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Band 63

Labor Market Issues in Japan and Germany

Edited by

Franz Schober
Takashi Matsugi

Duncker & Humblot · Berlin

FRANZ SCHOBER / TAKASHI MATSUGI (Eds.)

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Herausgegeben von Theodor Dams und Joachim Klaus

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Preface of the Series Editors

This publication contains the revised and updated versions of the papers presented at the 16th Joint Seminar of the Faculties of Economics at the Universities of Freiburg and Nagoya. The Seminar took place from September 30 to October 4, 1996, in Freiburg. As with previous seminars its main purpose is the scientific exchange of information on economic issues and developments in Japan and Germany as well as in the geographic and economic regions into which both countries are imbedded. We appreciate that the editors of these proceedings, who also acted as scientific coordinators of the seminar, have again chosen our series for publication.

Labor market issues in Japan and Germany certainly play a dominant role in both countries. The situation has even aggravated since the time of the seminar so that the publication of the results is timely and acute. Labor market issues are analyzed from a macroeconomic or sectoral as well as from the single enterprise point of view. They also comprise technological and ecological perspectives. Social imbalances such as in the role of the female workforce play a further role. Therefore, we are sure that a broad range of relevant subjects has been touched in the seminar and at least partial solutions to the difficult problems have been proposed.

The Faculty of Economics at the Albert-Ludwigs-University of Freiburg wishes to thank the Ministry of Science, Research and Arts of Baden-Württemberg and the corresponding institutions in Japan for their generous support. We further thank the Ministry as well as the Bank for International Settlements Basle, IBM Stuttgart and Peugeot Mulhouse for inviting the participants of the seminar to their premises and providing an interesting discussion forum. Thirdly, we thank the Wissenschaftliche Gesellschaft in Freiburg im Breisgau for the grant which made this publication possible. Finally, many thanks to Thies Lehmann and Rainer Zinsmeister, who substantially helped in the editorial work.

Freiburg, April 1998

Theodor Dams
Joachim Klaus

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Adjustment Problems for the Rural Labor Market within the Transformation Process of East Germany ("Neue Bundesländer")

Theodor J. Dams

A. Introduction

On July 1st, 1990, the "German Economic, Monetary and Social Union" was established as a preliminary step within the frame of the Political Unification (October 4th, 1990). The introduction of market economy into the ex-German Democratic Republic (GDR) has been connected with a radical restructuring of the economy as a whole and has deeply touched all sectors, regions and – last but not least – enterprises and labor force input.

In this paper which may be considered as a follow-up of the publication presented at the 13th Joint Nagoya-Freiburg-Seminar in 1991 the special problem of the adjustment of the agricultural/rural labor market in the "Neue Bundesländer"[1] will be covered.

What is the "speciality" of this topic, taking into account that the East-German Economy as a whole was confronted with challenges produced by a system transformation process?

1. The agriculture of the ex-GDR has been transferred from a centrally planned socialist order into the Common Agricultural Policy (CAP) of the European Union (EU) as a special regulation in the frame of a market economy system.

2. The German Unification has generally introduced a radical change of ownership and property/usage rights. But the restructuring of the agricultural sector was strongly influenced by the ideology that the individual decisions would produce a land tenure system dominated by agricultural family farms – the main objective

[1] Germany's constitution prescribes a federal system (Bund und Bundesländer). In the course of the Unification five "Neue Bundesländer" have been established: Mecklenbourg-West Pomerania; Brandenburg; Saxony-Anhalt; Thuringia and Saxony.

of the Agricultural Policy of West Germany! Or, in other words: What concept of agricultural structure ("Leitbild") could be adequate for East Germany after a period of nearly half a century of collectivization? The answer has to be considered as a main element determining the input of labor.

3. In the GDR the agrarian structure of collectives and state owned enterprises had incorporated labor forces for covering the demand for non-agricultural activities (e.g. construction of buildings, repairing machines, social services etc.) In a market economy, these activities are performed by external, non-farming industries or by municipal employees.

4. The situation of regional labor markets is influenced on the one hand by the type of land tenure systems (family farms are using a relatively higher labor input than big holdings) and on the other hand by the working opportunities outside of agriculture.

In the ex-GDR we also have to consider a North-South divergency with regard to industrial activities.

These topical subjects have been mentioned as examples in order to demonstrate that agricultural policy has to play an important role within the German Unification and is confronted by special challenges.

B. Outline of the Paper

This paper will provide some basic information covering the evolution of agriculture in the "Neue Bundesländer", especially with regard to the land tenure system and the labor market constitution.

The analysis starts with some definitions and theoretical reflections (C). The following chapter (D) deals with the historical adjustment processes of agriculture in East Germany; we have to distinguish three periods: The agrarian structure and labor market before the end of World War II; the collectivization after 1945; the re-transformation process starting in 1990. In chapter (E) the theoretical adjustment challenge to GDR agriculture posed by CAP and market economy has been illustrated by model calculation, explicitly to figure out the impact on the agricultural labor market. Furthermore, the "philosophy" of the dominant role of peasant farms should be carefully considered within the restructuring and evolution of the land tenure system; the firm positions of new theoretical considerations have to be taken into account (e.g. the theory of transaction costs, institutional economics). The transformation of GDR agriculture (after 1990) has produced a sharp decline in the number of working people due to the fact of low agricultural labor force productivity in a collectively organized land tenure sys-

tem (Chapter G); we have to examine the question of the role of agriculture in a socialist and in a market oriented economy. Furthermore, we have to consider that a higher agricultural labor productivity requires a transfer of working force to other sectors of the economy. And therefore we have to investigate the close relationship between the development of agricultural structure and the evolution of regional economy (H). The last chapter (I) closes the paper with a brief outlook on regional and agricultural development aspects for the near future.

C. Some Definitions and Theoretical Reflections

I. Land Tenure – Labor Constitutional Charter – Economic System

Land tenure has a political, social and economic component: Folke Dovring (1956) has described these interdependencies in his famous book "Land and Labor in Europe 1900–1950". The labor constitutional charter and the redistribution of labor force between sectors and regions are strongly influenced by the land tenure system within a given economic order: Market forces in a liberal economic order or centralized decisions in a socialist system within a set of goals, such as to guarantee full employment, to observe the overall aim of the society's welfare etc.

We have to take into account the great differences which exist between forms of establishing a market economy order and of the integration of agriculture within a given market economic system. In Western societies the agricultural policies are characterized by a high degree of governmental interventions in the fields of price, structural and social policies linked with regional subsidies, and, in the case of the ex-GDR, special support for the acceleration of a successful transformation process of agricultural holdings. To conclude: GAP interventions of the EU on the one hand and additional measures on the national level accompanied on the other hand by special means of both sides within the German Unification are joining together in the context of an economic policy for regional development (see: Bundesministerium für Ernährung, Landwirtschaft und Forsten (BMELF), Agrarbericht 1996). Thus, we are confronted with a very high complexity of problems. We can only mention some of these aspects of the transformation process of agriculture and of the rural labor market in East Germany.

II. The Land Tenure System

The agricultural labor market is an integral element of the land tenure system. Therefore, we do need an "operational" definition of both terms in order to un-

derstand correctly the differences in the relation of labor input to other production factors in divergent economic orders (decentralized market economy vs. central socialist system).

With regard to the definition of 'Land Tenure' there is a long historical discussion of the content of this notion which has been supported strongly by German economists.

In the 1950s C. von Dietze (1959, 1960) presented the German version of "Agrarverfassung" and referred to the concept of G. Schmoller. Within the land tenure system two opposing tendencies can be observed: The increase of free individual ownership and the subordination of all private ownership under the common goals of the society. Furthermore, at an earlier time Max Sering (1913) pointed out the close relationship between "Agrarverfassung" (land tenure) and "Sozialverfassung" (social order) and he defended private property in agriculture against the concept of socialism; we also have to recognize his critical analysis concerning the agrarian revolution and reforms in East and Central Europe (1929). The International Association of Agricultural Economists (IAAE, 1953) has intensively discussed the content and role of land tenure in the countries of the Western World (by realizing the differences in interpretation between the Anglo-Saxon and the German speaking areas) and in East Europe (presented mainly by Russian economists). The results of this general discussion had a strong impact on the quantity of the agricultural labor force (F. Dovring, 1956) in different economic systems as well as on the agrarian structure (Dams, 1970). Furthermore, it seems very important to include – in a broader sense of 'Land Tenure' – the behaviour ("Wirtschaftsgesinnung") of people engaged in agriculture: How to combine the production factors "Land-Capital-Man" with regard to decision taking in the field of ownership, land cultivation and income distribution. This land tenure question is not only a crucial point in relation to the choice between private ownership and collective land use. Even more important is the need to consider the behaviour of agricultural workers in the case of the transformation a collectively organized agriculture into an agrarian structure within a market economy (e.g. in East Germany and East Europe).

To conclude, we should quote two definitions: (1) "Land tenure is a broad term covering all the relationships established among men which determine their varying rights in the use of land" (R.R. Renne, 1947); "Land tenure encompasses the legal foundations and the social order as a frame of the economy and society as a whole" (quoted by C. von Dietze, 1959, with reference to W. Eucken, 1952). These expressions are compatible with the position of F. Dovring (1956): "Ownership and tenancy will be regarded under the view point of the basic relativity of their social and economic implications, to some extent also in their legal structure . . . and with their impact to the level of employment in agriculture."

III. Some Theoretical Reflections

Income generation and an improvement of the living conditions of the people engaged in agriculture are the main goals to be achieved within the frame of different land tenure systems. There is a huge amount of scientific literature covering these two questions under the perspective of comparing economic systems. We do not have time and space to enumerate the main topics of the investigations concerned. Nevertheless, we will present some theoretical considerations which have been put forward by Western economists. There is no doubt that a land tenure system influences the labor input as well as the combination of the production factors.

H. Chenery (1974) has pointed out that in socialist societies there is a more equal income distribution compared with capitalist countries; the reason is the collective ownership of land and capital. J. Robinson (1970) has expressed the same point of view. The Russian economist I.S. Kushinov (1964) has explained this normative fact as follows: "The greatest role in strengthening of the collective farm system has been played by the supply of land without charge" ... "Collectivation put an end forever to exploitation of the peasants by large farmers (Kulaks), class fragmentation, and poverty." As far as income distribution was concerned, only differences in professional skills, in the quality of labor input, and in the level of productivity could have an impact. Nevertheless, in a centrally planned economy the state had the opportunity to transfer a part of the collective farm income in favour of other sectors (e.g. for the development of industries). In the economic reality the income situation was quite different (which will be demonstrated in chapter E).

With regard to the evolution of a specific farm structure and labor input there is still another theoretical foundation which should be mentioned: The theory of transaction costs related to market and non-market interdependencies (G. Schmitt, 1991b) and the institutional organization of agricultural enterprises (allocation of resources including the backward and forward linkages). "Conventional microeconomics fail in those situations where transaction costs are higher than zero, and where property rights take forms different from the idealized pattern hypothesized for classical capitalism" (E. Furubotu and R. Richter, 1991). This evolution of economic theories has a direct impact on the land tenure system and the labor input: To compare the effectiveness of collective farming in the "East" with that of family holdings in the "West", and to interpret the recent changes of the land tenure system characterized by the dominance of big collective holdings in the "Neue Bundesländer".

To conclude: Some theoretical reflections (property rights, transaction costs, institutional economics etc.) provide us with new approaches for considering the

evolution or transformation of land tenure. That has been the reason for including this theoretical section – hopefully, as a "productive detour" – in this paper; in chapter F we have to test these assumptions against the empirical figures.

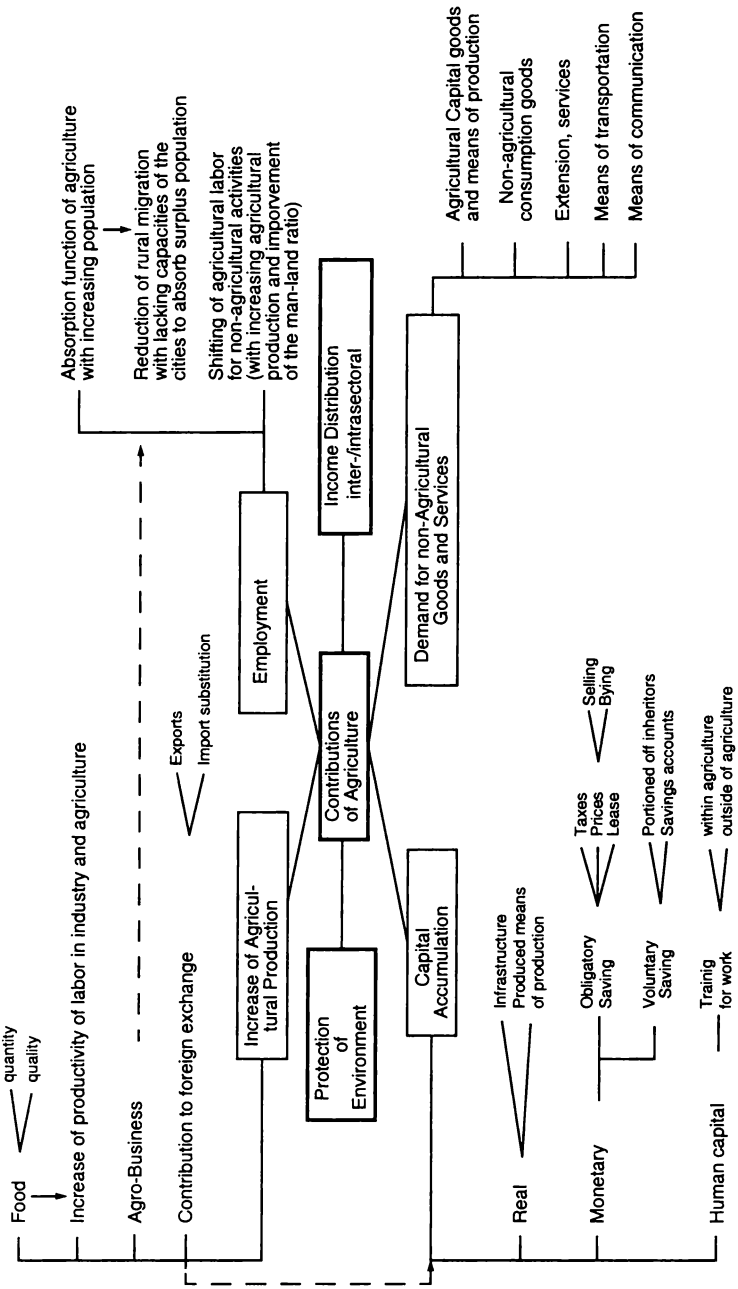
IV. The Role of Agriculture and Labor in Different Systems

For decades the analysis of the role of agriculture within the economic development process has been a main topic for investigations in the social sciences. There are two points which have been covered intensively: (1) The agrarian structure (farm sizes and outlets) and the volume of agricultural labor input in a market versus a socialist economy; and (2) the impact of market forces on labor input (e.g. economic growth and distribution of workers amongst sectors of the economy) and the repercussion of the transformation process in a socialist economy on the labor force used.

In this regard, figure 1 "Contribution of Agriculture to Economic Growth" contains six elements (employment of working force; capital accumulation; increase of agricultural production; income distribution; ecology; demand for non-agricultural products). Taking in account the topic of this paper the two elements mentioned first have the greatest relevance (see diagram: top right and bottom left). In an early stage of development agriculture has the function of absorbing the rural labor surplus, irrespective of the negative impact on labor productivity. After reaching the point of take-off and a sustained economic growth, the process of shifting agricultural workers to non-agricultural activities has a gradually increasing tendency caused by market forces; this results in an increased per capita food production and the improvement of the man-land (capital) – ratio as well as higher labor productivity.

The adjustment process of agriculture has to be interpreted as a concurrent growth with industry. With regard to the selection of two elements in figure 1 we will explore only the role of labor and capital.

In a socialist land tenure system with collective farms, this type constitutes a structure of social enterprises with a "complete agreement between the private interests of the peasants and the collective and of interests in the result of production" (Kushinov 1964). In the first place, there is a guarantee for full employment; secondly, the ideology of the economic superiority of big enterprises requires a high input of machinery organized in big entities on a level above the holdings (Maschinen- / Traktoren-Stationen). This leads to a great hidden unemployment for the labor force. This fact is illustrated by Table 1: In the period 1980–1988 the labor force increased by 16% (from 801,259 to 886,827; Deutsche Demokratische Republik (DDR), Stat. Jahrbuch 1989). In West Germany



Sources: Publications of S. Kuznets, W. H. Nicolls, B. F. Johnston and J. W. Mellor

Figure 1: Contribution of Agriculture to Economic Growth

during the same time span there was a reduction of 27% in the number of workers engaged in agriculture (from 1,289,000 to 940,000) with increasing tendency. The rise in the number of agricultural workers in the GDR had several causes:

An increase in administration, in cultural/social services and in the repairing of technically outdated machinery. In West Germany there was and is a smooth adjustment process of the labor input over time; in the last 15–20 years the input of working hours decreased by 3.4% per year, and for family workers by 2.6% per year. This divergent development in West and East Germany had to have radical consequences for the "Neue Bundesländer": A sharp reduction of the number of people engaged in agriculture in order to reach a higher level of productivity and income!

As far as the capital accumulation related to the role of agriculture is concerned, K. Ohkawa (1994) has pointed out that for market economies it is a "well-known fact that the outflow of a surplus created in agriculture and directed to the rest of the economy was a contribution by making neccessary investments and public expenditure for modernization." But, at a later period, due to the rapid growth of industry and a time-lag of agricultural adjustment (with the consequence of income "disparity" in comparison to other groups), in the frame of a free market mechanism governments have undertaken measures for a sectoral transfer in favour of workers engaged in agriculture.

In a socialist economic system with agricultural collectives the labor organization in brigades and the governmental price policy (for agricultural inputs and outputs) determine the individual income. In this procedure sources and means for capital accumulation are transferred in favour of a rapid industrialization. We can conclude: After the Unification of Germany the transformation process of agriculture and the agricultural labor force as well as the capital input were a heavy burden. This adaptation to the frame of a market economy was more or less centered around a restructuring of land tenure, especially of farm sizes.

D. Stages of Transformation and Re-Transformation

The Transformation process of East Germany's agriculture has to be analyzed in three periods: (1) the pre-socialist era (before 1945); (2) the land reform and agricultural collectivization 1945–1989; (3) the privatization of GDR-agriculture starting in 1990.

In some cases the comparison of statistical facts of period (1) with those of the time span after 1945 seems to be difficult.

Table 1
Agriculture of the GDR

Year	Agricultural Acreage			Agricultural Production Cooperatives (A.P.C.)		
	Total	Arable Land	Pasture	Acreage Cultivated by A.P.C.[a] (%)	Number	Members[b]
1950	6,526,554	5,017,294	1,291,097	5.7	—	—
1955	6,479,963	4,991,565	1,261,637	27.3	6,047	196,946
1959	6,427,445	4,879,977	1,338,268	48.2	10,132	435,365
1960	6,419,755	4,847,831	1,362,021	92.5	19,313	901,490
1961	6,414,853	4,812,140	1,401,369	92.7	17,906	964,528
1965	6,357,613	4,718,067	1,436,398	93.9	15,139	986,622
1970	6,286,392	4,618,075	1,469,172	94.2	9,009	915,119
1980	6,269,085	4,760,015	1,235,349	94.9	3,946	801,259
1985	6,224,804	4,716,760	1,251,686	95.0	3,905	856,420
1986	6,208,152	4,709,157	1,250,665	95.2	3,890	868,226
1987	6,187,483	4,693,699	1,254,231	95.4	3,878	880,915
1988	6,181,878	4,687,078	1,258,265	95.4	3,855	886,827

[a] Official Registration
[b] From 1960 onwards apprentices have not been included. From 1968 onwards members engaged in services of cooperatives and from 1976 onwards members of state owned agricultural enterprises have been included: From 1971 onwards the non-permanent workers have not been registered.
Source: Statistisches Jahrbuch der DDR, 1989

Furthermore, during the period of 1945–1989 the criteria for including workers in the agricultural labor force were changed (see table 1). Taking into account these restrictions, the following indications will be presented:

In the 30s the land tenure system and the labour constitution were mainly characterized by bigger holdings, sometimes in tenancy (T. Häbich, 1947). The Statistik des Deutschen Reiches 1933 illustrates the full picture. Nevertheless, family farms had – in particular in the southern areas – a remarkable position in the frame of GDR-land tenure (Stat. Jb. der DDR, 1956–1959). In 1939, there were roughly 450000 farms, ranging in size from 1 to 100 ha, with farms from 5 to 10 ha and from 10 to 20 ha each accounting for about a quarter of the total number, a further 20,000 farms of 1–5 ha, and 60,000 farms of 20 to 100 ha (see table 2). Due to the land reform the number of smaller agricultural entities had increased by 30%, in 1949, compared with 1939). In 1952 the establishment of

Table 2
Changes of the Farm Sizes of Peasant Holdings (1–100 Ha) in the German Democratic Republic 1939/1949/1952–1957

Year		Number of holdings[1] (distributed according to farm sizes)				
		1–5	5–10	10–20	20–100	Total
1939	Number	201,851	93,935	95,211	56,767	447,764
1949	Number	198,565	256,840	115,855	46,660	617,920
	Changes total	-3,286	+162,905	+20,644	-10,107[2]	+170,156
	%	-1.6	+173.4	+21.7	-17.8	+38.0
1952	Number	180,433	240,923	113,180	45,395	579,931
	Changes total	-18,132	-15,917	-2,675	-1,265	-37,989
	%	-9.1	-6.2	-2.3	-2.7	-6.1
1953	Number	169,932	195,934	95,300	28,846	490,012
	Changes total	-10,501	-44,989	-17,880	-16,549	-89,919
	%	-5.8	-18.7	-15.8	-36.5	-15.5
1957	Number	159,627	169,732	84,701	23,613	437,673
	Changes total	-10,305	-26,202	-10,599	-5,233	-52,339
	%	-6.5	-13.4	-11.1	-22.2	-10.7
1949-1957	Changes total	-38,938	-87,108	-31,154	-23,047	-180,247
	%	-19.6	-33.9	-26.9	-49.4	-29.2

[1] always for 15.6. of a year.
[2] including approximately 4 500 holdings which have been expropriated in the course of the land reform.
Source: Stat. Jahrbuch der DDR 1956, p. 348–351, Stat. Jahrbuch der DDR 1959, p. 418–419

collectives (as production cooperatives) was started, accompanied by the type of state owned farms with salaried workers.

Table 3 lists the different stages of agricultural transformation towards a socialist land tenure from 1945 to 1989:

This political decision of the GDR authorities has produced the following agrarian structure as far as farm sizes are concerned:

In the course of the German Unification – starting in 1990 – the GDR Agriculture was "re-transformed" (third period of the stages of transformation. This process (during the time span 1990–1995) will be described at length (Chapter E) with regard to the farm size distribution and the agricultural labor input.

Table 3
GDR: The Stages of Agricultural Transformation 1945–1989

1945–1952	Land Reform and Preparatory Measures for Collective Farming
1952–1960	Collectivization and Establishment of Agricultural Production Cooperatives
1960–1968	Consolidation, Cooperation and Concentration in the Sector "Agriculture"
1968–1983	Specialisation and Introduction of "Industrialized Agricultural Production"
1983–1989	Reduction of the Special Implementation of the Goals Formulated in 1968

Table 4
Land Tenure Structure of the GDR in the Year 1989
(Farm Sizes and Type of Ownership)

	Number of farms	ha cultivated	% of total acreage	Average farm size in ha
State owned	446	448,898	7.3	5,000
Agricultura Collectives/ cooperative production	3,855	5,343,715	86.5	4,450
Horticultural Collectives/ prod. cooperatives	199	14,676	0.2	75
Others			0.3	
Total	4,686	5,827,308		
The labor force input was closely linked with the land tenure system (see Table 1).				

Table 5
Workers Engaged in GDR Agriculture in 1989
(Divided into Branches)

	1980	1989	% Change 1980–1989 (per year)
Total number	780,200	819,700	+ 0.6
Main production	522,500	494,900	- 0.6
By-production	53,800	53,300	- 0.1
Input production	86,100	127,100	+ 4.4
Management/administration	84,400	101,200	+ 2.0
Cultural and social services	33,400	43,100	+ 2.9

Nevertheless, some indications will be given at this point, in order to provide some preliminary information on the gradual change and the general context of the transformation process.

Table 6
Transformation and Privatization of GDR-Agriculture
Time Table 1989–1993

09.11.1989	"Berlin Wall" and "Iron Curtain" are opened
12.01.1990	Private ownership of production factors is allowed
01.03.1990	Establishment of "Treuhandanstalt" for privatization
18.03.1990	Free election of the "People's Chamber" of GDR (Volkskammer)
17.06.1990	Legislation adopted for the Treuhandanstalt
29.06.1990	Legislation adopted for the adjustment of agriculture
01.07.1990	Introduction of the Economic, Monetary and Social Union (GEMSU)
06.07.1990	(a) Legislation for agricultural market regulation (b) Legislation for implementing and supporting the privatization
03.10.1990	Adoption of German Unification by the two German parliaments
01.01.1991	Adoption of measures for agricultural support during the transition period
01.07.1991	Adjustment of the decisions of July 1st, 1990
01.01.1993	Final date for dissolution of still existing farms.

The politically ambitious aim was the following one: The obligatory transformation process of GDR-Agriculture 1945–1989 should be re-transformed in three years with the pre-condition of the introduction of a market economy!

E. An Adjustment Model of GDR Agriculture in the Frame of EU Market Economy and of Common Agricultural Policy

Immediately after the political collapse of the GDR agricultural economists were starting their investigations in order to figure out the competitiveness or the deficiencies of the East German agriculture under the new conditions of the Common Agricultural Policy of the EU. The central point has been formulated as follows: What would be the effect on the net value added reached by the East German agriculture during the years 1986–1989, if the input and output prices of the agriculture of West Germany were taken into account?

Or: What are the chances – under these new circumstances – of being able to pay the expenses for wages (the labor force), the interests for debts, and to cover the investments?

A detailed study has been presented by the Institute for Agricultural Economics, University of Bonn (Ch. Böse and W. Henrichsmeyer, 1993) and earlier – based on preliminary figures provided by this institute – by the Wissenschaftliche Beirat (1990). The model and the results concerned have been described in publications during the past years (see: Th. Dams 1991a; 1991b). Therefore we can summarize the outcome in the short version of the Ministry for Agriculture (Agrarbericht 1991).

The net value added of the GDR agriculture has been figured at 26.2 Bill. East-Mark (57 Bill. production value, 29 Bill. inputs; furthermore depreciations; taxes (in relation to production) and subsidies).

Table 7

The Economic Situation of Ex-GDR-Agriculture in 1990

(Based on Sectoral Data of the Years 1986–89, Calculated on the Basis of Prices in West Germany in 1990)

Value of production	20.1 Bill. DM
Value of inputs	17.1 Bill. DM
Gross value added (market prices)	3.0 Bill. DM
Subsidies	0.7 Bill. DM
Prod. taxes	0.9 Bill. DM
Depreciations	3.1 Bill. DM
Net value added (factor costs)	-0.3 Bill. DM
Wages	8.6 Bill. DM
Interests	1.4 Bill. DM
Net income of agricultural activities	-10.3 Bill. DM

Based on these calculations for the year 1990 we can conclude:

Regarding the precarious economic situation there is a strong challenge for a radical adjustment process which will immediately affect the labor force input linked with a restructuring of the land tenure system. Both problems which are "two sides of one coin" will be covered in the next chapter.

F. Re-Transformation of GDR Agriculture: Labor and Land Tenure

I. Changes in Property and Farm Sizes: The Theory

In 1990, after the collapse of Real-Socialism in the GDR, the political and scientific discussion has brought up the question: What will be the future agrarian structure produced by the transformation process (starting facts see table 4 and 5) with regard to the new conditions of CAP and the introduction of individual property rights?

First of all, we should consider that the agricultural policy has been dominated by the "Philosophy and Doctrine" of the family farm. Furthermore, the scientific analysis has presented conclusive economic results (with regard to productivity, income etc.) on the subject of family holdings in comparison with the collectively organized GDR agriculture (G. Schmitt, 1989; 1991; K. Hagedorn, 1991). Among the most important reasons have been the low transaction and administration as well as transport costs.

After the introduction of the first steps of German Unification (see: Table 6) expectations have been put forward that the family farm would be the central focus of the transformation process of GDR agriculture into a market economy of the CAP-type. And there was the firm position that the big estates of collective production farming – in the first period organized as cooperatives or private estates – would not have a realistic chance of survival in the frame of a market economy.

G. Schmitt (1991) has presented the following hypothesis: Under the conditions of the recently introduced market economy the artificial construction of the big socialist estates (see: F.A. v. Hayek, Die Irrtümer des Konstruktivismus, 1970) without any historical evolution process will have only little chance of economic survival. The reason: The family household and enterprise has reached the relatively highest efficiency of allocation of resources which is linked with a greater reduction of transaction costs in comparison with privately owned big agricultural entities which are managed with hired workers or in a privately organized type of collective production as cooperatives.

But where "pros" are presented in favour of the dominating role of the family farm, the "cons" are never far away in the scientific and political discussion.

E. Harsche (1990) has pointed out that after the German Unification the doctrine in favour of the family farm – expressed in West Germany – would collapse due to the economic and social advantages of the bigger holdings – from 1990 onwards privately organized – in the East.

K. Hagedorn (1991) has put forward the following crucial questions: (a) What farm size will dominate in the future evolution process of land tenure? (b) What

kind of layout and organization of farms will have the higher competitiveness? In order to answer those two questions we have to take into consideration the permanent interactions between the product and factor markets as well as the labor capacity of the peasant's family and for the internalization of external effects.

With regard to this problem, M. Köhne (1990) has expressed the following opinion: The change of the socialist land tenure system could be based on legal foundations other than the individual ownership/usage rights of family farms; e.g. partnership companies, juridical persons of Civil Code or of Public Law. The reason is a very simple one: to reach an economic viability for a higher degree of competitiveness.

The theoretical reflections include on the one hand the production costs and on the other hand the transaction costs and both are determining the optimal farm size, the management of the holdings and the quantitative as well as the qualitative input of labor force.

However, based on the democratic constitution the land tenure system is mainly a product of an individual decision making process in the frame of the legislative and administrative preconditions, including the fact of special measures in favour of the "Neue Bundesländer".

St. Merl (1991) called special attention to some elements of a positive valuation of cooperative production in agriculture; e.g. the income situation in relation to labor input is not worse than for family farms; the social advantages of a limited working time. Furthermore, the establishment of a family farm is linked with uncertainties due to the high capital investment and market risks (CAP-Reform; GATT/WTO etc.). Last but not least, the highly specialized work in the past (in collectives) is a real obstacle when doing multifunctional work on a family farm (it takes a longer period to build up the human capital which is needed for an efficient management of a family farm).

To conclude: We have to consider the challenges in order to find answers to two central questions: (a) Has there been some change in the overall aims and goals during the last years after the Unification with regard to the agricultural policy in Germany? (b) What are the results of the re-transformation process in the last five years (statistical-empirical analysis)?

II. The Changing Goals of the Agricultural Policy

What has been the reaction of the official agricultural policy with regard to the challenges resulting from the agricultural transformation process of East Germany?

The "Agrarberichte" (Annual Agricultural Report of the Federal Ministry) explain the aims, goals and norms of the German agricultural policy year by year expressis verbis. Analysing the reports for the years 1985 (before the Unification), 1991 (the first report immediately after the Unification separately covering the "Neue Bundesländer"), of the year 1992 and of 1996 (the last report) has produced the following results:

1. The report of 1985 contains a very detailed description of the overall goal, subtopics and partial aims of the agricultural policy. The main norm has been formulated as follows: Amelioration of the living conditions in rural areas, and an equal participation in the overall increase of income and welfare for people engaged in agriculture. The subtopic explains the necessity of supporting peasant agriculture characterized by full time and part time holdings. In order to protect this type of land tenure a partial aim has been prescribed: To avoid a heavy concentration of production capacities and to support the competitiveness of holdings which combine plant and animal production.

2. In 1991, the overall goal includes the protection of natural resources as the living foundation of the society – no other change and addition. The subtopic (peasant agriculture) stands unchanged, with the addition that this farm structure should be competitive with a creditable performance. For East Germany we read: During the transition period for the present time and the near future there will be an agriculture organized as a cooperative type.

3. Nothing has been changed; the subtopic has the addendum of "a self-responsible management by family farms." And for East Germany there is a slight change of position: The adjustment process of agricultural enterprises will take more time due to the political decisions taken in the socialist past.

4. Six years after the Unification the main norm has been changed into the phrase: A competitive agriculture which is integrated into a market economy and takes into account ecological needs. With regard to the peasant holdings the report explains that this type will play a dominant role in the future, too. And for East Germany we read: The support of effective and competitive agricultural enterprises which are corresponding with the ecological objectives.

To summarize: There is an increasing tendency, followed by the official policy, to accept the diversification of the agricultural structure within a wider spread of farm sizes. The two main points are underlined: The self-responsible entrepreneurship and individual property rights for a higher number of people engaged in agriculture.

G. The Results of the Transformation 1990–1995

I. Duality of Agrarian Structure

The academic-theoretical discussion (see: F) has presented divergent regional positions. After five years of the agricultural transformation process the economic reality has generated a clear-cut result which is presented in table 8.

Table 8
Distribution of Farm Sizes in East Germany in 1995

Farm size	Number		Acreage	
ha	Total	%	Total (in ha)	%
1–10	13,653	45.6	49,600	1.0
10–100	8,856	29.6	309,900	5.6
100–200	2,368	8.0	342,200	6.2
200–500	2,375	8.0	746,700	15.5
500–1000	1,299	4.4	942,000	17.1
1000–3000	1,602	3.6	2,590,000	47.1
more than 3000	138	0.5	539,300	9.8
Total	30,248	100.0	5,520,500	100.0

The duality of the agrarian structure in East and West Germany can be illustrated by the following facts:

Table 9
Distribution of Farm Sizes in West Germany 1995

Farm size	Number		Acreage	
ha	Total	%	Total (in ha)	%
1–10	234,619	45.1	971,400	8.3
10–100	276,458	53.2	8,889,500	75.9
100–200	—	—	—	—
200–500	—	—	—	—
500–1000	—	—	—	—
1000–3000	—	—	—	—
more than 3000	11,950	2.3	1,800,500	15.3
Total	523,037	100.0	11,661.5	100.0

Source: Agrarbericht 1996

In West Germany we still have in mind the "doctrine" of family farm policy and the idea that this type of land tenure should play a leading role in the transformation process of agriculture in East Germany. Table 10 indicates that another concept has been realized by the individuals in the last five years.

Table 10
Legal Forms of Agricultural Holdings in the "Neue Bundesländer" 1995

Legal Type	Holdings		Acreage		Average (ha)
	total	%	total (ha)	%	Farm size
Natural persons	27,259	90.1	2,340,500	42.4	86
Indiv. hold.	24,588	81.3	1,141,300	20.7	46
Partnership companies	2,671	8.8	1,199,200	21.7	449
Juridical persons of Civil Code	2,902	9.6	3,168,700	57.4	1,092
Juridical persons of public law	87	0.3	11,400	0.2	132
Total	30,248	100.0	5,520,600	100.0	183

There hasn't been a radical change of legal forms of farming since 1992; the number of individual holdings owned by natural persons has strongly increased (1992: 14 600; 1995: 27 200, mainly caused by the rise of the number of individual farms); but the acreage percentage has changed on slightly, from 17 to 21%.

The official conclusion of the Federal Ministry of Agriculture (1996) has been presented in the following words: Between the two parts of Germany we will have in the future, too, great differences as far as the farm sizes, the production structures, the legal types of enterprises and the property conditions are concerned.

And we will quote an additional "political voice" coming from the "Neue Bundesländer". The Minister of Agriculture of the Land Brandenburg has pointed out the following for his area (1996): The concept of the policy makers of West Germany (to break up the big entities of production cooperatives; to kick out the management; to start with family holdings within a short time etc.) didn't succeed; the real development and evolution were quite different in East Germany, and the politicians of West Germany have been mistaken in their expectations – and (Zimmermann, 1996) that has been a fundamental error! Maybe we should add that this was the case for some of the agricultural economists, too (see: C, III; F, I)!

II. The Results of the Transformation 1990–1995: The Agricultural Labor Force

Once more, land tenure has to be considered as a coin with two sides: farm structure and labor force. After the presentation of the development of farm sizes and legal forms of enterprises we will cover the second side (of the coin): the evolution of the labor input during the transformation process in East Germany.

Table 7 has illustrated the extremely weak economic situation of the GDR agriculture in 1989 (with a deficit of 10.3 bill. DM – calculated on the basis of EU-prices); or, in other words, the bankruptcy condition with regard to the competition within the European Union with the CAP which is not at all a free market economy.

In 1989 – the last year of GDR economy – 819,700 workers were engaged in agricultural activities (table 5) other sources set the number at 848 000 (see: K. Schmidt, 1993). The decrease of the labor force is indicated in table 11:

Table 11
The Development of the Agricultural Labor Force in East Germany 1989–1995

Year	Total number	Decrease (%)
1989	818,000	100
1991	361,900	44
1992	201,000	25
1993	179,000	22
1994	165,000	20
1995	157,000	19

The sharpest decline can be observed in the middle of the year 1992. We have to put forward the question: What has happened to the 620,000 or 660,000 workers who have been discharged?

For the middle of 1993 K. Schmidt (1993) has presented the following figures: 190,000 workers engaged in agriculture (22.4% of the labor force of 1989), 16.8% of them were short-time workers; 190,000 persons retired (partly before reaching the official age limit) (22.4%); 100,000 persons (12%) working in subsidized jobs (ABM), one third of them in agriculture; professional training 40,000 (5%); 130,000 agricultural workers transferred to other jobs; migration to West Germany permanent or daily (40,000); 140,000 (16.5%) out of work. These figures are only an indication of the labor adjustment process which was linked with very severe human hardship.

In the regional context there is a north-south differentiation of the decline of the labor force, a higher degree in the north where agriculture is more dominating and industrialization is lacking.

The decrease of the labor force in agriculture has produced a better man-land-ratio (1989: 14.5 labor units/100 ha; 1992: 3.8). Nowadays (1995), in East Germany 2.3 working units are engaged per 100 ha; in West Germany (related to the structure of family farms) we can observe a figure of 4.8/100 ha.

The absorption capacity for agricultural laborers depends on many factors, last but not least on the different measures undertaken in the frame of the agricultural policy/CAP. We will enumerate only two examples: In the year 1995 14% of the arable land in East Germany had been abandoned (in West Germany 9%) to prevent agricultural production surplus (subsidized by the CAP). In addition to this regulation, some compensation payments have been agreed upon for plant and animal production (BMELF, 1996).

No doubt, these measures are influencing the per capita income and the volume of investments (350.- DM/ha in East Germany on average, that is only one third of West Germany's equivalent figure).

Furthermore, there is a strong financial support of the adjustment process by national and European Union funds. We can only mention the very complicated system as a whole – there is no possibility of covering this problem in detail.

Ch. Böse and W. Henrichsmeyer (1993) have mentioned that for the first period until 1991/92 an improvement of the efficiency of agricultural holdings could be observed.

Nevertheless, the adjustment process has not yet reached a level of sustainable development; a great part of the value added and of the remuneration of the production factors is the result of officially transferred income (Ch. Böse and W. Henrichsmeyer, 1993).

There are some indications that the agricultural enterprises of East Germany have produced better economic results than in earlier years.

To summarize: The political collapse of the economic land tenure system after 1989/90 had severe consequences for the agricultural labor market. The sharp decline of working opportunities within agriculture has presented a great challenge to the labor market as a whole, especially for the rural regions.

Table 12
Results from Agricultural Accounts in the GDR (1986/89) and in the "Neue Bundesländer" (1990/95)

	∅1986–89	∅1986–89	1990/91	1991/92	1994/95
	Bill. M. of GDR	Bill. DM			
Final agricultural output	56,7	20,1	13,0	12,3	11,1
– Total interm. consumption	28,0	17,1	11,5	8,5	8,1
= Gross value added at m.p.	28,7	3,0	1,5	3,8	3,0
+ Subsidies	1,3	0,7	5,2	2,9	3,9
– Taxes linked to prod	0,9	0,9	0,1	0,2	0,2
– Depreciation	3,0	3,1	2,0	1,8	1,8
= Net value added at f.c.	26,1	-0,3	4,5	4,7	4,9
– Wages	8,6	8,6	7,8	5,8	3,4
– Rent	—	—	0,2	0,4	0,7
– Interest	1,4	1,4	0,8	0,8	0,5
= Net income from agr. activity	15,4	-10,3	-3,3	-2,2	0,3
Net income + wages	24,0	-1,7	4,5	3,6	3,7

Source: Schmitz and Henrichsmeyer (1993), unpublished data

H. The Adjustment Process of the Rural (Non-Agricultural) Labor Market

I. Introductory Remarks

In a growing economy a part of the agricultural labor force has to be transferred to other sectors in order to reach a higher productivity and income. But after the break down of the real socialism in the GDR a decline of the economic activities of other sectors has occurred, with a reduction of working places by three or four fifth. Nevertheless, a number of the agricultural workers leaving this branch have been hired by construction firms (one fourth), commerce (14%) or services (another fourth).

As far as economic activities are concerned, in East Germany the regional difference is more accentuzated than in West Germany; the northern part of East Germany is characterized by the dominant role of agriculture, accompanied by a few industrial enterprises. Berlin and the "Umland" as well as the southern part (mainly Saxony, a part of Thuringia and Saxony-Anhalt) have historically developed industrial areas (see: map). This regional distribution of economic activities

requires a higher mobility of workers or an official support for industrialization in backward areas.

II. The Migration to West Germany

At first, immediately after the opening of the wall/the Iron Curtain there was an unburdening caused by a heavy migration of inhabitants to West Germany. The number is estimated at about one million. Another half million workers are migrating daily or weekly to working places. But there could also be a burden linked with this migration: 86% were younger than 40 years and professionally qualified.

III. Preconditions for a Positive Development of Economic Activities and the Labor Market

There is a strong need for higher investment, economic growth and for more employment of workers. Generally speaking, the preconditions are not very favorable. Some figures are presented in the following table:

Table 13

East German Economic Data Relative to West Germany; West Germany[a] = 100

	1991	1994	1995[b]	1996[b]
Gross Domestic Product	31.3	48.7	52.1	56.2
Private Consumption	49.9	67.2	68.9	70.7
Gross Industrial Investment	65.8	133.9	148.8	161.8
Disponable Income[c]	46.8	66.6	68.1	70.0
Productivity[d]	31.0	52.7	54.9	57.8
Unit Labor Costs[e]	158.0	135.7	132.9	128.4

[a] Data in current prices and per capita – [b] Forecast – [c] Private Households
[d] GDP per Capital – [e] Labor income in % of GDP
Source: Meimberg (1995, p. 103)

Based on these facts, H. E. Buchholz (1996) has pointed out: "With respect to the time required in which the East German economy will catch up with the West opinions are quite different . . . Even if the current, rather high growth rates in East Germany can be sustained, it will last about 10 to 15 years before the objective of equality in living conditions can be reached". The gap between the level of productivity and of labor remuneration, especially the unit-wage-costs, are strong constraints in this context.

