

Post-Fordism: Production and the Labor Process in Japan

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<국문요약>

본 논문은 현대경제와 사회의 체제변환 과정에서 나타나는 자본주의 체제의 조직과 구조 변화 현상을 포스트포디즘을 통해 규명하고자 하였다. 우리가 겪고 있는 변화와 그 근저를 이루고 있는 메커니즘, 그리고 그러한 변화의 성격에 대한 정책적 함의에 대해 많은 논란이 일고 있다. 본 논문은 포스트포디즘의 개념을 재평가하고 논란의 중심에 있는 neo-Schumpeterian 접근방법, flexible specialization 접근방법, 그리고 조절이론의 세 가지 이론을 체계적으로 분석하고자 하였다. Neo-Schumpeterian 접근방법의 기술경제 지향성은 기술론적 결정론 성향을 띠어 구조의 형성, 변화 및 발전 과정을 적절히 설명할 수 없었으며, flexible specialization 접근방법에서 나타나는 이중성은 산업발전 패러다임을 간략하게 묘사하여 다양한 발전과정을 지나치게 양분하는 한계성을 드러냈다. 본 논문의 분석 결과 조절이론은 개념의 폭이나 구조적 짜임새를 고려했을 때 생산과 노동과정에 있어서 사회 일반에 나타나고 있는 변화의 성격을 훨씬 더 다양하게 설명할 수 있으며 특히, 일본의 생산과 노동과정을 좀 더 명확하게 분석하고 이해하는 데 다른 두 가지 접근방법보다 도움이 되었다. 본 논문에서 조절이론은 일본의 조직과 경제 개혁에서 나타나고 있는 포스트포디즘의 성향과 새로운 형태의 축적체제 및 정치·행정적 조절양식을 결합한 구체적인 구조적 변화의 성격을 밝히는데 중요한 역할을 하였다.

[주제어] 포스트포디즘(Post-Fordism), 조절이론(Regulation Approach), 일본

I. Introduction

When discussing post-Fordism, one cannot separate the concept from an earlier Fordist phase of economic development. Fordism mainly refers to the mass production techniques that dominated production system from the late 1940s to the mid-1970s centering on a particular labor process with moving assembly lines, standardized products, extreme division of labor, low skill levels, and a strict boundary between management and workers(Amin 1994, 1-2). On a broader level, fordism implies features of mass consumption, rising real incomes, growth of transnational business, collective bargaining between employers and trade unions and Keynesian macroeconomic policies. Fordist production may have engendered a distinctive phase of economic development that peaked in the third quarter of the 20th century.

Recent experience has diverged from Fordism, prompting a widespread agreement that an epochal transition is in progress in the structure and organization of modern Western economy and society – a transition from one distinct phase of capitalist development to a new phase.¹⁾

1) Ernest Sternberg (1993) lists eight potential characteristics of new ages. The first is the information age, which will generate wealth through the exercise of knowledge, trade in information activities and the potentialities for information technology. The second is the age of post-modernity, which will extend the frontier of consumerism into all areas of social and private life. The third, Sternberg refers to the age of global interdependence to convey a sense of the pervasive contemporary economy, a process which increasingly bestraddle and shapes local and national fortunes. The fourth trend is a new

Terms such as 'structural crisis', 'transformation' and 'transition' have been commonly used to describe the present, while new epithets such as 'post-Fordist', 'post-industrial', 'post-modern', 'fifth Kondratiev' and 'post-collective' have been created by scholars from divergent disciplines to describe the emerging new age of capitalism. Especially regulation theory had developed an analysis of capitalist development centered mainly on the growth nations.

