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A Prospective Study on Work, Family and Society in the Information Age

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

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Foreword

Lifelong learning has been at the center of recent work at CERI (Centre for Educational Research and Innovation), and was the theme of the 1996 meeting of Education Ministers at the OECD. A key objective of CERI work has been to improve understanding of the role played by learning at critical points of individuals' lives, rather than analyzing education and training only from a supplier's perspective.

The following monograph suggests that investment in knowledge and skills, by individuals, families and communities, can be at the center of a strategy to adapt to structural and technological change. Written by Professors Martin Carnoy of Stanford University and Manuel Castells of the University of California at Berkeley, it discusses how governments' policy can be re-oriented to provide a framework to facilitate such investment. The monograph is preceded by an overview, drafted by the Secretariat, which put the main themes of the paper in the context of other OECD work in this area.

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OVERVIEW

It is now well accepted that technological development and the globalisation of economies have permanently changed the character of both work and employment in OECD countries. *Work* in successful enterprises can no longer follow the old industrial model with hierarchical chains of command, narrow divisions of tasks and a large component of unskilled labor: it requires flexible, task-oriented and multi-skilled workers. *Employment* has become on average less stable and less certain than in the past; a concept of a guaranteed "job for life" has become a relic of a bygone age.

Governments and experts have been struggling to come to terms with the implications of these changes, which are part of a bigger "structural change" in OECD economies and societies. Not surprisingly, the main style of this response has been defensive. When jobs disappear, governments ask how they might devise programs for job creation, or at least produce conditions favorable to the creation of jobs. As it becomes more obvious that low-skill jobs are on the wane, efforts are increased to develop skills through training. There are many cases in which such efforts have helped individuals, but to the average worker the overall trend seems to be one of progressive deterioration. A steady, secure job remains as elusive as ever. Yet it is what every unemployed and insecurely employed person dreams of, to a large extent encouraged to do so by the language of politicians.

A more realistic and positive approach is to accept the present world of employment instability, and to help citizens learn to deal with it as a permanent state of affairs. The following monograph, by Martin Carnoy and Manuel Castells, suggests a framework for doing so, based around a new kind of asset: the knowledge and skills of workers that allow them to function flexibly in an uncertain world. Such assets would make flexibility sustainable both for individuals and for whole societies, and allow uncertainty and transition to be treated as permanent than aberrant phenomena. But to adapt in this way is not just a matter of learning new skills to use at work. There are also implications for the way that people organize their lives, the ways in which societies and communities function, and the kind of support that the state can most helpfully offer to groups and individuals.

The OECD has been pointing to the implications of structural change for employment, social, educational and training policies for well over a decade. In the 1980s, CERI (Centre for Educational Research and Innovation) was among the first to identify the fundamental human-resource implications of the workplace changes needed to realize the full productivity potential of new technologies. For workers to adapt, they needed to learn new skills that allowed them to take responsibility, to work in teams and to use multiple skills flexibly to solve problems. Due to the slowness with which the workforce is replaced with newly-educated young recruits, it was concluded that lifelong learning is the only adequate method of creating these skills. At the same time, OECD analysis of labor-market and social policy emphasized the need for a coordinated approach under which social protection was combined with active measures to help unemployed people back into work.

These messages came together in two major OECD events in the mid-1990s. The 1994 *Jobs Study* stressed that upgrading labor force competencies was an essential element of job creation. In January 1996, the 26 OECD Ministers of Education met in Paris to discuss the future of education and training systems under the theme "Making Lifelong Learning a Reality for All" (see OECD, 1996*a*). As set out in the ministers' final communiqué, the ministers were "convinced of the crucial importance of learning throughout life for enriching personal lives, fostering economic growth and maintaining social cohesion".

This emphasis on lifelong learning in an organization concerned primarily with economic development reflects the growing realization that knowledge is potentially the key factor input that determines comparative advantage in advanced modern economies. The authors of this monograph suggest that, more than this, knowledge can be the focal point of the development of individuals, families and communities. This perspective elaborates further some themes explored in recent CERI work, that have sought to identify the role played by lifelong learning in various OECD societies. A 1992 report, "City Strategies for Lifelong Learning", looked at how learning could become a development instrument for whole communities. Exploratory work in 1995 on "Life-cycle Alternatives in Education and Work" suggested further that learning can play a special role at transition points in individuals' lives, helping them to redefine themselves at multiple points of entry to and exit from work, at times of relationship formation or break-up, new parenthood and other times of change.

The present monograph starts by documenting the trends that are transforming work, and explains why they are also transforming society. It adopts an optimistic interpretation of the long-term outcomes of technological development and global competition: that there need not eventually be less work to go around, merely that jobs will be in new industries and have new characteristics. But it warns that OECD countries have not yet sufficiently restructured social or economic life to deal with the transformation of work. Indeed, it is argued that certain social trends such as breakdown of family and community bonds have tended to exacerbate the damaging effects on people's lives caused by a more insecure labor market.

Professors Carnoy and Castells then proceed to show why three alternative approaches to dealing with structural change have proven inadequate:

- *The "neo-conservative" approach*, that stresses deregulation and a withdrawal of the state from interference with the market, neglects the social implications of falling wages, rising inequality and reduced job security. Neo-conservatives propose alternative support-structures to the state, such as the family and NGOs. Yet traditional family relationships can be weakened when the unfettered market creates insecurity, while voluntary action produces patchy, arbitrary forms of protection.

- *The "neo-Keynesian" approach* that stresses state intervention for infrastructural and employment support is failing for two reasons. First, because fiscal constraints underpinned by international competition make it increasingly difficult to finance such an approach adequately. Second, because neo-Keynesian employment policies continue to approach work in terms of a paradigm that no longer exists: secure lifetime employment.

- *The "job-sharing" approach* has so far been useful mainly in terms of helping workers to cope with structural transition, for example dampening the shock of downsizing through reductions in working hours. But job-sharing has yet to produce useful and practicable solutions for the

longer term. This may be because it does not address two fundamental employment issues for a restructured economy: how to create new jobs and how to enable workers to live with insecurity.

Carnoy and Castells suggest that the alternative is to create a sustainable strategy for flexibility, based on building up certain intangible assets of families and communities. These assets include not only the most familiar components of "human capital", knowledge and specific work skills, but also people's ability to function well a self-reliant individuals, to work cooperatively in teams and crucially to work cooperatively in wider networks. Such assets can be developed through:

- *Education*: which should become more based on learning group skills, should be seen (in the school context) as a start to lifelong learning and should be prolonged where necessary to build these skills. The "new workers of the information age" need to be good at co-operating at both micro and macro levels.

- *The development of households*: which need to become new kinds of partnership in which learning is the key, as household members learn to adapt to new roles and to find new ways of making the family viable.

- *Communities*: which need to be restructured around learning networks, in which community-oriented schools can play a key role. There is also some potential for the development of "virtual communities" around electronic networks.

- *Unions*: who need to redefine their role if they are to mediate labor's participation in a new flexible work order. Rather than merely defend old jobs, they may be able to aid the implementation of flexible production in a way that makes new jobs stronger and more sustainable.

What role can the state play in all this? The answer is not an easy one, but the monograph's authors suggest three crucial functions:

- supporting learning networks, especially through local government action;

- supporting "household partnerships", for example through support for early childhood development; and

- showing "solidarity", particularly by refusing to permit the development of a permanently excluded underclass.

These roles do not imply a withdrawal of the state from all the areas in which it has traditionally provided, but create a new rationale for state intervention. Rather than merely supporting the weak in society, the state's focus would be to help provide access to knowledge and information that empowers individuals and groups to participate fully.

Strategic interventions by the state aimed at avoiding exclusion should be based around the multiple needs of individuals rather than being led by programs that isolate specific needs. This was the conclusion of CERI's work on coordinated services for children at risk. It also applies more widely to measures that give individuals and families access to information and hence to a more active role in the labor market and society. Simply providing more years of education is not enough.

Strategies will need to be carefully designed to improve access to the networks, skills and knowledge that people lack, and to co-ordinate such provision with other measures that permit labor market participation, such as policies to create more steady sources of income.

The present document is not a detailed set of policy prescriptions, but rather a starting-point in defining new state roles in relation to more flexible economic and social conditions. It suggests that the preoccupation of governments should not be with trying to recreate the jobs that have disappeared, but to help people to function in a new labor market environment. Governments are only beginning to understand how this might be done.

Chapter 1. INTRODUCTION

A new specter haunts the world's economies: the prospect of societies made jobless by widespread diffusion of information technologies in factories, offices, and services. But as is often the case with specters in the electronic age, up close they are more likely special effects than terrifying reality. Notwithstanding real, painful adjustments in the process of transition to a new technological paradigm, the lessons of history, current empirical evidence, employment projections in the OECD countries, and economic theory do not support fears of mass unemployment in the long term[1].

The defining issue of tomorrow's work lies elsewhere: Men's and women's work is being transformed by new technologies but the social institutions needed to support this change are lagging far behind. How can and should societies reorganize themselves to meet the new conditions of "flexible production" required for high productivity in a global economy? This is question we address in this essay.

In the last two decades, the United States and Japan, with their greater rate of information technology diffusion than the European Union, have created about 35 million and 15 million new jobs, respectively. Job creation in the twelve countries of the European Union, by contrast, was less than seven million (see Figure 1), and the overwhelming majority of these were in public employment (OECD, 1994). Within Western Europe, in a largely integrated continental economy, countries with less technological diffusion, such as Spain or Greece, have a higher level of unemployment than Germany or the Netherlands (see Table 1) (Commission of the European Communities, 1993). This is not to argue that technological innovation necessarily fosters employment growth, because France and the United Kingdom have a higher proportion of unemployed than Portugal. But neither is the inverse true. *Institutions and the social organization of work seem to play a greater role than technology in inducing job creation or destruction.*

However, if technology *per se* does not create or destroy employment, it does profoundly transform the nature of work and the organization of production, a theme that we will develop on the basis of existing research. The restructuring of firms and organizations, facilitated by new technology and stimulated by global competition, is indeed ushering in a fundamental transformation of work: **the desegregation of labor in the labor process**. We are witnessing the reversal of the historical trend of salarization of work and socialization of production that was the dominant feature of the industrial era. Instead, a new social and economic organization based on information technologies aims at decentralizing management, individualizing work, and customizing markets, thereby fragmenting labor and segmenting societies. At the same time, new information technologies facilitate the decentralization of work tasks and their co-ordination in an interactive network of communication in real time, be it between continents or between floors of the same building. The emergence of lean production methods goes hand in hand with widespread business practices of subcontracting, outsourcing, offshoring, consulting, and, accordingly, downsizing and customizing. Part-time jobs, temporary work, flexible working time, and self-employment are on the rise in all

countries. The trend points clearly towards a total transformation of work arrangements in advanced societies.

The individualization of work and the desegregation of labor are processes that affect the entire fabric of our societies. This is because of the centrality of work for social life, and because of the tight connection between work, family, community and the state in our societies. The transformation of the work process shatters the institution of the welfare state, on which the social contract of our societies has been based for the last half-century. How can flexible work and flexible employment possibly coexist with rigid social security entitlements? The individualization of work and the shrinkage of the public safety net stress the main institutions/social forms that help people in the transition periods of their lives -- families and communities -- as they try to adapt to the new requirements of work life. But communities based on shared work practices, such as labor unions and working class cultures, are gradually fading away. Unions increasingly become micro- and macro-political institutions negotiating the shape of work organizations and family-work relations rather than salaries and wages per se. Several waves of accelerated urbanization, suburbanisation, and territorial sprawl have by and large undermined the material base of neighborhood sociability, while new forms of electronic communication are still too limited and too elitist to allow for the widespread emergence of new, virtual communities. As for the traditional family, it has been weakened by the welcome cultural drive for women's equal rights and by their massive incorporation into the labor force. This just when a strong family is most needed during the difficult transition period towards new forms of work and personal life.

As a result, the individualization of work and the undermining of social organization based on work is not re-equilibrated by families, communities, and public institutions. *The whole system of relationships among these cornerstones of our societies is at stake.* Piecemeal measures destined to increase the number of jobs or to train workers better will not be able to address the whole set of interactions triggered by the processes of technological and cultural change that are at the root of the information society. We need to design new public policies, business strategies, and personal projects. These must aim to reconstruct a set of economically productive and socially fulfilling relationships between work, family, and community in the new socio-technical paradigm.

To suggest some tentative lines of achieving such goals, we first analyze the data on the transformation of work and employment in Western Europe, North America and Japan during the last decade, as well as projected trends. We then examine the changing relationships between work, family, community, and the welfare state, pinpointing the crises of the system on which our societies are still based. In order to introduce new strategies for increasing employment and reorganizing work, we analyze critically some of the proposals currently debated in the international scene. Finally, the main thrust of our essay is the formulation of strategies to address the issues of shaping tomorrow's work. We try to bring together what is possible and what is desirable on the basis of theory, data, and our personal belief in a future society able to use the power of technology for the betterment of people's life and the creativity of humankind.

Chapter 2

THE TRANSFORMATION OF WORK AND EMPLOYMENT IN THE OECD AREA IN THE 1980s AND 1990s

The argument

Two major processes are transforming work and employment: The first is the massive diffusion of new information technologies in the work place. The second is the globalisation of the economy. Together, they are transforming work and the meaning of work, but not along the lines often assumed by policy makers, media reports, and public opinion. Technology simultaneously creates and destroys employment. The balance between the two processes is decided according to the institutional environment, firms' strategies, and government policies. Technology simultaneously de-skills and re-skills the labor force. The actual impact of such trends depend on the characteristics of the labor force and on the relationship between the economy and the educational system (Spenner, 1985; Freeman and Soete, 1994). The globalisation of the economy puts competitive pressure on firms in OECD countries, but most international trade is and will remain for the foreseeable future within the OECD, thus limiting the impact of newly industrializing economies on labor markets. Furthermore, the expansion of the world economy to newly industrializing areas in Asia and in Latin America creates new markets, raises demand for goods and services, and thus increases employment in both developing *and* developed economies. Here again, such seemingly contradictory trends require an empirical assessment that accounts for a diversity of situations and policies. We conclude that there is no inexorable trend toward phasing out employment in the North for the benefit of the South.

Although the quantitative effects of technology and globalisation on employment are largely undetermined, there is a substantial transformation of work organization, work skills, workers, and of the institutional relationship between work and society.

Two decades of empirical research analyzing the effects of information technology on work in a variety of countries converges to a fundamental, hardly surprising, conclusion: new technologies dramatically increase the importance of the human mind in the work process. For example, Harley Shaiken (1985), Marc Guillaume (1983), Mary Ellen Kelly (1990), Cecilia Castano (1994), Guido Martinotti (1984), Shoshana Zuboff (1988), Larry Hirschhorn (1984), and Paul Adler (1992) have shown that the broader and the deeper the diffusion of advanced information technology in factories and offices, the greater the need for an increasingly autonomous and educated worker who is able, willing, and motivated to program and decide entire sequences of his/her work. The impacts of information technology have not induced, as often predicted, a shift towards indirect work at the expense of direct work that would become automated. To the contrary, the role of direct work has increased because information technology has empowered direct workers at the shop-floor level in factories and offices, be it in the process of testing chips or underwriting insurance policies. What tends to be displaced through integral automation are routine, repetitive tasks that can be pre-coded

and programmed by machines. Although low-skilled, routine tasks will long continue to be the daily experience of millions of workers, the future of work in advanced societies will be dominated by the performance of intelligence-intensive tasks. This does not mean that everybody will be a software writer or a financial analyst: nursing, security, and cooking can be, should be, and will be, highly trained, information-rich activities. The future of society is certainly less bright than what our vision would imply, but it is our current social organization, not the logic embedded in the new technological paradigm, that seems to be responsible for the potential degradation of work in the information age. Japan, for example, has been able to incorporate a high level of technological diffusion into the workplace along with greater worker decision-making on the shop floor, full employment, and increasing real wages. In spite of difficulties, on cultural grounds, for other societies in emulating the Japanese model and in spite of resistance to change by bureaucratic management and short-sighted business strategies, there is a fundamental and world-wide transformation of work under way.

The two key elements of such transformation are the **flexibility of the work process** and the **networking of firms,** both internally and in their external relationships. By flexibility we understand the constant adaptation of tasks to be performed in changing products, processes, and markets, and in increasing the autonomy of workers while demanding higher skills, self-programming ability, and individual responsibility. By networking we refer to a new logic of the firm, where changing hierarchies and organizational forms are based on interactive connections between different layers and positions within the firm, between firms, and within the market. New information technologies allow for greater flexibility and networking; and globalisation emphasizes interdependence, interaction, and constant adaptation to a moving environment. The net result of such new logics of work and organization is two-fold: first, individuals or firms that are not able to operate in such flexible networks will be gradually phased out by competition; and second, the flexibility of work induces the individualization of work tasks, the desegregation of labor, and the increasing differentiation of workers in their relationship to their employers, creating an extraordinary range of variation in working conditions.

Having spelled out the argument on the transformation of work and employment, let us now briefly examine the empirical evidence that supports it.

Technology, employment, and work: the meaning of contradictory evidence

A debate that is at once passionate and sterile dominates the understanding of current transformations of work. It diverts our energies from the real, historical issues: the revival of secular fears of displacement of human labor my machines. If historical experience to the contrary were not persuasive enough, economic theory offers a simple but powerful argument about why we are not, by and large, observing the demise of work in our societies. It goes as follows: The introduction of robots in an assembly line or of work stations in an office reduces the amount of necessary human labor per unit of output. But the productivity this generates translates into greater surplus, greater investment and therefore greater demand, and employment generation. Productivity increases and economic growth, demand and employment, are not elements of a zero sum game, but together form a synergistic spiral. This holds for national markets as well as for a global, interdependent economy. Even accounting for losers in the process, winners ultimately more than compensate the losses in the aggregate outcome. This is not just a theoretical rationale for technological innovation. It is the observed reality of the industrialization process over the last two centuries. The agricultural workers who constituted the overwhelming majority of our populations in the 19th and early 20th centuries

have been all but phased out of national production. Their children took jobs in manufacturing and services. Workers today work much less than a century ago (see Appendix I), produce more, earn substantially more, and have access to a much larger and greater variety of jobs. The mystery of this ever-expanding capacity is called higher labor productivity, as any first-year economic students should know.

The counter-argument claims that this time around it will be different. Information technologies are so pervasive and go so to the heart of the service activities that have absorbed workers from the automation of agricultural and industrial jobs that the previous history of technological innovation will not be repeated (Rifkin, 1995). We can check this idea against the empirical evidence, particularly results from the 1980s, of technology's effect on work and jobs. The International Labor Office commissioned two separate studies to synthesize available data on these effects -- one to Raphael Kaplinsky and the other to John Bessant. They independently reached similar conclusions. Kaplinsky (1986, p. 153): "It would appear that the quantitative macro and micro studies are drawn to fundamentally different conclusions. Process and plant level investigations generally seem to point to a significant displacement of labor. On the other hand, national level simulations more often reach the conclusion that there is no significant problem on hand." John Bessant (1989, p. 27): "Across the whole spectrum the pattern is one of both losses and gains, with overall relatively small change in employment."

Studies of specific countries during the 1980s show somewhat contradictory findings, although the same pattern of indetermination emerges overall. In Germany, the so-called Meta-Study, commissioned by the Minister of Research and Technology, concluded that "the context" is what counts for variation in observed effects. The study forecasted that in the short term unskilled jobs would be displaced, although enhanced productivity would probably result in more jobs created in the long term (Schettkat and Wagner, 1990). In the UK, a study by Daniel on employment impacts of technology in factories and offices concluded that it had a negligible effect (Daniel, 1990). Research in Spain conducted by Castano (1994) and by Saez (1991) found that, if anything, higher technological levels in sectors and firms helped preserve employment against downsizing tendencies. In the US, the analysis by Miller on the impact of industrial robotics concluded that most of displaced workers would be reabsorbed in the labor force (Miller, 1989). Similar conclusions showing modest effects of technology on employment levels in the US are found in studies on factories and offices commissioned by the US Congress' Office of Technology Assessment (OTA, 1984 and 1986). In an international comparison, Japanese economist Sasumu Watanabe provided an interpretation for the wide variation of effects of information technology on employment in the automobile industry, examining the impact of the introduction of similar microelectronic machines in the US Japan, France, and Italy. Whereas US and Italian firms reduced their labor force, in France, due to union bargaining, it remained stable, while in Japan, employment actually increased because new technologies were used to retrain workers, increase productivity, and competitiveness, thus enlarging market shares, and expanding demand and employment (Watanabe, 1986; Brown *et al*., 1993). Additional studies in other countries support the argument we present here. A synthesis of data presented in the OECD's 1994 *Jobs Study* concluded that "empirical evidence available suggests that, overall, the current wave of technical change has had a positive -- albeit limited -- impact on employment. This evidence is not however sufficient in itself to allow unqualified generalizations. This is so because positive and negative effects do not coincide either in time or in space; adjustment takes time, and the industries and types of workers that will benefit from technological change are different from the ones that lose from it. Also, institutional and systemic factors affect the capacities

of countries to efficiently generate employment through development, acquisition, and diffusion of technologies."[2]

What about the future of employment? The diffusion of information technology is accelerating and was fully incorporated into office work only in the 1990s. Although projections should always be taken with a grain of salt, simulation models projecting future employment lend no support to the "end of work" idea. In the US, the most widely cited simulation study was the model elaborated by Leontief and Duchin in 1984 for the period 1963-2000 (Leontieff and Duchin, 1985). According to their results for the year 2000, diffusion of computers would result in an 11.7 per cent reduction in required labor for a given output. But this is in the unlikely case of fixed aggregate demand. They argued in their study that if productivity increased as expected, demand would also increase, resulting in new job creation able to absorb displaced labor. This is precisely what has occurred since the Leontief-Duchin study was published. The simulation model developed by Blazejczak, Eber, and Horn for the German economy to project employment growth between 1987 and 2000 concluded that "at the aggregate level demand effects do in fact compensate a relevant part of the predicted employment decrease" (Blazejczak *et al.*, 1990, pp. 221-233). Finally, employment projections for OECD countries by the OECD Secretariat in 1994 predicted a significant increase in jobs for the US and moderate employment growth for Japan and the European Union (12 countries). For the 1992-2005 period the net projected increase of jobs would total 24 million in the US (an increase of 19 per cent); in Japan, 4 million (an increase of 6 per cent); and for the European Union, about 10 million (an increase of about 7 per cent) (Stevens and Michalski, 1994). However, these projections are highly sensitive to variations on the assumptions on which they are based (e.g. migration, and labor participation rates).

This is precisely our argument. The evolution of the level of employment is not a given, resulting from the combination of stable demographic and economic conditions with a projected rate of diffusion of information technology. Technology does not destroy employment. The culprit is the institutional conditions under which technology is used. Employment growth depends mainly on socially determined decisions regarding the uses of technology, immigration policy, the evolution of the family, the institutional distribution of working time in the life cycle, the new system of industrial relations, and economic policies. These are all critical issues that we address in the proposal section of this essay.

Globalisation and jobs

New information technologies have been instrumental in the emergence of a truly global economy in the last ten years. A global economy is not a world economy, which, as Fernand Braudel demonstrated, has existed since at least the 16th century. It is not an economy where trade, investment, and resource exploitation take place world-wide. It is not even an economy where the external sector is predominant -- which is neither the case in the United States and nor Western European countries were trade statistics calculated taking European Union boundaries as the "national" unit. A global economy is one whose strategic, core activities function on a planetary scale on real time (Carnoy, Castells *et al.*, 1993). And this globality became possible only recently because of technological infrastructure provided by telecommunications, information systems, microelectronics machinery, and computer-based transportation. Thus, capital, technology, management, information, and core markets are globalized.