IV. The Rate of Unemployment

The calculation of the real unemployment of the labor force seems to be a very difficult task. The heavy burden of a high unemployment rate has been lowered for the labor market by introducing some measures to decrease the number of unemployed workers; e.g. to finance short-time work; officially subsidized jobs (ABM); full-time professional training, special pension schemes with government compensation payments. The impact of this financial support financed by different sources has been estimated: a yearly decrease of unemployment by 1.9 (1991 and 1992), 1.6 (1993) and 1.3 (1994) Mill. workers. Some of these measures are linked to the notion of a "second labor market" which could lead (financed by official financial transfers) to a distortion on the "first labor market". Or, in other words: The radical change of the socialist system with its well-known negative impact on the labor force has required immediate social measures in favour of the working people; but at a later period financial support for restructuring is more necessary. But in practice that should not be an alternative; the problem of unemployment in such a situation requires an optimal mix of both, maybe with differences during the transformation period (Buttler, F. and Emmerich, K., 1995). In the first period (1990/91) more than 2 Mill. workers were employed in 8000 firms administered by the Treuhand (official institution for privatization) – with an uncertain economic future! In some areas of East Germany the rate of the working force negatively influenced by the economic unification ("Betroffenheitsquote") had reached one third of the labor force capacity, in a number of communes around 50%).

For a first information the figures of the average rate of unemployment can be used: May 1991 9.5%; 1992: 14.1%; 1993: 14.8%; 1994: 13.3%; 1995: 13.8%. These general statistical data should be differentiated by regions; the northern part of East Germany shows higher unemployment rates compared with the south (in absolute figures the southern part shows higher numbers).

Nevertheless, the Neue Bundesländer could realize a higher growth rate – starting from a lower absolute level – than in West Germany. But the positive relationship "growth rate – employment increase" experienced in earlier years didn't work any longer. In the spring of 1996 there was a stagnation of economic development mainly caused by a low demand in the construction branch (15% of GNP – in West Germany 6%). In East Germany, in August 1996 the GNP per worker amounted to 53%, the net wages to 86% compared with West Germany. In the same period the net wages costs per unit of production were one third higher than in West Germany with the result of a lower degree of competitiveness on the internal and international markets (see: Table 13). More than half of the production of East Germany is sold in East Germany itself, one quarter in West Germany, and only 17% on the international market (only 5% of this amount to Eastern Europe). Nevertheless, there are remarkable tendencies to change this situation. To

conclude: The economic growth in East Germany, the financial transfer from West to East Germany and the optimal mix "to support investments and to realize an active labor market policy" will play an important role in the future. Furthermore, especially for the northern part, a close link between regional policy, the structural adjustment of agriculture and overall economic policy will be a great challenge in the near future and stimulate the labor market.

V. A Special Problem of the Labor Market: The Apprenticeship Situation

The German politicians as well as the unions of employers and employees are very proud to work with the so called "Dual System" of vocational training (practical work in enterprises and part-time schooling). No doubt, there are some advantages to this mode of organizing professional education (e.g. the link between professional training and the labor market on the micro level; the vocational education in the context of practical daily life; the experience of the social environment of an enterprise). But there are some disadvantages, too: The number of places offered depends on the economic viability of the firms; the internal structure of production has to cover the main elements of the curriculum; the profitability of firms determines quantity and quality of vocational training.

A great part of these preconditions are not fulfilled in the Neue Bundesländer because of the severe burden of the transformation process; nevertheless, due to lower economic growth rates we do have a similar problem in West Germany, too. By the end of August 1996 the situation could be summarized as follows:

Table 14
Situation End of August 1996

West Germany	East Germany	
81,000	36,000	pupils looking for a vocational training place
60,000	5,000	offered places not yet accepted
135	720	number of applicants per 100 vacant apprenticeship places

The Federal Government as well as the Neue Bundesländer are financing measures which should foster the private initiative to offer more places for the youngsters. Sometimes, the governments are organizing and paying vocational training outside of enterprises which demands a high budget expenditure.

In East Germany we can observe a certain tendency to create a "second apprenticeship market" (see: earlier remarks concerning the labor market and the special measures for decreasing the unemployment rate).

I. Final Remarks

The situation of the labor market seems to be an efficient criterion to describe the development of an economy in an transformation process. Six years after the beginning of the German Unification Process the labor market in East Germany is confronted with very severe problems (more so than in the West). We have illustrated the collapse of the socialist economy in 1989 and the break down of the agricultural and industrial enterprises which resulted in very high unemployment rates from one day to another more or less in all branches. The economic deficiencies of the production units were obviously demanding very high investments; the environmental disasters were tremendous; to master an effective transformation process from collective/state ownership to individual property/usage rights has been a great challenge.

Nevertheless, there was and there are remarkable positive economic results within the unification of Germany. But at first we do need a realistic view of the existing constraints which will determine the time span necessary to reach a comparable economic situation of production, employment and living conditions. However, in the near future there will be a certain re-orientation of the economic and financial policy of the past due to official budget deficits.

Last but not least, we should realize a great error of the past: The unification in a broader sense takes more time than politicians and economists thought. There was an interesting remark in a talk-show round table discussion: The integration of East and West Germany within the unification takes

- only a couple of years for infrastructural investments
- 10–15 years for the economic development in the context of the economic market forces
- and 40 years to grasp and to master the challenge of unification within our "Matière grise" (in our German heads), and that has to be a task for the citizens in East *and* West Germany!

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Labour Market Problems in the European Union

Bernhard Friedmann

A. The Extent of the Problem

For quite a long time now high unemployment figures in the European Union have been a cause for concern, and the situation has been steadily deteriorating. From a figure of 1.9% in 1964 the percentage of unemployed in the EU of the Fifteen has risen to almost 11% by mid-1996. About 18 million of its people are out of work, which corresponds to the combined populations of Denmark, Finland and Austria. Add in their families and dependents and you have roughly 50 million people in the European Union suffering the consequences of unemployment. However, even these figures do not reveal the full extent of the problem. If you add on all those people engaged on work schemes, retraining and further training programmes and all those who have had to take early retirement because of unemployment, the situation becomes even more daunting.

Furthermore, national economies find themselves saddled with enormous costs because of unemployment. In the EU the direct costs alone, i.e. unemployment benefits plus the loss of tax revenue and social security contributions, amount at the present time to over 200,000 million ECU per annum. This corresponds to the total gross domestic product of the ten Central and Eastern European countries that are to be admitted to the EU. In reality, however, the costs are much higher, since unemployment involves considerable social expenditures as well as a falling off in revenue from indirect taxation.

Average unemployment over the period 1971-1980 was about 4%, whereas for 1981-1990 it was almost 10%. Of the 18 million unemployed about half are long-term unemployed, who have been out of work for more than one year. Behind this bald statistic lurk many harrowing human stories of hardship and misery. 20% are young people who have not yet managed to find any job, in itself a highly explosive political factor. Rampant unemployment in the European Union is a social and political time-bomb.

Unemployment figures vary from one Member State to another. In mid-1996 Spain had the highest figure with about 23%, followed by Finland with about

18%, Ireland with almost 15% and France and Italy with roughly 12%. Belgium, Germany, Austria, Sweden and the United Kingdom range between 9 and 10%. Greece has 9% and farther back come Denmark, the Netherlands and Portugal with about 7%. Luxembourg brings up the rear with a figure of less than 3% at the present time.

By way of comparison, the figures for the USA are 5.2% in 1964 and 5.9% in 1995, though by mid-1996 it was almost back to the 5% mark. Figures for Japan are 1.1% in 1964 and 2.9% in 1995.

B. Causes of Unemployment

High unemployment stands out in stark contrast to Europe's economic muscle. The European economic area, comprising the European Union internal market plus the EFTA countries, accounts for 25% of gross world product and 40% of world trade. So Europe is faced with the phenomenon of relatively high per capita income being offset by relatively high unemployment.

The reasons for this high rate of unemployment are many and complex, and to go into them individually and in detail would be beyond the scope of a paper such as this, especially in view of the differences between the Member States in this regard. However, by interpreting the various economic data to hand, it is possible to arrive at some rather generalized conclusions. Even though it is frequently argued in various quarters that we have here nothing more alarming than a short-term unemployment situation brought about by a slowing down in growth rate, it would seem rather to be the case that Europe is affected by an unemployment crisis of a structural nature complicated by technological developments. The following reasons may be adduced for this:

- Labour costs in Europe are comparatively high, which not only favours investment in rationalization but also lowers the ability of European enterprises to compete both on the European and the international market.
- Factors that affect employment, such as workers rights, employment policy and wage agreements, are not brought to bear effectively enough on the problem.
- New countries challenging for the same market pull the rug from under their competitors, particularly through their lower labour costs. European countries are very often not sufficiently attuned to new developments in the international division of labour, particularly in the growth-bearing high technology sector.
- In many cases technical progress does away with more jobs than it creates.

Something must be done, but the trouble is that there are no patent remedies. This is particularly evident in the case of the so-called 'magic square', the four

points of which are growth, employment, stable prices and a balanced external trade. How are these four points to be brought into alignment? The goals to be pursued are often in conflict, and finding the right and appropriate solutions is often a formidable balancing act. All this applies to the fight against unemployment, and nowhere more so than in the European Union.

C. Legislative Framework of the European Union

We have to remember that the difficult unemployment situation in the European Union is made up of the sum of the problems of the individual Member States. This leads on naturally to the following question: at what level – whether Member States, social partners or European Union – and with what instruments can something be done to solve the problem of unemployment? Seeing that political union is as yet only evolving, we have to consider how the EU should shape its legislative and social policy vis-à-vis its Member States. In the United States, for example, the government acts as a political counterweight to the domestic market, which is of course based on a single currency. To this extent it also influences labour market policy through instruments that have been put in place in a uniform manner. The EU does not as yet have a uniform economic and monetary policy, but it has set itself the following clearly defined eonomic goals:

- a steady growth rate which is not inflationary and does not unduly harm the environment,
- a high level of employment,
- a high degree of social protection with improved living standards and quality of life.

These goals are to be attained through the domestic market in conjunction with an economic and monetary union. The EU Treaty does not, however, stipulate precisely what form this economic policy should take. The text of the treaty says only that it is to be coordinated. A practical case that arises in the context of employment is, for example, the question of whether the provisions for continued payment of wages to sick workers should be brought into line throughout the EU. At the present time this matter is still governed by very different regulations, which can lead to distortions of competition. The same is true of minimum wage levels and provisions for work protection.

A legislative framework must be created therefore within the EU which will achieve the goals that it has set itself. There should be no question of watering down the Community's responsibilities, but what must be avoided at all costs is an overweening central bureaucracy. The principle of subsidiarity must be adhered to. This means that only such matters as cannot be adequately regulated at

Member State level should be dealt with at the level of the EU. The European Parliament and the Council should reach agreement on the political objectives of the Union, which would then be realised by the governments of the Member States.

At Member State level, this would mean in practice that questions of wages, wage agreements and conditions of employment would be regulated in cooperation with the social partners. However, insofar as it is necessary for the proper functioning of the European domestic market, regulations would have to be enacted at EU level. Here it will be generally sufficient for the EU to sketch out the broad outlines, which would then be filled in in detail by the Member States.

D. Implementation of the Internal Market in the Interests of Employment

The internal market has indeed made great strides, but all is not yet perfect. For example, we still have a long way to go in the matter of tax harmonization, especially of value added taxes. This leads to distortions of competition and consequently affects employment. Fair competition is of vital importance for employment. The EU has got to face up to the task of stamping out regulations and practices that distort competition within the internal market, such as, for instance, cutting corners on minimum social standards. In this connection it is regrettable that the European Social Charter has not been adopted by the United Kingdom, with the result that we have a two-speed Europe on this issue. Nevertheless a good deal of progress has been made on European social policy. In mid-1996 a very important directive was enacted which stipulates that workers employed in a Member State other than their own must be allowed to benefit by the conditions of employment prevailing in that country. In other words foreign workers are to be guaranteed minimum wages. This directive must be transmuted into national legislation by 1988. In Germany, for example, social dumping had meant that increasing numbers of construction workers were being brought in from Portugal and the United Kingdom at sharply reduced wages while many German building workers were being made redundant.

On the one hand within the planned monetary union, it will be of vital importance for the internal market that the criteria set for currency stability should be met. On the other hand, one has to consider that the strict observance of the criteria of public debt and budget deficit can lead in the short-term conditions to the non-availability of financial resources for anti-cyclical economic programmes.

Another task facing the EU will be to ensure that within the European internal market environmental issues are given adequate consideration, as laid down in the EU Treaty. Watering down environmental provisions can also lead to distortions of competition.

Finally, when it enters into international negotiations, particularly with the World Trade Organization, the EU must make every effort to eliminate social dumping and to ensure that environmental provisions are complied with.

E. European Solidarity

The whole notion of solidarity is a very important one not only in a social market economy but also in the legislative thinking of the EU. What it means specifically is that richer countries lend a helping hand to poorer ones, and this of course raises the whole question of subsidies. There is a fundamental contradiction between subsidies and free competition which is ample justification for EU legislation on competition. The EU budget or Member State budgets are sometimes too flush with their money, but this can only ever be of short-term benefit and eventually there will be a rude awakening and generally even higher unemployment. Subsidies should be granted only for clearly defined reasons and only until certain goals that have been established are reached. From this point of view subsidies for the purpose of reducing unemployment may well be justified.

The European Social Fund as a financial instrument was set up at a very early stage, actually by the EEC Treaty of 1958, whcih had a primarily economic orientation. It was intended to enhance employment opportunities for workers in the Common Market. As the Community expanded and developed the Social Fund was joined in 1975 by the Regional Fund and the Fund for agricultural structural measures. The Cohesion Fund, negotiated at the Edinburgh Summit, was set up specially for Greece, Ireland, Portugal and Spain with a view to paving the way for European monetary union. This Fund had the overriding objective of reducing the economic disparities between the EU's various regions. At the moment the richest are five times richer than the poorest. One of the Fund's principal concerns is to reduce unemployment. A sum of 170,000 million ECU, at the present time about 325,000 million DM, has been earmarked for the period 1994-1999 – this includes monies from the Cohesion Fund. A special effort is to be made to develop the so-called Objective 1 areas, i.e. those where per capita income is less than 75% of the Community average. These areas receive three-quarters of all Structural Fund aid. The four Cohesion Fund countries – Greece, Ireland, Portugal and Spain – will get about 85,000 million ECU, which is half of the total sum available. Spain alone will be given about 40,000 million ECU. A breakdown of all the money available for structural funds shows that the Regional Fund gets about 50%, the Social Fund about 30% and the Agricultural Fund and other structural measures about 20%.

F. Effects of the Structural Funds

If we look into the effect that these considerable subsidies have on increasing gross national product, we find that the figures are pretty modest by comparison to the Cohesion Fund countries, which get most assistance. Ireland has seen the most striking increase in gross national product, measured against the Community average and in terms of parity of purchasing power, which has risen from 63% in 1986 to 90% in 1996. The Irish authorities estimate that about 0.5% of the annual growth rate may be attributed to the structural aids. Since its accession to the European Union in 1986 Spain has seen its gross national product rise from 70% to 78% in 1992. Since that time, however, it has been at a standstill. In Portugal GNP rose from 54% in 1986 to 67% in 1993, but again since that time there has been no movement. Since 1985 Greece's GNP has remained at a low level with minimal variations. It is the country with the lowest gross national product in the EU. In the case of both Spain and Portugal intervention by the structural funds have probably brought about no more than an average annual increase of 0.2% in GNP.

One of the most important tasks of the Structural Fund was to reduce unemployment, but the unemployment statistics make it clear that it has had even less success in this regard.

Let us assume that it costs 70,000 ECU to create one permanent job – and this is a generous estimate – and let us further assume that these jobs are created in sectors of intensive production. When we take other multiplying and accelerating factors into account, this means that for an expenditure of 1000 million ECU we could have 25,000 jobs. Over the past seven years the Structural Funds have committed an average annual sum of 17,000 million ECU. If we throw in the co-financing contributions of the Member States, this brings the figure up to around 30,000 million ECU. In the period 1996 to 1999, if we add in the co-financing contributions of the Member States, the average annual sum available for reducing unemployment, directly or indirectly, would be in the order of 50,000 million ECU. This means that every year anything from 750,000 (30 x 25,000) to over a million (50 x 25,000) jobs could be created, but where are they? There is no sign of them anywhere. It has been argued in many quarters that the situation would be far worse without the Structural Funds, but the employment statistics quite clearly tell a different story. To quote one example, the Portuguese authorities claim that over the period 1989 to 1993 80,000 jobs were created with the help of the Structural Funds. However, since the total figure for those at work has remained constant, this means that the same number of jobs has been done away with. In other words, no new jobs have been created at all.

G. Relationship between Growth and Employment

How are we to explain all these depressing results? There can be no doubt that there is a relationship between growth and employment. Yet bringing the poorer Member States up to the EU average level of GNP does not mean a corresponding reduction in the number of unemployed. It is true that Luxembourg, with per capita income standing at 165% of the EU average, also has the lowest figure for unemployment, 2.7% in 1995. However, because of high transfer payments combined with a small population, Luxembourg cannot be viewed as a representative case. The second lowest rate of unemployment in the EU belongs to Portugal with a figure of 7%, yet on the prosperity scale it comes in second last, just above Greece. Greece, with the lowest per capita income in the EU, has an unemployment rate of 9%, which puts it neck and neck with Germany, the United Kingdom and Sweden. France, Italy and Belgium have relatively high per capita income side by side with relatively high unemployment figures. In the three years 1993–1995 Ireland, for example, recorded an economic growth rate of 17%. Nevertheless, in spite of a high injection of monies from the structural funds, there was only a very slight fall of about 1% in the unemployment rate over the same period. If you keep track of the situation over a longer period of time, you find the same trend occurring. To take another example, Spain's economy grew by 100% between 1970 and 1993, yet over the same period there was no change in the high unemployment rate.

When we compare the prosperity league table with the employment figures for the various regions of the EU – and it is these that are aided by the structural funds – the picture becomes even clearer. Hamburg, for example, with a per capita income of 190% of the Community average, is top of the table in the EU. However, its unemployment figure of 7.6% puts it in the upper end of mid-table in this regard. Per capita income in the Brussels region is by far the highest in Belgium, but as against that it has the second highest figure for unemployment, 13.3%. At 4.1% Crete has the lowest unemployment rate in Greece, but it is also low on the per capita income scale. The same is true of other regions also.

On the basis of these figures we can argue that the link between growth and employment has to a great extent been broken. One of the reasons for this may be deduced from the following considerations. Over the period 1973-1990 the USA had the same average annual growth rate as the EU at 2.3%, but its unemployment rate stayed at a steady figure of between 5 and 6% while that of the EU rose to 10%. During the same period, however, real wages in the USA rose annually by 0.4% as against 1.5% in the EU. This means that wage levels exercise a significant influence on what is called the employment intensity of growth, in other words the relationship between growth and employment. As things stand at present, the EU would have to create 15 million jobs if it is to halve unemploy-

ment by the year 2000. Indeed five million more jobs would have to be created merely to keep the unemployment figures from rising any further.

A further point to be borne in mind is that areas that are predominantly rural and generally have lower per capita income enjoy greater stability from the point of view of employment than urban areas. However, lower per capita income does not necessarily mean that people in these areas are worse off. Their incomes may often be lower but the cost of living will also be lower.

Of course, the situation has to some extent been aggravated by the fact that people have tended to leave rural areas, thus adding to the problems of the industrialized areas. Over the period 1980 to 1990 the number of agricultural workers in the EU fell by 2 million to a level of barely 17 million. The EU's agricultural subsidies policy has to a certain extent contributed to this development, as in the past it helped to build up larger agricultural holdings which needed fewer workers. It remains to be seen whether the latest agricultural reforms can bring about an improvement in the situation through direct income subsidies, and in particular whether the flight from the land can be stemmed. This is a particularly important issue for the accession of the Central and Eastern European countries, which still have 25% of all those in employment working in agriculture. The Fund for agricultural structural measures is going to be particularly important in this context. Part of the reason for setting it up was that it should cushion the EU against the negative impact of agricultural reform.

H. Measures for the Reduction of Unemployment

An initial conclusion that is prompted by the considerations set out above is that one of the principal reasons for high unemployment is high labour costs, especially, it would seem, in more heavily industrialized regions. This means that if unemployment is to be cut, wage rises must be kept under some sort of control. Normally subsidies will not be needed for this purpose. In its White Paper on Growth, Competitiveness and Employment the Commission has outlined a number of ways and means of reconciling these three objectives without the need for subsidies.

As has already been explained, most structural aids go to the Objective 1 regions. They are meant to bring these regions up to 75% of average Community income and therefore to the highest sustainable wage levels. However, in the light of the above considerations, it has to be asked whether this is really a sensible criterion from the point of view of employment policy. We are aiming at a 75% per capita income level, which is quite a high figure, and at the same time we have to realise that the higher the income levels the higher the unemployment. This is a contradiction that has to be faced up to, but it is not the only one. The Member

States that are being thus aided have to co-finance structural measures, but this only forces them to go deeper into debt, particularly in the case of the poorer countries. However, this can make it more difficult for them to meet the Maastricht criteria for economic convergence. On the one hand these Member States are being prepared for monetary union with the help of structural aids, but on the other hand these very same structural aids are the cause of plunging them deeper into debt, thus putting the attainment of the criteria for monetary union further out of their reach. Furthermore, these aids are generally provided by the better-off countries, but if too much money is involved, then even these countries could have difficulty in meeting the convergence criteria. This is particularly true of Germany. However, unstable economic conditions generally mean unemployment.

The Regional Fund in particular has been and is still being used to promote infrastructural projects. It has been found, however, that, in addition to the environmental problems they cause, road-building projects have very little impact on employment. Roadworks make intensive use of machinery and only create temporary jobs. A Commission survey of major roadworks in the Objective 1 regions estimates that from 50 to 80% of them are carried out by firms that are not from the region itself, sometimes not even from the Member State. It frequently happens too that there are high follow-up costs which have not been taken into consideration, thus swallowing up money that could be used for productive measures. If infrastructural measures have to be put in place, they should be concentrated on areas where they will create additional jobs in the services sector. Railways would be an example.

It has been argued over and over again that the unemployment crisis could be beaten if more resources from the Structural Funds were thrown at it. However, it is already clear that the Member States are not able to use up the money that is available. At the end of last year about 25,000 million ECU or almost 50,000 million DM had not been taken up. Amongst the reasons for this are the fact that national administrations are overstretched, difficulties in deploying the monies and difficulties in relation to co-financing. Sometimes you just cannot spend a huge amount of money wisely in a short period of time.

At the present time over 51% of the population of the European Union, almost 200 million people, are either directly or indirectly in receipt of aid from the Structural Funds. Objectives are often not clearly defined, so that the aid ends up being sprayed around on the watering-can principle. If unemployment is to be cut, these resources will have to be brought to bear in a concentrated fashion on the vitally important objectives.

The all-important thing, as far as employment is concerned, is that aids should be directed more towards the productive sector. More must be done for those who are in a position to offer jobs, and here small and medium-sized enterprises,

which at present employ almost 70% of all those at work, have a vital role to play. They are less vulnerable to short-term economic downturns.

The small and medium-sized enterprises are generally regarded as the most important source of additional jobs. They employ a disproportionate number of young people, women and less-skilled workers and also have their own special wage and productivity structures. They too, however, must be given suitable conditions if they are to function properly. The fiscal, administrative and financial obstacles that can hamper the creation and operation of small and medium-sized enterprises must be eliminated. In the event of difficulties with financing at the start-up stage, financial aid could be considered. Loans could be arranged, with interest rebates in particular cases. The example of Finland and the new states of the German Federal Republic demonstrates clearly the importance of small and medium-sized enterprises. Up to 1990 Finland had a relatively low unemployment rate, about 5%. With the collapse of the Soviet Union markets were lost. Since most of the workforce was in large enterprises rather than small and medium-sized ones, the unemployment rate shot up in no time to 17%. There was a similar situation in the new federal states of Germany. Small and medium-sized enterprises played only a minor part in the former German Democratic Republic.

The very special potential for job creation afforded by the environmental protection sector is being increasingly recognised at the present time. The Commission's White Paper estimates that three million jobs could be created in this sector by the year 2000.

It is clear too that in the research and technology sectors there is a great deal of ground to be made up.

I. Conclusions

By way of conclusion there can be no doubt that the connection between growth and employment has been broken. The employment intensity of growth is at such a low level that to effect any reduction of unemployment would call for annual growth rates that are probably beyond our reach. One of the principal reasons for this is high labour costs by comparison with the economies of other countries. It is first and foremost the Member States and the social partners that will have to face up to the challenge of achieving some restraint in the matter of wage increases, while the EU will have to tackle the internal market. If employment is to be secured, the EU will have to ensure fair conditions of competition. Subsidies should be given only for clearly defined objectives, and even then only as a temporary measure. All the statistics to hand seem to confirm the pattern of lower unemployment in those regions of the EU that have lower per capita in-

come. The criterion established by the Structural Funds of a minimum per capita income of 75% of the Community average, in addition to the wage rises that this will call for, seems, from the standpoint of employment policy, to be contradictory and self-defeating. Structural aids must be concentrated and not deployed on the watering-can principle. They should be directed to the productive sector and particularly to small and medium-sized enterprises. The environment sector, which is becoming more important all the time, looks promising as a source of many permanent jobs.

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Low Unemployment Rate and Female Labour Supply in Japan

Shimono Keiko[1]

A. Introduction

Life-time employment, the seniority wage system and company-based unions have been distinguishing characteristics of the Japanese labour market. Stable, long-term employment has served to guarantee employee loyality to the company. However, life-time employment and the seniority wage system were gradually eroded in the 1980s. Early retirement at the age of 50 or so, and transfers to related, usually smaller, companies will be the first signs of the erosion of this stable employment system.

Furthermore, the number of regular workers employed by large companies, especially blue-collar workers and female workers, decreased dramatically during the period 1974–85 and the 1990s, due to the introduction of industrial robots in factories and computers and casual workers in offices. The Japanese unions did not oppose these developments, because male employees did not become unemployed, but were simply transferred to other factories or smaller subsidiary companies.

Nevertheless, throughout this period unemployment in Japan remained low at a level of 1–3 percent in contrast to other industrialised countries, which recorded high unemployment rates following the oil shocks of 1973 and 1979 (see Figure 1). Japan's current rate of unemployment stands at 3.2 percent in 1995, the highest figure since World War II. However, Japan's performance is still much better than that of other industrialised countries such as the USA (6 percent), most EU members (some 10 percent) and Australia and New Zealand (10 percent).

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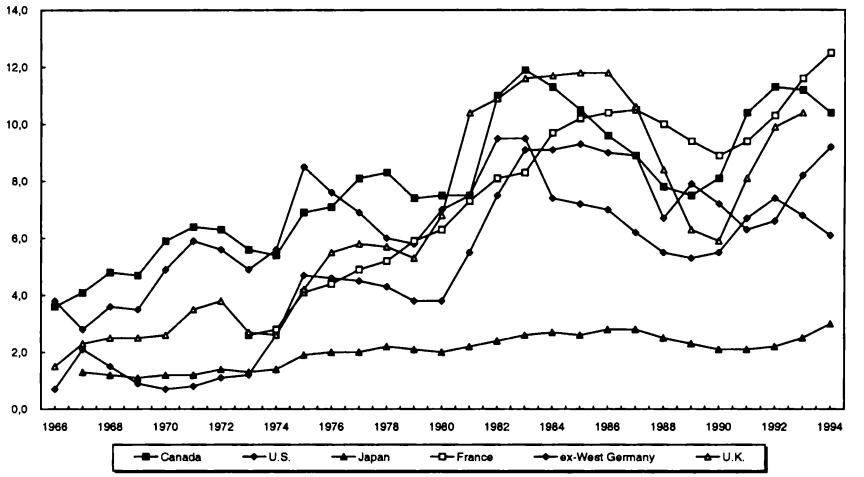


Data: ILO Geneva, Yearbook of Labour Statistics

Figure 1: Comparison of the Unemployment Rate

Why is there such a big difference in unemployment rates between Japan and other developed countries? Part of the explanation lies in the economic growth rates of the 1980s. Japan had relatively high growth rates in terms of real GDP of 4.1 percent annually over the period 1981–90, compared with 2.6 percent for the USA and 2.4 percent for the EU.

Part of the explanation, however, can be related to the pattern of Japanese female labour supply. Firstly, the female labour participation rate in Japan stayed relatively stable in the 1980s, unlike the USA, Canada and other countries, which recorded rapid increases. Secondly, one third of female workers are engaged in low-paid, unstable work, so-called "part timer" jobs. In Japan, "part timer" refers not to an employee who works less than 35 hours a week, but to low wages and instability. In fact, 40 percent of "part timers" work more than 35 hours a week (see Figure 2). Demand for "part timers" strongly depends on economic conditions, which has been pointed out by many economists (see Tachibanaki (1987) and Houseman and Abraham (1993)). During a period of recession, for example, the number of "part timers" decreases quickly. However, the majority of these are not described as unemployed, but as having left the labour force. As a result, the number of unemployed females increases only a little, as discussed in Part III of Section B.

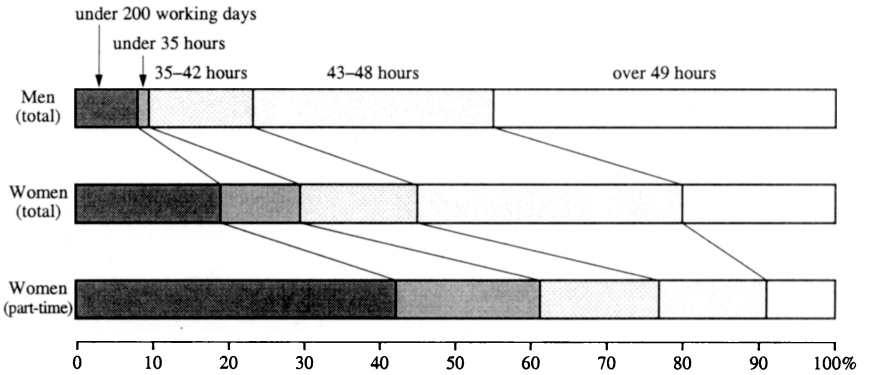


Figure 2: The Distribution of Hours Worked per Week

The purpose of this paper is to explain the relationship between the pattern of female labour supply and low unemployment in Japan. The next section of the paper provides some statistics on female labour supply in Japan. This is followed in Section C by a discussion of the impact of Japan's current tax and social security systems on women's job choice. Section IV then presents some concluding remarks.

B. Female Labour Supply in Japan

I. Labour Supply for Women

In such countries as the USA and Canada, the female labour market participation rate increased rapidly in the 1980s. In contrast, the rate in Japan increased slowly from 48 percent in 1980, to 51 percent in 1992 and 50 percent in 1995.

According to Table 1, in 1995 some 16 million women (or 30 percent of the female population aged 15 years and over) are "not in the labour force" because they keep house. In Japan, house-keeping is considered a respectable occupation and there is no pressure on married women to work.

Traditional gender roles whereby men go to work and women stay at home are still supported by some 60 percent of the Japanese population, including even the younger generation. Also, some 80 percent of the Japanese insist that keeping house and raising children are women's responsibilities, although women can work. Male workers in Japan work on average a total of some 2,000 hours a year,

Table 1
Labour Force Status (ten thousand persons)

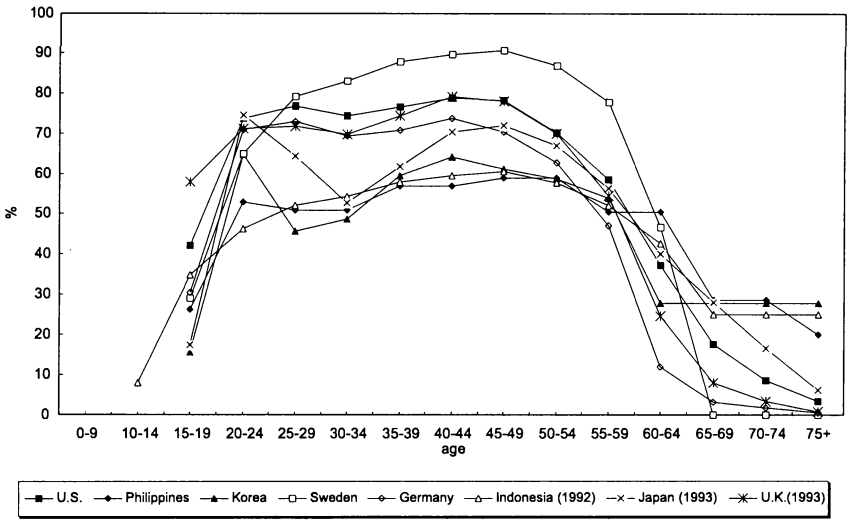
	Male	Female
Population 15 years old and over (a)	5,108	5,402
Labour Force (b)	3,966	2,701
b/a	(77.6%)	(50.0%)
Employed (c)	3,843	2,614
c/b	(96.9%)	(96.8%)
Not in labour force (d)	1,139	2,698
d/a	(22.3%)	(49.9%)
*Keeping house (e)	22	1,637
e/d	(1.9%)	(60.7%)
*Attending school (f)	489	424
f/d	(42.9%)	(15.7%)
*Other (g)	627	636
g/d	(55.0%)	(23.6%)
Labour force participation rate	(77.6%)	(50.0%)
Rate of unemployed in labour force	(3.1%)	(3.2%)

Data: Annual Report on the Labour Force Survey, 1995.

compared with 1,600 hours a year in the case of France and Germany. Such long working hours for male workers would be impossible without house-keeping wives. Under current conditions in Japan, married women are unable to work as long as men do (see Figure 2). Thus the labour market participation rate for married women is closely related to their husband's income: the lower the husband's income, the higher the labour ratio for married women. Another factor is the level of education: the higher the level of education of married women, the lower their labour market participation rate, unlike other developed countries. There is a possibility that in Japan many married women might be discouraged from working (see Tachibanaki and Sakurai (1991)).

The Japanese labour market is clearly segmented by sex. Male workers are employed under the life-time employment system and their wages are determined by the number of years they have worked for the company under the so-called "seniority wage" system. Males are expected to work for their entire lives, unlike female workers. Young working women are referred to as "office flowers", the expectation being that they will leave the office once they "fade". Most work undertaken by young women involves secretarial work without promotion. Many

young women therefore quit their jobs once they marry or have babies, but will enter the labour market again, once their children have grown up (see Figure 3). In this way, the labour market participation rate for Japanese women produces a clear M-shape, unlike most industrialised countries.



Data: ILO Geneva, Yearbook of Labour Statistics, 1995 & 1994

Figure 3: Female Labour Market Participation Rate by Age

It should be noted that most Japanese people hold the strong belief, despite there being no scientific evidence to support it, that a mother should take care of her baby for at least three years. This belief, however, can be seen as an obstacle for young Japanese mothers, keeping them from continuing to wortk, or as an excuse for quitting their jobs.

After their children have reached primary school, women try to re-enter the workforce, though their options are generally restricted to low-paid "part timer" jobs. Some 50 percent of middle-aged female employees in the Japanese workforce are "part timers". It is important to understand that in Japan "part-time" does not denote a job with shorter working hours, but low-paid, unstable work. In fact, one third of the "part-timers" in Japan work longer than 35 hours a week (see Figure 2).

II. The "Part Timer" as a Low-Paid Worker

Table 2 shows the income distribution rates for male and female employees. Average wages for female workers are about half of those for male workers. Such a gap partly derives from different lengths of work experience, which on average was 7.6 years for females and 12.8 years for males in 1994. However, even in the case of employees of the same age and with the same experience, the wage gap by sex is still substantial, and the older the worker the greater the wage gap by sex. This is because men's wage increases with age, while women's wage remains almost the same after the age of 30. Even at the age of 50 the average wage of female workers is only half that of their male colleagues of the same age and with the same length of service. Low income for women is justified by the nature of the jobs they perform, which are secretarial rather than managerial, although Japanese companies typically are unwilling to provide female workers with managerial opportunities.

Table 2
Income Distribution for Employees (1996)

annual income	(Regular staff)		(Part-timers)	
(10,000 yen)	male	female	male	female
–50	0.5%	1.4%	28.8%	20.7%
50–99	0.7%	4.2%	27.6%	48.0%
100–149	1.9%	10.2%	16.5%	18.0%
150–199	3.5%	14.2%	9.4%	6.7%
200–299	13.2%	29.5%	8.8%	4.0%
300–399	18.4%	18.9%	4.1%	1.0%
400–499	17.0%	9.4%	1.8%	0.1%
500–699	22.9%	7.6%	0.6%	0.0%
700–999	15.2%	3.4%	0.0%	0.0%
1000–	5.8%	0.4%	0.0%	0.0%

Data: Report of the Special Survey of the Labour Force Survey, Feb. 1996

Furthermore, Table 2 shows that the annual income of "part timers" is considerably lower than that of regular employees, especially for female "part timers". Some 70 percent of female "part timers" earn less than 1 million yen per year, despite the fact that some 40 percent work more than 35 hours a week. This suggests that hourly wage rates for female "part timers" are lower than that for regular workers. The majority of "part timers" do not earn enough money to support themselves. Thus the Japanese tax and social security system provides compensation to married women who do not work or have low incomes of under 1 mil-

lion yen per year, which has a further impact on the pattern of labour supply for married women, as will be discussed in Section C.

The average hourly wage rate is 1689 yen for regular male workers, 1187 yen for regular female workers and 831 yen for female "part timers" (Ministry of Labour, *Basic Survey on Wage Structure*, 1993). The hourly wage rate for female "part timers" is some 70 percent of that of regular female workers and some 50 percent of that of regular male workers. Furthermore, company payments for regular workers, such as social security, bonuses, retirement payments and fringe benefits like housing allowances, family allowances, transport allowances and so on result in labour costs for female "part timers" being less than half of that of regular female workers.

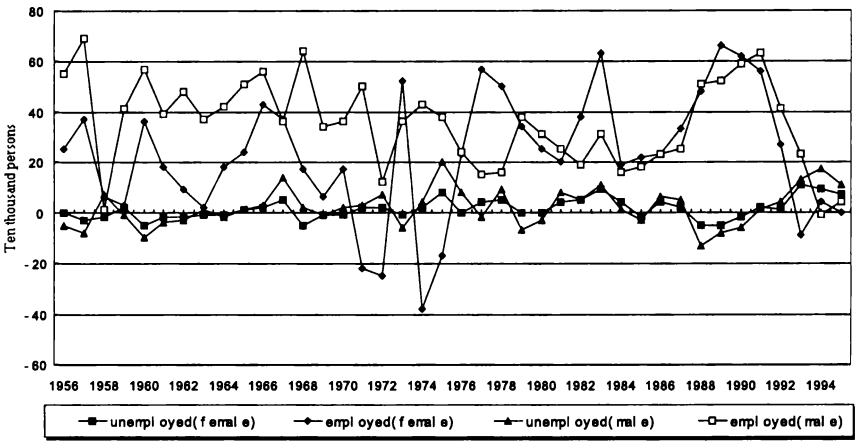
"Part time" workers thus constitute a source of cheap labour for employers. The ratio of "part timers" among female employees has been increasing rapidly, rising from 26 percent in 1982 to 32 percent in 1987 and 34 percent in 1992. Working conditions for women, therefore, have gradually become unstable.

III. Business Cycles and Unemployment

In times of recession, employment falls and unemployment rises, as Figure 4 shows. The annual fluctuation in numbers of female workers in Japan has been larger than that for male workers. Male workers have increased in numbers in all periods except only in 1975 and 1993, even following the oil shocks of the 1970s. By contrast, female labour demand seems to be much more dependent on business cycles. Furthermore, Figure 4 shows that the number of female workers has increased rapidly after the oil shocks.

The figures in Table 3 derive from the calculation employed in Figure 4. Table 3 shows the average number of the annual fluctuation for the unemployed and the employed. The average fluctuation per year of the unemployed is twelve thousand persons for females and sixteen thousand persons for males for the period from 1956 to 1995 and the standard deviation of the annual fluctuation for unemployed females is much less than that for males. In the case of unemployment, the fluctuation in numbers of unemployed females was smaller than that for unemployed males. However, in the case of employment, the standard deviation of the annual fluctuation for females is much larger than that for males.

Table 4 shows that in the case of females there is no relationship between the annual change in numbers of the unemployed and that of the employed for females, however, in the case of males a strong relationship between them exists. In times of recession, the number of employed females decreases like that of



Data: Annual Report an the Labour Force Survey

Figure 4: Annual Changes in the Labour Force

Table 3
The Annual Change of Unemployed and Employed Persons
(unit: ten thousand persons)

	[1956-1969]		[1970-1979]		[1980-1995]		[1956-1995]	
	average	SE	average	SE	average	SE	average	SE
unemployed (female)	-1.21	2.11	2.10	2.74	2.75	4.68	1.20	3.12
employed (female)	20.43	13.99	11.40	36.44	31.06	22.26	22.43	19.65
unemployed (male)	-1.50	4.26	3.60	7.32	3.06	7.93	1.60	5.63
employed (male)	46.07	15.92	24.50	13.23	30.00	18.07	34.25	15.49

males, however, that does not lead to an increase in the number of unemployed females. How do women who lose jobs behave?

Three categories are used in the labour statistics: "employed", "totally unemployed" and "not in the labour force". The unemployment rate is calculated as "totally unemployed" / ("employed" + "totally unemployed"). In general, the larger the number of persons who lose their jobs and fall into the "not in the labour force" category, the smaller the number of unemployed persons becomes. Table 4 shows that in the case of females "totally unemployed" figures do not correlate with "employed" figures. Male unemployed and employed figures have a strong negative correlation. According to the estimation for the period 1956–95 in Table 4, male unemployed figures increase by 2,700 for every 10,000 male workers who lose their jobs. On the other hand, in the case of females, the rela-

tionship between an increase of the number of unemployed persons and a decrease of the number of employees is not significant. Even if it is significant, the number of unemployed persons increases only by 400 for every 10,000 who lose their jobs. Over 90 percent of female workers losing their jobs shift to the category "not in the labour force".

Table 4
Estimation Results

	[female]			[male]		
	const.	emp	R*R	const.	emp	R*R
1956-1995	2.027	-0.0369	0.058	10.727	-0.2664	0.486
	(3.91)	(0.024)		(5.21)	(0.044)	
1956-1969	-1.179	-0.0017	0.00013	5.621	-1.1546	0.334
	(2.28)	(0.043)		(3.75)	(0.063)	
1970-1979	2.267	-0.0146	0.038	13.649	-0.4102	0.549
	(3.00)	(0.026)		(5.50)	(0.131)	
1980-1995	6.502	-0.0121	0.33	12.147	-0.3028	0.477
	(4.10)	(0.046)		(6.13)	(0.085)	

Data: Annual Report on the Labour Force Survey

Note: 1. Dependent variable is an annual change of unemployment persons.
2. 'const' is a constant term and 'emp'is an annual change of employed persons.
3. Figures in () are standard deviation.
4. Correlation between an annual change of the unemployed and that of the employed:

	female	male
1956-1969	-0.114	-0.578
1970-1979	-0.195	-0.746
1980-1995	-0.574	(-0.690)
total period	-0.241	-0.697

C. Why do Married Women Choose to be "Part Timers"?

On average Japanese women have higher education levels than those in other developed countries. Recently some 40 percent of women graduated from university or two-years college study. Even among middle-aged women in their 40s, some 30 percent have a higher education. However, most of them are only able to find "part timer" jobs. Also, some 60 percent of female "part timers" wish to

continue being "part timers", while only 6 percent wish to be regular workers. The main reason why women choose to be "part timers" relates to hours worked, despite the fact that "part timers" in Japan work longer than in other developed countries (see Figure 2). For most women the emphasis is on keeping their houses clean, not on their own careers or other interests.