This characterization was especially clear in the description of industrial growth in the four decades following the Second World War. Some scholars contest the issue of whether the emerging new trends represent a radical break from the past or a refinement or modification of old trends. At the same time there is a great deal of debate going on about how to characterize these changes, the mechanisms at work, and the policy implications for different groups of

mercantilism, in which national coalition (industry-government-labor) will seek to develop strategic technological advantage as a basis for national prosperity. Fifth is a new age of corporate control, in which global corporations and banks will exercise systemic power over markets, firms and state; shaping consumption patterns in the world and run by a new global class of executives and professionals. The sixth is the age of 'flexible specialization', characterized by new principles in production, including specialist units of production, decentralized management and versatile technologies and workforces, to satisfy increasingly volatile markets. Seventh is the age of new social movements working to 'humanize' the new capitalism and to negotiate for a 'social economy' which might incorporate the rights of minorities and women as well as guarantee ecological sensitivity, economic security and basic human needs. Finally, Sternberg identifies the rise of fundamentalist rejection of the technocracy or ethnic identities in many part of the world, which are rooted in pre-enlightenment religious or communitarian traditions and values.

economic and political actors. While individual trend is open to dispute, taken together they make it difficult to dispel an idea that an old way of doing things might be disappearing or becoming reorganized.

Given the salience of the new trend, this paper aims to analyze systematically the differences among three theoretical positions of neo-Schumpeterian approach, the flexible specialization approach and the regulation approach, lying at the heart of the post-Fordist debate. Among three approaches, regulation approach literature has made important contribution to the much-debated domain of production and labor process in Japan by focusing on various aspects of post-Fordism. The paper helps enrich our understanding of the contemporary developments in the economic context without recourse to a narrowly defined and limiting notion of a post-Fordist accumulation process.

This paper is organized as follows. First, the purpose of this paper is to examine systematically the differences among three theoretical positions lying at the heart of the post-Fordist debate. Second, it then focuses on the labor process and the social organization of Japanese production drawing on the conceptual approach of the regulation school of political economy.

Finally, it concludes that among three theories, regulation theory can enrich our understanding of development production and labor process in Japan without recourse to a narrowly defined and limiting notion of a post-Fordist accumulation process.

II. Three Theoretical Approaches

1. Neo-Schumpeterian Approach

This approach was first initiated by Kondratiev's work in the 1920s on fifty-year long waves of 'boom' and 'bust' in the development of capitalist economies, and further developed by Schumpeter in the 1930s. Freeman and Perez(1985) have significantly extended and refined Schumpeter's formulations. They focused on the pioneering role of innovative entrepreneurs in giving birth to and structuring a new technical paradigm, adding to our understanding of the nature of technological change(Amin 1994, 12).

For Freeman and Perez(1988), the successful transition from one long wave to another depends on 'quantum leaps' in industrial productivity, which are once secured successfully in technology advances diffuse across the economy. It then depends on 'matching' innovations within the framework of socio-institutional norms and regulations, in order to facilitate such diffusion. Once these conditions are attained, a new long wave of growth is in its full swing, with a distinctive techno-economic paradigm that establishes a universal standard across the economy(Perez 1985).

In neo-Schumpeterian analysis, the age of mass production, referred to as the fourth Kondratiev or the fourth long wave, has been reinforced by elector-mechanical tech-

nologies, the products of the mass consumption industries and oil and petrochemicals as basic sources of cheap energy. It identifies standardization, massification, scale economies, oligopolistic competition and mass consumption of cheap goods as the distinguishing features of the fourth Kondratiev (organized around vertically integrated and hierarchically governed large corporations)(Elam 1994, 45-7).

In terms of the crisis of the fourth Kondratiev, particular emphasis is placed on the deepening effect on growth of oligopolistic competition in a context of maturing technologies: a process limiting productivity gains as a consequence of increases in wages, prices and the inefficiency of large corporations. But, importantly, the crisis is also related to the mismatch between an emerging techno-economic paradigm which could renew growth and the enduring socio-institutional framework of the fourth Kondratiev.

Although the approach embraces the socio-institutional arrangements, they are clearly subordinate to the 'techno-economic' and its autonomy is strictly bounded (Elam 1994, 46). Freeman and Perez(1988, 445) regard the institutional legacy of the preceding paradigm as slow in changing, thus preventing the widespread diffusion of the benefits of technological innovation across the economy. They trace this inertia not only to the failure of contemporary neo-liberal government policies to provide coordinated and directed industrial policy action, but also to the difficulties and time lags involved in radically changing embedded socio-cultural habits and norms across the wide range of institutions which constitute the 'socio-institutional

framework’.