Is labor also globalized? At first sight, and with the exception of the very high layers of professional labor, this is not so. In 1993, in spite of global panic about immigrants, only about 1.5 per cent (80 million workers) of the global labor force worked outside their country, and half of them, surprisingly, were concentrated in Sub-Saharan Africa and the Middle-East (Campbell, 1994). Despite free movement of citizens in the European Union, only 2 per cent of its nationals worked in another Union country in 1993. The proportion has been unchanged for the past ten years (*Newsweek*, special issue on "Jobs", June 4, 1993). Notwithstanding the public perception in the North concerning the invasion of cheap labor from the South and East, immigrants as a proportion of the total population only surpassed 5 per cent in Germany (about 7 per cent), and in France, the proportion was lower in 1992 than in 1986. In the UK, it was only slightly over the 1986 level (see Appendix I, Figure AI.2). The United States was always an immigrant society, and current trends are consistent with an earlier period of open immigration (Portes and Barach, 1990). shifts are changing public perception toward immigration in both America and Europe: the ethnic composition of immigrants is less European, and the differential rate of birth of non-European immigrant populations once they are in the host country are making societies increasingly multi-cultural and multi-ethnic. But this is a phenomenon that does not imply the existence of a global labor market for the majority of workers.

Even if labor does not really circulate globally, the new dynamics of trade and investment, led by multinational corporations and transnational networks of firms, have indeed *increased the interdependence of labor markets (*Bailey *et al.*, 1993). How has this movement affected job creation in the North? The 1993 White Paper by the European Commission acknowledges global competition as a significant factor in increasing unemployment in Europe. But the 1994 OECD study on employment countered that imports from industrializing countries accounted for only 1.5 per cent of total demand in the OECD area. Paul Krugman and Robert Lawrence have made empirical estimates purporting to show that the impact of trade on employment and wages in the United States is very small (Krugman and Lawrence, 1994) -- calculations that have been immediately challenged by their critics (Cohen, 1994).

The debate seems to be largely misplaced. The complexity of interactions in the new global economy can hardly be captured by traditional statistics. Thus, UNCTAD and ILO estimate that intra-firm trade represents the equivalent of 32 per cent of world trade, unreported in standard trade statistics (UNCTAD, 1993). Even using standard statistics, it seems that the impact of trade on the labor force has been underestimated. In one of the most complete, balanced analyses on the matter, Adrian Wood estimates that between 1960 and 1990, skilled workers in the North benefited from the process of globalisation, both in employment and wages. But unskilled workers greatly suffered from competition from developing countries. Demand for unskilled labor in the North fell by 20 per cent, and wages declined (Wood, 1994).

Harley Shaiken and other researchers have shown further that the potential of mobility for firms in the global economy provides management with extra bargaining power in obtaining concessions from the labor force in the North (Shaiken, 1993). Whereas indirect effects of globalisation are not always visible, they do affect bargaining relations. They tend to reduce labor's share of economic surplus, but simultaneously preserve jobs that cannot be easily exported, such as highly skilled jobs or those located in non-tradable services.

So even without a unified global labor market or a global labor force, there is global labor interdependence in the new economy. Such interdependence is characterized by hierarchical segmentation of labor, not between countries but across borders. *The new model of global production*

and management is tantamount to the simultaneous integration of work and disintegration of workers as a collective.

The transformation of work in the information society

Diffusion of information technology in itself does not create or destroy employment. Globalisation of production puts pressure on workers and does eliminate many unskilled manufacturing jobs in the North, but it also creates jobs, both in skilled professional occupations as well as unskilled services. Aren't most new jobs in the North low-skilled, MacDonald-type jobs? No. This is another of the myths that dominate the debate in the media. High-skilled jobs are more demanded by employers than low-skilled, and overall the occupational structure is being upgraded in America, in Western Europe, and in Japan. This is reflected both in aggregate employment statistics[3], and in a number of case studies of factories and offices[4]. Overall, the dominant trend is towards the automation of routine tasks and the re-skilling and upgrading of work content in middle-level categories. This provides workers with greater autonomy and increases the complexity of their tasks with the help of computer-based tools. A different *and crucial* matter is the wages, benefits, and security received by this largely upgraded labor force -- a question to which we will turn in the next section of this essay.

The fundamental transformation of work, workers, and working organizations in our societies simply cannot be understood in the traditional context of obsolete debates over the "end of work" or the "de-skilling of labor." Changes in labor conditions in the 1990s have resulted mainly from the flexibility provided to management by new information technologies. In addition, global competition and intertwining of economic processes have diffused "best management practices" throughout countries. The prevailing model for labor in the new, information-based economy is that of a **core labor force,** formed by information-based managers and by those whom Reich calls "symbolic analysts (Reich, 1991)," and a **disposable labor force** that can be automated and/or hired/fired/offshored, depending upon market demand and labor costs. The networked form of business organization allows outsourcing and subcontracting as forms of externalizing labor in flexible adaptation to market conditions. Analysts have rightly distinguished between various forms of flexibility in wages, geographical mobility, occupational status, contractual security, and task performance, among others Freeman and Soete (1994). Often all these forms are lumped together in a self-serving strategy to present as inevitable what is in fact a business or policy decision. We do believe that current technological trends foster all forms of flexibility. In the absence of specific agreements on stabilizing one or various dimensions of work, the system will evolve to multifaceted, generalized flexibility for workers and working conditions. The key issue, as we will discuss in the last section of our essay, becomes that of harnessing such flexibility at the lowest possible social cost, and to induce the cumulative enhancement of the productivity of human capital.

Competition-induced, technology-driven trends towards flexibility underlie the current transformation of working arrangements. In most OECD countries, the fastest growing category of work is "part-time." In some countries, such as Italy and the UK, self-employment is becoming an increasingly important component of the labor force, and in others, such as France, it is temporary work (see Figures 2, 3 and 4). In the UK, the country in which the industrial revolution spearheaded the world-wide historical process of salarisation and standardization of labor, the 1993 Labor Force Survey indicated that 38 per cent of workers were not employed on a permanent, full-time basis. The bulk are part-timers (85 per cent women) accounting for 24 per cent of employed workers (*Industrial Relation and Review Report,* 1994). Both the OECD and the ILO report that part-time work increased

during the 1980s in practically all industrialized countries, rising in the decade by about 30 per cent to 50 million workers, of which 40 per cent were in North America (Robinson, 1993). Between 1979 and 1990, part-time work increased from 16.4 per cent to 21.8 per cent of total employment in the UK; from 8.2 per cent to 12 per cent in France; from 11.4 per cent to 13.2 per cent in Germany; from 15.4 per cent to 17.6 per cent in Japan; and from 16.4 per cent to 16.9 per cent in the US. According to the ILO's 1994 *World Labor Report*: "The historical trend towards a reduction of self-employment in the OECD countries was halted in the early 1990s. In 1990 a sizeable proportion of employment in the OECD countries was self-employed. [...] Part-time employment has also recorded an increasing trend in a number of countries [...] Part-time work remains primarily a female employment form" (ILO, 1994, pp. 14-15). (See also Bosh *et al.*, 1994, pp. 11-20.)

Figures 2, 3, and 4 suggest that the broad category of "flexible work" takes different forms (self-employment, part-time, temporary work) depending on countries' fiscal and labor regulations. For example, in 1993 France, if we add together the non-agricultural self-employed (9 per cent), the part-timers (12.7 per cent), and temporary workers (at least 10.2 per cent), we obtain a percentage of non-standard employment (32 per cent) not so far from the British figure (40 per cent). Indeed, in the 1983-88 period, while full employment declined in France by 1.6 per cent, part-time increased by 36.6 per cent. Similar trends occurred in Germany, Italy, Japan, and the United Kingdom (see Figure 5 and Appendix I, Figure AI.1). In the United States in 1993, self-employment accounted for 7.6 per cent of the non-agricultural work force, part-time for 17.5 per cent, and "contract", or temporary work, for about 2 per cent, adding to about 27 per cent of the labor force ("The New World of Work", *Business Week*, October 17, 1994)

According to a different estimate, the "contingent work force" with no benefits, no job security, and no career amounted in the US in 1992 to about 25 per cent of the labor force, up from 20 per cent in 1982. The projections suggest that this type of labor will increase to 35 per cent of the labor force by the year 2000 (Jost, 1993). Outsourcing, facilitated by on-line transactions, concerns not just manufacturing, but increasingly services. In a 1994 survey of America's 392 fastest growing firms, 68 per cent were subcontracting payroll services, 48 per cent tax compliance services, 46 per cent, claim benefits administration, and the like (Marshall, 1994).

The mobility of labor concerns both unskilled and skilled workers. While a core labor force is still the norm in most firms, subcontracting and consulting is a fast growing form of obtaining professional work. Not only firms benefit from flexibility. Many professionals add to their main job (full or part-time) and to their income and bargaining power by consulting.

This highly dynamic work system interacts with labor institutions in each country. The greater the bargaining power of the labor unions, the greater the constraints to such flexibility, the less the impact on wages and benefits, and the greater the difficulty for newcomers to enter the core labor force, thus limiting job creation (Bielenski, 1994). But even the strongest labor unions have been unable to halt the slow but sure erosion of traditional forms of work based on full-time employment, clear occupational assignments, and a well-established career pattern over the life cycle. While the social costs of flexibility can be high, especially in the heightened level of anxiety it causes individuals and families[5], recent research also emphasizes the potential transformative value of new work arrangements for social life, particularly for improved family relationships and greater gender equality in labor markets. Hewitt, for example, argues that growing diversity of working formulae and schedules offers the possibility of work-sharing between those currently full-time employed and those barely employed within the same household (Hewitt, 1993).

Why did this restructuring of the work process and of capital/labor relationships take place at the dawn of the information age? We think it occurred now because of historical circumstances, technological opportunities, and economic imperatives. To reverse the profit squeeze without triggering inflation, national governments and private firms have acted, since the early 1980s, to reduce labor costs, either by increasing productivity without employment creation (Europe) or by lowering the cost of creating new jobs (United States). Japan, until recently, opted for maintaining full employment on the basis of enhancing productivity and competitiveness. Labor unions in most countries -- the main opposition to a one-sided restructuring strategy -- were weakened by their inability to represent new kinds of workers (women, youth, immigrants), to organize in new work places (private sector offices, electronics industries), and to be effective in the newly networked, global enterprises[6].

The historical redefinition of the management/labor relationship, and thus of the work process, was made possible by the use of powerful information technologies and of new organizational forms facilitated by the new technological medium. The ability to simultaneously assemble and separate labor on specific projects and tasks anywhere and anytime, laid the groundwork for the virtual enterprise as a functional entity. From then on, it was a matter of overcoming institutional resistance to this organizational logic. The extraordinary increase in flexibility and adaptability permitted by new technologies overcame the opposition of labor to the mobility of capital. It followed a relentless pressure to make labor's contribution increasingly flexible. Productivity and profitability were enhanced, yet labor lost institutional protection and become increasingly dependent on individual bargaining conditions in a constantly changing labor market. Labor was individualized. Society became differentiated, as it was for most of human history, between winners and losers in the endless process of unequal bargaining. But this time there were few rules about how to win and how to lose. Skills were not enough, since the process of technological change accelerated its pace, constantly superseding the definition of appropriate skills[7]. Membership in corporations or even countries ceased to have its privileges, since stepped-up global competition kept redesigning the variable geometry of work and markets. Because of the revolution in information technologies, never was labor more central to the process of value making. But never was the worker (regardless of his/her skills) more vulnerable to changes in work organization, since she had become a lean individual, farmed out to a flexible network whose whereabouts were unknown to the network herself.

Through technological and organizational transformation of work in the last decade, a new fundamental process has been triggered, reversing the historical trend of the industrial society. The desegregation of work in the information age has ushered in the *network society*. The transformation has shaken the foundations of our institutions, inducing a whole new set of social crisis in the established system of relationships between work and society.

Chapter 3

THREE SOCIAL CRISES OF WORK ORGANIZATION IN THE TRANSITION TO THE INFORMATION AGE: EUROPE, AMERICA, AND JAPAN

The transformation of work and employment through the revolution in information technology and globalisation of the economy has resulted in a serious crisis in the relationship between work and society in the OECD countries. It is our hypothesis that the crisis is due to the inability of social and economic institutions to adapt to the requirements/opportunities of the new, informational work pattern based on organizational flexibility and productivity growth through self-expanding human capital potential. This inability comes, on the one hand, from defensive resistance to change by workers, organizations, and institutions. It also results from short-sighted business strategies that use new technologies for immediate gains, trimming labor costs and imposing one-sided management decisions, regardless of their social cost. In the struggle between preserving security and fostering competitiveness, the crucial goal of enhancing productivity is often overlooked.

But the crisis, although rooted in a largely common pattern of technological change and institutional rigidity, has taken substantially different forms depending upon its institutional context, and upon business strategies and government policies that deal (or do not deal) with new patterns of work. There is, for example, a wide variation in the employment situation among advanced countries (Table 1). We suggest that there are three different manifestations of the work/employment situation in the European Union, the United States, and Japan.

The European transition to the information society is marked by structurally rising unemployment

Private sector net job creation in Europe during the last decade has been practically non-existent (Freeman and Soete, 1994). Furthermore, unemployment is becoming increasingly concentrated among youth, except in Germany, where the dual apprenticeship program provides a training transition for youth between school and full incorporation into the labor market and keeps youth unemployment low (4.9 per cent). European firms are generally responding to institutional rigidity in the labor market by using the power of new technologies to produce more goods and services with less workers. This is not only reflected in the official unemployment rate, but also in the growing number of discouraged workers, giving up job search, and, most importantly, in the early expulsion from the labor market for aged workers. Studies by Anne Marie Guillemard show that in most advanced societies, labor force participation for men 55-64 years-old has fallen into the range of 45 per cent to less than 65 per cent (see Figure 6) (Guillemard, 1993). Almost half of the male work force leaves the labor market at age 55, under the force of early retirement, disability, and permanent unemployment. Since college attendance postpones labor market entry to the mid-twenties for an increasing proportion of youth, actual working life in “standard occupations” is declining to just 30 years, from 25 years-old to 55 years-old. The current trend is to push actual retirement age to an

ever lower age. With male life expectancy reaching the mid-seventies, only about 40 per cent of a man's life is now devoted to full-fledged work activity. This is hardly in line with the way policy is currently developed and with the economic and social accounting on which our institutions are based.

The work crisis in the United States and declining real wages

The American economy has consistently displayed its ability to create jobs, with high-skill jobs growing even faster than low-skill jobs (Carnoy, 1994*b*). This is precisely the empirical basis of our argument. We are not entering an era of mass unemployment, but rather passing through a crisis of historical transition in each society due to the contradiction between the new technological paradigm and the social organization of work. American businesses and institutions have largely adapted to the flexibility requirements of the new paradigm, creating tens of millions of new jobs (see Figure 1), and absorbing 25 million additional US women into the labor force from 1970 to 1993. However, employment in the US has increased rapidly at a price. Average weekly earnings declined 18 per cent between 1973 and 1993. The decline was most pronounced for less-educated male workers, but college-educated males were only able to hold their incomes constant in the 1980s, and in the 1990s, this income is also declining. Only those women with college-education or more and men with graduate education have had income increases (see Figure 7) (Bluestone, 1995). Households in America have barely kept their living standards by using two incomes to pay for what one wage was able to buy (see Appendix II, showing declining male incomes and constant family incomes) (Schor, 1991). The results have been increasing income inequality, so by the mid-1980s, US income inequality was the highest among the advanced industrial countries (Table 2) (Levy and Murnane, 1992); an increasing absolute number of families in poverty (*Economic Report of the President*, 1995; growing economic difficulties for single-parent families; feminisation of poverty; spread of social ills, such as homelessness, widespread drug addiction, social disorganization, rising crime, and skyrocketing inter-personal violence, particularly among children and youngsters (Wilson, 1987; Goldsmith and Blakely, 1992). Even in those two-parent families where both parents have jobs, one third (one half of those with children under five years-old) work complementary shifts, where the father usually works 9 to 5 o'clock, and the mother works part-time and weekends. According to one study, parents spent 40 per cent less time with their children in 1990 than in 1965, a drop from 30 to 17 hours per week (Mattox, 1991).

Flexibility of labor and of labor conditions has allowed the American economy to create jobs, including many high skill jobs (Carnoy, 1994*b*). But because of the extreme individualization of working conditions, work compensation for men and on average has declined, job instability has increased, and social conditions overall have deteriorated. This explains why in 1995, after a strong recovery of the American economy in the last 2,5 years, *during which 6 million new jobs were created*, the American public was still dissatisfied with their condition, and strongly critical of the Clinton Administration. This is not a matter of false consciousness: they have hardly felt the recovery in terms of their paycheques and job security.

Japan is different

As we know, Japan is different. How different is it? In spite of an economic downturn, in 1993 the unemployment rate in Japan was only about 2.5 per cent, and the *Nenko* system (life tenure employment for the core labor force of the large corporations) does not seem to be under threat in the short term. Indeed, the main concern of Japanese labor planners is the potential shortage of Japanese

workers in the future, considering the ageing of the demographic structure and Japan's reluctance to resort to foreign immigration (NIKKEIREN, 1993). And yet, there is a potential crisis looming on the horizon. To understand it we must briefly recall Japanese specificity in labor market organization. Life employment concerns only one segment of the labor force -- about 30 per cent to 50 per cent depending on which estimate is used (Joussaud, 1994). The rest is made up of temporary labor and part-time workers (most of them women) who are hired and fired depending on fluctuations in the business cycle. "Seasonal workers" are not included in the calculations of unemployment statistics. Redundant workers are transferred, with lower pay, to small and medium firms within the same *keiretsu*. These subsidiary firms have to face the additional costs of redundant workers. When economic times become really difficult, the government widely subsidizes companies to keep workers on their payrolls. This was particularly the case in the 1992-94 period. From September 1992 to November 1993, government agencies expanded the eligibility of workers in order to subsidize their companies to avoid lay-offs. The number of eligible workers jumped from 180 000 to 4.12 million, and over two million workers were actually subsidized. Counting this hidden unemployment, economists calculate that Japan's unemployment rate would double, to about 5 per cent (Clifford, 1994). Hardly a cause for alarm, but an indication that Japan is less exceptional than it seems. Until now, companies have kept their full time, core workers during difficult periods, although some kind of stigma is attached to these *madogiwazoku* ("the window tribe"), supposedly idle for long days of apparent work. Early retirement tends to be a more frequent form of solving the problem.

At the core of the Japanese model there is a strategic option by Japanese companies to build on the experience of their core labor force, improving its productivity through retraining, team work, and workers' motivation and loyalty. This model should be seriously considered in formulating policies adapted to the new technological paradigm.

But that said, there is evidence of increasing difficulty for young workers to enter the core Japanese labor force, as well as of increasing instability for the part-time workers who constitute a significant and widely underestimated proportion of the actual labor force. The increasing interdependence of the Japanese economy, and thus of Japanese labor markets, with the rest of the world, will make it increasingly difficult to maintain the Japanese model in the future in the absence of a general, international transformation of management practices *vis a vis* labor.

Crises in the relationship between work and society

These different crises of work and employment profoundly affect the network of social institutions on which our societies are based: family, community, and the state. The difficulties experienced by these institutions amplify the disruptive social effects of work and employment crises. If people are out of work or suffer from low wages and deteriorating living conditions, families, communities, and state institutions should provide the compensatory mechanisms to cushion social crises and to allow time for a smoother transition to the information society paradigm. The inability of institutions to cope with new social stress, in part as a result of the effect of work/employment evolution on such institutions, deepens the crisis, worsens its social impact, and calls for a general overhaul of the relationship between work and society beyond piecemeal remedies and short-term policies.

The work/employment crises we have described have fundamentally shaken the foundations of the welfare state, on which the social contract of our societies was based. If workers are individualized in their relationship to their employers, in a network of relentless variable geometry,

the rigid, assured entitlement system on which the welfare state is based can hardly be maintained. The fiscal equilibrium between contribution and retribution under different forms of social security systems is decisively altered when the systems have to pay unemployment benefits and retirement pensions to an ever increasing number of beneficiaries, living longer, and when the number of workers dwindles and the years of work decline (see Figure 8). The only possible formula to save the welfare state as we know it (under different institutional arrangements) is one that shifts the source of entitlement from workers to citizens, and switches its financing from specific contributions to general taxes. But this would meet staunch resistance from at least two quarters: the widespread distrust by citizens of the bureaucracies in control of central government institutions; and the resistance from upper and middle classes to any form of redistribution that would hurt their income on behalf of social justice and social peace. The welfare state was born out of social struggles and social pacts achieved in the 1930s and 1940s in Europe (and, in the US, in the 1960s as well), on the basis of the aggregation of social interests around collective labor practices (Navarro, 1994). The fragmentation of such labor conditions, and the parallel weakening of the collective bargaining agents, such as labor unions, makes extremely difficult the reconciliation of diverse interests within a framework of universal entitlement. The de-socialization of labor leads to the gradual dismantlement of the traditional welfare state, removing the safety net for displaced workers precisely when it is most needed.

The individualization of work tasks undermines the importance one of the most important social agencies in our life: the workplace. In itself, this phenomenon does not necessarily have negative consequences. The resurgence of the individual, with greater freedom and self-directed initiative, frees people from bureaucracies and from the often excessive constraints of workplace micro-social networks. But such new-found freedom can only be enjoyed if alternative forms of social organization provide people with a web of social relationships that can serve as psychological support and a basis for interaction. The industrial revolution disassociated residential communities, workplaces, and social life, in a historical movement that classical sociologists (e.g. Durkheim) identified as the substitution of organic for mechanic solidarity. With the loss of social relevance of the workplace, and of work-based forms of social organization, a greater demand is placed in other organizational forms of sociability. Local communities and voluntary associations are foremost among such forms. However, available evidence in advanced societies points to a serious erosion of membership in voluntary associations, as a result of individualistic values, time constraints, and dual job families (Putnam, 1995). As for local communities, whose resurgence as social networks could provide a useful compensatory mechanism for well tempered individualism, urban research has shown their limits and contradictions. Spatial development in the last quarter of the century has been characterized by widespread territorial sprawl, be it in high-rise banlieues or suburban, then ex-urban single family dwellings (Garreau, 1992; Dogan and Kasarda, 1987). The functional separation between residence, work, and urban services, the increasingly lower density of new urban forms, and increased geographic mobility of people have made increasingly difficult to rebuild social communities on a neighborhood basis (Fischer, 1984). There are, however, community organizations all over the urban geography of advanced societies. But field work research by Castells (1983) and others (Borja, 1988) have shown the defensive, and parochial character of most community organizations. Indeed, we can speak of most of them as agents of "collective individualism", oriented towards the preservation of the status quo in their neighborhoods without much weaving the fabric of supportive social relationships. By and large, residence-based communities as forms of social interaction and collective undertaking have faded away in advanced societies. Could they be replaced by "virtual communities" organized around electronic interactive networks, as some analysts envision (Rheingold, 1993)? Scattered observations, both for France and for the United States, show in fact that such "virtual communities" are ephemeral forms of social relationships, except when they are

anchored in professional activity or become the extension of family/friendship networks. Although it is certainly too early to assess the emerging phenomenon of interactive electronic communication, it is likely that it will reinforce existing social networks rather than substituting for them (Benson, 1994).