The reason highly educated women accept "part timers" status with its low rates of pay and lack of promotion opportunities would appear to lie in Japan's current taxation and social security system. This system compensates married women who do not work or only desire low incomes in their capacity as "part timers".

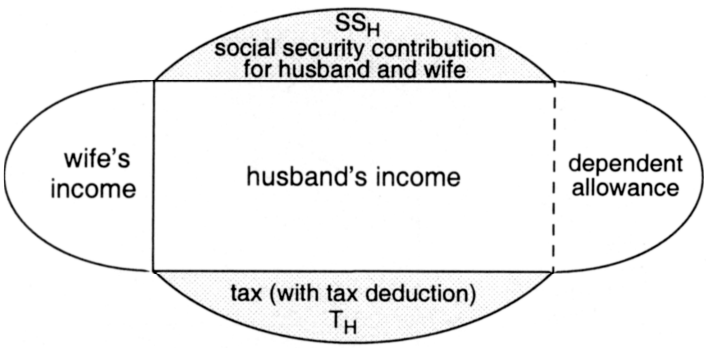
Figure 5 shows the total family income under the current Japanese system. If a wife's annual income is less than one million yen (US $10,000, based on an exchange rate of US $1.00 = 100 yen), she is treated as not independent economically under the taxation and social security system. This means that she does not have to pay tax or contribute to the public insurance system. Furthermore, her husband can apply for a tax deduction for a dependent wife, on top of which he is also given a dependent allowance by his company of about 250,000 yen per year (US $2,500). On the other hand, if a wife earns over one million yen, she is not a dependent under the taxation and social security system. Thus, the disposable income of her husband decreases sharply, for he is no longer entitled to dependent allowance or tax deduction. Furthermore, a working wife is obliged to contribute to the public insurance system, to both health and pension insurance, although her husband has to contribute the same amount of money to the public health and pension insurance system as if his wife were treated as a dependent.

Figure 6 shows the total family income excluding tax and public insurance contributions. If a wife wishes to work and earns under one million yen, all her income is added to the total family disposable income. Once a wife earns over one million yen, the total family income drops sharply (see Figure 6). If a married woman were to earn two million yen per year, the total family income would be almost the same as if she earned only one million yen. Given the very low wage rates paid to married women, it is very unlikely that one could earn two million yen as a "part timer" (see Table 2). It is easy to see, given all this, why most "part timers" wish to remain dependents of their husbands.

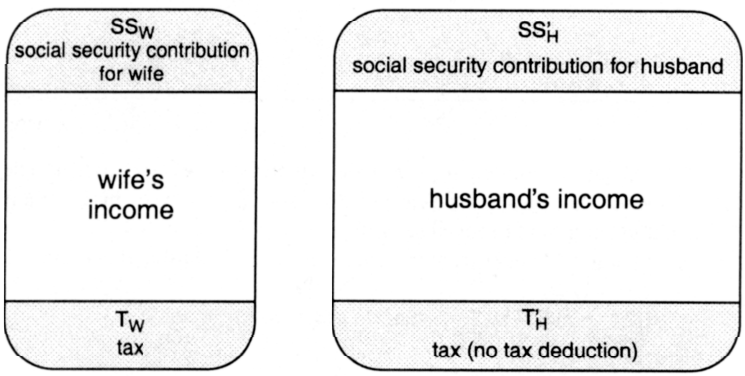
D. Conclusion

This paper has explained the connection between low unemployment rates in Japan and the pattern of female labour supply. Firstly, the female labour market participation rate in Japan increased relatively slowly during the 1970s and 1980s, although Japanese economic growth rates were higher than those in other

1. Wife's Income Less Than ¥1,000,000



2. Wife's Income Over ¥1,000,000

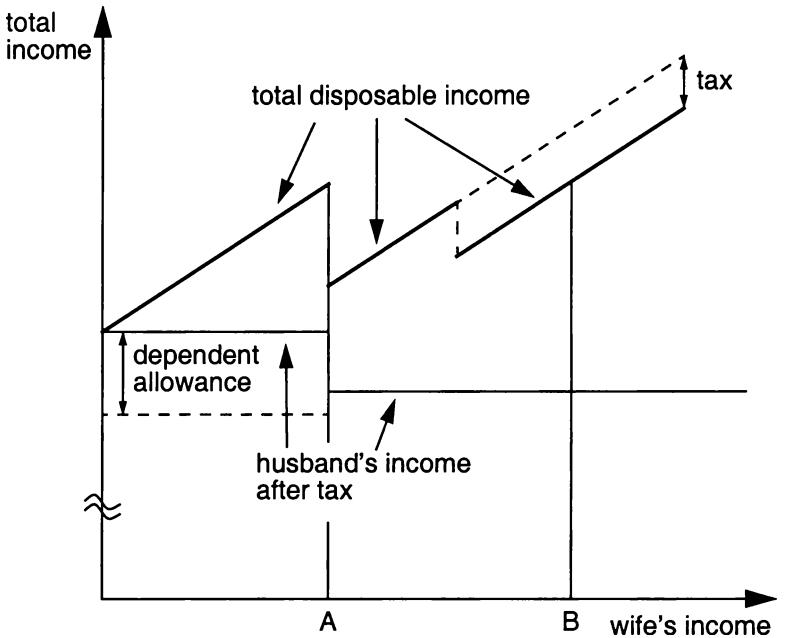


Notes: $SS'_H = SS_H$, $T'_H > T_H$

Figure 5: Total Disposable Family Income

developed countries. Secondly, one third of female employees work in low-paid, unstable jobs as "part timers". When female "part timers" lose their jobs, only 5 percent are described as being unemployed. The other 95 percent are said to have left the labour market and gone "back to their kitchens". This behaviour sustains the impression given by statistics of a low unemployment rate in Japan.

Labour participation rates for married women in Japan are strongly correlated with the husband's income. The higher the husband's income, the lower the working ratio. Even though they are working, some 70 percent of "part timers" are not considered as independent persons under the taxation and social security system in Japan. As Figure 5 and Figure 6 show, under the current system, the



Notes: 1. "A" indicates the limited income, under which the wife is regarded as a dependent of her husband. Then the husband can get dependent allowance by his company and the wife has not to contribute to social security.
2. "B" is equivalent to "A" in terms of the total income of the husband and the wife.

Figure 6: The Total Income of Husband and Wife

families with dependent wives have a considerable advantage and there is no incentive for married women to work and earn more than one million yen per year, even if they have a chance to do so.

To sum up, low-paid and unstable "part timer" work can weaken the impact of business cycles on unemployment rates. Furthermore, "part timer" jobs are related to the longer working hours worked by men in Japan.

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Choice to not be Employed in Intact Families: Interaction between Male and Female Household Members and the Determination of Working or not Working, of Working Hours, and Working Days

Yuko Arayama[1]

A. Introduction

The unemployment rate in Japan has been substantially lower compared with that in EU countries and US. Namely, the unemployment rate was 10.7% in EU countries and 6.8% in the US in 1993, but in Japan it remained at 2.5% in the same year. Many studies emphasize the differences in the definitions of unemployment in order to explain the observed difference in unemployment rates.[2] Tomita (1984) pointed out that the method used in order to determine whether a person is engaging in job search activities and the identification as a house keeper or a job seeker, respectively, can affect the estimating of the unemployment rate.. Based on these approaches, this study tries to analyze the choice to not be employed by focusing on the choice between working and not working, between looking for a job and not doing so, and by analyzing the determination of working hours per week and annual working days, especially with regard to the interactions among family members.

The *1987 Employment Status Survey in Japan* (micro data) was utilized to perform this research. We observed that the calculated unemployment rate for females, 8.6%, is substantially higher than the calculated male unemployment rate,

[1] This research was performed as a part of a research project organized by Prof. Yoshihiro Maruyama with support by the Scientific Research Fund of the Ministry of Education. I am indebted to Professors Y. Maruyama, T. Matsugi, and K.Taketoshi for many useful comments. I have received very helpful research assistance from S. Furuta and K. Miyoshi.

[2] The *Labor Force Survey* defines a person who worked more than one hour with pay in the last one week of the month as a worker at work. Workers comprise both workers at work and workers on vacation.

while the male unemployment rate, 2.0%, is found to be very close to the official rate of unemployment reported by the Ministry of Labor.[3] We will focus on this difference in the unemployment rates for males and females in the *Employment Status Survey* and try to infer the reason why the overall unemployment rate has been lower in Japan compared with other similar countries.

This paper is organized as follows. The first section summarizes the findings of the *Employment Status Survey*. The second section explains the derivation of unemployment from the data made available by the *Employment Status Survey*. The third section reports the results of log-linear analysis concerning male and female work status and job search. An economic model of working hour determination and a corresponding econometric model will be developed in the fourth section. The fifth section then summarizes the results of coefficient estimation. The final section will provide concluding remarks.

B. Data Source

The *Employment Status Survey* (*ESS* later on) was performed by the Statistics Bureau 1985 Population Census as the first stage sampling unit, and households as the second-stage sampling units. 326,033 households were chosen from 24,900 enumeration districts adopted as stratified two-stage sampling method from the enumeration districts for the Population Census. All the household members 15 years old and over living in the chosen households were counted, totalling 832,302 persons.

In accordance with the purpose of our research, age range was limited to between 18 and 60 years old. Married persons were selected first and these persons were grouped together again to form family households. As a result, 139,167 households were included in this analysis. Definition of variables and their means and standard deviations are reported in Table 1.

C. Determinants for Unemployment Rates

Male and female work force (M_WF and F_WF) is defined as,

(1) $\quad M\_WF = m^{wf} M\_POP,$

[3] Since the unemployment rate for household heads is 0.3% lower compared with the reported unemployment rate, the calculated unemployment rate based on the *Employment Status Survey* is roughly 0.2% lower than the reported unemployment rate.

Table 1
Means and Standard Deviation of Variables

Variable	Definition	Means	S.D.
M_AGE	male age	43.71	9.34
F_AGE	female age	40.95	9.17
M_EDUC	male years of schooling	12.02	2.46
F_EDUC	female years of schooling	11.62	1.9
CHILD	children under 6 years old	0.15	0.08
M_WHOURS	male weekly working hours	46.47	9.24
		(43.37)	(9.34)
F_WHOURS	female weekly working hours	36.78	14.21
		(16.8)	(20.6)
M_WDAYS	male annual working days	227.63	43.21
		(222.5)	(56.84)
F_WDAYS	female annual working days	196.79	67.83
		(106.3)	(110.31)
M_WS4	male work status 1 = not working w/ job search (2.0%) 2 = not working w/o job search (1.8%) 3 = working w/ job search (5.2%) 4 = working w/o job search (91.1%)	3.85	0.53
F_WS4	female work status 1 = not working w/ job search (8.6%) 2 = not working w/o job search (38.2%) 3 = working w/ job search (3.1%) 4 = working w/o job search (50.1%)	2.96	1.11
M_EMPLOY	dummy: 1 if working = 1	0.91	0.29
F_EMPLOY	dummy: 1 if working = 1	0.51	0.50
M_P_WAGE	male predicted hourly wages	0.25	0.07
F_P_WAGE	female predicted hourly wages	0.1	0.03
M_P_DINC	male predicted daily earnings	33.89	1.06
F_P_DINC	female predicted daily earnings	2.86	0.33
UNEARNED	income from other sources	49.16	121.43
D_URBAN	dummy: living in urban areas	0.28	0.45
D_FRINGE	dummy: living in rural areas	0.51	0.5
D_SIZE2	dummy: population between 100,000–250,000	0.28	0.45
D_SIZE3	dummy: population between 250,000–500,000	0.22	0.41
D_SIZE4	dummy: population more than 500,000	0.06	0.24

Note: Values in brackets indicate average values of male weekly working hours; when missing, values are substituted by zero.

(2) $\text{F\_WF} = f^{wf}\,\text{F\_POP},$

where M_POP and F_POP are male and female population. m^{wf} and f^{wf} are the rate of persons who are classified as work force respectively.

The number of persons who are employed is given by fraction of male and female population;

(3) $\text{M\_W} = m^{e}\,\text{M\_WF}$, and

(4) $\text{F\_W} = f^{e}\,\text{F\_WF}.$

Needless to say, the numbers of males and females who are not working are given by

(5) $\text{M\_NW} = (1 - m^{e})\text{M\_WF}$, and

(6) $\text{F\_NW} = (1 - f^{e})\text{F\_WF}.$

The number of unemployed workers (M_UEP and F_UEP) is given by

(7) $\text{M\_UEP} = (1 - m^{hk} - m^{e})\text{M\_WF},$

(8) $\text{F\_UEP} = (1 - f^{hk} - f^{e})\text{F\_WF},$

where m^{hk} and f^{hk} indicate the male and female ratio of "house keepers" in the male and female work force respectively, and m^{e} and f^{e} the male and female ratio of employed persons in the male and female work force respectively. Therefore, the male unemployment rate is derived from Equation 7. It shows that the male unemployment rate can be defined as follows in terms of m^{wf}, m^{hk}, m^{e} and M_POP.

(9) $$u^{m} \equiv \frac{\text{M\_UEP}}{\text{M\_WF}} = 1 - m^{hk} - m^{e} = \frac{(1 - m^{hk} - m^{e})m^{wf}\,\text{M\_POP}}{m^{wf}\,\text{M\_POP}}$$

Similarly, the female unemployment rate is defined as follows in terms of f^{hk}, f^{e}, and F_POP.

(10) $u^{f} = 1 - f^{hk} - f^{e}.$

We can specify that each person is employed or not employed and engaging in job search or making no job search by utilizing the information reported in ESS. Thus, males can be divided into the following four work-status categories: 1) not working with job search (M_{nw}^{js}), 2) not working without job search (M_{nw}^{njs}), 3) working with job search (M_{w}^{njs}), and 4) working without job search (M_{w}^{js}). Similarly, females can be classified as belonging to the following four work-status categories: 1) not working with job search (F_{nw}^{js}), 2) not working without job

search (F_{nw}^{njs}), 3) working with job search (F_{w}^{js}), and 4) working without job search (F_{w}^{njs}). Therefore, m^{hk} and m^{e} are given by the share of M_{nw}^{njs} in the mother population (m_{nw}^{njs}), and the share of $M_{w}^{js} + M_{w}^{njs}$ in mother population, ($m_{w}^{js} + m_{w}^{njs}$), respectively. Namely, we have,

$$m^{hk} = m_{nw}^{njs}, \tag{11}$$

$$m^{e} = m_{w}^{js} + m_{w}^{njs}. \tag{12}$$

Then the unemployment rate for males is given by

$$u^{m} = m_{nw}^{js}, \tag{13}$$

where m_{nw}^{js} stands for the share of unemployed males with job search in the mother population.[4] Similarly, the unemployment rate for females is given by

$$u^{f} = f_{nw}^{js}, \tag{14}$$

where f_{nw}^{js} stands for the share of unemployed females with job search in the mother population.

By utilizing ESS we find that male and female unemployment rates are 2.0% and 8.6% respectively. The male unemployment rate derived by the above equation is very close to the unemployment rate officially announced by the Ministry of Labor, 2.5%; however, the female unemployment rate is far beyond the official rate of roughly 2.5%. The two possible reasons are: 1) the work status of not working with job search is not based on an official survey definition, but rather reflects female opinion about willingness to have a job, and 2) the rate of married women who are working is substantially lower compared with the rest of the sample. Since the mother population for females are married women who prefer to remain within households without working outside which tends to reduce the unemployment rate for females, the observed high rate of unemployment for females can be considered as a puzzle.

D. Log-linear Analysis for Work Status Determination

Tables 2 and 3 report the result of log-linear analysis of male and female work status.[5] Work status here is divided into four categories; not working with job search (indicated by "WS1"), not working without job search (indicated by

[4] Tomita stated that persons classified as not working with job search in *ESS* (survey on usual state) are roughly corresponding to persons unemployed in *Labor Force Survey* (survey on actual state).

[5] Log-linear estimates for males and females are reported in Appendices 1 and 2, respectively.

"WS2"), working with job search (indicated by "WS3"), and working without job search (indicated by "WS4"). The reported coefficients are the logit estimates of WS1, WS2, and WS3 to WS4 respectively.

Table 2
Multinominal Logit Estimates of Male Work Status

Variable	WS1/WS4	WS2/WS4	WS3/WS4
CONSTANT	-7.48	-10.27	-1.03
	(-38.20)	(-41.52)	(-7.80)
M_P_DINC	-3.61	-3.93	-0.21
	(-37.03)	(-33.66)	(-2.54)
F_P_DINC	-1.28	-0.87	-0.29
	(-7.24)	(-4.51)	(-2.72)
M_AGE	0.12	0.17	-0.02
	(44.88)	(48.78)	(-9.44)
M_EDUC	0.36	0.39	-0.03
	(20.47)	(19.02)	(-2.34)
CHILD	-0.10	-0.14	-0.01
	(-1.90)	(-1.63)	(-0.31)
D_URBAN	0.02	0.03	-0.14
	(0.29)	(0.41)	(-3.57)
D_FRINGE	-0.85	-0.75	-0.09
	(-13.01)	(-10.08)	(-2.06)
D_SIZE2	0.58	0.42	0.1
	(10.49)	(6.95)	(2.85)
D_SIZE3	0.81	0.53	0.09
	(14.95)	(8.82)	(2.70)
D_SIZE4	0.52	0.21	0.10
	(5.29)	(1.78)	(1.71)

Note: 1. Work Status indicates that 1 = not working w/ job search (2.0%), 2 = not working w/o job search (1.8%), 3 = working w/ job search (5.2%), and 4 = working w/o job search (91.1%).
2. t-values are in parentheses.

The explanatory variables consist of four major categories; 1) earnings per day of male and female household members predicted by utilizing Mill's ratio, 2) per-

Table 3
Multinominal Logit Estimates of Female Work Status

Variable	WS1/WS4	WS2/WS4	WS3/WS4
CONSTANT	4.26	9.19	-7.95
	(9.94)	(35.08)	(-10.40)
M_P_DINC	0.18	0.51	-0.17
	(4.99)	(22.78)	(-2.77)
F_P_DINC	6.98	16.08	-11.19
	(10.83)	(41.27)	(-9.68)
F_AGE	-0.07	-0.11	0.03
	(-16.55)	(-39.45)	(3.97)
F_EDUC	-0.62	-1.28	0.88
	(-11.64)	(-39.49)	(9.16)
CHILD	0.47	1.44	-0.59
	(15.44)	(79.59)	(-10.82)
D_URBAN	0.19	0.32	-0.18
	(5.20)	(14.58)	(-2.89)
D_FRINGE	0.13	0.41	-0.57
	(2.80)	(14.85)	(-7.26)
D_SIZE2	0.22	0.09	0.27
	(7.74)	(5.20)	(5.96)
D_SIZE3	0.16	-0.23	0.54
	(4.38)	(-10.54)	(9.11)
D_SIZE4	0.00	-0.34	0.54
	(0.02)	(-10.49)	(6.11)

Notes: 1. Work Status indicates that 1 = not working w/ job search (8.6%), 2 = not working w/o job search (38.2%), 3 = working w/ job search (3.1%), and 4 = working w/o job search (50.1%).
2. t-values are in parenrtheses.

sonal characteristics such as age and educational level, 3) children, and 4) location characteristics of households. Predicted values of earnings per day were utilized in order to avoid not only bias in estimated coefficients for female household members but also selectivity bias for male household members due to the work status of their spouses. Since roughly half of the female members do not have any earnings utilizing actual earnings in the estimation means excluding households in which the female spouse is not in the work force.

Male and female differences in the way of responding to the explanatory variables can be summarized as follows. In the first place, males and females show opposite responses to a change in their own earnings per day in the probabilities of both not working with job search and not working without job search. An increase in predicted value of earnings per day decreases the probability of not working with job search, that of not working without job search and that of working with job search for male household members. On the contrary, an increase in predicted value in earnings per day increases the probability of not working with job search and that of not working without job search, and decreases only the probability of working with job search for female household members.

Secondly, an increase in age also elicits completely opposite responses from male and female household members. An increase in age increases the probability of not working with job search and that of not working without job search, but decreases that of working with job search for male household members. On the other hand, an increase in age decreases the probability of not working with job search and that of not working without job search, but increases that of working with job search for female household members. Thirdly, coincidentally an increase in the level of education produces exactly the same effects as an increase in age. An increase in education increases the probability of not working with job search and that of not working without job search, but decreases that of working with job search for male household members. On the other hand, an increase in education decreases the probability of not working with job search and that of not working without job search, but increases that of working with job search for female household members.

In the fourth place, children in a household decrease the probability of not working with job search, that of not working without job search, and that of working with job search for male household members. On the other hand, female household members increase the probability of not working and decrease only the probability of working with job search.

In the fifth place, residing in rural areas increases the probability of not working with job search and that of not working without job search for male household members compared with those residing in city areas. On the contrary, for female household members, residing in rural areas decreases the probability of not working with job search and that of not working without job search compared with those residing in city areas. Both the male and female household members residing in rural areas reduce the probability of working with job search.

Finally, male residence in a city of larger population size tends to increase the probability of not working without job search, that of not working with job search and that of working with job search; female residence in a city with more than

250,000 inhabitants tends to decrease the probability of not working without job search.

E. Determination of Working Hours vs. Determination of Working Days

We will assume the simplest neo-classical model as an economic model of households as follows,

$$
\begin{aligned}
& max\ U(t_l^m, t_l^f, X; Q) \\
& \text{s.t.} \\
& X = w^m t_w^m + w^f t_w^f + V \\
& t_w^m + t_l^m = t^m \\
& t_w^f + t_l^f = t^f
\end{aligned}
\tag{15}
$$

where U(·) stands for utility function, t_l^m and t_l^f are male and female leisure hours, t_w^m and t_w^f are male and female working hours, X is income and monetary value of consumption goods, w^m and w^f are male and female wage rates, V is unearned income, and t^m and t^f are male and female total available hours.

Based on the economic model, working hours per week and working days per year are going to be estimated.[6] We utilized Mill's ratio when we derived the predicted value of male and female wages.[7] The predicted values of male and female wages are included in working hours per week and working days per year equations.

F. Results of Coefficient Estimation

Table 4 reports the result of the coefficient estimation which utilizes the predicted value of income per day as an explanatory variable. First, we will scrutinize the effect of an increase in the predicted values of earnings per day on working hours per week and annual working days. An increase in the predicted values of male earnings per day tends to increase both working hours per week and annual working days for male household members. Similarly, an increase in

[6] The major structure of the econometric model is based on Arayama (1995).

[7] Estimation of Mill's ratio by using probit model for males was not so successful, possibly because more than 96% of males are employed. Therefore, we performed logit model to get the predicted value of male wages.

the predicted values of female earnings per day tends to increase female working hours per week, but tends to decrease female annual working days. In addition, it is noted that an increase in the predicted values of male earnings per day tends to decrease female working hours per week and increase annual working days. In other words, it is observed that higher male earnings induce wives to shift from full time work for longer working hours to part-time work for shorter working hours per day. As far as an effect of an increase in female earnings on male working hours per week and annual working days is concerned, it is noted that the coefficient itself is not so large compared with other coefficients or does not posses high t-ratios.

Secondly, male working hours per week and annual working days tend to decrease with age and reach their minimum around age 57 and 51 respectively. Similarly, female annual working days tend to decrease with age and reach their minimum around age 42. On the other hand, female working hours per week tend to increase with age and reach their maximum around age 43.

Thirdly, both the number of male working hours per week and that of annual working days is affected by children. On the other hand, working hours per week tend to be shortened due to children for female household members, however, female annual working days tend to increase for female household members with children. This implies that female household members have to spare some hours to take care of their children so that they tend to shift from full time work to part-time work.

These results imply that male and female in household members behave differently in many aspects, especially in response to the change in earning capacities of their spouses. Nevertheless, officially announced unemployment rates for male and females are very similar. The large estimated coefficient of male earning capacity in female working hours and annual working days equations can possibly imply flexibility in female working decisions.

G. Concluding Remarks

Logit analysis has shown that higher predicted male daily income raises the probability of being employed for male household members, while higher predicted female daily income reduces the probability of being employed, and increases the probability of remaining in reserve for employment or remaining a housekeeper. It is also observed that female household members tend to reduce annual working days as their daily income increases while male household members tend to increase not only working hours per day but also annual working days as their income per day increases.

Table 4
Tobit Estimates of Working Hours and Working Days by Fitted Daily Income

Variable	MWHOURS	FWHOURS	MWDAYS	FWDAYS
M_P_DINC	35.14	-15.40	151.28	143.21
	(148.78)	(-31.98)	(258.71)	(145.71)
F_P_DINC	3.24	69.83	10.4	-105.48
	(8.8)	(77.85)	(48.06)	(-92.29)
AGE	-4.00	9.14	-21.59	-41.68
	(-243.87)	(88.22)	(-815.68)	(-129.92)
AGESQ	3.44	-10.46	20.98	49.67
	(145.99)	(-81.38)	(497.44)	(123.35)
EDUC	-4.01	-4.71	-17.25	-22.3
	(-112.58)	(-61.03)	(-245.12)	(-106.81)
UNEARNED	-0.01	-0.03	0.02	-0.08
	(-17.12)	(-23.87)	(20.18)	(-24.14)
CHILD	0.18	-64.44	0.39	56.13
	(2.35)	(-77.45)	(2.26)	(199.96)
D_URBAN	-2.02	4.67	-9.2	-48.5
	(-16.83)	(11.68)	(-30.19)	(-41.34)
D_FRINGE	7.04	8.92	34.1	16.76
	(53.60)	(21.17)	(100.34)	(20.00)
D_SIZE2	-3.17	-2.9	-15.18	-17.38
	(-28.70)	(-8.88)	(-59.04)	(-74.49)
D_SIZE3	-3.86	5.87	-18.19	-74.20
	(-34.15)	(18.07)	(-69.54)	(-72.35)
D_SIZE4	-1.66	-3.96	-8.81	-91.87
	(-8.42)	(-6.56)	(-19.85)	(-51.44)

Note: t-ratios are in parentheses.

These results indicate that female household members are seemingly very active in labor markets for the decision on their working status although 46.8% of females are not working on average. Since the *ESS* is asking questions about the usual status, it is conceivable that unemployment rates can be found to be substantially higher for females as a reflection of this female active stance to their work decision, compared with the formally reported unemployment rate based on

the *Labor Force Survey*, which is asking questions about the actual state during the specified one week period. In other words, the work status of female household members is highly flexible, so that the unemployment rate should vary as the definition of unemployment changes.

On the other hand, the reasons why the unemployment rate for male household members is lower in Japan compared with other countries are unknown to a large extent. The male unemployment rate was estimated at 2.0% by utilizing *ESS* and this unemployment rate is substantially lower compared with that of similar foreign countries. Although 5.2% of all male household members are engaging in job search while they are working at the same time, it has been found that they are rather insensitive even to a change in daily income.

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Recent Aspects of the Japanese Labor Market in a Changing Economic Structure

Takashi Matsugi

A. Introduction

There are a number of structural changes, not only in Japan but also in Germany and other OECD countries, which affect the demand-supply relations in the labor market.

Firstly, we observed that a large trade surplus would give rise to changes in the exchange rates such as the recent Japanese Yen evaluation. This tends to raise wage rates in Japan relative to wage rates in other countries like the USA and Asian developing countries. Manufactures start to shift their production bases from Japan to those areas where they can make use of lower wage costs. This is widely happening in Japan today and is called "deindustrialization" or "hollowing–out". Deindustrialization is defined by the Japanese Economic Planning Agency (EPA, 1996) as the reduction in domestic employment mostly in manufacturing, which is caused by overseas production shifts due to higher wage costs in the domestic market. Dr. Nitsch and Prof. Yamamoto treat this topic from different viewpoints.

The trade surplus can affect industrial structure in another way, in that it induces deficit countries to demand trade liberalization. A typical example is seen between Japan and the USA, the latter demanding for Japan to open the rice market. The agricultural sector in developed countries is commonly protected by the government and abundant in low productivity workers. Deregulation and rationalization should change this sector to be more efficient and protectionist policy measures should be taken only for the adaptation period. The presentations made by Prof. Dr. Dams and Prof. Dr. Arayama are related to this problem.

Secondly, the changing demographic structure affects the demand-supply relations of labor. The decreasing relative share of the young population makes the labor market tighter in general, and the probability of the aged and the female to appear in the labor market becomes higher. At the same time there are mismatch-

es between labor supply and demand, which are to be observed on the sectoral, regional and occupational levels. Job search activities and unemployment could be better explained from this standpoint. Prof. Dr. Oberhauser and Prof. Dr. Shimono attempt to take these aspects into consideration by using their own analytical methods.

Thirdly, managers are always confronted with a situation in which they are forced to reduce costs to compete with others in the market. Since 1985, when today's Yen appreciation started, restructuring has been a new cause for almost all industries in Japan. Typical management systems like life-long employment and progressive wage profileare being gradually reconsidered with a view to finding a new managerial system to reduce wage costs. It is proposed in this respect that the productivity of white-collar workers should be checked, the number of part-time workers should be increased, and workshops should be introduced. What problems should be solved are themes in the contributions made by Prof. Dr. Müller and Prof. Dr. Kishida.

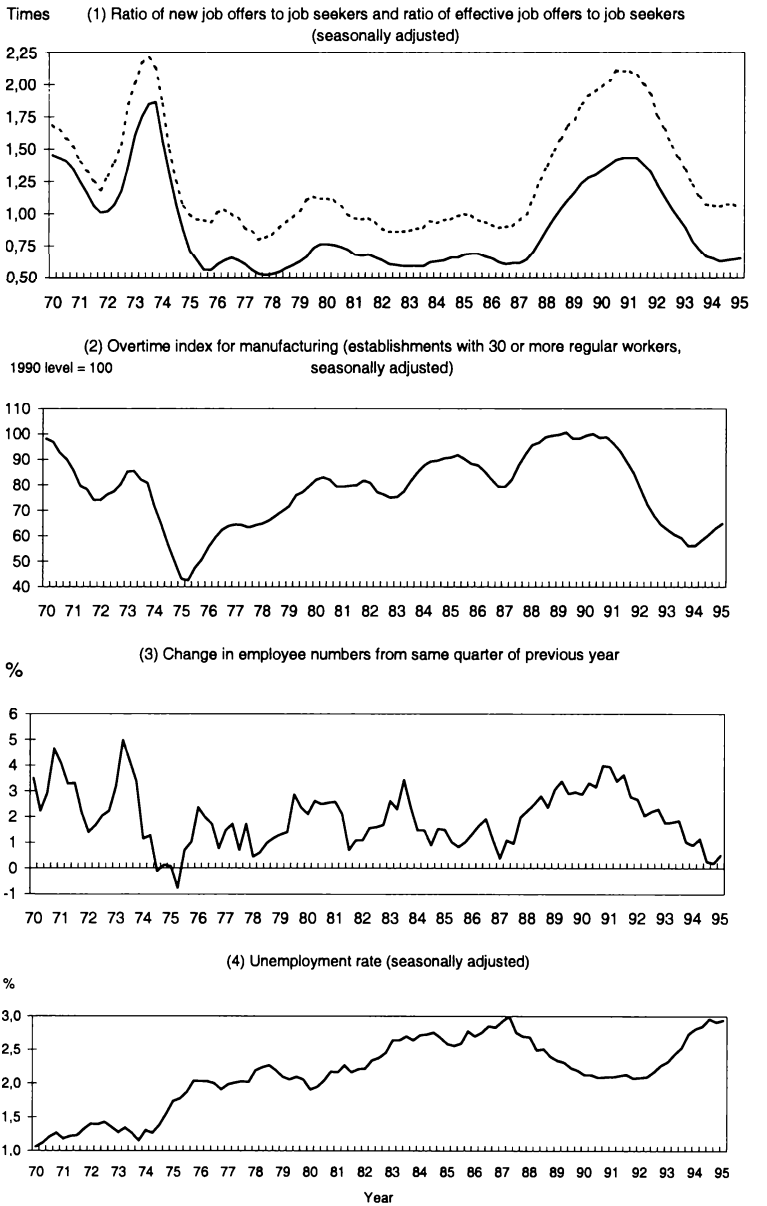
Fourthly, it should be noted that economic structure itself is affected by a paradigm shift. It is not an exaggeration to say that, up to now, the paradigm of free trade basically constituted the economic structure in OECD countries, supported by the famous theorem in international economics, while protectionism was advocated in newly developing countries in their catching-up process. Since the 1960's, on the other hand, we have been suffering from pollution problems and more recently thinking about global environmental issues. Today, sustainability is recognized as a new paradigm. More emphasis is put on the quality improvement of living environments than on efficiency in production. This will change economic structures and then the labor market correspondingly. Selected topics from these areas are concerns in papers by Dr. Pflüger and Dr. Spermann on the one hand and by Mr. Nishijima on the other.

Based on these considerations, this paper will provide statistical evidence and show what has been going on in the Japanese labor market. It is expected that Prof. Dr. Friedmann will make a comparison of the situation in the EU with the one in Japan.

B. Recent Trends in the Japanese Labor Market

I. Trends in Leading Indicators

It seems to be convenient first to observe leading employment indicators, based on EPA (1995), such as job offers and job seekers, overtime work, employee numbers and unemployment rate. Figure 1 shows the recent development of these indicators since 1970, which covers a couple of trade cycles indicated by peak and trough as turning points.



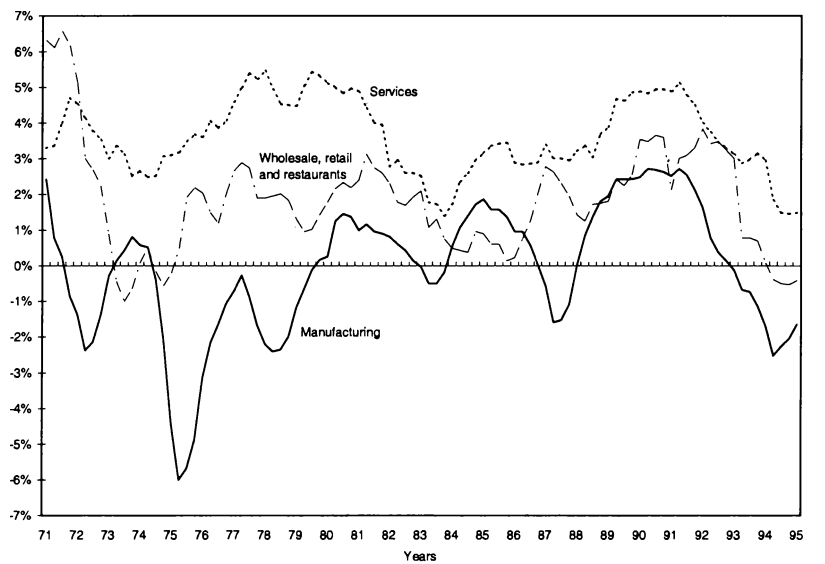
Source: "Report on Employment Service" (Ministry of Labour), "Monthly Labour Survey" (Ministry of Labour) and "Labor Force Survey" (Management and Coordination Agency), Cited from EPA (1995), p. 121.

Figure 1: Leading Employment Indicators

In the moderate economic recovery since the last trough in 1993, the only indicator that was showing signs of improvement was the number of overtime hours (index) worked in manufacturing. On the other hand, the ratio of effective job offers to job seekers declined to 0.63 in the middle of 1994 after the peak in February 1991, the change in employee numbers from the same quarter of the previous year was slightly positive but negligible, and the unemployment rate is still high (3.5% in May 1996). We conclude that the recent economic recovery in Japan is still faltering.

II. Employment Trends Differentiated by Industry

When we look at Figure 2 where employment trends differentiated by industry are shown in terms of annual change we can see that permanent employment numbers continued to decrease in manufacturing, though going up slowly in the negative zone. Employment numbers in wholesale, retail and restaurants were declining from the middle of 1994 onwards, while they had been kept positive for nearly 20 years since the first Oil Crisis in 1973. Only the service industry recorded increasing employment, but its growth rate was dropping.



Source: Monthly Labor Survey (Establishments with 30 or more regular workers), Ministry of Labor. Cited from *EPA* (1995), p. 124.

Figure 2: Annual Change in Index of Permanent Employee Numbers

If we direct our attention to the employment of part-time workers as shown in Figure 3, the contribution of part-time workers to the percentage change in the total number of regular employees from the same month of the previous year was relatively large in the last boom, especially in 1993, but this trend was reversed from the middle of 1994 onwards and employment of part-time workers started to fall in 1995. Differences between industrial sectors are more remarkable. The decline was particularly noticeable in manufacturing. The wholesale, retail and restaurants sector depended more on part-time workers, but it also started to decrease their employment in 1995. In the service sector, the increase in part-time workers was slowing down to some extent, but there was still an increase to be observed.

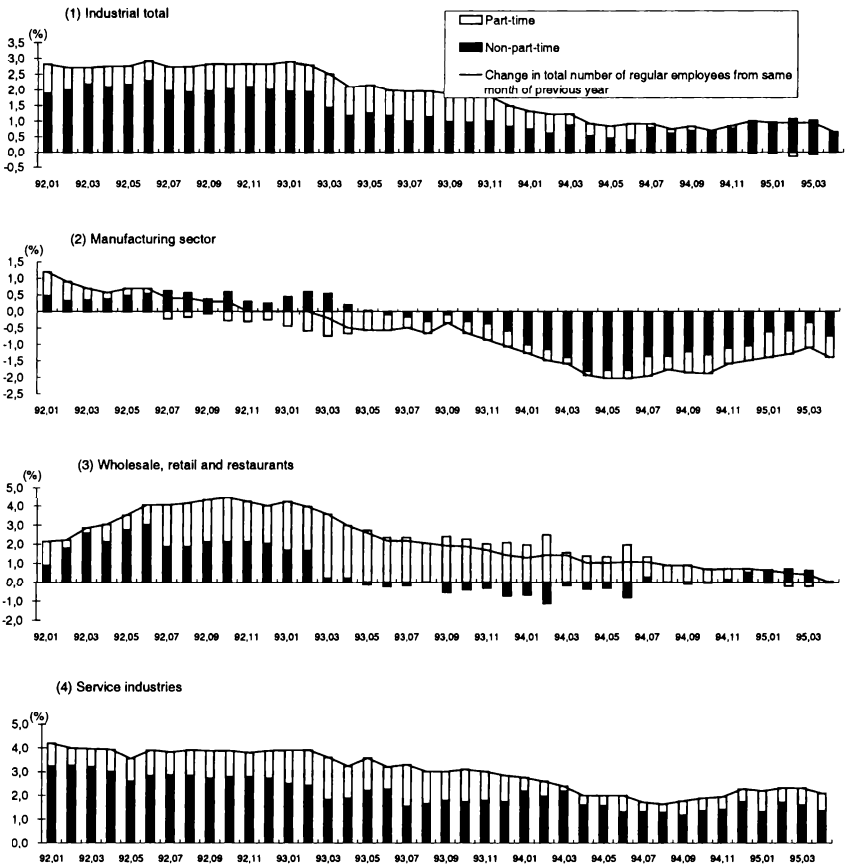
III. Surplus Reflected in the Survey

Firms in the "Short-Term Economic Survey" made by the Bank of Japan certify the slow economic recovery reflected above in the labor statistics. Figure 4 shows that managers considered the number of their employees to be excessive in recent years, especially in the manufacturing sector. (Diffusion Index is calculated here as surplus minus shortage in percentage). In the service sector, after 1973 the predominant perception for a long time had been that there was a shortage of empolyees, whereas in the recent recession, on the contrary, a perception of surplus was dominant.

Under these circumstances, the number of companies making adjustments to their hiring and employment activities came to about 50% in the October-December quarter of 1993, but it decreased to 34% by January-March 1995, based on the other statistical source reflecting the slowly declining perception of surplus, as is seen in Figure 4.

IV. Estimated Employment Compared with Actual Employment

EPA (1995) estimated an employment function in net sales, regular wages and working hours (see Figure 5). From the middle of 1991 onwards, the actual figures generally exceed the estimated ones up until 1994 (suggesting labor hoarding). Up to mid-1994, when the actual index drops below the estimate, employee numbers had risen in line with the predicted index. The subsequent deviation can be attributed to the cumulative effect of labor hoarding, as well as employment adjustment linked to falling productivity in labor-intensive sectors from 1993 onwards, as the strong Yen increased many imports of both products and parts. Em-

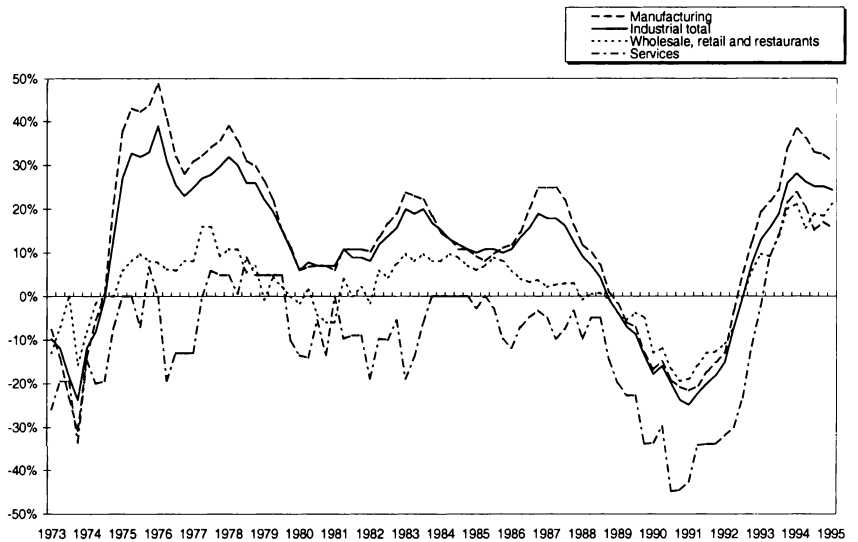


Source: Monthly Labor Survey (Establishments with 30 or more regular workers), Ministry of Labor. Cited from EPA (1995), p. 125.

Note: Relative proportion of part-time and non-part-time workers calculated by the First Domestic Research Division on the basis of the total number of regular employees index and ratio of part-time workers.

Figure 3: Growth in Part Time Workers versus Total Number of Employees

ployee numbers were also constrained by other factors such as a lack of overall corporate flexibility associated with the declining value of hidden assets.



