can tap the money supply of these banks for higher risk projects. Indiana has helped some 50 banks jointly establish a private lending corporation. Each member bank has made a small equity investment in this corporation (sufficient to finance annual operating costs). Each has given the new institution a line of credit (now totaling over $12 million) that supplies the capital pool from which the organization draws its loan funds. Member banks help to identify prospective borrowers, usually established customers whose current credit requirements outstrip risk limitations of the individual bank.

The objective of the Indiana project is to have the member bank finance that portion of the borrower's need which fits within the bank's limitations. The joint institution draws on the pooled funds to meet the balance of the needs, subordinating its interest to that of the member bank acting as the primary lender. The higher risk portion of the project costs the borrower a significantly higher rate of interest (often involving warrants or other forms of equity-based "kickers"). However, the loan does not demand the return normally associated with venture capital, and it does not require the company to surrender ownership.

While the BIDCO initiative and the Indiana plan are not aimed exclusively at needs of modernizing small manufacturers, they offer the potential to supply the kind of capital these firms often require. States establishing such new programs should consider linking them directly with technology deployment programs as is commonly done in development lending programs in Europe and the Far East.

Reforming Education, Training and Employment Services Systems

1. **Develop new systems of school-to-work transition that focus on work-based learning.** Most business-education partnership activities are concerned with discovering ways in which business can support the school through assisting in school management, strengthening teacher preparation, providing mentoring and tutoring for students, providing exposure to the world of work for younger students, and

offering work experience opportunities for older high-schoolers. Though such efforts are desirable, they frequently do not go far enough in creating new relationships between schools and employers—relationships that will strengthen the skill formation of young people.

Some states are beginning to experiment with innovations that go well beyond conventional business-education partnerships into new forms of work-based learning. An example is the effort in Pennsylvania to develop a youth apprenticeship system that would offer a radically new approach to education and occupational skill development. In the emerging concept, youngsters 16 to 17 years of age who have completed their first two years of high school would compete for entry into a four-year youth apprenticeship program, organized on a cooperative basis among several school systems and a statewide industry group—metalworking— in the initial Pennsylvania demonstration.

The participants in the Pennsylvania experiment would progress through a tightly structured four-year curriculum of general education, technical education, and occupational skill formation. The curriculum would be developed to produce skill and knowledge outcomes agreed to in advance by industry and education specialists from secondary and postsecondary institutions. Most of the program (70 to 75 percent) would be delivered in the workplace by training firms hiring the young people as apprentices. More conventional classroom education would closely complement the hands-on learnings. The apprentices would be paid a wage for a 40-hour week regardless of the actual split in time between the school setting and the work setting. The objective would be to produce a multitalented, flexible, skilled worker in a high-wage, high-demand occupation who will also have, in addition to a high school diploma, as much as two years of postsecondary credit fully transferable to four-year institutions.

Indiana is considering a program similar to the one under way in Pennsylvania. Other states are moving to establish "tech prep" curricula that incorporate large amounts of work-based learning and to expand cooperative education programs, especially in the manufacturing sector. As in the Pennsylvania illustration, these new approaches

aim at getting a business directly involved in the content and form of education and skill formation.

The pace of technological change makes it virtually impossible for public schools to provide up-to-date equipment and machinery, especially for the more high-skill training programs required in parts of the manufacturing sector. To continue to look to the school place as the most appropriate environment for developing vocational and technical skills in new job entrants or in people seeking new careers is to limit unnecessarily both the quality of the instruction and the participation of the employer community.

Workplace-based vocational and technical training is the norm in most other industrialized nations. It increases relevancy, shores up employer confidence, uses more modern equipment, engages more attention and commitment from students, and provides a better setting for the socialization of new workers into the workplace.

2. **Create incentives for employer investments in training.** As noted earlier, most of the workforce of the early years of the twenty-first century is the workplace today. Virtually all of them, at least those in blue-collar occupations, are unconnected with formal systems of education and skill formation. If they are to receive training appropriate to the skill requirements of future jobs, most will have to get that training from their employers. Yet, most American employers are not accustomed to allocating significant budgets to employee training. To the extent that they have invested in training, it has tended to be in relatively narrow skills appropriate to the introduction of particular machines. Contemporary training needs are more expensive because they demand higher technical proficiency, and they require more time because they demand a broader set of skills.

States must find ways to help manufacturing businesses recognize and respond to the need to increase their investment in training. A few states have begun to look creatively at using their unemployment compensation funds to induce greater employer investments in skill development for current employees. Another approach would be to offer tax incentives for investments in training. For example, states could offer partial tax credits for training expenditures above a level of previous

years' effort (following the approach employed by several states for R&D tax credits).

States also should consider increasing adult education spending and making funds available to companies for improving the basic educational proficiencies of their workers. States typically invest a tiny fraction (often less than 1 percent) of the money they spend for K-12 education in basic education for adults. Debate about the relationship between spending and quality seems to be a permanent feature of the school reform agenda, but little argument can be made against the proposition that increasing the basic proficiencies of poorly educated adults has a high payback. Yet, very little money is spent on this need, and that which is appropriated is commonly limited to local education agencies. It is not available to private companies even as an incentive to spur their investment in this area.

3. **Create systems to certify work-based training.** One of the reasons that employers do not adequately invest in training and employees do not take advantage of what is offered is the absence of a generally recognized system of certifiability and, therefore, transferability of work-based training.

On a global basis, the competitive company invests in upgrading the skills of its workers. Workers are seen as a company's number one asset and are treated accordingly. However, in a local labor market, individual employers will be less likely to invest in training to the extent that they see themselves as one of the few companies making those investments. Employers are understandably reluctant to spend a lot of resources on upgrading the skills of their workers if they believe they might leave them for better jobs and will have to be replaced by workers whose previous employer has not invested in upgrading skills.

If individual companies increasingly come to see other companies as making similar investments, they are not as likely to hold back. Moreover, if most companies begin to make those investments in developing worker skills, companies who do not share in this behavior will cease, over time, to be attractive employers. In a tight labor market, workers may begin increasingly to discriminate among prospective employers based on the training benefits those employers provide.

Training benefits may begin to be viewed in a fashion similar to the fringe benefits of insurance and retirement. The states can encourage this behavior by helping to make very clear to all employers and workers just who is spending what money for training and employee development. Certifying work-based learning programs is a step in that direction.

4. **Focus training expenditures on developing skilled workers.** The biggest problem facing most modernizing small manufacturers is the shortage of skilled workers able to operate technologically demanding equipment and systems. Yet, most state training money goes to relatively narrow, task-specific training, which tends not to encourage skilled worker development.

If state programs were to refocus from training programs aimed at the single firm to industrywide programs, there would be more emphasis on developing broader, foundation skills among workers. This would require helping businesses with similar skill needs to form training consortia. It would also demand a closer or more long-term relationship between firms and local providers of training and technical education.

Summary

1. States should plan and organize a strategy that:
   - analyzes the industrial base;
   - identifies best-practice firms as models; and
   - develops industry steering groups for sector-based strategies.
2. States should choose the target and focus on modernization by:
   - targeting on small manufacturers and their linkages with other firms; and
   - concentrating on technology diffusion.
3. States should deliver technical services to industry, to include:
   - provision of support to industry associations; and
   - delivery of industrial extension services through industrial groups.
4. States should build development finance programs, to include:
   - provision of financing for the costs of modernization; and

• development of financing systems for the mid-risk capital gap.

5. States should reform education, training, and employment service systems by:
   • developing new systems of school-to-work transition;
   • creating incentives for employer investments in training;
   • creating systems to certify work-based training; and
   • focusing training expenditures on producing skilled workers.

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3
State Strategies for Building Market-Based Workforce Preparation Systems

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Industry and occupational shifts, technological advances, growing international competition, and labor force changes in the face of tight government budget constraints and concerns about the efficiency and effectiveness of government programs have forced states to rethink how they fund, administer, and deliver vocational education and employment and training programs. States have undertaken a diverse set of initiatives to develop a more comprehensive and integrated set of workforce preparation programs that are more responsive to labor market changes and are more consumer-oriented and performance-driven.

In conjunction with federal performance standards initiatives, most states are reshaping their workforce preparation programs through the use of performance standards systems that define and report performance outcomes on publicly funded programs Some states are experimenting with other types of market-oriented strategies to improve efficiency and flexibility, including competitive contracting policies, consumer information and counseling, performance sanctions, business tax incentives and grant programs, and voucher systems.

The challenge for states in the 1990s is to put these market incentives together into comprehensive market-based workforce preparation systems. Although most states have implemented performance standards systems and have experimented with other related market incentives, they have yet to integrate these market incentives into

comprehensive market-based systems. Performance standards systems and other types of market-oriented strategies are likely to be ineffective and to produce negative side effects unless they are integrated into comprehensive market-based delivery systems. We propose that states can build these systems through a practical six-step approach that begins with strategic planning and performance standards systems and ends with new state programs that provide businesses and workers with greater consumer control and choice.

We use Kolderie's (1986) distinction between provision and production to describe the major design principles for building comprehensive market-based workforce preparation systems. We then review issues related to providing services; namely, how states can establish strategic policy objectives and performance expectations for these programs. We then shift to issues related to producing services, and discuss four types of market incentives that should be used together in delivering workforce preparation services.

We follow with a review of six potential problems and constraints that states can address through the integrated and refined use of market incentives. Throughout this discussion of provision and production issues, we provide examples from federal and state workforce preparation programs, including the public employment service, vocational education, and employment and training programs for the economically disadvantaged. The paper concludes with recommendations for how states can build effective market-based workforce preparation systems.

Provision and Production in Market-Based Workforce Preparation Systems

What are the most difficult challenges for vocational education and employment programs in the 1990s? Why do we need market-based systems to meet these challenges?

Challenges for Changing Workforce Preparation Programs

The following market pressures are some of the challenges that are likely to stretch current vocational education and employment and training programs to their limits.

Higher Standards and Limited Public Funds

The major economic development challenge facing states is establishing a world-class workforce with which businesses can achieve productivity and quality levels superior to those in other states and abroad. These competitive pressures will impose higher quality standards on public vocational education and employment and training programs. More people must be produced who have world-class basic and vocational skills. Public programs are faced with the difficult task of meeting these international standards without major increases in federal and state funding. This can only be accomplished with effective leveraging of private resources and productivity increases and cost reductions in public programs.

Changing Customer Requirements

Changing skill requirements in the workplace and an aging workforce will require more emphasis on adult retraining (Office of Technology Assessment 1991). This will require public program developers to work more closely with employers, industry and professional associations, and unions to provide education and training services designed especially for adults, and to deliver these services closer to home and work. This also will require more flexible types of funding and delivery strategies between the public and private sectors.

Shortened Training Life Cycles

The shortened training and technological life cycles in the private sector as described by Flynn (1988) will make it difficult for public programs to recruit trained instructors and purchase instructional equipment in order to respond to changing industry skill requirements within the necessary time frames and cost constraints. This will force

managers of public programs to develop new strategies to respond more quickly to market changes.

Work-Based Learning

Comparisons with our international competitors have shown that applied work-based learning is critical to the success of school-to-work transition systems and adult vocational education programs (U.S. Department of Labor 1989). The introduction of work-based learning in the United States will require states to rethink their entire secondary and postsecondary vocational education systems as well as their funding and regulatory control over private sector training.

Instructional Technology

Innovative instructional technologies, such as computer-based instructional systems and distance education offered through integrated video and satellite transmission, has been shown to be a cost-effective approach for worker training (Office of Technology Assessment 1991). These new instructional technologies will increasingly dissolve the competitive advantages of school-based classroom instruction and provide states with the opportunity to restructure public sector delivery of vocational education and employment and training programs.

Growing Private Sector Industry

The growing private sector education and employment and training industry serving the needs of American businesses will present new opportunities for public programs to utilize private sector organizations to deliver publicly funded services (Carnevale et al. 1990). It may also provide stiff competition for postsecondary education and training programs serving adult workers. This growing sector will require new government policies to promote efficient coordination between public and private programs.

Institutional Limitations of Public Programs

Ambiguous Policy Goals and Performance Objectives

The first major limitation in vocational education and employment and training programs is the lack of clear public policy goals and performance objectives. The Job Training Partnership Act (JTPA)was implemented with unresolved language as to who was to be served—those who are most in need or those who could most benefit from employment and training services (Bailey 1988). The United States Employment Service has never been given specific policy goals. It has been hampered by vague and shifting priorities throughout its existence (Cohen and Stevens 1989).

When goals are ambiguous, policy decisions become extremely decentralized and fragmented. Policymaking is put in the hands of service producers ranging from public educational institutions and state agencies to private nonprofit organizations and businesses. As a result, public and private service producers use public funds to pursue their own goals without clear state performance objectives.

Regulatory Systems Based on Design Standards

In the United States, the specification of quality standards for accreditation and credentialing purposes has been delegated to public service deliverers and their public administrative agencies or quasipublic regulatory boards. Vocational education and employment and training programs traditionally have emphasized design over performance standards as a basis for regulating the quality of services among service producers. Design standards address detailed aspects of the internal administration and operation of a program (Salamon 1981). They include process issues such as administrative structures and procedures, service mixes, service approaches and methods, staff qualifications, and financial accounting and reporting. In contrast, performance standards address the outcomes or results of the program, leaving issues of internal operation to the producer.

Regulatory systems based on design standards deflect attention from performance outcomes and result in ineffective regulatory systems that

encourage state administrative agencies to micromanage local programs based on their own design standards or to develop very weak regulatory control systems. The problem with design standards is that we do not always know what works in achieving different goals with different client populations in different contexts. We do not know what combination of factors will produce the greatest output. Performance standards simplify state quality standards by only judging the performance of the service producer.

The most serious problem with the current accreditation and credentialing system is that service producers establish their own credentials that many times are incompatible with the credentials of other service deliverers. This makes it difficult for customers to make full use of public and private service producers and imposes significant switching costs on people in moving between public and private education systems, or between different levels of the public educational system. It also results in confusion among employers as to the meaning of education and training credentials from workforce preparation programs.

Public Funding and Consumer Control

Most public service producers have no direct incentives to improve services to customers. These service programs are operated through government and educational bureaucracies, with funding systems that insulate them from external market pressures exerted by private customers (Sheets 1989). With the exception of student grants and loans, most federal and state funding of vocational education and employment and training programs is channeled directly to public administrative agencies and their service producers, who then must market their services to targeted consumer groups.

Performance is defined in terms of client enrollment and service levels as opposed to effectiveness in serving clients. This results in the formation of strong public spending coalitions of administrative agencies and service deliverers who direct more effort to lobbying for increased public funding than meeting the needs of consumers (Sheets and Stevens 1989). This strong orientation is reinforced by professional sheltering arrangements, such as profession-dominated licensing

and accreditation systems, faculty tenure systems, and complex civil service systems. Strong consumer control and market responsiveness are lost in most cases.

These institutional arrangements make traditional efforts at coordination ineffective (Sheets and Stevens 1989). Federal and state efforts to establish state or local coordinating councils or boards have not been successful in the past and will likely encounter the same problems in the future. Government agencies and educational institutions again have no direct incentives to work with other public programs to improve their performance with their customers. A new approach to coordination must be fashioned from a larger institutional transformation of the public delivery system.

New Systems for New Challenges

Existing government agencies and educational institutions have served us well in the past. However, there is no obvious reason why the public institutions that arose from yesterday's needs should be expected to be optimal for today's and tomorrow's needs. The historical luxury of being able to mount new initiatives through institutional innovation, without direct action toward already existing agencies, is no longer viable. This has been the predominant American strategy with new generations of programs being created in a spirit of freewheeling policy entrepreneurship outside the normal channels of government (Smith 1983).

The War on Poverty created a new delivery system that circumvented traditional public educational institutions and the public employment service. State customized training programs were created to meet the training needs of businesses that were not being met through public secondary and postsecondary schools (Creticos and Sheets 1989). If we continue to protect existing public service producers, we simply will not have enough public resources to meet today's workforce preparation challenges. We need major changes in how we finance and deliver virtually all workforce preparation services.

Market-Based Provision and Production

How should states build comprehensive workforce preparation systems? Strong international competition from Japan and Europe has lead public and private leaders in the United States to look to other industrialized countries for more effective national models of workforce preparation systems. Although comparisons with our international competitors are extremely useful, we must build our own model. The states' challenge is to achieve world-class standards in workforce preparation through government policies that work best within the structure of American political and economic institutions.

American institutions are unique in their commitment to individual choice and responsibility, a market economy, a strong and active voluntary, nonprofit sector, and decentralized pluralistic government under state and local control (Smith 1983). These institutional characteristics should be weighed heavily as we reshape public education and employment and training programs in the United States.

The American commitment to private markets and increasingly tight budget constraints will require that states leverage private education and employment and training resources wherever possible. Building a comprehensive workforce preparation system in the United States requires careful consideration of how best to utilize private education and employment and training programs and how best to integrate public and private programs.

The private vocational education and job-training system accounts for over one-half of all organized instructional activity in the United States (Carnevale 1986). It is funded and delivered by a variety of private organizations, including employers, industry associations, unions, professional associations, and community-based organizations. The public employment service handles only a small fraction of job placements, with the remaining managed by a variety of private for-profit and nonprofit organizations (Cohen and Stevens 1989). Federal and state programs traditionally have used private organizations to deliver education and employment and training services.

States should build their workforce preparation systems through a comprehensive market approach that utilizes market incentives to improve the use of the private sector in public programs and improve the interaction between public and private systems. This approach also uses market incentives to transform public sector producers into more market-responsive organizations that better approximate the efficiencies and flexibility of private, for-profit organizations operating under competitive market conditions.

Kolderie's (1986) distinction between provision and production is useful in rethinking the public and private roles in a market-based workforce preparation system. *Provision* involves decisions about whether to have a service, how much of it to have, what quality standards it should meet, and to whom and under what conditions of availability and cost it should be offered. It involves the basic decision on what service should be provided to achieve what public policy goal. *Production* involves the assembly and maintenance of the resources needed to deliver a particular good or service and satisfy the provider's requirements. It involves decisions regarding what forms of government action (e.g., government grants, tax incentives, social regulations) and what organizations should be used to deliver a product or service to a client population.

The American system for vocational education and employment and training services contains a diverse mixture of public and private provision and production. For example, public employment services are publicly provided and produced through a state agency—the Public Employment Service. This public system is complemented by a parallel privately provided and produced job search and placement industry. In contrast, public postsecondary vocational education and employment and training programs for the economically disadvantaged are based on public provision, with a mixture of private and public production through public educational institutions, proprietary schools, and nonprofit community-based organizations.