The family could be the social institution that would temper the stress induced by the processes of desegregation of labor and individualization of social and economic life. In times of historical transition the nurturing effects of family life can be critical for psychological support, social stability, economic security, and creative socialization of the informational labor force. We can argue that the trends towards social disintegration and economic distress induced by unemployment and of the shrinkage of the welfare state have been greatly attenuated in a number of countries by relatively strong family structures. For instance, the mystery of the calm and well being of the Spanish society in spite of a 23 per cent unemployment rate in the 1990s (with only about 60 per cent of the unemployed receiving unemployment insurance) can be explained by looking at the role of the Spanish family (Leal *et al.*, 1993*)* The large majority of unemployed are women and youth who continue to live with their husbands and parents, supported by them, and by the social security system to whose benefits all family members are entitled because of their relationship to just one salaried worker in the family. Young people, on average, reside at home until 27 years old, most often under conditions of total individual freedom (Zaldivar and Castells, 1992).

We believe that families and family life are the fundamental mechanism by which the transition towards new forms of work and toward the de-institutionalization of social protection related to new work patterns can operate. For the family to be able to play this fundamental role, it has to be redefined and strengthened under the new cultural and technological conditions of our societies. Not all societies have strong families, and it is unclear that those that do will continue to have them under current social trends. We acknowledge the fundamental role of family life in reconstructing the new relationship between work and society, but reject the abstract, ideological, a-historical vision of the family promoted by fundamentalist conservatives. Invoking family values does not help families survive the shocks of deteriorating living conditions, lack of child care, stressful dual workdays, long commuting hours, and downgraded schools.

Families' conditions and family life vary widely between America, Western Europe, and Japan. In Japan, the traditional family is still the norm, with women generally accepting their subordinated status as caretakers. They provide a cushion for the labor market (most of them work as part-timers without career perspectives), and for men's professional transition towards new forms of employment (Kamo, 1990; Nomura *et al.*, 1995*)*. In Western Europe, participation of women in the labor force has substantially increased in recent years, but the network of supportive state institutions (accessible day care, good public schools, good local transportation), and the persistence of family connections still allows the family to play its supportive role. In contrast, the American family, despite the value placed on it by American society, is in crisis. One quarter of all American households are single. Only about another quarter of total households corresponds to the traditional model of a married couple with children. The fastest growing category of households is single-parent families, particularly those headed by women. According to a 1994 national survey, child care in America is of such poor quality that it has reached crisis proportions: children's development is at risk (Hewlett, 1991). All political parties and leaders invoke a strengthened family as a solution to the nation's social ills. But social legislation supporting the family lags behind all other industrialized countries. Most children in the US not only live in families broken by divorce (Chira, 1995), but also live in or near poverty. Taking account of taxes and government transfers, the US child poverty rate is the highest of any advanced OECD country (see Figure 9). In some ethnic minorities the crisis of the family is deeper, playing a major role in perpetuating the underclass status of a significant segment of

the minority population (Wilson, 1987). About one-half of all African-American children are conceived out of wedlock, and many do not know their fathers (Jaynes and Williams, 1990).

The crisis of the American family seems extreme compared to other countries. Yet, we believe that the US situation may also presage a trend in other advanced societies (see Figure 10) (Saboulin and Thave, 1993). The high rates of divorce and single-parent families in the US are the result of two sets of factors: one set -- those specific to African-Americans or the extreme individualism of American culture -- is peculiar to the United States. But the second set could easily be replicated in other societies. The most important among those is the continuous increase of women into the labor force and the formation of two-wage earner families (Cherlin, 1981). This trend produces several outcomes: the family loses the stability provided by having one parent's -- most often the woman's -- activities centered in the home. Two separate, individual projects and two separate working schedules make the compatibility of the individual work projects and the family project more difficult in the longer run. Women's bargaining power in the family is reinforced and their rising wage contribution to family income undermines the legitimacy of patriarchal ideology. The pressure for more egalitarian families increases, but is resisted, not only by deep-seated patriarchal habits, but by the institutions of society as a whole. Thus, in spite of its positive effect on the overall human condition, the transition towards new, more egalitarian forms of families, does undermine the existing patriarchal nuclear family, accentuating the crisis of work. We are not implying that women should be kept in their traditional roles. Indeed, we advocate full gender equality within and outside the family. But we do acknowledge the costs of bringing about gender equality. Furthermore, the lengthening of human life and growing proportion of older people in the population places an additional burden on families, since parents have to plan their lives far beyond the adulthood of their children, thus limiting at both ends of working life the terms of inter-generational solidarity. If we add to all this the growing cultural trend towards individualistic values in all societies (meaning concretely that the unit of accumulation for wealth and desire is the individual), the already visible crisis of the American family may well be replicated in the not-so-distant future, however attenuated, in other advanced societies.

As a result of the processes we have described we believe that the trend towards desegregation of labor and individualization of work, resulting from the technological transformation of the work process, is amplified by the disintegration of those institutions and social forms that traditionally supported workers and work units, and that are based, in turn, on the work culture: the welfare state, communities, and families. The result of these interacting tendencies is the formation of a new worker, and indeed, a new human character. Using a deliberately exaggerated image, the new worker can be characterized as a free-floating individual, connected on-line to a variety of task-performing organizations, ever-competing for resources and personal support, and assuming limited responsibilities towards limited people for a limited time. Under such conditions, not only are societies, as forms of co-operation beyond competition, at risk, but the potential wealth to be unleashed by the technological revolution is constrained.

Developing individual work flexibility and creativity while creating the conditions for sustained productivity and social co-operation is the historical dilemma posed by the current transformations of work and workers. Productivity growth based on the informational creativity of labor requires an accumulation of learning and innovation both in the worker and in the organization of work. This requires simultaneously building individual commitment and ensuring organizational continuity.

In the rest of this essay, we analyze current policies and strategies that attempt to resolve the difficulties facing advanced economies and show why they are unlikely to work. We then propose an alternative framework for reconstructing networks of social support in the information age.

Chapter 4

POLICIES AND STRATEGIES TO RECONSTRUCT THE SYSTEM OF WORK/SOCIETY RELATIONSHIPS IN THE 1990S: A CRITIQUE

Three current OECD strategy paradigms

Three strategies dominate the discussion on solving the work crisis in the OECD. *The first* supports the US model, arguing that European unemployment results mainly from excessive and rigid social costs of employing labor and that greater "flexibility" is needed in labor markets. That strategy interprets flexibility as the deregulation of labor markets -- lower minimum wages, lower social charges to firms, and greater flexibility in firing workers once redundant (OECD, 1994). In addition, the strategy argues for the increased education and training of young people as a way of reducing the high levels of youth unemployment in all European countries other than Germany. *The second* strategy argues that a Keynesian approach, maintaining or increasing consumption through government spending (demand pull), would increase employment. In its most recent version, the approach focuses on government investments in infrastructure (transportation, communications systems), education, and health care. It aims to expand demand at the same time that it enhances the return to private investment (Summers and Blanchard, 1990). *The third* strategy assumes that information technology destroys more jobs than it creates, and that this means the inevitable growth of unemployment rates or wage decline (were the market to be deregulated) or both. That strategy calls for a redefinition of full-time employment to spread existing work among the entire work force, and, in some versions, for the state to provide a "supplemental" second income to all workers to compensate for working fewer hours per week (Aznar, 1993; Aronowitz and DiFazio, 1994; Gorz, 1988).

Employment could increase under each of these strategies, but each has serious drawbacks. They either increase stress on institutions (such as the family) crucial to long run economic development, rely too heavily on state financing in an environment that necessarily limits the capacity of the state to expand employment directly, or incorrectly assume that new technology is the enemy of increasing employment. But these strategies' most serious flaws lie in what they assume about work itself. They all fail to recognize that in the global information economy, the very nature of the work system is changing -- **away from permanent jobs as the locus of work toward a complex network of learning institutions, including the workplace, families, and community schools.** Yet, these strategies continue to focus on jobs simply as jobs or to focus on social support systems based on jobs. For the employment and incomes policies of the future to be successful, we argue, they will need to be organized around individuals' and families' *employability*, not permanent jobs. And social well-being -- necessarily the goal of democratically-elected government -- will depend as much on how well workers, individualized by flexible work organizations, are integrated into such learning networks as on the annual increase in the number of jobs.

The limits of neo-conservatism

Neo-conservatives in the United States and Europe want to increase productivity and economic growth rates by reducing the social role of the state. For them, unemployment is the result of price-fixing in labor markets -- of wages set too high for employers to hire young people and of social charges and regulations that make it extremely costly to hire additional workers. The result, they claim, is a divided labor market, where 90 per cent of job seekers work for high wages and 10 per cent do not work at all. By giving employers greater flexibility in what they pay workers and the conditions of hire, the argument goes, unemployment would be eliminated. Other regulations on business also get in the way of starting new firms and producing new products. Large government budget deficits caused by overly generous social supports and too large a government bureaucracy and programs keep interest rates too high for private sector expansion. The solution is to cut the state back.

Neo-conservatives understand well that social stability and the reproduction of values such as hard work, honesty, and loyalty, are essential to raising productivity, and that free market workplaces will not take responsibility for assuring that reproduction occurs. The strategy relies on the traditional, hierarchical family and non-government -- mainly religious -- organizations (NGOs) to perform these functions. It assumes that in the highly industrialized societies, intact traditional families headed by two parents have the resources (if they are not taxed away) to provide their children with a high quality, economically and socially secure environment where parents reproduce moral values and invest in the children's "cultural capital (Bourdieu and Passeron, 1977). Even though the traditional family is marked by gender inequality, conservatives assume it produces beneficial effects for children (and thus for society as a whole).

Beyond the family, the strategy argues that the main community networks for individualized workers in a highly mobile society should be NGOs -- privately financed voluntary organizations that focus on community-building among particular groups of individuals. Many of these organizations are religious, and local churches of various domination's are the most common traditional link between mobile worker families and communities. These NGOs provide family support services and social networks outside the context of the state, although in the case of schooling, they are often government-financed. The main argument for NGOs replacing government programs is that NGOs are more financially efficient, mobilizing private resources from those who can afford to pay and distributing them to those who most need them. They also deliver a more effective social product because they are necessarily client-responsive, and, in the case of the religious organizations provide a powerful moral grounding for family and community life.

There is nothing new about the neo-conservative strategy; it is a throwback to an era before the crisis of world capitalism in the 1930s, with some important caveats -- namely the retention of at least some of the state safety net for the aged and the temporarily unemployed. Yet, it does not fit the new conditions of work in the industrialized countries for three main reasons:

- Proponents of the strategy assume that even under present conditions of world economic competition, market deregulation will unleash sufficient economic energy to increase employment *and* wages. They also assume that such increases will be high enough to make politically acceptable the sharp rise in wage *inequality* whenever deregulation policies are implemented, as they were in the US and the UK (and to some extent in Japan) in the 1980s and in Sweden in the 1990s (see Table 3). These were the Reagan-Thatcher assumptions of the 1980s. But they proved to be wrong then, and, in the new context, the deregulation strategy

tends to lower wages further, even as employment and wage inequality continue to rise. The private savings rate, predicted to rise, does not, and government revenues, expected to rise relative to government spending, also do not, creating huge government budget deficits. The strategy simultaneously pushes for freer trade with all countries, including low-wage competitors, and for deregulation of domestic markets, including lower minimum wages. Private firms focus on lowering their wage bills (including social wages) rather than raising productivity, making it less likely that productivity will rise, and putting downward pressure on domestic workers' incomes even when their productivity is rising. It greatly de-emphasizes the crucial role that government plays in infrastructure investment in the high tech economy. Moreover, the strategy also privatizes many of the social costs of private production, such as environmental protection, just as the public is becoming increasingly aware of the effects of these social costs on their individual lives. All this creates political turmoil, distrust, and social conflict as groups fight for restoring their purchasing power even as real earnings decline. The political strains are already being felt as voter dissatisfaction with government continues in the US into the mid-1990s even with rapid employment expansion and relatively low unemployment rates;

- The strategy assumes little or no connection between changes in the workplace and new stresses on family structure. Market deregulation, with its emphasis on lower wage bills, forces the family to work increased hours per year to maintain consumption. Far from supporting the traditional family, this process has contributed in the United States to its gradual disintegration. As men's wages fall, and women's rise, an increasing proportion of women with young children work full time. Although there is no evidence that this increases the divorce rate, it has increased family stress and is correlated with a rise in divorce. But in addition, lower wages for men make it less likely that divorced men will pay child support. Children of school age are more likely to be left unsupervised at home after school while both parents work. The strategy makes the “traditional” family the basis for reproducing citizens and employees, but ignores the underlying conflict the family faces as male earning potential declines. In effect, parents are being asked to decide whether to give up material consumption or time with their children. For many families, there is indeed little choice because they earn hardly enough to provide the basic necessities to their children in the first place. The strategy creates the possibility of even greater inequality in future generations, as home environments deteriorate in low-income families but are maintained in high-income families able to provide better child care and early education privately; and

- The reliance on NGOs, especially religious organizations, to form the main support networks for families and communities, is a useful source of community action, especially in the US context, but ignores their limited material resources and the divisive impact that such reliance can have on the larger community of citizens. It also ignores the particular socio-political agendas of religious organizations and how these may conflict with broader human rights, particularly of women. One of the main reasons for state provision of social services is to assure equal treatment for various groups, and to focus on broader social and political values, whether these be local, regional, national, or international. Moreover, NGOs do not have the material basis to provide for all the needs of families and communities, particularly of low-income families.

That said, the free market approach correctly posits that technology and increasing employment are not incompatible, that in today's competitive environment, societies have to rely primarily on a dynamic private sector to create jobs, and that less regulation in some aspects of European markets might contribute to more rapid employment growth without reducing wages. A recent study by

McKinsey Global Institute, for example, concludes that product-market restrictions may be more important than labor market rigidities in explaining unemployment, which means that removing difficulties in forming new companies or breaking into markets could have a much larger effect on European employment than lowering the social wage (McKinsey Global Institute, 1995). Furthermore, in countries such as France, where part-time and temporary employment is rising but much less common than in the United States or the UK, part of the unemployed labor force -- especially young people -- could be absorbed as part-time, temporary, and apprentice workers, even with pro-rated social benefits.

The failing welfare state

Over the past 60 years, governments in the industrial countries have taken major responsibility for full employment and assuring that economic growth produced higher standards of living for their citizens. Aside from guiding the economy with monetary and fiscal macro-economic policy and "planning" economic development through zoning and environmental controls, the state was successful in supporting industrial expansion with infrastructure investment, such as transportation, research and development, mass general and specialized vocational and university education, and direct and indirect subsidies to industry and agriculture (including tariff protection and direct public ownership). The state also entered directly in labor-management relations. It mediated accords with labor unions and employers that steadily increased real wages, established high minimum wages, and created jobs through public employment. In Europe, public employment has accounted for almost the entire increase in jobs since the 1970s (OECD, 1994). The state directly and indirectly supported family security and the family's capacity to invest in its children. Government taxed payrolls (and individuals) to provide a series of social wages that increased families' standard of living through social "guarantees" (health care, old-age pensions, child care, welfare, unemployment insurance, public housing and direct family subsidies).

This "traditional" strategy of state-sanctioned and financed support networks enabled industrial countries to achieve high levels of productivity, wages, and social services. This model worked in an economic world dominated by a few highly industrialized countries, all with national/regional markets large enough to sustain rapid growth in productivity and wages, and relatively small differences in wage/productivity ratios among them. That system could allow relatively free trade among competitors without undermining the basic growth of wages and employment in each one. Most important, the model was able to mobilize increasing public revenues to increase simultaneously the productivity of capital, expand the demand for goods and services, invest in the family and school-based education (and health) of future workers and citizens, *and* assure community and family stability with a social safety net of insurance and pensions.

But the welfare state has reached its financial limit in the highly competitive world economy of the 1980s (Figure 8), and so has this strategy of maintaining employment and incomes. The state can no longer be the "last resort" -- the guarantor of full-time incomes or fulfilling jobs. For example, Sweden's budget deficit surged to 13.5 per cent of gross domestic product in 1993, forcing the government to abandon subsidized youth employment, helping to drive unemployment rates up to record levels. The government is also currently reducing contributions to family incomes for each child (from $1 200 per child annually to $1 000), and its maternity leave subsidy (from 80 per cent of the woman's salary to 75 per cent), with more cuts certainly to come (*The New York Times*, February 2, 1995).

Beyond cuts in public spending in Sweden and other OECD countries, the whole approach to work support has to change. In all OECD countries, it is still deeply rooted in a traditional conception of secure, lifetime industrial employment in the same line of work. The state supports workers as *employees* and, in the most advanced welfare state systems such as Sweden's, essentially guarantees full-time *employment* and/or income from the moment young people finish schooling to the time they die. We will argue below that there are many elements of the welfare system that should be continued. But because the flexible workplace is fundamentally different from the work system assumed by the traditional welfare state, state support for citizen/workers also needs to be transformed. Not only is the state fiscally incapable of covering workers in the same way as before, but the breakdown of the industrial employment system means a redirection of state monies from *job-centredness* toward *learning-centredness*: family educational investments in adults and children, municipal spending for small business management support services, public services at the local level organized around adult teaching and learning, and new bridges between private sector job training and public secondary and higher education[8].

The limits of job sharing

The specter of continued high unemployment rates in Europe have evoked a third approach to bringing people back into employment: sharing a limited number of full-time jobs by lowering the number of hours in a "full-time work week." The essence of these proposals is to reduce the work week to 35 hours (and even to 32 hours), reorganizing production around several shifts that would more fully utilize existing capital equipment and raise productivity. Workers would take a salary reduction, but the state would compensate them for part of their loss (50 per cent of the difference in one proposal) because less money would be needed to pay unemployment compensation and because production, productivity, and hence profits would rise, raising tax revenues (Aznar, 1993). According to the Larrouturan plan in France, the current 39-hour work week would be reduced to 33 hours, beginning in 1996. Workers would only lose 5 per cent in wages, since the government would compensate employers by eliminating their payroll tax contribution to unemployment insurance, and employers, in turn, would help offset worker reduction in pay by creating profit-sharing plans so that workers could participate in future gains in productivity. The plan claims that employment would increase by 10 per cent, or 2 million jobs and that productivity would increase from reduced worker fatigue and flexible hours (Rifkin, 1995, pp. 224-227).

The main assumption of most job sharing schemes is that the new technology is destroying jobs more quickly than new jobs can be produced, leading to a growing shortage of jobs and ever higher rates of unemployment[9]. For example, Aznar predicts that with current French demographics and projected job growth, the number of unemployed will increase 2.5 million by the year 2000 (Aznar, 1993, pp. 36-37). However, the argument that information technology reduces the number of jobs because it increases productivity (Aznar) or because it is programmable, hence does not have to be replaced in order to be upgraded or to change functions (Rifkin), is not supported by the evidence. Those advanced economies in which information technology is most diffused (Japan and the United States) are also creating the most new jobs. High unemployment associated with information technology is primarily a European problem. If anything, it is associated more with constraints on expanding production of new products, and on allowing for small business formation and more flexible employment arrangements (*The Economist*, "A World Without Jobs?", 11-17 February 1995).

But there are other problems with the idea of job sharing as a national policy. Despite its claims, it does not solve the job *creation* problem. In practice, cutting hours of work with cuts in pay (even if

those cuts are partially made up by the state) has *saved* jobs, not created them. In any year, a significant fraction of the labor force loses its employment, and an equally significant proportion is hired. The best to hope for job sharing is to reduce job losses. It has been a mechanism for companies to use approximately the same number of workers more efficiently over a greater number of shifts and simultaneously to reduce the labor/capital ratio. The Hewlett-Packard plant in Grenoble is a good example, cited by both Aznar and Rifkin. With union agreement, HP's management adopted a four-day workweek, representing a reduction of about four hours per week, but kept the plant running 24 hours per day, seven days per week. Workers weekly wages were maintained despite the reduction in time, and the number of workers in the plant remained the same. Productivity increased sharply with the new arrangement, but no new jobs were created. Similarly, Digital Equipment Corporation's (DEC) French plant offered its 4,000 workers a four-day workweek with a 7 per cent pay cut. About 500 accepted, saving 90 jobs that would have been cut (Rifkin, 1995, p. 226). In Germany, both Volkswagen and Daimler-Benz have struck agreements with the unions to reduce the workweek by one day, reducing wages 10 per cent and preserving existing jobs.

Although many manufacturing and service facilities could make such offers, preserving existing jobs for a time, employing workers more efficiently, and "downsizing" without firing workers, this in itself would not create more work for those entering the labor market, nor for those who become unemployed because a firm loses markets. Increased job creation for a given level of economic growth requires added market flexibility of a different kind. Aznar explicitly recognizes this by devoting about one-third of his twenty "propositions" to various proposals for increasing the possibilities of part-time work, some of which would allow for individuals to move in and out of the labor market into family leave, formal education, and training. It is in these "extensive" forms of flexibility -- especially in the flexibility of hiring workers part-time for whom part-time work is an advantage, and in creating new, small firms -- where many new jobs are born. If only a small percentage of jobs (only 12 per cent in France) is part-time, this degree of flexibility is seriously constrained, leading to higher rates of unemployment.

The key issue around new technology and flexible work is not insufficient jobs but assuring similar human investment benefits (health care, educational and training opportunities, pension funds, access to child care services) for all those who work. Most of these benefits are now tied to full-time employment, so it makes sense in a *job*-centered approach to assume that equity in social services can only be assured by equity in full-time work. But if job-centredness is not an appropriate description of the new information society, then the distribution of benefits should be separated from jobs and shifted to a learning-teaching locus, where full-time manufacturing or service jobs are merely one part of the learning-teaching system.

The major benefit offered to workers by those who propose the shorter work week is increased leisure. Yet, even this conception is rooted in an anachronistic notion of the division between "wage work" and "leisure." Obviously, a four day work week can mean more recreation, rest and relaxation, in which case any time not working is leisure. But in the information society, a principal way that individuals would use time not "employed" in a job is to engage in enhancing their own education, in teaching (investing in) their children, or in earning additional income through home-based self-employment. Without a concerted effort to reintegrate the family into a learning-teaching network that encompasses the job and non-job hours of the week, leisure will erode further into an affirmation of the individualized worker, as disconnected in "relaxation" as in the workplace[10].

The most positive aspect of job-sharing proposals is that they focus on increasing job security during a period of "downsizing" and worker separation from permanent jobs. They fit in well with an

emphasis on in-firm training tied to profit-sharing incentives and a direct connection between increased worker productivity and job security (Brown *et al.*, 1993). In the short run, they may also forestall the tendency for firms to keep wages low even as they reduce the number of employees. In the longer run, however, part-time employment and contracting, more than job-sharing, will have to increase sharply in Europe if large numbers of new jobs are to be created. The two-tier labor force that the job-sharing proposals would like to avoid is inevitable. From the standpoint of a learning society built around households that also need time flexibility to optimize their work/education strategies, the key is to focus attention on learning access for all citizens, whether they work in full time jobs or not.

Chapter 5

ALTERNATIVE STRATEGIES FOR THE 21ST CENTURY

The transformation of work and employment under the impact of the information revolution and the globalisation of the economy has resulted in a crisis of the relationship between work and society. But it has also created the bases for reintegrating the individual into a highly productive, more egalitarian social structure. **These bases are knowledge and information.** Knowledge can be defined as the *cumulated stock* of cognitive skills and information that each individual, family, and community (including firms) related to the individual have that can be applied to work, personal, and social situations. Information is the *flow* of usable knowledge available to individuals, families, and communities, including workplaces.