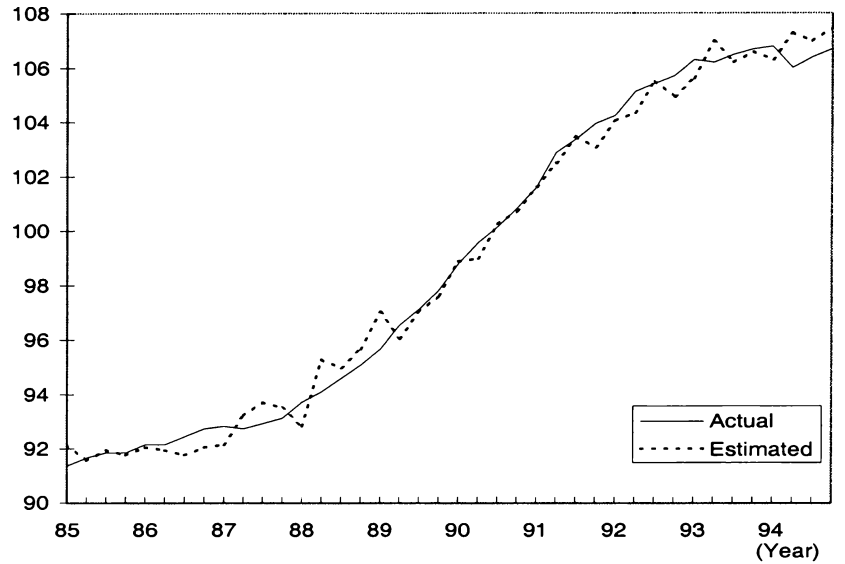
Source: Short-Term Economic Survey of Principal Enterprises, Bank of Japan. Cited from EPA (1995), p. 127.

Figure 4: Employee Shortage/Surplus Diffusion Index

V. Shorter Working Hours and Their Effect

After the amendment of the Labor Standards Act in April 1988, scheduled working hours were substantially shortened from 1933 hours in 1987 to 1772 hours in 1994. This change reflected a paradigm shift from the production oriented society to the welfare oriented society (Komine 1989, chapter 4). As a result the reduction in the number of employees seems to have been mitigated to a certain extent. To test this effect, an empirical study was made, assuming that scheduled working hours be fixed at the level reached during the cyclical trough in Oct.–Dec. 1986 and actual values be used for variables other than employee numbers, such as labor input and labor productivity.

The estimated number of employees (as of index) under this assumption was smaller than the actual number, which was still increasing in recent years, while the estimated one began to decrease in the course of 1992 (Figure 6). The difference between the actual and the estimated number can be regarded as the effect of shorter working hours on employment (so-called work sharing). This effect is



Source: Monthly Labor Survey (Establishments with 30 or more regular workers), Ministry of Labor; Quarterly Report of Incorporated Enterprises Statistics, Ministry of Finance; Wholesale Price Index, Bank of Japan. Cited from EPA (1995), p. 131.

Note: Estimate calculated as follows

$$\ln RE = \underset{}{4.9625} + \underset{(14.34)}{0.29327} \ln ISA - \underset{(13.17)}{0.25137} \ln CCE - \underset{(-5.54)}{1.0266} \ln THW \quad \underset{(-19.59)}{}$$

where

$\bar{R}^2$: 0.988, D.W. = 1.83 from 1985 I through 1994 IV.

RE: index of regular employees (industrial total, seasonally adjusted)

ISA: net sales by industry sector (industrial total, seasonally adjusted), adjusted with respect to the overall average wholesale price index

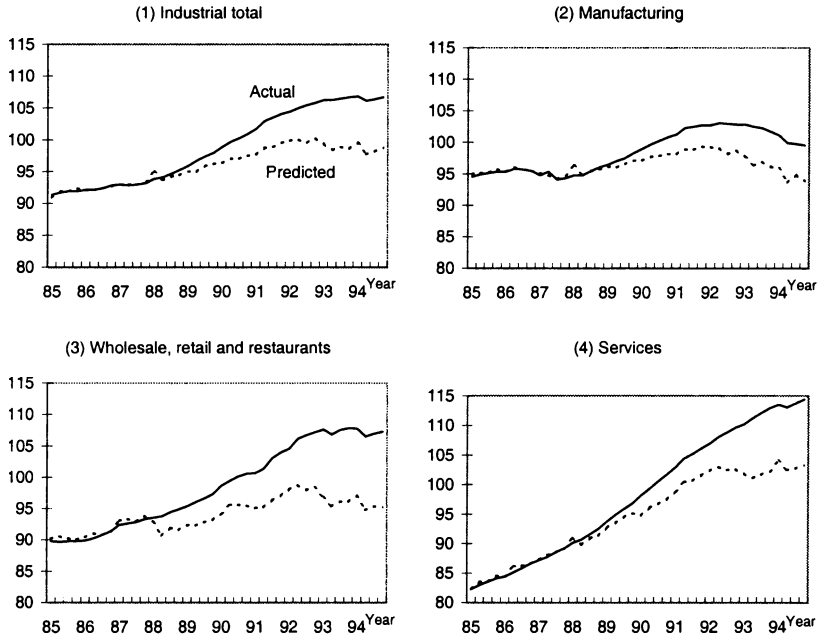
CCE: regular wages (industrial total, seasonally adjusted), adjusted with respect to the overall average wholesale price index

THW: total working hours (industrial total, seasonally adjusted)

Figure 5: Index of Regular Employees: Actual and Estimated

not only to be observed in the economy as a whole but also in each individual sector, such as manufacturing, wholesale, retail and restaurants, and services.

These developments in the Japanese labor market remind us that German labor unions demanded shorter working hours in 1984 (38 Wochenstunden) which actually resulted in work sharing between those employed and those unemployed, even if this was not aimed at consciously (Matsugi 1985a and 1985b).



Source: Monthly Labor Survey (Establishments with 30 or more regular workers), Ministry of Labor. Cited from EPA (1995), p. 133.

Note: Working hours fixed at the level reached during cyclical trough (1986 IV); employee index based on labour input (number of regular employees x total working hours) using actual values.

Figure 6: Change in Employee Numbers: Shorter Working Hours versus No Change

VI. Wages and Labor Share

In the current recovery since the peak of April-June 1991, real wages increased only by a small percentage. At the same time the decrease in working hours continued as before, so that real hourly wages went on increasing and personnel expenditures were still to be reduced from the viewpoint of management.

When we compare the movements of real wages in several business cycles, the movement in the current recovery is seen to be relatively modest both in real wages and real hourly wages, which tells that managerial efforts to cut personnel expenditures were more active than before.

As far as the labor relative share is concerned, it continued to rise in 1994 and reached its highest. This is mostly due to decreasing value added which reflected the poor business performance at that time, but also partly due to the fact that excess workers were kept in firms (employee hoarding) on the one hand, as is pointed out in Section B-III, and that real wages were rising, though only moderately, on the other hand.

VII. Rate of Unemployment

The unemployment rate in Japan rose up to 3.2% in April 1994, the highest level ever, compared with the record of 3.1% in May 1987 at the time of the recession caused by a rapid appreciation of the Japanese Yen. To verify what factors raised the unemployment rate, it was regressed on cyclical economic factors (here designated by the ratio of female to total employees, etc. See Figure 7-I, notes). Judging from the estimated results, the current unemployment increase was basically explained by cyclical economic factors, namely a deficiency in demand, though the effect of cyclical economic factors started to decline around the end of 1994 and the change due to structural factors was slowly increasing in 1993 and 1994.

VIII. Working Women with Spouses

As is shown in Section B-II, the development in the number of part-time workers tended to change from an increase to a decrease in 1995. A large number of part-timers are females, especially working women with spouses. In the depressed labor market, some workers are forced to quit their jobs and register as unemployed. It is to be noted that no small number of Japanese working women with spouses are apt to quit the labor market and not register as unemployed. This tends to lower the unemployment rate in Japan to a certain extent.

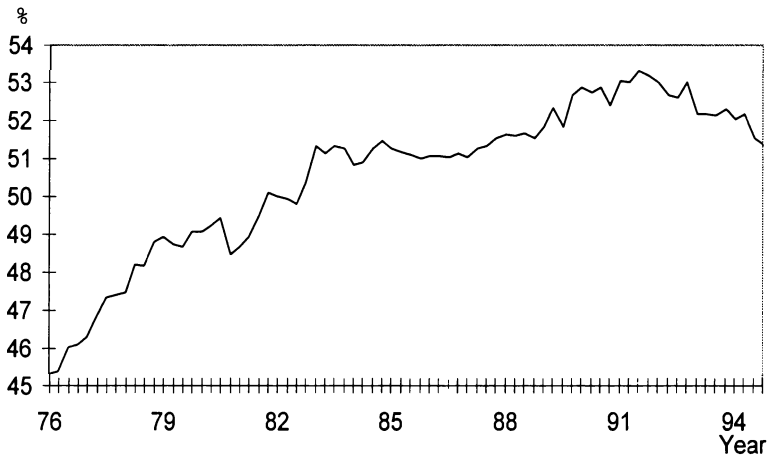
The behavior of working women with spouses can be analysed by a regression in which explanatory variables are firstly change in income of head of household from previous quarter (income factor) and secondly ratio of part-time job offers to applicants (labor market factor). According to the estimation, the ratio of working women with spouses is affected negatively by income factor and positively by labor market factor. In the current business cycle, where ratio of working women with spouses was decreasing as is seen in Figure 7-II, income received by head of household was stagnant and did not much affect the dependent variable. On the other hand, the labor market factor was unfavorable to part-timers and significantly affected the ratio of working women with spouses.

I. Calculations

Dependent variable: ratio of working women with spouses (%, seasonally adjusted)

Constant	Change in income of head of household from previous quarter (%, seasonally adjusted)			Ratio of part-time job offers to applicants (seasonally adjusted)			Time trend	$\overline{R}^2$	D. W.
47,684	t	-0.0659	(-3.67)	t	0.03065	(4.44)	0.5684	0.87	0.41
(107.43)	t-1	-0.1318	(-3.67)	t-1	0.06130	(4.44)	(8.46)		
	t-2	-0.1977	(-3.67)	t-2	0.09195	(4.44)			
	t-3	-0.2636	(-3.67)						
	Total	-0.6591		Total	-0.1839				

II. Trends in ratio of working women with spouses



Source: Labour Force Survey, Family Income and Expenditure Survey, both Management and Coordination Agency; Report on Employment Service, Ministry of Labour. Cited from EPA (1995), p.140.

Notes: (I)

1. Calculated from 1975 I to 1994 IV using Almon lag. Brackets indicate t-value. Time trend is a step prediction in increments of 0.1 where 1976 I level = 1.0.
2. Ratio of working women and income of head of household seasonally adjusted by the First Domestic Research Division.
3. Statistics on income of head of household do not distinguish between genders prior to 1992.

(II) Figures seasonally adjusted by the First Domestic Research Division.

Figure 7: Predicted Ratio of Working Women with Spouses

C. Concluding Remarks

Based on the empirical facts described above, it is to be concluded that recent developments in the Japanese labor market will have very severe effects on workers. Industrialized countries are today deindustrializing and also facing a mega-competition and business principles of "leaner and meaner" are being universally adopted. It is said that the next target of cutting personnel expenditures will be white-collar workers, some of whom are offered a choice between a monthly and an annual salary according to their ability.

Labor unions are confronted with these realities and their cause of "equality and solidarity" is challenged. It seems to be unrealistic that unions today struggle for barely two to three hundred yen per month in addition to the base-up offered by employers at the time of wage negotiations in the spring, while members pay monthly five to six thousand yen per month to the unions. Some unions are aware of the necessity to change their policies. It is mentioned that their new role will be as a supplier of useful information so as to propose management reforms or to help members to properly negotiate with employers in the ability dependent personnel evaluation and salary payment.

Similar changes are going on not only in Japan, but also in Europe. It is reported for example that the German big three chemical companies are changing their employment policies to take account of the mega-competition in the global market and correspondingly have reallocated labor and capital between domestic and foreign operations. Mega-competition and/or deregulation will give further rise to labor market issues.

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A Pro-cyclical Fiscal Policy which Increases Unemployment: A Consequence of an Individual Economic Orientation

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In my contribution to our last seminar in Nagoya I presented some considerations on 'The Problems of the Debt Criteria in the Treaty of the European Union' (Treaty of Maastricht).[1] At that time, I expressed the fear that the debt criteria do not allow for any employment stabilisation policies, and that support by wage policies is missing. It could be expected that economic setbacks and unemployment will increase as a consequence.

In the meantime it is worse than I feared – not only in Germany but also in almost all West European countries. With the efforts of meeting the Maastricht criteria, unemployment was considerably intensified by government behaviour. In almost all West European countries a pro-cyclical fiscal policy on behalf of the state is carried out. This means that every anti-cyclical fiscal policy is disregarded, every reduction in tax revenue is attempted to be balanced by a limitation of expenditure, in part also by tax increases. Some countries are actually trying to reduce the net budget deficit absolutely. Through the Maastricht criteria, the budget deficit is limited to a maximum of 3% of the gross domestic product (GDP); the amount of national debt should not exceed 60% of the GDP. Both criteria are met only by Luxembourg. Most countries could only manage to meet the debt criteria if their borrowing was to remain under 3% of the GDP for years and years – independent of the unemployment situation.

The increase in unemployment resulting from such pro-cyclical fiscal policy will be shown using the example of the consolidation efforts for the public budgets in Germany. The savings programs for the budget consolidation are getting carried away. The federal government, states, and municipalities are trying to reduce the deficits in their budgets in every way. They were surprised by the realisation that the tax revenue was always lower than predicted. It was sworn that there was a light at the end of the tunnel of the dark economy, but this was always shifted to the future. The fear is spreading that Germany, the model student, will

[1] See: Matsugi, Oberhauser and Schober (1996).

not be able to meet the Maastricht criteria in time. This is taken as grounds to further increase the consolidation efforts.

This consolidation policy is approved of and called for by many, even many economists. They maintain that an increase in borrowing should be avoided at all costs. Only in this manner could the basis for a new upswing be created; only in such a way could it be achieved that the future generations will not be even more strongly burdened.

Those politicians and parties who reject the savings measures totally or in part use predominantly social arguments. In this way, they weaken their persuasive power. Much is wished for in social areas which we are not able to afford because of the economic conditions. Much more crucial is the fact that it is economically incorrect to carry out a pro-cyclical fiscal policy when high unemployment and low growth rates of the national product exist. This however, is exactly what the fiscal policy does. It intensifies the economic situation and constantly reopens the gaps which should have really been closed by the savings measures. An anti-cyclical policy to which the state has actually committed itself through the German 'Stabilisation Law' is declined using questionable arguments. A prominent psychological trick is the misinterpretation of the term 'stabilisation policy.' The stabilisation of employment and growth is no longer meant by this term, but rather the stabilisation of the state budget by means of a reduction in new borrowing.

The following exposition would like to investigate the question of why this pro-cyclical fiscal policy was adopted. The Maastricht criteria for national debt which were set down in a relatively good economic situation without convincing theoretical grounds,[2] can serve at most as a superficial explanation. According to the author, it is much more decisive that the thinking in the overall economic context has been pushed to the background. Extensive inadequate microeconomic arguments determine the fiscal policy behaviour as well as the theoretical economic discussion.

The situation is characterised by the fact that not only the politicians are trying to justify their questionable consolidation efforts with microeconomic reasons. Even the economists use predominantly the microeconomic, supply-oriented suggestions. That the results do not fit with the macroeconomic relations is generally overlooked.

Two examples, which could be supported using many others, are symptomatic. The *Bundesbank* notes an improvement of the economic situation in a recent report because of an increase in foreign demand and the demand for consumer goods.[3] Two pages later they claim that the causes for unemployment are not to

[2] See: Filc (1994).

be found in the demand, but rather in the wage costs. It is difficult to understand why an increase in the foreign demand should have a positive economic effect and with that, an expansive employment effect, while a national demand policy is rejected, and a restriction in the national demand according to budget consolidation is called for. Why tax decreases which stimulate consumption are to improve the total economic situation, when at the same time the public demand is reduced by more than this amount, is difficult to recognise.

Similar ideas apply to the arguments of the German Council of Economic Advisors. In their last annual 170 page report, the diagnosis and prognosis of all the components and changes of the demand in the economic developments are analysed. In the economic policy part of the report, which extends to 74 pages, the demand effects of the suggested measures are not even mentioned.[4] The annual government economic report and a series of other publications proceed in a similar manner. The splitting of the consciousness is perfect. Completely different arguments are used in the diagnosis and the therapy, and it appears that the authors are not even aware of this discrepancy.

If the demand has the importance which is granted to it in the diagnosis, then the economic and financial policy measures must also be examined and developed with regards to how much they influence the demand. No contrast to the supply-oriented policy arises; their measures could be implemented thoroughly in the demand-oriented policy. However, it is inadequate to neglect the demand aspects in the supply policy measures, as predominantly occurs.

It corresponds to the experiences in developed economies that production and employment are mainly determined by the development of the demand for the products produced in the companies. Production adaptations to changes in demand generally follow very quickly. Price changes as an adaptation mechanism are of minor importance within this process. Otherwise the unemployment determined by demand – in part also with increasing prices – would not be explainable.

Such connections also appear for example in the importance of foreign demand for economic development. An increase in the foreign demand – more precisely, the real current account balance – has, in Germany, repeatedly contributed to overcoming economic setbacks and reducing unemployment. This was especially the case in the 1980s, during which the current account surplus rose to 5% of the national product. The domestic demand for consumer goods and investments was thus stimulated. Employment increased in West Germany by over 2 million, that is by about 10%, although there was much talk of structural unemployment.

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[3] See: Bundesbank (1996a), p. 7.

[4] See: Sachverständigenrat (1996).

There is no doubt that the increase in the foreign demand is currently an important support for the economic development. Its extent however, could not be as large quantitatively as in the 1980s, since Germany's most important trading partners, namely the countries of the European Union, carry out a restrictive budget consolidation policy similar to Germany's, in order to (supposedly) meet the Maastricht criteria. The expansive demand effects which start out from the export demands of the USA, Japan, and the quickly-developing Asian countries, are at least compensated to a large extent through the limitation of the government demand. The total demand does not increase enough to reduce unemployment noticeably. A favourite dummy argument claims that this is structurally determined or even voluntary. With that one would like, from the start, to indirectly remove one's responsibility for an adequate demand policy. If this argument is correct, then every additional demand from foreign countries would also be irrelevant and would lead, at the most, to an increase in prices.

With this the question must be asked, why the government in Germany and similarly in other West European countries, conducts a pro-cyclical fiscal policy. Why are the duties of the stabilisation law, to which all German public regional administrative bodies are subject, silently negated? Why is every anti-cyclical fiscal policy rejected by the federal Minister of Finance?[5]

An important reason lies first of all in the fact that the government as a decision-making unit does not exist. More than 16,000 regional administrative bodies and other public institutions act fiscally more or less independently of one another. They make their fiscal decisions mainly according to their individual situation. The macroeconomic effects of their individual behaviour remain predominantly unconsidered or are not known by the decision-makers. They act as though these effects are irrelevant. Negative effects, which come about because of the decline in demand due to savings measures, remain unconsidered since they only affect their own revenues to a small extent. Even for the federal government, it applies that the setbacks of a budget consolidation policy make up only one part, and actually less than half of those effects which affect the state sector altogether. Consequently, there appears to be a contradiction between the total economic effects and the fiscal interests in the savings measures of the individual state institutions.

The behaviour of almost all regional administrative bodies in the Federal Republic of Germany is characterised by the fact that individual economic considerations are in the foreground. Similar to the private economic units, the state units are trying to compensate the recessive setbacks of their revenue through more and more savings measures or by raising additional taxes and fiscal charg-

[5] See: Waigel (1995), p. 29 and Bundesministerium der Finanzen (1996), pp. 39.

es. The view that in the end the public budget can only be brought to order through an expansion of the national product and through the additional revenue thus determined, has fallen out of view. Without growth there can not be a true consolidation of the public budgets. Although it is then also necessary that the additional revenue is used for the reduction of the debt, and that the constantly present wishes for additional national output are not given into.

The disadvantage of the national savings measures in the recession exists in that they considerably intensify the economic situation. According to the Keynesian concept of an anti-cyclical fiscal policy, on the one hand, the state should instead offset the shortfall of tax revenue and the extra expenses for the unemployed through the acceptance of cyclically caused deficits, and on the other hand, it should at least partly compensate the decreasing demand in the private sector through additional anti-cyclical deficits. If the state reduces its expenses within the realm of the shortfall of tax revenue, as corresponds to the savings programs, then with a state share of about 50%, the reduction in the total economic demand is approximately twice as high as in the readiness for cyclically caused deficits. Is it any wonder that unemployment is constantly increasing, even though expansive counter-effects start out from the foreign demand, which, up until now were only sufficient for a partial compensation?

The state also works against its own fiscal interests with the pro-cyclical policy. The decrease in demand determined by its spending, means, that with macroeconomic multiplier and accelerator effects of about 2, a relative decrease in the national product of about twice the reduction of the state expenditure ensues. Altogether, the government revenue is reduced by about the same amount as the expenditure reduction itself. That is why new savings programs must be brought about again and again, and why overall consolidation effects hardly ever appear. The macroeconomic setbacks of the savings policy obviously receive no consideration in the financial decisions of the state. The state is missing the ability to think in the macroeconomic context. It behaves like a private economic unit for which the macroeconomic effects of its actions are irrelevant.

This microeconomic thinking by the government decision-makers is supported by the microeconomic, supply-oriented thinking in the economic literature. Without this support in the economic theory, the extensive aversion to the macroeconomic context could hardly be explained. Within two decades the majority of economists have returned to arguing in purely microeconomic categories, as prevailed until the spread of the Keynesian demand theory from the mid 1930s.

The reason for this change in views is found in the apparent failure of the demand-oriented policy. Many are blind to the not few examples of successful implementation of demand policy, although there are also examples of its failure. But instead of inquiring about the causes for the success or failure of the demand

policy and what conditions must be created in order to achieve its effectiveness, the entire demand policy is immediately condemned.

It is overlooked, however, that the supply-oriented thought and behaviour is attached to weaknesses of at least the same size, which are found predominantly in the unrealistic requirements and the neglect of macroeconomic balance mechanisms. Some of these important aspects will be discussed in more detail in the following section.

The statements about the amount of the labour costs – including the incidental wage costs – are in the forefront. It is maintained that the real wages are too high, the wages or at least incidental wages should be decreased. The curve of the decreasing marginal product of labour is confronted with the real wages and used as a reference. Under the conditions of this model, a decrease in wages would lead to an increase in employment demands. However, it is not taken into consideration that the marginal returns can not be interpreted as real values, but as nominal values, which are influenced by every change in the demand and prices. Wage decreases, however, reduce the demand and with that, the value of the marginal returns. It is by no means certain that employment increases at all with wage decreases.

Furthermore, it is assumed by such wage theoretical statements that employers and unions decide on the level of the real wages. This, however, is an error. They merely decide on the level of the nominal wages. The real wages are in the end the result of the market and the price level changes that occur. They could exceed the labour cost changes or remain behind them. All macroeconomic models that work with given real wages are unrealistic.

Such models can express something at best for individual markets under ceteris paribus assumptions. Macroeconomically, however, the real wage level is determined by the amount of the national product per employee and its utilisation structure, not by the labour union wage policy. That the labour unions have not recognised this yet and run an almost pure nominal wage policy, simply proves how much they are caught up in the microeconomic thinking. They could earn real revenue for the employers if they were to orient their policy towards macroeconomic distribution contexts.

Similarly inadequate arguments are used with respect to the incidental wage costs. Almost all politicians and parties are of the opinion that a decrease in these wage costs would lead to a relief in the company costs and thus contribute to increased profits and employment. An error exists here as well. First one must consider what other financing methods would replace the reduced incidental labour costs. If, for example, the social services were reduced, or if the employers were compelled to take additional financing payments, the relation between demand and costs in the companies would hardly change. Their profit and demand situa-

tion would not improve on the average. Why then should they employ more labour?

The macroeconomic connections are misjudged, even with the reduction of the profit tax burden which is called for by the companies and economists. If everything else were to remain the same, a lower profit taxation would certainly increase the readiness for investing, and thus have an effect on employment. However, if the profit tax reduction is compensated by a reduction in state expenditure, or an increase in labour taxes or indirect taxes, then the gross profit must decrease because of the effects on demand. Hardly any net profit is made. Only if the profit tax decreases are balanced with an increase in public debt could an increase in the net company profit occur. But these compensations are not taken into consideration. It is quite astonishing how naively a decrease in the profit tax rates is treated as equivalent to an increase in net profits. The given gross profits are simply assumed without expounding the problems of this assumption.

Similarly inadequate is the argument – mentioned in a series of recommendations – that the reduction in the profit tax rates or in the income tax rates are to be balanced by a broadening of the tax base. In this manner, expansion effects should arise, at least in the midst of a recession. In the long term there is much to be said for bringing about a more just taxation in this way through the reduction of the allowances and a general decrease in profit tax rates. In the current economic situation however, such a line of action is counter-productive. Decreases in the profit tax rates could hardly be a reason for the companies to invest more when the economic situation is bad. The lower tax burdens lead to reduced borrowing or repayment of debt. Depreciation allowances and other tax subsidies which currently reduce the tax base to a considerable extent could only be used to reduce taxes if investments were really carried out. A recession is therefore the worst time to take on a reduction in investment tax subsidies.

The argument that one must support all investments because these create additional employment is also false. The opposite is more the case. The demand for investments in the form of buildings and equipment is effective towards production and employment in the same way as the demand for consumer goods. This does not, however, apply to the demand for properties, which is generally counted towards microeconomic investment. Property purchases merely represent transactions of wealth. Whether the sellers spread the demand for goods with the proceeds is fairly uncertain.

Employment is created by the later use of the investments, that is the capital, yet only to a limited extent. Thus, the utilisation of the building investments, which make up about half of the private investments, is made with almost no labour. The few building caretakers hardly count. Expenses for maintenance generally follow after several years or even decades. This applies similarly to public investments in infrastructure.

In the investment of the companies one must make a distinction between expansion investments and rationalisation investments. Additional expansion investments can be connected to an increase in employment, but only if a greater demand exists or is expected. With the general under-utilisation of production capacities as in the current economy, this can hardly be the case.

Rationalisation investments which are connected to the exploitation of technical progress actually lead to the elimination of employment. This means that the same amount of goods can be produced with less manpower, or a larger amount of goods can be produced with the same manpower. Without an equivalent expansion in demand, rationalisation investments are thus tied to redundancy effects. Every advance in productivity means therefore a redundancy unemployment to begin with. Only if the demand increase at the same time (or if the average work time is reduced), could this unemployment be avoided. Already present unemployment can only be reduced if the demand increases above that. Here it becomes clear how one-sided the argument is when the demand remains unconsidered. The isolated claim that investment creates employment is false in any case. More the opposite applies; that is, 'investment destroys jobs', unless their use is supported by a corresponding expansion in demand.

A few conclusions for an adequate investment promotion policy result from this. Investments are, in connection with technological advances, a requirement for medium-term growth, an increase in productivity, and with that, an increase in real income level. In order to overcome current unemployment, investments are only suitable, however, if an adequate expansion of demand follows at the same time. With the abandonment of a demand policy or even with the limitation of the demand for the consolidation of the public budget, an investment promotion leads instead to an increase in redundancy unemployment.

A promotion of private investment is also viewed such that through the budget consolidation policy, the government falls back on private savings to a lesser extent, and that the interest rates decrease as a result. In such claims, which are often found in the literature and political discussions,[6] perhaps the most serious mistake in microeconomic theory is expressed, as I have tried to show in other publications.[7] Such statements are based on the idea that the economic capital supply will be limited by the amount of voluntary ex ante-savings. One speaks of a capital shortage, of the migration of capital into foreign countries, the necessity of promoting savings and reducing the taxation burden of the savings.

A look to the happenings in reality shows however, that such statements contain an unsuitable microeconomic savings and investment theory. Macroeconom-

[6] A current example is the study of the by the 10er-Gruppe (G7) (1995).

[7] See: Oberhauser (1988) and (1995a).

ically, private savings (S_{pr}) are always identical with the sum of private net investments (I_{pr}^{n}), national debt (Kr_{st}), and the balance of current account (X-M) is:

$$S_{pr} = I_{pr}^{n} + Kr_{st} + (X\text{-}M)$$

This equation says nothing however, about causal connections. The interest rate is not the price which balances the ex ante-savings and the demand for investment resources. The private savings adjust to a larger extent through changes in the income distribution in the demand for investment resources. Interest rate level changes simply modify. These adjustment processes appear above all in changes in the level of the profits, especially the retained profits. Always when the prices increase faster or slower than the increase in costs, an adjustment of savings is connected with changes in the profit quota.

Such occurrences can be observed to a quantitatively important extent in all countries.[8] Therefore, for example, the previously mentioned large increase in surpluses on current accounts in the 1980s in West Germany did not lead to a crowding out in private investments but instead stimulated these considerably. The adjustments of private savings resulted from a decrease in the wage quota of about 5% and a corresponding increase in the profit quota. If these adjustments did not occur, an economy could also not manage to get itself out of an economic crisis through additional foreign demand or additional investments.

Because of these adjustment processes, most statements regarding the crowding out of the national debt are not suitable. At least in recessive phases and with a non-restrictive monetary policy, the public debt does not at all displace private investment. Consequently, the expansive credit-financed demand policy of the state can contribute to a better utilisation of the macroeconomic production potential and to a reduction in unemployment. The private investments are also stimulated in this manner, while pro-cyclical fiscal policy reduces them due to reasons mentioned previously.

I can not write in greater detail about the employment possibilities of such a demand policy, the adequate means, and the requirements for their successful implementation in this context. Through the omission of such a policy, the state contributes to the giving away of large sums of a potential national product, to higher unemployment, and to wasted opportunities for a budget consolidation.

Various reasons are responsible for the failure of a national debt policy. So it is no longer questioned, as already mentioned, how an increased budget deficit

[8] The Bundesbank (1996b), pp. 59 for example in its study 'Die mittelfristige Entwicklung der Finanzierungsverhältnisse in den wichtigsten Industriestaaten' completely ignores the adaptation processes for saving and interprets the current account balance as a result of savings surpluses and deficits.

would affect the public sector macroeconomically and fiscally. Much more often one proceeds from the situation of the individual regional administrative bodies, and one does not distinguish between the different types of national debt. It is claimed in an illogical argument that one accepts the cyclically caused deficit as the balance for the reduction of tax revenues and the increased expenditures for the unemployed, but at the same time, would like to limit the structural deficit from the earlier periods. The intellectual division of the deficit is not, however, decisive for the economic effects, but rather for its demand effects altogether. It is also not considered that anti-cyclical effects can only be achieved if the demand effects exceed the cyclically caused deficits. For such an anti-cyclical debt, by and large, a debt paradox applies.

However, this applies only for the state as a whole, not for the individual regional administrative bodies who incur this debt.[9] The debt paradox is created in that out of the multiple increased revenue, the state receives additional revenue to such an extent that it incurs additional debt.[10] Microeconomic dealings of the regional administrative bodies negate these connections.

Partly responsible for the rejection of an anti-cyclical fiscal policy is also the idea that future generations will be burdened by the national debt. This is not true in real terms – at least in the case of domestic debt – and if a crowding out does not occur. Interest and possible redemption payments which are financed out of tax revenue, do not take away any goods from the private sector, but rather, simply cause changes in the revenue distribution. Therefore, negative effects arise from the public debt predominantly with respect to their distribution effects.[11] However, if there is a relative increase in the national product through borrowing by the government when there is unemployment, then all sectors of the economy are better-off even if to different degrees. Thus, public debt is above all, to be rejected for a fully employed economy. In this phase, the consolidation efforts must be put into place.

What stands in the way of that however, is that governments and parliaments, according to the present experiences, usually only find the energy to effectively limit the expansion of the public expenditure during a recession, under the pressure of lower tax revenue. But even if the decisions about that are made during this economic phase, it does not mean that one must abstain from anti-cyclical policy, or even that one must carry out a pro-cyclical fiscal policy. Demand policy should be carried out predominantly with measures that do not lead to long-term expenditures.

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[9] See: Oberhauser (1985) and Scherf (1985).

[10] See: Scherf (1994).

[11] See: Oberhauser (1995b).

On the whole, it is demonstrated that it is not only the failure of the politicians which explains and determines the worsening of the employment situation. They are not the only ones who negate the macroeconomic setbacks. They could also call upon the majority of the economists who appear to offer them a justification with their microeconomic, supply-oriented models. The assumptions of higher real wages and a given capital supply are thereby the most significant inadequacies. The arguments remind one of the world economic crisis, in which the government also contributed to an intensification of unemployment through its pro-cyclical fiscal policy. The attempt to follow the Maastricht criteria strictly, without consideration of the economic situation, puts the European unification process at risk.

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Ecological Tax Reform – A Route to More Employment?

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A. Introduction

At present, the political agenda in most industrialised countries is shaped by three problems. Unemployment, notably in Europe, persists at high levels. Public budgets are tight and almost each and every expenditure item is under reconsideration. Moreover, there is growing awareness that environmental pollution needs to be addressed more seriously than in the past. For a long time, environmentalists and economists have advocated policy intervention to tackle environmental problems. The call for a comprehensive set of measures was not extremely popular, however, until it was suggested that an *ecological tax reform* might yield benefits in addition to increases in environmental quality. In particular, advocates of an ecological tax reform postulate that the revenue obtained through environmental taxation can be used to reap secondary benefits in the form of a more efficient tax system and/or more employment. Political pressures preclude the use of environmental tax proceeds to enlarge already oversized government budgets. For this reason the notion of an ecological tax reform is now mainly defined as the *revenue neutral substitution of environmental taxes for other taxes.*

Our paper addresses the question of whether such a revenue neutral ecological tax reform can achieve the two goals of serving the environment and alleviating unemployment. The popular environmental literature suggests that both goals can indeed be realised.[2] Serious theoretical investigations have to take the *microeconomic incentives* associated with taxation and changes in the tax structure into

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[1] We are grateful to Gerold Blümle, Theodor Dams, Hans-Hermann Francke, Oliver Landmann, Jochen Michaelis and Bernd Raffelhüschen for critical comments and helpful suggestions.

[2] This literature is backed by studies based on short-run macroeconomic models and educated guesswork (e.g. Kommission der EG (1991), DIW (1994), Görres et. al. (1994)). See Koschel and Weinreich (1995) for a survey.

account. With a few notable exceptions[3] serious research is rather recent dating back to papers by Pearce (1991) and Oates (1993).[4] Recent research has almost entirely focused on the welfare implications of an ecological tax reform. This research is well-documented in a survey by Goulder (1995). The employment effects of an ecological tax reform – though of prime interest in the popular political debate – have been analysed mostly as a sideline.[5] Our paper takes stock of this literature and then turns to analyse the effects of an ecological tax reform in the more realistic setting of labour markets with unemployment resulting from union power.

The structure of the paper is as follows. Section B introduces the idea of an ecological tax reform and several forms of its possible benefits. We show that popular prejudices about multiple benefits of such a reform seem to be grounded in naive partial equilibrium analysis, which, however, is an inadequate tool to study an issue which involves major repercussions between markets. In section C we therefore turn to the general equilibrium literature and review the results derived from competitive models. Section D introduces unemployment and addresses the effects of an ecological tax reform in a bargaining-model of the labour market. The limitations of our analysis are discussed and some lines for further research are outlined. Section E contains our conclusions.

B. Insights from Partial Equilibrium Analysis

I. The Green Dividend

The standard textbook argument for green taxes is most conveniently presented by means of a diagram dating back to Turvey (1963). Consider figure 1. The downward-sloping curve depicts private marginal benefit (PMB) associated with the consumption of good D. Private marginal benefit is defined as the excess of the market price over private marginal production costs. Assume that the consumption of this good pollutes the environment and for that reason leads to social costs. The horizontal curve (MEC) depicts the marginal external costs associated with its consumption. In the absence of government intervention, a private market economy realises the inefficient production and consumption level D_M where the private marginal benefit curve hits the horizontal axis.

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[3] See the seminal papers by Sandmo (1975), Ng (1980) and Lee and Misiolek (1986).

[4] The working paper version of Oates (1993) was circulating in 1991. See Oates (1995) on the evolution of ideas.

[5] Bovenberg (1995) assesses this literature.

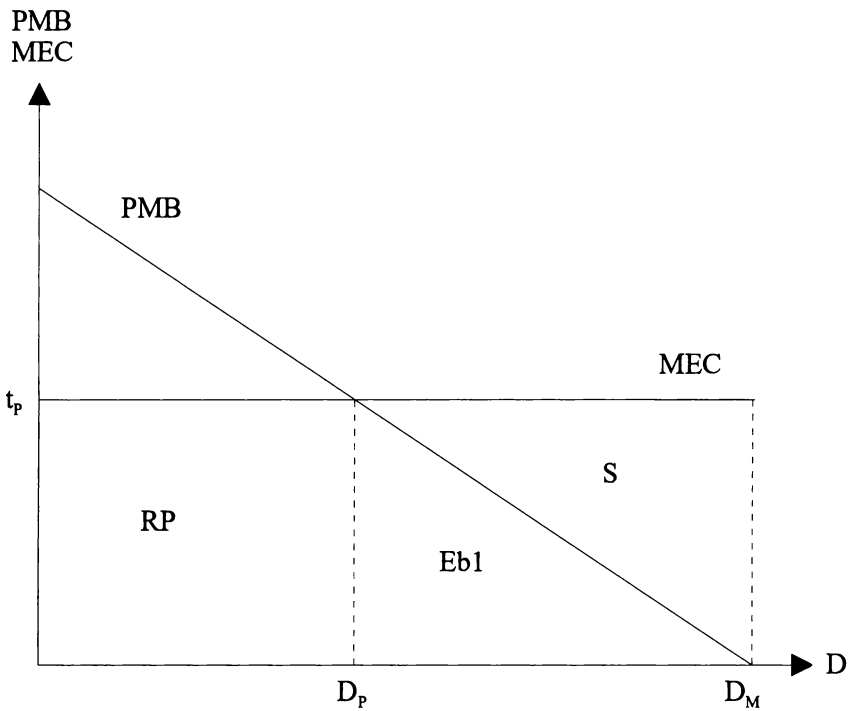

Figure 1: The First (Green) Dividend of an Ecological Tax Reform

As noted by Pigou, this market failure can be cured by introducing an environmental tax (t_D) which confronts the polluters with the full social costs of their activity. The first-best optimum in this partial equilibrium framework is to raise the tax up to a level such that private marginal benefits and marginal external costs coincide. As shown in figure 1, the resulting allocation, given the first-best Pigouvian tax ($t_D = t_P$), leads to an equilibrium level of consumption and production D_P. Note that the introduction of this tax has three effects which can be visualised by means of figure 1. The gross social welfare gain – i.e. the optimal reduction of the externality which may be called the "first" dividend, or alternatively the "green" dividend – associated with this Pigouvian tax is given by the areas S plus Eb_1 underneath the social marginal damage curve. Net social welfare, however, increases by less, because of private adjustment costs in the form of a socially optimal reduction of private consumption. Private adjustment costs – the burden imposed on consumers and producers in terms of reduced consumer's and producer's surplus – is given by the area Eb_1. The net social welfare gain therefore consists of the area S. Finally, the government collects the proceeds

from the environmental tax which are given by the rectangle $R_P = t_P D_P$. Standard textbooks typically do not enter into a discussion about what could and should be done with the tax revenue. A typical assumption is that these tax proceeds are rebated to households in lump-sum fashion.[6]

Real world counterparts to the PMB-curve and the MEC-curve are obtained by estimating the costs and benefits associated with a particular economic activity. The practical difficulties involved are usually quite formidable. Accordingly, estimates of the social gains of taxation obtained by cost-benefit analysis are typically very uncertain. A case in point – in fact the case, which is at the core of recent discussions – is the debate about global warming and the option of a carbon dioxide tax. Empirical research on the external costs associated with CO_2-emissions has produced widely differing estimates.[7] Uncertainties about the magnitudes of the environmental benefits of green taxes have therefore been a major stimulus for research on the possibility of additional (non-environmental) benefits associated with the introduction of green taxes. As Goulder (1995, p.158) points out, policy makers are in a better position to advocate environmental taxes or tax swaps if they can point to secondary benefits rather than "... be involved in the messy business of comparing (uncertain) environmental benefits with the economic costs."

II. Double Dividends and Employment Effects

Does a revenue neutral substitution of environmental taxes for labour taxes yield benefits in addition to improvements in environmental quality? The "double dividend"-hypothesis claims that the tax revenue can indeed be used to increase social welfare over and above the first dividend. Following Goulder (1995) we can distinguish two forms of the double dividend hypothesis in the literature:

- The *weak form of the double dividend hypothesis* argues that the secondary (non-environmental) welfare benefit is higher, if the tax revenue is used to reduce a distortionary tax rather than rebating the revenue in lump-sum fashion. The idea is clear enough and not disputed in the literature: a distorting tax, by definition, involves an excess burden. Using the proceeds from environmental taxation to reduce this distortionary tax rather than rebating the revenue lump-sum yields an additional benefit in the form of a reduction in the excess burden.[8]

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[6] Standard textbooks typically rule out income effects associated with this tax rebate.

[7] See the symposium in the Journal of Economic Perspectives 1993.

- The *strong version of the double dividend hypothesis* makes the far stronger claim that the environmental tax can be used to reduce the total excess burden of the tax system – including the private adjustment costs – i.e. the excess burden in the form of lost consumer's and producer's surplus – associated with the introduction of the environmental tax. The strong version is the real issue in the academic debate.

These definitions indicate that the literature on the double dividend issue was mainly concerned with the question of social welfare gains – in the sense of a reduction of the overall excess burden of the tax system – rather than with the more specific question of the employment effects. Closer scrutiny reveals, however, that the issue of a strong double dividend and the question of the employment effects are intertwined. This can be illustrated by means of a simple labour market diagram (Gottfried and Wiegard, 1995). Consider figure 2 which has the real producer wage (W/P) on the vertical axis and labour (N) on the horizontal axis. Labour demand is given by the downward-sloping curve N_D and labour supply by the upward-sloping curve N_S. If the government refrains from intervening in the labour market, equilibrium employment is at the level N* where labour demand and labour supply intersect.

If the government imposes a proportional tax t_L on wage income in order to finance its expenditures, equilibrium on the labour market is given at N_{tL} rather than at N*. The tax drives a wedge between what firms pay and what households get. Unless labour supply is completely inelastic, this tax leads to an excess burden given by the triangular area (Eb_2+Eb_3) in figure 2.[9] Suppose now that the proceeds from the Pigouvian tax are used to lower the labour tax from t_L to $t_{L'}$. Figure 2 predicts that this reduces the excess burden in the labour market by the area Eb_2 and stimulates employment, so that the new equilibrium employment is at $N_{tL'}$ rather than at N_{tL}.[10] This simple partial equilibrium analysis suggests that there is a strong double dividend if the reduction of the welfare distortion in the labour market (area Eb_2) is larger than the new distortion (Eb_1) associated with the introduction of the Pigouvian tax, and that there is an employment stimulus at the same time. Does this prove the claims made by environmentalists? Recent

[8] Note that the "weak version" focuses solely on the differential impacts of rebating a certain amount of tax revenue in one way or another without questioning the welfare losses associated with the imposition of taxes to gain this revenue.