The market approach would require states to restructure their approach to the public provision of workforce preparation services.

Market-based provision of these services requires renewed emphasis on the following issues:

1. Strategic planning: establishment of public-private consensus-building mechanisms to address workforce preparation problems and government goals and priorities

2. Performance objectives and quality standards: establishment of clear and measurable performance objectives and quality standards for all workforce preparation programs

3. National-state competency-based credentialing systems: establishment of national-state occupational credentialing systems based on skill competencies

4. Policy coordination: coordination of government programs through consistent and compatible performance objectives and measures and statewide credentialing systems

The market approach would also require states to restructure their role in the production of workforce preparation services. This requires a restructuring of the traditional service delivery system based on four market principles:

1. Consumer choice: encouragement of informed choices by consumers

2. Contestability encouragement of competition among public and private service producers

3. Performance management: insistence on the adoption of performance outcome measures and quality standards

4. Performance sanctions: uniform enforcement of meaningful sanctions for unsatisfactory performance

Specific market incentives fashioned from these four market principles will be most effective when (1) they are utilized within a comprehensive provision framework that establishes state policy and performance objectives; and (2) they are used in conjunction with

other market incentives to give equal emphasis to each of the four market incentives.

Public Provision: Strategic Planning, Performance Standards, and Policy Coordination

The strong American commitment to private markets and an active voluntary, private nonprofit sector has resulted in a decision that federal, state, and local governments should provide or produce workforce preparation services only when the private sector fails to deliver publicly valued services according to acceptable quality standards at a fair price to the appropriate people. What are publicly valued goods? What are acceptable quality standards and fair prices? Who should be given these services? These provision questions are matters of continual public policy debate.

Successful state governance in the 1990s will require that governors take a leadership role in addressing and clarifying government policies on these provision questions. It will also require an astute ability to sense when markets are not working without government enticement or prodding, a commitment to take full advantage of changing private markets for reducing or redirecting government action, and an unflinching resolve to step in with creative initiatives to compensate for unacceptable market outcomes.

This means that market-based workforce preparation systems require strong government presence in labor markets; not less government action and unfettered private markets. The market approach requires a different type of government intervention. It requires strong state leadership in building public awareness and public-private consensus on workforce preparation problems and government goals and measurable objectives.

Effective government intervention means sending clear and easily understood market signals that communicate what the workforce preparation system should produce and what government is willing to pay for. It requires strong state leadership in establishing a comprehens

set of public policy objectives and funding priorities, as well as a set of measurable quality standards and performance expectations for all publicly funded and regulated vocational education and employment and training programs.

Strategic Planning and Policy Objectives

Strategic planning is one promising mechanism for states to use to reach public-private consensus on policy problems and objectives and establish measurable performance expectations. Some states are confronting the problems of integrating federal, state, and local programs through strategic planning efforts that establish state policy goals and the major strategies for reaching those goals. These efforts seek to identify how public programs can improve and complement private employment and training systems. They also seek to define state roles and responsibilities within an integrated public and private workforce preparation system.

Van Horn et al. (1989) reviewed a number of states that are using strategic planning processes to put together workforce preparation programs. New Jersey's public and private sector leaders have begun a long-term project to develop a strategic plan for government intervention in the labor market. A governor's cabinet task force in early 1987 made recommendations for new programmatic initiatives and the reorganization of the current delivery system.

Other states including Indiana, Maine, Maryland, Michigan, North Dakota, and Washington have used strategic planning processes to build a public-private consensus on a set of clearly defined policy goals. These strategic planning frameworks possess the common components of (1) a clearly defined statement of labor market problems requiring government action, (2) recommendations on government policy goals, and (3) the systemwide application of these policy goals to all programs in the state.

Policy Objectives and Performance Standards

Strategic planning will be most effective when it results in the establishment of a comprehensive set of policy objectives and performance outcome measures. Some states have taken promising steps to actually translate state policy objectives into sets of measurable performance outcomes. Although the JTPA was ambiguous on the major client group to be served, it was the first federal program to implement a federal-state performance standards system that specified the program outcomes to be achieved. Some states have taken a leadership role in establishing JTPA performance outcome measures and adjustment models that best reflect state policy priorities. Illinois, Indiana, and Ohio have developed their own performance standards models (Baj and Trott 1988).

One promising strategy is the use of unemployment insurance wage records in measuring employment and earnings outcomes (Stevens and Haenn 1992; Hoachlander, Choy, and Brown 1989; Baj and Trott 1991). The National Commission for Employment Policy is conducting a research and development project with 20 states to explore the use of unemployment insurance wage records as a basis for tracking the postprogram employment and earnings experiences of JTPA participants (Baj and Trott 1991). Florida was one of the first states to utilize unemployment insurance wage records for both JTPA and vocational education performance evaluation.

These innovative state efforts are likely to be supported by new federal legislation that requires the development of performance standards in virtually all workforce preparation programs. The reauthorization of the Job Training Partnership Act will shift greater emphasis to skill standards and long-term employment and earnings. The 1990 Amendments to the Carl Perkins Vocational Education Act require states to develop performance standards and measures in at least two performance areas including academic skills, vocational skills, program completion/continuation, and employment and earnings. The Job Opportunities and Basic Skills (JOBS) program of the Family Support Act requires the development of performance measures in skills devel-

opment, welfare dependency, and employment and earnings. The student grant and loan programs in the Higher Education Act and new adult education and workforce literacy legislation will likely follow along similar lines.

Federal research and development projects and state efforts suggest that it is feasible to define and measure performance outcomes in at least five major areas: (1) academic and basic skills competencies, (2) vocational skills competencies, (3) program completion and/or continuation, (4) employment and earnings outcomes, and (5) productivity or company performance improvement (Hoachlander, Choy, and Brown 1989; Creticos and Sheets 1990).

National-State Competency-Based Credentialing Systems

The hallmark of the market approach is the separation of provision and production decisions, with performance outcomes and quality standards always defined independently of existing production arrangements. Performance standards systems for basic and vocational skills require national-state competency systems for awarding credentials. These competency systems are based on performance outcomes rather than program design standards. They award credentials based on what people know or can do rather than how they learned it and what program they completed.

The Commission on the Skills of the American Workforce (1990) in the report, *America's Choice: High Skills or Low Wages*, has called for the creation of a national board for professional and technical standards to develop a national system for examination standards leading to professional and technical certificates of mastery across a wide range of occupations. Each occupational program would be organized through a system of school- and work-based learning, consisting of a combination of general-education and industry-specific requirements. The system would allow participants to move freely between occupational programs and public and private service producers and would define clear paths for further education and training, including entry into four-year degree programs.

The United States Department of Labor, through its Office of Work-Based Learning, has launched a similar initiative to expand the apprenticeship concept in the United States (U.S. Department of Labor 1989). The new office is working with national industry and labor groups to develop national occupational standards and curricula. It is funding pilot projects in adult upgrading and retraining and school-to-work transition systems to promote the establishment of state and local programs.

These national initiatives are a promising start in establishing a national-state framework for competency-based credentialing systems. This national-state framework should be based on national occupational or professional competency systems developed and maintained by national governing boards consisting of federal and state vocational education and employment and training agencies and national industry, education and labor associations. These occupational or professional governing boards should establish and continually update the core basic and vocational skill areas or modules and the minimal competency standards for certification. These skill standards should be endorsed by industry and professional groups as the common currency for all labor market transactions.

The major state role in national-state competency systems is in redirecting state regulatory and credentialing systems to support these national skill standards. States should clearly communicate these standards to public educational institutions and private service producers and incorporate these criteria into state credentialing systems, including postsecondary degree programs. States also should work together with federal agencies and national governing boards to build these credentialing systems to serve as the basis for performance standards systems in basic and vocational skills competencies.

Policy Coordination and Performance Objectives

Since the 1960s, federal and state governments have undertaken numerous attempts to coordinate federal, state, and local vocational education and employment and training programs. These coordination efforts have come from federal and state mandates that require service

providers and producers to work together. They have been based on a corporate or bureaucratic model of coordination which attempts to establish clearly defined roles and responsibilities through state and local negotiation without the authority of a formal superior-subordinate hierarchy (Whetten 1981). This approach tries to minimize duplication of government services and maximize efficient communication and resource exchanges between service producers receiving public funding through government programs.

This corporate approach has been extended in new federal legislation for establishing centralized coordinating boards—called human resource investment councils—in states for integrating JTPA and vocational education programs. It also can be seen in efforts to integrate workforce preparation programs within a superagency at the state level or labor market boards and one-stop service centers at the local level.

Although this corporate approach can be effective under some conditions, it should not be the first step in addressing coordination problems. We advocate that states take a different approach to coordination. Consider three interdependent types of coordination activity (Sheets, Baj, and Harned 1988):

1. Policy coordination refers to the development of consistent program objectives, quality standards, and program terminology with a major emphasis on common measurable performance outcomes by which each program will evaluate effectiveness.

2. Administrative coordination refers to the development and implementation of administrative agreements that define the respective roles and responsibilities of each program and the administrative procedures to carry out these agreements.

3. Case coordination refers to the development and implementation of case management systems that define client and program responsibilities in the development, implementation and monitoring of a comprehensive intervention plan for each participant in the system.

The market approach emphasizes policy and case coordination and deemphasizes administrative coordination. Policy coordination

through the establishment of common or compatible performance objectives and measures should be the first step states take in building comprehensive workforce preparation systems. This type of policy coordination is essential in coordinating JTPA and JOBS programs in reducing welfare, and JTPA, JOBS, and vocational education programs in establishing performance objectives in adult basic and vocational skills.

Some states are integrating their workforce preparation programs through standardized performance outcome systems. Michigan's Human Investment Fund Board has established general measures for each performance objective and outcome for the Michigan Opportunity System (MOS). Illinois is utilizing its Employment Tracking System (ETS) to develop and utilize unemployment insurance wage records as the basis for a combined evaluation of all education for employment programs.

Case coordination is essential in establishing consumer control and choice in market-based workforce preparation systems. Case coordination encourages consumers to assume greater decisionmaking responsibility in the system. Case coordination could vary tremendously depending on the resources and needs of the consumer. It could range from independent career counseling services for students and adult workers to intensive case management systems for welfare recipients and other hard-to-serve populations targeted by state policy goals. Case coordination will be discussed further in the next section on service production in workforce preparation systems.

Production Through Market Incentives: Consumer Choice, Performance Management, Contestability, and Performance Sanctions

After states have established a comprehensive strategic planning framework, they will be left with the difficult decision of how to structure and integrate public and private organizations in delivering publicly provided services within a state workforce preparation system.

States have many alternatives. The remaining sections of this paper focus on how states can use market incentives to restructure their handling of the production of vocational education and employment and training services within workforce preparation systems. We recommend that states consider four types of market incentives.

Consumer Choice: Empowering the Customer

Market incentives should be used to increase the choice and control that customers—mainly employers and workers—can exercise in purchasing services from alternative public and private producers within workforce preparation systems. Consumer choice creates strong incentives in service producers to conduct customer outreach and marketing and develop innovative and cost-effective services for different consumer populations within a state.

Consumer choice can be increased by shifting more public funding from service producers to customers. The majority of public funding in vocational education and employment and training programs is channeled directly to public service producers to serve consumers. The major exceptions are student loan and grant programs and G.I. Bill benefits. This shift could be accomplished by putting greater emphasis on discretionary grant programs that provide funding directly to employers, industry associations, and joint labor-management apprenticeship committees and public voucher systems that provide funding directly to individual students and workers to purchase services from both public and private producers.

Workplace-Based Training Programs

States should encourage private employers to establish their own employment and training systems and coordinate these systems with the same national-state competency standards used in public programs. States should promote the expansion of workplace-based training programs in the private sector. Most American businesses—especially small and medium-sized firms—underinvest in employee training relative to their Japanese and European competitors (Office of Technology Assessment 1990). They also have not established formal employment

and training systems, including employee testing and assessment, employee development plans, in-house training programs, and competency- and performance-based evaluation systems. States should provide incentives to businesses and industry associations to establish formal training systems and become better consumers of vocational education and employment and training services from both public and private producers.

States have taken a leadership role in providing funds directly to private industry for adult education and training. At least 44 states have established customized training programs for attracting and retaining businesses (Ganzglass and Heidkamp 1986; Creticos, Duscha, and Sheets 1990; Stevens 1986). Some programs, such as California's Employment Training Panel and Illinois' Prairie State 2000 Authority, provide training grants directly to employers and allow them to choose the most appropriate training vendor for their company. These programs many times provide grants to industry associations for administering training programs for small employers.

Other states have established community colleges and vocational-technical centers as the administrative agents and preferred service producers in efforts to encourage closer education and business linkages. State programs that contract directly with businesses provide the best example of market-based programs that establish stronger consumer control and choice by making public entities compete for government funds.

To be effective, these state programs must have clear policy objectives and performance expectations, with the major client being the business or businesses receiving the grant (Creticos and Sheets 1990). Some states have chosen to put additional requirements on these programs, including earmarking funds for targeted populations and special industry-school partnerships. These ambiguous or contradictory policy goals are likely to result in poor program performance and reductions in business interest.

States also should promote the expansion of work-based training systems based on the apprenticeship model. Apprenticeship systems are another way to build private sector employment and training pro-

grams based on national competency systems. These work-based programs provide a structured transition between school and work and provide alternative paths to upgrading and retraining for employed workers. Some states, such as California and Wisconsin, provide matching funds to apprenticeship programs for theory-related instruction. States such as Pennsylvania and Illinois are sponsoring school-to-work demonstrations that build closer linkages between vocational education programs and work-based learning systems fashioned after the apprenticeship model.

Consumer Choice and Voucher Systems

States should complement these workplace-based training programs with individual grant and loan programs that allow people to combine public and private resources in buying vocational education and employment and training services. The foundation of consumer choice must be established in statewide voucher programs for primary and secondary schools. Chubb and Moe (1990) present a strong and compelling case for giving option and choice to parents and students in choosing public or private service producers. Minnesota has become a leading state in putting choice to the test in schools. States should expand the principles of consumer option and choice by making all state and local funding to secondary and postsecondary school districts (e.g., community colleges) portable throughout the state.

The Commission on the Skills of the American Workforce (1990) has called for the establishment of guaranteed funding for four years of postcompulsory schooling for students and adults. Students and adult workers could take this training from a wide variety of public and private producers including community colleges, comprehensive high schools, regional vocational centers, magnet schools, four-year colleges, proprietary schools, and apprenticeship programs. Similar models have been proposed by others under names such as Individual Investment Accounts (Thurow 1985) and Individual Training Accounts (Choate 1985).

These models provide useful illustrations of statewide voucher systems ould be established with competency-based credentialing

systems. These individual voucher systems could be structured to complement student grant and loan programs, G.I. Bill educational benefit programs, and other targeted programs that address special populations or occupations experiencing skill shortages, such as machinists or nurses.

Some states, such as Kentucky, have turned to voucher systems as an alternative delivery mechanism for serving dislocated workers. These vouchers could be combined with company outplacement funds and other company-union programs to provide additional resources for distressed workers. Federal and state programs and demonstration projects also have experimented with voucher systems for serving the economically disadvantaged (Sharp et al. 1982). These programs provide states with many models for developing special voucher systems for disadvantaged and hard-to-serve populations.

Career Counseling and Case Management Systems

Consumer choice also can be increased by providing customers with the necessary information and technical assistance to make their decisions among service producers. States first should establish consumer information systems that report state performance standards and performance information on all public and private service producers in the state. (See following discussion on performance standards.)

These systems should be supported by independent counseling services that provide technical assistance to customers at arm's length from service producers. Most publicly funded career counseling in the United States is provided by public schools in preparing students to enter college and by postsecondary educational institutions in preparing students to enter their own programs. The only independent career counseling is provided to special targeted populations in federal and state programs for the economically disadvantaged and dislocated workers. Other counseling services are available to people who can pay.

States should establish independent career counseling systems that provide assessment and counseling services to both students and adult workers. These systems should be coordinated with statewide creden-

tialing and voucher systems. Some states may wish to establish community-based programs operated through public employment service offices. Others may want to contract with other public or private organizations.

States should establish more comprehensive case management services for special targeted populations. Case management systems have been used extensively in JTPA, work-welfare, and adult education programs to empower participants and provide them with needed advocacy assistance and supportive services. States have many models to choose from in establishing their own programs.

Performance Management: Consumer Information and Producer Standards

Consumer choice by itself will not be a sufficient market mechanism to improve system responsiveness and efficiency. It will need to be complemented by a state-managed reporting system that provides policymakers, interest groups, and administering agencies with performance information on public programs and furnishes consumers with performance information on public and private service producers.

Performance Management and Program Reporting Systems

Consumer information systems should include performance-standards reporting systems that disseminate program performance information at the state and substate levels relative to state policy objectives and performance standards, that is, the expected levels of performance on specific outcome measures.

State agencies administering JTPA programs report the performance of local service delivery areas (SDAs) on an annual basis. This information is available to local public officials, business organizations and unions, state legislatures, and a variety of public interest groups. Some states, such as South Carolina and New Jersey, have established school performance reporting systems that provide information on school districts.

States also should require all state agencies and other public providers to report the performance of their public and private producers in

relation to state performance objectives in state strategic plans. Such reporting requirements would insure the infusion of state strategic goals into operational goals of programs and provide necessary state policy coordination.

Producer Management and Consumer Reporting System

This program reporting system should be complemented with a comprehensive consumer information system that integrates producer performance information into existing labor market planning and career information systems. States already have invested considerable resources in maintaining career information and occupational supply and demand data to support better consumer decisionmaking and guide state investment in new programs (Stevens and Duggan 1988).

One major problem encountered by state labor market information systems is that public and private service producers are not required by states to report basic information about their programs, including information on program enrollments, completions, and placements. As a result, this information is difficult for consumers and counselors to find and utilize.

States should require all public and private service producers who use public funds to report this information to the state on an annual basis. States should then publish and disseminate this information in a form that makes it easy for consumers and career counselors to compare and contrast alternative service producers. This information should display producer performance information relative to state performance standards.

Contestability: Competitive Contracting and Capacity Building

Contestability refers to a market condition in which all production arrangements can be contested either by providers who are dissatisfied with producer performance or by other public or private producers who want to deliver competing services. The supply of a workforce preparation service is perfectly contestable when public and private producers face no barriers to entry or exit. Contestability is a broader market condition than competition in that it does not require the presence of

alternative service producers, but only the threat of competition and the potential of strong challenges to production rights.