The distinguishing feature of work in the information age is the centrality of knowledge, especially "transportable" general knowledge that is not specific to a single job or firm. The best jobs are those that require high levels of education (high levels of general knowledge) and provide opportunities to accumulate more knowledge. The best firms are those that create the best environment for teaching, learning, and interchanging information. It is knowledge and information that creates flexibility in work -- the capacity of firms to improve product lines, production processes, and marketing strategies, all with the same work force; and the capacity of workers to learn new processes as they change; to shift jobs several times in the course of a work life; to move geographically, and, if necessary, to learn entirely new vocations.

The family and community in the information age should also be organized around the centrality of knowledge and information, both to support new forms of work and to foster human development, which should be the ultimate benefit of human activities. In its most advanced form, the egalitarian family is a supportive environment for interactive teaching and learning, geared to develop adults and children to their highest creative potential. Communities can also be defined in terms of learning networks, including child development centers, educational institutions, municipal organizations providing a range of business services and adult educational networks, and virtual communities connecting individuals through computer internets.

More knowledge and information do not, in themselves, create more jobs. Yet a society organized around learning networks provides the basis for much higher productivity, greater equality, and the reintegration of individualized citizen-workers. Over the longer run, we contend, this will create greater wealth and income, continue to generate more jobs or higher quality, change the nature of leisure, and develop a whole new set of reintegrative activities that make life more interesting and rewarding.

The new workers of the information age

In the new information economy, with rapidly changing technologies and markets for products, work is transformed, changing the kinds of workers demanded. The transformation, we have argued, is characterized by **flexibility** and **networking**. It places a premium on a worker's ability to move from a job in one firm to another, to learn new jobs in the same firm, to do several different types of tasks in the same day, and to adjust quickly to different kinds of employment cultures and to different group situations (Capelli, 1993). The firms that reward such flexibility and promote it tend to be more successful than those that do not (Derber, 1994, pp. 15-18, 107-108), creating yet greater demand for workers with these abilities.

Although employers cannot predict which workers will be more flexible, flexibility has consistently been associated with higher levels of general education and general job training (Schultz, 1975). Individual workers with more education are more able to adjust to new situations, learn new tasks, and adopt new methods of performing old tasks. At the same time, firms that provide relatively large amounts of general training tied to workers' taking on multiple tasks and to wage incentives are more likely to show larger gains in productivity than firms that follow traditional, inflexible production methods (Brown *et al*., 1993).

This complex interplay between more highly educated workers, prepared to learn more quickly, to take on new tasks, and to move from one job to another, and best-practice firms, promoting increased flexibility through general training, multiple task jobs, and employee decision-making, is at the core of high productivity work in the information age. Flexible work organizations are necessarily **learning** organizations, and new technologies -- including the art of flexible organization itself -- make their maximum contribution to productivity when they are based on learning and teaching as an inherent part of the work process.

Learning is organized around two kinds of practices -- ”micro-cooperative” and “macro-cooperative (Derber, 1994).” Micro-cooperative practices enhance the quality of production through work teams, quality circles, job enrichment, and joint labor-management councils. Japan has been the leader in making micro-cooperation an inherent part of its corporate culture. In Europe, they have been common for many years at Saab, Volvo, and Daimler-Benz (Cooke and Morgan, 1994). And in the United States. they have been embraced by companies such as Motorola, Hewlett-Packard, Shell-Sarnia, Corning, Proctor and Gamble, General Motors' Saturn, and GM's joint venture with Toyota (NUMMI) in Fremont, California (Shaiken, 1994).

Yet, it is not only large companies that are reorganizing themselves around micro-co-operative principles. At the European Collision Center, a small auto repair shop in Cambridge, Massachusetts, workers take “ownership” of a car while it is in the shop, taking responsibility for its repair from start to finish. They are cross-trained so that they can assume new tasks, and sent back to school yearly to learn the latest repair methods. Customers are impressed with the results, and business has doubled every year for the past five years (*Business Week*, “The New World of Work”, October 1994).

At the macro level, companies coalesce in strategic co-operative alliances for global production efforts (Carnoy, Castells *et al.*, 1993; Derber, 1994). This “network production” can be built around geographic clusters of small and large firms in industrial districts, such as Silicon Valley, or world-wide alliances of large financial and manufacturing firms and their satellite suppliers and distributors. In geographic clusters, the networking extends to communities, universities, and training centers, as in the German *land* of Baden-Wurttemberg, probably the most systematically-organized geographic

network in the world (Cooke and Morgan, 1994), or in the Italian province of Emilia-Romagna, where firms are networked to each other and to universities, training centers, and marketing organizations through municipalities (Piore and Sabel, 1984)

Both micro- and macro-cooperation are organizational arrangements meant to enhance exchange of information and learning for higher productivity. Like most learning organizations, they are built on trust, sharing, and solidarities among workers in the same firm, between workers and management, and among firms. The new compact between company and worker de-emphasizes paternalistic relations and stresses self-reliance and co-operation. At the same time, management has to give up some power over decisions so that employees can have more or it. Networking firms also have to give up some control over information in order to share in other firms' knowledge. Most important, *learning is accumulated in these arrangements*, allowing for innovation, more productive uses of resources, and lower costs of production. Indeed, much of the new technology developed in firms as they improve current processes, adopt new processes, and develop new products is the result of accumulated learning (Dosi, 1988; Rosenberg, 1982). At the same time, the highest yields to firms are realized on such learning. For example, the price of hardware sold by computer companies has fallen to levels where the profits on manufacturing are negligible; yet, these same companies make large profits at the most knowledge-intensive end of their product chain -- designing and selling customized systems of hardware and software to final users (*Business Week,* "The Technology Paradox", 6 March 1995).

Flexibility and these networking organizations suggest not only that learning is the new focus of work in the information age, but that traditional concepts of education will have to change. The workers that do best in flexible, learning organizations are good both at solving problems individually -- the higher order skills normally learned by students going on to post-secondary education -- and, as important, at working with others in teams to innovate and motivate -- a skill that is hardly touched upon in our present educational system. Such "co-operative skills" are generally associated with management courses, and indeed, the learning networks require workers to have a "management mentality," in the sense of "people skills," including knowing how to motivate individualized fellow workers to commit both to applying their knowledge for maximum efficiency and quality, and to learn (and teach others) how to do better.

Education for the information age therefore should develop workers who have higher order problem-solving skills *and* who can help organize more learning. This suggests profound change in the curriculum of schools and in job training programs. First, it means that the standard forms of vocational education, organized around specific skills for specific jobs, are almost totally anachronistic, except in the sense that they can be used to teach problem solving and organizational/teaching skills to students who have been alienated from more academic approaches to learning (Stern *et al*., 1992). Second, it suggests that learning in schools should itself be increasingly organized in a co-operative fashion, where students study in groups, present group work, and often get evaluated as a group. Third, the curriculum should include the development of networking, motivational, and teaching skills so that students develop a clear understanding of human behavior and the understanding of group processes. In the learning-centered environment of the information age, the process of learning and the motivation to learn should become endogenous to curriculum itself.

Fourth, general education during youth should be viewed as only the *beginning* of the learning process. In the not so recent past, young people went to school, got a job, and often did that job for much of the rest of their lives. Worker networks were organized to protect the permanence of the

worker's job, and to build state social welfare programs around it. In the information age, the worker is no longer defined in terms of a job but in terms of cumulated learning and the capacity to apply that learning to a variety of situations, inside and outside the traditional workplace. These situations include, we shall argue, the new egalitarian family and virtual communities. Learning and teaching, therefore, is a continuous process throughout life and should be organized on that basis, with opportunities for worker-citizen-parents to gain knowledge and skills applicable to their varied roles in society at various ages, and to exercise them in a variety of ways at the different stages of their lives.

All this does not itself solve the problem of reasonable paying jobs for all those who want them and may even be capable of doing them. We have to be careful about associating higher levels of education with lower levels of unemployment, at least in the short run. More education does not necessarily create new jobs, as evidenced by the situation in Europe, where average levels of education have been rising rapidly among cohorts of new entrants into the labor force without a secular decline in unemployment rates. In France, for example, in ten short years (1980-1990), the proportion of post-secondary *graduates* coming out of the educational system climbed from 19 per cent to 31 per cent, and the proportion with some post-secondary education, from 26 per cent to 44 per cent, while the unemployment rate for young people fell and then rose again to about 25 per cent[11]. Since this trend toward ever-higher average levels of education among younger workers is occurring in all OECD countries, if no other measures are taken to incorporate the young into the jobs, one result could simply be ever higher levels of education among the unemployed.

But keeping young people in school longer has two major advantages: first, it delays them entering the full-time job market; and second, it provides employers with a much better educated, potentially more *flexible*, more *trainable*, more *employable*, and more *potentially productive* work force. It also develops a work force that is more likely to view further education at older ages as a natural part of their working/learning lives. Combined with best-practice workplaces organized around training and learning, this sets the stage for higher productivity and lower aggregate unemployment rates in the long-term.

It also sets the stage for successful apprenticeship programs, other school-to-work transitions incorporating youth into job-site training programs, and national service experiences connected to work/training internships, all of which would be learning centered for future employment or self-employment. Post-secondary educated young people are generally more easily incorporated into the flexible workplace, especially those organized for training. Even in Europe's most successful school-to-work transition program -- Germany's "dual apprenticeship system" -- which has kept youth unemployment rates in that country at a low 5 per cent -- its secondary vocational education basis is shifting to *gymnasium* graduates who want to connect with a workplace before attending university (Timmerman, 1993).

Perhaps the most difficult, but necessary, transformation for OECD countries to make quickly is to organize schooling around *universal post-secondary education* that imparts self-reliance, rapid adjustment to change, and mobility. Educational systems in the past have been used not only to impart cognitive skills, but as social selectors, steering children from various socio-economic backgrounds into "appropriate" levels of education that then make them eligible for "appropriate" jobs (Bourdieu and Passeron, 1977; Carnoy and Levin, 1985). This worked reasonably well in a hierarchical industrial system built on career jobs that were mostly semi-skilled and changed little

over an individual's work life. The system was stratified but could provide reasonable security and increasing wages even to those with basic education[12].

Today, such stratification is much more socially counterproductive than it was in the past; yet, societies have not understood the need to overhaul the system that certifies it. Youth with secondary education are increasingly at risk in the labor market, in large part because both the education system and employers regard them as inadequately prepared for higher-skilled, flexible jobs. That has to change, and the only way to change it in the current and future environment is to raise expectations and to compress the distribution of education by raising the social minimum. This means not only extending youth education but also focusing more resources on early childhood development of disadvantaged groups and creating more possibilities for formal schooling in adulthood. Cultural capital, in Bourdieu's and Passeron's terms, must become *less* of a determining factor in access to knowledge and information.

Higher levels of education in the information age do not just provide more trainable employees for the information age workplace. One of the most profound transformations of the information age workplace is its *increased opportunities for self-employment*, especially for people with concrete, high-level service skills. Self-employment (in agriculture, crafts, and commerce), has been a dominant feature of the work system for most of human history. As late as the 1950s in continental Europe and Japan, a high fraction of the labor force was self-employed, mainly in agriculture and petty-commerce. And relatively stable, *employed*, full-time work has characterized the labor process for only the past one hundred years or so. A gradual return to self-employment is a natural outcome of greater work flexibility, the shift to a service economy, the availability of very low-cost information technology, and increasing levels of education and knowledge in the labor force. The possibilities for workers to gain skills working as employees also enhances their ability to move out of employment into self-employment.

In the US in the first four months of 1994, new business incorporations hit a record annual rate of 737 000, and the average self-employed worker earned about 40 per cent more per hour than those working for someone else. In addition, capital invested by the self-employed in their own businesses can pay high returns compared with most other investments (*Business Week*, "Business Rolls the Dice", 17 October 1994).

The difference between the growing self-employment opportunities in the future and those of the past is their knowledge-intensity. High technology services are organized around information rather than commodities. Furthermore, information technology makes it possible for small businesses to avail themselves of relatively inexpensive accounting and marketing software, to locate themselves in the home, to be part-time, and to be family-centered as part of a mixture of family wage employment activities, self-employment activities, and child development activities. Since it is knowledge-intensive, the new self-employment may occupy an increasing proportion of formerly employed workers who have acquired knowledge and skills as employees and develop their own businesses based on that experience.

The shift to self-employment makes sense from another standpoint. Education seems to contribute most to higher productivity for the *self-employed -- individuals who have direct control over the application of their knowledge to the production of goods and services.* For example, the only empirical studies that show a positive relation between education and productivity are for self-employed farmers (Schultz, 1975; Welch, 1970). Schultz attributed that relationship to the ability of more educated farmers to "adjust to economic disequilibrium." They tended to adopt innovations

more rapidly, do a more effective job of applying innovations, and adjust more quickly to price changes in their products by changing product mix. Further, it was only when farmers had university education that the effect of education on productivity became noticeable.

Yet, over and above any risk they take in their earnings, self-employed workers incur a much higher cost in paying for standard benefits than do those who are employed. In Europe and the United States, the self-employed pay high health care premiums and have to bear the full cost of pension plans. Group health care discounts (in the US) are generally not available to individuals. Again, the job-centered approach to benefits penalizes those who fall outside it.

Risk *has* increased for all workers in the information economy, not just the self-employed. "Disequilibrium," in Schultz's terminology is a more salient feature of employers' and employees' lives. We argue that the most relevant and efficient form of hedging against risk is to organize networks around education, training, and information. The greatest concerns are with initial incorporation of young people into work that is both remunerative and provides learning opportunities, and reincorporating older workers who are displaced by economic change. In both cases, the higher the employee's education, the easier is incorporation and reincorporating. General and varied training taken in jobs held also make mobility and employment easier. And these are precisely the same inputs that make self-employment a good option for prime-work age and older workers.

Beyond higher *early* education, the incorporation into the work culture of taking additional formal education at older ages also expands the opportunities of workers put "at-risk" because of flexible production. Women in their 40s in the United States labor market are much more employable than men in professional jobs precisely because employers consider it "natural" that women leave the labor market to care for children, take higher levels of education later in life, and then begin working again at an age when most men need to have succeeded already or be considered "has-beens." There is no reason why the culture of work cannot change to accept that men also can go back to school and start new careers (whether employed or self-employed) later in life.

If increased risk is a dominant characteristic of flexible production rather than permanent jobs, then instead of attaching benefits to jobs, government policies should enhance networks that hedge against risk, including developing benefits that follow families and individuals, not jobs. We have stressed that these benefits should not only provide a temporary safety net against periods without income, but should especially focus on enabling individuals to invest in learning that opens new opportunities at any age.

The household partnership

Far from losing its fundamental importance to work, the family will be even more crucial as the economy shifts to flexible, knowledge-based production. But its role is already changing from a "family consumption partnership" to a "household investment and production partnership." Shifts in family organization are not new. They result from the inherently close relationship between family and work and women's changing social role. What is new -- and rarely discussed in analyses of the changing work system -- are the potentially ruinous implications for the development of highly competitive yet socially stable knowledge-based societies should families not emerge from the current transition reconstructed and healthy.

Michael Young and Peter Willmott (1973) characterize the family as passing historically through three stages:

- Stage 1 was the "family as production unit," with all members working in the home/farm/small-scale home factory production, doing homework, child-raising and market work at the place. Men and women were totally dependent on one another and the home was the center of all activity, including income generating activity;

- In Stage 2, this home-centered family broke down, with disastrous consequences for women. Both men and women (and children) were employed outside the home, but when there were young children in the home, women could not work, and men controlled income. There was little incentive for men to limit the number of children because they could still keep back income, and children could go to work at a young age. Women suffered the most, and children next. This phase began to end with contraception, child labor laws and compulsory schooling, which made it increasingly costly to have children, and women's liberation movements at the end of the 19th century that slowly gave women more rights to leave men who abused them. Families began to get smaller, emulating a trend in the increasingly well-off middle class;

- The smaller family of the end of the 19th and early 20th century slowly led to married women going back to work after the 16 years or so that it took to get all the children to 14 years old and working. Although the percentage was small even in the 1920s, it was going up until the Great Depression. The other factor that changed the family was technology -- electric refrigerators, stoves, washing machines, and home tools that revolutionized home work and actually made it more interesting for men to come home and do things around the house. Also, fewer children made the home more pleasant. The family increasingly became a center of activity for men as well as women, with men and women forming a *consumption* partnership around the home and the family. Young and Willmott see the family as crucial to the expansion of the domestic economy in the industrial stage of development, and increased consumption of consumer durables as its main new function. So rather than just reproducing cheap labor for industrial expansion (Stage 2) at the expense mainly of women, who were responsible for that reproduction, while men led essentially separate lives, in Stage 3, developed to its height after World War I, men and women were partners in consumption (Keynesian view of the family). This stage reached its highest point in the 1950s and 1960s, and gives us the neo-conservative model for the "traditional family" that the Right talks about.

But Young and Willmott miss two important points about the Stage 3 family. First, it was not only a consumption family but an *investment* family, investing in its children so that they could earn more than their parents and move up the consumption ladder. This investment role became increasingly important in the post-World War II period, spreading from upper middle class families down to the working class. And although the welfare state support for families began originally in the 1930s to maintain consumption, this role became subordinated to maintaining and enhancing the family's *investment* role in producing ever higher *potentially productive* labor for the more flexible, competitive economy. By the 1980s, with flexible production and the increasing importance of education in determining access to high-paying jobs, the investment became even more important. As both parents worked more even when the children were young, parents were likely to consume all kinds of services that were only available to higher income families in the past, and, in the best of cases, such services had large investment components. In Europe and now Japan, child care, pre-

schooling, and especially health care are provided by the state and subsidized precisely because of the state's concern with the family's investment role.

The second point that Young and Willmott could not foresee in the early 1970s was that the Stage 3 family was already in the process of transformation even as it reached its apex. The consumption partnership formed in part because of smaller families and women's liberation began to dissolve as feminism continued to increase women's decision-making power over the shape of family life. Greater opportunities also opened up for women in wage labor, and home technology developed to the point where cooking, cleaning, etc. became an increasingly part-time job. Rising access to jobs for women opened women's possibilities to leave unsatisfactory marriages, and, as divorce rates increased, women were even more compelled to work for wages in order to protect themselves financially against family break up and loss of income.

The combined effect of flexible production, women's fight for greater equality in the family and labor market, and the increased importance of the family as an investment unit have not only eroded the Stage 3 family, but now shapes the emergence of the next stage of family life. In the most common situation, where a man and a woman and children form the household, the differentiated income-earning capacity of men and women plus the historical role of men as primary income earners not only biases employment/work time/child care/education decisions, but also where a family lives and how it organizes adult educational and job training activities.

Increased rates of divorce in OECD countries (in the United States, one marriage in two ends in divorce, most in seven years; in France, one marriage in three ends in divorce, about half within ten years -- see Figure 10)[13], and the non-establishment of families (out-of-wedlock births are rising in the US and so are births in Europe where no father is listed on the birth certificate) (Stevens et Michalsky, 1994) are also a legacy of the Stage 3 transformation. The high probability of single parenthood for women clouds the gender decisions around educational investment, both for adults and children. In the US and Europe, young people are marrying later than their parents, largely because of the much greater uncertainties that surround the labor market. However, the greater possibilities of divorce and single parenthood for women also influence this choice. Women feel compelled to take more education and develop a career precisely because once married, education/training opportunities decline for them relative to men. Divorce and single parenthood also plays an important role in the investment in children changes. Not only is less income available to the single-parent family, particularly if the other parent does not pay child support, but it is much more difficult for one parent to provide the same kind of time (as well as the male role model) to children, and to have the same kind of flexibility in work and adult learning as in a two adult family.

In its ideal form, we envisage the Stage 4 family as an “investment-production partnership.” The main investment activity of this partnership is, as in the entire history of families, raising children -- not for the future income of the family (as in Stage 1 and 2 families), but for the sake of improving children's own opportunities and for the consumption value to parents of their children's success and well being (as in the Stage 3 family)[14]. Because the quality of child upbringing has increased implications for future productivity and employability of the labor force, the investment choices the family makes and the moral and “investment” guidance provided by the parents is crucial to a society's future. And since Stage 4 parents will spend much of their time working outside the home, the services available to them to invest in their children will be key to how well the family does in its child rearing role.

But there is a second part to the partnership that distinguishes it from the Stage 3 consumption family. With two members of the family earning income, there can be periods of time when one is taking additional education or training, while the other earns; one member can also be the main support with employment income while the other starts up a business from home -- this is particularly true with more flexible workplaces. Or both family members can run a family business. In an increasingly isolating social structure, families continue to be a source of psychic reward, as well as a site of increased stress. Whether psychic reward or stress dominates depends largely on the availability of community and state support networks.

The family in a flexible work system is therefore a central hub of productive and reproductive activity. When it is potentially "strong" (with two highly educated adults at its core) it serves as a risk hedge against periods of unemployment, as a source of child development for its offspring, of investment capital for adult and child education and job training, and of personal security and growth. Networked into larger information and communication systems, it can also become a production unit.

Rather than just income, the main commodity of exchange in fixing and maintaining this family relation (the age of marriage, the quality of the marriage, divorce, the number of children, and the timing of the children) will increasingly be learning opportunities for adults and the capacity to adults in the family to provide learning opportunities for their children. The intense emphasis on learning as a commodity of exchange has already occurred in upper middle-income groups (more highly educated men and women), where women are choosing to establish careers (take higher levels of education and jobs with high levels of learning opportunities) before having children. The availability in Europe and Japan of subsidized child development centers that care for youngsters of all ages and the lack of such centers in the United States shape the sustainability of marriages and the number and timing of children, especially for professional couples. Such learning-driven behavior as a dominant shaper of family formation, now limited to higher educated young people (who are necessarily more fully sensitized to the implications of flexible labor markets), will move down into the rest of the population, just as middle-class limitation of fertility moved into the working class in the beginning of the 20th century.

The reconstruction of community in the information age

As the workplace loses its centrality in the flexible form of production, it becomes imperative that other spheres of social life become supportive of integration, interaction, and human development. Historically, communities structured around the place of residence have played such role. However, as argued above, current conditions of urbanization and the transformation of sociability have considerably reduced the potential of neighborhoods as integrative devices.

We believe in the necessity, and the possibility, of reconstructing communities, and of linking them with the processes of flexible production, as one of the mechanisms to reconstruct the web of relationships between work and society. However, we must start from the current process of decay of communities, to suggest strategies adapted to the current technological and spatial characteristics of our societies. By community we understand a specific set of social relationships of reciprocity and value sharing that is established on the basis of a common space.

To reconstruct communities it is essential to reverse the impacts of the process of extreme individualization in the uses of space. Urbanises have denounced the decay of public space all over the world, with the exception of core areas of major cities at peak times (Lynch K., 1960). Preserving

street life, and encouraging the public uses of space, thus making it public, is a stated goal of most cities, yet not an easy one to accomplish. French policies have shown, however, that cities and city life can be revitalized: neighborhood feasts and public cultural celebrations staged by the city of Paris in recent years, have had substantial impact on the willingness of Parisians to use their beloved city. The Plan Banlieue, designed by architect Roland Castro, has physically improved and socially animated some of the worst suburbs of Paris and Lyon, encouraging their residents to become citizens "a part entière". The anti-crime program of the city of Rome is based on the very simple idea that streets filled with people and activities, including in the evening, are safe streets, while the contrary is also true: empty streets encourage crime, deteriorating further urban sociability. Thus, theater, music, and youth festivals are better forms of fighting crime than resorting to an overworked, and overwhelmed police.