The preoccupation with techno-economy involves accompanying with an unacceptably hard and narrow technological determinism, in which technology-induced changes, rather than social, organizational or market changes that might influence economic efficiency and growth, are given priority in explaining the formation and development of a long wave.

2. The Flexible Specialization Approach

The approach is conceptually simple in that it focuses on the arena of production. Piore and Sabel(1984), who advanced the approach, base their argument on a simple conceptual distinction between two opposites of industrial production of mass production and flexible specialization. ‘Mass production’ involves the use of special purpose (product specific) machines and of semi-skilled workers to produce standardized goods while ‘flexible specialization’, or ‘craft production’, is based on skilled workers who produce a variety of customized goods.

The choice of paradigms means the policy decisions that influence the diffusion of one or the other paradigm. When the time comes, different actors, based on the historical circumstances they are subject to, participate in active process of making choices favoring either mass production or flexible specialization. While one paradigm suffers

because of the absence of supporting structures, the other gains in strength, because it comes to be represented as 'best practice' by different actors (industry, government and other institutions).

Conceptually, it is not entirely clear how a moment of stark selection between paradigms is made—whether it follows the crisis of the dominant industrial paradigm, the rise of new options, a change in circumstances, or from forced policy and institutional choices with path-breaking consequences. Therefore, explanations for changes tend to be based on a selective interpretation of events at such moments, rather than an analysis rooted in any theory of crisis and transition(Amin 1994, 15).

The dualism (mass production versus flexible specialization) of the approach is criticized as not only does it caricature each industrial paradigm, but also it reduces a great deal of diversity on either side of the divide down to narrowly defined paradigms. Moreover, it tends to slip too easily between voluntarism and historical logic in explaining the crossing of industrial divides. Paradigms are ascribed to their own developmental logic, but they also made the object of choice, policy and politics: history by design and will. As Freeman and Perez(1988, 446-448) points out, this inertia is not only responsible to the failure of contemporary neoliberal government policies in providing coordinated and directed industrial policy action, but also to the difficulties and time lags involved in radically changing embedded socio-cultural habits and norms across the wide range of institutions which constitute the 'socio-institutional

framework.’ In addition, Piore and Sabel have been criticized as hastily inferring the likelihood or possibility of a large-scale return to a craft industrial paradigm, on the ground that the embedded structures of Fordism will persist and adapt to new circumstances rather than disappear. A fourth criticism is that the approach makes the error of equating industrial efficiency only with competitiveness, thereby underestimating the power of the protagonists of Fordism to continue to dominate markets via their tight control. However, the most controversial has been its portrayal of a highly optimistic, ‘flexible’ future across the second industrial divide(Bagguley 1991, 153). Kenney and Florida(1988, 122) argue that for flexibility to be an important and competitive component of economic growth, it must be appropriately mixed with relatively stable social institutions that bind production and innovation together, giving rise to structured flexibility. They maintain that without such structure, flexibility can be economically disruptive, a sign of weakness as well as strength.

3. The Regulation Approach

Although the regulation approach is much broader than the neo-Schumpeterian approach, it shares certain similarities, and certain regulationists have been quite explicit about building bridges between the two approaches. The common features of the two approaches range from the

systemic and cyclical nature of capitalist development, the periodization and general dynamic of Fordism, the significance of the degree of match between the 'techno-economic paradigm' (regime of accumulation) and the 'socio-institutional framework' (mode of regulation) to the stability of a 'long wave' or 'long cycle' of economic development (Amin 1994). The regulation approach, which was pioneered by Michel Aglietta and advanced by Jessop, extends Marx's study of capitalism and elaborates of 'intermediate range' concepts.²⁾

The object of the regulation approach is to address the paradox of how capitalism has both a tendency towards crisis, change and instability as well as an ability to stabilize institutions, rules and norms. The theory is based on two key concepts of 'regime of accumulation' - systems of production and consumption such as Fordism and post-Fordism, and 'modes of regulation' - the written and unwritten laws of society which control the regime of accumulation and determine its form (Lipietz 1992).