Contestability enforces a certain degree of market rigor and market responsiveness and flexibility that has not been duplicated by command and control alternatives such as administrative, legislative, or private sector monitoring and oversight. When contestability is low, incumbent producers usually act opportunistically by not complying with contract terms, exploiting bargaining power when unforeseen contingencies appear, and becoming complacent about maintaining high quality at reasonable costs (Vining and Weimer 1990).

One major problem in most workforce preparation programs is that existing production arrangements are not highly contestable. In some programs, such as the public employment service, administration and delivery are done by the same agency without any consideration given to alternative production arrangements. In other programs, only certain types of service producers, such as vocational schools and community colleges, are eligible to receive federal and state funds or deliver services. In still other programs, state and local administrative agencies have not clearly specified the service and quality standards to be produced and have not developed a sufficient contractor network to insure an effective level of contestability. This has created a patchwork of producer monopolies, restricted production arrangements, and preferred producer designations in workforce preparation programs.

Competitive Contracting Programs

States can establish a sufficient degree of contestability in their workforce preparation systems through two actions. First, states should review administrative arrangements in workforce preparation programs and insist on a systematic separation between administration and service delivery. This would insure that all programs have clearly defined their public and private producers. In the case of state agencies, such as the public employment service, this would require defining regional or local offices as separate service producers whose operations could be contested if performance standards are not met. Second,

states should require competitive contracting procedures that solicit proposals from both public and private producers.

States should establish proactive certified producer programs that provide the necessary support for the development and maintenance of a competitive pool of public and private producers. The privatization initiatives of the Armed Forces and state and local governments have produced model contracting procedures that could be applied in state vocational education and employment and training programs (Crosslin, Neve, and Cassell 1989; Hatry, Voytek, and Holmes 1989). These contracting procedures provide a method of writing requests for proposals that insures adequate levels of specificity based on a clear understanding of the cost and quality issues in the industry. These contracting procedures provide some degree of contestability even with a small producer pool because they continually search for alternative producer arrangements and continually review and update competitive cost and quality standards for the industry.

Capacity Building: Professional Training and Program Research and Development

States should support competitive contracting programs through training programs for professional staff in public and private service industries and promote competitive grant programs that encourage program innovation, risk-taking, and a demonstration of new approaches to workforce preparation.

State programs can insure a competitive pool of public and private producers only if these producers are able to hire professionally trained staffs. Professional staff training has been a persistent problem in public and private programs, especially programs for the economically disadvantaged (U.S. Department of Labor 1989).

States should work with federal agencies and professional associations to establish professional development and certification programs for staff in vocational education and employment and training programs. These programs should be coordinated with new state policies on teacher training and certification, state civil service upgrading pro-

grams, and national efforts to establish professional credentialing systems for employment and training professionals.

Performance and cost pressures in market-based systems may result in underinvestment in developmental activities by service producers and risk-taking in new program ventures. States should establish research and development programs that give incentives to public and private producers to try innovative program approaches and adopt new instructional technologies. These research and development programs should be targeted to specific labor market problems, special populations, or promising service approaches.

Performance Sanctions: Rewarding and Penalizing Producers

Consumer choice, performance standards, and contestability will be most effective when states are successful in establishing sanctions for nonperformance. The public sector seldom has termination mechanisms that replicate those operating in private markets. In market systems, redundant costs and inefficiencies are reduced because organizations that persistently fail to compete effectively or perform at minimal standards eventually go out of business. By contrast, nonmarket systems are usually unable to hold public or quasipublic organizations accountable for poor performance or reward exemplary performance. They rarely, if ever, put these organizations out of business for poor performance.

The easy route to implementing performance standards systems is to introduce well-defined performance expectations, but make little effort to enforce these standards or apply sanctions for noncompliance. The introduction of effective enforcement procedures and sanctions can be expected to require an increased commitment of resources to carry out the new administrative responsibilities with both public and private service producers.

States have begun to establish sanction policies and procedures in education and employment and training programs. All states have established sanctioning policies and procedures for SDAs in JTPA programs, although sanctions have rarely been used. Some states have established sanctioning policies for vocational education programs.

Florida's Placement Standard Law provides that any job preparatory program in which the placement rate is less than 70 percent for three consecutive years is ineligible for future state funding. New federal regulations for Guaranteed Student Loans will require the Department of Education to suspend, limit, or terminate public or private educational institutions with student loan default rates above 20 percent.

States should implement performance standards systems that contain strong sanctions for nonperformance. The ultimate penalty should be loss of eligibility to receive federal and state funds for a probationary period, an approach not unlike the death penalty imposed by the National Collegiate Athletics Association (NCAA). Public and private producers should be allowed to receive public funds only after reporting performance outcomes into a consumer information system and maintaining a record of performance above minimum state standards.

Preventing Potential Problems Through the Integrated and Refined Use of Market Incentives

The utilization of market incentives in public programs, including vocational education and employment and training programs, has generated considerable debate. This debate is centered on six potential problems and constraints with market incentives. These problems can only be prevented through integrated and refined use of market mechanisms in both the provision and production of workforce preparation services.

Producer Monopolies and Competitive Markets

One potential problem is that market-based systems may encounter barriers in dissolving natural monopolies based on the small number of potential producers in many local areas—especially rural areas—and the advantages gained by contractors who receive first-round contract awards.

The first defense against producer monopolies is a strong competitive grant program that attempts to develop a diverse contractor community and provide potential public and private contractors with extensive information on program specifications and competitive cost and quality standards. This competitive grant program should be complemented by consumer information and voucher systems that allow consumers to buy services from alternative service producers.

The second defense against producer monopolies is the establishment of strong performance standards and sanctioning policies. Contestability does not require alternative service producers to be present as long as states report producer performance and enforce performance sanctions. This insures the threat of competition or challenges to production rights even in rural areas where there is rarely more than one public service producer. Producer information and sanctions may result in the reorganization of the only public producer in the area, such as an employment service office or community college, or signal other potential producers of the opportunity to offer competing services.

Opportunism and Excess Profit-Taking

Market-based systems raise suspicions of opportunism and excess profit-taking in government. Critics of privatization initiatives in government contend that the complexities of contracting procedures and contract administration, combined with the profit motive, will result inevitably in a loss of cost-effective controls. In addition, the likely emergence of monopoly power will result in abusive actions by major service producers.

Opportunism is a risk that exists in both market and nonmarket systems. Critics of nonmarket systems argue that these systems result in excessive and redundant costs, poor quality, and market nonresponsiveness because of monopoly power and the lack of bottom-line performance measures (Wolf 1988). Public producers can make and disperse profits in government programs by diverting funds to other uses and wasting resources. There is no obvious reason to expect competitive contracting procedures or the profit motive to further exacer-

bate this problem. Market-based systems would not require any additional monitoring and oversight to control this problem.

The first defense against opportunism and excess profit-taking is a strong competitive contracting program that establishes clear performance objectives and quality standards and builds a competitive producer network through capacity-building and research and development programs. The second defense is a strong performance standards system that puts ceilings on allowable program costs. Competitive contracting policies would reduce the probability of excessive profits because of the risks of losing future contracts on cost criteria. Cost ceilings based on recognized cost parameters in the state would prevent abuses from temporary monopoly situations or advantages gained by being awarded the first contract round. The final defense is a strong performance sanctions policy that requires public producers who hold monopoly positions to reorganize their programs if they consistently fail to meet performance standards and exceed cost ceilings.

Client Creaming and Access of the Hard-to-Serve

The second potential problem with market-based systems is that they run the risk of client creaming and reduced access to programs and services for hard-to-serve populations, especially minorities and people with limited education and work experience.

In order to be effective, states must build market-based systems in conjunction with strict enforcement of federal and state legislation that forbids discriminatory practices of businesses, schools, unions and other labor market entities. States can insure access of the hard-to-serve within market-based workforce preparation systems by integrating three types of market mechanisms: (1) economic incentives for serving hard-to-serve populations, (2) adjustments in performance standards based on the added risks and costs in serving these populations, and (3) case management systems that provide advocacy and counseling support to targeted populations.

States could encourage greater access by putting more resources into the hands of the most disadvantaged. This higher price could encourage greater service through reduced risk and uncertainty and the

potential for higher profits. It would also drive up the opportunity costs (i.e., forgone revenues and profits) to those producers not providing equal access. States should implement such incentives through voucher systems that provide larger direct grant amounts to disadvantaged populations. These voucher systems could be supplemented by matching grant programs or special cost reimbursements for service producers serving disadvantaged populations. These incentives would make the voucher dollar of disadvantaged populations more valuable to service producers.

The second refinement should be to develop state-based performance standards systems that provide additional resources or rewards for achieving state performance expectations with disadvantaged populations. The groundwork for such systems has already been established for the JTPA performance standards system (Barnow 1988). States now can use this groundwork to develop adjustment systems that best reflect state policies toward targeted populations (Baj and Trott 1988).

The third refinement should be to use case management systems to provide disadvantaged populations with the support needed to assume greater responsibility in making career choices and selecting service producers. Case management services should include assistance in using consumer information systems to select the service producer with the strongest track record with targeted populations.

Excessive Transaction and Information Costs

A fourth potential problem is that market-based systems would create excessive transaction and information costs for states in ensuring that consumers are sufficiently informed to make appropriate choices among competing producers. The fear is that these costs would outweigh any efficiencies that may be realized through a market-based system.

Federal and state governments already have made a considerable investment in labor market information. The problem in building market-based systems is setting the appropriate level and distribution of

investment in producer performance information and setting precise targets for eradicating consumer illiteracy.

The first defense against excessive information costs is establishing clear public policy objectives and performance standards that define what should be reported by all public and private producers. The second defense is a strong performance standards reporting system that simplifies consumer information and reports producer performance relative to state performance standards. Producer information could be further simplified by a strong performance sanctioning policy that indicates to consumers which producers have been put on probation and are ineligible to receive public funds. The third defense is a strong competitive contracting program that assists public and private producers in understanding these performance objectives and using information technology to lower reporting costs to the state and consumers. Service producers can be expected to invest more of their own resources in consumer information to attract customers. These costs will not be borne directly by government.

Government costs in maintaining a state consumer information system are largely unknown. However, these outlays could be held to a minimum by maintaining and disseminating information through already existing labor market and career information systems. These systems have already established distributional networks that could be expanded to serve market based systems.

Goal Displacement from Performance Standards

Another potential problem of a market-based approach is that performance standards systems will divert government-funded programs from major policy objectives toward a preoccupation with meeting narrow performance measures (Starr 1985). If this occurs, it would result in unintended goal displacement and ineffective government programs.

Valid criticisms have been made of past practices in defining and applying performance standards in the JTPA, the public employment service, and in vocational education. However, states can address these criticisms through a broader set of outcome measures that emphasize

intermediate (e.g., basic and vocational skills, program continuation) and long-term (e.g., postprogram employment retention) program outcomes.

The first defense against goal displacement is a clear definition of government policy goals and performance objectives. Performance measures will always be criticized in the absence of clear policy decisions. The second defense is state policy coordination that articulates state programs based on their differing policy goals and performance objectives. The final defense against displacement is to have a strong performance standards system and capacity-building program that clearly communicate performance objectives and measures to service producers and assist these producers in improving their programs to meet state performance expectations.

Coordination Problems from Market Incentives

Market-based systems raise the fear that they will undercut federal and state efforts to improve the administration of vocational education and job-training programs through the reduction of duplication and the promotion of coordination in program development and delivery. Some critics fear that those systems would promote duplication in the name of competition and undercut cooperative relationships among competing service producers.

Market-based systems have a different approach to coordination (Sheets 1989). As discussed earlier, the market approach emphasizes policy and case coordination and deemphasizes administrative coordination. This approach argues for establishing common or compatible performance standards and related producer information. It also argues for improving case management by encouraging clients to assume greater control and decisionmaking responsibility in the system.

The market approach encourages service producers to make their own administrative coordination decisions at the lowest jurisdictional level in pursuit of common or compatible performance objectives. It assumes that contractual arrangements will develop naturally between public and private producers, depending on complex "make or buy" decisions made under competitive market conditions. Administrative

coordination is not always cost effective. In the market approach, duplication of services is expected because of the substantial transaction costs that would be incurred in achieving administrative coordination to eliminate such overlap. However, the market approach does assume that inefficient duplication will be eliminated as service producers identify and nurture specialized market niches in which they have distinct competitive advantages.

States can insure that market systems will not drive out efficient administrative coordination through three integrated uses of market incentives. The first defense is the establishment of clear policy goals and strong performance standards systems that establish clear performance expectations and sanctions for all producers, and successfully drive out poor performers. The second defense is a comprehensive consumer information system that allows public and private producers to monitor the performance of their competitors and other producers from whom they could potentially buy services to improve their own performance. The third defense is a strong competitive contracting program including capacity building in which producers are given detailed program specifications and industry quality standards and are encouraged to explore innovative coordination strategies to achieve state performance objectives. This combined use of market incentives insures that public and private producers will have the necessary information and training for developing cost-effective make or buy strategies.

State Strategies for Building Market-Based Systems

Market-based systems should be built through a step-by-step approach with certain market incentives preceding others. We recommend that governors take the following six steps:

Step 1: Strategic Planning for Developing Public-Private Consensus on Workforce Preparation Problems, Policy Goals, Funding Priorities, and Performance Objectives

Market-based systems require a conscious and sustained commitment to an integrated set of public-private provision decisions and actions. When governors take office, they inherit a workforce, an employer community, state administrative agencies and regulatory boards, and both public and private service producers who must be mobilized in the pursuit of common objectives and performance goals. The market approach emphasizes strategic planning and policy coordination rather than administrative coordination as the means to insure concerted public-private action.

Governors in cooperation with private sector leaders should undertake a strategic planning process that builds a public-private consensus on workforce preparation goals and strategies. This plan should clearly address the most important workforce preparation problems and deficiencies, state government policy goals and performance objectives, and a policy coordination plan that articulates all publicly funded programs through common and compatible performance objectives.

Step 2: Statewide Performance Standards and National-State Competency-based Credentialing Systems

Market-based systems should be predicated on clearly defined performance objectives and quality standards that are common or compatible across all publicly funded workforce preparation programs. This requires the development and operation of a unified statewide credentialing system based on national competency standards for basic and vocational skills.

We recommend that governors mobilize private and public groups in their states to work with national efforts in building national-state skill standards systems for secondary and postsecondary professional and occupational preparation programs. Governors should also work with state administrative agencies, public educational institutions and governing boards, state licensing boards and regulatory groups, profes-

sional associations and unions, and private employers in establishing a unified statewide credentialing system based on these national skill standards. These efforts should include working with public educational institutions to recognize these credentials for credit toward advanced degrees.

We recommend that governors convene all state administrative agencies and governing and regulatory boards to develop a common or compatible set of performance measures and standards for workforce preparation programs in at least five areas: (1) academic and basic skill competencies, (2) vocational skill competencies, (3) program completion and/or continuation, (4) employment outcomes, and (5) productivity or company performance improvement.

Step 3: Statewide Program Performance and Consumer Information Reporting Systems

Governors should develop a statewide information system that supports the development of competitive contracting systems, provides program performance feedback on strategic objectives, and provides consumers with sufficient information on the performance of public and private service producers to make informed labor market decisions.

Governors should establish a statewide program performance and consumer information reporting system that requires all public and private service producers receiving public funds to report information on enrollments, completions, and performance outcomes. This reporting system should also produce information on the aggregate performance of public programs such as JTPA, JOBS, and secondary vocational education relative to state performance goals.

This reporting system should be administered through existing state labor market information systems in order to insure the coordination of producer information with existing labor market and career information. The selection of an institutional home for this information system is likely to be different in each state. However, this system should be administered by an independent organization that operates at arm's

length from state agencies and other public and private organizations who operate publicly funded workforce preparation programs.

Step 4: Competitive Contracting Program for Public and Private Producers, Including Capacity Building and Research and Development

The hallmark of the market approach is the separation of provision from production decisions. After governors have established strategic goals and performance standards, they should then turn their attention to how to achieve these standards through competitive contracting programs with public and private service producers. They should require all state administrative agencies to establish competitive contracting policies and procedures that include separation of administration and service delivery in all workforce preparation programs.

Governors should establish a technical assistance program for all state agencies in developing their own competitive contracting policies and procedures based on state guidelines. In order to encourage risk taking and innovation in workforce preparation programs, this effort should involve statewide capacity building in public and private service producers, including professional training, technical assistance in informational technology upgrading, and research and development programs.

Step 5: Performance Sanctions for Public and Private Producers

Once governors have established performance objectives and quality standards, competitive contracting programs, and program performance and consumer information systems, they should focus on establishing a system of incentives and punishments for success or failure in meeting state performance expectations.

They should establish financial incentives for public and private producers who exceed state expectations on the most important performance goals in state strategic plans. In order to improve access and equalize performance, these financial incentives should focus on successful educational, employment, and earnings outcomes for hard-to-

serve populations. In addition, states should establish programs to disallow public or private producers to continue to receive public funds if they consistently fail to meet minimum state performance standards. These sanctions should be strictly enforced with equal treatment of both producers.

Step 6: Direct Consumer Funding Programs for Building Workplace-Based Training Systems and Individual Voucher Systems

The keystone of market-based systems is empowering consumers—businesses and individual students and workers—to make their own labor market decisions. Governors should redirect a significant share of public funding to consumer grant and loan programs. They should expand the scope of current customized training programs and provide additional funds to apprenticeship systems. In addition, they should establish individual financing systems that complement existing student grant and loan programs and private financing sources. These individual financing systems should provide comprehensive coverage of the state workforce, but should target a greater share of state funding to the economically disadvantaged and other hard-to-serve populations targeted in state strategic plans. These direct consumer funding programs should be supported by a state system of consumer counseling operated at arm's length from public and private service producers. Governors should establish comprehensive case management systems for the economically disadvantaged and other hard-to-serve populations.

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4
The Flexible Workplace
Implications for State Employment Policy and Regulations

Barney Olmsted and Stephen Trippe
New Ways to Work

In the 1930s, the Fair Labor Standards Act (FLSA) established the 40-hour workweek as a means of protecting workers and spreading employment. Since that time, all federal and state employment policy and regulations have been developed, implemented, and amended based on this 40-hour standard. These policies and practices served to provide protections for workers and established a framework around which a production-based, industrial economy flourished in the United States through the 1960s.