The reconquest of public space is not enough. Neighborhoods need to (re)build institutions of sociability and self-reliance. Recent experiences with social services and community centers are discouraging. They are instruments of social work and counseling, but hardly sites of stable social networks. Without precluding the positive role of community centers in some cases, we believe that the central organizing point in our society at the neighborhood level is the school, both elementary and secondary, to which we would also add child development centers. Because schools' location patterns are pervasive, and residence-based, and because sociability is made easier through children's connections, schools could become the platforms to deal with a variety of issues in the neighborhood. They could as well be the material support for the formation of networks of solidarity between families of different types, all concerned with the future of their children. **Children could be the issue around which family, community, and the future worker (the child) could be brought together in a system of interaction that blends instrumental goals (child care, development and education) with expressive, emotional, social interaction.** This requires an effort, both from government and from society, to transform the school, to make it more open to the community, and accordingly, to provide the public school system with better trained personnel, more resources, better physical facilities, and more innovative management.

Through the school, other social networks organized at the municipal level could come into contact with each other. For instance, the Municipality of Bologna has developed an interesting experience of social exchange between classrooms and associations of the elderly. Groups of children and of elderly adopt each other, visit the school, tell their stories, thus transmitting oral history, while also baby-sitting children when their parents need such services. The individualization of society, that gradually phases away the traditional role of grandparents *vis a vis* their grandchildren, could be counteracted with the organization of inter-generational networks on a local basis. Additionally, the education of the new generation would be rooted in a historical perspective that will be all important for the informational worker of tomorrow.

The reconstruction of community also requires active, innovative local governments, provided with decentralized resources and power. Local governments in Central-Northern Italy, in Germany, in Catalonia, just to name a few cases, have taken major responsibility for connecting local life and the collective conditions for new economic development. Local centers for training, information, productivity development, and management counseling have been critical in revitalizing a flexible network of small and medium enterprises. But so doing, they have also revitalized the local society, materializing the advantages of belonging to the community, and creating an antidote against the whirlwind of capital mobility so disruptive of community life.

The emphasis on local governments must certainly be accompanied by mechanisms of redistribution of public revenues to avoid the reproduction of social inequality on the basis of segregated residence. But within the limits of prudence, our societies would greatly benefit from a major shift in power, resources, and responsibility to the local governments, at the level where the meaning of democracy is more precise for the majority of citizens. Strong local governments, active citizen participation, and formation of networks of solidarity and reciprocity around the neighborhood school are the mechanisms that could help rebuild community, strengthen the new family, and contribute to educate the future, quality labor force.

The development of electronic communication also offers the possibility of creating virtual communities, in a new form of spatial organization, that Castells calls "the space of flows" (Castells, 1993). At the historical beginning of this process, in the 1990s, such virtual communities are highly elitist and restricted to the most educated segments of the population and to the age groups that are culturally inclined to the daily navigation of "the net." However, it is possible that, without falling into science fiction fantasies, in the early 21st century this form of communication could offer a platform for greater political participation and closer social interaction. Indeed, some preliminary studies in the US seem to indicate that people are not very interested in paying more to select among hundreds of films or shows available on line, while in fact they are strongly attracted to the possibility of enhancing their information, education, and participation in public affairs (Tiller, 1994). The use of interactive, electronic communication to reconstruct social networks without depending on physical proximity, is indeed a new frontier of public policy and private initiative that deserves to be explored and, eventually, experimented with.

Thus, through a variety of technological tools, urban design, and local policy, the (re)construction of community and its linking with the new type of households and the new processes of work is an indispensable component of the making of the new society, both challenged and ushered in by the information technology revolution.

The role of labor unions in work policy

Labor organizations generally want new technologies produced domestically because that creates new jobs, but are resistant to the application of new technologies in existing jobs, since that displaces workers. This dichotomy of interests is further complicated by the fact that the new high tech manufacturing and business service industries are often unorganized because of the high fraction of young women working in production jobs and the high fraction of all jobs (in the advanced industrial countries) taken by technicians, engineers, and sales staff -- occupations traditionally not unionized. In contrast, labor in more traditional manufacturing and services, where new technology is *applied* rather than created, is organized.

Under these conditions, organized labor is far more concerned politically with the application of new technologies in existing industries and their implications for employment there, than in policies that promote the creation of new types of jobs, including strategies government and industry pursue to develop new product technologies (communications, computers, etc.) and learning networks.

Even so, labor organizations often enter into the political negotiations over innovation policy in terms of the "share" that workers will get of the fruits of a successful innovation strategy. Thus, in democratic "neo-corporatist" societies, such as Japan, Sweden, Germany, and Austria, where unions and employers' organizations agree on macro-economic targets, including growth, inflation, wages,

and even wages separately in export and domestic goods industries (Sweden), technology policy enters indirectly into these agreements[15]. In Germany, the "co-determination" system is ostensibly limited to shopfloor management decisions and to the supervisory board level of larger firms, but in fact it imbues all labor-management relations even up to decision-making on industrial policy at the state level (Timmerman, 1993). This is primarily the result of the power of several large unions, especially IG Metall, whose firm-level policies regarding training and working conditions influence labor-management relations nationally (Cooke and Morgan, 1994).

Labor unions influence on the impact of new work organizations and technological change on employment, work, and wages is, in the "best case" scenarios, largely restricted to the *way* new organizations and technologies are brought into the production process rather than in the nature of the changes themselves, and to the participation in the benefits from the new technologies and flexible production systems accruing to labor (Carnoy, Pollack and Wong, 1993). These "best case" scenarios require considerable interaction between co-operative labor-management relations at the enterprise level and an active and powerful political role of labor institutions at the level of state decision-making.

Although the decline of traditional industries where unions are strong due to foreign competition has weakened unions' influence on work, the fact that co-operative relations between management and labor can have an enormously positive influence on labor productivity and product quality (Brown *et al., 1993)* provides a strong argument for labor union participation in and influence on implementing flexible production and new technologies (*The Economist*, "Getting Their Dues", 25-31 March 1995). With union-management co-operation, many more jobs could probably be saved in traditional industries in high wage countries, and wages could be increased as productivity rises. Labor unions have also been the major political force for solidarity policies in the past, and this role could (and should) also be strengthened. But in order to do that, organized labor must be seen by the electorate as speaking for the interests of the citizenry, not just job holders, and especially not just *unionized* job holders. This will mean that in addition to putting even more effort into supporting high minimum wages, universal health care, subsidized day care, and income transfers to high poverty risk populations, unions in Europe will need to fight for policies that create new part-time jobs, even though those jobs may be difficult to unionize and for a solidarity education policy, including charging fees in universities and pushing for teachers to co-operate with educational management in responding to local needs.

The state as knowledge and information intermediary

The welfare state is in trouble financially, and it seems unable to respond to the major economic and social changes taking place around it. Yet it is crucial to the building of new networks. To do that, it will have to reorganize itself and recast priorities. Because different societies have different tolerances for state activities and have different "starting points" of state welfare policies and how the state regulates economic activity, the new role of the state varies from country to country. It would differ in Sweden from that in France, and in France from Germany, Japan and the US.

Yet, despite these differences, the reorganized "knowledge and information" state would have several fundamental commonalties in all advanced countries:

- It would focus much more of its activities on the nation's educational, training, and informational infrastructure;

- It would focus more government spending on support for families as centers of learning and production (not simply as consumption units);

- State spending and program control would be more decentralized, with more government services delivered by states, provinces, departments, and municipalities; and

- Each nation-state in its own political style would develop "solidarity" economic and social policies, focusing on equalizing learning, employment, and self-employment opportunities for more and less advantaged groups and more and less-developed regions. Solidarity policies would also include income transfers, particularly in terms of who pays for particular learning and employment programs.

Impediments to be overcome in reorganizing the state.

We acknowledge that the process of transformation to this "knowledge and information" state will not be easy, crucial as it is to the development of incorporative networks and long-run fuller employment in the face of major changes in the organization of work. All OECD Member countries confront two major constraints on their reorganization: the first, on their capacity to raise revenue; and the second, on their capacity to shift spending from the present set of activities to those that would develop knowledge and information networks and support a learning society:

- On the revenue side, increased international competition has reduced the taxes that governments can raise from domestic (and foreign) businesses to pay for public infrastructure investment and social guarantees. With reduced transportation and communications costs, as well as the rising skills of labor in much lower wage (and social wage) economies, businesses in the industrialized countries can move "offshore" to lower their wage bill and tax burden. Offshore competition also means that domestic individual income tax base growth has slowed in the industrialized countries as employment and wages rise more slowly. The usual government response in the past to increased foreign competition of increasing tariff protection for domestic producers, is increasingly difficult for the state. Much of the new demand for its domestic economy's products are abroad, and much low-cost technology and producer inputs also come as imports from other countries. Finally, international capital markets play such an important role in influencing a country's position in foreign trade, that it is extremely difficult for individual countries to "protect" unilaterally against foreign competition; and

- On the spending side, an ageing and longer-living population has drastically increased the claims on state revenues of those collecting retirement and health care benefits. As their proportion of the population has risen, so has their relative political power to enforce those claims.

Government bureaucracies organized around the previous industrial production system will also not be easy to change. That system that assumed increasing employment in stable jobs, stable communities, a family where the man worked and the woman stayed home, and an *employed* working life that lasted 40-45 years (from age 20 to 60 or 65 years-old). Until government accepts the dramatic changes in the workplace, it will continue to be notoriously inflexible in responding to the disutility of old programs and the development of new ones. Shifts in programs and policies have

been made doubly difficult because political constituencies have been built around the old programs, and they have joined with existing bureaucracies to resist change.

Therefore, even as changing production and demographics place new, legitimate financial demands on the state, it is not released from previous commitments. For example, to stimulate population growth, families in most industrial countries are given direct payments or tax credits for every child, regardless of need. In the United States, the annual tax exemption is $2 500 for each child (or other dependent), irrespective of income level, and legislation now being proposed by the Republican-controlled Congress could provide an additional $500 per child tax credit to all families that earn less than $200 000. In Sweden families receive $1 200 annually for each child (this will now be reduced to $1 000). Such family subsidies are not at all tied to need or how families organize themselves to improve the learning conditions for their children. Another example: "corporate welfare" -- subsidies to various industries and agricultural interest -- in the US is estimated at $200 billion per year, including large subsidies to the aerospace industry. Agriculture and mining production in Germany and France are heavily subsidized, allegedly for "political-cultural" reasons. In all OECD countries except Japan and Germany, spending on the military is large and declining slowly despite the end of the Cold War. The weapons production portion of such spending has also increased relative to the "national service" and training components of the military.

Finding the political path to effect the state's transformation will be easier in those countries where the state itself still has legitimacy as a mechanism of social leadership and change. This is certainly more the case for northern Europe and Japan than for Italy or the United States. But successful transformation for all states lies in making consistent choices that move them away from the old configuration of service delivery to one coherent with a society organized around learning and around more equalized access to knowledge and information.

State support for learning networks

Knowledge and information are the most important resources in a flexible, high tech labor market. And despite neo-conservative complaints about the quality of public education, government will continue to play a key role in preparing youth and adults for the workplace and to assure that information with high social benefits is widely accessible. Government will also have to take responsibility for promoting more job training in private firms and for increasing young people's access to it. Government-run public service programs for young and old (including military service), may, in some countries, have to serve as major training organizations and apprenticeship programs for a wide range of occupations, especially for those young people with low levels of education. Municipal governments will have to provide training and marketing services, perhaps tied into local community college resources, for small-scale entrepreneurs who want to start their own businesses and need market and financial information. And local (municipal and provincial) governments would ideally build networks between public educational institutions, public and private community service organizations and private firms to develop integrated work systems for higher productivity.

The state is the main provider of formal education in every advanced industrial society. Even in the United States, known for it excellent private universities, 90 per cent of post-secondary students attend public institutions. In the information economy, the state will need to *expand* this role, mainly to give a much higher proportion of 18-24 year-olds the chance to acquire professional and semi-professional degrees, and to allow older individuals the possibility of attending universities and earning degrees during their working lives. This is a costly proposition. To finance the expansion of

higher education, OECD countries will turn increasingly to privatizing its costs by charging tuition fees for those families who can afford to pay[16].

Higher tuition fees at public post-secondary institutions is not the only change required. Higher education will also need to be more flexible in terms of *when* people can attend and earn their degrees. For example, when forms of public service for youth become more widespread, many young people will postpone university studies until after public service is completed, especially if such service is rewarded by tuition scholarships. Individuals with complete secondary education should be able to enter some form of post-secondary education after having worked for some years. Those with incomplete or complete post-secondary education should be able to re-enter university to learn new careers even at a "late" age. In this sense, the US educational system is much more in tune with a flexible, lifelong learning system than the European or Japanese systems. Anyone with a high school diploma in the US can apply for further studies at any age. Similarly, those with college degrees can apply for graduate work even in fields that are not related to their first degree. These are not hypothetical possibilities. The greatest increase in college enrollment in the 1980s was among women over 30 years old (National Center of Education Statistics, 1994), and many graduate schools are filled with older students who have had work experience but want to change careers. In effect, going back to school allowed these women to be considered "new entrants" to the labor market even though they were much older.

OECD governments also need to develop more effective transitions between school and work. Because of high youth unemployment in both the US and much of Europe, there has been a growing interest in *school-to-work transition programs*. The largest of these is the German "dual system", in which a high proportion of secondary school graduates are hired into apprenticeships in German firms (Timmerman, 1993; Lynch L., 1994). While working as apprentices, they receive part-time vocational education in special schools, funded and run by State governments. Thanks to the dual system, youth unemployment rates in Germany (and Austria and Switzerland, with similar systems) are much lower than in other OECD countries. Three of the system's key features are the trust that German firms place in student evaluations by vocational schools, the relatively low wages paid by firms to apprentices[17], and the "portability" of certificates based on national standards. When these components are missing, such as in British and US attempts at implementing the German system, apprenticeship programs do not work nearly as well[18].

But the disappointing results of US school-to-work programs may be due to the nature of the US job market. Part of its "flexibility" is its absorption of millions of students into part-time and part-year work, providing work experience to youth while in school and university. The main effect of government sponsored school-to-work programs in the US may be to motivate high school students to complete their degrees and go on to post-secondary education. In Europe, school-work programs would have higher wage payoffs than in the US for those who get taken on simply because most youth do not work while in school -- an employer in Sweden and Germany expects young people to have had an organized school-work experience, and will pay higher wages for those who have had one if they are duly certified. Yet, European governments need to worry about firms' willingness to take on apprentices. This is where low apprentice wages and good school-employer relations come in. Both depend on a close learning-work partnership (network) between local governments, employers, and unions.

At least since World War II, the largest government school-to-work program in many OECD countries has been the military, and this suggests that national service can serve the same role as the dual apprenticeship system in bringing youth from the world of formal education into the world of

responsibility and work. The United States military, for example, voluntary since the mid-1970s, has trained millions of men and women from lower-income families into skilled military and civilian jobs. A certificate of training in the military plus military service itself have broadly acceptable value in the job market. Properly organized, other forms of service, both in the US and Europe, could be a valuable and valued apprenticeship, combining skill acquisition, an enhanced sense of self through helping others, and learning in a co-operative work environment with other young people from diverse backgrounds.

National service could be especially effective in inducing disadvantaged youth to continue their studies once service were completed, for two reasons. In a supportive work environment, many less academically motivated youth would be stimulated to go on to post-secondary education. National service could also be organized around financial inducements to combine service with further education, either before or after university.

In return for military service, the US government has provided hundreds of thousands of university scholarships. It has also used university scholarships to bring youth into teaching (Teacher Corps) and into police service (Police Corps) -- in those cases university studies are completed before entering the service.

In all these examples, the keys are that national service be organized around enhancing the knowledge and general work skills of those who serve and that the service contribute to the social well-being of the community at large. The more obvious these features, the more publicly desirable national service becomes, and the easier it will be for those youth who engage in it to get jobs after they complete. This means that part of government's task is to build each of the service options into community networks that are also supported by local businesses.

National or community service need not be oriented only to youth. The US Peace Corps was transformed by Republican administrations into an experienced adult service corps. With the recent dismantling of military bases, large numbers of black and Latino men, let go from the armed forces, have been “converted” into classroom teachers. Similar conversions could be effected for all kinds of experienced, displaced workers in their forties and fifties who could easily serve their communities in supplying a host of needed services. Some of these could be “voluntary” and others could be paid, depending on need.

The importance of such networks extends beyond assuring the success of school-to-work programs or involving displaced older workers in teaching activities. In the *land* of Baden-Wurttemberg, the local government has joined with private firms to create a “collective technology management” network that has spurred the innovative capacity of the region's firms. Public institutions and private associations participate in the network with the goal of preparing human resources able to use and expand the use of existing and future technology. The dense network of relations among the region's universities, polytechnics, training centers, entrepreneurial associations, and public institutions creates an environment favorable to innovation, reducing the cost of networking among firms, facilitating communication, and improving the creation and diffusion of innovation (Cooke and Morgan, 1994). The network could not prevent Baden-Wurttemberg from being hard hit by the recession in Europe, and its automakers (Daimler-Benz, Audi, and Porsche) all moved to reduce dependence on regional suppliers as part of their restructuring efforts. But the response by the regional government was to make networking even more important in the future by creating new incentives for firms to collaborate and tie into local learning systems. The main issue now is how to use these networks to help generate new firms and diversify the Land's sectoral

structure. Rather than just making existing firms more dynamic, government and educational institutions will need to focus part of their research and training on new areas of technological advantage that would make the region attractive to high tech industries and business services. The existence of learning networks make achieving that goal much more likely than in regions without them.

Municipal governments in Northern Italy play a different kind of networking role, fostering the development of small and medium industry based on local expertise. In the town of Poggibonsi in Tuscany, for example, the municipality has helped the growth of a large group of small-scale office furniture producers by providing the group marketing services, especially for export, and a series of other forms of technical assistance, including management courses run by the municipality for local producers. The services would have been too expensive for any one of the small firms to buy individually, but for the municipality, the benefits of new employment and increased municipal revenues far outweighed the cost. The socialization of information and learning costs by local government enables small producers to have many of the advantages of much larger firms and forms the basis of networking among firms producing similar products. Similar networks could be provided by municipalities for a whole range of small businesses by supplying the kinds of technical services that in essence are learning networks. Although such networks are no substitute for reducing the cost of forming new businesses and making more credit available for small and medium enterprises -- major reasons why new businesses spring up so quickly in the United States and they do not in Europe -- they do help new businesses survive and grow.

Regional and central governments can also disseminate new knowledge to private firms on best practice management. Despite the current wave of “co-operative” business ideology promoting more training in firms, more worker participation, and greater co-operation between unions and management, the majority of firms still use old-time, top-down, hierarchical decision-making, many because they do not have the expertise to change over to the new system (Derber, 1994). Lack of expertise and information produces management resistance to change. This is where government best practice management centers can make a difference. By supply information and technical assistance, the centers can help companies learn how to use employee training, cross-training, and pay incentive systems to boost productivity and save jobs.

State support for the household partnership

Households' integration into learning networks is the linchpin of a flexible, knowledge-based work system. The state's family policies are fundamental to this integration, since the state is the only institution that has both the material resources to support the household's investments in its members and the political accountability to do so. Such policies need to enhance the household partnership's capacity to invest in learning without interfering in the privacy of its decisions. The state can do this by helping the family acquire education for its children even as parents are on flexible work schedules; giving parents new possibilities to take further education and training themselves; guaranteeing family health care even when family members are unemployed or studying; providing widely available training to youth, prospective parents, and parents on child care and child development; using fiscal policies to reward families that invest in education; and strictly enforcing laws that ensure that parents, whether they are divorced or married or live together or not, contribute financially to the support of their children.

Knowledge acquisition depends heavily on early childhood development, and early childhood takes place in families. Not only are most parents uneducated about child development, but collective society pays little attention to the crucial early years of a child's learning. Again, this is a leftover from pre-industrial and industrial society, when how much knowledge a child acquired in school was far less important to their work lives.

Those OECD countries that have been especially conscious of children's welfare when both parents or a single parent work provide all-day, high quality subsidized day care. In Scandinavia and France, day care is the centerpiece of family policy. More recently, Japan has begun well-staffed day care centers for working mother (*The New York Times*, February 1995; Hewlett, 1991). In all these countries, "day care" is organized by the state around well-trained, certified teachers who are specialized in *early childhood development*. The Japanese centers are so highly regarded that some mothers who do not work take jobs for a month or two just so that they get their child(ren) into a center.

With individuals in families facing more intense pressures in their work lives yet still having children, governments need to take the child development issue even more seriously. Child development centers are the key to meeting the household's need for parents' job flexibility and children's early enriched learning. They are expensive, and, as in the case of higher education, parents who can afford to pay, should. In France, parents do contribute on the basis of ability to pay, and in the US, where publicly-supported child care centers are the exception, good quality childhood development is almost entirely paid for by families themselves. This means that low-income parents do not get access to high quality care with an enriched development focus. So from such early care on, knowledge development in a market model is highly unequal -- precisely the contrary to what a flexible, knowledge-based society needs for sustained development.

The state also has to insure high quality health care for all children even before they are born and has to invest in the education of parents regarding the responsibilities and skills of parenthood. Since most early childhood education takes place in families, even where the state subsidizes child development centers, parents are children's main teachers -- yet they are hardly prepared for that role. Secondary schools and universities need to require parenting courses, and need to emphasize parents' child development responsibilities. If anything, an educational focus of this kind will convince many young people to delay parenting until a time when they can fulfill their children's learning needs.

Beyond early childhood development, governments need to make schools community learning centers, where parents can leave their children in a learning environment during parent work or education hours and during that part of the school vacation period when parents do not have vacation time. The community learning center should also be places where parents and seniors can come to engage in learning activities -- some related to their children's education and some to adult activities, including community-run business courses for the self-employed.

Currently, parents in Europe and the US are induced to have more children through family income entitlements, tax deductions for dependents, and welfare for mothers with dependent children. In the knowledge economy, fiscal inducements should be tied to investment in education and training, not simply to having children. The Clinton administration's "middle class tax cut," which provides tax deductions for the costs of children's college education and for adult training are a step in this direction. A similar deduction should be allowed for children's pre-school and parents' education toward a degree.

This focus on state support for families through education and training investment tax credits and the direct provision of high quality early childhood development also means that the state needs to reconcile the way it views and delivers education. Local existing educational institutions -- from primary and secondary schools to community colleges and universities -- are the logical sites around which the state can build all-day, all-year, cradle-to-the-grave learning networks for households to hook into, whether parents are employed or self-employed. Yet, these institutions have to evolve to meet varying needs in various communities. In low-income communities, for example, the demand for both full-day children's education and even adult education may be far greater than in high-income communities. Government allocation of resources for education should be responsive to such unequal needs as part of what we call a "solidarity policy" of equalizing opportunities and social protection.

State solidarity policies

Free, unregulated markets are marked by great income inequality, as well as ethnic and gender discrimination (Danziger and Gottschalk, 1993; Levy and Murnane, 1992; Carnoy, 1994*a*). At least part of this inequality results from unequal access to learning, a product of family income/education differences and the unequal treatment of children by schools (Carnoy and Levin, 1985; Bourdieu et Passeron, 1977). Markets also discriminate among ethnic and gender groups in hiring and job promotion. And even should the state be effective in networking households into learning opportunities and greatly equalizing access to educational resources and "teaching" employers to train and pay individuals with similar knowledge but from different ethnic and gender groups more equally, there will still be some proportion of the working age population who are not very productive and are likely, if left unprotected, to be poor.

Society pays an enormous price when it allows the market alone to set incomes. The continued existence of poverty can produce a permanent underclass, with high rates of unemployment, crime and moral disintegration, and dysfunctional learning experiences for children. The state is the only institution able to prevent the development of such an underclass. Only government has the power and the resources to equalize access to learning, to legislate and enforce more equal treatment in the labor market, and to ensure that those most vulnerable to discrimination and economic dislocation and marginalisation have some measure of protection against poverty. Equalizing learning and reducing poverty is a high return investment for knowledge-based societies. Permanently poor households and communities cannot engage in the kind of learning and teaching needed by workers in flexible production, so they will always be dependent and alienated.