According to the approach, every regime of accumulation will reach a crisis point at which the mode of regulation will no longer support it, and society will be forced to find new rules and norms, forming a new mode of regulation.

2) R. Boyer (1990, 30-31) argues that capitalism cannot be understood as having a solitary trajectory or as being governed by a single set of inexorable laws. Instead, capitalism develops as a series of discontinuous stages, each with historically constituted features. For this reason, abstract economic theory alone is insufficient for the study of capitalism and must be supplemented by historical investigations. Intermediate range concepts then are designed to facilitate this movement from abstract economic theory to empirical historical research.

This will begin an new regime of accumulation, which will eventually reach a crisis, and so forth(Boyer 1997).

It attempts to explain the dynamics of long-term cycles of economic stability and change. This attempt was especially underpinned by the observation that the stagnation of growth in the world economy after the mid 1970s amounted to much more than cyclical interval, symbolizing a generalized crisis of the institutional forms that had come to guide the post-war economy. Accordingly, they focus on the paradox within capitalism between its inherent tendency towards instability, crisis and change, and its ability to combine and stabilize around a set of institutions, rules and norms which serve to secure a relatively long period of economic stability.

Within this flow, Aglietta(1979) linked developments in capitalist producton to mode of consumption. He thought that the intensity of work under Taylorism necessitated time for recuperation at the workplace, which took the forms of consumption that permitted the most effective recuperation from physical and nervous fatigue in a compact space of time within the day, and at a single place, the home. The 'functional aesthetic', stimulated in part by mass advertising, supported demand for the products of mass production, especially standardized housing and mass-produced cars. At the foundation of his idea lies the notion that capitalism is unstable, and ultimately untenable, without these regulatory elements, through which he makes a connection between the macro-political sphere and micro-level labor and competitive processes.

In this theory, regulation is generally understood as the way in which a social relation reproduces itself, despite its contradictory nature. Regulationism maintains that reproduction occurs because there are internalized norms and values as well as institutional mechanisms. In this way, the concept of regulation developed into the mode of regulation, which includes the institutional forms that ensure the reproduction of social relations and in particular the adaptation of production and demand work in gear(Lipietz 1992).

The approach tried to identify the structures, principles and mechanisms which underpinned the passing regime, to explain its internal contradictions and to speculate on future possibilities for growth. For the regulationists, it was important to think of a phase or regime as a 'partial, temporary and unstable result of embedded natural economic laws'(Jessop 1988, 147). Thus, while the approach wished to acknowledge that rules drive a system, it rejected the notion that rules should be pre-given, immutable or pre-figurative of a further development path. Accordingly, its theorization of economic development and change claimed to give as much regard to historical processes as to the basic rules of the capitalist economy(Amin 1994, 7-9).

Two concepts, as the core mechanisms in articulating the individual phases of capitalist development, are 'regime of accumulation' and 'mode of regulation'. The regime of accumulation refers to a set of regularities at the level of the whole economy, enabling a more or less coherent process of capital accumulation(Nielsen 1991, 21). It includes

norms pertaining to the organization of production and work (the labor process), relationships and forms of exchange between branches of the economy, common rules of industrial and commercial management, principles of income sharing between wages, profits and taxes, norms of consumption and patterns of demand in the marketplace, and other aspects of the macroeconomy.

The mode of regulation refers to the institutional ensemble and the complex of cultural habits and norms which secures capitalist reproduction as such(Nielsen 1991).³⁾ It consists of a set of formal or informal rules that codify the main social relationships. It therefore refers to institutions and conventions which regulate and reproduce a given accumulation regime through application across a wide range of areas, including the law, state policy, political practices, industrial codes, governance philosophies, rules of negotiation and bargaining, cultures of consumption and social expectation. Rejecting Polanyi's functionalist and equilibrium perspective of institutions, the regulationists maintains that regimes of accumulation and modes of regulation are seen as always relative partial and provisional.