Until the 1970s, standardizing worktime and other employment policy was widely held to be a means of achieving both efficiency and equity. As the workforce has become more diverse, however, this view has begun to change. In 1975, Paul Dickson, in his book *The Future of the Workplace*, wrote:

> There are few facets to the Western way of work which are more depressing and unimaginative than the way in which work time is arranged for us. Our jobs generally demand 40 hours of service in five consecutive eight-hour clips, during which we obediently come and go at rush hours appointed by others. (p. 209)

During the 1970s, new ways of looking at worktime began to emerge. By 1981, a Work in America Institute policy study, "New Work Schedules for a Changing Society," reported that more than a fifth of the United States workforce was employed on flexible, compressed, or reduced work schedules. Clearly, forces for change had begun to reshape the standard workweek.

The emergence of the flexible workplace creates new challenges for both state and federal policymakers. Current regulations are based on the premise that workers generally:

- work a standard, Monday though Friday, eight-hour-per-day, 40-hour workweek;
- maintain the traditional employer/employee relationship and derive the benefits and protections afforded that relationship;
- perform their duties on site, at a specific place of work maintained by the employer.

These conditions no longer apply to a growing number of American workers. Over the past two decades business and industry in the United States, responding to a variety of economic and social forces, have reshaped the workday and redefined the relationships between employers and their employees. "Lean and mean" has become an organizational objective. New phrases such as "flexibility," and new work arrangements such as telecommuting, job sharing and contingent employment have come into usage with little or no examination and policy debate. The concepts and employment arrangements that they represent, however, have radical implications for our workplace and our society.

It is these arrangements and their relationships to current employment policies and regulations that this paper will examine. Flexibility—for organizations on the one hand and individuals on the other—is a critical issue for our economy and our society. It is important that the way in which flexibility is achieved be carefully examined. Will flexibility be introduced and implemented in ways that benefit both the workplace and the workers, or will flexible practices exploit workers' needs for more flexibility in order to balance their work and personal lives, forcing them to trade health benefits, upward career mobility, and employment security for a wider variety of work time choice?

The answer to this question may well decide whether the United States remains a land of opportunity for all, with rising productivity based on high skill levels, or whether it becomes a two-tiered society with a small, affluent elite supported by a labor force with dwindling expectations.

This paper includes a brief overview of the emergence of flexible work arrangements, the social and economic forces driving their usage, and a discussion of the current and anticipated trends regarding their growth. The section on definitions of the major alternative work options includes a discussion of appropriate applications and legislative implications. A final segment summarizes recommendations regarding state employment policies.

History and Growth of Flexible Work Arrangements

A Changing Workforce Needs More Flexibility

The forces behind the emergence of flexible work arrangements are complex and have their origin in aspects of the broader changes that have taken place within both the society and the economy in the last two decades. Some of the critical social changes have been in the following areas.

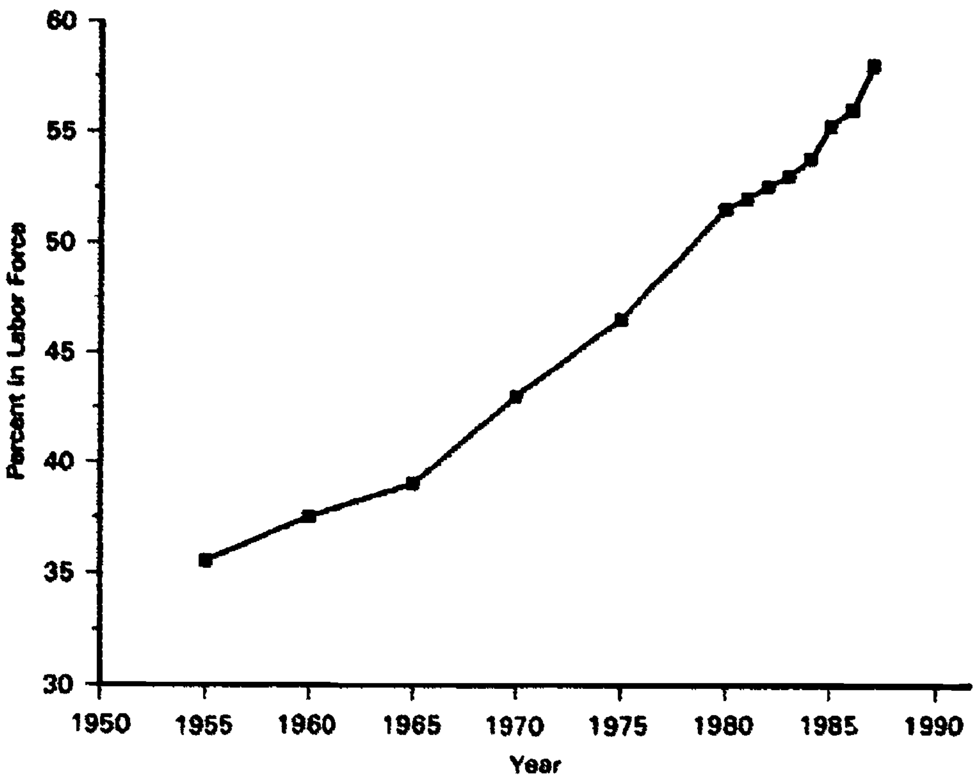
Changes in Female Labor Force Participation Rates and the Emergence of Work/Family Stress

In terms of workforce pressures for more flexibility and the development of new work schedules, the most significant aspect has been the change in labor force participation rates of women with young children. In March 1988, the Bureau of Labor Statistics (1988) reported that 55.9 percent of women 16 years and over with children under three were in the labor force and that 73 percent of mothers with children age six and over were working. By the year 2000, approximately 61 percent of working-age women will be working (see Figure 4.1), comprising 47 percent of the labor force. Since the numbers of young children under five have also been increasing since 1980 (Figure 4.2), we can expect a continuing increase in the segment of working mothers with preschool children.

Another component of the work/family issue has been the added impact of responsibility for care of senior dependent family members.

From 1950 to 1986, the number of older Americans aged 75-84 grew from about 3.3 million to over 9 million, and the number aged 85 and older grew from less than 600,000 to over 2.7 million. Although many seniors are able to live independently, the frail elderly need care. Since quality institutional care is often either unavailable or too high-priced for working family members, the task of caring for these older family members generally falls to women, many of whom also have to work.

Figure 4.1
Trends in Female Labor Force Participation

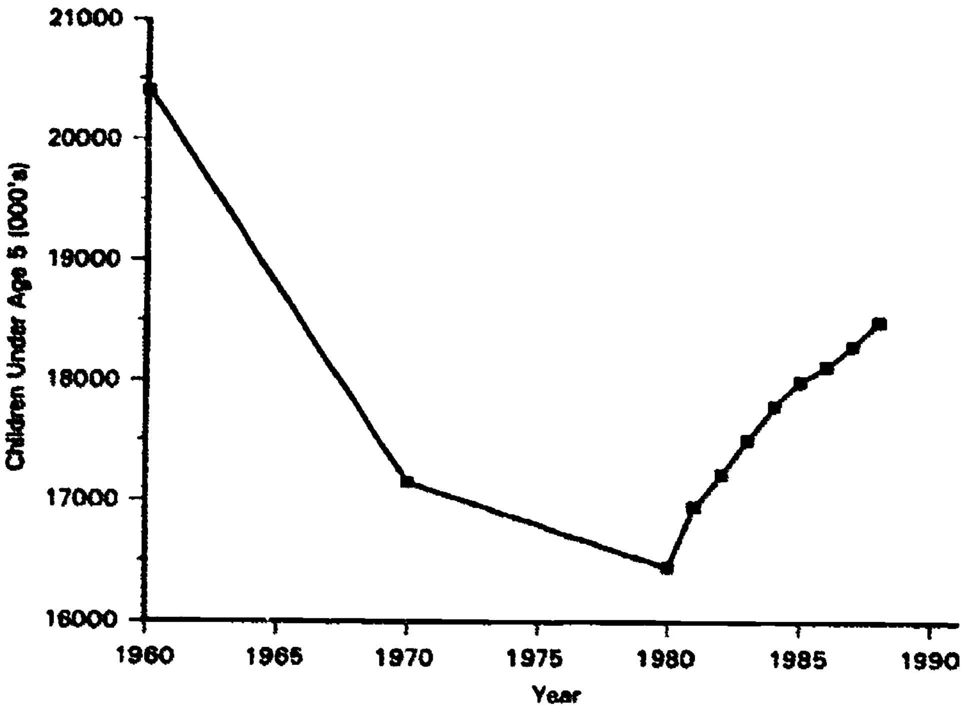


SOURCE: Bureau of Labor Statistics (1988).

The term "sandwich generation" has been used to describe those who are caring both for young children and senior relatives. A Travelers Insurance Company (1981) survey of their home office employees showed that approximately 20 percent of the respondents were providing an average of 10.2 hours per week of care to an older relative. A large number were in their 30s and 40s and also had young children to

care for. This combined effect of a growing number of children under school age, more women with children in the labor force, and increased numbers of elderly who need some care has created a care-giving crisis and a need for the development of "family-friendly" workplace policy.

Figure 4.2
Number of Children Under Age 5, 1960-1988

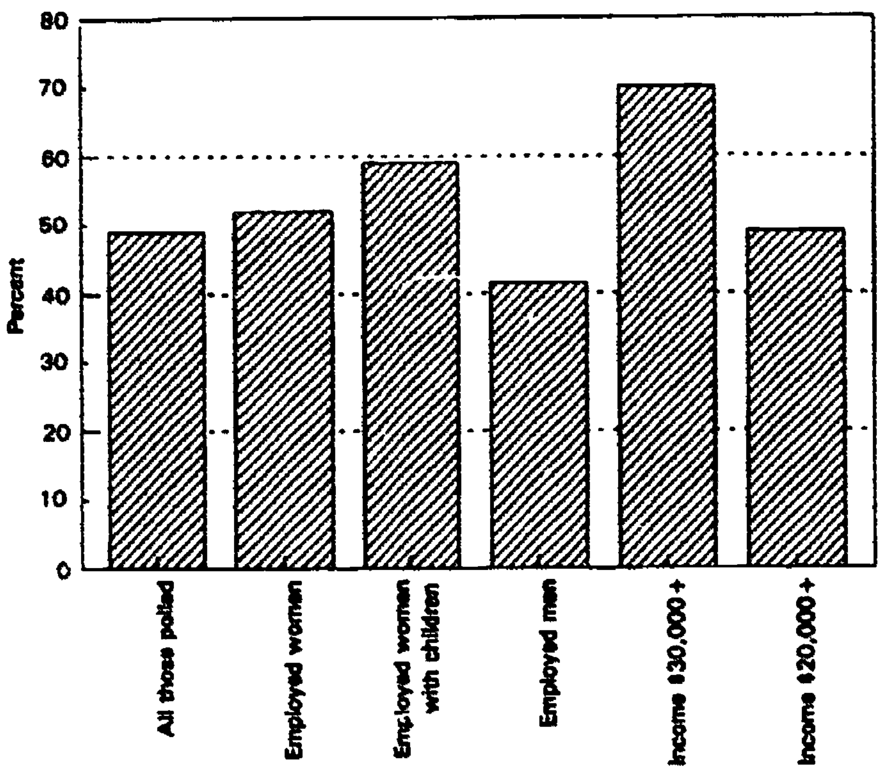


SOURCE: Bureau of the Census. 1989. "State Population and Household Estimates." No. 105 Current Population Reports P25. Updated.

Time, particularly for working family members, is increasingly recognized as being at the crux of the work/family issue. A 1991 survey commissioned by the Hilton Corporation on how Americans view the value of time indicated that, of the 1,010 adults interviewed, 59 percent of the employed women with children indicated that they would be "willing to give up at least one day's pay for an extra day of free time" (Figure 4.3). Forty-eight percent of the women reported feeling under constant stress because they did not have enough time to accomplish

what they felt they needed to—as did 43 percent of the working men, many of whom had more family responsibilities than their peers of a generation ago. It is workers with these dual responsibilities for work and family who have been in the forefront of worker-driven pressures for flexible work arrangements.

Figure 4.3
Respondants Willing to Give Up at Least One Day's Pay for an Extra Day of Free Time



SOURCE: Hilton Corporation Time Value Survey, 1991.

Changes in Attitudes and Expectations About Work

The workforce of today is better educated than that of a generation ago and has different hopes and expectations about work, as well as a different set of values. During the 1970s, many workers began to show a tendency to have more allegiance to their careers than to any particular firm; they began to exert pressure for having more decisionmaking

power about the content of their work and even where and how they worked. Since the late 1970s there have been indications that growing numbers of people have a desire for more control over their worktime, or a different work schedule, in order to integrate work with the rest of their lives (Figure 4.4). And younger workers feel increasingly able to negotiate changes in their conditions of work with their employer.

The changing attitudes and expectations of today's workers are also a result of external factors affecting the labor market. New entrants to the labor force in the 1960s and 1970s were part of the baby boom generation and many found their career paths blocked during the 1980s because of too many qualified applicants for too few positions. Recent corporate and industrial trends have emphasized permanent downsizing. This factor, exacerbated by ongoing technological displacement, has created increasing numbers of dislocated workers whose training and experience are no longer marketable. More flexibility can facilitate cross-training and lateral movement within organizations to give workers a broader base of marketable skills. Work sharing also needs to be encouraged as a means of providing a transition period for employees who are being laid off as part of the "outplacement" process.

The extent of the change in worklife expectation is evident when you realize that at the turn of the century a woman's average life span was 47 years—18 of which were spent childrearing. Today, women can expect to live 77 years, only 10 of which will be primarily devoted to raising children. Significant changes have occurred for men as well. Less than 14 percent of the labor force is now comprised of men who are the sole support of a spouse and/or family. Between 1900 and 1966, the average number of jobs held over a man's work life doubled from six to twelve—and has been climbing ever since. In order to make smoother personal or career transitions, many people are seeking opportunities for flexible or reduced worktime to allow them to effectively prepare for and achieve the worklife changes they must face.

Problems Related to the Education/Work/Retirement Lockstep

Changing workplace expectations, new relationships between education and work, changing family configurations and gender roles,

Figure 4.4
Worker Preference Toward Exchanging Income for Free Time

Value of tradeoff	Shorter workday vs. pay	Reduced workweek vs. pay	Added vacation vs. pay	Sabbatical leaves vs. pay	Earlier retirement vs. pay
Nothing for time	77.0	73.8	57.8	37.9	64.0
2 percent of pay for time	8.7	11.6	23.2	24.2	17.6
5 percent of pay for time	5.8	-	8.5	8.0	8.1
10 percent of pay for time	-	7.6	6.2	4.8	5.9
12 percent of pay for time	5.5	-	-	-	-
15 percent of pay for time	-	-	-	4.8	-
20 percent of pay for time	-	4.5	2.2	-	4.4
30 percent of pay for time	1.6	-	-	-	-
33 percent of pay for time	-	-	2.0	-	-
40 percent of pay for time	-	.9	-	-	-
50 percent of pay for time	1.5	1.6	-	-	-
Total percent	100.0	100.0	100.0	100.0	100.0
Total respondents	954	953	952	951	951

SOURCE: Excerpted from an August 1978 survey by Louis Harris and Associates, as reported in "Exchanging Earnings for Leisure: Findings of an Exploratory National Survey on Work Time Preferences," R&D Monograph 79 (Washington, DC: U.S. Department of Labor, Employment and Training Administration, 1980).

NOTE: Column spaces are frequently blank for many tradeoff options because questions dealing with different forms of free time did not always have parallel options.

along with other social and economic factors, began to force many people to reexamine the "linear life plan" that was the expected norm during the first three quarters of this century. Individuals began to consider developing a more cyclical, integrated approach to education, work, and leisure activities.

Major realignments in the nature of schooling saw adults returning to the classroom for skill renewal and retraining as well as basic educational activities. Schools began to integrate education and work into their curricula. Workers began to express the desire for leisure time throughout their lives rather than waiting for retirement and to think in terms of lifelong learning. In many cases, this was not a desire for recreation but the need for a career break to recover from job burnout or to start a new career. Some firms began to introduce sabbatical options, or career-break schemes as a way to deal with this problem.

In the long run, what most people will need in order to move towards lives that integrate work, education, and leisure will be the ability to exercise more control over the allocation of their time, and this means more choice in defining their work schedules.

During the 1970s these pressures became a primary force behind the employee-driven efforts to create change and flexibility in worktime schedules.

Flexibility: A Tool for Improving Productivity

In the 1980s, business and industry began to recognize the need for more flexibility and to explore the use of alternative work schedules and new staffing arrangements as a way to address the changing nature of both the workforce and the economy. There were three major factors contributing to this employer-based interest.

Shifting from a Goods-Producing to a Service-Producing Economy

For the last decade, the U.S. economy has been changing from a manufacturing, goods producing economy to an information or service-based economy. Standardized shifts and scheduling practices are effective and efficient when applied to the production of goods and

materials. When service is a priority, schedules must conform to the needs of the consumer and not be restricted by the production-line strategy of standardization.

Recruiting and Retaining Qualified Workers in a Shrinking Labor Pool

People and skills shortages are projected by the next decade. Many employers have already begun to experience difficulty in attracting and retaining a qualified workforce. The demographic projections in the Hudson Institute's report to the U.S. Department of Labor, *Workforce 2000: Work and Workers for the 21st Century* (Johnston 1987), and other recent Department of Labor data have alerted employers to the fact that, in all likelihood, recruiting and retaining skilled labor will be an even more pressing problem in the future. If the Hudson Institute's scenario is correct, to remain competitive firms will need to develop policies better suited to attracting and retaining employees from a labor pool that will be comprised predominately of women, minorities, and immigrants and one in which older workers will be in demand rather than encouraged to retire early. This will mean reviewing and revising much current human resources policy which continues to reflect the needs of an earlier, more homogeneous, primarily male, labor force.

The need to improve recruitment and retention of valued employees prompted many firms to begin developing work/family programs and "family friendly" human resource policies in the 1980s. A survey was conducted in March-April 1991 by The Conference Board (1991) to determine what was happening during the recession to the development of corporate programs that help employees balance work and family needs. Nearly 55 percent of the respondents reported that top-management support for the programs had increased. Many firms had expanded their work-family programs even though 32 percent had had declining profits. Executives cited the relatively low cost and high impact of work-family programs. When they were asked their priorities for study and action in the next year, respondents cited flexible work schedules more than twice as frequently as any other issue.