[9] This measure of the excess burden is exact when labour supply is compensated in the Hicksian sense.

[10] The employment reaction is given along the Marshallian (uncompensated) labour supply curve. Our analysis implicitly assumes that utility is quasi-linear, so that there are no income effects on labour supply, and the compensated and uncompensated curves coincide.

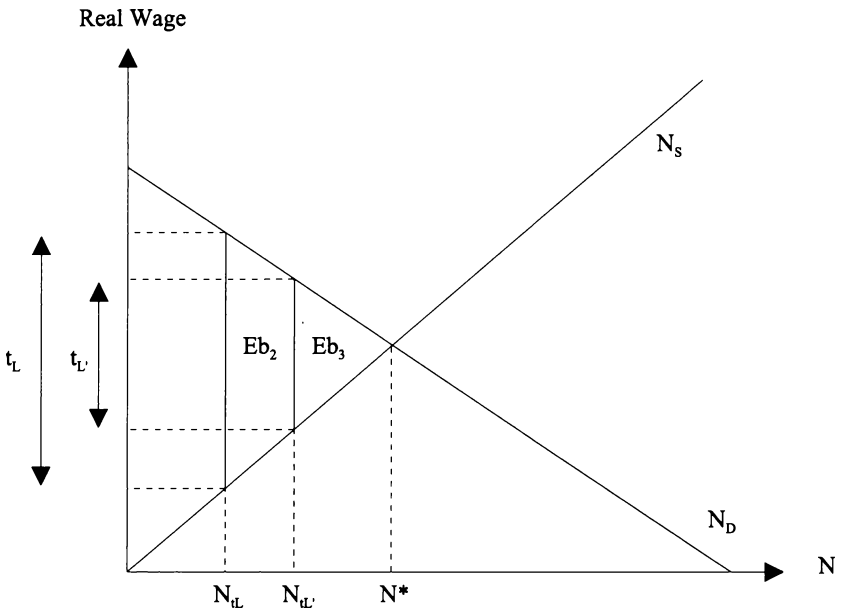

Figure 2: A Strong Second Dividend?

research on the strong double dividend hypothesis shows that such a conclusion is grossly wrong. Partial equilibrium analysis is ill-suited to handle the issue of an ecological tax swap which takes place in a second-best world and which involves price and tax interactions in a variety of markets.

C. The General Equilibrium Perspective

Full-scale general equilibrium modelling is the adequate tool to analyse the double dividend issue. Early work has abstracted from market imperfections apart from tax distortions. In their seminal paper, Bovenberg and de Mooij (1994a) strip down the problem to a model with three private goods: a clean good, a dirty good and leisure (labour). The important insight that these authors arrive at is that there is no strong double dividend and that the employment effect of an ecological tax reform is negative.[11] This is because an ecological tax reform

[11] This insight extends to more general settings. See Bovenberg and de Mooij (1994b), Bovenberg and Goulder (1995, 1996), Bovenberg and van der Ploeg (1994a), Parry (1995) and the survey by Goulder (1995).

which substitutes green taxes for labour taxes in a revenue neutral fashion leads to two interrelated distortions which reduce non-environmental welfare, i.e. increase the total excess burden in an economy. First, the preexisting distortion in the labour market is increased because the tax on the dirty consumption good increases the consumer price level and reduces the after-tax wage. This negative effect on the after-tax wage is typically stronger than the beneficial effect derived from the labour tax reduction on the after-tax wage as we will explain shortly. Secondly, the green tax on dirty good consumption involves a (non-environmental) excess burden in the goods market because consumers shift their expenditures towards clean goods. This is of course desirable from an environmental perspective but it nevertheless involves non-environmental welfare losses (area Eb_1 in figure 1 is indicative). Moreover, these two types of distortions are connected, because the size of the after-tax wage reduction depends on consumers' reaction in the goods market: the stronger the substitution effect in the goods market, the smaller the green tax base and the smaller therefore the wage tax reduction given an exogenous government revenue requirement. The analytical proof for this result given by Bovenberg and de Mooij (1994a) involves a straightforward if somewhat messy comparative static tax reform exercise. We prefer to illustrate the logic of their result in a more intuitive way by drawing on the following figure.[12]

Figure 3 reproduces the labour market diagram. The initial tax wedge derived from the labour tax t_L is given by the distance AA'. Consider the effect of the introduction of a non-infinitesimal (large) green tax on commodity D first.[13] If units are chosen such that producer prices of clean and dirty goods are identical and given by P, the consumer price level is raised from P to P(1+s) where s is the average tax rate on goods.[14] The consumer after-tax wage is given accordingly by $(1-t_L)W/(1+s)P$ inducing a new tax wedge BB' in the labour market. The excess burden in the labour market imposed by the green tax is non-infinitesimal: the trapezoid AA'BB' is "tall" in the terminology of Oates (1995, p. 917). The proceeds from the green tax can be used to reduce the labour tax rate. The large green tax distorts the goods market as well: unless the (compensated) demand for the dirty good is completely inelastic, consumers will switch from dirty to clean goods. This switch involves an excess burden in the product market as claimed above and it erodes the tax base.[15] Because of this tax-base erosion, the feasible

[12] Our analysis is inspired by the verbal exposition given by Goulder (1995) and the graphical exposition of Parry (1995).

[13] Contrary to our exposition, Bovenberg and de Mooij (1994a) start their tax reform exercise from a positive level of the green tax.

[14] The average tax rate s reflects the tax rate t_D imposed on dirty goods and a tax rate of nil on clean goods, as well as the budget shares of the two types of goods.

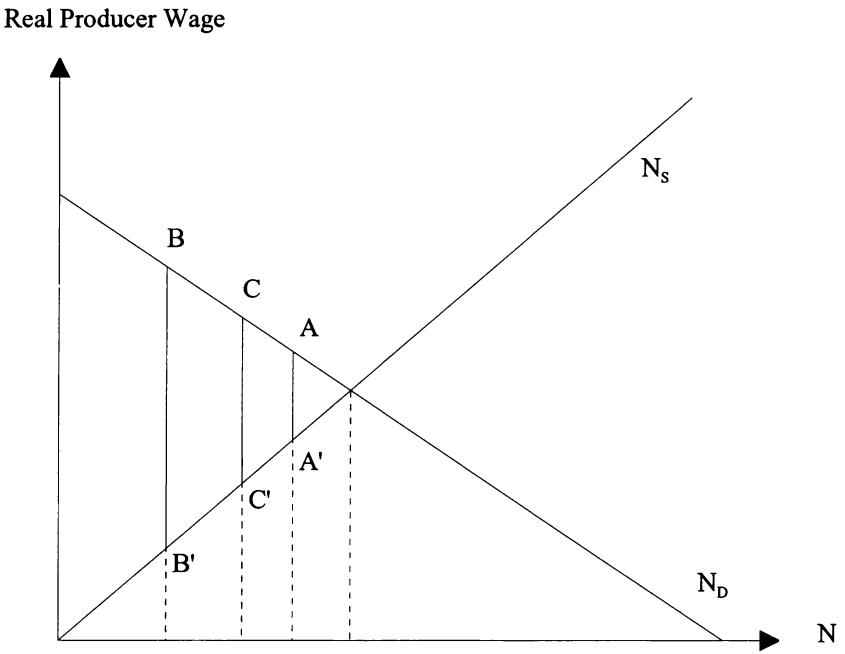

Figure 3: No Strong Second Dividend!

reduction in labour taxes will typically not be large enough to offset the reduction of the after-tax wage induced by the green tax.[16] The final tax wedge is given by CC' and the employment reaction is negative in this case. This illustrates the claim by Bovenberg and de Mooij (1994a) that there is no double dividend – and a negative employment reaction – if the tax reform involves a non-infinitesimal green tax.

The result derived by Bovenberg and de Mooij (1994a) is important on two grounds. It demonstrates how dangerously misleading partial-equilibrium analyses are and it directs our concern again to the green dividend of an ecological tax reform. It would be premature, however, to conclude that the investigation of the

[15] Note that there is no such tax-base erosion if a marginal green tax is introduced: such a marginal tax leaves the goods market undistorted. The introduction of a large green tax, or, alternatively, the increase of a green tax starting from a positive initial level as in Bovenberg and de Mooij (1994a), distorts the goods market and therefore leads to a tax-base erosion.

[16] The argument relies on an upward-sloping labour supply curve.

likely secondary effects of an ecological tax reform should be stopped at this stage, because the analyses reviewed so far are based on the assumption of competitive labour markets which is a simple theoretical starting point but not compatible with our contemporary experience.

D. Unemployment

I. From Exogenous to Endogenous Real Wage Rigidity

Unemployment is a notorious problem in most countries. Yet the academic literature on green tax reforms has only recently started to take labour market frictions into account. Some early papers, e.g. Bovenberg and van der Ploeg (1993, 1994a, 1994b, 1996), are based on the assumption of an exogenously given rigid real wage which lies above the market clearing level and results in unemployment.[17] These analyses typically yield the result that a revenue neutral ecological tax reform leads to more unemployment since emission taxes lower the marginal product of labour and therefore labour demand. The assumption of exogenously given rigid real wages can, however, be seen only as a first approximation to the problem. The literature has therefore turned to analyse ecological tax reforms in models where wage formation and unemployment are endogenous. Contemporary employment theory teaches us that high European unemployment is best explained by union power (Layard, Nickell and Jackman, 1994).[18] The standard labour market model accordingly interprets wages and unemployment as the result of a bargain between firms and trade unions (Layard, Nickell and Jackman, 1991; Carlin and Soskice, 1990).

In the following we analyse the consequences of an ecological tax reform using such a bargaining model of the labour market.[19] Our analysis is inspired by Koskela and Schöb (1996). However, we have a slightly different – more general –

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[17] See the survey by Bovenberg (1995) and the contributions in Carraro and Siniscalco (1996).

[18] This is of course not to deny that the unemployment problem has many facets. In contrast to union power they are of minor importance, however.

[19] Koskela and Schöb (1996), Brunello (1996), Bayar (1996) and Carraro/Galeotti/Gallo (1996) analyse the employment effects of an ecological tax reform drawing on such a labour market model. Brunello (1996), Bayar (1996) and Carraro/Galeotti/Gallo (1996) fit this bargaining framework into larger computable general equilibrium models which allows them to obtain the numerical results of tax experiments. Strand (1995, 1996) and Schneider (1996) study employment effects of an ecological tax reform in efficiency wage models.

framework than theirs in mind. First, we think of bargaining taking place at the sectoral level, between sectoral monopolists and sectoral trade unions, whereas Koskela and Schöb consider bargaining at the national level (one national trade union, one competitive firm). The national bargaining model is useful to describe Scandinavian labour markets. A priori it seems to be an ill-suited instrument to characterise other European labour markets such as the German labour market.[20] Grounding the analysis in a sectoral bargaining framework allows us to exploit the familiar price setting – wage setting apparatus of Layard, Nickell and Jackman (1991) as a graphical device.[21] Moreover, we consider consumption externalities as well as production externalities, whereas Koskela and Schöb (1996) only take account of the former. The following section sketches the labour market model and then turns to the employment effects of an ecological tax reform.

II. Ecological Tax Reform in a Simple Bargaining Model of the Labour Market

1. The Bargaining Model

The essence of the standard price setting – wage setting model of the labour market is captured by the following diagram (see figure 4) which has the real producer wage on the vertical axis and the employment rate on the horizontal axis. Labour supply of households is given by the vertical curve N_S. Aggregate labour demand by firms is given by the curve PS. This curve, which is often termed the aggregate pricing rule (PS in abbreviated form), relates the price wage mark-up to the employment rate. If the elasticity of demand and marginal costs are constant, the price set by sectoral monopolists is a constant mark-up on marginal costs. Therefore, in symmetric equilibrium where all firms face an identical share of aggregate demand, employ an identical portion of workers, face an identical wage rate and set identical prices accordingly, the aggregate pricing schedule is horizontal as depicted in figure 4.

Crucially, in this model, the labour market outcome is not determined by the intersection of aggregate pricing (aggregate labour demand) and labour supply by households. Wages are set on sectoral labour markets as a result of a bargaining process between the sectoral monopolists and sectoral trade unions. The ag-

[20] Our analysis will reveal, however, that the qualitative implications of the national bargaining framework coincide with those of the sectoral bargaining model.

[21] Our modelling of the wage setting process is similar to the description in Brunello (1996). Brunello, however, fits his bargaining framework into a larger scale general equilibrium model rather than into the Layard-Nickell-Jackman- framework.

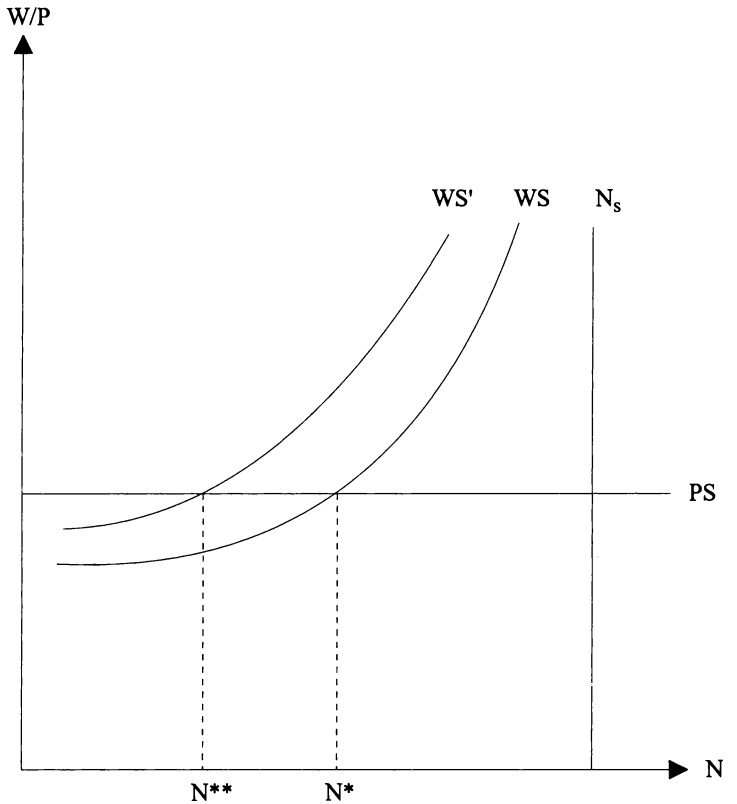

Figure 4: The Wage Setting – Price Setting Model

gregate wage setting curve (WS in abbreviated form) represents the real (producer) wage which emerges at any employment level from the interaction of wage bargaining processes at the sectoral level (ignore the curve WS' for a moment). Each sectoral trade union derives utility from sectoral employment (N_i) and from the excess of the sectoral real wage (W_i/P) over an outside option – often termed fallback position or alternative utility – which is available to union members who become unemployed. For a sectoral union this fallback position is exogenous. In general equilibrium, however, the outside option is endogenous. Conventionally, it is assumed that the fallback position is a weighted average of the real wage obtainable in the alternative sectors of the economy and unemployment benefits (Carlin and Soskice, 1990). In symmetric (wage-setting) equilibrium where all sectoral wages are equal, we obtain the aggregate wage setting equation. The aggregate wage setting equation describes a negative relationship

between the real wage and the unemployment rate, and lies to the left of the labour supply curve. Intuitively, higher wages can be achieved by trade unions in the bargaining process if the employment situation of union members is more favourable. This aggregate wage setting equation has two properties: for low values of the employment rate it asymptotically approaches a horizontal floor and there is an upper bound for the employment rate at which this curve becomes vertical. The equilibrium rate of employment is jointly determined by the aggregate pricing equation and the aggregate wage setting equation. The difference between labour supply and the equilibrium rate of employment is the equilibrium rate of unemployment. This rate can be interpreted as the rate of employment (or unemployment) which balances the competing real income claims of firms and trade unions (Landmann, 1989).

2. *Comparative Statics: Unemployment Benefits and Wage Taxes*

How does the equilibrium rate of employment react to a variation in real unemployment benefits and to the introduction or variation in the labour tax? The comparative static properties of this model are of prime interest for reflections concerning the employment effects of an ecological tax reform, and we will review them in this section.

An increase in real unemployment benefits leads to an increase in the bargained real wage and shifts the aggregate wage equation to the left from WS to WS' as depicted in figure 4. As a result, the equilibrium rate of employment decreases from N* to N** and the equilibrium unemployment rate increases accordingly (see Figure 4). The intuition for this is straightforward. An increase in real unemployment benefits improves the fallback position of trade unions. As the outside option, which is relevant for those who become unemployed, is more comfortable, trade unions are in a better bargaining position and can achieve higher wages in the bargaining process at every employment level. In general wage setting – price setting equilibrium this results in lower employment.

Turn to the analysis of wage taxes and suppose the government levies a proportional tax t_L on wage income.[22] Consumer j's income is therefore $W_j(1-t_L)$ in case she is employed. Taxation of wage and unemployment income leaves the aggregate pricing equation (PS) unaffected. This is intuitively plausible because wage taxes do not affect a firms' profits and therefore play no role in the optimal pricing decision of firms. The bargaining problem, in contrast, is affected by

[22] See Holmlund (1989) for an analysis of income taxes in the national bargaining variant of this model.

wage taxes, because unions care for their members' net wage. In order to obtain the same real consumer wage as before the introduction of wage taxes, trade unions will demand a higher before-tax wage. This has the consequence that the aggregate wage equation will shift to the left – similar to the case of an increase in unemployment benefits depicted in figure 4 – with the result that the equilibrium employment rate decreases. Reducing the government's tax claim has therefore been suggested as a political means to reduce unemployment (Landmann, 1989). However, if unemployment benefits B are taxed – which is not the case in Germany but in some other European countries (Koskela and Schöb, 1996) – and in particular, if this is done at the same proportional rate as wage income, there will be no effect on the aggregate wage equation. This is intuitively plausible because taxation of wage income and unemployment benefits lowers the fallback level as well. These fairly standard results of the price setting – wage setting model can be summarised as follows. The unemployment rate can be reduced either by cutting unemployment benefits (B) or by reducing the government's income claims through lowering the wage tax (t_L) in case unemployment benefits are untaxed. If unemployment benefits are taxed at the same rate as wage income, there is no effect on wages and employment.

In order to be able to examine an ecological tax reform in our model, the model has to allow for activities that are associated with negative environmental externalities. We will introduce consumption and production externalities one after the other in the following paragraph.

3. Ecological Tax Reform: Consumption and Production Externalities

Consumption externalities are introduced in the following manner into the model. We assume that some of the goods produced by sectoral monopolists are "dirty" in the sense that their aggregate consumption causes pollution or congestion which has a negative welfare effect on a consumer's utility. In line with most of the literature we assume that the aggregate consumption of the dirty good enters in additively separable form in the consumer's utility function.[23] If the government imposes a green tax t_D on the consumption of the dirty good, the consumer's after-tax wage is given by $W(1-t_L)/P(1+s)$ where s is the average tax rate on goods as in section C. This modification of the consumer's budget constraint leaves the aggregate pricing equation unaffected. Not surprisingly, the ag-

[23] This separability assumption is widely employed in the literature on ecological tax reform and in the environmental literature in general. It has the strong implication that externality considerations do not affect the labour market outcome directly (labour market outcomes are only affected via government regulation).

gregate wage equation remains unaffected, too, for the simple reason that the increase in the consumer price level leaves the relative attractiveness of working in a sector, working in the general labour market or getting unemployment benefits, unaffected.

The employment effect of a revenue neutral substitution of the proceeds from the green tax for the wage tax is now straightforward to describe. Suppose that unemployment benefits are untaxed. In this case there is a positive effect on employment, which derives from the reduced income claims of the government, whereas the introduction of green consumption taxes remains neutral. The aggregate wage equation shifts to the right from WS to WS', and employment increases from N* to N** (see Figure 5). If, however, unemployment benefits are taxed and if the tax rate coincides with the wage tax, there will be no effect on the equilibrium unemployment rate.

Our next step is to introduce production externalities into the analysis. Suppose that the production of all goods is associated with pollution and that the aggregate level of production in addition to the aggregate level of consumption of dirty consumption goods has a negative effect on consumers' utility. Suppose, furthermore, that the government levies a green production tax t_P on labour input.[24] This raises marginal costs of firms. The wage paid by profit maximising firms, is now lowered. The aggregate pricing equation is shifted downwards from PS to PS' if a green production tax is introduced as shown in Figure 6. The employment effect which derives from taxation of production is, ceteris paribus, negative. The wage setting locus is unaffected by the green production tax.[25] However, rebating the tax revenue by lowering income taxes shifts the wage setting curve out to the right from WS to WS' when unemployment benefits are untaxed, as is the case in Germany. The ultimate employment effect of an ecological tax reform substituting green production taxes for income taxes is ambiguous. In Figure 6 we assume the case where the positive employment effect deriving from the WS-shift is stronger than the negative effect associated with the downward shift of the PS-curve, so that employment increases from N* to N**.

Turning to the overall analysis of an ecological tax reform in the sense of a revenue neutral swap of green consumption and production taxes for income taxes, we conclude that the employment effect of such a tax reform is ambiguous. The introduction of green consumption taxes and the reduction of wage taxes have favourable employment effects if unemployment benefits are untaxed. The intro-

[24] It might be more intuitive to tax output rather than labour input. As the qualitative implications are the same in this one-factor framework, we have chosen to work with the more convenient specification.

[25] This result is familiar from analyses of payroll taxes in the bargaining model. See Holmlund (1989).

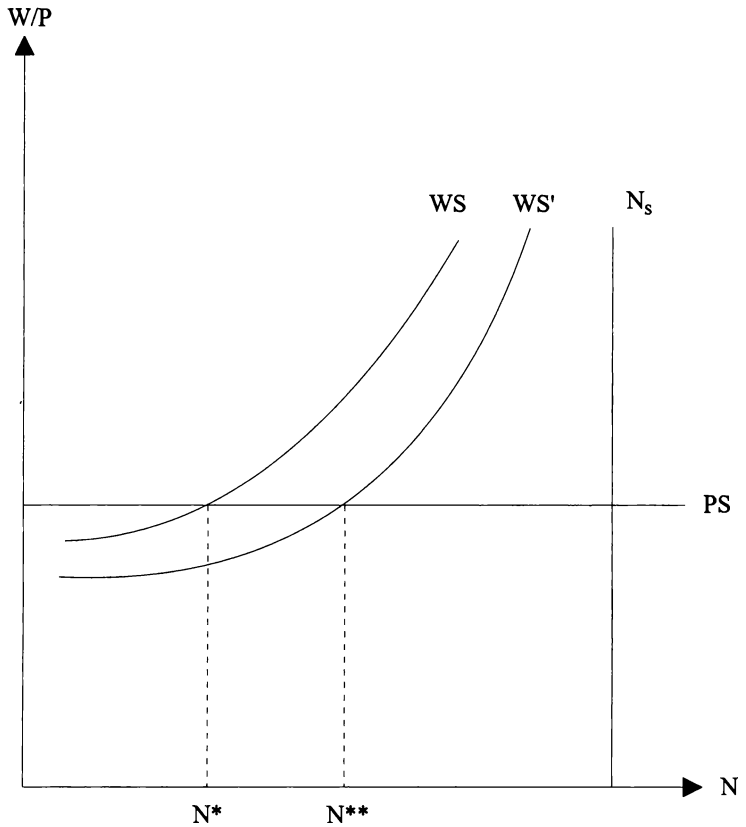

Figure 5: Substituting Green Consumption Taxes for Income Taxes

duction of green production taxes has negative employment effects but rebating the tax revenue through lower income taxes moderates wage demands in case that unemployment benefits are untaxed which stimulates employment. The final impact on employment is ambiguous.

4. Reflections on the Green Dividend and on the Robustness of Results

The simple bargaining model of the labour market yields the result that a revenue neutral ecological tax reform has positive employment effects if it involves a substitution of wage taxes for green consumption taxes and if unemployment

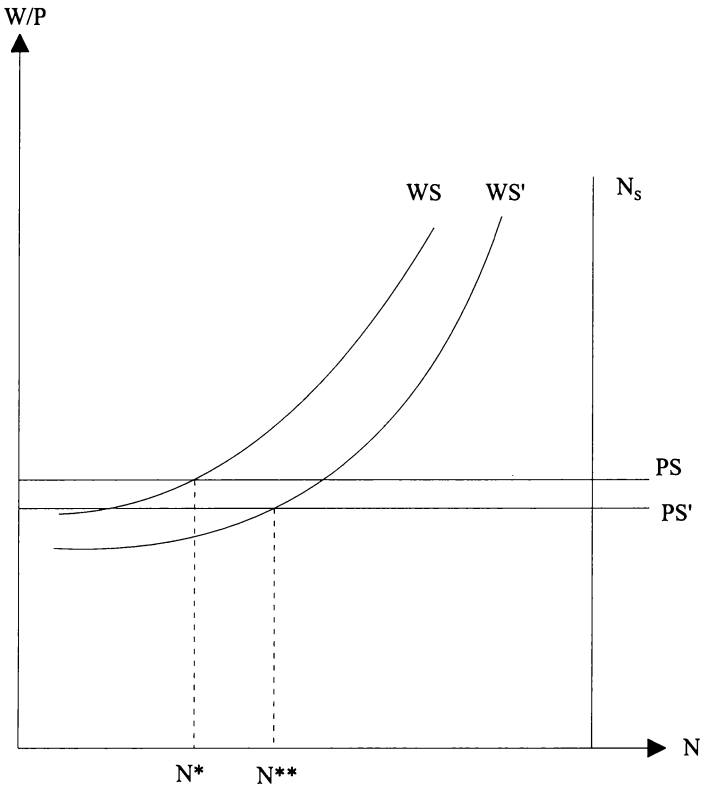

Figure 6: Substituting Green Production Taxes for Income Taxes

benefits are untaxed – which is the case in Germany, – whilst the introduction of green production taxes through their effect on the marginal costs of firms has negative employment effects. How about the *green dividend* and the overall welfare effect of an ecological tax reform in the presence of unemployment? Our simple aggregated model gives an ambiguous answer: Should such a reform succeed in increasing employment, there will be more real purchasing power and therefore more production leading to higher environmental damage. This negative effect on the environment is reinforced if the dirty good is a normal good whose consumption increases when income goes up. On the other hand, there is a substitution effect working to the benefit of the environment: consumers substitute goods which are clean in consumption and untaxed for goods which are dirty in consumption and taxed. Imagine that the numbers of varieties in our simple model is determined by a long-run zero profit condition. An ecological tax reform increases the relative consumer price of dirty goods and leads to demand

substitution effects. As a result, the production of dirty varieties gets less lucrative and clearly involves a shrinking of the number of dirty varieties and an increase in the number of clean varieties.[26] The overall environmental impact of an ecological tax reform which is successful in employment terms depends on the relative strength of substitution and income effects and on the pollution intensity of production. The overall *welfare* effect of an ecological tax reform is ambiguous, too. From an aggregate perspective, an increase in employment clearly is to the benefit of society. However, if this is associated with more environmental damage and if society attaches high priority to environmental quality, the positive employment effects might be compensated by the welfare effects of environmental degradation.

These results have to be seen in perspective, however, because our simple model leaves out the possibility of *factor substitution* stressed by proponents of an ecological tax reform. Suppose we allow that goods are produced with a set of factors, some polluting, some clean. Correcting environmental externalities through green consumption taxes or green factor taxes then induces an indirect demand shift (in addition to the direct demand shift associated with a change in the relative consumer price induced by green consumption taxes) to the sector which produces clean goods. Such a demand shift could reduce unemployment if the jobs created in the clean sector outnumber the jobs lost in the dirty sector and could be beneficial to the environment as well.[27] A proper analysis of this mechanism stressed by protagonists of a green tax reform requires a two-sector model at the minimum. Such a two-sector framework would feature the additional advantage over the simple aggregated model that there is a further adjustment mechanism for firms in the face of an ecological tax reform: it would not necessarily be the case that firms producing dirty consumption goods were forced out of business. Instead they could shrink their production levels. Unfortunately, two-sector models of the wage setting – price setting type which are needed for a closer analysis of this question are still in their infancy. A recent paper by Kolm (1996) is suggestive, however. Kolm analyses differentiated payroll taxes and differentiated value-added tax rates in a two-sector model. She obtains the result that changes in the relative tax rates lead to lower unemployment rates if the less competitive sector is taxed higher.[28] Of course, green production taxes and green consumption taxes have a similar impact on the economy as payroll taxes and VAT. Kolm's result can therefore be taken as an indicator for positive employ-

[26] An alternative adjustment mechanism is discussed in the next paragraph.

[27] The proceeds from a green tax could alternatively be used to reduce payroll taxes in case such taxes were levied.

[28] Her model has a number of rather special features, however. It is a one factor-model, production is under constant returns and the replacement-ratio is assumed to be constant.

ment effects of an ecological tax reform if the dirty sector is the less competitive one.

A further issue which limits our results is the *specification of taxes and unemployment benefits*. We have so far worked with the simplistic assumption of a constant proportional tax rate. An interesting extension of the analysis would be to allow for a more realistic description of the tax system. This concerns the issues of tax progression and of non-neutralities in the tax and benefit system. Although the literature on the question of the effects of tax progression on the wage bargain has made progress recently (see Koskela and Vilmunen, 1996 for a survey) it seems fair to say that it does not yet allow for real-world tax structures. There is growing consensus, however, that income tax progression has a moderating influence on wage demands. This is so because the incentive to strive for higher wages is reduced with progressive income taxes. The lesson to be learned is that an ecological tax reform should be carefully designed in order to rule out such a counterproductive effect.

There are further important reasons why we have to consider the results obtained in this paper as preliminary. Our study – like most studies on the ecological tax reform – has focused on national economies. Future studies have to take the *open economy context* into account. Some of the most urgent environmental problems are of a transboundary nature. Furthermore, competitiveness problems and the possibility of capital and firm relocation have to be addressed. Global environmental quality may deteriorate if countries compete for mobile capital by lowering their environmental standards.

Another important strand for further research is the *distribution issue* which of course could not be addressed properly in our highly aggregated model. Our simple model suggests that the welfare effects of a successful ecological tax reform are uneven. An employed person experiences a utility loss: she can maintain her real income but there is a negative effect deriving from higher environmental damage. A person who remains unemployed after the tax reform suffers because of the deterioration of the environment. A person who finds a job experiences a welfare gain because the wage is higher than the unemployment benefits, but suffers from the increase in the environmental damage. Disaggregated models should provide more detailed answers on the identification of the winners and losers of an ecological tax reform. An important issue that has to be addressed is whether compensation for low-income groups can be carefully designed. A solution to this issue is essential for the political support for an ecological tax reform project.

E. Summary and Outlook

This paper has analysed the question whether a revenue neutral ecological tax reform can yield benefits in the form of an employment stimulus over and above the prime aim of internalising the social costs of environmental externalities. Our conclusions can be summarised as follows. Partial equilibrium analysis which seems to lie behind popular beliefs is grossly misleading, as general equilibrium analysis building on competitive labour markets have shown: the revenue-neutral substitution of ecological taxes for labour taxes lowers the real wage, reduces the incentive to work and reduces employment. General equilibrium models of the competitive type, however, are unable to account for the pervasive phenomenon of unemployment. In the main part of this paper we have therefore analysed a bargaining model of the labour market which takes account the phenomenon of unemployment into account. Analysing the effect of an ecological tax reform on employment in such a simple bargaining model with consumption externalities and production externalities yields the result that positive employment effects are by no means ensured. Positive effects depend on the type of externality that has to be corrected and on the structure of the system of taxes and unemployment benefits. Favourable employment effects are only associated with the introduction of green consumption taxes and the reduction of wage taxes if unemployment benefits are untaxed. Given that the theoretical models used so far are at best rudimentary, this conclusion should be taken as preliminary. Our results indicate, however, that claims for an ecological tax reform should rest on environmental rather than employment grounds.

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Exchange Rate Impacts on Japanese Labor Input

Harald Nitsch

A. Introduction

The importance of the exchange rate for Japanese employment is revealed in the great difficulties the Japanese economy had in the presence of a strong yen in the recently overcome depression. A special role in the absorption of shocks - like exchange rate movements - is played by the various degrees of job security of Japanese employees, which can also be expressed by the affiliation to companies in the different positions in the hierarchies of a group (of companies). Here one must differentiate between lifetime employees and peripheral employees, but empirical studies are made difficult in that job security constitutes an implicit aspect of the employer-employee relationship and is therefore not ascertainable statistically.

With all the difficulties in the actual measuring of job security some authors claim that a correlation exists between sex and employment status: the typical lifetime employee is male and employed by a large company.[1] The present study will examine this correlation by estimating the differences in the exchange rate reactability according to sex and therefore employee status. It serves to test the following hypotheses:

- Movements in the exchange rate cause significant shifts in the Japanese labor market.
- The reactability of female employment is relatively higher.

The estimation of labor input on the sectoral level related to exchange rate fluctuations was undertaken for the American labor market - and partly for the Japanese labor market - by Branson and Love (1986, 1988). Detailed empirical work by Brunello (1990) with direct reference to Branson and Love exists for the Japanese labor market. As the samples of these studies end in 1986 or even earlier, effects of the yen hike of 1985 were not or not sufficiently included.

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[1] See for instance Mizuno (1988), pp. 40–42.

Research on the different treatment of male and female employment was undertaken in the studies by Abraham and Houseman (1989) as well as Houseman and Abraham (1993). The elasticity of both types of employment with respect to output fluctuations was estimated using polynomially distributed lags. Both studies are limited to the American and Japanese manufacturing industries.

B. Underlying Model

The model used in this paper is based on Branson and Love (1986), focusing on demand and supply on a sectoral level. The distinction between tradeables and non-tradeables present in Branson and Love (1986) will be dropped in favor of allowing for spillovers of foreign demand from tradeables sectors to the non-tradeables.

Sectoral demand for good x (Q_x) depends on total domestic demand (Y), foreign demand (Y*) and the real exchange rate eP^*/P_x, with P_x as the price of good x:

$$(1) \qquad \ln Q_x = \ln c_1 + d_x \ln(eP^*/P_x) + g_{x1} \ln Y + g_{x2} \ln Y^*$$

with c, d, g constant elasticities.

Sectoral supply is a function of the sectoral real wage:

$$(2) \qquad \ln Q_x = \ln c_2 + s_x \ln (P_x/w_x)$$

with s_x positive and w_x wage in sector x.

From (1) and (2) Branson and Love get the reduced form for sectoral output Q_x:

$$(3) \qquad \ln Q_x = a_0 + a_1 \ln(eP^*/w_x) + a_2 \ln Y + a_3 \ln Y^*$$

It is easily verified that all coefficients are positive.

This setup shall be modified to give an explicit role to supply shocks caused by variations of the real oil price R:

$$(2') \qquad \ln Q_x = \ln c_2 + s_x \ln (P_x/w_x) - h_x \ln R$$

Therefore the new reduced form equation is:

$$(3') \qquad \ln Q_x = a_0 + a_1 \ln(eP^*/w_x) + a_2 \ln Y + a_3 \ln Y^* - a_4 \ln R$$

with a_0, a_1, a_2, a_3 as above and $a_4 = d_x h_x (s_x+d_x) > 0$

The following points about the explanatory variables should be noted: Firstly, the exchange rate will enter on a dollar basis, because there is an expansionary

impact of an appreciation of the domestic currency by lowering the yen price of oil imports. Secondly, as in Branson and Love, the real sectoral exchange rate will be assumed to be exogenous, but it should be noticed that there could be repercussion effects from the nominal exchange rate on nominal wages by import prices and labor demand.

This simple model of sectoral output determination is connected with employment by the production function. In addition, following Shinozuka (1987), a partial employment adjustment mechanism will be implemented.

Output[2] Q should be understood as a desired, optimal level Q^+ to which actual output (and employment) sluggishly adjust.

(3´´) $$Q^+ = f(Y, Y^*, e_{rx}, R_\$)$$

For a Cobb-Douglas production function and a capital stock K_o fixed in the short-run, the log-linear form results:

(4) $$\ln Q^+ = A\ a \ln(N^+) + b \ln(K_0)$$

with A constant and a+b=1

With K_o given $\ln(N^+)$ is proportional to $\ln(Q^+)$, because with $\varphi := A + b \ln(K_0)$ we obtain

(5) $$\ln(N^+) = 1/a \ln(Q^+) - \varphi/a$$

therefore the explanatory variables and the functional form of the estimate equation for N and Q are identical.

N is adjusted to N^+ by the following process:

$$\ln(N_t) = \ln(N_{t-1}) + \delta \ln(N_t+/N_{t-1})$$

(6) $$= (1-\delta) \ln(N_{t-1}) + \delta \ln(N_t+)$$

with the constant adjustment factor δ. Through the insertion of (5) in (6) one obtains

(7) $$\ln(N_t) =(1-\delta) \ln(N_{t-1}) + \delta/a\ [\ln(Q^*) - \varphi]$$

[2] The sectoral index and the time index will be dropped.

C. Empirical Results

I. Estimation of the Number of Employees

1. Estimate Equation

The model set up in section B was estimated for nine sectors of the economy.[3] The employment data were taken from *maitsuki kinro tokei*, the Monthly Labor Survey part A (companies with more than 30 regular employees), which has been conducted since 1944.[4] Included are all industries except agriculture and forestry, fisheries, the civil service, as well as service in foreign governments and international organizations. In this case 'regular employment' refers to a remaining term of the work contract of at least one year and does not allow any (automatic) conclusions about the implicit job security.

Sectoral real exchange rates r_i were calculated according to the formula $r_i = e\, w_i/P^*$, with

e = nominal exchange rate \$/Yen[5]

w_i = wage rate in sector i

P^* = foreign price level (GDP implicit price level of the USA)[6]

The choice of the suitable wage variables is not self-evident because of the specific structure of the Japanese wage system: a significant part of the payments consists of semi-annual bonuses.[7] In choosing the wage rate variable w_i it has to be decided whether the total wage payment - including bonuses - should be used or simply the regular monthly payment.[8] The exclusion of the bonuses would especially decrease the significance of the wage variables if the bonus payments were to vary independently from the regular wage. Studies by Mizuno (1984), however, show that the amount of the bonus payment is closely tied to the regular

[3] See Nitsch (1996), pp. 142ff.

[4] See Management and Coordination Agency (1988), pp. 66ff.

[5] Source: OECD, Main Economic Indicators.

[6] Source: OECD, Main Economic Indicators.

[7] Each in the amount of approximately 3.5 of the monthly wages, see Freeman and Weitzman (1987), p. 171.

[8] *Kimatte shikyusuru kyuyo* is the wage which is paid with respect to the contracts, in contrast to the 'additional' character which the bonus payments have. Wage payments for overtime are therefore in this definition part of the regular payment – which is not to be confused with a base wage.

wage,[9] so that the information loss through the neglect of the bonus payments should be of minor importance. Another, more technical argument is the problem of the temporal inclusion of semi-annual bonuses in monthly time series. Therefore the regular wage was chosen.

The seasonally adjusted logarithmic number of emloyees is estimated by OLS.[10] Explanatory variables are:

1. LTREND: A linear trend.
2. LNWIM: The logarithm of net world imports (excluding Japan). World imports are restricted to SITC classes 5 to 8.[11]
3. LOIPRD85(-4): The logarithmic dollar price of oil with a lag of four quarters.
4. The lagged endogenous variable.
5. PDL1-3: A polynomially distributed Almon-lag of the seasonally adjusted logarithmic sectoral real exchange rate with a lag length of six quarters, a polynom degree of three and a near constraint.[12]

Although foreign demand is the explanatory variable of the demand for export goods in the theoretical model, one cannot exclude a priori that - through the multiplier process - effects on the non-tradeables sectors exist. The equation was therefore estimated with the inclusion of foreign demand variables for all sectors.

The sample consists of the quarters 1973:4 to 1990:4. The sectors were abbreviated with the following letters:

[TOT]	Total	[TNS]	Total without service sector
[D]	mining	[H]	transportation and communication
[E]	building and construction trade	[I]	wholesale and retail trade
[F]	manufacturing industries	[J]	financial institutions and insurance
[G]	electricity, gas, heat and water supply	[K]	real estate
		[L]	services

[9] Mizuno (1984), pp. 27ff.

[10] Regarding the application of OLS to a partial adjustment model see Stewart (1991), p. 197.

[11] Quarterly data were calculated by moving averages. Source: OECD.

[12] Near constraint: the coefficient t-1 is restricted to being 0.

2. *Estimated Elasticities*

There were 22 regressions that could not be reproduced here due to a lack of space. Table 1 in the appendix shows the detailed regression results for the total number of male employees:[13]

The coefficients of the exgenous variables trend, exports and oil price show the expected signs. The influence of the oil price is significant with a t-value of -2.5.[14] As far as the exchange rate is concerned, there is first a contractionary effect in the appreciation in the first three quarters, which then changes to the positive in the fourth quarter. In total, a contractionary effect has been determined, as the sum of the individual elasticities lies at -0.023. Nevertheless this total value neglects the considerable short term movements that partly offset each other. This is even more obvious in the reported t-values. For the estimation of the relevance of the t-statistics a LM test on serial correlation was carried out, as the Durbin Watson statistics are invalid in the presence of the lagged endogenous variable. The LM-Statistics for a one period lag gave the value of 3.075, so there is no indication of serial correlation.

Table 2 of the appendix shows the corresponding values for the total number of female employees. Here the coefficients of the exogenous variables trend, exports and the price of oil also show the expected signs.[15] For the sum of elasticities a total of -0.026 results, which is comparable to the values of the male employees in its order. The coefficients of the lagged endogenous variables - an indicator of the speed of adjustment in the partial adjustment model - are also roughly equal for both sexes. However, in both cases the time profile of the exchange rate effect is noticeably different: the change in the expansive phase occurs already in the third quarter and the individual elasticities lie clearly above those of male employees. Even if the total effect were to be the same for both sexes, in the case of female employees, there is a strong contractionary effect, which is partially compensated through a strong expansionary effect. Exchange rate changes lead altogether to clearly larger fluctuations in female employment. A statement of the total effect in the form of summated elasticities neglects the demonstrated differences in the fluctuation.

This pattern can also be found for the majority of the sectors under consideration. The corresponding graphs are shown in the appendix.

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[13] See also Nitsch (1996) pp. 144ff.

[14] A t-value is significant at the level of 5% in the present 61 degrees of freedom at the value of 2.00. See Stewart (1991), pp. 47 and 322.

[15] The value of the LM-test is 0.47767 without indication of serial correlation.