The transition from Fordism to post-Fordism, according to the regulationists, can be explained as the state's efforts to restructure social relations in order to pave the way for a new regime of accumulation and secure capitalist

3) Nielsen(1993, 23-26) refers to three other concepts deployed varyingly within the regulation school either to specify further the two main concepts or to identify other forces of 'systematic cohesion'. Those are the concept of 'dominant industrial paradigm' or 'labor process', 'mode of development', and 'mode of societalization' or 'societal paradigm'.

reproduction. Harvey(1990) explains the break up of Fordism as the failure of the old mode of regulation to control the problem of overaccumulation. He views capitalist mode of production as crisis-prone, whose unsteady and problematic growth produces periodic phases of overaccumulation. Rather than siding with the Marxist critique that the problems of overaccumulation can never be eliminated under capitalism, however, he emphasizes that the over-accumulation tendency can be managed by a new mode of regulation such as devaluation, macroeconomic control, and absorption of overaccumulation through temporal and spatial displacement.

With the changes in production from Fordism to post-Fordism, changes in the economy, politics, and prominent ideologies ensued. In the economic realm, changes include the decline of regulation and production by the nation-state and the rise of global markets and corporations. Mass marketing was replaced by flexible specialization, and organizations began to emphasize communication more than command and order. The workforce changed with an increase in internal marketing, franchising, and subcontracting and a rise in part-time, temp, self-employed, and home workers. In the political realm, social movements based on region, gender, race, rather than class-based political parties, gained influences both in numbers and powers. Mass unions began to vanish and were instead replaced by localized plant-based bargaining(Boyer and Hollingsworth 1997).

Such changes prompt some scholars to announce 'third

generation' of regulationists, who emphasize the ability of regulation theory especially to answer questions of the changing form of state and the relations between scale, space and time. Their recent reviews are located between political science, geography and sociology leaving the traditional macroeconomic perspectives of regulation theory behind(Jessop 1997; MacLeod 1997).

According to regulation theorists, economic globalization has led the postwar Fordist growth regime into a crisis rather than expected positive success(Aglietta 1988; Boyer 2000). They maintain that since globalization undermined the nation based Fordist regime, it disconnected the national tie between productivity and wages and weakened the political bargaining power of trade unions(Boyer and Hollingsworth 1997). Such global-scale capital mobility accompanied by globalization process further disrupted the political balance between private interests and social protection, weakening the welfare state and allowing markets to dominate societies. Moreover, global capital and finance mobility weakened the national link between savings and investment as the state found it more difficult to coordinate the economy through monetary policy(Jessop, 1997).

Regulation theorists believe that such an unstability will eventually lead to a new regulatory framework, perhaps at a supernational level, which will support and stabilize competitive conditions and allow either a return of something like Fordist production methods or further developments in the new direction which certain labor processes are currently exhibiting, such as flexible

specialization, lean production or 'Toyotism'(Boyer 1997). This position complements market-oriented responsible autonomy by achieving significant downsizing, which may then allow a new, more stable, regulatory framework to be established. As Lipietz(1987) has stated, 'Japanese capitalism did not simply catch up with the US; it overlooks it by discovering a new post-Fordist way of translating the skill of its produces, both manual and intellectual, into productivity'.

The regulation approach offers much broader outlook than the technology-inclined neo-Schumpeterian approach and market-dependent flexible specialization approach. As Elam (1994) argues, in both neo-Schumpeterian and flexible specialization approaches, individual firms, specific groups of workers and the various national economies under study are predominantly portrayed as isolated units with 'outside' forces (technology and markets) impinging upon them.

To him, it is only within the regulation approach that there appears to be a genuine of the individual units themselves(Elam 1994, 65-6). The task of developing a regulationist analysis of the Japanese experience by capturing its growth pattern within a broadly defined political-economic framework, necessitates pointing to shared as well as unique features. Thus drawing on this growing body of research, the next section will deal with production and the labor process in Japan.