In addition to recruiting and retaining quality applicants, retraining will also become more important in the next decade. Educational levels have been dropping in many parts of the country and high school drop-out rates have been rising. A recent report by the Office of Technology Assessment (1991) describes training in the United States as "remarkably under-developed compared with leading international competitors." The report cites research by the American Society for Training and Development (ASTD) indicating that the training gap in the U.S. constitutes a "workplace crisis." According to ASTD, 49.5 million workers—42 percent of the workforce—will require training to keep up with changing job demands in the next 10 years. And these figures do not include those who need remedial training or education to qualify for entry-level employment. Flexible work arrangement can help workers combine work with recurrent education and training; they can also help employers retain these employees after they have been trained, rather than losing them to the competition.

Competing in a Global Economy

The last decade has seen the integration of the world's economic systems and the emergence of a global economy. The consequent increase in global competition has led to some painful restructuring in many U.S. workplaces. A major trend has been the institution of some basic changes in human resource management, including a focus on the costs of labor and the introduction of new scheduling and staffing practices.

Since the recession of the early 1980s the emphasis in most organizations has been on making companies "lean and mean." This phrase generally means reducing the size of the regular workforce, or down-sizing; it may also indicate moving to a "core-ring" or contingent employment human resources strategy. Employers using this concept try to reduce labor costs by severely limiting the number of "core" or regular employees in the firm. They supplement the work of their core workforce with "rings" of contingent employees—hourly part-timers, temporary employees, consultants, and contractors. The regular employee group receives training, career development and ~ wide

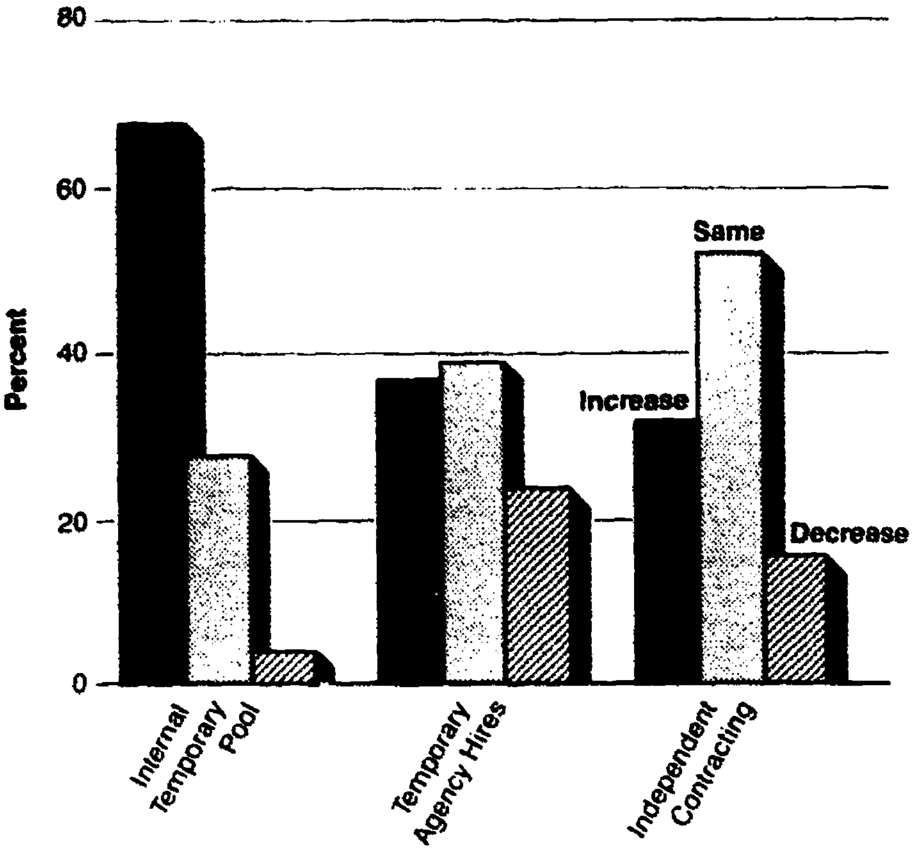
range of fringe benefits. The contingent, on-call employees are generally paid on a different scale from regular employees doing the same work, and do not receive fringe benefits or career-oriented training. They are sometimes even ineligible for regular job openings in the firm at which they work every day.

Since the mid-1980s the strategy of downsizing and utilizing more contingent employees has grown in popularity and has been the primary way that employers have sought to cut costs and become more competitive and more flexible. To illustrate how extensive this practice has become, in 1987 the contingent workforce, numbering approximately 34 million, was estimated to comprise about 25 percent of the entire labor force. This was a 20 percent growth since 1980 (Day 1989). A report on a survey of 521 corporations by The Conference Board and New Ways to Work, "Flexible Staffing and Scheduling in U.S. Corporations," indicated continued high corporate use of contingent employees (Christensen 1989). (See Figure 4.5.) A March 1991 report by the U.S. General Accounting Office, "Workers At Risk: Increased Numbers in Contingent Employment Lack Insurance, Other Benefits," predicts that "this trend toward increased use of nontraditional workers should continue in the 1990s." (p. 3)

Some experts have warned that this continued growth in use of peripheral, contingent employees signals a basic change in the employer-employee contract and relationship. For generations there was an implied "social contract" between employers and their employees. In return for loyalty, flexibility, and commitment to corporate goals, employees were encouraged to expect career-long employment, good pay, benefits, and working conditions, and promotions from within. As a new Work in America Institute (1991) report notes:

> In the 1980s the combination of global competition, recessions, deregulation, and a wave of mergers and acquisitions caused most companies to reassess and eventually discard customs and practices that had been at the heart of the social contract . . . uncertainty and "employment-at-will" have severed the bonds of loyalty between employer and manager.

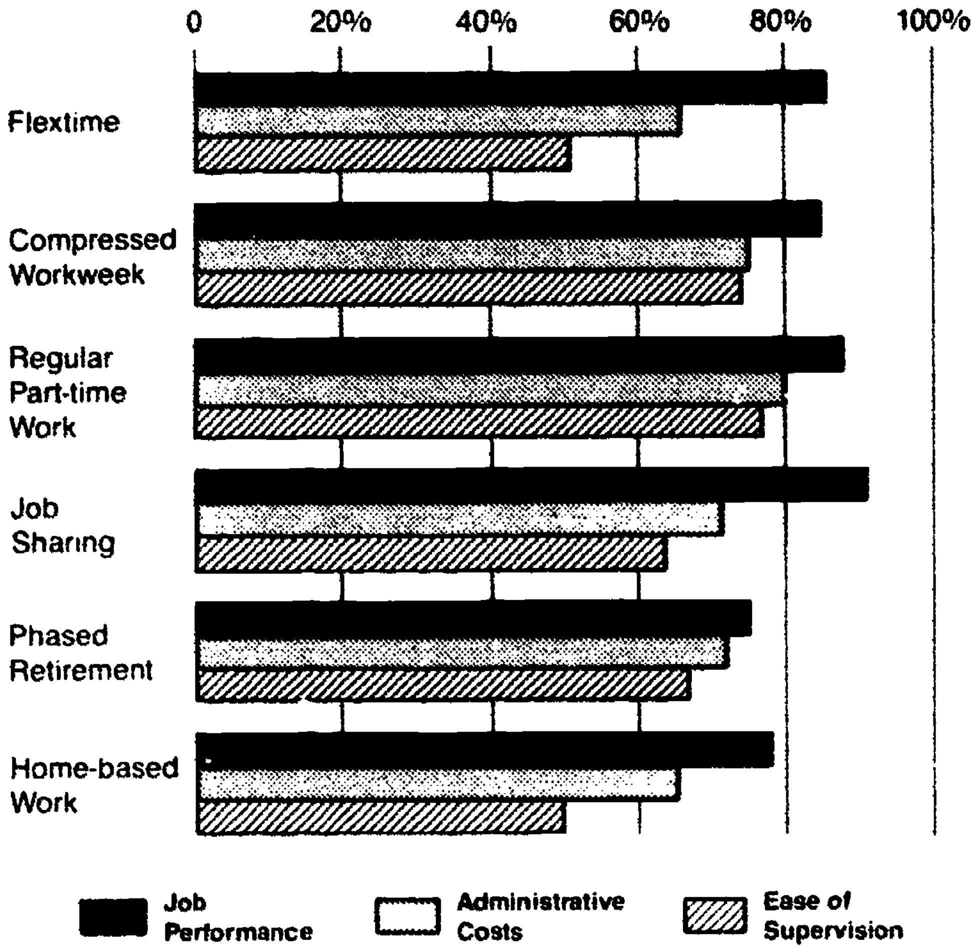
Figure 4.5
Future Trends
1987 Experience Compared with Next Few Years



SOURCE: The Conference Board. 1989. Research Bulletin #240. Reprinted with permission.

A sign that employers may be reassessing their dependence on flexible staffing, with its overuse of contingent workers who have little reason to be loyal to the corporation, may be found in The Conference Board/NWW report (Christensen 1989). The report indicated some dissatisfaction with the performance and administrative costs of these employees. At the same time, the respondents expressed high rates of satisfaction with the job performance and administrative costs of introducing flexible scheduling options for their regular employees (Figure 4.6).

Figure 4.6
Management Satisfaction with Flexible Scheduling
Percentage firms reporting "very satisfactory" or "satisfactory" in each category



SOURCE: The Conference Board. 1989. Research Bulletin #240. Reprinted with permission.

What Kind of Flexibility in the 1990s?

As we move into the 1990s, the notion of organizational flexibility as a means of improving productivity has a growing number of adherents, and the need for individual flexibility among members of the workforce has reached record proportions. During the last two decades two new types of human resource management trends have emerged in response to these needs: Flexible scheduling and flexible, or contingent, staffing. The need for flexibility is clear if we are to improve productivity by enabling organizations to expand and contract with less dislocation, and allow workers to balance work with the rest of their lives so they may become more effective and productive employees. Currently, policy in the United States is at a fork in the road. The means by which this flexibility is achieved can be either enlightened or exploitive. Current employment policy must be reviewed and revised and new policy developed that ensures that these needs for flexibility are met in ways that address the concerns on both sides and facilitates long-range economic and social objectives.

It is clear that continued unexamined growth of the core-ring policies could have serious negative social consequences, including the creation of a permanent underclass of workers comprised of women, members of ethnic minorities, the young, and the elderly. While research in this area is limited, we already know some things about contingent employees. Studies of the temporary workforce indicate the following.

- On average, workers employed in 1988 by temporary help agencies earned 30 percent less than their permanently employed counterparts.
- Health care benefits are available to only 25 percent of all temporary workers.
- In 1985, almost 66 percent of temporary workers were women; 20 percent were black and 33 percent were youth.

Continued growth in the use of contingent employees will only exacerbate an already large gap between those at the upper reaches of

our economy and those on the lower rungs. Problems inherent in the use of contingent employees (poorer quality work and service, reduced morale, higher turnover) have begun to slow the dramatic growth of this segment of the labor force, but, as the GAO (1991) report cited earlier indicates, this will not be enough by itself. We need to know more about the conditions of employment that exist for these workers and to develop policy that ensures pay rates, access to benefits, and possibilities for upward mobility that are comparable to those afforded regular full-time employees doing the same kinds of work. Flexible scheduling for regular employees could be equally exploitive if the options are not voluntary or if the conditions under which they are offered do not equate with the conditions of work for full-time employees.

Of particular concern for both kinds of employees are the insurance-based protections that most full-time workers enjoy. Without them, employees can "become dependent on needs-based programs, such as Medicaid or Supplemental Security Income (SSI), to meet their medical care or income support needs. To the extent that this occurs, costs formerly borne by employers and employees may be shifted to federal and state public assistance budgets" (GAO 1991, p. 2). Policy should be reviewed and developed to ensure that flexibility takes place on an equitable basis within the regular workforce under conditions that broaden access and do not penalize either workers who choose it or the employers who provide it.

The time is right to address these issues. Organizational and individual interest have, at least temporarily, coalesced around the related issues of recruitment and retention. As noted earlier, the data in *Workforce 2000* (Johnston 1987) have convinced many employers that the 1990s will be a time of serious labor force and skill shortages. This belief, combined with information from in-house company surveys and exit interviews showing that firms are losing valued employees because of a lack of worktime choice and flexibility, is already creating pressure for wider use of new work schedules. The cost to business, in terms of turnover, recruitment, and training, is becoming significant enough to force a reexamination of the cost of *not* providing flexible

scheduling. Employers who a year or so ago were inflexible in the face of requests from employees for part-time options, flexible schedules, or telecommuting are now beginning to rethink those positions in the light of high turnover and difficulty in recruiting skilled applicants. An example of the new awareness that some firms are experiencing is the reaction to Du Pont's 1988 survey of 4000 of its employees. As Faith Wohl, director of the company's Workforce Partnering division (in "An Interview With Faith Wohl" 1990), put it:

> One word that cried out from the responses that we got back was flexibility—that one word in neon lights, popping off the pages of these surveys. They wanted flexibility in schedules, flexibility in where they could work, flexibility in benefits, flexibility of career planning. And that got everyone's attention. It was just an overwhelming response focussed on a single issue.

In response, Du Pont formed a task force to look at the various aspects of flexibility and in July 1991 announced a flexible work program.

Alternative Work Options: What Are They?

While organizational flexibility can be achieved in a variety of ways—through cross training, job rotation, or job enlargement and enrichment—new scheduling and staffing options have emerged as the primary means of obtaining both organizational and individual flexibility in the workplace. These options pose some of the more difficult questions in terms of the compatibility of a flexible workplace with much of the existing wage and hours legislation and with concepts such as pay equity and comparable worth. Carefully negotiated worker benefits and protections must be respected and their spirit maintained as new scheduling and staffing options are introduced in the American workplace.

Since many of the scheduling and staffing arrangements that this paper refers to have emerged since the early 1970s, it is important to define them, describe who uses them and how, and indicate some of the

policy issues related to their use. In general, these arrangements fall into categories of restructured full-time work, new forms of part-time employment, new approaches to leave time, off-site options, and flexible staffing options.

Restructured Full-Time Work

Flextime schedules are work schedules that permit flexible starting and quitting times within limits set by management. Generally, flextime programs operate as a rescheduled 40-hours, five-day workweek with flexible periods at the beginning and the end of the day. A core time is usually established during which all employees must be present. Flextime programs vary from company to company and sometimes from department to department. Variations in format occur regarding whether flexibility is a daily or periodic choice, how core time is defined, and whether credit and debit hours are allowed. Some of the variations of flextime programs are as follows.

- Employees select their starting and quitting times for a specified period of time (often 12 months). They work a five-day, 40-hour workweek.
- A daily variation in starting and quitting times is permitted, but the five-day, 40-hour week is maintained.
- The length of days within the week or pay period may vary (i.e., an employee can work six hours one day and ten the next) as long as the total hours worked meet the defined number of hours within the period.
- Credit and debit hours are allowed, and core time is not required on all days. This type of activity encompasses the concept of "banking" time; that is, employees are allowed to carry over for later use hours in excess of their daily or weekly schedule.

Who uses it? The 1989 *Current Population Survey* (Bureau of Labor Statistics 1989) indicated that 11.9 percent of full-time wage and salary workers were on flexible work schedules. An American Management Association (1985) survey of its member firms indicated that 34.8 percent of those surveyed used flextime. The American Management

Society, which for several years did an annual survey on flexible scheduling, estimates that use of flextime is currently growing at a rate of about 1.5 percent per year.

Employers generally credit flexible schedules with reducing turnover and absenteeism, increasing productivity—at least in part because morning people can come to work earlier and those who want to come in later and work later can—and improving employee morale with little or no cost to the organization.

What are the policy issues? Flextime programs that offer nonexempt employees the option of working more than 40 hours in a given workweek run into direct conflict with the wage and hours provisions of the Fair Labor Standards Act. Four states (Alaska, California, Nevada and Wyoming) have established the eight-hour day as the standard, resulting in conflicts for those flextime programs that allow employees to vary the length of their day within a given workweek. Banking time longer than a week is seldom possible even for employees who are on a 80-hour or semimonthly pay period.

The issue of overtime compensation for hours worked in excess of the 40 or eight-hour standard requires careful examination as it relates to the institution of flextime programs. The issue needs to be framed in ways that protect the rights of workers to overtime pay but does not inhibit flexibility.

Compressed Workweek refers to a schedule in which the standard weekly hours (generally 40) are worked in less than five days. In the most common arrangements the week's hours are accomplished in four 10-hour days or three 12-hour days. Another increasingly popular arrangement is for employees to work five nine-hour days during the first week of the pay period and four nine-hour days the next. The first and most commonly used compressed schedule is the 4/10 workweek with the 5-4/9 being the next most popular, particularly with employees.

The compressed workweek, as does flextime, represents an effort to create alternatives to the standard workweek by reallocating the same number of hours per week—in this case, to fewer than five days. Of all the scheduling options, the compressed workweek has created perhaps

the most controversy. Its use has fluctuated greatly over the past 15 years. It was introduced in the early 1970s, but interest declined during the late 70s. However, between 1979 and 1985 use of compressed workweeks grew four times as fast as overall employment growth (Smith 1986).

Who uses it? The survey sponsored by the American Management Association (1985) indicated that 15 percent of the respondents used some kind of compressed workweek schedule. It was most commonly used in three industries: government (29 percent), health care (31 percent) and entertainment or recreation (42 percent). Compressed workweeks have also been used extensively in public agencies, especially police and fire departments, and in small manufacturing firms.

Until recently, compressed workweeks have been management-initiated as a means of using expensive equipment or plant facilities for longer periods or making shiftwork more palatable. They were designed for use by all employees within a specified department or work group. An emerging trend has been for individual employees to ask for a compressed schedule in order to have greater blocks of personal time or to cut down on commuting time. Some firms with work/family programs or policies are incorporating compressed workweeks as one of the options they offer. In some states, questions of air quality control and commuting patterns that increasingly involve traffic gridlock are also creating greater interest in this option.

What are the policy issues? All compressed workweeks come into direct conflict with wage and hours legislation in states that identify the eight-hour day as the maximum standard. The 5-4/9 schedule also conflicts with the 40-hour standard established by the Fair Labor Standards Administration. Exemptions from the overtime provisions can be obtained in some states by companies or groups of workers, depending on the individual wage order, if the scheduling change is approved by a two-thirds vote of the employees in the affected division or department. The current exemption process is cumbersome and lengthy. As a result, many employers have simply lowered the pay rate of the affected employees to allow for overtime pay while maintaining the same salary level. As with some flextime programs, the choice between

two conflicting benefits, overtime pay vs. flexibility, is an issue for those interested in the compressed schedule.