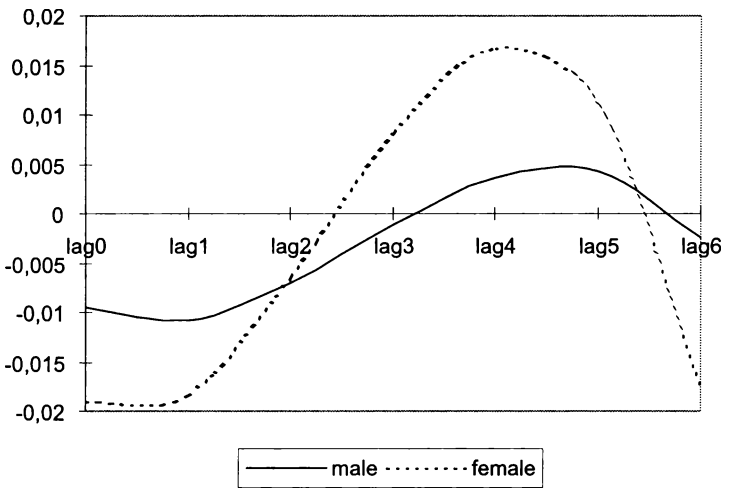

Figure 1: Exchange Rate Elasticity of Employment

3. Partial Adjustment Speed

The regression coeffients of the lagged endogenous variables are significant in all estimates. The following graph shows the estimated values:

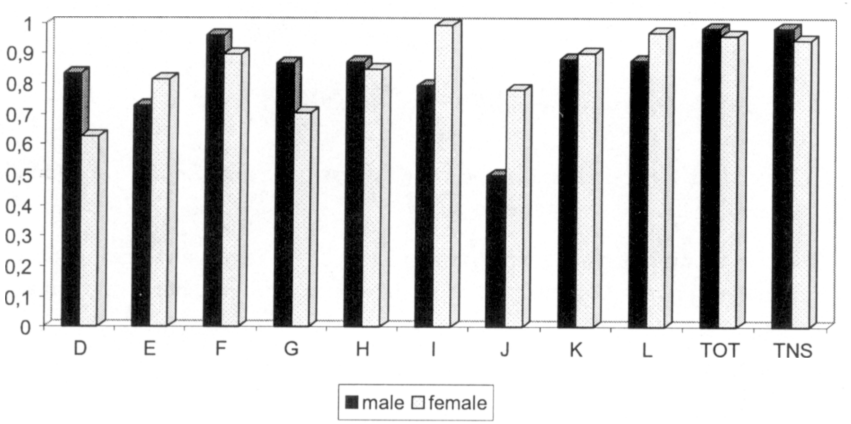

Figure 2: Estimated Values of Regression Coefficients

A value close to one is a sign for high persistence in the sense of a low adjustment speed. The estimate values show no systematic connection between sex and adjustment speed:[16] noticeably faster adjustment in female employment is found in the sectors D and G, the reverse is true in the sectors I and J.

II. Estimation of Employment in Hours

1. Estimate Equation

By estimating employment in working hours it is possible to study employment adjustment through the variation of working time - especially overtime. At the same time, there is is the danger that secular changes in working time will influence the estimate results, especially the significance of the coefficients. In this context, the transition to a five day labor week, or efforts to reduce the weekly working time should be noted.[17] Since a linear trend is contained in the log-linear estimate equation, such secular influences might be only insufficiently comprehended. The estimate of labor input can therefore be interpreted sensibly only in comparison with the estimate of the number of employees of the former section.[18]

The same estimate equation as in the case of the number of employees was applied. The independent variable in this case was the number of employees multiplied by the corresponding working hours. For the lagged endogenous variable a different adjustment speed for the number of employees and the working hours per employee was allowed.

2. Estimated Elasticities

Tables 3 and 4 in the appendix show the regression results for male and female employees for the total of the sectors.[19]

In the estimation of male employment (Table 3) the regression coefficents for trend and oil price are significant with the expected signs, but world imports

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[16] Male average: 0.844; female average: 0.857.

[17] See Nakamura (1988), pp. 152 and 154.

[18] The possibility of a reduction in working hours also has repercussions on the estimated adjustment of the number of employees.

[19] See also Nitsch (1996) pp. 163ff.

show an insignificant coefficient. The coefficients for both lagged endogenous variables are significant.

In the lag distribution of the exchange rate effect a similar picture as in the case of the number of employees is found, whereby the negative coefficient of the second lag reaches the significance level of 5%. The LM-test with its value of 3.07 shows no indication of serial correlation.

For female employment (Table 4) a picture comparable to the estimation of the number of employees results. The estimated coefficients, with the exception of the world imports, are significant here as well, and show the expected signs. The LM-test has a value of 0.47.

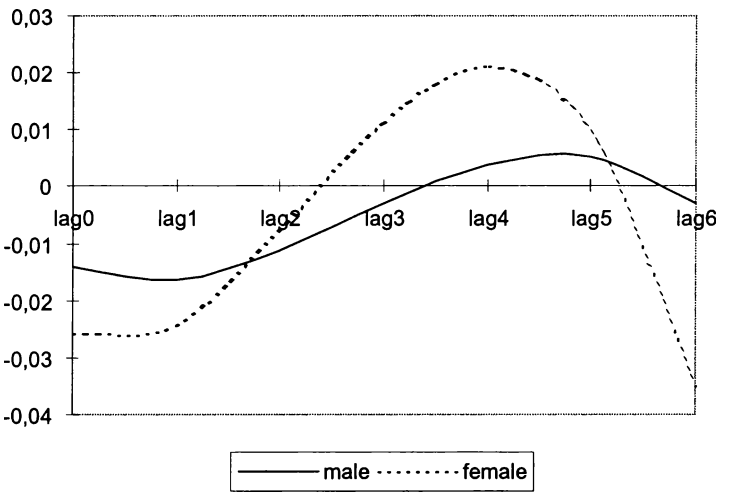


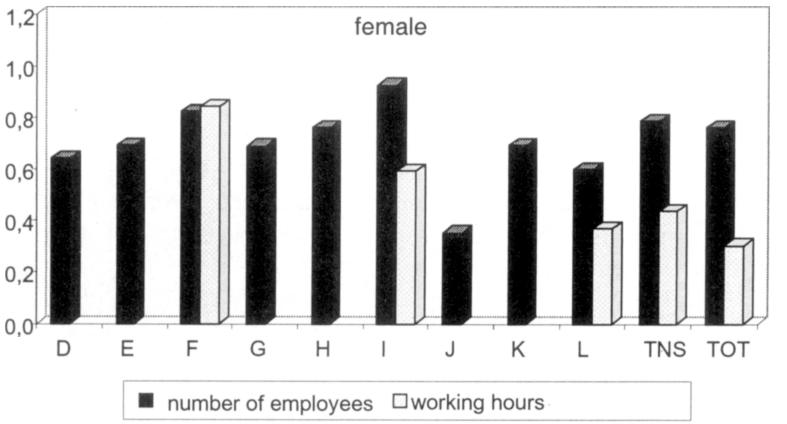
Figure 3: Exchange Rate Elasticity of Labor Input in Hours

The estimate of the labor input in hours shows for the total of the sectors qualitatively the same picture as the estimate for the number of employees: an appreciation of the domestic currency leads at first to a contractionary phase, which is not completely compensated by an expansionary phase.

3. Partial Adjustment Speed

The two following graphs show the coefficients of the lagged endogenous variables. Insignificant coefficients - which are limited to the variable of working hours - were not reproduced in the graph, there is no strong indication for persis-

tence of working time. With only one exception, all significant coefficients were in the interval between 0 and 1.[20]



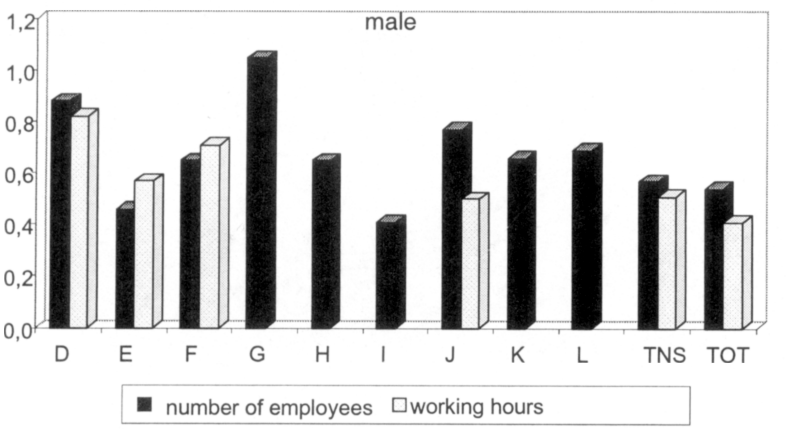


Figure 4: Coefficients of the Lagged Endogenous Variables

On average, the coefficients of the lagged number of employees in the case of male employment appear to be slightly lower.[21] In comparison to the individual

[20] A coefficient of 1.05 for the lagged number of male employees in the energy sector.

[21] Male average: 0.703; female average: 0.667.

sectors, however, there is no recognizable systematic difference according to sex in the size of the adjustment coefficients.

III. Interpretation of Results

The Distribution of the Adjustment Burden

The estimated elasticities of exchange rate impacts on the number of employees and on the labor input in hours show a mainly unanimous picture. In spite of sectoral differences the following pattern is recognizable:

1. Comparing the absolute values of elasticities, in most sectors there is a clearly larger impact of exchange rate shocks on female employment. Therefore the adjustment burden for female labor is higher.
2. Especially for female employment, cyclical fluctuations are present. An initial contractionary effect of the exchange rate appreciation is followed by an expansionary effect. As these fluctuations partly offset each other, the overall effect might even be insignificant. The use of distributed lags therefore reveals short run fluctuations that should also be considered an adjustment burden.

The results of the estimates confirm the findings by Abraham and Houseman and extend beyond their study in that the differences in the employment adjustment are also observed in the sectors outside of the manufacturing industries. The present study, however, in common with the work of Abraham and Housemann (1989), Houseman and Abraham (1993) as well as Brunello (1990), is limited to companies with more than 30 employees. A study of smaller companies could be an interesting task for future research, since one can expect a further reduction of employment security with the decreasing size of the companies.

D. Alternative Interpretation of the Results with Interdependent Labor Input

The observed strong and cyclical reaction of female employment to movements in the exchange rates lead to an alternative interpretation. Neglecting differences in labor input, the expansionary effect was explained by favourable supply side effects of an appreciation. But as the empirical results have shown, there is an asymmetry in male and female labor input as job security of female labor seems to be significantly lower. This difference is important once we recognize the interdependence of labor input, with male and female labor as substitutes. A simple model of comparative statics will give the basic idea:

Output Q is produced by male (M) and female (F) labor input. With constant wages w_m and w_f and a Cobb-Douglas-technology we find the points of optimal labor input on a straight line with the slope tgα. Starting from an initial equilibrium in point A an appreciation - a negative demand shock - leads in the long run to point C on a lower isoquant. But B is not directly reached, as we assume male labor to be sluggishly adjusted in contrast to female labor, whose adjustment is immediate, easy and cheap.

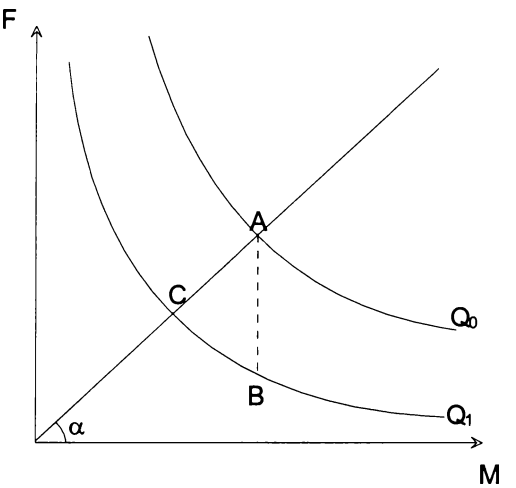


Figure 5: Comparative Statics of Male and Female Labor Input

At first there is a strong decrease in female employment down to point B. As male employment decreases slowly, C is sluggishly reached with increasing female employment along the production isoquant. What we observe is an overshooting of female employment that fits the observed cyclical patterns. Female labor then carries part of the adjustment burden for male employment.

As we observe cyclical reaction of male employment in some sectors, it should be pointed out that male part-time employees also have a comparable status as 'employment type F' in the setup sketched above.

Finally, the argument of interdependent labor input is an alternative interpretation of the empirical results, but both mechanisms can be expanded on at the same time: there is an expansive supply-side effect on appreciation, which is supported by a cyclical adjustment pattern determined by interdependence.

E. Conclusion

The estimation of labor input on the sectoral level in most cases shows cyclical patterns of exchange rate impacts on female employment. In general the fluctuations in female employment are higher. This is true for the number of employees as well as for labor input measured in hours.

The results support a buffer-stock notion of female employment, though this should also apply for male employees in labor market segments with low job security. The results are also interpretable in a model of interdependent labor input. The cyclical pattern could then reflect an overshooting of employment with low job security. Still, these results leave questions for future research using simultaneous equation techniques adequate for interdependent structures that might be present.

Appendix

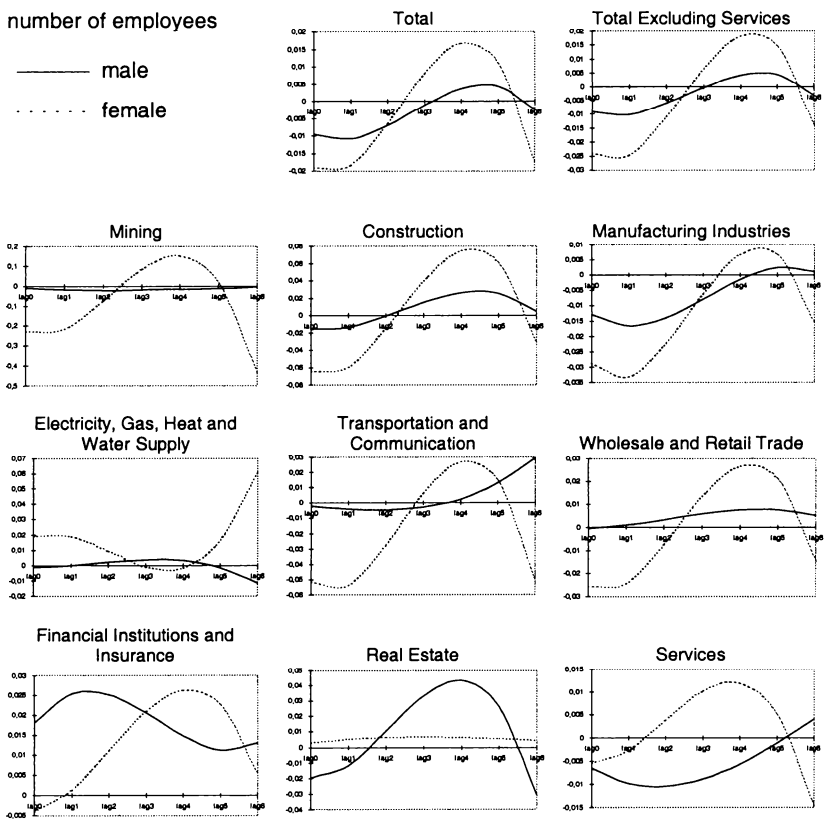


Figure 1: Time Profiles of Exchange Rate Impacts

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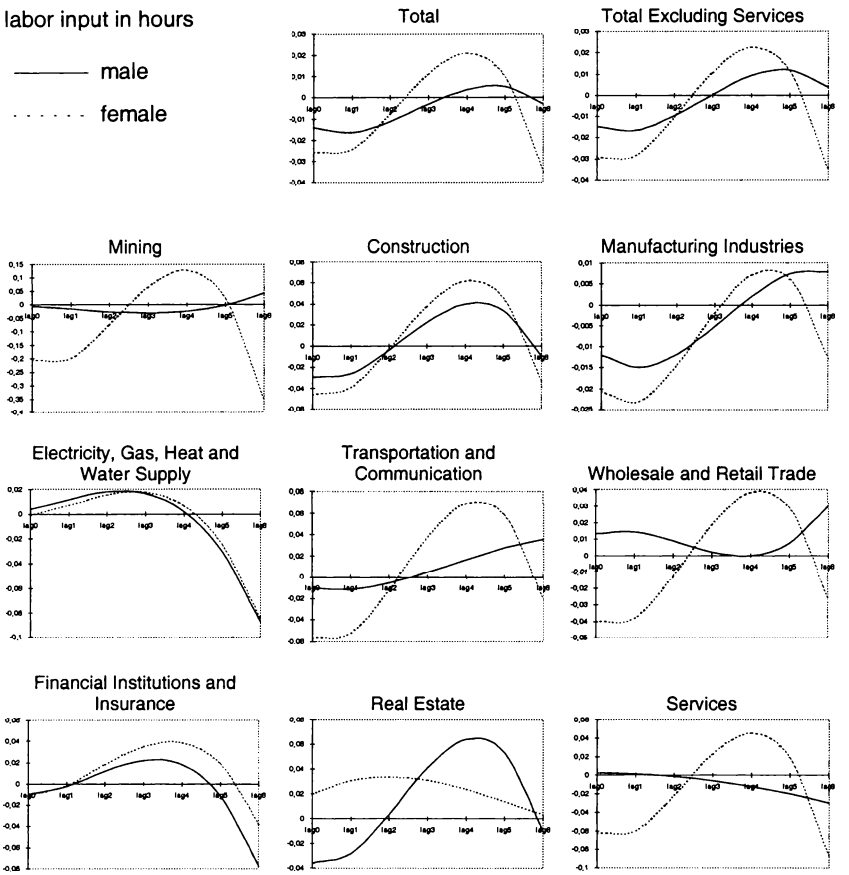

Figure 2: Time Profiles of Exchange Rate Impacts

Table 1
Male Employment (Number of Employees)

Variable	Coefficient	Std. Error	T-stat.	2-tail Sig.
C	0.0448146	0.1210686	0.3701585	0.7125
LYTREND	0.0107184	0.0114439	0.9366065	0.3527
LNWIM	0.0110795	0.0079334	1.3965592	0.1676
LOIPRD85(-4)	-0.0028392	0.0011469	-2.4755376	0.0161
LNMTOTA(-1)	0.9810735	0.0372862	26.311978	0.0000
PDL1	-0.0146729	0.0073982	-1.9833100	0.0518
PDL2	0.0056568	0.0036361	1.5557467	0.1249
PDL3	-0.0005157	0.0003955	-1.3039387	0.1972
R-squared	0.991295		Mean of dependent var	4.595635
Adjusted R-squared	0.990296		S.D. of dependent var	0.030247
S.E. of regression	0.002980		Sum of squared resid	0.000542
Log likelihood	307.6465		F-statistic	992.3562
Durbin-Watson stat	1.593043		Prob (F-statistic)	0.000000

LS // Dependent Variable is LNMTOTA, Sample range: 1973.4–1990.4, Number of observations: 69

Lag Distribution of RERMTOTA	Lag	Coef	S.E.	T-Stat
* :	0	-0.00953	0.00421	-2.26572
*	1	-0.01084	0.00375	-2.89085
*	2	-0.00703	0.00237	-2.96585
*	3	-0.00119	0.00439	-0.27071
*	4	0.00359	0.00548	0.65481
*	5	0.00421	0.00335	1.25797
* :	6	-0.00242	0.00986	-0.24554
0	Sum	-0.02322	0.01281	-1.81160

Table 2
Female Employment (Number of Employees)

Variable	Coefficient	Std. Error	T-Stat.	2-Tail Sig.
C	0.0888350	0.2721201	0.3264552	0.7452
LYTREND	0.0195980	0.0172892	1.1335389	0.2614
LNWIM	0.0180179	0.0159537	1.1293878	0.2632
LOIPRD85(-4)	-0.0044126	0.0029999	-1.4709300	0.1465
LNFTOTA(-1)	0.9583189	0.0367687	26.063409	0.0000
PDL1	-0.0318175	0.0150937	-2.1080000	0.0391
PDL2	0.0141473	0.0074307	1.9038880	0.0616
PDL3	-0.0014235	0.0008088	-1.7599893	0.0834
R-squared	0.974497		Mean of dependent var	4.620242
Adjusted R-squared	0.971570		S.D. of dependent var	0.038250
S.E. of regression	0.006449		Sum of squared resid	0.002537
Log likelihood	254.3649		F-statistic	332.9784
Durbin-Watson stat	1.815039		Prob(F-statistic)	0.000000

LS // Dependent Variable is LNFTOTA, Sample range: 1973.4–1990.4, Number of observations: 69

Lag Distribution of RERFTOTA					Lag	Coef	S.E.	T-Stat
*	:				0	-0.01909	0.00858	-2.22539
*					1	-0.01843	0.00767	-2.40335
	*				2	-0.00656	0.00501	-1.31068
		*			3	0.00798	0.00915	0.87190
				*	4	0.01666	0.01136	1.46682
			*		5	0.01092	0.00693	1.57520
*	:				6	-0.01777	0.02012	-0.88314
	0				Sum	-0.02630	0.02612	-1.00691

Table 3

Male Labor Input (Working Hours)

Variable	Coefficient	Std. Error	T-Stat.	2-Tail Sig.
C	0.7115658	0.2955565	2.4075454	0.0192
LYTREND	0.1161308	0.0292766	3.9666771	0.0002
LNWIM	-0.0083689	0.0170361	-0.4912464	0.6250
LOIPRD85(-4)	-0.0127359	0.0036203	-3.5179435	0.0008
LNMTOTA(-1)	0.5371148	0.1050482	5.1130298	0.0000
LHMTOTA(-1)	0.4081950	0.1120100	3.6442717	0.0006
PDL1	-0.0213668	0.0161134	-1.3260237	0.1899
PDL2	0.0080232	0.0078416	1.0231565	0.3103
PDL3	-0.0007188	0.0008503	-0.8453489	0.4013

R-squared	0.953815	Mean of dependent var	4.631902
Adjusted R-squared	0.947657	S.D. of dependent var	0.027863
S.E. of regression	0.006375	Sum of squared resid	0.002438
Log likelihood	255.7403	F-statistic	154.8910
Durbin-Watson stat	2.156300	Prob (F-statistic)	0.000000

LS // Dependent Variable is LNHMTOTA, SMPL range: 1973.4–1990.4, Number of observations: 69

Lag Distribution of RERMTOTA			Lag	Coef	S.E.	T-Stat
*	:		0	-0.01406	0.00925	-1.52095
*			1	-0.01639	0.00849	-1.93152
*			2	-0.01130	0.00562	-2.00898
*			3	-0.00310	0.00954	-0.32500
		*	4	0.00389	0.01176	0.33111
		*	5	0.00537	0.00719	0.74679
*	:		6	-0.00298	0.02114	-0.14112
	0		Sum	-0.03857	0.02991	-1.28934

Table 4

Female Labor Input (Working Hours)

Variable	Coefficient	Std. Error	T-Stat.	2-Tail Sig.
C	0.4552518	0.3156447	1.4422916	0.1544
LYTREND	0.0604240	0.0206035	2.9327009	0.0048
LNWIM	0.0002891	0.0175075	0.0165141	0.9869
LOIPRD85(-4)	-0.0132118	0.0042457	-3.1117870	0.0028
LNFTOTA(-1)	0.7610989	0.0563155	13.514915	0.0000
LHFTOTA(-1)	0.3033088	0.1448439	2.0940387	0.0405
PDL1	-0.0433145	0.0172705	-2.5080023	0.0149
PDL2	0.0196255	0.0084286	2.3284547	0.0233
PDL3	-0.0020223	0.0009144	-2.2116121	0.0308
R-squared	0.959115		Mean of dependent var	4.660957
Adjusted R-squared	0.953663		S.D. of dependent var	0.032878
S.E. of regression	0.007077		Sum of squared resid	0.003005
Log likelihood	248.5240		F-statistic	175.9405
Durbin-Watson stat	1.992571		Prob (F-statistic)	0.000000

LS // Dependent Variable is LNHFTOTA, SMPL range: 1973.4–1990.4, Number of observations: 69

Lag Distribution of RERFTOTA				Lag	Coef	S.E.	T-Stat
*	:			0	-0.02571	0.00988	-2.60360
*				1	-0.02431	0.00894	-2.71892
	*			2	-0.00792	0.00567	-1.39533
		*		3	0.01132	0.01006	1.12555
			*	4	0.02127	0.01254	1.69696
		*		5	0.00980	0.00761	1.28880
*	:			6	-0.03522	0.0226 8	-1.55278
	0			Sum	-0.05075	0.03064	-1.65635

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A Comparative Study between Migratory Manpower Pressures by Industrial Hollowing-out in Japan and Economic Opening-up in Hungary

Taichi Yamamoto

A. Introduction

For several years now, both in Germany and in Japan, the increasing rates of unemployment at a time of long-term economic depression have become a common problem of labour markets (see Table 1).[1] First of all, therefore, it is necessary to analyze the background of the unemployment situation in Germany where conditions are now more serious than in Japan.

Secondly, we will look at migratory manpower pressure from Hungary which affects the employment structure in Germany; but Hungarian workers are rather in the minority among immigrant labourers into Germany, as compared to the rapidly increasing numbers of immigrant labourers from ECEc (East-Central European countries) and Ex-USSRc (CIS countries), due to economic openings after the reforms of 1989 (see Tables 1, 2 and 3).

Thirdly, let us explain a real aspect of extreme manpower pressure through rapidly increasing import-goods and a real aspect of less emigratory manpower from Japan, created by industrial hollowing-out in Japan.

Finally, a comparison will be drawn between the migratory manpower pressure caused by economic opening-up in Hungary and the migratory manpower pressure caused by industrial hollowing-out in Japan.[2]

Recognizing that the issue of industrial hollowing-out in Japan as well as the high rate of unemployment in Germany may be increasingly serious, in this paper, we will review these two issues, mainly on the basis of the results of joint research work T. Yamamoto and Z. Bassa during 1994–1996.[3]

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[1] See Sopemi (1994).

[2] See Niwa (1995).

Table 1

Economic Indicators of Affecting Labour Migration in East-Central Europe, CIS, China, Japan, Germany, and Austria

	real GDP per capita annual change in %				$ exch.	unemployment rate % p.a.		consumer prices % p.a.	
	1991	1992	1993	1994	1994	1993	1994	1993	1994
Japan	3.1%	0.4%	0.2%	0.5%	$38,560	2.8%	2.9%	1.3%	0.7%
Germany	3.6	0.8	-2.1	2.6	25,132	8.2	9.2	4.1	3.0
Austria	2.7	1.6	-0.3	2.6	24,667	6.8	6.5		3.0
Czech Rep.	-14.2	-6.4	-0.9	2.6	3,489	3.5	3.2	20.8	10.0
Slovakia	-14.5	-7.0	-4.1	4.8	2,324	14.4	14.8	23.2	13.4
Hungary	-11.9	-3.0	-0.8	2.0	4,000	12.6	10.9	22.5	18.8
Poland	-7.0	2.6	3.8	5.1	2,406	16.4	16.0	35.3	32.2
Romania	-12.9	-10.0	1.3	3.4	1,262	10.4	10.9	290.3	136.8
Bulgaria	-11.7	-7.3	-2.4	1.4	1,187	16.4	12.8	72.9	96.2
Slovenia	-8.1	-5.4	1.3	5.0	6,957	14.4	13.7	32.3	19.8
Croatia	-20.9	-9.7	-3.7	0.8	3,020	15.0	18.3	1517.5	97.6
Russia	-13.0	-19.0	-12.1	-15.0	1,927	1.2	2.2	840.0	300.0
Ukraina	-11.6	-13.7	-14.2	-19.0	694	0.4	0.3	5371.0	891.0
China	8.0	13.2	13.4	11.2	425	2.6	2.9	17.0	21.7

Source: The Vienna Institute for Comparative Economic Studies, Research Report No. 219, July 1995 and No. 220, July 1995.

Table 2

Rising Trend in the Number of Foreigners by Chronology in Germany (1000 persons)

Year	1961	1970	1987	1989	1990	1991	1992
Number	686*	2,601*	4,241*	4,846*	5,343*	5,882	6,496

Source: Statistisches Bundesamt, Note: A * mark is a number in West Germany alone.

[3] See Bassa and Yamamoto (1996), Wood (1994).

Table 3
Stock of Legal Foreigners by Country of Origin in West (1992) and Eastern Germany (1991)

	West Germany	East Germany
Vietnam	85.7	35.4
Poland	285.6	35.9
Mozambique	3.3	5.2
Ex-USSR	61.4	15.9
Cuba	3.5	2.8
Hungary	61.4	12.6
Czech Rep., Slovakia	63.7	3.1
Bulgaria	59.1	5.2
Romania	167.3	1.3
Yugoslavia	915.6	2.2
Turkey	1,694.1	
Others	3,095.1	16.1
Total	6,495.8	135.7

Source: Statistischer Bundesanzeiger.

B. Background of the Double Labour Markets in Germany

Germany has shouldered a burden of solving such a very difficult problem, as it might be nearly impossible for the country to improve the unemployment situation on 'Double Labour Markets' for Germans and Immigrants, e.g. Hungarians.[4] In the 1990s, these double labour markets made Germany unreasonably receive immigrant labourers from Czech Republic (mostly as commuters) where the rate of unemployment is only 3–4%, while Germany is suffering from a much higher rate (10% on average in 1995, but 15% in the former East Germany area, see Tables 1, 5 and 6).

Such a contradiction of the labour market in Germany originates in the country's own employment policy, especially 'a Temporary Foreigners Employment Policy' in which Germany as well as France strove to supply the shortage of manpower with immigrant labourers (mainly Turks and Ex-Yugoslavs) employed temporarily, after the postwar revival of the 1960s (see Table 3).[5] This policy has

[4] See Kuwabara et al. (1991), Kuwabara et al. (1993).

Table 4
Inflows of Ethnic Germans by Country of Origin, During Jan.–Aug. in Each Year

	1993	1994	1995
Ex-USSR	153,336	132,193	154,419
Poland	8,237	3,165	1,469
Romania	4,246	2,303	1,829
Others	994	554	487
Total	166,813	138,215	158,204

Source: Das Bundesministerium des Inneren.

Table 5
Season Workers by Country of Origin, Germany

	Dec. 1993	Oct. 1994
Poland	143,861	131,356
Czech Rep.	12,027	3,228
Slovakia	7,781	3,618
Hungary	5,346	2,339
Romania	3,853	1,975
Slovenia	1,114	586
Croatia	6,984	5,617
Bulgaria	71	58
Total	181,037	148,775

Source: Bundesanstalt für Arbeit.

created up two labour markets within the boundaries of Germany. One is the market for Germans that, since German nationals get jobs in preference to foreigners, gives them an advantage in seeking jobs. The other is the market for foreigners where immigrant labourers can get those jobs that the Germans do not want because working conditions are inferior, for instance unskilled, heavy, dangerous or dirty work.

Accordingly, the double structure of the labour market does not substantially improve conditions for unemployed Germans, even if the government of Germa-

[5] See Fassmann and Münz (1994).

Table 6
Foreign Sub-contract Workers by Nationality
Dec. 1991–1993, Germany

	1991	1992	1993
Poland	41,945	45,903	31,710
Hungary	11,348	13,190	13,220
Ex-Yugoslavia	9,474	19,028	10,520
Ex-CSFR	7,826	11,464	7,660
Romania	3,690	14,340	6,360
Bulgaria	1,043	2,885	3,740
Others	1,267	3,555	6,480
Total	76,593	100,365	76,690

Source: Bundesanstalt für Arbeit
Note: F.CSFR 7660 = Czech 4970 + Slovak 2690

ny can force foreign workers to return back home during a depression time. It also has to be noted that the rate of unemployment in Germany has been increasing after 1992, because of the double labour markets.

It is not only the above-mentioned labour policy that is responsible for the fact that, of WEc (West European countries), Germany as well as France are now among the countries with the largest numbers of immigrants or foreign workers in the world. But there are also earning and income differentials between Germany and ECEs, Ex-USSRc, Turkey, etc. (see Figure 1, Table 1). Especially, in Russia and Ukraine of Ex-USSRc, not only lower wages, but also the delayed pay, such as 6 months later pay, cause emigrant workers to go abroad.[6]

Moreover, as a result of the fast advancing means of information, transportation and communication, the pattern of migratory manpower has changed from 'a permanent setters pattern' to 'a non-permanent pattern of migratory workers'. The latter pattern means that migrants are often going from one country to another, in order to find an employment chance and obtain a slightly more gainful job.

[6] See Wood (1994) and Zwass (1995).

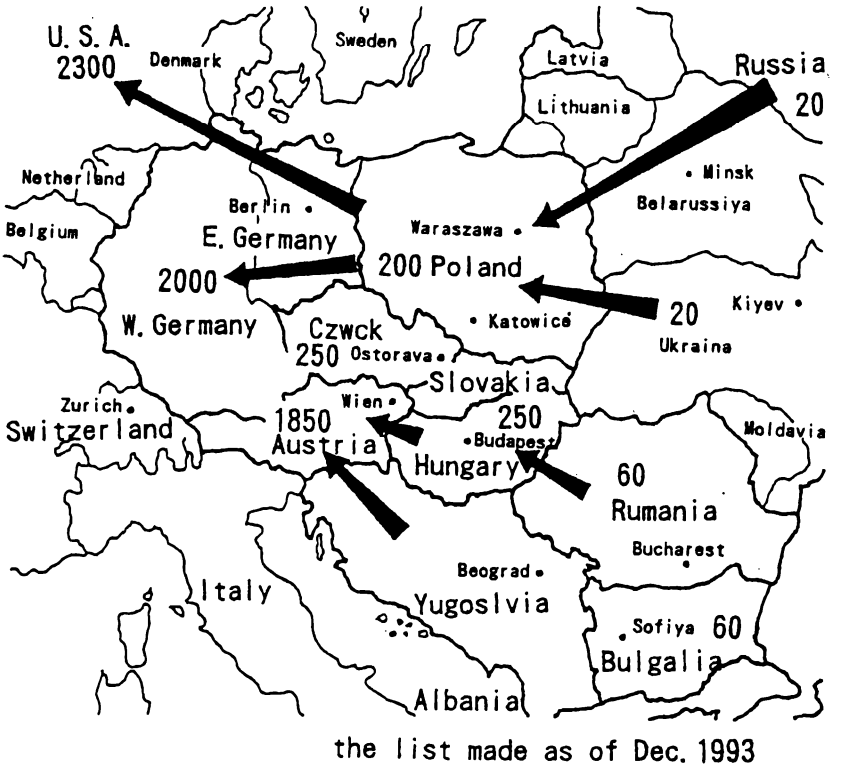

Figure 1: Migratory Workers Moved by Larger Salaries per Month
(e. g. Russian $ 20 through Polish $ 200 into German $ 2000)

C. Migratory Manpower Pressures in Hungary

I. Increasing Labour Migration after the East European Changes of 1989

After 1989, the economic opening up and the crises, ethnic and religious tensions, civil wars, and the liberalization of travel and migration have led to increasing migration between and from East European countries. After losing World War I, the Austro-Hungarian empire was dissolved. Since then, the Hungarian population has numbered 1.8 million in the Transylvanian territory of Romania and 600 thousand in Czechoslovakia. If we look at the recent changes in the case of Hungary (a country with a population of 10 million), the immigration of ethnic Hungarians facing discrimination in Romania was already significant in 1988.[7] This first wave was followed by refugees from the former Yugoslavian

territories, migrant labour from Romania, the former USSR (especially Ukraine) and to a lesser extent from Poland and mainland China (see Tables 1, 7 and 8).

Table 7

Number of Foreign Citizens Entering Hungary (with resident permission for at least one year or who received resident permission for more than one year) sex and age distribution in percentages

Year	Total number	Of which: men	women	0-14 years	15–39 years	40–59 years	60– years
1987	8,366	65.2%	34.8%	9.2%	71.9%	16.0%	2.9%
1988	23,501	61.5	38.5	12.7	70.3	15.1	2.0
1989	33,713	63.6	36.4	13.6	70.6	13.8	2.0
1990	37,020	55.7	44.3	19.5	65.2	13.4	1.9
1991	22,676	56.3	43.7	15.0	68.3	14.0	2.8
1992	14,586	53.4	46.6	15.4	62.4	17.1	5.1
1993	14,480	51.4	48.6	16.8	57.0	18.9	7.3
1994	5,665	54.7	45.3	12.5	58.3	21.2	7.9

Source: Demographic Yearbook 1994, Central Statistical Office (Hungary).

All of these countries have a lower wage level than Hungary does, but most of the immigrants (70 to 100 thousand people) are employed in the informal sector with relatively low wages for local citizens of Hungary, while the number of work permits issued every year is about 20 thousand).

The present amount of unemployment (at least 500 thousand people) and its structure (more than 50% are skilled workers and intellectuals) prove that immigrant labour (fewer in numbers and with less education) does not "take away" jobs from Hungarians. It should be mentioned that more than 10 thousand Hungarians that had emigrated during the former decades have returned since the political changes of 1989.

II. The Extent of Migration to and from Hungary is Roughly the Same

Hungary is considered a host country of international migration, but estimations based on population census, demographic changes and the statistics of West European countries show that in the 1990s emigration from Hungary reaches almost the same level as immigration. There were reasons for emigration, namely to achieve a better living standard using skills, and language abilities that were

[7] See Fóti (1993).

Table 8
Geographical Distribution of Foreign Citizens Entering Hungary from Main Source Countries, their Number and Share of all Immigrants

	1987	1988	1989	1990	1991	1992	1993	1994	total
Romania	2087	17818	26605	29440	10880	6362	5750	1889	100831
USSR	909	1022	981	1566	1927	1614	1457	773	10249
Yugoslavia	415	496	523	410	3973	3341	5014	1710	15882
Poland	1493	1157	1261	763	184	252	198	165	5473
China	357	27	54	662	1992	275	282	150	3799
Total	5261	20520	29424	32841	18956	11844	12701	4678	136234

Source: Demographic Yearbook 1994, Central Statistical Office (Hungary).
Note: In case of USSR and Yugoslavia as successor states after dissolution. China refers to People's Republic of China.

not sufficiently rewarded in Hungary. Emigrants, of whom the main target countries are Germany and Austria, seem to have close contacts with relatives and friends and they are not from the poorest segments of Hungarian society.

III. Stricter Immigration Controls in the EU for Citizens of Non-member Countries and Highly Educated Hungarians Engaged in Better Jobs in the EU

As for future migration flows affecting Hungary, much depends on the economic situation of the country and other Central and East European states. So far, restrictions in immigration policy could not stop the influx of illegal labour and their appearance on the informal labour market since both Hungarian and foreign citizens are deeply rooted in semi-legal or informal economic activities. Deepening West European integration and increasing immigration pressures in the 1980s have made West European governments relaxing checks on borders between member countries, while adopting more restrictive immigration controls towards non-EU member states, including Hungary.

These policies make migration harder for transit migrants in Hungary which can turn the country into a buffer zone of East-West (and partly South-North) migration. Emigration from Hungary on a large scale is not likely, but well-skilled blue and white collar workers can find better job opportunities and wages in West Europe. This is a very negative phenomenon, since Hungary needs a well-educated labour force to modernize its economy and catch up with the developed countries.

D. Reasons for Industrial Hollowing-out in Advanced Countries

I. Britain and Germany

Ronald Dore, British economist, explains that "the industrial hollowing-out or the hollow economy syndrome" is a familiar concept to "de-industrialization" in Britain. And it may be defined as a process by which the share of employment in industry within total employment falls through overseas direct investment in manufacturing.[8] In Britain, however, there is not much of a link between industrial hollowing-out and overseas direct investment. The reasons for the industrial hollowing-out and the decline of competitive power in Britain do not lie in a concentration on overseas investment but in deep-seated social and political forces, particularly the strong power of trade unions and the high cost of social welfare. In Germany, moreover, workers' participation in industry may be added.

II. United States

P. Krugman and R. Lawrence, American economists, see the industrial hollowing-out as an inevitable outcome of expanding international trade, that is, the growing internationalization of the U. S. economy, and have linked it to important trends in the U.S. labour market.[9] They point out the effect of innovation or technological change rather than that of internationalization as the major force behind the labour market trends. Accordingly, they say "competition from abroad has played a minor role in the contraction of U.S. manufacturing", and they are critical about both the Heckscher-Ohlin-Samuelson (HOS) model and standard models of international capital mobility.

These models predict that internationalization will narrow the gap between wages in the U. S. and in the rest of the world, and widen the gap between wages of skilled and unskilled workers within the U. S.[10] Moreover, these standard theories predict that U.S. manufacturing sectors which are intensive in low-skilled workers will shrink in in the face of increased integration with developing countries that abound in low-skilled workers. Then, J. D. Sachs and H. J. Shatz (Harvard University) point out three labour market trends of the past 15 years: 1. the sharp decline of overall employment in manufacturing; 2. the widening of income inequality between high-skilled and low-skilled workers; and 3. the especially sharp decline in employment in the low-skilled manufacturing sector.

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[8] See Dore et al. (1993).

[9] See Krugman and Lawrence (1994).

[10] See Leamer (1993).

III. Japan

Previous studies on the industrial hollowing-out in Japan can be broadly classified into three categories: 1. the weakening of the domestic economy after the contraction of manufacturing and the expansion of service industry, which was mainly discussed during the first half of the 1980s; 2. the influence of the rapidly rising yen accelerating the shift overseas of manufacturing production, which was discussed during the latter half of the 1980s and is traditionally critical to economic growth; 3. the impact of industrial hollowing-out on domestic employment and technological standards has been discussed since the bubble economy collapsed in 1992. In Japan, there have been growing fears that the labour market and the technological standards would be adversely affected by the shift to overseas manufacturers so as to offset the yen's sharp appreciation following the 1985 Plaza Accord.[11]

E. Japan Facing Manpower Pressures

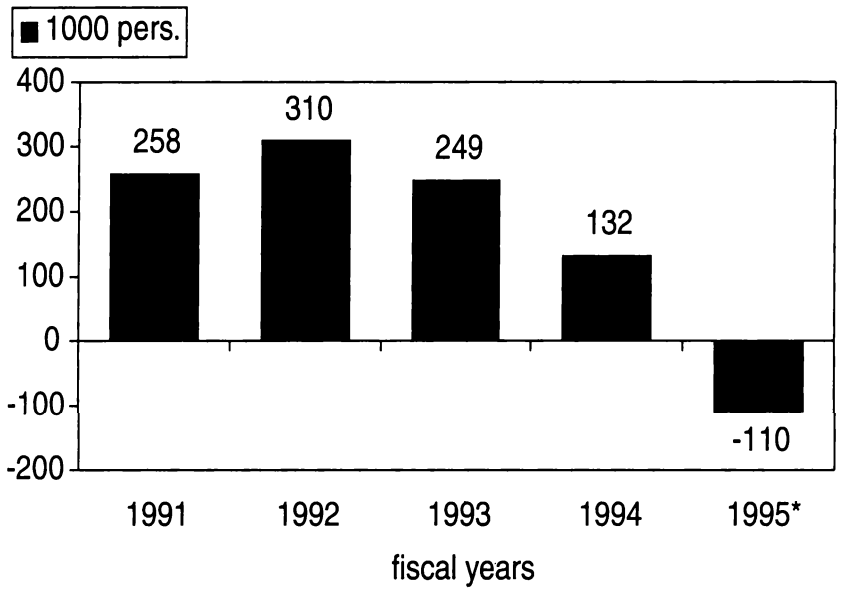
I. Migratory Manpower Pressure by Industrial Hollowing-out in Japan

The Japanese economy is undergoing a period of industrial hollowing-out similar to the one experienced by the U.S. in the first half of the 1980s. The amount of overseas direct investment by Japanese firms reached its peak value in 1989 and was concentrated in North America (see Figure 5, Table 1). But during 1990–94 the total amount was decreasing (see Figure 2) while there was a partial increase in Asia (see Table 9).