III. Production and the Labor Process in Japan

1. The Social Organization of Japanese Production

The social organization of Japanese production replaces the fundamental characteristics of Fordism—functional specialization, task fragmentation, and assembly-line production—with overlapping work roles, job rotation, team-based work units, and relatively flexible production lines. Development of these methods was facilitated by the terms of the Japanese accord, which made it possible for experiments with flexible and interactive production to occur. Three distinct characteristics are identified.

First, Japanese work organization is based on self-managing teams. Work roles overlap, and tasks are assigned to groups of workers, who then reallocate them internally. It is no longer necessary to subdivide tasks in order to accelerate production, a process that exemplified both Fordism's method of increasing productivity and its institutional rigidities. With work team, the pace of production can be changed by adding or removing workers, and management and team members can experiment with different configuration for completing specified tasks. Work groups not only perform routine quality control, but also do preventive maintenance on their machines, resulting in

significantly lower rates of downtime. This allows Japanese quality control departments to focus on non-routine aspects of quality control, such as advanced statistical measurement or even work redesign(Kenney and Florida 1982).

The social organization of Japanese production makes the shopfloor a center of worker interaction and information sharing. Kato and Steven(1993), in their 'international debate', argue that first, Japanese multi-skilling still implies Fordist de-skilling, second, task rotation only further cedes worker control to capitalist management, and finally, work teams and so-called 'quality control circles' are hardly benign institutions, but force workers into an exhausting competition for management kudos that is 'ultra-Fordist'. This is related to the second feature, 'learning by doing'(Kenney & Florida 1988, 133). After rigorous basic training, new employees are assigned to work team, which pass knowledge and skills intergenerationally. Another aspect of learning by doing is the coordination of activities among work units. This is best exemplified by the *kanban*, or card system, used to coordinate work in Toyota factories (Sayer 1989). Learning by doing contrasts sharply with traditional Fordist corporate organization characterized by extreme traditional specialization and highly compartmentalized information flows. With the help of long-term employment and extremely low rates of labor mobility, shared knowledge remains internal to the enterprise, making leakage minimal.

The third feature is just-in-time(JIT) production complexes, which are crucial component of Japanese industrial organization(Stephen Wood 1993, 535). In contrast to US

corporations, large Japanese manufacturing firms organize supply transactions through multilayered supplier complexes rather than internalizing them through vertical integration. The objective of the JIT system is to increase productivity not through super-exploitation of labor but rather through increased technological efficiency. It thus increases the 'value' extracted in production, decreases materials consumed per unit output, and minimizes circulation time, making the actual production process much more efficient.⁴⁾

In sum, over the past few decades Japanese corporations actively experimented with new forms of work organization and production to move beyond the extreme functional specialization and deskilling of fordist corporations(Kenney & Florida 1988, 137). The social organization of Japanese labor has overcome many of the institutional rigidities associated with Fordism by adopting self-managing teams, just-in-time production complexes, and learning-by-doing. Post-Fordist production grew out of an era of intense class conflict and is premised on the particular balance of class power that emerged in postwar Japan. This gave rise to stable capital-labor relations, which are both reflected in and reinforced by enterprise unionism and long-term employment tenure.

2. Post-Fordist Restructuring in Japan

4) Richard Westra (1996, 434) also contradicts the idea in that JIT is viable only for mass production, precisely because small batch or project production, with more irregular activities and demand, offer too little scope for the necessary fine tuning of repetitive tasks, and as such, the complete JIT package has limited industrial purchase.

The institutional context of post-Fordist manufacturing established the social space or flexibility for Japan to develop a unique response to economic restructuring. Kinney and Florida(1988) refer to post-Fordist restructuring in Japan as Fujitsuism. The term is taken from the name of one of Japan's most important information-based companies, Fujitsu Ltd., which recently replaced IBM-Japan as Japan's largest computer company. Fujitsuism involves each of the three levels – integration of innovation, the creation of quasi-autonomous subsidiaries, and technological diffusion.