Consistent with our analysis of the shift away from a work system based on permanent jobs toward one based on mobile knowledge and information, solidarity policies should be organized around the citizen-learning-worker-teacher rather than the job. Their underlying theme should be enhancing individual capabilities universally rather than enhancing universal entitlements. Most OECD countries provide universal health care and public education. Yet only a few currently do a good job in equalizing access to learning -- through the kinds of education and training policies that start early with learning -- disadvantaged children, make high quality resources available to them in school, and then prepare and motivate them to go on to university. Neither have most governments developed adult education programs (including university degree programs for workers in their forties) that allow true occupational "conversion" for older workers[19].

But we admit that not all citizen-worker issues in this difficult economic and social transition can be settled only by enhancing individual capabilities. A solidarity policy has to include work-related

issues such as job-sharing, early retirement for much less-educated older workers who would prefer not to convert to new (lower-paying) jobs, part-time community service work for older workers who do "convert" occupationally through adult education programs, and tax incentives to companies that invest in special equipment to hire disabled workers. Solidarity also means retaining the most important minimum income guarantee programs, such as social security, unemployment insurance, and relatively high minimum wages, all already in place in almost all OECD countries (the United States is an important exception to high minimum wages). A number of OECD countries also provide protection against poverty for their most vulnerable groups. For example, in northern Europe one of the most likely groups to be poor, children have relatively low poverty rates thanks to government income transfers (see Figure 9)[20].

That said, the largest of the income guarantee programs in all OECD countries, social security, will soon have to be changed because of the growing proportion of the population receiving it relative to employed workers contributing (see Appendix I). Were solidarity principles applied to old-age pensions, such entitlements would vary inversely with need. They currently do not, and that makes them hugely expensive. Governments now realize that those pensioned persons with already high incomes from other sources should have their pensions taxed. Other (private) saving plans, such as mutual fund investments, should be encouraged while families are working, so that lower income families with less opportunity to save would receive a much higher than proportional share of net payouts from public pension plans. A "solidarity" social security system would also allow early retirement from wage employment for less-educated and least re-trainable older workers, who could then engage in community service work (paid by public pension funds) as part of their early retirement plan.

Chapter 6

CONCLUSION: THE SEARCH FOR SECURITY IN THE INNOVATION SOCIETY

What emerges from our analysis is the vision of an extraordinarily dynamic, flexible, productive economy, together with an unstable, fragile society, and an increasingly insecure individual.

What emerges from our alternative proposals to design a better environment for tomorrow's work is the necessity of a concerted action by government, business, and social organizations to educate the productive worker, to reconstruct the community, and to strengthen the family under new forms of household partnership.

In our type of society, strategies that do not help develop new social networks will fail, and no solution to our crises will be found without the full involvement of the individual. By and large, "the individual" -- confronted by the current whirlwind of social and technological change -- is terrified. Without facing this absolute demand for security from people in all social conditions, the unstoppable transformation of work in the information age will degenerate into social disintegration and may trigger traditional reactions of resistance to change and widespread xenophobia. Citizens of advanced societies may resort to intolerant ideologies and authoritarian politics.

We believe that a flexible worker, a flexible work process, and a flexible enterprise are positive and necessary developments in the information age. If such flexibility is coupled with the proper social and economic regulations at the national and international level and the trend towards the gradual reduction of working time per capita as technological innovation advances, increases in productivity and demand for new products will generate sufficient levels of employment. Notwithstanding painful adjustments for industrial sectors and specific categories of workers in the transition to the new production system, it is reasonable to think that the employment and work situation will stabilize at a higher technological level after a period of turmoil.

But in the process, society may well destabilize.

We believe that the emerging social crisis results from the process of individualization of labor that is replicated and reinforced by the disintegration of basic institutions of social co-operation. This a historically new situation. It is not a repeat of the transition from *Gemeinschaft* to *Gesellschaft* as Durkheimian sociology characterized the process of capitalist industrialization. We are not shifting towards organic solidarity, but, towards the end of all solidarity. The new historical transition could be considered to be from *Gesellschaft* to "*Selbstschaft*." This is why orthodox neo-liberal ideologies, with the extraordinary merit of dissolving bureaucratic structures, would, in a context of extreme individualization, accelerate disintegration. As much as we need to liberalize the economy we must "solidarise," or unify, the society. But this cannot be done by invoking the traditional family or taking refuge in fundamentalist values. Women, as is their right, will not let the patriarchal family

survive. Fundamentalism will end up enclosing various tribes in their castles to re-ignite holy wars against each other.

Unrepentant rationalists that we are, we propose co-operation between government (particularly local governments), business (particularly the modern, networked corporation), social organizations (from labor unions to churches), and individuals (women, men, and children), to build interactive communities, to re-center life in a co-operative household, to develop schools as centers of sociability and permanent learning, to mix time and space in work, pleasure, and learning, to reinvent politics by thinking local (starting form identity) and acting global (where the power lies). Since the individual can no longer return to the lost paradise of a structured, stable world (the job, the family, the community, the union, the church, the state) she/he will have to learn to patch together life with a set of half-certainties. Various components of life will provide balance through the crises, and the whole will remain a stabilizing environment. As firms have to manage uncertainty in the new technological and business world, the individual will have to manage life in similarly unpredictable terms, and yet not panic. He and she will need help, not to find another job, but another life. A life where the blossoming of today heals the fear of tomorrow.

Table 1. **Unemployment in various countries, 1933-2000**
(as percent of the labour force)

	1933	1959-67 average	1982-92 average	1992	1993	Forecast 1995	Forecast 2000**
Belgium	10.6	2.4	11.3	10.3	12.2	12.7	11.8
Denmark	14.5	1.4	9.1	11.1	12.1	10.5	8.2
France	4.5*	0.7	9.5	10.4	11.7	12.2	14.0
Germany	14.8	1.2+	7.4	7.7	8.9	10.0	8.2
Ireland	na	4.6	15.5	17.2	17.6	15.4	17.9
Italy	5.9	6.2	10.9	10.7	10.2	11.9	13.2
Netherl.	9.7	0.9	9.8	6.8	8.3	9.5	6.8
Spain	na	2.3	19.0	18.4	22.7	24.4	23.7
UK	13.9	1.8	9.7	10.1	10.3	8.2	9.4
Austria	16.3	1.7	3.5	3.7	4.2	4.6	1.2
Finland	6.2	1.7	4.8	13.1	18.2	17.7	17.7
Norway	9.7	2.1	3.2	5.9	6.0	5.2	6.1
Sweden	7.3	1.3	2.3	5.3	8.2	7.8	8.3
Switzerl.	3.5	0.2	0.7	2.5	4.5	3.8	1.3
US	24.7	5.3	7.1	7.4	6.9	5.8	5.8
Canada	19.3	4.9	9.6	11.3	11.2	10.2	11.5
Japan	na	1.5	2.5	2.2	2.5	2.8	2.8
Australia	17.4	2.2	7.8	10.7	10.9	9.5	11.7

Source : 1933-1993 : Freeman and Soete (1994), *Work for All or Mass Unemployment ?, T*able 1.1; 1995-2000 : ILO, *World Employment, 1995*, Table 21.

Notes : na = not available; *1936 ; + The Federal Republic for 1959-92 ; ** Assuming unchanged economic policies.

Table 2. **Relative income inequality in different nations around 1985 (Gini Coefficient)**

Finland	0.207
Belgium	0.235
Fed. Rep. of Germany	0.250
Netherlands	0.268
Luxembourg	0.238
Norway	0.234
Sweden	0.220
France	0.296
Australia	0.295
Canada	0.289
Italy	0.310
United Kingdom	0.304
Switzerland	0.323
Ireland	0.330
United States	0.341

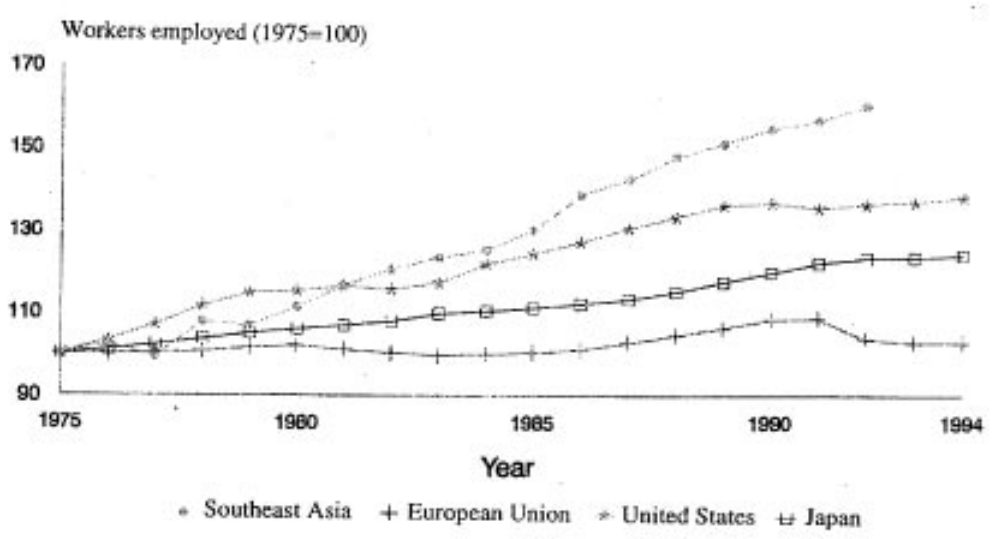
Source : Atkinson, Rainwater et Smeeding (1995), *Income Distribution in OECD Countries: Evidence from the Luxembourg Income Study*, OECD, Paris.

Table 3. **Trends in the index of Gini coefficients of income inequality in OECD countries, 1970-93**
(figures represent indices of income inequality in each country over time)

Year	Japan	UK	US	France	Germany	Italy	Sweden
1970		98		109			
1971		101					
1972		102					
1973		98					
1974		95					
1975		92		105			112
1976		92					109
1977		90				114	107
1978		91				109	105
1979		96	101	100		110	103
1980		98	100			102	102
1981	100	100	103			100	100
1982		102	107			94	102
1983		103	109		100	95	102
1984	109	108	110	102		98	107
1985		111	110		104		107
1986		117	110			99	112
1987	108	124	110		101	104	107
1988		125	112				107
1989		130	113	102		97	110
1990	113	130	114		104		123
1991			113			95	129
1992			115				
1993			117				

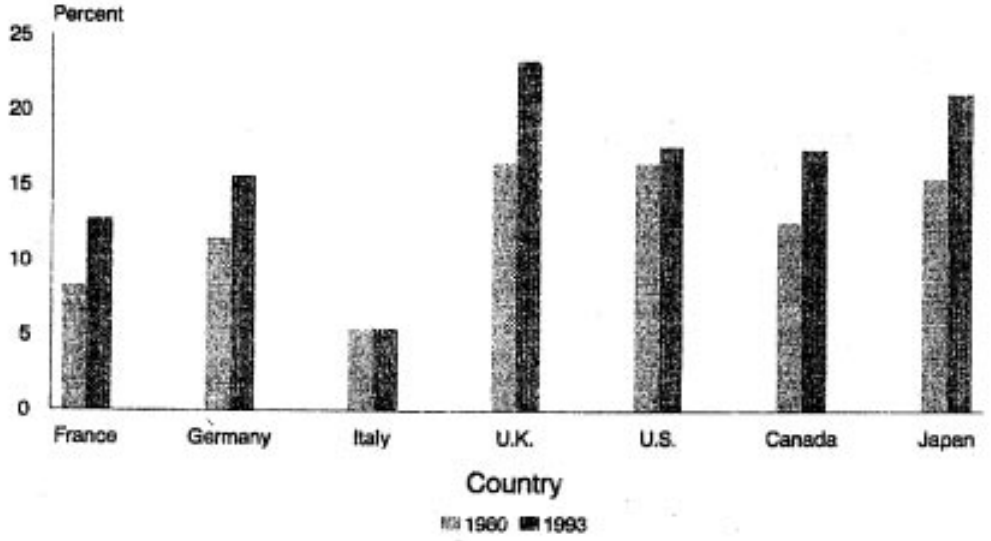
Source : Peter Gottschalk and Timothy Smeeding, "Cross National Comparisons of Levels and Trends in Inequality", March 3, 1995 (mimeo). The indices shown use different measures of income or earnings in each country, but generally employ disposable family income.

Figure 1. **Index of employment growth by region, 1975-1994 (1975=100)**



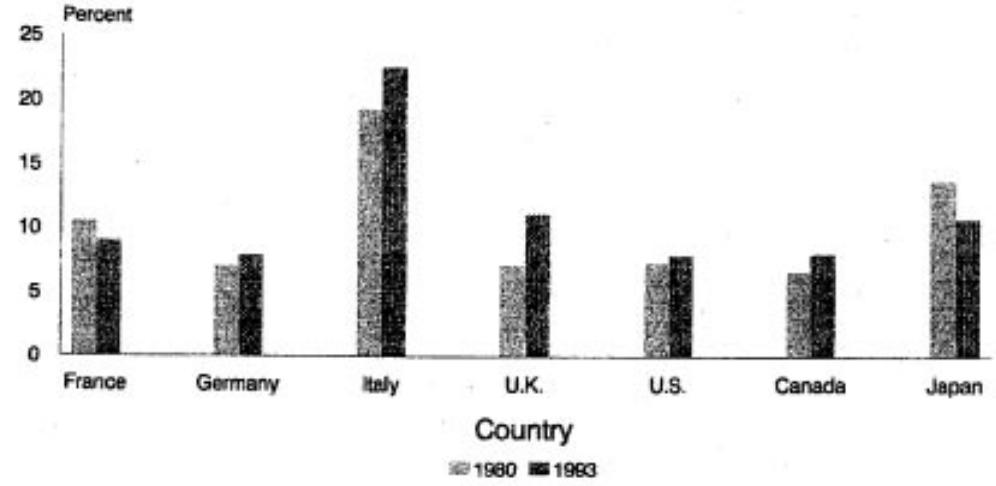
Sources: ILO; OECD; Freeman and Soete (1994), *Work for All or Mass Unemployment*, Fig. 4.1.

Figure 2. **Part-time employment in some OECD countries, 1980-1993 (percent of total employment)**



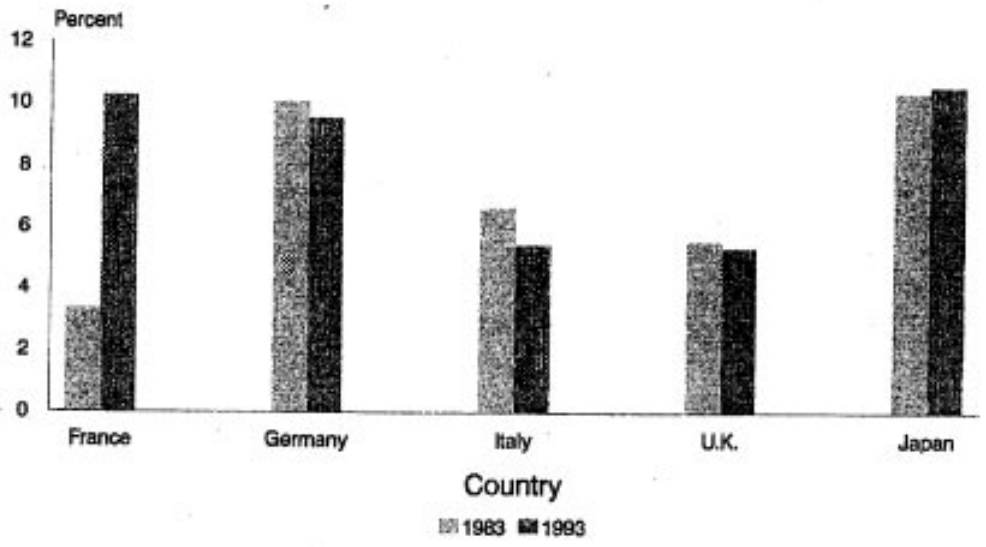
Source: *OECD Employment Outlook* (1994).

Figure 3. **Self-employed labour in some OECD countries, 1980-1993 (percent of non-agricultural civilian employment)**



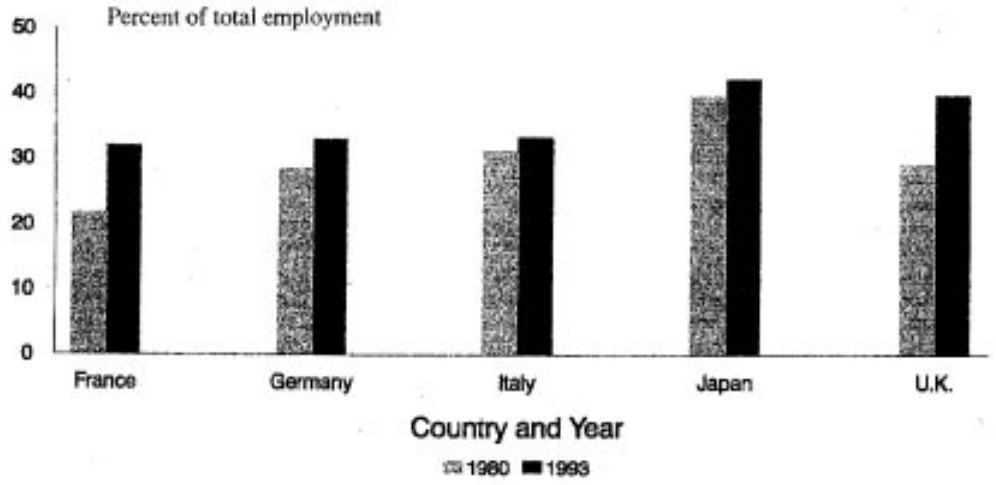
Source: OECD Labour Force Statistics (1994).

Figure 4. **Temporary workers in some OECD countries, 1983-1993 (percent of total employment)**



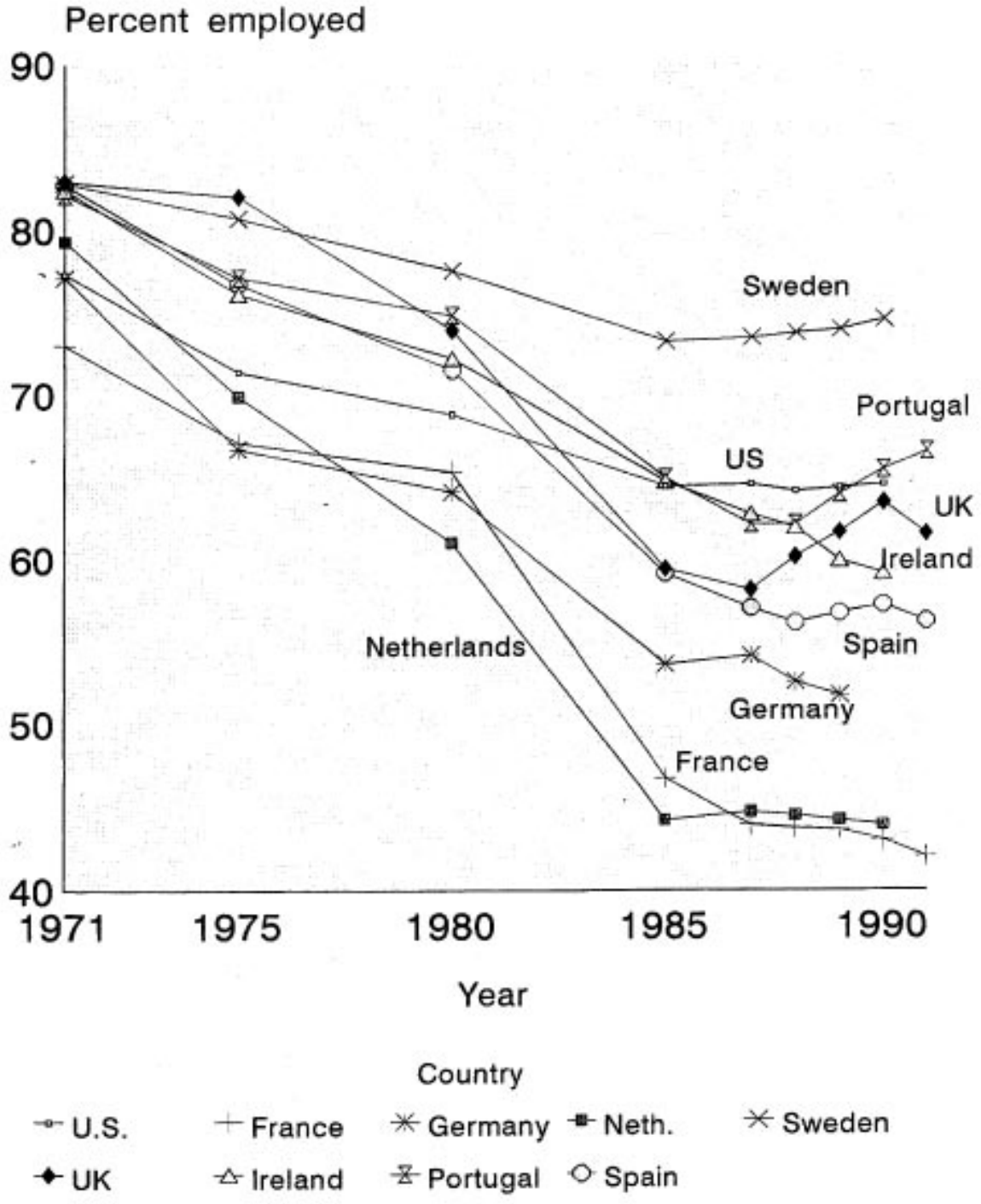
Source: OECD Employment Outlook (1993).

Figure 5. **Part-time, self-employed, and temporary workers as a percent of total employment in some OECD countries, 1980-1993**



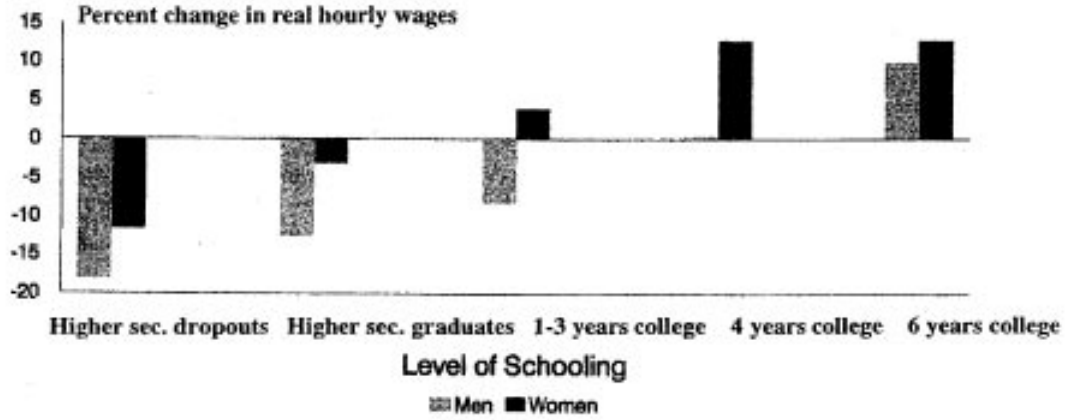
Source: OECD (see Appendix I).