Some forms of the compressed workweek raise OSHA questions relating to fatigue and the number of consecutive hours or length of days worked. There are many questions and key design issues that must be addressed before the compressed workweek can be widely implemented for either work units or for individual employees.

Policy discussions between Government, Employers, Labor and Policymakers need to focus on creatively resolving workers' conflicting needs for both overtime protections and flexibility in scheduling. The Overtime Provisions of Wage and Hours Legislation and policy need to be examined as they affect the institution of flextime and compressed workweek programs. In those cases where workers choose flexibility as a benefit, the exemption process should be streamlined and available for individual workers.

Reduced Work-Time

It is interesting to note that while an estimated 18.6 million people work less than a regular full-time schedule, there is little agreement as to what constitutes part-time employment. Employers identify as part-time any job where the hours worked per week are fewer than their "normal" full-time standard, usually between 37.5 and 40. Several currently used part-time scheduling options are defined below.

Regular Part-Time consists of a work schedule that is less than 40 hours per week and filled by a member of a firm's regular workforce. It differs from hourly part-time in that employees in this classification are considered part of a firm's regular workforce and have pay rates comparable to full-time jobs in the same classification, prospects for upward mobility, and, increasingly but not always, fringe benefits—including health insurance and paid vacation.

Who uses it? The Work in America Institute (1981) policy study, "New Work Schedules for a Changing Society," noted that over two-thirds of all companies have regular part-time employees; 90 percent of the firms in the Conference Board\New Ways to Work (Christensen 1989) study of alternative staffing and scheduling arrangements had

regular part-time employees. From the mid-1970s until the 1982 recession, voluntary part-time work was the fastest growing segment of the labor force. According to the Bureau of Labor Statistics (1988), while the total number of people employed between 1970 and 1982 increased by 27 percent, the number of part-time employees rose 58 percent. The nature of part-time work was also changing during this period. Not only did the number of professional-level part-time positions grow at four times the rate of increase for all part-time jobs, but new forms of part-time work, such as job sharing and voluntary reduced worktime programs, began to appear.

What are the policy issues? The difference in working conditions between voluntary, regular part-time employment and involuntary part-time employment where the conditions of work lack the wage, benefits, and employment security offered to regular full-time employees in the same job classification is at the crux of the overall issue of flexibility. Full-time employees who need to reduce their work schedule for a period of time in order to balance work with family responsibilities or education or because of health limitations often find that they must trade their regular-employee status for a contingent status in order to obtain the kind of part-time schedule they need.

As an example of this aspect of the issue, in 1989 the American Association of Retired Persons and The Travelers Foundation conducted a national survey of 754 working caregivers (Working Caregivers Report 1989). This group was defined as people who provide unpaid assistance to another person aged 50 or over. More than half of this group were employed outside the home and spent an average of 10 hours per week on caregiving. The survey data indicated that 14 percent of the respondents had had to change from full-time to part-time work and 12 percent had to give up working entirely. Twenty percent of the respondents had lost health benefits as a result of the changes in work schedule they were forced to make.

A challenge for policymakers at all levels—state, federal and private sector—will be to develop policy agendas that encourage equitable flexibility and discourage processes that penalize workers who need flexibility in their work schedule. Ways to ensure minimum pro-

tections for part-time workers, particularly job protection, compensation equity, and access to health insurance need to be developed.

Although there are indications that conditions have improved for less than full-time workers, there is still a large gap in pay and benefits between those who work part-time and full-time schedules (Figure 4.7).

Figure 4.7
Benefit Coverage for Regular Part-Time Employees

	Percent of firms with benefits available	
	To any part-timers*	To part-timers working less than 1,000 hours a year
Paid vacation	77	27
Pension coverage	66	11
Health benefits	56	23
Promotion opportunities	53	28
Training opportunities	50	26
Paid sick leave	47	21
No benefits	13	–

SOURCE: The Conference Board. 1989. Research Bulletin #240. Reprinted with permission.
*Total exceeds 100 percent since most firms offer more than one type of benefit. Benefits are typically prorated.

Unless an employee on a reduced work schedule is periodically required to work more than eight hours in a given day, there are no problems with wage and hour regulations. In companies or industries with regular workflow fluctuations, however, part-time employees may be expected, or required, to work extra hours at straight time since overtime is not paid until 40 hours have been worked. As the use of part-time grows, the issue of how much overtime a part-time employee can be required to work at straight pay is one that should be reviewed.

There are still some workplaces that require that part-time employees be laid off first, independent of their job tenure with the company. This is a holdover from the time when part-time employment was con-

sidered to be peripheral rather than mainstream and only available in lower-level job classifications.

Some of the barriers to greater availability of reduced worktime options are governmental. Unemployment insurance and social security are computed on a *per capita* basis up to a specified ceiling, making part-time workers disproportionately expensive. Unemployment insurance and social security systems should be revised and charged on a full-time equivalency basis or as a percentage of total payroll in order to remove the penalty for part-timers that employers now pay.

Other systemic disincentives to part-time work include the fact that most unemployment insurance systems do not allow job seekers to receive payments if they are looking for a part-time job. In an economy that has generated millions of new part-time employment opportunities over the last decade, such policies need to be reviewed.

The following represent some of the new forms of regular part-time work that have emerged in the last 10 years.

Job Sharing is a form of regular part-time employment where two employees share the tasks, responsibilities and compensation (wages and benefits) of a full-time job. Job sharers may divide the hours of the day, work alternating days or weeks or adopt any other configuration that is mutually agreeable to the employees and their supervisor. Job sharing is used as a way to provide part-time employment opportunities in job classifications which cannot be significantly reduced in hours or split into two part-time positions. It is also a way to upgrade part-time work, since the employees are perceived as working part time in a full-time position.

Who uses it? A 1986 New Ways to Work survey (Rogin 1986) of state personnel offices showed that 35 of the 50 states were using job sharing. The Conference Board/NWW survey (Christensen 1989) indicated that most job sharing employees are previous full-timers who have converted to a job sharing status and that the arrangement is generally initiated by the employees.

It is difficult to estimate the amount of job sharing that exists because, until recently, it was primarily an *ad hoc* arrangement between employees and their supervisor, and job sharers were desig-

nated as part-timers on their employers' payroll systems. The number of firms that offer job sharing options is also unknown, but it appears to be on the increase. For the most part, the use of job sharing is related to retention of valued employees or recruitment for hard-to-fill positions.

Firms such as Steelcase in Michigan and Aetna and Northeast Utilities Systems in Connecticut who have spoken publicly about their experience with job sharing credit it with retaining valued employees, improving scheduling and continuity, increasing the breadth of skills and experience in a single job category and creating part-time opportunities in higher level job classifications.

What are the policy issues? The issues are the same as for other forms of regular part-time employment and have to do with ensuring the same conditions of work as for employees in comparable full-time positions.

Phased Retirement is offered as a way for an individual to retire gradually over a period of months or years. The hours per week worked are gradually reduced over a defined period of time.

Who uses it? In the late 1970s and early 1980s phased retirement generated considerable corporate interest as a way of responding to older workers interest in having part-time options. But the 1982 recession resulted in senior employees being targeted for downsizing and early retirement, and phased retirement programs eroded or were discontinued. The Conference Board/New Ways to Work survey (Christensen 1989) indicated that phased retirement was the option that firms were least likely to have considered. Only 36 of the responding firms had used it, while 323 had never even considered it.

The recent trend among private sector firms who want to retain a relationship with senior employees of retirement age has been to initiate internal temporary pools to rehire their retirees or to retain them as possible consultants after they have retired. With skills and labor shortages being projected for the 1990s, however, phased retirement is attracting renewed interest.

What are the policy issues? The issues related to phased retirement concern the amount of salary a retired person earns and how it affects his or her retirement benefits. Most private sector retirement policy

bases retirement income on the salary level of the last three to five years of employment. Employees working less than full time during the final years of employment risk retiring at a lower pension rate. Retirement policy needs to be redesigned so senior employees who phase retirement still retain the amount of pension they would have had if they had been working full time. The California State Teachers' Retirement System (1980) has had a phased retirement program, the Reduced Work Load Program, for over a decade. The enabling legislation stipulates that "although the program involves a salary reduction corresponding to the reduced employment, it allows participants to continue earning credits for retirement benefits at the same rate as full-time employees." Teachers can choose to continue paying into the retirement fund as though they were working full time, and the district employing them contributes on the same basis.

Voluntary Reduced Work-Time, or V-Time, is a relatively new regular part-time option. It was originally designed as a way for employers to combine part- and full-time employment options and was first instituted as a way to avoid layoffs during slow periods. Its real importance is as a model which legitimizes part-time employment and affords workers a way to accommodate short-term needs for reduced working hours without having to negotiate an *ad hoc* arrangement with their supervisor. V-Time allows full-time employees to voluntarily reduce their work schedules for a defined period of time with a corresponding adjustment in compensation and some employment rights such as seniority. After the agreed-upon period, the employee returns to full-time work.

Who uses it? Two states currently offer a V-Time option to their employees: New York and California. Although there has been some corporate interest in this kind of program, there has been no research to indicate how many private sector firms use this option.

What are the policy issues? V-Time programs resolve many of the private sector policy issues associated with regular part-time employment. Public policy issues are the same as for other forms of part-time work.

Paid and Unpaid Leaves are defined as authorized periods of time away from work without the loss of employment rights. In many cases, benefits are continued during this time period. Leaves constitute another way that employers provide flexibility. A great deal of legislative interest in leave time for family, elder care, and parenting has been generated in recent years, both at the state and federal level and within the private sector.

Who uses it? In the absence of federal legislation regarding family and medical leaves, 22 states have enacted some form of family leave policy. The states are: Colorado, Connecticut, Delaware, Kentucky, Maine, Maryland, Massachusetts, Minnesota, Missouri, Nevada, New Jersey, New York, North Dakota, Oklahoma, Oregon, Rhode Island, South Carolina, Tennessee, Washington, West Virginia, Wisconsin, and Vermont. Policies range in breadth and scope from such specific needs as the care of newly adopted children to comprehensive policies for both public and private sector employees with a wide range of family and medical needs (see McCulloch 1990).

What are the policy issues? This issue has been the subject of federal legislation for several years. In 1990 President Bush vetoed a Family and Medical Leave bill passed by the House and the Senate. A new version has been introduced and the subject can be expected to be part of both state and federal policy discussions until it is resolved.

In addition to family and medical leave time, other leave policies provided by some employers include vacation, jury duty, sick leave, disability leave social service leave and sabbaticals (Figure 4.8).

Work Sharing is an alternative to layoffs. It is a strategy in which all or part of an organization's workforce temporarily reduces hours and salaries in order to reduce operating costs. This enables an employer to cut back on paid hours of work in response to an economic downturn without cutting back on the number of people employed. The flexible response of a firm—and its ability to remain competitive and productive—is greatly enhanced by ensuring that a trained labor force remains intact, committed, and ready to gear up when the economy picks up again.

Figure 4.8
Leaves Offered in Surveyed Companies

Type of leave	Percent of firms offering arrangement	Percent offering leave*		Mean maximum days allowed per year
		Paid	Unpaid	
Vacation	96	99	1	25
Jury duty	95	97	3	26
Sick leave for employees	93	95	1	66
Bereavement leave	91	93	5	4
Disability leave	90	82	11	157
Leave for sick family members	67	36	58	14
Parental leave beyond disability for mother	60	6	91	56
Adoption leave	46	9	88	34
Parental leave for father	44	6	92	18
Social service leave	28	18	79	51
Sabbatical	24	10	90	50

SOURCE: The Conference Board. 1989. Research Bulletin #240. Reprinted with permission.
*Percentage of paid and unpaid leave do not always add up to 100 percent since some companies offer both paid and unpaid leaves.

Who uses it? In 14 states, private sector work sharing is encouraged and facilitated by the ability to use partial payments from unemployment insurance systems for workers whose salaries have been cut back. This creative use of unemployment insurance to foster continued employment, rather than waiting until workers have been dislocated, is called short-time compensation (STC). States that have passed enabling legislation are: Arkansas, Arizona, California, Florida, Illinois, Kansas, Louisiana, Maryland, Missouri, New York, Oregon, Texas, Vermont, and Washington (Figure 4.9).

Such firm as Motorola in Arizona and Signetics in California have credited work sharing with significantly affecting their turnaround time during recessionary periods. Motorola conducted an extensive study of its program and found that employees were as enthusiastically supportive of this approach as management was.

Figure 4.9
Work Sharing
A Comparison of Short-Time Compensation Laws

State (1)	Duration of plan before new approval is required (2)	Limits on number of weeks (3)	Required reduction of work (4)	Computation of WBA (5)	Financing by participating employers (6)
Arizona	One year	26	At least 10% but not more than 40%	Amount proportionate to the ratio of normal hours not compensated to normal hours	1% added if negative reserve ratio is at least 5% but less than 15%; 2% added if negative reserve ratio is 15% or more
Arkansas	12 months	26	At least 10% but not more than 40%	WBA multiplied by % of reduction (at least 10%) of individual's usual hours	No special financing
California	6 months	(a)	At least 10%	Percentage of reduction in individual's hours and wages, rounded to nearest 5%, multiplied by individual's WBA	No special financing
Florida	12 months	26	At least 10% but not more than 40%	Product of WBA and ratio of the number of normal weekly hours not compensated to normal hours	Participating employer's maximum rate shall be 1% above current maximum applicable to other employers

Figure 4.9 (continued)

State (1)	Duration of plan before new approval is required (2)	Limits on number of weeks (3)	Required reduction of work (4)	Computation of WBA (5)	Financing by participating employers (6)
Kansas	12 months (Ultimate end 4/1/92)	26	At least 20% but not more than 40%	WBA multiplied by nearest full % of reduction of the individual's hours	Not applicable to negative balance, delinquent, governmental, and reimbursing employers
Louisiana	12 months	26	At least 20% but not more than 40%	WBA multiplied by % of reduction (at least 10%) of individual's usual hours	No special financing
Maryland	6 months	26	Not less than 10%; not more than 50% (50% max. may be waived by Secretary)	WBA multiplied by the % of reduction in workers' normal weekly hours + dependents allowance	All worksharing benefits charged to worksharing employer regardless of base period charging rule
Massachusetts	26 weeks (effective 7/1/88, ultimate end 6/30/91)	26	At least 10%, but not more than 60%	Percentage reduction in normal weekly hours worked, plus dependents allowance	Negative balance employers reimburse 100% of benefit charges, all others charged as regular benefits
Missouri	12 months	26	At least 20% but not more than 40%	WBA multiplied by % of reduction in individual's hours	Participating employer's general tax rate can be as high as 9%

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New York		20	At least 20% but not more than 60%	WBA multiplied by % of reduction (at least 20%) of individual's usual wages.	No special financing, but benefit charges are dollar amounts, not effective days
Oregon	52 weeks	26	Hours reduced at least 20% but not more than 40%	WBA multiplied by nearest full % of reduction of the individual's regular weekly hours of work	No rate less than benefit ratio but not more than 3 percentage points higher than next year's maximum rate
Texas	12 months	26	At least 10% but not more than 40%	WBA multiplied by % of reduction of individual's wages	
Vermont	6 months or date of plan, if earlier	26	At least 20% but not more than 50%	WBA multiplied by % of reduction of individual's usual weekly hours of work	No special financing
Washington	12 months or date in plan, if earlier	26	Not less than 10% nor more than 50%	WBA multiplied by % of reduction of individual's usual hours	No special financing

SOURCE: "Highlights of State Unemployment Compensation Laws," National Foundation for Unemployment Compensation and Workers' Compensation, Washington, DC, 1990.

(a) No limit on number of weeks, but total paid cannot exceed 26 x WBA.

What are the policy issues? According to Ronald Adler and Robert Hilton (1986), low participation rates in states offering short-time compensation to participants in work sharing programs may be due to the limited efforts of states to market the programs.

Incurring surcharges is another barrier to work sharing. Julie Batz (1991) in her monograph, *Work Sharing: An Alternative to Layoffs,* points out:

> The primary disincentive (to implementing work sharing programs) is related to a mechanism in several state laws that requires an employer to reimburse the state for any benefits paid out that exceed that employer's balance in the state unemployment insurance fund.

A few states have enacted legislation that repeals all surcharges or creates special financing provisions for employers with negative fund balances as a result of participation in STC work sharing programs.

Given the devastating effects of worker layoffs on people, companies and communities, introducing STC legislation designed to encourage private sector use of it should be a high priority for all those states that currently do not have this option available. States with enabling legislation in place should take steps to make the employer community aware of work sharing as an alternative to layoffs.

Flexplace or Work-at-Home Options refer to the practice of allowing regular employees to work at home or at an alternative worksite during a part of their scheduled hours. This kind of arrangement is also referred to as telecommuting.

When discussing work-at-home or flexplace options, it is very important to distinguish between arrangements related to regular employees of a firm and independent or cottage industry workers who are employed as peripheral staff. As in differentiating between regular part-timers and hourly, on-call part-timers, one group has flexibility within the regular workforce and the other is a member of the contingent workforce.

Flexplace options for regular employees allow workers to work out of their homes, or a satellite office, for an agreed-upon portion of their work schedule. In most cases this is a regularly scheduled activity.

Many flexplace workers telecommute, linked to the office with a telephone or through the use of a home computer.

Who uses it? Estimates of the number of telecommuters vary considerably but usage appears to be growing rapidly. The Bureau of Labor Statistics estimated in 1985 that at least 9 million people worked at least eight hours a week at home (Smith 1986). This figure, however, included those who were self-employed and independent contractors as well as regular employees of private and public sector organizations.

In terms of regular employees, Gil Gordon, a nationally known consultant in this field, estimated that in 1988 there were approximately 15,000 regular employees of 500 U.S. corporations who telecommuted two to four days a week (see Olmsted and Smith 1989). LINK (1991), a research organization specializing in telecommuting, reported a 40 percent increase in the number of telecommuters from 1990 to 1991. Their data are from a telephone survey of 2500 households and reflect growth in both very large and very small private companies and in the public sector as well. They project a doubling of the telecommuter population to about 11.2 million by 1995.