Fujitsuism promises dramatically to restructure many elements of the Japanese political economy. Regulation theorists maintain that a balanced allocation of economic output or net social product between accumulation and consumption or mode of regulation be necessary for stable pattern of growth to occur(Noel 1987). Underpinning this new mode of regulation are two basic elements of the Japanese political economy – long-term employment and the relatively unique system of wage determination. This differs significantly from the organization of demand under US Fordism, which was premised upon productivity such as wage increase for core workers, trickle-down effects for others in the labor market, and state-associated social welfare spending for marginal groups(Piore and Sabel 1984).

The economic restructuring in Japan entailed three levels of social and institutional organization. The first level, the linking of innovation to production, occurs through a variety of mechanisms: multidisciplinary research teams replace the strict specialization of Fordist corporations, who rather than

having a strict purpose and fixed membership, continually adjust their goals and rotate members according to their skills and expertise. In Japan, there are few job classification, work rules overlap, and production is organized on the basis of teams. As such, workers can cover for each other and experiment with new allocations and machine configurations. Work in progress is passed sequentially from team to team. Industrial production is no longer limited to functionally specialized or discrete jobs conducted by stationary workers, but is comprised of teams of workers accomplishing batteries of tasks(Monden 1982). In addition, regulation theorists explain that team organization and increased worker input not only increase productivity, but reduce certain aspects of worker alienation, which were responsible for high rates of sabotage and absenteeism under Fordism(Aronowitz 1973).

Nonaka(1982) argues that the tight integration of production and innovation is also a primary reason why Japan has become one of the world's most innovative political economies. Innovation is tied directly to production in that when a product development project is approved, research and project engineers are joined by manufacturing engineers, industrial designers, a few hands-on production personnel, and so forth(Aoki and Rosenberg 1987). Japanese research and development is also integrated with production through rotation of personnel and overlapping project teams. Research always takes place in multidisciplinary teams which are self-organizing rather than imposed by management(Aoki 1987).

At the second level, Japanese industrial organization enables new technologies or products to be spun out as independent subsidiaries, enabling large corporations to keep new innovations within their general orbit. This also allows large corporations to internalize the benefits of R&D activity more effectively by reducing the risk of information leaks through employee turnover or entrepreneurial startups. Post-Fordist restructuring also involves the third level of the diffusion of new technologies in traditional manufacturing. The implementation of industrial automation in Japan involves the creation of new work environments and the cultivation of workers' assets as well as their intellectual skills.

For example, Toyotism, the new modes of development which the regulationist authors characterized in general terms as post-fordism, is based on the production of a high variety of goods in short terms and reduced amounts. It is more flexible than the Fordist as it allows the adjustment of the production to the demand, maintaining zero stock. On the other hand, it requires major participation and responsibility of the workers in the labor process. Unlike the Taylorist principles, the Japanese model is sustained in self-organized and multipurpose work groups. Nevertheless, it is possible to emphasize that along with a proportion of elite workers who conserve the full-time permanent employee character, from which one expects high involvement in the labor process, there coexist the figures of the precarious worker, intermittently unemployed, at the disposal of the subcontractors and services enterprises.

Japanese firms have generated new production concepts and processes by analyzing the complete production process and evaluating how tasks match the overall technological and spatial organization. In order to minimize the elapsed time within the whole production process, they made facility investments that are capable of reconfiguring rapidly as new detailed specifications for new products are developed. Furthermore, they have created self-organizing development teams with an accountability of never-ending learning (Best 1990). Based on comparison with Japan and the United States, Kosai(1986) explains that while the introduction of flexible manufacturing systems(FMS) is thoroughly bound by the institutional rigidities of Fordist industrial organization, which increases management's power and deskill workers, FMS in Japan is complemented with social innovations such as significant levels of human intervention and worker reskilling, rather than deskilling and displacing workers.