The shift to overseas production has been triggered by the yen's appreciation (see Figure 5), high wage levels and the economic recession (see Table 1). The U. S. managed to regain international competitiveness by restructuring and fostering new businesses. But creating new businesses may prove more difficult for export-oriented Japan. Accordingly, net yields or profits after tax of manufacturing overseas Japanese corporations are managed to balance deficits in North America and Europe with larger pluses in Asia and the Far East (see Figure 4).

Of manufacturing products, industries with a comparative advantage in Japan are considerably limited and overspecialized, e. g. chemistry, steel and non-ferrous metal, while electric machines, transportation machines and general machines lost the previous comparative advantages in 1994/1995 (see Table 3, Figure 3). Then, in 1995, 110,200 domestic workers lost their jobs, due to the

[11] See Nakamura and Shibuya (1994) and Nikkei Institute for Consumption Research (1995).



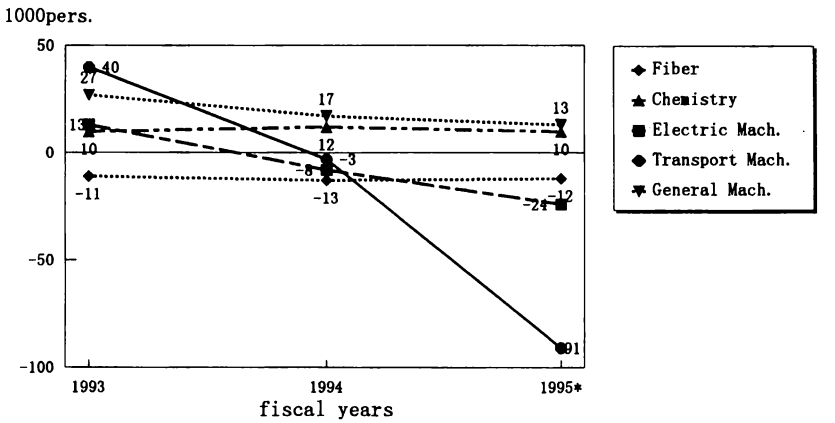
Source: Miti, The 25th Trend Survey for Overseas Business Activities of Japanese Firms, 1996.
Note: 1995* = Estimated Numbers.

Figure 2: Domestic Employment Affected by Overseas Business Activities of Japanese Firms

Table 9
Japanese Firms' Overseas Direct Investment by Area

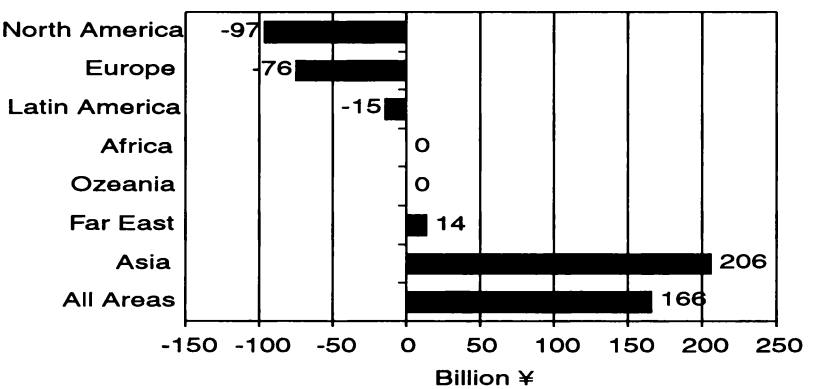
	all industries				manufacturing			
Year	1989	1992	1994	1995	1989	1992	1994	1995
Nor.America	33.9	14.6	17.8	20.3	9.6	4.2	4.8	4.3
Asia	8.2	6.4	9.7	10.0	3.2	3.1	5.2	6.5
Europe	14.8	7.1	6.2	5.3	3.1	2.1	1.9	1.2
Others	10.9	6.0	7.4	7.9	0.4	0.7	1.9	1.1
Total	67.8	34.1	41.1	43.5	16.3	10.1	13.8	13.0

Souce: Miti, Statistical values notified to the Ministry of Finance, 1996.
Note: unit = $ billion.



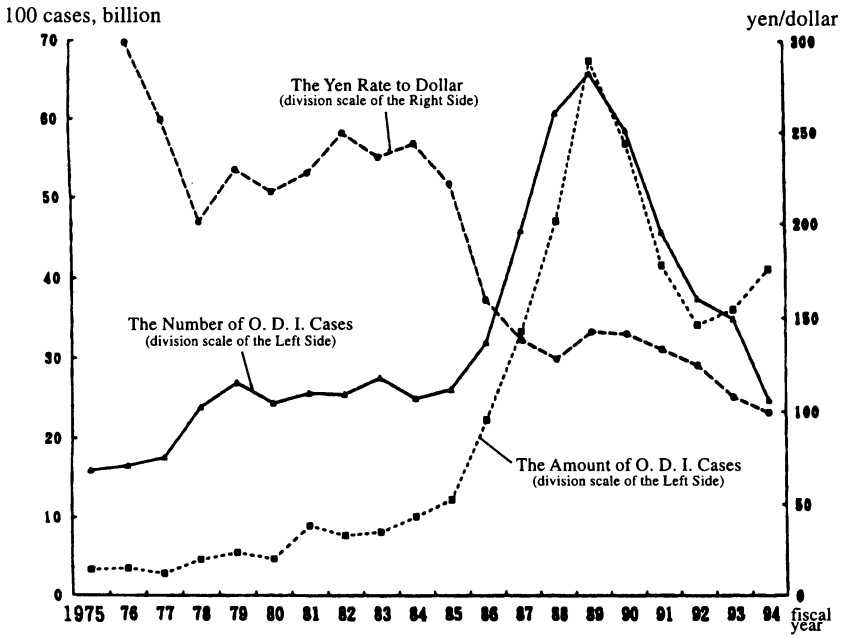
Source: Miti, The 25th Trend Survey for Overseas Business Activities of Japanese Firms, 1996.
Note: 1995* = Estimated Numbers.

Figure 3: Domestic Mainly Manufacturing Industries Affected by Overseas Business Activities of Japanese Firms



Source: Miti, The 5th Basic Survey for Overseas Business Activities of Japanese Firms, 1995.

Figure 4: Net Yields after Tax of Japanese Manufacturing Overseas Corp. by Region (Avg. 1991–93)



Source: Miti, The 24th Trend Survey for Overseas Business Activities of Japanese Firms, 1995; Miti, Statistics of National Finance and Money Credits, 1995.
Note: O.D.I. = Overseas Direct Investment.

Figure 5: The Trend in Overseas Direct Investment and Yen-Dollar Exchange

shift of production overseas from Japan, while the shift to overseas had created domestic employment before 1994 (see Figure 2).[12] Of course, this shift to overseas has created 1,404,200 overseas jobs in transnational Japanese firms in the fiscal year 1992. Among them, the number of Japanese overseas workers is only 36,500 persons who work mainly in countries of ASEAN and NIES rather than North America and comparatively little in countries of EC (see Table 10).

[12] See The Tokyo Metropolitan Bureau of Labour and Economy (1996).

Table 10

Numbers of Overseas Executives & Employees Created by Japanese Firms' Shifting Production Abroad
(fiscal 1992)

	by Region (1000 pers.)										
		North America	Middle/S. America	Asia	(Asean)	(Nies)	Europe	(EC)	Oceania	Others	All Areas
all workers											
	Total	363.5	95.6	674.7	(366.8)	(235.0)	209.0	(199.8)	47.2	14.2	1404.2
	Manufac-turing	256.5	83.6	594.3	(328.0)	(199.6)	148.3	(141.2)	28.9	6.9	1118.5
Japanese											
	Total	14.3	1.7	11.4	(4.9)	(5.6)	7.4	(7.0)	1.2	0.5	36.5
	Manufac-turing	5.8	0.8	7.3	(3.7)	(3.0)	2.6	(2.5)	0.8	0.1	17.4

	by Industry										
	Electric Mach.	Transp. Mach.	Chemistry	Fiber	Gen. Mach.	Steel	Rest Manuf.	Com-merce	Service	Others	All Ind.
all workers	394.8	287	68.7	67.9	49.9	33.6	216.6	160.9	48.4	76.4	1404.2
only Japanese	6.1	8.2	1.4	0.8	1.5	0.3	1.3	12.3	2	5.2	36.5
all workers	538	710	189	548	217	395	*	82	115	*	320
only Japanese	8	10	4	6	7	4	*	7	5	*	8

Source: Miti, The 5th Basic Survey for Overseas Business Activities of Japanese Firms,1996.
Note: * Remarks unknown persons.

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II. International Migration is Less Significant in Japan Compared to West Europe, But it is Quickly Increasing

As a developed country Japan was also affected by the growing international migration of the last 15 years although not to the extent experienced by West European countries. Besides growing immigration, due to the internationalization of the Japanese economy the number of Japanese assigned to overseas company branches has more than doubled between 1980 and 1989.

III. The Number of Japanese Emigrating "Institutionally" is Higher than that of Foreigners Staying in Japan

In Japan the yearly number of temporary and long-term emigrants is greater than the number of immigrants, but foreigners' residence in Japan seems to be of longer duration than Japanese residence abroad, since the number of foreigners staying in Japan for more than one year is 1 million. The number of illegal immigrants has risen from 100 thousand to 300 thousand between 1990 and 1993. The motivations for migration are not individual as in Hungary but rather tied to companies' strategies and institutional contacts in the fields of government and academics (see Table 3). The recent stagnation of the Japanese economy and rising unemployment have not led to a sudden rise in the number of emigrants, but there is an interesting sign: the shift of manufacturing to overseas has not created job opportunities in 1995. On the contrary, 110 thousand jobs were lost.

Table 11

Domestic Production and Employment Affected by the Shift of Production Overseas from Japan

	Electric Mach.	Transp. Mach.	Chemi-stry	Foods	Fiber	Steel	Non-ferrous	Rest Manuf.	Com-merce	Service	Others Ind.	All
Production Effect (¥ billion)												
1994	▲209.6	132.3	614.3	▲397.3	▲158.2	1216.3	522.4	1509.3	82.1	149.1	257.7	3858.1
1995*	▲662.5	▲4109.6	526.2	▲424.7	▲148.2	1068.7	475.1	1183.2	▲213.9	▲317.8	▲180.8	▲2822.3
EmploymentEffect (1000 pers.)												
1994	▲7.7	2.9	12.1	▲17.2	▲12.5	16.8	13.3	86.2	10.4	13.1	15.0	132.4
1995*	▲24.4	▲90.6	10.3	▲18.4	▲11.7	14.6	12.1	59.8	▲27.2	▲27.9	▲6.8	▲110.2

Source: MITI, The 25th Trend Survey for Overseas Business Activities of Japanese Firms, 1996.

Notes: 1995* = estimated values and numbers, ▲ mark = minus quantity.

F. Conclusion – Geographical and Cultural Distance Preventing a Larger Increase of Labour Migration

Increasing foreign direct investments have resulted in the first negative effects on the labour market of Japan in1995. Can the question be raised whether the much debated industrial hollowing-out will turn into a hollowing-out of the labour market, too? It is even harder to predict whether businessmen, students, professors and technicians will be joined by individual Japanese seeking job opportunities abroad. This latter form of migration is somewhat hindered by geographical and cultural remoteness, while the Hungarian case is different, as a better knowledge of languages, the partly common European traditions of culture (particularly German culture) and close contacts with relatives may encourage emigration.

Besides emigration, delaying entry into the labour market by continuing their studies might be another response of young unemployed people in both countries. Deregulation measures would directly or indirectly create new job opportunities in Japan, but there would also be loser industries being exposed to more intensive international competition.

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Standardization of Occupational Health and Safety Management Systems

Globalization of the Economy and Improvement of Worker's Welfare

Yoichi Nishijima

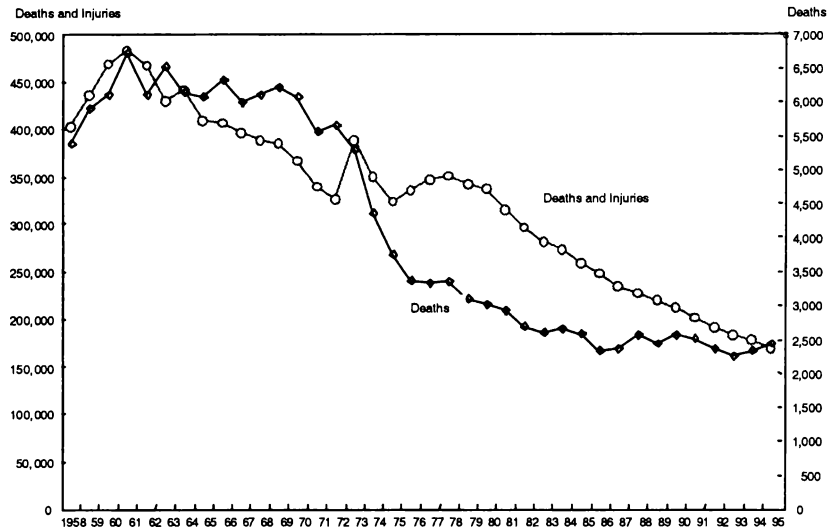
A. Paradigms Cause Changes in Economic Structure

Economic structure is affected by paradigms. Growing concern about the global environment has resulted in a worldwide change in economic structure. An organization's activities, products and services can and do have an impact on natural resources and on human resources. The former is recognized as a global environmental issue and the latter as occupational health and safety (OH&S). OH&S is intended to reduce and prevent work oriented accidents and ill-health.

In the last several years proposals for the standardization of occupational health and safety management systems (OH&S-MS) have been raised and the view that these efforts should be continued, based on an international consensus, is becoming more popular.

B. The State of Improvement of OH&S in Japan

Work oriented accidents and ill-health in the Japanese industry have declined to about one-third of the peak level of 1960. As shown in Fig. 1 "Changes in Death and Injuries in all Industries in Japan" and Fig. 2 "Changes in Injuries in all Industries in Japan", the number of deaths and injuries has declined from 480,000 in the 1960s to about 160,000 in 1995, with deaths declining from 6,700 to 2,400, and the number of injuries dropping from 30,000 to 10,000. This is due to the development of all kinds of laws and a regulation framework on OH&S and to the unceasing efforts by corporate management and jobsite key personnel.



Source: White Paper on Labor, Ministry of Labor.

Figure 1: Changes in Death and Injuries in all Industries in Japan

C. Standardization of the Environmental Management System ISO 14000

I. Setting of Self-regulation Standards by Industry Initiative

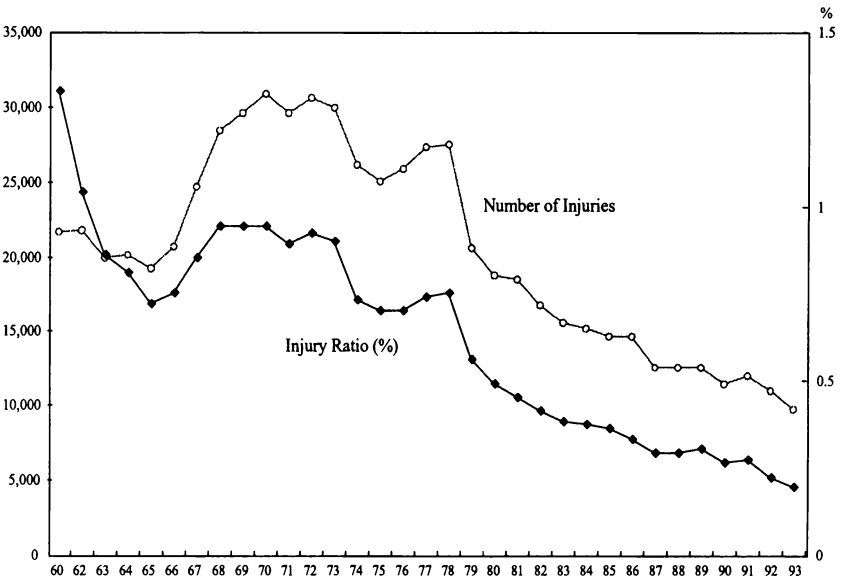
Fig. 3 "Principle and Guideline for Environmental Management" shows that the worldwide movement for global environmental protection have made remarkable progress in the last ten years. The following may be a useful agenda when considering OH&S:

Step 1: Agreement on a worldwide common principle of "sustainable development"

Step 2: Setting up of an Industry code of conduct "ICC business charter for sustainable development" etc.

Step 3: Publication of ISO 14001"Environmental management systems—Specification with guidance for use" for self-regulation measures by the industry

Step 4: Setting up of a code of ethics for environmental management by the chemical industry.



$$\text{Injury Ratio} = \frac{\text{Number of Injuries}}{\text{Number of Workers (Labor Regulation Low)}} \times 1{,}000\ (\%)$$

Source: White Paper on Labor, Ministry of Labor.

Figure 2: Changes in Injuries in all Industries in Japan

An organization's accountability to shareholders and its fulfillment of the requirement of society to interested parties concerned with the environment is reflected in its self-regulation standards. Self-regulation in an organization's activities in line with sustainable development will help establish environment-related business ethics.

II. What is the Environmental Management System Standard ISO 14001?

The aim of this international standard ISO 14001 is to support environmental protection and the prevention of pollution in balance with socio-economic needs, addressing the needs of a broad range of interested parties, such as the government, the public, local residents, shareholders, investors, insurance companies etc. This international standard is applicable to any organization that wishes to implement, maintain and improve an environmental management system, assure itself of its conformance with its environmental policy, including compliance

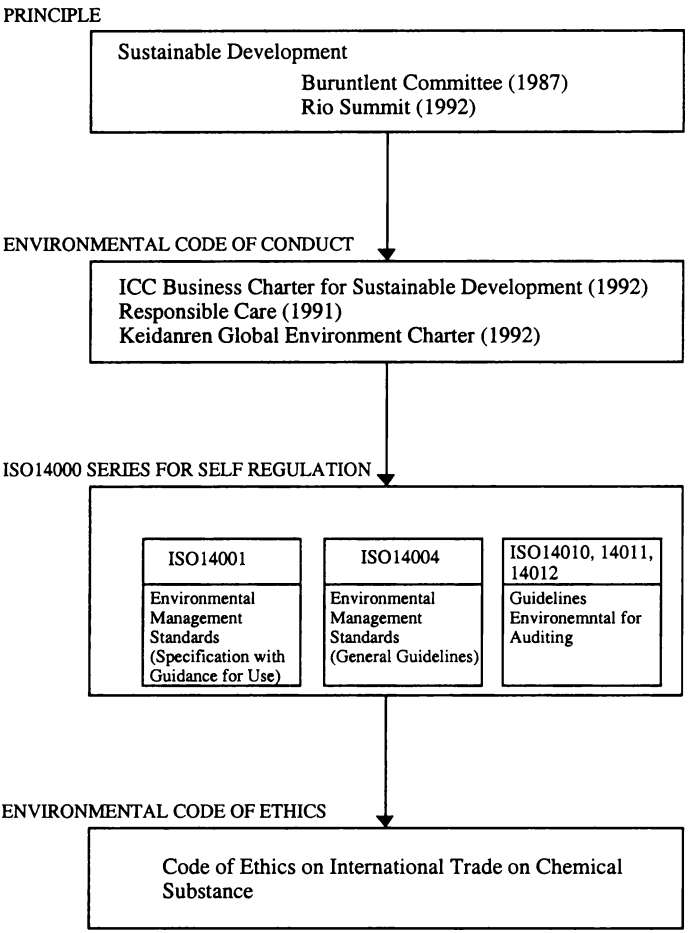


Figure 3: Principle and Guideline for Environmental Management

with legal requirements, demonstrate this conformance to others, and seek certification of its environmental management system by an external organization.

This international standard shares common management system principles with the ISO 9000 series of quality system standards.

The basis of the approach is shown in the PDCA (plan, do, check, action) cycle, common and popular tools and languages for organization, presenting continual improvement of environmental management systems.

D. Standardization of OH&S-MS

I. OH&S Self-regulation Standards by Industry Initiative

A comprehensive legal framework already exists requiring organizations to manage their activities in such a way as to anticipate and prevent circumstances that may result in OH&S. Standardization of OH&S-MS seeks to improve OH&S performance of organizations by providing guidance on how the management of OH&S may be integrated with the management of other aspects of business performance to minimize the risk to employees and to establish a responsible image within the marketplace.

The BS 8800 "Guide to Occupational Safety and Health Management Systems" shares common management system principles with the ISO 14001 of environmental management system standard. The basis of the approach is to implement and maintain OH&S-MS shown in the PDCA (plan, do, check, action) cycle to conform to the 17 required elements of establishing an OH&S policy, P (plan), D (do), C (check), and A (action).

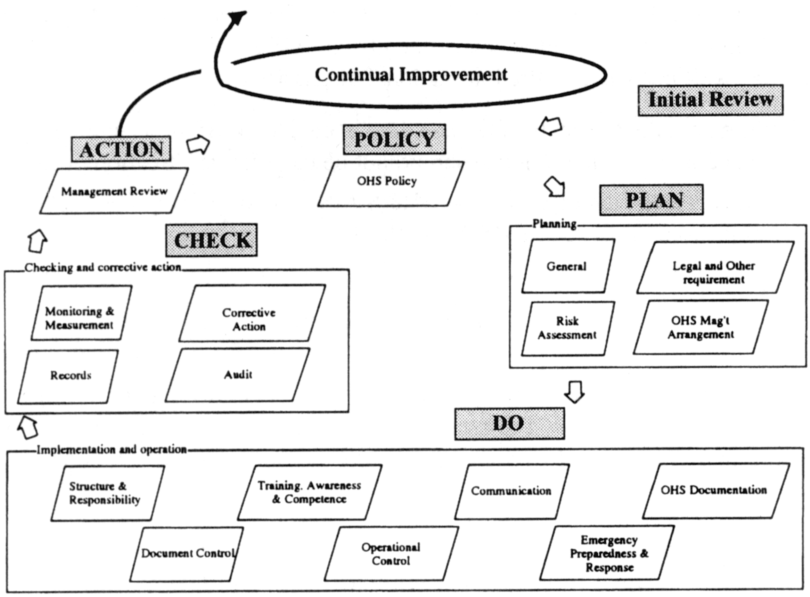


Figure 4: Elements of the BS 8800 OH&S-MS (ISO 14001 approach)

II. Integration of the 3 Management Systems of Quality, Environment and OH&S

The concept of a generic management system integrating management systems of quality, environment and OH&S etc. was proposed by the ISO 14000 conference in 1994. The generic management system shares common management system principles and auditing for quality, environment, and safety systems. Toward the 21st century, an organization is expected to fulfil the requirement of society regarding customer satisfaction, global environmental protection, communication with interested parties, reduction and prevention of work oriented accidents and ill-health etc. Such new paradigms which seek to establish of business ethics will enable organizations to survive in the 21st century.

E. OH&S-MS Standards in Various Countries

I. The British Standard BS 8800

BS 8800 "Guide to Occupational Safety and Health Management Systems" was published in 1995 and is based on "Successful Management of Health and Safety at Work HS(G)65" prepared in 1991 by HSE (Health and Safety Executive). This standard is well ahead of the OH&S-MS standards of other nations, and may well influence future international discussions.

1. Pointing out the elements of the standard in chapter 4, BS 8800 contains guidance and recommendation and should not be used for certification purposes.
2. BS 8800 gives guidance on how OH&S-MS should be integrated within the organization's ISO 9001 & ISO 14001.

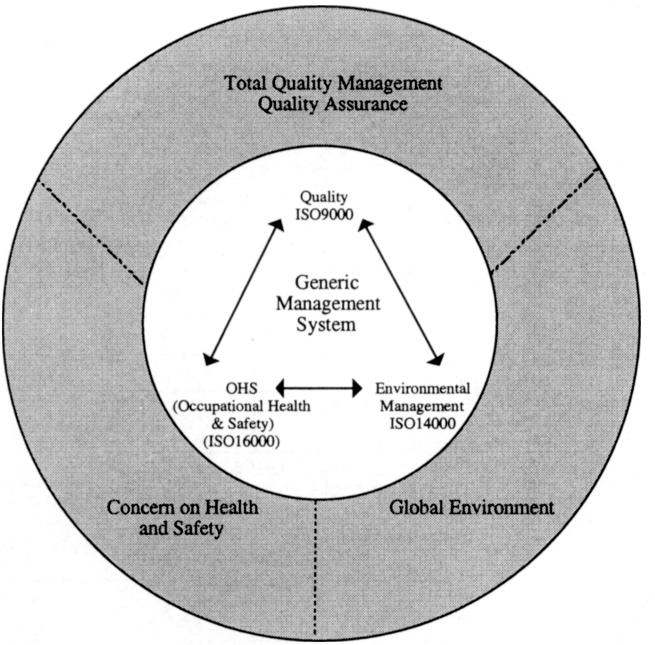
II. JISHA's OH&S-MS

JISHA (Japan's Industrial Safety and Health Association) is a non-profit organization established in 1964 to assist voluntary corporate OH&S activities. Beginning in 1993, it developed an OH&S-MS the outline of which is shown in Fig. 6.

F. Toward International Standardization of OH&S-MS

I. International Workshop on OH&S-MS

After two years of preparation, a two-day OH&S-MS international workshop was held in Geneva in September 1996, under the auspices of ISO, attended by



Structure of Generic Management System

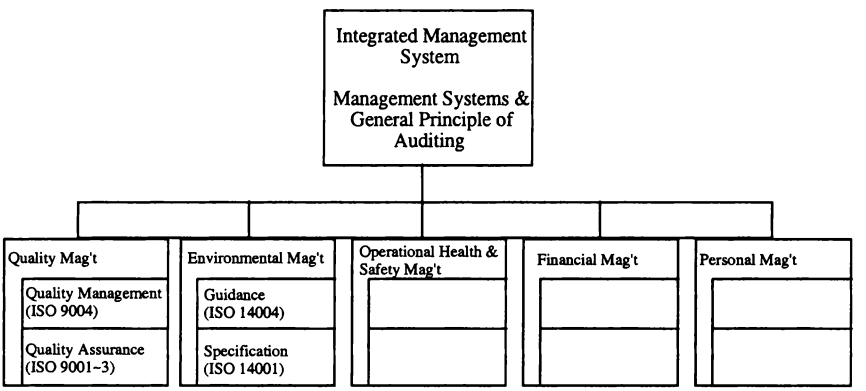


Figure 5: New Paradigms and the Generic Management System

331 participants from 44 countries and six international organizations. Participants were from 4 stakeholder groups, Employer/ Industry, Labor, Government and Insurance and related interests. There were 22 participants from Germany and 19 from Japan.

20 Areas of JISHA's OHS-MS Audit

0. Corporate policy and President's principles	10. Chemical safety
1. Establishment policy and director's principles	11. Working environment
2. Health and safety management plans	12. Health and safety control o operations
3. Health and safety management enforcement measures	13. Medical surveillance
4. Health and safety organization and the key personnel	14. Promotion of physical and mental health
5. Health & safety committees	15. Comfortable workplaces
6. Guidance and assistance to subcontractors on the premise	16. Measures for special workers
7. Health and safety education	17. Traffic safety of commuters
8. Daily activities	18. Analysis of accident causes
9. Machinery and equipment safety	19. Emergency

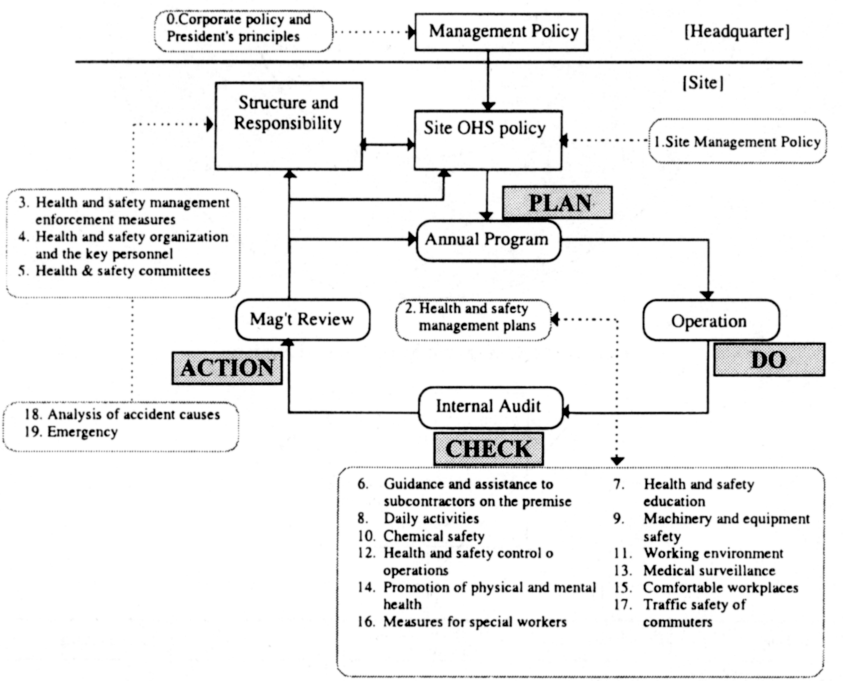


Figure 6: JISHA's OH&S-MS

Conference results:

Workshop participants could not come to an agreement on establishing an international standardization of OH&S-MS. The following is a summary of each group's opinions:

1. Employer/Industry: International standardization is premature, and ISO standards may not be useful. They are not necessary at the present time.

2. Labor: Reserved judgement. It is not clear whether the three-party configuration of government/employer/labor can be maintained.
3. Government: Opinions were split, for and against. Even if international standards are developed, will there be national or regional standards?
4. Insurance: Opinions both for and against. In practical terms, the industry opposed a standard, for certification purposes, preferring guidelines.

II. Future Trends in International Standardization of OH&S-MS

As the international workshop indicated, there is a high awareness of OH&S, and there is wide recognition of the significance of MS responses and a demand for a continual reduction in work oriented accidents and ill-health. The introduction of preventive measures etc. is probably a valid reason for developing standardization of OH&S-MS. In addition, an international standard of OH&S-MS may be valuable in reducing conflict and problems arising as individual countries develop their own national standards. Nevertheless, we must keep the following points in mind:

1. The goal of ISO is to eliminate technical trade barriers. Will OH&S-MS standards simplify trade?
2. The target of OH&S is the employers and employees, who have contrasting interests. Is it possible to moderate this confrontational relationship at an ISO toolmaking platform?
3. Can the regional diversity of workplace customs in different countries be overcome, allowing the establishment of international standards?
4. While there is certainly sufficient merit in the idea of the implementation of a generic management system in an organization, why is it necessary to bring it under ISO?
5. Is this the right time for international standardization of OH&S-MS? There are only some countries with domestic standards. Isn't there a worldwide shortage of expertise in the vital process of developing such standards?

The Information Highway and the Future of Work

Günter Müller and Tim Bussiek[1]

A. Work under Construction

According to Jean Claude Derian, economic adviser to the French Government, the historical turning point when the world economic competition began to be global was 1970. He discusses a number of reasons, but prominent is cheap transportation and the possibility to control remote production capabilities, alongside the more profitable allocation of economic resources, either in relation to relevant markets or more frequently to qualified and inexpensive labour and a minimum of regulation. The whole production process thereby became more flexible, in the products supplied as well as in quantity. Information technology is a tool to this effect. As simple computing power or in the convergence with new telecommunication technologies (today called telematics to highlight the hybrid properties) managers have again received an immensly powerful toolbox for novelty as well as for optimization in production and distribution processes. Although the implications for productivity and competitve status are not yet scientifically secure, the effects on the work domain are beginning to be understood.

At least since 1990, when Charles Handy in his "Age of Unreason" outlined some of the changes to be expected for organizations, work and living,[2] deriving out of the combination of new technology and fierce competition, the magnitude of change and evolution in these areas is apparent. In regard to labour the only constant seems to be that people will still work, however with changing employers and organizations, or increasingly self-employed, in different occupations, investing high-quality skills and attaining enormous productivity in a decreasing

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[1] The ideas in this article were first discussed at the University of Freiburg in association with a series of lectures on "How much future is there for work?" together with the Badische Zeitung in the summer of 1995, subsequently they were presented in a speech adressing the Harvard John F. Kennedy School in October 1995.

[2] Handy himself quotes roots like Peter Drucker's "Age of Discontinuity" and Tom Peter's "A World Turned Upside-Down".

amount of worktime per life. There is growing evidence that the mentioned changes are indeed taking place. Average worktime is decreasing with constant or increasing output. In an attempt to combat the decreasing demand for labour the trade unions in Germany have in large parts of industry achieved the 35 hour week. Volkswagen with its four-day-week has cut work time and salaries of the employees and thereby prevented a layoff of some 30,000 people. At IBM Germany a factory that in 1975 employed 3,700 people and had a revenue of one billion DM in 1990 employed 384 people with a revenue of 3 billion DM. In the USA the reaction to the decreasing demand for work, its policy on how to share work and income, is very different to Germany or Europe. The rate of unemployment is substantially lower, yet only for the price of lower income per capita. Here the declining importance of work is received in retaining the old work hours but in effect lowering the wage paid.

The underlying contradiction is the real issue behind the debate on the information highway: can industrialized countries realize the potential for economic growth via innovative technologies in accordance with full employment and social integration? What will happen to the winners and loosers in this game? What is the future of work? The discussion surrounding these central aspects of future life is mostly concentrated on issues like public funding, and what kind of national industrial policy is needed to stay competitive. The more important discussion on the implications for the social institutions and working structures however is usually avoided, and in this way little is done towards the acceptance and utilization of the gains of modern information technology as manifested in the information superhighway.

B. The Information Highway as Mobilizer

I. Technological Innovation and Impetus

Here we very briefly aim to portray some of the main characteristics of the technological developments concerning the information highway and cite the example of the multimedia value chain to demonstrate the enormous dynamics resulting. Although it is difficult to make a comparison while one is in the midst of change, the innovations around information technology, basically glassfibre for transmission and microelectronics for processing of data, may be seen as the 5th Kondratieff cycle, following steam power and cotton (around 1800), steel and railways (around 1850), electrotechnics and chemistry (around 1900), petrochemistry and the automobil (around 1950).[3] Each wave was seen by Kondratieff

[3] For a more detailed description see Nefiodow, 1991, pp. 26.

as basic innovations triggering a cycle of immense change, with new prosperity followed by a downswing and depression.

The main characteristics of the technologies around the information highway may be summed up as follows:

1. Digitalisation of Data

   This means the convergence of the forms of data processing, allowing information of any kind to be produced, manipulated and stored, including text, video and audio sequences. Digitalisation, bringing data to the computer, allows large quantities of information to be processed in a very short time without loss of quality.

2. Broadband Transmission and Datacompression

   The development of high-speed networks, e.g. broadband, satellite and mobile phone networks, has increased communication capacity over a thousandfold in the last 10 years. Including the advances in datacompression techniques, the online-transmission of large chunks of data is now viable.

Taken together, these two main thrusts of innovation have enabled the following qualitative improvements:

1. Networking and Decentralisation

   As was the aim in developing the ARPA-Network in the US in the 50ties, networking and decentralisation has made computer systems more robust, withstanding the inevitable breakdowns in some parts or bugs destroying some server. Much more than that, practically the world is now interconnected, and theoretically everyone may have access to any kind of information which is offered, and may introduce whatever kind of data he or she wishes.

2. Interactivity

   Departing from the earlier dominating broadcasting, today building on a client-server architecture the user of a system can go much further in influencing the service or content he/she is receiving. This means the customized presentation via independent channels.

3. Synchronisation/Asynchronisation

   The interests, and therefore the activities, of individual players will never be totally in time with each other. With the new technologies there is now much more room to either coordinate activities as wished, or to allow different processes to run parallel and only be fused together when necessary.

4. Universality/Integration

   Where before technologies were often optimized for a certain special application, today they are mere building blocks, thrown together into different combinations – as they are needed by the user. This leads to more universal or integrative technologies on the whole.

These new degrees of freedom have broken open traditional structures and boundaries of markets and industries. Today it is difficult to reach a distinction between the game, publication and film industries, television and computer industries or cable and mobile telephony industries. Delivering content to the customer is the only common denominator which remains. This means moving from a function-oriented perspective to a system- or modularoriented approach for companies to utilize opportunities on the information highway. Here the multimedia value chain focusses key services and technologies.

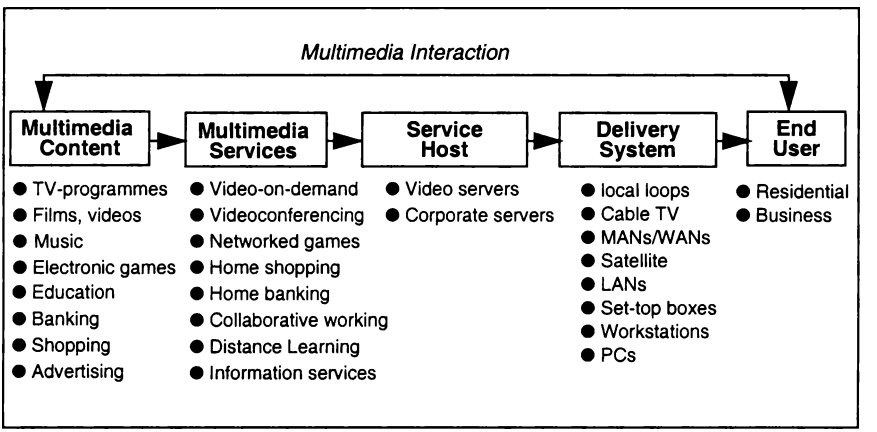

Figure 1: Examples for Key Strategic Areas within the Multimedia Value Chain

II. Layers of the Information Highway

It is impossible to find an exact definition of the information highway, in some respects it is questionable if "it" exists in any clear-cut way, as many different aspects and domains are included, and as the highway essentially transcends the mere technological dimension. We would like to present a formalized view of the relevant layers as they constitute the information highway in our view.[4]

Besides the telecommunication infrastructure as enabling conglomerate of systems concerning information transmission and processing there is the knowledge infrastructure, the pool of information and data somewhere and in some form stored and distributed out to whoever needs it. Here it should be stressed that the electronification of information is by no means complete, yet the accessibility of

[4] In slightly different form it is used at the CSIA.

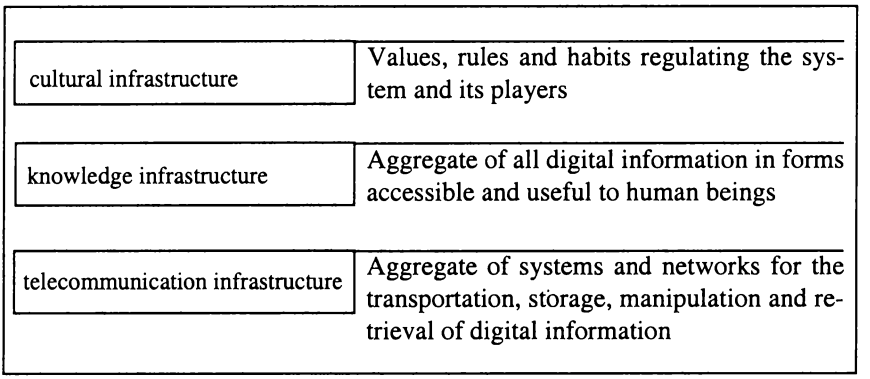

Figure 2: Layers of the Information Highway

for instance books through libraries is increasingly enhanced by search engines with titles or summaries and electronic ordering, these support systems then finally culminating in whole books being distributed via digital signals. The cultural infrastructure has a very different, a hermeneutic nature. Here the habits and practices in which way knowledge is transported and interpreted are manifest. These may also be described as the semantics and syntax which everyone has a notion of to give meaning to letters, words and sentences. Integral part of this is the mutual understanding of how these "signals" are instrumentalized for communication between fellow human beings. On this level the difficulties encountered in communicating between different nationalities becomes obvious: similar signals or symbols are used to describe different ideas.

The above model supplies a more holistic view of the information highway, and thus may be used to explain some of the problems encountered in its implementation. Here it is the telecommunication infrastructure, the technological basis, which, once equipped with the necessary standards, can be realized quite quickly. As soon as for instance the TCP/IP standard was developed and properly defined, everyone was able to use and apply it, and the internet has built up around this protocol. The same may be said for the architectures, the applications and tools exploited within the internet. The still rather high communication costs at the moment are a result of the high level of investment in new network infrastructure. Once these are fully established by way of fixcost-depreciation and competition winning over government regulation the prices will very likely come down dramatically. The current difficulties with standardisation are a good indicator for the high dynamics in information technology markets and the many innovations taking place. It is unclear how much of a hinderance this is, however a regulation would certainly be more destructive in the long run, as technological progress would be restricted.[5]

In contrast it has been much more difficult finding standards and definitions for the knowledge infrastructure, in the way e.g. business transactions may be documented in electronic form.[6] The cultural infrastructure is practically bereft of any fixed ideas of dealing with and interpreting information. Examples here are the "netiquette" or the ideas of "gopher", newsgroups and mailservers, yet they have the feeling of a passing practice and it remains unclear what application in what way will be utilized for what purpose. The following figure shows this differing degree of definition .

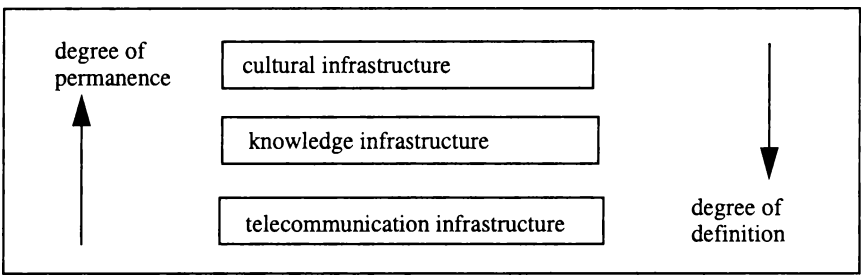

Figure 3: The Information Highway in Change and Structure

Also shown is the degree of permanence, which works in the other direction. Here the telecommunication layer suffers from an enormous amount of change and dynamics, with great uncertainty about the standards and definitions in the near future, making it impossible to plan accordingly. The knowledge infrastructure changes a lot less, while the cultural layer lags behind, in parts still retaining the logic and ideas of ancient philosophers. A lot more concern is caused by the question of privacy and privacy protection in a context of incredible speed and volume of information gathering and storing which are now viable. Here the metaphor of the "glass human being" is used in Germany to highlight the possible and dangerous transparency of every individual, at work as well as at home. Finally it will take some time before the human being-machine interface is developed to such a sophistication as to fully exploit all the opportunities that become attainable. A prominent example here is the informational overkill caused by the large amount of data accessible, often surpassing what is "reasonable".

Despite these intangible problems and inherent limitations, there is no doubt we are moving in the direction of the information society, and currently experi-

[5] Refer to chapter D where this point is looked at in more detail.

[6] One such attempt is the EDIFACT-Format.

encing an enormous technological push, where the pull of society is still a little vague. For acceptance and success of the information highway though, all three layers have to be adressed on their respective terrain. In the following we will try to show what implications this technological boom is having in the work arena, and subsequently how the systems of society might be brought into alignment.