A number of states with significant transportation or air quality problems are currently interested in exploring wider use of flexplace options as a means of reducing the amount of work-related vehicular traffic. The Colorado House of Representatives (1990) has recently passed legislation leading to the formation of a state task force to provide recommendations that will "reduce by a minimum of 5 percent per year over at least five years, the number of commutes and work-related vehicle trips or vehicle miles traveled by employees of employers that participate in the travel reduction program."

In California, Regulation 15 of the South Coast Air Quality Management District requires employers to set and achieve goals to reduce the number of daily vehicle trips to and from their facilities made by their employees. It is viewed as a precursor of a new generation of environmental regulations that will mandate employer involvement in reducing work-related automobile use.

What are the policy issues? The utilization of this option poses potential questions for the OSHA and workers' compensation systems

in terms of ensuring worker safety when the employee is engaged in direct employment activities at home or at a third-party, leased site.

The complex problems raised by contract employees, or cottage industry workers, working at home are very different from those raised by regular employees who telecommute from home as part of their regular work schedule. The issues relating to piece work or at-home contracted workers are encompassed by the larger issues within contingent employment trends.

Contingent Employment, as noted in an earlier section, is a flexible staffing arrangement, rather than a flexible scheduling option. The contingent workers are not employees of the firm at which they work, but are self-employed or hired through an agency.

Who uses it? In 1987, The Conference Board estimated that the number of contingent workers had grown 20 percent since the beginning of the decade to 34.3 million people (see McCarthy 1987). Of the 521 respondents to the 1989 Conference Board/New Ways to Work survey, 91 percent reported hiring contingent workers (Christensen 1989).

What are the policy issues? The implications for state policy were first noted in a special report, "The Changing Labor Market: Contingent Workers and the Self-Employed in California" (1987), prepared by the California Senate Office of Research. The report stated in part:

> The tenuous relationship (characteristic of contingent workers) between workers and those who pay them is disrupting the usual connection between employment and certain benefits (e.g., health insurance, training, unemployment insurance). The decreased employer commitment to these workers is resulting in:
>
> (a) greater numbers of lower paid workers without basic benefits,
>
> (b) weakening governmental income and purchasing power in stabilization plans such as unemployment insurance,
>
> (c) growing dependence of workers on publicly provided, taxpayer-supported services,
>
> (d) reduced California competitiveness as the work force receives less training and has fewer reasons to be loyal to the corporation.

The implications of the use of the contingent worker are far-reaching. It is a short-term strategy with broad potential impact on the social

and economic fabric of society. More and more workers are totally unprotected, with none of the rights associated with permanent, regular employment. The growing use of contingent workers creates a serious challenge for the unemployment insurance, workers' compensation and state disability systems regarding employer definition, overall contribution rates, and potential increased usage. It is also likely that some states will experience a dramatic increase in civil litigation and cases before the Workers' Compensation Appeals Board as injured workers challenge their "nonemployee" status. Legislation addressing the issues of minimum protections (i.e., sick leave and holiday pay) and health benefits for these workers is anticipated at both state and federal levels.

Implications for State Policy

In summary, the policy areas that need to be looked at most closely in view of the emergence of the concept of flexibility in the workplace are the following.

Wage and Hours Legislation and Regulation

The overtime provisions of the Fair Labor Standards Act, which mandates overtime after 40 hours, and state regulatory systems that establish the eight-hour day as the standard inhibit the ability of employers to offer flextime and compressed workweek schedules to some of their employees. Overtime regulations make it difficult or impossible for employers to allow employees to "bank" flextime hours.

The overtime provision of wage and hours legislation and policy need to be examined as they affect the institution of flextime and compressed workweek programs. In cases where workers choose flexibility as a benefit, the exemption process should be streamlined and available for individual workers. Policy discussions between government, employers, labor, and policymakers must focus on creatively resolving workers' conflicting needs for both overtime protection and scheduling

flexibility. The issue of overtime compensation for part-time employees who are regularly asked to work more than their contracted hours but fewer than 40 hours a week should be reviewed.

Unemployment Insurance

The requirement that recipients of unemployment insurance payments must be actively looking for full-time jobs—when it may be a part-time position that they need—should be reexamined in light of today's labor force. The growth of the contingent workforce means that more and more people are denied access to unemployment insurance. This leaves many only one paycheck away from welfare.

For those states without enabling legislation, providing short-time compensation for participants in work sharing programs is not possible. This drastically restricts the number of employers who are willing or able to utilize work sharing as a way to eliminate or reduce layoffs. Using unemployment insurance for short periods to keep people employed, rather than waiting until their lives are disrupted, is a creative way to provide the kind of flexibility and stability that can have positive effects on productivity. More states should be thinking about encouraging this approach

Introducing STC legislation designed to encourage private sector use of it should be a high priority for all those states that currently do not have this option available. States with enabling legislation in place should take steps to make the employer community aware of work sharing as an alternative to layoffs.

The unemployment insurance and social security systems need to be examined and adjusted in light of the growing numbers of both voluntary and involuntary part-time workers in the United States.

Workers' Compensation and OSHA

The implications for policy and regulation for these systems is unclear. The growth of the contingent workforce may impact workers' compensation contribution rates and has the potential for increased activity before the State Appeals board.

The problems of fatigue-caused accidents related to the longer compressed workweek schedules (e.g., the 3/12 and 4/10) may prove to be a problem in the long run, particularly in work groups that have a higher percentage of older workers or workers who are providing care to dependent family members.

The growth in telecommuting and other at-home work also raises questions for OSHA in terms of how to ensure worker safety and for workers' compensation systems in terms of coverage related to off-site accidents.

States should track the impact of the flexible workplace on the workers' compensation and OSHA systems to better understand what kinds of new or revised policy should be developed.

Other Legislative and Policy Considerations

The immediately pressing issues for policymakers are likely to be those concerned with legislative initiatives that address the need to ensure minimum protection for all workers—part-time and contingent as well as full-time and regular—and for provision of health insurance and other fringe benefits as well as family and medical leave. If these issues are not addressed by private sector policy initiatives or federal legislation, they will inevitably become issues that state and county programs as the payers of last resort will be forced to address.

States should encourage the federal government to examine the issues relating to the contingent workforce and to gather accurate information as to its use. Further, states should develop ways to ensure minimum protections for part-time workers. Of particular concern are the issues of job security, compensation equity, and access to health insurance.

States should review and develop policies that ensure flexibility on an equitable basis within the regular workforce under conditions that broaden access to these options and do not penalize either workers or the employers who provide it. States should review their internal Human Resource policies and practices in relation to contingent workers and take appropriate steps to insure equitable conditions and protections for these workers. Finally, they should encourage institutions

of higher education to review their business school curricula to ensure that information about the history, structure, and management of the flexible workplace is included and explore ways to provide incentives to employers willing to institute flexible policies and practices in their organizations.

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5
Health Benefits in a Changing Economic Environment

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One of the most volatile and complex issues to be faced in the workplace is the debate over health benefits. Fueling the fire are dollars. Employers both public and private, confront spiraling costs that, thus far, have defied attempts at control. Employees are confronted with having to pay more for their health benefits and may not be able to get coverage for themselves or their dependents. Government faces the same issue as private employers but is also trying to contain the costs of major programs such as medicare and medicaid for those who are not covered through employment.

This paper addresses the major issues surrounding employment-based health insurance, identifying a number of areas that are generating concern. The intent is to identify and discuss trends that are causing problems for employers and employees alike, and then discuss what state governments can do through health policy development and insurance regulation to address those problems.

The Issues

Employment and Health Benefits in the United States

Our health care system is a unique mix of private insurance and public programs. Since World War II there has been increasing reliance on employment-based health insurance as the primary source of coverage and a great decline in insurance purchased by an individual. Public programs serve those persons who do not get private coverage. Since

the inception of medicare and medicaid in 1965, the intent of public programs has been to serve the elderly, the poor, and the disabled.

In contrast to most other industrialized countries, our private-public system has never provided health care coverage for everyone. There are gaps that result in persons and families not having access to public or private health care coverage. While 84 percent of Americans have some form of private or public coverage, about 34 million persons under age 65 do not. About 85 percent of the uninsured are employed or living in a family headed by a worker (Foley 1991). While medicaid was intended to cover the poor, about half of those having incomes below poverty are not medicaid recipients (National Governors' Association 1991).

Our reliance on employment-based health insurance coverage has traditionally been supported by almost all segments of American society. Employers have been willing to offer health insurance to their employees and their dependents. Government has subsidized private insurance coverage by affording favorable tax treatment to health benefits and to expenditures for health services.

In our employment-based system the employer makes the decision to offer health insurance as part of the package of benefits made available to employees. Employers have looked on health benefits as a tool to recruit and retain employees; if they were not offered, the employer could be at a competitive disadvantage in the labor market. Over time the amount and range of services covered in employment benefit packages have expanded. Part of the reason for the increase is collective bargaining. Over the past 10 to 15 years, benefits have increased at a higher rate than wages, and health care benefits have become the central focus of negotiations on wages and benefits.

With the increase in benefits came an associated increase in costs. For a long time employers were able to absorb the additional costs by trading off health benefits with wage increases. Now, the rate of increase outstrips wage increases. Employers are unwilling or unable to continue paying the increases. Employees are unwilling or unable to accept fewer benefits or pay more for existing benefit packages. Gov-

ernment is unwilling or unable to fill the widening gaps. As a result, there is increasing turmoil in the health benefits system.

Employee Dissatisfaction

The American people are becoming more and more dissatisfied with our health care system. In an opinion poll taken in November 1988, about 89 percent of respondents believed that there needed to be a fundamental change in health care (Blendon and Donelan 1990). The degree of dissatisfaction is further demonstrated by a 1989 survey that found 67 percent favoring a government-financed national health plan, compared to 48 percent expressing such sentiments in 1982 (Blendon and Donelan 1990).

Public dissatisfaction with our health care system is being played out in the workplace. Employer efforts to share the rising health insurance premiums with employees are meeting increased resistance. Recent strikes against AT&T, three "Baby Bell" telephone companies, and the coal industry in Virginia over health benefit issues signal workplace conflict.

From the employee perspective, health care plans have evolved into a complex web of varying benefits, financial risks, new service delivery mechanisms, and constraints on the use of services. The days of first dollar coverage to go to the doctor and hospital of choice are rapidly disappearing. Today, employees need to learn about coinsurance and deductibles and maximum lifetime benefits. They have to learn a new language that uses acronyms such as IPA, HMO, and PPO. They need to know about medical underwriting and preexisting conditions. They need to know if an operation needs to have a second opinion and/or preadmission certification, and if the procedure can be covered in the hospital or would have to be performed in an outpatient setting.

Employer Frustration

If employees are dissatisfied, employers are frustrated. Costs are out of control. In 1990, the cost of the average health plan rose 17 percent to $3,217. Since 1985, the cost of health benefits has risen an average

of 9 percent per year (Higgins 1991). Employers frustration is understandable given their efforts to contain costs.

The past decade has witnessed major public and private efforts to control health care costs. The record of these efforts does not seem promising now or in the future. In 1980, health care expenditures totaled $249.1 billion, or 9.1 percent of Gross National Product (GNP). Though there was some slowing in the rate of increase in the mid-1980s, the rate is back to double digits with no relief in sight. In 1989 the United States spent $604.1 billion (11.6 percent of GNP) on health care. The total represents an 11.1 percent increase over 1987, more than double the rate of general inflation (Lazenby and Letsch 1990).

By 1986, an overwhelming majority of employers had implemented a wide range of cost-saving mechanisms by restricting use of some services (e.g., second surgical opinions, preadmission certification); helping employees use services more economically (e.g., differential coinsurance and deductibles); offering less expensive alternative services (e.g., home health care, outpatient surgery); and, restructuring service delivery (e.g., HMO, PPO). (See Wyatt Company 1988.) The effect of these changes has been less than promised. While there was some slowing of health care cost increases, costs have regained their rapid rate of growth (Lazenby and Letsch 1990). It may be that costs would have risen even higher without these cost-containment efforts, but that is faint praise.

Government Uncertainty

Government programs serve to supplement employment-based health insurance. This is done primarily by filling the gaps—providing health services to those who, for a variety of reasons, are unable to get employer-based coverage. At both the federal and state levels, government financial and programmatic involvement has increased over the years in response to concerns about access to care for persons not in the workforce. The most significant federal response came with the creation of the medicare and medicaid programs in 1965. Medicare was intended to serve the elderly and disabled who no longer work; medicaid was intended to serve the disadvantaged poor who were

unable to work. Since their enactment these programs have grown precipitously, both in dollars and in persons served.

Government plays an additional, and more significant, role in the employment-based system; that is, regulating health insurance. This is essentially under the purview of state government authority. Generally, the function of insurance regulation is to protect consumers. Insurance regulators do so in a variety of ways. They ensure the financial solvency of insurers by establishing capital and financial reserve requirements. States require information disclosure, auditing, bonding, and standardized definitions of terms of coverage. Finally, states also establish standards for the services required to be included in health insurance plans.

This last role—mandating benefits—has created great controversy among insurers and regulators. It is argued that mandated benefits increase the cost of insurance, thereby limiting its affordability to employers, especially small business. Moreover, it is argued, some types of benefits should not be mandated for all insurance policies, but paid for by the consumer or insurer at their choice. On the other hand, defining a set of benefits to be offered by all insurers protects the consumer by making known the minimum benefits covered by their insurance. Also, mandated benefits allow access to services that may not be affordable to the consumer, such as mental health services.

There are increasing demands for greater government involvement in health care. These demands range from making improvements in medicare and medicaid to enacting national health insurance. On the other hand, there is intense resistance to raising the revenues necessary to make those changes. There are conflicting messages coming to government from other actors in the system. As a result, government is uncertain about how to respond to the current concerns about health care access and costs.

Reversing a Trend: Cost-Shifting

The seeming inability to control costs and the inability to find more money to pay the increase has forced purchasers of health care, employers and government, to engage in cost-shifting. Cost-shifting,

operationally, involves one purchaser limiting his or her financial exposure for health care by shifting it to someone else. For example, an employer could reduce financial risk for health costs by not covering dependents of employees. Those dependents, then, either would have to pay for care out-of-pocket or find another source of insurance. Cost-shifting is rational economic behavior for the individual actors because it does reduce their costs; but, total health care expenditures continue to rise.

The private-public structure of our health care system creates an environment for cost-shifting. In better times, cost-shifting is seen as a healthy response to changing economic and political conditions. Over the past 50 years health care financing and coverage have evolved from an individual responsibility to a shared responsibility of the individual, the government, and the employer. Cost-shifting is becoming increasingly unacceptable—looked on as a denial of responsibility and a source of tension among the health care benefit partners.

Cost-shifting has led to a reversal of a long-term trend of business and government taking more financial responsibility for health care. According to a recent report by the General Accounting Office, the greatest proportion of recent health care cost increases has been borne by families and individuals. Between 1967 and 1982, the personal share of health expenditures declined from 65 percent to 39 percent. By 1987 the individual share had risen to over 42 percent. During the 1982–1987 period business and government share had declined, so that by 1987 business accounted for 28 percent and government just under 30 percent of total spending on health care. Employee contributions were going up at a greater rate than the price of health services (General Accounting Office 1990).

Another major player in cost-shifting is the insurance industry. Responding to complaints about skyrocketing health insurance premiums, insurers are engaging in a variety of mechanisms to minimize their financial risk. Generally, these mechanisms are aimed at avoiding or controlling their exposure to paying high cost claims. One way to do that is to exclude persons and groups from getting coverage. This can be done through medical underwriting and preexisting-condition

exclusions, or by refusal to write policies for certain occupations or groups. In order to minimize their risk of high cost claims, insurers can decrease the maximum dollar limit of the policy, either annually or on a lifetime basis. These actions impinge on access to health care coverage and shift those costs to other actors, primarily government and hospitals.

Employers who offer health insurance argue that employers who do not offer insurance are shifting costs to them in the form of increased hospital prices and the additional costs of covering working dependents who are not able to get insurance from their employers. Employees accuse employers of cost-shifting health care costs to them, reducing their income, and making it more difficult to cover their dependents. Employers argue that government's efforts to control the costs of medicare and medicaid by underpaying health care providers has forced providers to increase costs to other purchasers, mainly employers.

Cost-shifting does not offer a solution to the cost crisis. Cost-shifting is circular, causing actors in the system to shift costs to someone else or have costs shifted to them. Instead, solutions may be found in equitable ways to cost-share among all parties—employees, employers, and government.

Defining the Issues

The preceding section described our health care system and identified the cost and access concerns of the three major players—employers, employees, and government. In this section greater attention is focused on those concerns by disaggregating the characteristics of our employment-based health insurance.

Employment and Insurance

Employers vary widely on providing health benefits to employees and their dependents. Separating employers into gross categories based

on whether or not health insurance is offered to employees yields results that can suggest solutions to the cost/access problems. Generally, large employers engaged in manufacturing and mining are most likely to offer health insurance. Businesses with fewer than 25 employees who are engaged in construction, retail trade, and services are least likely to have health insurance plans (Foley 1991).

This divergence among employers also suggests different problems. For small business, access to health insurance that is affordable may be a major deterrent to having health benefit plans. Some insurers are blacklisting certain occupations and types of small employers from health insurance. The cost of buying health insurance is about 10 to 40 percent higher for small employers than for large businesses. There are higher administrative costs for insurers to service small business. Also, insurers add into the premium a risk factor associated with the lack of experience rating for a small group. Finally, the insurance offered must comply with state insurance laws on mandated benefits, which increases the cost of insurance.

These characteristics have important implications now and for the future. One of the findings of the Hudson Institute publication *Workforce 2000* is that "the typical workplace will be smaller and most new jobs will be in small business" (Johnston 1987).

These are the types and sizes of businesses least likely to offer health insurance now. This could result in increased numbers of uninsured and increased cost-shifting to other purchasers of health care if ways are not found to induce small business to offer health insurance.

The issues surrounding employers who offer health insurance are different. Their primary interest is to cut health care costs. In addition to the cost spiral on premiums and costs mentioned earlier in this paper, large employers face another major issue, that is, the increasing costs of paying for health care benefits to retirees, especially in manufacturing and mining.

Emerging Issue: Retirees

Retiree health care plans are becoming more expensive propositions for employers. These plans, which followed active employee health

plans, originally presented a minimal expense because they were designed to integrate with medicare. However, as the workforce ages, retirees live longer, and health care costs increase, the cost of retiree coverage is rising. Some 80 percent of companies with over 1,000 employees extend health benefits to retirees. Some companies provide coverage only for medicare-eligible retirees; others usually extend coverage to early retirees.