In short, Japan's restructuring has been largely determined by the organizational and institutional arrangements that first emerged in manufacturing. By creating the social space and flexibility in which organizational innovation could occur, Japanese industrial organization has paved the way for a synthesis of production and innovation and for integrating new technologies into manufacturing. It can be thus said that the Japanese approach to restructuring represents a qualitative break with Fordism and an alternative post-Fordist.

Another important indicator of the transformative capacity

of post-Fordist production lies in its transplantability outside Japan. Kenney and Florida(1988, 142-145) explores the movement of Japanese automobile production to the United States, focusing explicitly on the organization of work and the development of JIT production system. As a result, they conclude that in the wake of Japanese success, U.S. manufacturers are slowly adopting post-Fordist production relations and the diffusion are occurring through both relocation by Japanese firms and imitation by U.S. corporations, which clearly indicate that post-Fordist production is generalizable across quite different national contexts.

IV. Conclusion

Something dramatic has been happening to the international economy over the past four decades: rapid and radical changes in production technology, a major restructuring of world markets, and consequent large-scale changes in the policies of economic management at the international, national and regional levels. At the same time there is a great deal of confusion about how to characterize these changes and the mechanisms at work. The three approaches examined here—the neo-Schumpeterian, the flexible specialization, and the regulation approaches—attempt to accomplish these tasks.

The preoccupation with techno-economy found in the neo-Schumpeterian approach tends to be too technologically

deterministic, failing to adequately explain the formation and development of a long wave. The dualism of the mass production and flexible specialization approach is criticized that not only does it caricature each industrial paradigm, but also it reduces a great deal of diversity on either side of the divide down to narrowly defined paradigms. Given the breadth and tight conceptual structure, therefore, the regulation approach is better model to explicate those changes revolving around us. The regulation approach is also proven to be most effective to understand the Japanese case, whose social organization and economic restructuring process clearly show that Japan has moved beyond Fordism. The basic elements of our model of post-Fordist Japan and its applicability to the information age are then explored, and we find that Fujitsuism is a potential post-Fordist form of industrial organization, and investigated its potential as a new mechanism for sustained economic growth.

This paper finds that regulation approach from Post-fordism opens up new possibilities for the investigation of behaviors and outcomes at the nexus of production and the labor process in Japan as it has developed a new post-Fordism form of industrial organization which is well suited to new high technology industries. It also provides a foundation to study issues of medium-term reproducibility and sustainability in capitalist development(Davis 1978, 212). It also provides a theoretical background that extends beyond the Japanese firm, and views production and the labor process as one issue among a complex web of

relationship that can provide insights the level of understanding of the Japanese model. However, it should be also noted that at the same time it is also crucial to look for ways to implement and overcome the problems that post-Fordism itself gave birth to, such as uneven development and polarization of society, in a more desirable way(Mayer 1991, 123).

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Post-Fordism: Production and the Labor Process in Japan

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Abstract

This paper discusses epochal transition of the structure and organization of the modern economy and society from one distinct phase of capitalist development to a new phase focusing on post-Fordism. There is a great deal of debate about how to characterize these changes, the mechanisms at work, and the policy implications for different groups of economic and political actors. This paper reassesses the concept of post-Fordism in light of the experience of the Japan. It systematically analyzes the differences among the three theoretical positions lying at the heart of the post-Fordist debate: the neo-Schumpeterian approach, the flexible specialization approach, and the regulation approach.

The preoccupation with techno-economy found in the neo-Schumpeterian approach tends to be too technologically deterministic, failing to adequately explain the formation and development of a long wave. The dualism of the flexible specialization approach is criticized as it caricatures each industrial paradigm and reduces diverse changes on either side of the defined paradigms. This paper finds that the regulation approach is the best model to explicate the

changes revolving around us because of its breadth and tight conceptual structure. It is also proven to be most effective in terms of understanding the situation in Japan, where social organization and economic restructuring processes clearly show that the country has moved beyond Fordism.

Keywords : Post-Fordism, Regulation Approach, Japan