Figure 6. **Labour force participation rate for 55-64 year-old men in nine OECD countries, 1971-1991 (percent of men in age group employed)**



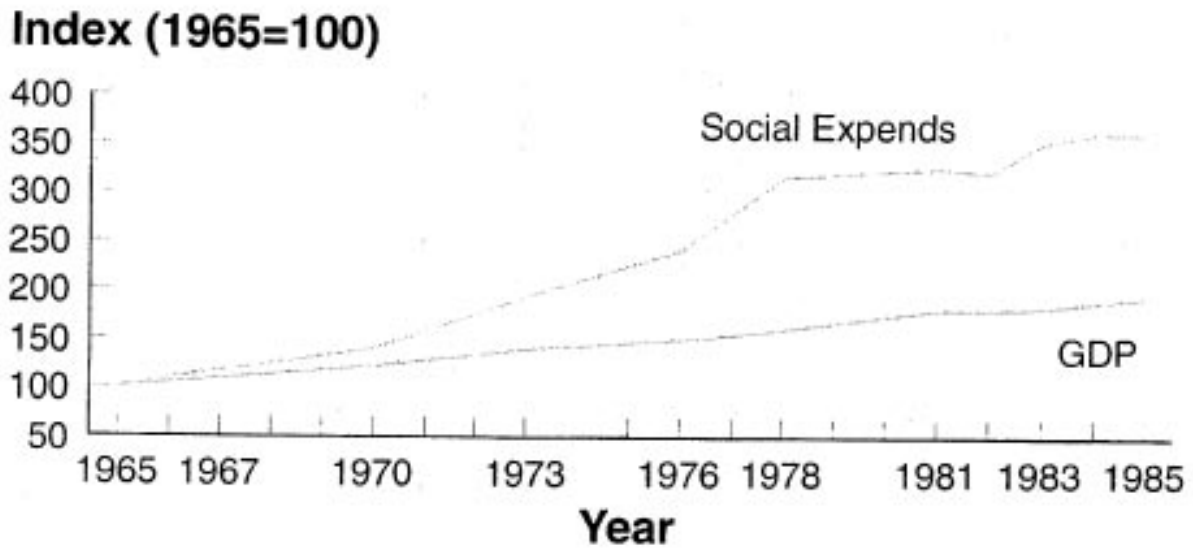
Source: Anne-Marie Guillemard (1993).

Figure 7. **United States: percent change in real average hourly wages, by level of education and gender, 1979-1989**



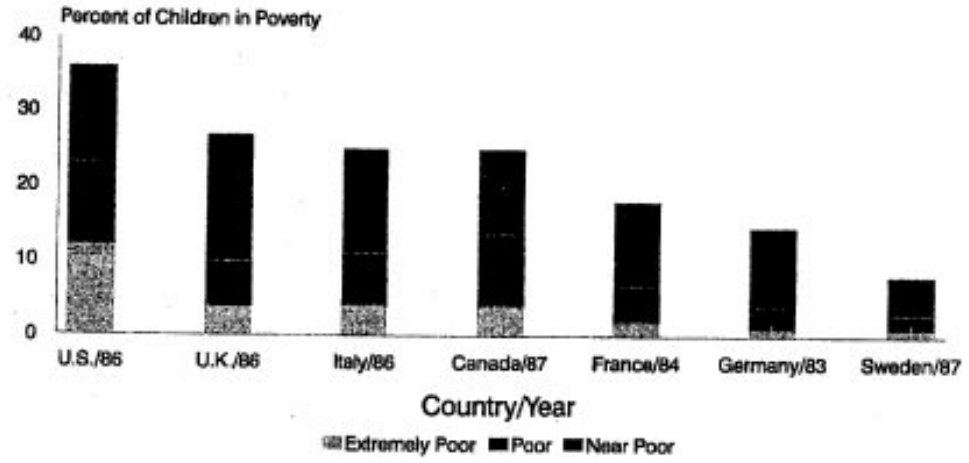
Source: **B. Bluestone, "The Inequality Express", *The American Prospect,* Winter, 1994, p. 82.**

Figure 8. **Real social expenditure and real GDP, 1965-1985**
(unweighted average in 21 OECD countries)



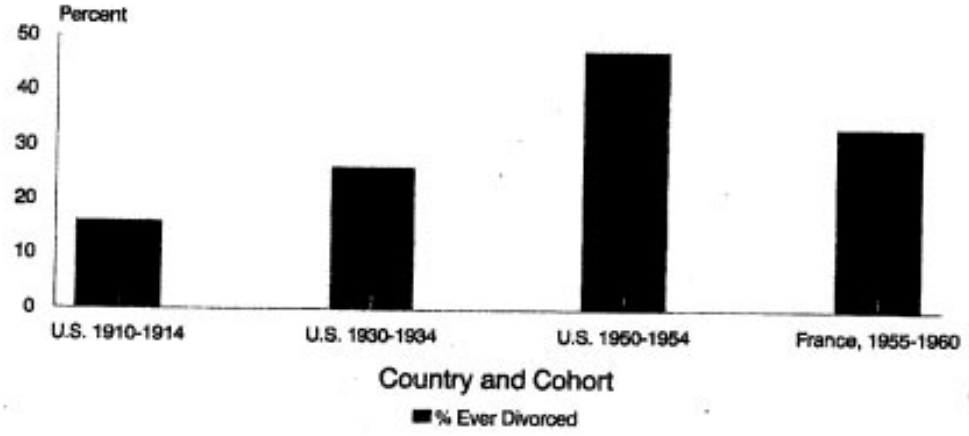
Source: OECD, *National Accounts* and Social Databank.

Figure 9. **Child poverty and near poverty in some OECD countries, mid-1980s/early 1990s (percent)**



Source: Income Distribution in OECD Countries -- Evidence from the Luxembourg Income Study, OECD, 1995.

Figure 10. **Percent of women who divorce, United States (by birth cohort) and France (projection for recent cohort)**



Sources: Cherlin, *Marriage, Divorce, Remarriage* (1981); INSEE, *Données sociales 1993* (1993).

NOTES

1. For a balanced and well informed assessment of the matter, see: Freeman and Soete (1994).

2 See OECD (1994, p. 164). See also among other studies Appelbaum and Schettkat (1990); Ozaki et al. (1992); Bushnell (1994); Wood (1989); Dean et al. (1992); Watanabe (1987).

3. For an analysis of the evolution of occupational and employment structure in G-7 countries, including projections to 2005, see Manuel Castells and Yuko Aoyama (1993). Along the same line of argument, for projections on the UK, Germany, and the Netherlands, see Hans Heijke (1994). And OECD (1994).

4. See Martin Carnoy (1989); G.R. De Witt (1990). For an example of transformation of work and re-skilling in services, see Liz Thach and Richard W. Woodman (1994, pp. 30-46).

5. For social problems associated with part-time work see: Barbara D. Warme *et. al.* (1992).

6. For an assessment of the decline of traditional unionism under new technological conditions see: Carnoy, Pollack and Wong (1993).

7. For an empirically grounded elaboration on this theme, see: Martin Carnoy and Fred Fluitman (1994).

8. Sweden has long organized its unemployment compensation system around retraining and reemployment, and continues to focus on spending for child development (day-care centers), education, and job training. With some increased cost recovery for education and child care, plus a continued reduction of income subsidies to families that do not "need" them, the government deficit could be sharply reduced, yet still promote a learning-centered government public investment policy. In contrast, the current welfare reform debate in the United States is being pushed steadily toward greater job centeredness away from learning/work centeredness. Neo-conservative legislators tend to ignore the dead-end jobs available to most hard-core welfare recipients. See Patricia Spakes (1992, pp. 44-60).

9. However, much of the massive literature on job-sharing discusses it in terms of getting around the definition of a job for the convenience of individuals who wish to work part-time. In that case, job-sharing is not a way to save jobs, but only to convert full-time jobs in voluntary part-time jobs. This practice is much more prevalent among professionals, often husband and wives who wish to divide time on the job and in the family. See Thyra K. Russell (1994).

10. Perhaps no activity is more representative of this individualisation than television watching. The average family in the United States has the television set on about 50 hours weekly, and European families are slowly catching up. Although television can serve as a teaching device,

and will soon be interactive, its main function is to provide non-interactive entertainment. Its numbing effect on children and adults has been documented in a number of studies (see, for example, Jerry Mander (1978).

11. Considering that the unemployment rates for young post-secondary graduates was only 8 per cent in the mid-1980s, whereas the average rate for the young was 25 per cent (INSEE, 1993, p. 146), suggests that the concentration of unemployment among the young was in the groups with secondary schooling or less, just as it was in older groups.

12. In Europe, the secondary system was organized around vocational education, on the premise that young men with mechanical experience and young women with secretarial and other service skills would be assured career jobs.

13. For US data, see US Department of Health and Human Services (1988); for France, see INSEE, *Données sociales* (1993, p. 318).

14. There is significant paradox here: when children were considered an "investment good" (as a source of future income for the family), particularly by the Stage 1 and Stage 2 families, there was relatively little investment in children, although the skills taught by fathers to sons and mothers to daughters were important investments. Yet, when children became a source of psychic value (a consumption good), investment in them by the family became increasingly important.

15. For labour influence on wage negotiations in Europe, see Robert Flanagan (1983).

16. For middle income families, tuition fees could then be deducted from income as an incentive for parents to invest in the higher education of their children (as recently proposed by the Clinton administration). Students from lower income families would be eligible for scholarships or tuition grants.

17. German apprentices are paid much less than apprentices in other countries, typically one-third or an unskilled workers' wages rather than the 60 per cent in the US and the UK. See Lynch (1994).

18. See Lisa Lynch (1994); Sarah Cleveland (1992). The US has a number of such programmes -- "co-op" school-work programmes (working 20 hours per week for an enterprise while pursuing a "career-oriented" curriculum in high school), apprenticeship programmes for youth while still in high school, and "school-based enterprise" programmes, in which students gain work experience in school-run enterprises-for-profit. In addition, a high percentage of high school and university students work while in school. All of these provide work experience to students before they fully enter the labour force. Evaluations of these programmes suggest that mist do not significantly increase either the employability of high school graduates or their wages. In the case of apprentices who stay with the same employer, they do receive significantly higher wages than youth who have not had apprenticeships. This result suggests again that in the absence of standards and certificates, apprenticeships do not have general market value. But co-op and apprenticeship programs do seem to help students complete high school by focusing their academic programmes toward concrete work situations. See David Stern *et al. (*1995).

19. The United Auto Workers (UAW) union has long sponsored a "workers' university" degree programme for auto workers at Wayne Statue University in Detroit.

20. The United States has the highest rate of poverty among children in part because of a high proportion of children in households headed by women.

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Appendix I

OECD Area: Employment, Type of Work, and Work Time Trends

Table AI.1. **Annual hours worked per person, 1970-79**

Country	1870	1880	1890	1990	1913	1929	1938	1950	1960	1970	1979
Canada	2 964	2 871	2 789	2 707	2 605	2 399	2 240	1 967	1 877	1 805	1 730
France	2 945	2 852	2 770	2 688	2 588	2 297	1 848	1 989	1 983	1 888	1 727
Germany	2 941	2 848	2 765	2 684	2 584	2 284	2 316	2 316	2 083	1 907	1 719
Italy	2 886	2 795	2 714	2 634	2 536	2 228	1 927	1 997	2 059	1 768	1 556
Japan	2 945	2 852	2 770	2 688	2 588	2 364	2 391	2 272	2 432	2 252	2 129
United Kingdom	2 984	2 890	2 807	2 725	2 624	2 286	2 267	1 958	1 913	1 735	1 617
United States	2 964	2 871	2 789	2 707	2 605	2 342	2 062	1 867	1 794	1 707	1 607

Source: Maddison (1982); Bosch *et al. (*1994), p. 8, table 1.
Note: For Italy, 1978 figure is used for 1979.

Table AI.2. **Part-time, self-employed, and temporary workers as proportion of total employment, G-7 countries, 1972-93**
(percentage)

Country	Year	Part-time employment (total employment)	Non-agricultural self-employed (total civilian employment)	Temporary workers (total employment)	Part-time, self-employed, and temp. workers as total employment)
Canada	1972	9.7	6.7	-	-
	1980	12.5	6.6	-	-
	1983	15.4	-	-	-
	1985	-	7.5	-	-
	1990	15.4	7.4	-	-
	1993	17.3	8.0	-	-
France	1972	5.9	11.7	-	-
	1980	8.2	10.5	-	21.7*
	1983	9.7	-	3.3	23.5*
	1985	-	10.5	4.7	25.2*
	1990	12.0	9.3	8.5	29.8
	1993	12.7	9.0	10.2	31.9
Germany	1972	10.1	9.4	-	-
	1980	11.4	7.0	-	28.4*
	1983	12.6	-	-	-
	1985	-	7.6	10.0	30.6*
	1990	15.2	7.7	11.0	33.9
	1993	15.5	7.9	9.5	32.9
Italy	1972	6.4	23.4	-	-
	1980	5.3	19.2	-	31.1*
	1983	4.6	-	6.6	31.2*
	1985	-	21.3	4.8	30.7*
	1990	4.9	22.2	6.3	33.4
	1993	5.4	22.5	5.4	33.3
Japan	1972	13.9	13.9	-	-
	1980	15.4	13.7	-	39.4*
	1983	16.4	-	10.3	39.5*
	1985	-	12.9	10.4	40.3*
	1990	19.2	11.5	10.8	41.5
	1993	21.0	10.7	10.5	42.2
U.K.	1972	16.0	7.3	-	-
	1980	16.4	7.1	-	29.0*
	1983	19.4	-	5.5	33.9*
	1985	-	9.9	7.0	36.9*
	1990	21.7	11.6	5.4	38.7
	1993	23.2	11.1	5.3	39.6

U.S.	1972	15.6	6.8	-	-
	1980	16.4	7.3	-	-
	1983	18.4	-	-	-
	1985	-	7.5	-	-
	1990	16.9	7.6	-	-
	1993	17.5	7.5	-	-

Sources: Part-time employment: *OECD Employment Outlook* (July 1994), p. 198, Table D.
Self-employment: *OECD Labour Force Statistics, 1972-92* (1994).
Temporary employment: *OECD Employment Outlook* (July 1993), pp. 21-22, Table 1.10-1.11.
Total part-time, self-employed, and temporary workers is sum of columns 1 to 3.

Notes:
a) Approximate.
1991 figures are used for 1993 in German data on self-employment.
1992 figures are used for 1993 in French, Italian, and U.K. data on self-employment.
1972 self-employment figure for Canada, 1972 and 1980 self-employment figures for U.K. and all years self-employment figures for France include unpaid family workers.
1989 figures are used for 1990 in data on temporary workers.
1991 figures are used for 1993 in data on temporary workers.
1989 and 1991 figures are used in place of 1990 and 1993 in data on total part-time, self-employed, and temporary workers as share of total civilian employment.

Table AI.3. **Labour force participation rates by sex, 1973-92 (percentage)**

	Men						Women					
Country	1973	1979	1983	1990	1991	1992[a]	1973	1979	1983	1990	1991	1992[a]
Australia	91.1	87.6	85.9	85.9	85.6	85.3	47.7	50.3	52.1	62.1	62.2	62.4
Austria	83.0	81.6	82.2	80.1	80.5	81.3	48.5	49.1	49.7	55.4	56.3	58.3
Belgium	83.2	79.3	76.8	72.7	72.8	-	41.3	46.3	48.7	52.4	53.2	-
Canada	86.1	86.3	84.7	84.9	83.9	83.4	47.2	55.5	60.0	68.1	68.1	67.9
Denmark	89.6	89.6	87.6	89.6	88.5	-	61.9	69.9	74.2	78.4	78.9	-
Finland	80.0	82.2	82.0	80.6	79.6	78.5	63.6	68.9	72.7	72.9	71.8	70.6
France	85.2	82.6	78.4	74.6	74.5	-	50.1	54.2	54.4	56.1	56.8	-
Germany	89.6	84.9	82.6	80.8	80.6	80.1	50.3	52.2	52.5	57.0	58.1	59.0
Greece	83.2	79.0	80.0	82.1	-	-	32.1	32.8	40.4	39.9	-	-
Ireland	92.3	88.7	87.1	82.2	81.9	-	34.1	35.2	37.8	38.9	39.9	-
Italy	85.1	82.6	80.7	78.9	79.4	79.2	33.7	38.7	40.3	44.9	45.8	46.3
Japan	90.1	89.2	89.1	87.8	88.9	89.3	54.0	54.7	57.2	60.4	61.5	61.7
Luxembourg	93.1	88.9	85.1	-	77.7	-	35.9	39.8	41.7	-	44.8	-
Netherlands	85.6	79.0	77.3	79.9	80.3	-	29.2	33.4	40.3	53.0	54.5	-
New Zealand	89.2	87.3	84.7	82.2	82.3	-	39.2	45.0	45.7	62.4	62.8	-
Norway	86.5	89.2	87.2	84.5	82.9	83.0	50.6	61.7	65.5	71.2	71.1	70.9
Portugal[b]	100.8	90.9	87.6	86.1	85.9	-	32.1	57.3	57.2	60.4	62.8	-
Spain	92.9	83.1	80.2	76.8	76.0	74.9	33.4	32.6	33.2	40.9	41.2	42.1
Sweden	88.1	87.9	85.9	85.3	84.5	82.7	62.6	72.8	76.6	81.1	80.3	78.7
Switzerland[b]	100.6	94.6	93.5	96.2	95.3	-	54.1	53.0	55.2	59.6	59.8	-
United Kingdom	93.0	90.5	87.5	86.5	86.1	85.6	53.2	58.0	57.2	65.3	64.5	64.5
United States	86.2	85.7	84.6	85.8	84.7	85.0	51.1	58.9	61.8	68.6	68.4	68.9
North America	86.2	85.8	84.6	85.7	84.6	84.8	50.7	58.6	61.6	68.5	68.4	68.8
OECD Europe[c]	88.7	84.8	82.3	80.6	78.3	-	44.7	48.6	49.8	54.8	54.0	-
Total OECD[d]	88.2	85.9	84.3	83.7	82.4	-	48.3	53.1	55.1	60.7	60.5	-

Source: Taken from Freeman and Soete (1994), *Work for All or Mass Unemployment?*, Table 5.1.

Note:
a) OECD Secretarial estimates.
b) Labour force data include a significant number of persons aged less than 15 years.
c) Data disaggregated by age and sex exclude a certain number of foreign seasonal workers; these are included in the estimates of the working population.
d) Above countries only.

Table AI.4. **Population of working age (15-64): average annual growth rates in percentages**

Country	1973-75	1975-79	1979-83	1983-91	1992	1993
Canada	2.6	2.0	1.4	1.0	5.8	0.8
France	0.7	0.7	1.3	0.6	0.3	0.4
Germany	0.1	0.4	1.3	0.6	1.2	0.7
Italy	0.6	0.7	0.9	0.2	0.2	-0.1
Japan	0.9	0.8	0.9	0.9	0.2	0.5
United Kingdom	0.1	0.5	0.6	0.3	0.1	-0.1
United States	1.7	1.7	1.2	0.8	0.9	0.8

Source: *OECD Employment Outlook* (July 1994), p. 200, Table E.

Note: 1993 figures are estimates. There is a break in series between 1986 and 1987 for Germany.

Table AI.5. **Total labour force: average annual growth rates in percentages**

Country	1973-75	1975-79	1979-83	1983-91	1992	1995
Canada	3.7	3.0	1.9	1.6	0.3	1.1
France	0.7	1.0	0.5	0.7	0.4	0.4
Germany	-0.5	0.3	1.0	0.9	0.9	-0.1
Italy	0.8	1.2	0.9	0.8	0.1	-
Japan	0.0	1.3	1.3	1.3	1.1	0.6
United Kingdom	0.5	0.7	0.0	0.8	-0.5	-1.3
United States	2.3	2.8	1.5	1.4	1.3	0.8

Source: *OECD Employment Outlook* (July 1994), p. 200, Table F.
Note: 1993 figures are estimates. There is a break in series between 1986 and 1987 for Germany.

Table AI.6. **Type of work: wage earners (percentage)**

Country	Year	Full time		Part-time	
		Permanent	Temporary	Permanent	Temporary
France	1983	96.8	3.2	95.7	4.3
	1985	95.7	4.3	90.9	9.1
	1990	89.9	9.1	78.4	20.1
Germany	1990	87.2	10.3	84.9	10.3
Italy	1983	95.1	4.9	45.9	54.1
	1985	97.8	2.2	58.2	42.8
	1990	97.1	2.9	48.6	51.4
Japan	1983	93.7	6.3	57.3	42.7
	1985	93.8	6.2	57.7	42.3
United Kingdom	1983	96.9	3.1	84.8	15.2
	1985	97.0	3.0	84.0	16.0
	1990	97.2	2.6	85.1	14.3

Source: OECD; Eurostat; Meulder *et al. (*1994), p. 31.
Note: These figures do not include persons not declaring their circumstances. Figures for Japan only show wage earners in sectors other than agriculture who were in employment during the week of the survey.

Table AI.7. **Temporary workers in European countries as a percentage of total employment (percentage)**

Country	Sex	1983	1985	1990
France	Female	3.4	4.6	11.8
	Male	3.3	4.8	9.2
Germany	Female	-	10.9	11.2
	Male	-	9.1	9.6
Italy	Female	9.4	7.0	7.6
	Male	5.3	3.7	3.9
United Kingdom	Female	7.2	8.7	6.9
	Male	4.1	5.6	3.6

Source: Eurostat (1983 and 1990), *Labour Force Survey*; Meulder *et al. (*1994), p. 38.

Note: The Eurostat definition of temporary work is a job that may be regarded as temporary, and include persons with a seasonal job, persons engaged by an employment agency or business and hired out to a third party for carrying a "work mission", or persons with specific training contact.

Table AI.8. **Change in number of full-time and part-time employees, 1988-83 (percentage)**

Country	Full-time	Part-time
France	-1.6	+36.6
Germany	+4.6	+11.4
Italy	+0.2	+45.5
United Kingdom	+3.8	+26.1

Source: EC; *ILO Part-time work*, Report V(1), 1993.

Table AI.9. **Full and part-time employment situation and individual preferences in European countries, 1989 (percentage)**

Country	Full-time	Part-time	Prefer a part-time job? (full time workers)		Prefer a full-time job? (part-time workers)	
			No	Yes	No	Yes
France	92	8	79	17	57	32
Germany	82	18	83	17	8	92
Italy	94	6	68	32	49	51
United Kingdom	78	21	75	25	6	94

Source: CEC; *OECD Jobs Study* (1994*)*, p. 93, Table 6.14.

Table AI.10. **Discouraged workers and involuntary part-time employment (percentage)**

Country	Discouraged workers		Involuntary part-time workers	Unemployment rates	
	Total labour force	Unemployed	Total labour force	National rates	Including discouraged workers
Canada	7.0	6.5	4.1	10.3	10.9
France	0.1	1.5	0.3	9.4	9.5
Germany	-	-	0.7	4.3	-
Italy	2.6	23.7	2.1	11.0	13.3
Japan	1.9	90.8	1.2	2.1	3.9
United Kingdom	0.4	4.8	2.2	8.3	8.7
United States	0.8	12.1	4.0	6.7	7.5

Source: *OECD Employment Outlook* (July 1993).
Note: The definitions may vary by countries.