In 1988, per-retiree medical costs averaged $2,397 for early retirees and $1,372 for medicare-eligible retirees, while medical plan costs for active employees averaged $2,160. Retiree health benefits consumed 13.7 percent of employers' total health care benefits budget, which represented a 15 percent increase over the 11.9 percent that retiree benefits cost employers in 1987.

Despite the increasing costs related to retiree coverage only 1.3 percent of respondents to the Foster Higgins Survey on Retiree Health Care 1988 indicated that they are considering terminating these benefits (Higgins 1989). At the same time, companies are considering limiting the coverage and searching for ways to contain the costs of benefits covered. According to the same survey an average of 16 percent of participants in an employer sponsored health plan are retired. This figure is expected to rise to 22 percent by the year 2000. Funding the future liability for these retirees is a major issue that some companies have considered, but all will have to begin to address in 1992.

The Financial Accounting Standards Board (FASB) is establishing requirements for employers to accrue the cost of postretirement welfare benefits during employees' working careers and record a minimum liability on their balance sheets. Because most firms currently account for retiree welfare benefits on a pay-as-you-go basis, they will experience a substantial increase in accounting cost and a corresponding reduction in profits. The new accounting rules could have large impacts on state government. First, states may have to change their state employee health benefits for retirees and/or additional appropriations. Second, there may be a decrease in business tax revenue due to the FASB rules.

The Working Uninsured

Approximately half of the 34 million uninsured are employed. These working uninsured tend to be low-income—about 60 percent have incomes under $20,000—and young—almost 45 percent are under age 30 (Foley 1991).

Workforce 2000 predicts that due to contractions in the labor force firms may compete for a diminishing pool of younger workers. Some businesses may increase wages as an inducement to recruit young workers. In order to retain these workers, employers may choose to offer health insurance. *Workforce 2000* also suggests that women will be entering the workforce at a greater rate than other demographic groups. To the extent that these women are single heads of households, their interest in securing health care coverage for their children will affect their choice of employment.

Recognizing the critical importance of health care for poor single women and their children, Congress authorized the provision of transitional health benefits for AFDC recipients entering employment through the Job Opportunities and Basic Skills (JOBS) training program. However, it is unclear what will happen to these women after the one-year transition period—whether they will be covered through their employers' health insurance or revert to AFDC and medicaid.

Another issue arises when insurance is not available to cover the dependent spouse of the employee. About 30 percent of nonworking spouses are unable to get coverage through their employed spouse. Currently, the nonworking spouse tends to be female. As these women enter the workforce and receive coverage through their own plans, it will relieve some of the cost-shifting burden on those employers who currently offer dependent coverage.

The growing use of a contingent workforce by employers is another area that impacts health care access and cost issues. Employers who contract for work with temporary agencies and individuals do not offer coverage for health benefits, though the temporary agencies may offer health benefits to their employees. Other members of the contingent workforce are uninsured or are left to purchase coverage individually.

Over the past five years the number of insurers writing individual policies has greatly declined or the premium has become extremely high.

The Working Insured

Even though persons may have health insurance coverage, the extent of the coverage may not be sufficient to protect them from catastrophic medical expenses. This phenomenon, known as underinsurance, is difficult to measure but, according to most analysts, is increasing. Over the past 10 years one of the most widely used cost control efforts exercised by employers has been to increase the amount of out-of-pocket expenses paid by the employee. This is done by increasing coinsurance and deductibles and limiting the maximum benefit, annually or on a lifetime basis, that is covered by insurance. The use of these cost-containment measures is controversial. Employers argue that requiring employee cost-sharing makes the employee aware of health costs and will cut down on unnecessary use of services. Employees argue that cost-sharing does not reduce costs, but only shifts expenses to the employee and, therefore, reduces benefits.

To the extent that benefit cost-sharing places the employee at risk of catastrophic medical expenses, that employee is underinsured. The trend is clear. More employers are requiring greater cost-sharing by employees. In 1977, 20 percent of employees in health insurance plans had cost-sharing. By 1988, 80 percent of employees were in such plans (General Accounting Office 1990).

Underinsurance is more difficult to assess than uninsurance. Some persons and families are underinsured because they have low incomes, which makes it difficult to cost-share. This may result in forgoing needed health care, which differs from the intent of this type of cost-sharing. Others are underinsured because they have catastrophic medical expenses. For those persons costs tend to be shifted to other purchasers.

Emerging Issue: Worker Mobility

There is an increasing tendency for insurers to place severe restrictions on new employees entering an employer's health plan. These include the use of preexisting condition exclusions and medical underwriting, and the refusal to cover dependents. This means, in the first case, that a new employee with a chronic condition is not covered for that disorder for a specified period. In the second case, a new employee may not be eligible to participate in his or her employer's health plan based on condition or a risk factor. In the third case, a new employee may have to pay out-of-pocket expenses for dependent care.

That health benefits are not portable between employers impacts the employee and his or her present employer. For the employee, the effect is obvious. The employee is unable to leave a current job unless he or she is willing to absorb great financial risk. The employer is faced with a difficult human relations issue—having a dissatisfied employee, or terminating an employee who is facing a catastrophic medical expense.

Issue Related to Health: Dependent Care

Finding ways to assist employees who have major responsibilities for caring for their dependents is a major issue confronting the workplace in the 1990s. Initially, the issue was seen as providing parental leave so that employees would be able to care for their newborns while maintaining their connection to the workplace. Now, the issue has expanded to include establishing a benefits policy—including leave—that would allow employees to meet care responsibilities for other family members, especially parents.

The aging of the baby boom generation has far-reaching implications. One overtone that has not been fully appreciated is the extent of the baby boomers' responsibility for their parents as well as their children. Historically, providing long-term care services to the frail elderly and disabled has been the province of the informal care network, primarily comprised of women who care for their spouses and parents. With women entering the workforce in increasing numbers there will be far fewer available to provide informal care. This will place a great

deal of pressure on the employer to address the needs of employees who must care for frail parents or spouses. The erosion of the informal care network also has profound implications for government. At present, there is no national policy on long-term care; most efforts to address this issue take place at the state level. The erosion of the informal care network will place increased demands on state governments to establish formal programs for delivering long-term supervision.

State Government

In the absence of federal action to restructure the American health care system, state governments have the opportunity to aggressively address health cost and access issues in those areas where they can have an impact. Because states are responsible for regulating insurance in certain segments, they can use regulation to make changes in the health insurance market. A major constraint, however, is that in most states the bulk of employees, including public employees, are in health insurance plans that are self-insured and, therefore, regulated by the federal government. This exempts them from state regulation. As a result, state actions taken through regulating insurance will tend to impact small employers—who are less likely to self-insure—and commercial insurers.

Another area of opportunity for state government is through state employee benefits programs. These programs make the state a major purchaser of health services, if not in the whole state, at least in the state capital. States can use this purchasing power to negotiate with providers to contain costs. States can also serve as models to other employers in developing ways to contain costs and enhance coverage. These opportunities, unfortunately, are greatly constrained given the severe fiscal situation faced by most states.

An additional initiative that could be adopted is more equitable cost-sharing on health insurance premiums. Most employers who require employees to contribute to premium costs set a flat dollar amount per employee or per family. This is regressive, adversely impacting low-wage workers. A more equitable method would be to base employee contributions on percentage of salary. This strategy is used in public

programs that set a sliding fee scale based on income to pay for services.

State Leadership

Perhaps the greatest opportunity for states is to provide leadership by bringing all factions together to identify issues and create an environment for reaching a consensus on problemsolving. This can be most effective in building public-private partnerships on health. The need for consensus is becoming increasingly important as cost-shifting places more burdens on our fragmented system. Reaching consensus, however, is becoming increasingly difficult. The fractures among government, employers, providers, and employees are widening. Moreover, fractures are developing within the different groups themselves.

As discussed earlier, small employers are confronting different problems than large employers and seek different solutions. State government can step in to create a structure and a process for building consensus. Governors and other public leaders can speak out about the problems in our health care system and the need for change. States can lead by example by initiating changes in their state employee health benefits programs. More and more governors are creating task forces to bring all the interested parties to the table in an effort to solve problems.

In addition, states can take an active role by using existing health promotion programs and authorities. For example, many employers are actively pursuing programs to improve employee health. Typically called "employee wellness programs," they include incentives for smoking cessation, weight loss, stress reduction, etc. These efforts are similar to health education and promotion programs supported by state health agencies. The government and employer interest in these programs could be drawn together in a campaign for health promotion and disease prevention. Other examples are current state efforts to reduce infant mortality by improving access to services through medicaid programs. States could work with private employers, sharing experiences from medicaid that could be employed to enhance prenatal care and education and reduce costs.

Resource Allocation

In addition to developing and promoting public-private partnerships, states can provide leadership in another aspect of health care financing and delivery that has important implications for employment and economic development—resource allocation.

One of the major functions of state government is to allocate human and capital resources that make up the health care delivery system. States are responsible for licensing and certifying health care providers and facilities. This means that they control provider entry into the market, but perhaps more important, they control the configuration of the providers. States have used this power to create new providers and to improve and expand sources of care.

A second state role in allocating resources is in educating and training providers. State universities educate and train physicians and nurses as well as other allied health professionals. A number of states use their educational function to influence where providers will deliver services. For example, there are a number of programs that offer scholarship or loan assistance to students who agree to practice in rural areas after graduation.

Another critical aspect of resource allocation is that most states establish criteria for capital investments in facilities and costly technology. The criteria include not only cost but the location of capital investment, making it possible for states to improve the availability of services in underserved areas. States also can create new types of facilities to contain costs and improve access. Ambulatory surgical centers, hospices, and rural medical assistance centers are examples of health care facilities developed under state purview.

The different functions within the role of resource allocation affect employment and economic development in two ways. First, health care is one of the fastest growing sources of employment. Although an oversupply of physicians exists in some areas, shortages of nurses, home health providers, and other health professionals are universal. State efforts to increase the numbers of these professionals through education and licensing will increase the number of jobs. Second, the lack of an adequate supply of physicians and hospitals may make cer-

tain areas, especially in rural America, unattractive to firms seeking new business locations. For these reasons, state officials responsible for economic development and employment policy should work closely with their counterparts in health departments.

Possible Solutions

The organization of our health care system depends on the interaction of a wide variety of actors—federal and state government, employers, employees, insurers, and providers. This pluralism—some would say fragmentation—makes it difficult to change the system. The difficulty is compounded by the fact that there are insufficient data about health care financing and coverage. No definitive information about the behavior of the various actors exists.

For example, younger adults comprise the greatest proportion of the uninsured. Little hard data are available to determine why this occurs. It is theorized that younger workers tend to work for small employers and in part-time and noncareer jobs which often lack benefits. Also, it is hypothesized that younger workers have lower wages and are less likely to take health benefits offered by the employer if there is a cost-sharing contribution. Without definitive knowledge, however, it is hard to make policy changes that can alter the behavior of those who are currently uninsured. It raises the issue of participation. What if a program were put together and no one signed up?

In this section a variety of alternatives to address coverage issues are presented and briefly discussed. The strategies tend to focus on improving access to care aimed at low-income persons and small businesses. It should be noted that the strategies represent opportunities for equitable cost-sharing among participants in the health care debate. Because of the multifaceted nature of issues and problems surrounding the uninsured, it is likely that solutions, at least in the near term, will be incremental in nature. Any potential solution aimed at these objectives must also attempt to delicately balance the needs and interests of both government and the private business community.

For these reasons, policymakers might consider taking a number of short-term, incremental approaches that aim to share the burden of costs among the numerous parties involved. A brief overview of some of these potential approaches appears below.

Play or Pay

This strategy refers to a variety of tax mechanisms that could be used to expand employer coverage. Essentially the state would define a minimum health benefit package that all employers would have to cover. Then an actuarial equivalent would be attached to that benefit package. Employers would be given a choice of making insurance available to employees or paying the state an amount equal to an average premium per employee. The state would then use that revenue to provide health benefits to those families whose employers did not offer coverage.

This strategy would have the greatest impact on small employers. Adopting the play or pay strategy would require the state to create a program to enroll persons or contract with existing organizations for enrollment and service delivery. This strategy could incur some risks for economic development if the costs to small employers are too high: they may choose to locate in a different state.

Single Payer

The single-payer concept offers two separate strategies. First, all purchasers would come together to negotiate payment rates with health care providers. This would be similar to the approach now used in Maryland to pay hospitals.

Second, the single payer could operate as one administrative authority to pay claims to providers. The authority would then bill the appropriate purchaser (e.g., insurance, medicare, medicaid) for reimbursement. This approach would streamline administrative procedures for providers and purchasers. Providers would be guaranteed prompt payment and would not be faced with multiple billing proce-

dures. Purchasers would submit reimbursement on a regular schedule which would minimize their efforts in processing payment claims.

Medicaid Expansions

Expanding the state medicaid program to the maximum extent permitted by law is one step that could significantly improve financial access to care for many presently uninsured low-income individuals and/or families. For example, states are currently required to provide medicaid coverage to all pregnant women and to children under age six living in families with income below 133 percent of the federal poverty level. However, additional optional authority allows a state to raise the upper income threshold to 185 percent of po[illegible] pregnant women and infants under age one. Further, states are also permitted to raise the upper age limit for children to age eight (with a corresponding income limit of 100 percent of poverty).

Given that some analysts have estimated that over 25 percent of all uncompensated charges and nearly 40 percent of all hospital discharges for which no payment is received are for maternity-related services, medicaid expansions for pregnant women and children could offer a valuable opportunity to reduce a prime source of cost-shifting within the current system.

Medicaid Buy-Out

Medicaid buy-out allows state medicaid programs to purchase employer-offered health insurance for medicaid recipients. Under this strategy, medicaid pays an employee's share of the health insurance premium for coverage offered by an employer, in hopes of encouraging medicaid-eligible persons to accept or retain employment-based coverage when it is available.

The buy-out concept can be used to address two different state policy goals. The first is directly related to employment. Under provisions of the JOBS Act, medicaid recipients who become employed under JOBS can continue to receive medicaid services for an additional 12 months. In the second six-month period of that year, states can create

programs that allow for a transition to employer-based coverage. For example, states can develop premium-sharing arrangements among the state, the employer, and the employee. Or, the state can enroll the employee in various types of managed-care environments.

The second type of buy-out applies to persons or families who are Medicaid recipients and are at risk of losing their employer-based health insurance. The most likely occurrence would be for medicaid to pay for the 18 months of coverage under employment-based insurance that employers are required to offer under COBRA rules. The buy-out would be permitted only when the cost of the premium is less than the estimated state share of the cost of providing medicaid coverage (based on average *per capita* costs). This strategy would help persons with high medical expenses—such as those with AIDS—who have lost their jobs and are incurring high medical costs. It would also help children whose parents cannot get dependent coverage or who lose their employer-based coverage.

Public-Subsidized Individual Coverage

Many uninsured persons face especially troubling circumstances. First, as individuals rather than members of a group, the premium costs for insurance products are often prohibitively high. Second, if these persons are presently experiencing health conditions that require care, they are essentially uninsurable. Insurance companies avoid offering coverage to, or price insurance products extremely high for, persons who are certain to incur significant medical costs.

State governments can play a role in assisting these vulnerable individuals by subsidizing the costs of their coverage. States could contract with private insurers who would offer and administer the product. Then, government funds would be spent in two ways: to help persons with part of the cost of the insurance premium, and to compensate the insurer for costs that exceed the collected premium. Premiums and state subsidies would adjust based on the individual's income and ability to pay.

Populations who could be targeted for such special coverage are pregnant women, young children, and disabled persons. These groups

currently receive relatively broad coverage under many state medicaid programs; however, many members of this pool also fall into a notch whereby they have too much income to qualify for medicaid, yet too little income to afford insurance. Income eligibility criteria would need to be set based on existing medicaid thresholds and a consensus on an appropriate upper income limit. Once again, costs for coverage would be borne by both the individual and the state, and risk for costs exceeding premiums would be borne by private insurers and state government.

Expansion of Public Direct Service Funding

To supplement funding directed at providing health coverage through insurance approaches, governments also directly finance health care providers in the community. Examples of such funding are seen in the federal Community and Migrant Health Centers grants and in state and local support for public health clinics. Expansion of such funding using federal, state, and local dollars could significantly improve uninsured persons' access to primary care services. Funds could be awarded to providers under grant or reimbursement arrangements, based on their agreement to provide an agreed-upon set of comprehensive primary and preventive care benefits. Individuals would also be asked to pay for their care based on a sliding fee scale.

This strategy might be of greatest assistance to rural areas. Rural America is confronted with an inability to recruit and retain health care providers. Expanding the financial resources available to rural areas might assist economic development in those areas.

Improving Insurance Products for Small Groups

Many groups—governments, employers, employees, and insurers—have an incentive to improve upon the current situation with respect to small employers by developing strategies that share costs and responsibility equitably. The following sacrifices would be asked of the insurance industry:

1. Insurers would be required to guarantee availability of coverage to all small groups.
2. Insurers would be prohibited from using medical underwriting to exclude high-risk individuals from a group.
3. Insurers would be prohibited from discontinuing an employer's health benefits except under circumstances such as nonpayment of premiums.

In turn, governments could work with insurers and small business to establish the following improvements in insurance regulations:

1. To limit the exposure of insurers, a new reinsurance mechanism might be developed to cover the claims of high-risk individuals whose costs exceeded collected premiums by a certain threshold.
2. To help share the costs of this reinsurance, small businesses could be assessed a tax based on some percentage of current premiums.
3. To improve both efficiency and equity, and allow for the establishment of a lower-cost standard benefit package that emphasized comprehensive primary and preventive care services, states could act to restructure the current system of mandated benefits enforced upon insurers.

Summary

Our pluralistic system for financing health care in the United States is the focus of much concern. Uncontrollable cost increases are driving changes in access to health services. Reversing a long trend of business and government taking the greater role for health spending, responsibility is now shifting to families and individuals. This change has created a great deal of turmoil in the workplace.

There is the growing realization that none of the major players involved—employers, government, insurers, and employees—is able to address the issues individually. There needs to be a cooperative

approach to solving the problems of cost and access. The types of solutions identified in this paper require that cooperation.

It is sobering to note that the issues surrounding the cost and availability of health benefits have, thus far, avoided solution. The issues challenging the American workforce in the future may be exacerbated by the health benefits issue if consensus about addressing the problems is not reached soon.

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Index

20:1