Table AI.11. **Potential lifelong working hours, 1950-85**

Country	1950	1960	1970	1980	1985
France	113 729	107 849	101 871	92 708	77 748
Germany	114 170	104 076	93 051	87 267	85 015
Italy	-	-	-	-	82 584
Japan	109 694	109 647	100 068	95 418	93 976
United Kingdom	-	-	-	-	82 677
United States	-	-	-	-	93 688

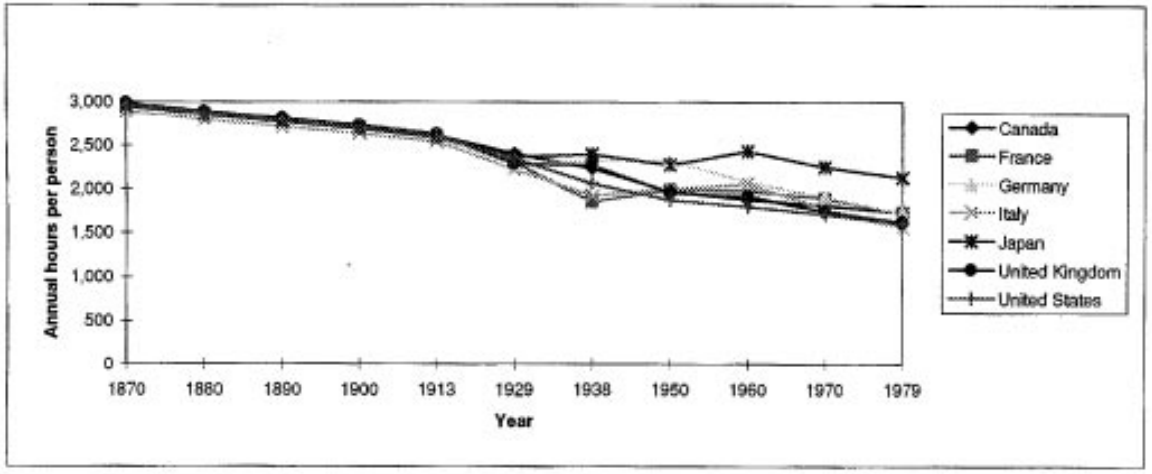
Source: Schuldt (1990), p. 43; Bosch *et al.* (1994*)* p. 15, Table 7.

Table AI.12. **Duration and reduction of working time**

Country	Agreed working hours	Reduction of agreed hours in Percentage		Actual working hours per employee		
		1970-1980	1980-1987	1980	1987	Change 1980-87
France	1767	0.0	-4.6	1850	1696	-3.3
Germany	1712	-5.9	-4.7	1736	1672	-3.7
Japan	2121	-5.9	0.0	2113	2085	-1.3
United Kingdom	1782	-2.1	-4.6	-	1730	-
United states	1916	0.0	0.0	1735	1770	2.0

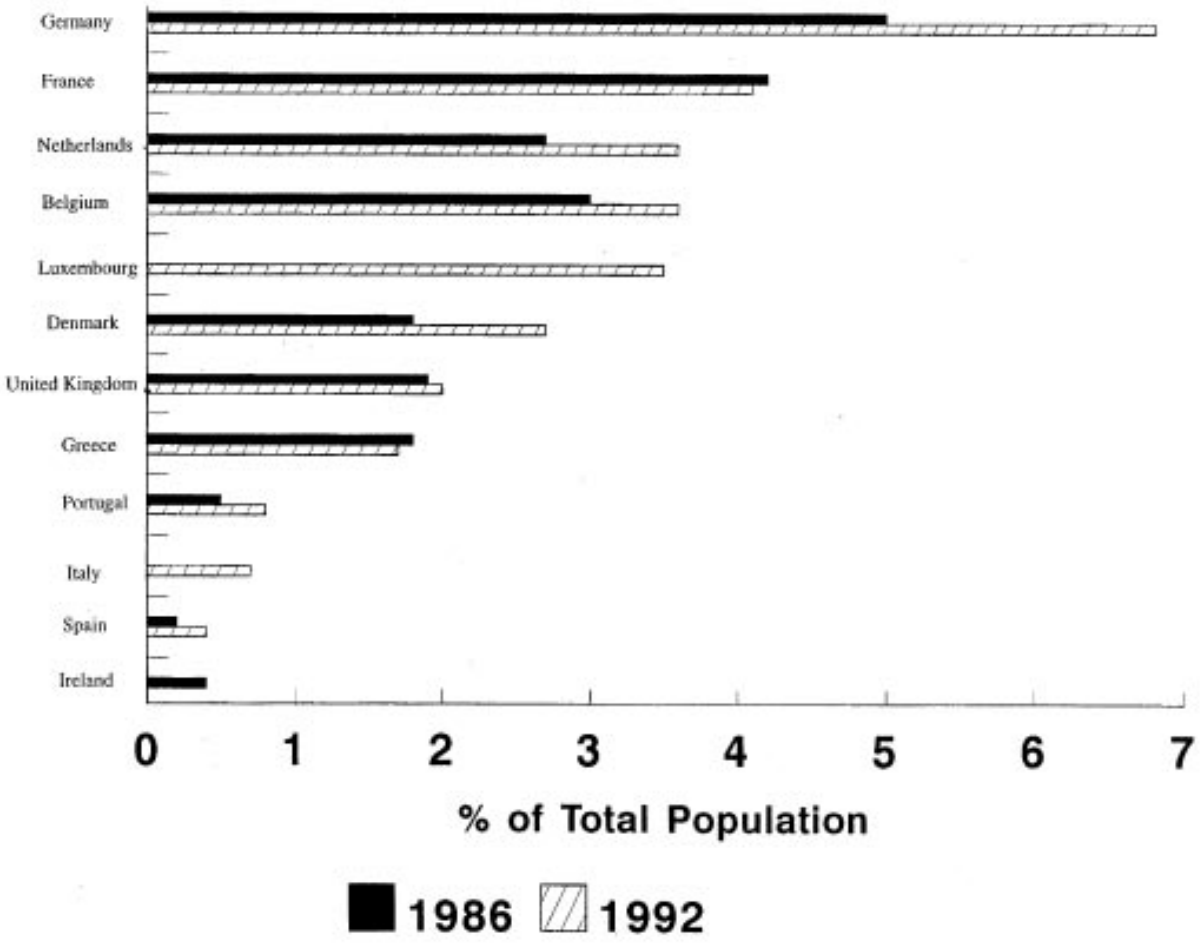
Source: Petterson (1989); Bosch *et al*. (1994), p. 9, Table 2.
Note: The table is based on figures form Eurostat.

Figure AI.1. **Annual hours worked per person, 1870-1979**



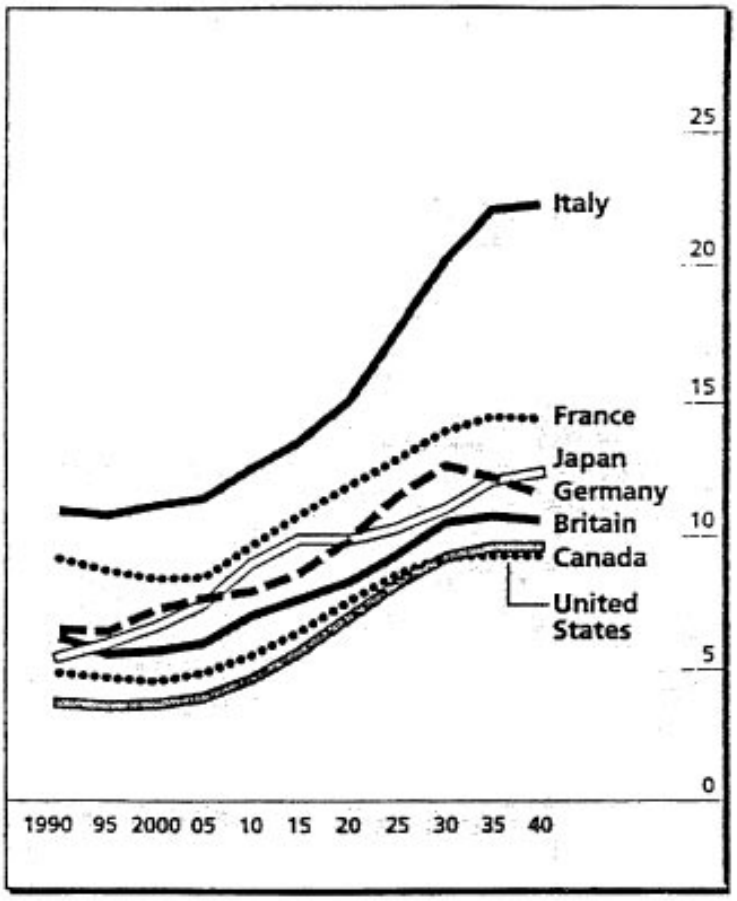
Note: For Italy, 1978 figure is used for 1979.
Source: Maddison (1982); Bosch *et al.* (1994), p. 8, Table 1.

Figure AI.2. **Immigrants as a percent of total population in some OECD countries, 1986 and 1992**



Source: *Newsweek*, special issue on "Jobs", June 4, 1993.

Figure AI.3. **Projected pension spending (public) as a percentage of GDP**

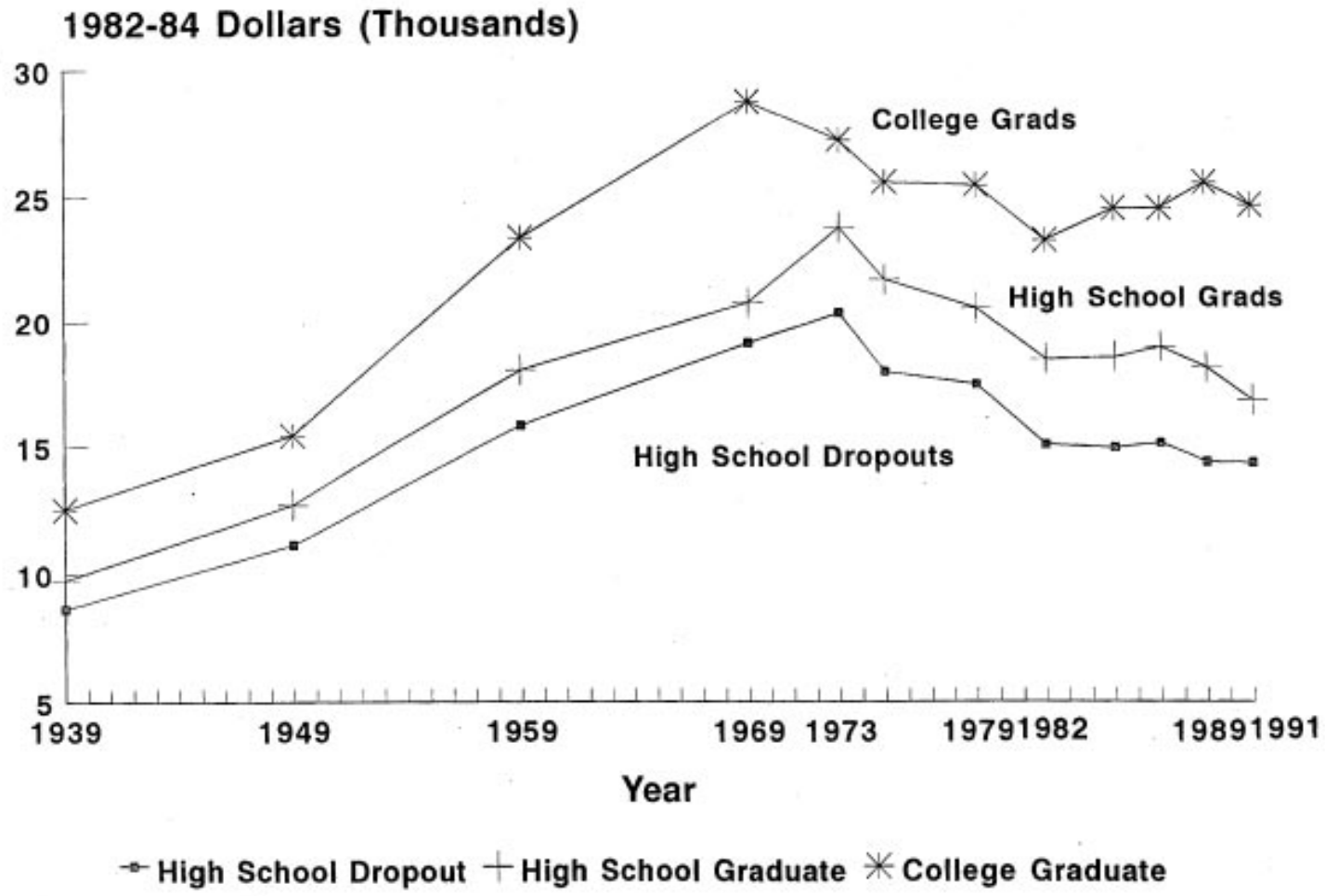


Source: **OECD.**

Appendix II

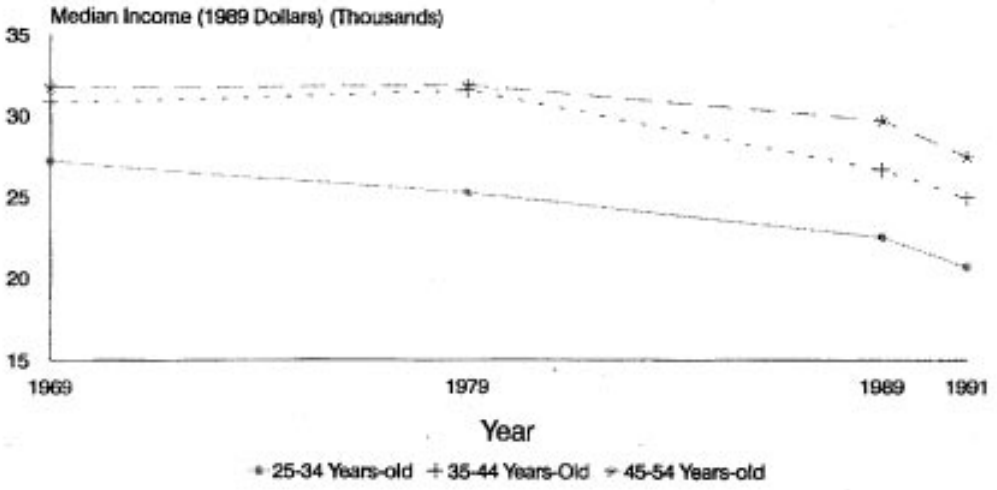
United States: Income Trends

Figure AII.1. **Real median income, White males 24-34 years-old, by schooling, 1939-1991**



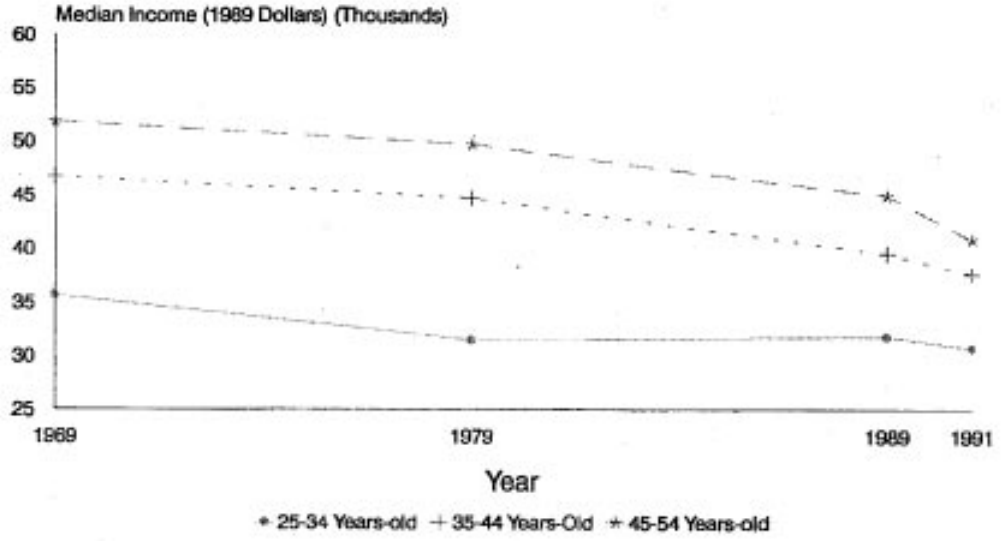
Source: US Census and CPS, FT sample.

Figure AII.2. **Real median income, by age group, White male high school graduates, 1969-1991**



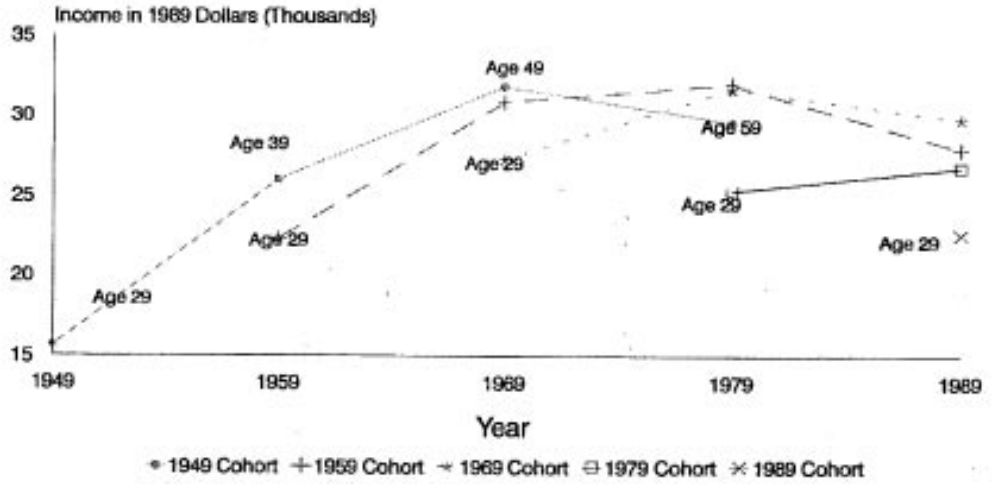
Source: US Census and CPS, FT Workers.

Figure AII.3. **Real median income, by age group, White male college graduates, 1969-1991**



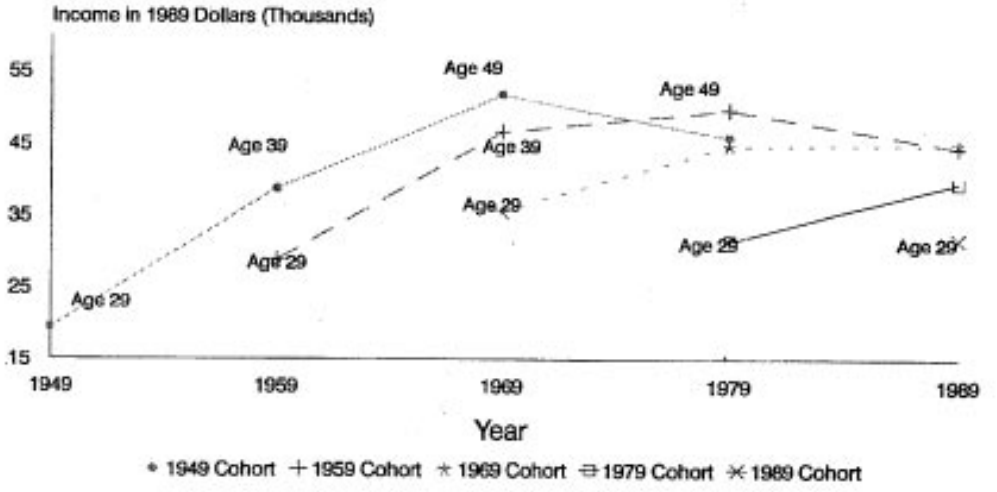
Source: US Census and CPS, FT Workers.

Figure AII.4. **Longitudinal age-income profiles, by cohort 29 years-old in 1949, 1959, 1969, 1979, 1989, White male high school graduates**



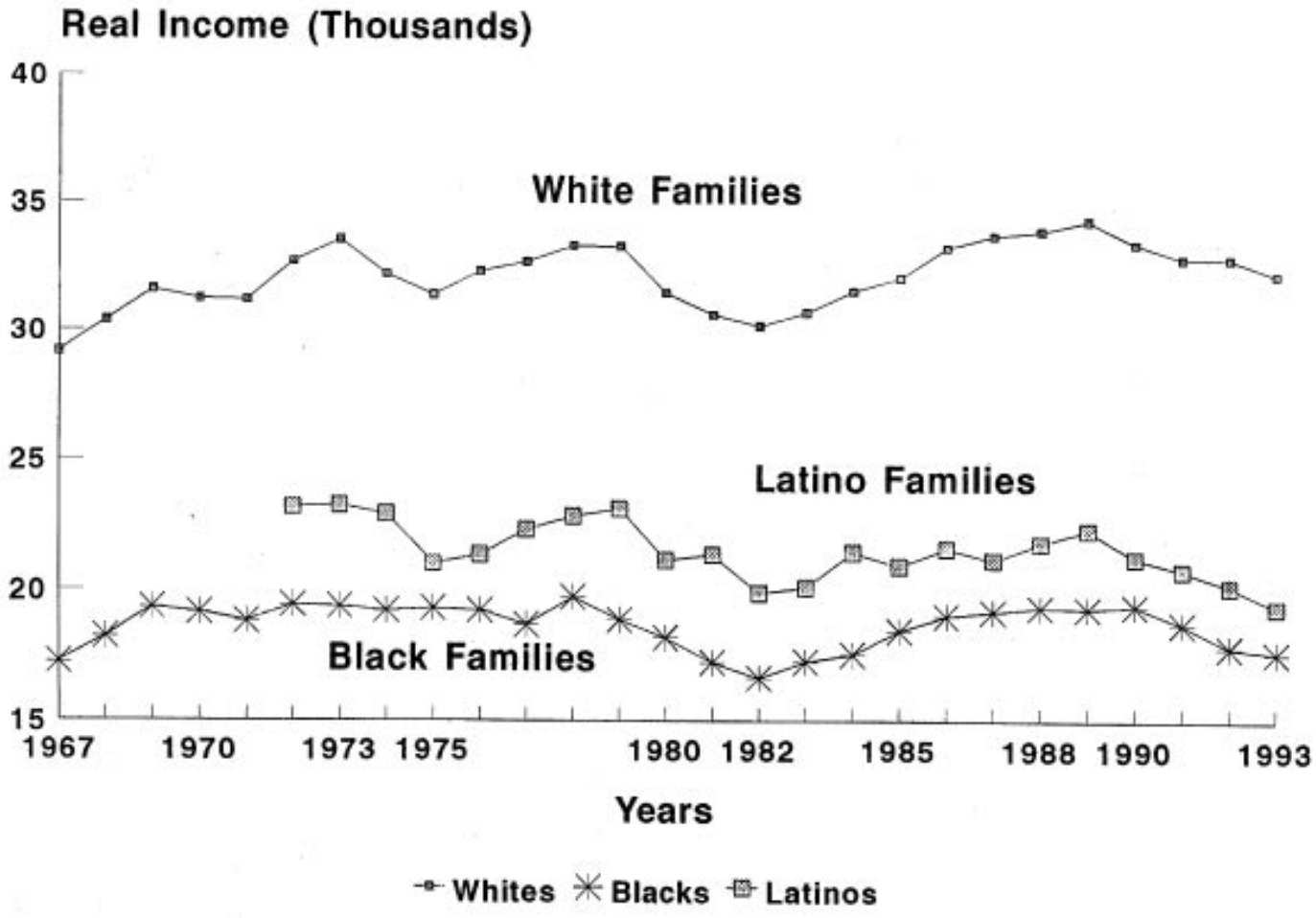
Source: **US Census and CPS, FT Workers.**

Figure AII.5. **Longitudinal age-income profiles, by cohort 29 years-old in 1949, 1959, 1969, 1979, 1989, White male college graduates**



Source: **US Census and CPS, FT Workers.**

Figure AII.6. **Family income by race and ethnicity, 1967-1993 (1988 dollars)**



Source: ***Current Population Report*** **(1995), P-60, No. 166, Facts and Figures.**