C. Implications for Work

I. Contextual Themes

Besides matter and energy information may be seen as the third vital prerequisite for life. In economical terms, information is today seen as the fourth production factor besides land, capital and work.[7] Information allows individuals to bring together the other factors for production, to interact and build structures or organizations. These organizations may then also interact to build the complicated fabric of economy. As the information highway revolutionizes the flow and interpretation of data, these basic forms of production and interaction will be changed also.

Three main results of these innovations are usually discerned: substitution of present products, services and processes, optimization of these, or new products and new markets.[8] In the substitution process capital in the form of information technology is used to replace human information processing, e.g. replacing the telephone operator by a computer with voice generator, or the accountant by a computer. The optimization process is often also referred to as the "efficiency revolution"[9], whereas the present work and products become ever more sophisticated in their design and efficient in their need for energy and material input, while retaining their old functions and applications. This may also apply to organizational changes, essentially producing the same with less input or more with the same input. Finally the building blocks of the known and traditional world may be re-organized or re-invented in a before not possible manner to receive new products or services, and new work demands.

In reality it is impossible to say which part of the innovation process is more dominant, usually there is a combination. This will also vary depending on the political and economical parameters encountered. For instance at present human

[7] The German notion of "human capital" may be seen as the mixture of the work, information and capital factors.

[8] Compare Nefiodw, pp. 111, and Ropohl.

[9] For a detailed discussion refer to Brynjolfsson, 1993, and Mody/Wheeler 1990.

work, carrying most of the taxation and social system weight, is more expensive than maschine work. Therefore the new freedoms in production and interaction are used to substitute labour by capital, generally minimizing labour input through higher productivity. On the other hand, there is high demand for entertainment products. This then leads to new products and markets focussing in this industry. Here political policy comes in as it regulates markets and market behaviour. Media and telecommunication channels have always been seen as important areas of public life, with regulation often restricting the number of suppliers and channels available. On the whole the development in Europe is generally moving in the direction of liberalisation of these markets, with Germany attempting the full deregulation starting in 1998.

Globalisation got under way with cheap mass transportation and the continuous removal of most of the past trade barriers by the World Trade Organization (WTO, earlier GATT) and European Community integration. The new "light", often completely immaterial quality of goods and services together with the technologies of the information highway will take worldwide competition a whole step further. The last decade is already characterized by dynamic market forces and shortened product lifecycles, here there is no end in sight. If before capital was increasingly mobile between the countries, human work is following.

Yet again it should be noted that technically viable cooperations across national borders and even oceans cannot come about without the necessary harmonization and standardisation not only of the technology employed, but also of the knowledge base utilized and the ideas, the content which is dealt with. These problems may be called transaction costs, as they result when different companies or individuals make contracts about a good-compensation relation. In this case it doesn't suffice to find a transaction partner and to barter the specific contract, although this becomes more difficult across cultural barriers. Alone the need to control the fullfillment of the other sides duties can be extremely tedious with a different law system, whereas it becomes necessary to find the appropriate court and relevant lawyers to acertain the set-down rights of the (virtual) contract.

II. Model of the Core Organization

The abovementioned trends translate into massive changes for work, as programmes such as lean production and lean management are implemented. The objective is to have flatter hierarchies or even no hierarchies at all, more responsibility for the individual, incentives through successful projects, better motivation and identification with the enterprise, quality and cost awareness, no stark status differences. In all the main aim is to reduce the organizational slack to a minimum. The modern company should be light enough to quickly adapt to any changes regarding its markets, and show a very low fixed-cost base to stand com-

petition. It has to be flexible in two ways: complete adaptation to an existing solution (efficiency), as well as the quick and easy transformation regarding a new solution (opportunism).

The following model reflects these trends in an organizational perspective. Aspects of the "Shamrock Organization" as introduced by Handy[10] and the "Information Broker" as described by Reich[11] are complemented into the view of a coming "Core-Organization".[12] It answers to the above needs of high flexibility and low overheads in future, and therefore shows the result of a cut back on all excess, sparing only a core of permanent organization members, hiring or contracting more labour by demand or necessity only.

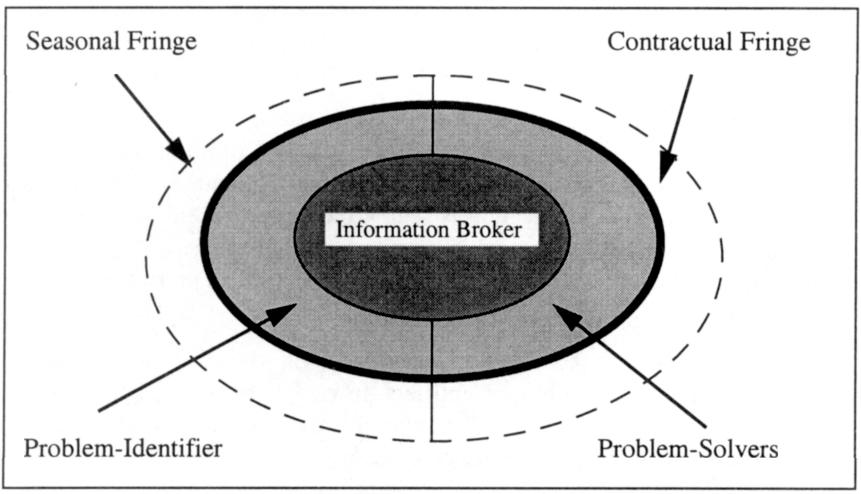

Figure 4: The Core Organization

The different sections are defined by their specific properties. Naturally the distinctions will not be upheld as sharply in reality as implied in this idealization, for a focus on and discussion of the characteristics of the future organization though they are very helpful.

1. The Core

These are the highly-qualified wage workers who have the benefit of permanent employment. They make up the corporate identity and culture, and distin-

[10] Handy, 1990.

[11] Reich, 1992.

[12] Conceptual framework of Bussiek/Hensel, Institute of Computer Science and Social Studies, Dept. of Telematics, Freiburg, mimeo.

guish the organization from others. They guarantee the continuation of existence, investing a high degree of loyalty. This federal core balances the decentralisation which is needed for the flexibility of production, it is the heart of the organization responsible for the reintegration of the before dismembered parts. This description resembling Handy's viewpoint is close to Reich's "symbolic analyst". Here however the accent is more in direction of the information highway, as the manipulation of symbols, in effect of interpreted data or information is the focus. The following three descriptions give the main tasks performed by such a symbolic analyst:

1. Problem Solver

   As new building blocks and new functionalities enable new products, there must be those who can combine creativity and an understanding of functionality to develop solutions for problems remaining to be adressed.

2. Problem Identifier

   As product cycles decrease and the individualisation of products progresses, skills become vital that identify future fields of profit in view of the customer. Here the important qualification is seeing the customer and simultaneously seeing a customized product which would be of advantage to him. Both the problem solving and identifying are performed as tactical prerequisites.

3. Information Broker

   Thirdly there need be those with a strategic outlook who can bring together the problem-solvers and problem-identifiers. In view here are market potentials, competition, finances and the selection of the necessary employees within the core to cope with the essential tasks of the orgainzation.

2. The Fringe

When all lean-management and downsizing programmes are through, the core organization will be smaller as all non-essential work is sourced-out. The fringe then allows the facultative reinforcement of the core whenever necessary to retain the old volume of output. These are mainly operative tasks in contrast to the core. A distinction is made between quantitative and qualitative variation in production:

1. Seasonal Fringe

   Especially following the trend towards services, seasonal fluctuations or ad hoc changes in the volume of production become normal (services are often impossible to stock). Here part-time or temporary labour is called in on short notice to fulfill contracts or oders as they come in.

2. Contractual Fringe

The idealized core only retains tasks which go along with the core abilities and specialization of the organization. For any other kind of work someone else is better equipped and trained, and therefore has higher efficiency and lower costs. Therefore fee contracts for a certain result are made with other (smaller) organizations who can deliver the desired input.

III. Changes to Work

From the above model a number of suggestions may be derived for future work, with a specific look at the different sections and parts of a company as they evolve under the influence of the information highway. They are looked at here only pertaining the core, contractual and seasonal fringe.

1. Core

The infobahn has undoubtable benefits for the core employees of any company. These are as far away from a taylor-oriented labour as is imaginable. Extended responsibilites, more power to control, higher managment responsibility, and relative job security are some of the changes to be expected. Continuous qualification programmes help sustain the high level of functioning, disappearing hierarchies demand team work as a matter of course. The wages paid should be exceptional, as the core employees are the key to the organization.

Yet the demands on the core worker are exceptional also. Work time will need to be very flexible, and very much in tune with the aims of the company, as is obvious with a strong identification with the organization. To manage, balance and constantly reintegrate the different parts of the organization, to think in cultures and teams instead of streamlined control mechanisms is more than what was required before. Careers cannot be planned in advance, as lacking hierarchies prohibit promotions in the old sense of climbing a ladder.

2. Contractual Fringe

These individuals or organizations can themselves be conceived of as cores, so similar tasks may be expected: high flexibility, constant reorganization and redefinition of the combination of factors used to supply a specified product or deliver according to a contract. The advantages lie in the high chances of earning

outstanding income, risks obviously in the increasing risk of missing the follow-up contract and having to find a new core task. The level of qualification needs to be as high as in the core, as only the superior specialisation can insure continuous employment for some time.

3. Seasonal Fringe

Workers of the seasonal fringe would be expected to have lower qualifications. This might be true concerning their ability to switch to new occupations, however in their job they will still need to bring along a certain level of skills to fullfill their task. The commitment to the company will be less than in the core, as the level of identification cannot be very high following the low commitment of the company to the worker.

New technology combined with high competition will likely shape organizations and workers as described above. The new type of worker will constantly need to redefine his/her qualifications, look for lifetime learning, and invest a high mental flexibility. The setting will be international in design. He will have to allow flexible working time per day, per year and for life. The workers and companies will not be able to accomodate to all these changes by themselves. Government and unions have to help explain massive reductions in personnell strength, need for better infrastructures and assurance of education of workforce.

D. Setting the Cultural Background for Work on the Information Highway – Aspects on Government Intervention

I. Contradicting Requirements

The need to adapt to the technological and economical changes has shown in an immense pressure on traditional post-war society institutions. It is imperative for the economy and for the individual players to gain more flexibility. Usually this leads to the conclusion that the overall burden of common goals on these economic processes should be reduced, and more enthusiasm towards technology and economics is asked for. The tradition of social entitlement looses momentum and the voices requesting social benefit cuts are getting louder. This comes together with a decline of major institutions like trade unions and a trend towards individualism as the "old" rules and institutions become obsolete. These developments endanger more jobs, and further reduce the base on which the welfare and tax system is mounted – work. This leads to a deepening rift between those who have a job, and those who may never get one, and to what in Germany is

labelled the "two-thirds society", with prosperous two-thirds working, and with a third of mostly older or younger age who are costly and have no job and no expectancy to ever (re)gain one.

On the other hand it is clear that in such a virulent environment the need for "making sense" and reintegrating the disjunct building blocks of society into a fabric which might serve as a background for successful corporate action becomes more urgent as well. Simply put, the objective is to prevent a class struggle between those who have work and those who have not. The high risks of unemployment or financial loss to which working individuals are exposed needs to be compensated by trust in other social instituions, as corporate organizations look more toward competitiveness. Yet there is more to be considered. An evolution of the social dimension is needed to go along with, to accomodate the economical and technological changes. These innovations might be new deals between unions, enterprises, and government institutions, or the redefiniton of tertiary and quartiary education. Thus a multidisciplinary approach is necessary: judicial, political, economical, social, educational aspects are nearly always included. So how to go about re-inventing? The dimensions are gigantic and the risks very unclear. Clear is only that the domain of the individual entrepreneuer or the individual household is greatly transcended, they cannot realize individual goals in a global environment, if complementary politics is not defined and accomplished.

We will now discuss a number of aspects of this social evolution, especially concerning the way this evolution should be shaped by government intervention to make sense of the information society.

II. Selforganisation – A Modern Virtue

Fields of possible tension are nothing bad, they are needed to reach open paths for the necessary new. One catch word is "selforganization", which as an ideology would be called "laissez-faire". The concept of selforganization is acceptable in regard of the individual when it means lifetime learning and openness for changing worlds. Here it is a part of the century old liberalisation and emancipation process of the people. Yet selforganization is a means and not an end. The essence of selforganization is change – for better or worse remains to be seen. And when change or the need to adapt reaches a magnitude like today, the individual as well as the whole might not be able to follow along, obstruction to change resulting. Here government might want to reduce the number and speed of innovations, or guide and shape the scientific-technological process in such a way as to avoid tensions in the social context from the start. It is unquestionable that a lot of government regulation is still in place, restricting the advances possible.

However there are a number of dangers immanent which restrict a too encompassing influence. Firstly it is unlikely that an elected government could assume as much power to make much of a difference. Apart from that in such a dynamic environment it is nearly impossible to estimate future development and apply legislation accordingly. Simple solutions and the idea that markets can be controlled for a long time remain fiction, and history has proved it. For instance if it were possible to define a new set of rules and concepts people trust in and build the information highway with its huge investments (in the US the gigabitnetwork may cost around 3oo billion, in Europe estimates lie around 9oo Billion) accordingly, only later to realize the concept was inadequate, would relieve the government of future trust and influence alltogether.[13] Often deregulation and less bureaucracy are rightly seen as prerequisites for change. However paradoxically it is usually the case that the old regulation is merely substituted by new regulation as the need for a dependable context for individual action remains.

III. Economics and Ethics

Taking selforganization as a model for organizing the society or companies leads to pragmatism, which is fine if it is guided by objectives or values. Yet these objectives have become to be dominated by a focus on economic criteria like efficiency and competititveness. The separation of the social dimension from economic thinking according to modern day realism seems like a natural consequence and a prerequisite for the economic take-off. But these abstract terms hold no value for the human being as such, and therefore the short-term optimizations encompassing nearly all areas of life evoke feelings of emptiness for the actors, and imply cyncism for those hit by changes. According to Luhmann virtues of secondary nature will gradually replace those of first order. Cleverness, slickness, media adjustability, speed in changing behavioural patterns become virtues, while making sense and giving orientation is left to demagogues and religious groups of doubtful moral qualifications. Yet innovation and productivity, although they may be enhanced, mean nothing without the social context. Lacking motivational dimensions other than money, markets and hierarchies need not lead to the possible realization of the existing knowledge base within a company, with workers relenting to volunteer more insight than necessary. Directions and controls are the key ingredients to destroy creativity and the incliniation to take risks. If the social structure is not supportive, the information highway will be settled by autistic agents and not by netizens.

[13] Close to Hayeks idea of "constituional information deficit".

The economic catch phrase of Thatcher "try to get rich" stands in clear contradiction to Kennedy's appeal to public service. It is the world upside down if people are instrumentalized for the economy and not the ecomony for the people as a whole. What should be avoided is that the real consequence of the restructuring in connection with the information highway is not better performance of industry but the wish for more social restructuring. The information highway would be an efficient path that leads to nowhere.

IV. Dangerous Dualities

Dual images have a suggestive power: winner or loser, friend or foe, producer or parasite. The reduction of complexity allows the world to become simpler and more explainable. As this becomes a new paradigm of seeing and dealing, it is possible or becomes reasonable to establish a cosmos of political regulations where there is no place for day to day experiences and reality. This might explain the decline of the political class, as the population is turned off by oversimplifications and generalisations which do not reflect life as experienced by the individuals. Dependencies upon such a reductionist paradigm – with inside-outside, progressive and fundamentalistic, normal-unnormal – leads to blockages that are in direct contradiction to the ideas of selforganization otherwise propagated. Issues like this have to be part of the information policy and will be fundamental to increase innovation in a society such as ours – black and white do not provide the painter with the colours to describe the future. They may help to portray the situation, and to formulate expressions and models only. The present dualities are dangerous and an insult to the scientific self-esteem. Only a diagnosis using all available knowledge will lead to therapies with chances of success.

Other dualities result as a consequence of the present economic and political system: the unequal power structure, the widening gap between wealth and poverty, individualisation and lack of responsibility and then the expectation of full solidarity in case of need. The poles of unemployment further accentuate the power difference between the strong and the weak. Yet integration demands a definition of who is in and who is out to be able to redirect funds or fuse together certain groups. This definition might follow national or language borders, however the information highway is continually relieving traditional borders of their earlier importance. More likely one group will go into the new infohighway paradise – the global village, while the others move into the ghetto without any hope of escape. This division is counterproductive and totally against the ideas of the information highway and the global village.

E. Solutions

I. Traditional Solutions: More Work, Spread Out

If the new information technologies constitute an innovation base which may stimulate new products and services with a potency to enduce a new Kondratieff cycle, then indeed there is no reason why prosperity should be at a loss. Already the markets around information are generating enormous value and profit. Even the market for computers with its fierce competition still supports a large quantity of profitable companies. There is evidence to suggest that there need be no declining demand, that the potential of the information-bound industries will develop, and that Europe will play its part in this development. Yet these products do not necessarily lead to new jobs, and when they do, not necessarily in Germany. The relationship between national competitiveness in a global market and full employment is lost, especially with gigantic foreign investments of German industry, exporting workplaces, exporting capital, and leaving the workforce at home. There are no truly German products any more. It should be seen that as society and what holds it together remains fixed to national borders, the production process is increasingly independent of an attachment to a certain region or a cerain culture. It may be that no matter how many more products and services are invented in Germany, they will not be manufactured here, or even if so, the taxes will be paid elsewhere.

Another – practical – solution is to share the decreasing amount of labour. However, following the distinctions made in the context of the core organization, it will be extremely difficult to share core tasks with the necessary high qualification and identification with the organization. This will be equally true of the contractual fringe, where work is also closely bound to the person. Only the seasonal fringe workers may be brought to sharing their work hours, however it would need an authority like the state to bring this about. The disparate qualities of work, the need for flexibility and change, will make sharing work nearly impossible. Another disadvantage may be seen in different productivity increases in the various economic sectors. Here linear reductions across the band of industries are very problematic.

II. A Pragmatical Solution – The Creativity Infrastructure

Recurring to the concept presented in chapter 2 with the three layers of the information highway, the main challenge regarding the infobahn then lies in achieving cultural innovations to accomodate the massive changes taking place

within the other infrastructures. A new understanding of information, news, a new language to grasp the new phenomena etc. is necessary. Here government action in the form of public education can go a long way. Quite obviously the children of today have not grown up in the industrial society dominant until now, they are very willing and able to embrace the new opportunities opened by new technologies. Schools have to change accordingly, more is required than gearing the pupils to the needs of the corporation of old, for instance the idea of the information broker and the skills assigned to him need to be built and encouraged. As change becomes a way of life, so too will life time learning to stay abreast with the new environment. This could mean opening universities to the public, and encouraging the already growing quartery sector of learning.

With regard to the information highway it is possible to go further and envision the creation of an infrastructure for creativity. This integrative approach means seeing in all consequence what future key success factors will be: linking up the sources of cultural innovation (schools, universities, laboratories, government etc.) on the knowledge infrastructure to meet the rapid pace of change in the field of technology. It means accepting change as a permanent phenomenon of modern life. Government should fill the role of mediator or moderator, as such an infrastructure again clearly transcends the scope of any one company, in dimension and as positive external effects will reach all those who take part.

III. A Philosophical Solution – A New View of Work

It is not so much the technology but the organisation of society and specifically production and work which is lacking. Here new forms must be found to accomodate to the demand for change, i.e. a new picture of what work is and isn't. One major problem is that work will in the long run no longer serve as the basis for earning income and consequently as a tax base and provider for the social systems as work has come to be seen following industrialisation. Relatively static mass production allowed the establishment of a middle class, which in regular and steady jobs earned a continuous living which could be counted on to finance common goals. Unemployment was the exception, and insurance against it no large burden.[14] The context has changed, but still the monthly wage is the cornerstone of the tax and social security system. To move away from this view is to see work as something more than an occupation which is compensated on an hourly or monthly basis. Work may be voluntary charity work, or tending a family, or studying etc.[15]

[14] For a detailed historical view of the developments in the USA see Reich, 1992.

[15] Compare Handy's work portfolio, 1990, pp. 183-193.

But how to manage such a change of mind and put into effect a different regime? In contrast to the right to work which in basically all eastern countries was part of the constitution this might be replaced by the right not to work. This could imply:

1. Giving to everybody a minimum income from birth on (if all social benefits are taken together today, already very large sums are transferred)
2. Introducing an ecological and machine oriented tax structure, instead of the individual tax structure of today, which by itself needs to be reduced drastically and made flat.
3. Establishing an incentive structure for free education and an inclination to work.

Obvious problems apply. The above steps cannot be managed in an incremental evolution, but will probably need to be taken in what to many will be a revolution of the way government attains funds for its purposes, and the way success and the ability to pay taxes is understood and measured. For a country like Germany it would mean going a very different direction in contrast to the other European partners.

F. Conclusion

The real challenge of the infobahn is not alone a technical one, neither is it a question alone of the right economic incentive. The real need for innovation arises from the necessity for coordinated economic restructuring accompanied by complementary social innovations. All of the above solutions may help towards finding a new image of work, and the organisations and instituions which make up the necessary fabric. Yet these fundamentals will constantly need to be brought into a new balance, similar to the very difficult task of the core in the future organizations to hold together and coordinate the many disparate actors involved in the production process. The technic-economical and socio-institutional domains need to be constantly moved in the direction of a harmonious relationship as from their nature they tend apart. Perhaps one advantage of the increasing dynamics will be that the normal term of a politician will soon be long enough to accompany long-term decisions as these essentially become medium-term.

Creating and formulating such an industrial or technological policy will be very difficult. There is the undoubted truth that the market system has brought a lot of benefit, and government should obstain from the development and regulation of new technologies. The truth is also, however, that none of the companies has the money to build any national or international infrastructure. Even if Hayek says that engineers and people from business school are the real undertakers of

free market society some consideration about the whole cannot hurt. Cooperation ranging above confrontation will serve long-term success, ensuring social adaptability to changes and challenges. The energies of friction should be directed into adapting, not social conflict.

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Working Time and Work Location Flexibility – the Example of IBM Germany

Manfred Kurz

A. Foreword

In the period after the Second World War there was an ongoing trend in the European States to reduce working time of the individual employees. Especially the development in Germany (see table 1) was characterized by labor struggles for reduction of regular working days (Saturday as time off), for reduction of regular weekly working time and also for extension of annual vacation time of employees. In the last years this trend became the more stressed the more unemployment increased because unions believed that through reduction of working time unemployment could be overcome. As a "final" result we see today in important industry branches, particularly in the metal branch, a 6-week vacation time and a 35-hour week as regular working time.

We may consider the above a final result, because currently at least a stillstand of these developments can be observed. Naturally those outcomes of collective labor agreements (combined with high wage raises and increases of mandatary contributions to social security at the same time) led to the well known high labor costs in Germany. It is the opinion of economic experts that this is one of the reasons of the high unemployment rate in Germany and especially of the "export of jobs". It is for these reasons that now the powerful German unions focus on agreements for job security and job securing. Further reduction of working time, even in the sense to secure jobs, is no actual union demand.

For a long period of time IBM Germany itself was bound to the collective agreements of the metal industry. Only since 1994 new inhouse tariffs with new different regulations have become effective.

On the other hand IBM Germany, like other competitors, was faced with new technological challenges in manufacturing data processing devices and components and also with new requirements by customers. To remain a competitive employer, IBM had to seek with respect to working time new models allowing

Table 1

Working Time Development in German Metal Industry and within IBM Germany

			Gross-WT		
Year	H/W	Vacation	P. A.		
1950	48.0	15	2,256		
1960	44.0	20	2,024	-232	→ Introduction 5-days-week
1970	40.0	25	1,800	-224	
1980	40.0	30	1,760	-40	
1985*	38.5	30	1,711	-49	→ "Flexibilisation of WT"
1988*	37.5	30	1,661	-50	
1989*	37.0	30	1,634	-27	
1993*	36.0	30	1,595	-39	
1994*	38.0	30	1,650	+55	→ Inhouse collective agreement
1995	38.0	30	1,672	+22	

* Effective April
Basis: 52 weeks ./. (3–6 weeks vacation) ./. 10 Holidays (=2 weeks)

enough flexibility to comply with the targets of competitiveness and best service for the customer. We also knew that preserving high employee motivation was one of the preconditions to achieve these targets. But it also meant we had to meet the demands by employees. Especially we had to adjust to new trends in employee attitudes (generally understood as value changes).

To understand IBM's regulations on working time, we have to keep in mind the above mentioned general trends. However, specific reasons of our particular business needs have to be added. Therefore it is necessary to describe these factors first.

B. Situation / Influencing Factors

During the last decade companies all over the world have been facing indepth restructuring measures for various reasons.and more we see global competition of companies operating worldwide. Many of the enterprises try to implement global strategies for manufacturing and selling. This applies particularly to the information technology industry. However, we see not only global players but also medium-sized companies, especially in the software market, that attempt to fill out open niches nation wide. And if a company wants to be competitive, it means being able to react in the same way as its global and national competitors. With

respect to working time it has to produce within the same time frame and with the same flexibility as its competitors and has to offer the same level of customer service.

C. Looking at Manufacturing

The high-tech products such as chips or storage devices which are produced in our plants in Böblingen and Mainz require very expensive production equipment. To use this equipment economically, one needs a business operation time as long as possible. Furthermore, due to technological reasons, chip manufacturing based on long lasting chemical processes which cannot be interrupted at the end of a week needs continuous flow of those processes and therefore continuous operation. Similar facts apply to the production of storage devices. This leads to the necessity of shift work, even continuous shift work and to the requirement to work on Saturday and even Sunday (which is principally not permitted by law).

Unbalanced workloads with gaps and extreme peak loads also require a flexible overtime system. Overtime is also necessary for unforeseen repair work in the complex manufacturing processes.

To reach flexibility in overtime is often not easy. One-time overtime means paying high premiums added on to the basic salary for every hour of overtime worked; on the other hand the consent of the Works Council is required if it is not planned overtime.

Due to collective agreements with the labor unions overtime payments mean usually the payment of a premium up to 25% per worked hour of basic salary. Still higher premiums up to 100% of basic salary have to be paid for overtime work at night or on Saturday, Sunday or holidays.

In view of these facts employers try to avoid overtime as much as possible. To circumvent the necessity for overtime, the only answer is to introduce a flexible working time system allowing employer and employees to balance the different workload requirements by time off or additional work if necessary (without additional costs). The situation applies to most areas of industry, however, due to individual contracts mostly dependent on amount of salary granted, overtime payment can be already included in the base salary as lump sum and therefore considered paid. This relieves the company for paying overtime to high-paid specialists.

The running of computing centers and telecommunication networks, especially for customers sharing our networks, demand continuous supervision and assistance. Because the systems can have breakdowns or require supervision, often at night or on weekends, a model for emergency service has to be installed. In this

context it is necessary to avoid too high a workload, especially too much service time during nights and on weekends. To balance those requirements, the installation of a steering system which is location-independent could be useful. This can also help in avoiding demotivation of often requested specialists.

In the sales and service area the needs and demands of customers have changed. Due to their high investments in IT Hard- and Software and the dependency of their business processes on the IT Systems, customers mostly want to be served during off hours and not during regular working hours. Installations of new hardware will be performed only on weekends.

In view of narrow time limits and deadlines for programmers and technical specialists within our system and application development centers, we have an ongoing need for a very flexible working time system that allows for a wide spread between low working time requirements and maximum working hours up to legally permitted maximum time (60 hours per week, 10 hours per day).

Other employees like sales representatives or high-skilled people in the research department should be allowed a maximum of freedom in choosing their working time to be successfull. We have to provide them with reasonable working time regulations as well as compensation systems rewarding success and objective achievement.

Programmers, application developers and our research people could also state that location-independent work will give them more flexibility. Yet pre-condition to this is getting information through access to information systems at every location where they work. This saves also travelling hours. Furthermore the location-independent work in connection with the use of an electronic communication system helps to bridge the time differences between Germany and the United States and therefore enables a cooperation of the German employee working from home with his colleague in the US.

Last not least we have to be aware that high-skilled people in particular are subject to a change in work motivation. Discipline, hard-work and high income are not as meaningful as self-realization, self-responsibility and a challenging position. People want to be more independent that includes personal working time. To promote motivation, an enterprise has to provide flexibility in working time.

The pressure to gain productivity and at the same time to comply with wishes of employees led to "teleworking" attempts in our Company in the late eighties. As the pilot projects have proven their worth, we established in the early 1990s home terminals in employees' houses and apartments. Through scientific investigation we found out that those home work places are well accepted by employees if there is no prescribed fixed working time. Therefore we had to seek for appropriate solutions.

D. The Master Plan of IBM Germany to combine explained needs of customers with those of employees in spite of restricted regular working time

I. Introduction of a sliding working time system (selective work schedule or flex time)

a) Already in the early 1970s we established for all employees (exception shift-workers) a sliding working time system. It contained within the frame of a 40-hour week a daily core time (starting at 8.45 AM) of 6.5 hours; the chance to "bank" per day 1.5 hours or to work 1.5 hours less per day. Also a transfer of three hours banked (saved in the personal working time account) to the next week was granted.

b) This system was essentially changed when in 1985 the regular working hours were reduced by collective agreement (after a long lasting strike) from 40 hours per week to 38.5 hours per week. In order to keep the 40-hour week, time off days were introduced. Two hours per week could be worked in advance. The total credit account could sum up to 16 hours. Every second month 1 day time off from the personal time account could be taken; however the chosen day needed manager's approval.

c) After further collectively agreed working time reductions to 37 hours and in 1993 to 36 hours per week, the model of our selective work schedule again was extended. To run the business, the Company needed to keep an operation time from 7.15 AM to 6.00 PM (breaks included). This, in turn, led to a system enabling 13 days time off per year as compensation for work in advance. The credit account for working in advance was extended to 27 hours. To ensure ongoing presence of employees during business operation time, management had to control the presence of employees.

d) When IBM entered (see below) in 1993/1994 a new inhouse collective agreement on the basis of a 38-hour-week working time, new elements were brought in allowing increased flexibility for the IBM Company and its employees. The main effect is that paid overtime has to be regarded as the last resort for flexibility of working time. Due to the collective agreement employee and Company have first to make full use of the flexibility given by the so-called flextime, which means that within a certain time frame (daily, weekly, annually) employee and Company may freely select their working time (dispositive time) with respect to business needs. Minimum of this frame is 3 hours work in advance or vice versa 3 hours less than 38 hours, a credit account up to 30 hours (minus account up to 15 hours) and compensation of banked hours through 13 days off (only two days together) per year. Compensation period is one year. Further the employee is obliged to work two days

per year for education or training. For these he may use his account of hours worked in advance. Details are shown in table No. 2. This table demonstrates also that the IBM companies take full use of the chances for flextime.

Table 2
Model Parameters

Model Parameters*	ISG	EL	SN	DSSO
Working Time/Day				
• Core Time or	6	–	–	6
• Minimum WT	–	3	3	–
• Maximum WT	10	10	10	10
Working Time/Week	41–35	43–33	50–15	50–30
Sliding T.-Bandwidth	10.75h	14h	16h	12.75h
Starting/Ending	7:15–18:00	6:00–20:00	6:00–22:00	7:00–19:45
Compensation Period	Week	Week	Week	Month
• plus/minus	+3/-3	+5/-5	+12/-23	+10/-15
Compensation to	38	38	38	days/month x8
Work in advance	3	5	12	10
• max. Saldo	30	50	30	30
Negative slide Time	-3	-5	-23	-15
• max. Saldo	-15	-25	-15	-15
Days off/year	12 +2/2	12 +2/2	14 +2/2	12
Education days	2	6/2	2	2

*Hourly Basis

II. Overtime

- The system of flexible working time has to be viewed in context with the regulations for the performance of overtime and its payment system as explained above. Overtime has to be worked by an employee if business needs are given. As its performance is costly and needs consent of Works Council, employers try to avoid paid overtime and fall back upon flextime. They also seek exceptions for the expensive overtime regulations. In the new IBM Inhouse Collective Agreement managerial personnel (about 2 to 3%) and high classified employees (beyond the tariff job classification system, about 10%) are exempt

from the application of the tariff agreement. They have to perform overtime without payment if there are urgent business needs.

- Due to the peculiarity of their jobs sales representatives are not bound by the strict regulations of the collective agreement. The 38-hour week is only guidance for them, not compelling rule. They are free to shape their work and their working time. Success-oriented payment is measurement for them.
- In addition employees who are covered by collective agreement cannot claim overtime payment if they exceed their basic salary by a certain amount. According to a scale stipulated in the collective agreement starting with 10 hours and ending with 28 hours per month, employees have to perform unpaid overtime. It is agreed upon that this overtime is already covered by the employee's basic salary.
- Altogether we may state that more than 35% of our employee population is excluded from the tariff payment system with regard to overtime payment.

E. New Inhouse Collective Agreement

As already mentioned, since 1994 the IBM companies have been bound to a new inhouse collective agreement. What has happened? In 1992/1993 the then current legal entity IBM Germany GmbH was split into 5 daughter companies. The reasons for the split were restructuring measures aimed at faster decision making, more transparency and better branch-adequate terms and conditions. The old company remains as holding entity.

The newly formed companies then had to decide on their membership in an employers association and accordingly the application of its collective agreements. Due to law an employer is bound to the respective collective agreements when he joins an employers association that has concluded those agreements with the relevant union.

Our new companies (with the exception of the production company) decided not to become members of an employers association. First they wanted to enter into new individual labor contracts with their employees; however this appeared to be too difficult. Finally the way of a new collective inhouse agreement was chosen. In fact this led to a turnaround of the regular working time. Instead of 35 hours as in the metal industry, 38 hours per week have been agreed upon as regular weekly working time (without any monetary compensation). This was more suitable to the branch of software development, the selling of computers and relevant devices. Further flexibility was given through the explained elements of sliding working time as well as through the high percentage of employees covered by specific and more flexible regulations as described. The agreement itself makes additional chances for flexibility possible. For instance

for employees involved in projects with time targets a 40-hour week is permissible during the project time.

Works Council and employer may also agree on other working time models based on annual working hours to eliminate overtime payment.

Furthermore, to secure employment in specific areas facing high competition, we concluded recently a new collective agreement allowing a regular weekly working time up to 42 hours (e. g. at application development centers and at our international computing center with more than 400 employees). However, about a third of the time worked beyond 38 hours has to be paid, yet without overtime premiums. On the other hand to balance workload gaps, it is also possible that a reduction of regular working time can be executed. In this case the employee will obtain as compensation in addition to his new parttime salary a bonus of 30% of the former basic salary. Basis for these extentions or reductions of regular working time are individual agreements with the affected employees. They may last up to three years. An extension is possible.

F. Shiftwork

Due to technical reasons, but also to make best use of expensive production equipment, we perform shift work in all variations. This means 2 shift, 3 shift, night shift work as well as deferred shift. Especially interesting is our continuous model for our semiconductor production and network-controlling systems for covering all 168 hours of a week. The time patterns of up to 4 days time off are well accepted by employees (see tables No. 3 and 4). We started with a 5-team shift model. Now we run a 4 shift team model. To prevent employees from Sunday work, especially as the prerequisite of legal exception was hard to prove, we constructed for our storage device manufacturing plant in Mainz a 6-day-shift model starting early Monday morning and ending on Saturday at 6 pm. With this model 138 hours of a week are covered.

In the meantime all the above patterns have been successful. However, there is still one disadvantage from the view of the employer. It is the fact that we have to pay specific premiums or "adders" for working time outside the frame of the regular working time from 6 am to 7 pm.

G. Telecommuting and Working Time

After successful pilot projects were started in 1987 by which all aspects of telecommuting (working from an independent location) were investigated, we con-

Table 3

Distribution of Working Time and Time Off within Continuous Shift Model

	Week 1							Week 2							Week 3							Week 4							Week 5						
	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su
Team A	F	F	S	S	N					F	F	S	N	N				Z	F	S	S	N	N				F		S	S	N	N			F
Team B	N	N				F		S	S	N	N			F	F	F	S	S						F	F	S	N	N				Z	F	S	S
Team C			F	F	S	N	N				Z	F	S	S	N	N				F		S	S	N	N			F	F	F	S	S	N		
Team D	S	S	N	N		F	F	F	S	S	N						F	F	S	N	N				Z	F	S	S	N	N				F	
Team E				Z	F	S	S	N	N			F		S	S	N	N			F	F	F	S	S	N					F	F	S	N	N

F: Early morning shift, S: Evening shift, N: Night shift, Z: Additional shift time to meet collectively agreed upon working time

Table 4

Contiunous Shift Model

	70-Days-Model							
	Week	Mon	Tue	Wed	Thu	Fri	Sat	Sun
1 ➜	1	T/T	T/T	N/N	N/N	–/–	–/–	–/Z
	2	–/Z	T/T	T/T	N/N	N/N	–/–	–/–
2 ➜	3	Z/–	Z/–	T/T	T/T	N/N	N/N	–/–
	4	–/–	–/Z	–/Z	T/T	T/T	N/N	N/N
3 ➜	5	–/–	–/–	Z/–	Z/–	T/T	T/T	N/N
	6	N/N	–/–	–/–	–/Z	–/Z	T/T	T/T
4 ➜	7	N/N	N/N	–/–	–/–	Z/–	Z/–	T/T
	8	T/T	N/N	N/N	–/–	–/–	–/Z	–/Z

Explanation: Per cycle 3 T1 or N1 shifts as individual time off shifts and a flexible reduction of 3 hours worked.

Z: Interimshift
T: Dayshift
N: Nightshift
–: time off shift

cluded in 1991 a works agreement with our Works Council. It contains the principles and rules for performing telecommuting within IBM Germany. One chapter thereof deals with working time. Remarkable is that there is no restriction as to the amount of working time to be done at home. The employee is completely free at what time he will work and how long he will work per day. By written agreement he is only obliged to comply with the legal limits, e.g. shall not work on Sunday. This system enables freedom and full flexibility for the employee. Therefore it is very appreciated. This is one of the main reasons that motivation and productivity of our teleworkers are very high. The employee is also not con-

Table 5
Working Time

Shift	Pers. presence time	Breaks	Labor law	Coll. agreem.
Interim	6.5	0.5	5.5	6.5
Day 1	11.0	1.5	9.5	10.0
Day 2	10.0	1.5	8.5	9.0
Night 1	10.0	1.25	8.75	9.25
Night 2	8.5	1.25	7.25	7.75
average working time/week: 36h Vacation claim 25 labor days				

trolled as to how he works. The only thing that counts is the quality of the result of the task assigned and whether it was timely completed.

However, as we have found out, this kind of working still requires a direct relation ship with the business office. As a further precondition for the success of telecommuting we prefer the system of alternate teleworking. That means that the employee will only spend a part of his regular working time by teleworking; the maximum is 80 percent. The amount of teleworking as part of the regular working time has to be agreed upon prior to start. It depends essentially on the job to be done.

We found out soon that successful performance of telecommuting requires specific conduct by management. This means adequate allocation of work and especially a managerial style of strict objective setting and coaching by consulting. Furthermore, the achieved results have to be thoroughly evaluated.

Electronic communication via E-mailing is absolutely required. Only through E-mail can coaching be done to the described extent. Currently about 400 employees take advantage of this kind of work.

Location-independent work for our employees in the sales and maintenance functions is enabled by mobile PCs (lab tops) and through the access to the software systems in the central computers necessary for their job. Communication with management and colleagues is accomplished by E-mailing and cellular telephone. Due to this location-independent work we also were able to establish the "Shared desk" system, which means that several employees (currently on average 3 persons) share desks in the office. This saves space and is therefore a certain compensation to company costs for the required hard- and software equipment as well as the monthly fees for using telecommunication systems. Time is saved by direct travel from home to customer. The employees are no more dependent on information trips to the business office. For the distribution

of their working time they are more subject to customer requirements than to management directives. To a far reaching extent they are self-motivated. This applies particularly to their working time. As mentioned, the stipulated regular working time is for them not binding but only guidance. More than 2000 employees work already on that basis.

The described technical preconditions allow also to have extended standby service and other systems of work-on-request especially for our customer engineers. This also gives the company flexibility.

Other tools to utilize employment:

presentation of our working time models would not be complete without mentioning the other possibilities to perform reasonable personnel planning which covers peak loads or weaknesses of work load and imbalances of manpower.

There are the possibilities for a sabbatical year for training or education purposes or to take child care leave (up to six years) or a leave to devote oneself to the care of a seriously ill family member.

Still more innovative is the opportunity provided by a new collective agreement to go on part-time work for a period of up to three years and than return to a full-time position of equal value.

During the last years, however, due to necessary restructuring measures the focus has been on our various early retirement programs. Based on our Company pension program, employees from the age of 50 on can select to work part-time for a limited period (50% of regular working time) and will have to leave the company once they reach the age of 60. The employee is granted 70% of his former monthly salary (IBM pension plus direct compensation by IBM).

These retirement programs helped us to fulfill our personnel reduction targets. They also allowed us to keep the majority of our employees and not to dismiss employees.

H. Summary

In the difficult German environment with its complex industrial relations IBM has tried to find solutions for both staying competitive and being a caring employer despite the necessary restructuring measures. We believe that our solutions show that this is possible.

Labor Market and Work Organization

Tamiki Kishida

A. Introduction

Internationalization and informatization have brought us into the age of globalization in the development of worldwide synchronization. On the one hand, universality and the disappearance of borders proceed infinitely, and, on the other hand, a sense of the specific and of borders (ethnicity) stands for individual identity. Therefore, globalization convinces us of the complex features of our contemporary world, which comprises both universality-homogeneity and specificity-heterogeneity. This evokes the idea that while the global penetration of the "market" myth is breaking down the wall between capitalism and socialism, the endless fragmentation of the world based on racism is emerging simultaneously. From this dual point of view, I would like to analyze the relationship between the globalization of markets and the flexibility of work organization in terms of organizational adaptation to the environment.

B. Environment, Market and Organization

Recently, a variety of inquiries into corporate activities has been advanced, especially in both economics and organization theory. In economics, the New Institutional School has shifted the focus of analysis from corporate behavior in markets to the relationship between markets and internal organization. In organization theory, in turn, the Open Systems perspective has shifted the focus of its analysis from internal organization to the relationship between organization and environment.

Furthermore, the newest approach in new institutional economics and economic theory of organization now deals with the interaction of markets and organization, though the original approach treated only the pooled interdependence of markets and organizations (either markets or organizations). In organization theory, too, the perspective now widens to incorporate the bilateral influences of or-

ganization and environment beyond the Contingency Theory with a taste of environmental determinism.

Thus, the trend of enquiry is toward the interpenetration of environment and organization, and the comparison of corporate systems as a whole.

I. Penetration of Organization and Market (Environment)

Imai and Itami (1984) admitted that resources were allocated not only according to the market principle but also according to the organization principle. Here the market principle is composed of M_1 (free private interest maximization) and M_2 (free entry and exit), and the organization principle involves O_1 (direction based on authority for common interest maximization) and O_2 (fixed and continual relationship). As in Fig.1, we can identify seven types of resource allocation mechanisms. Prevalent are mixed types incorporating both principles (e.g. (M_1+O_2, M_2) (M_1, M_2+O_2) etc.).

(2) / (1)	M_2	M_2+O_2	O_2
M_1	Pure market	Organization-like market	
M_1+O_1	Organization-like market	Intermediate Organization	Market-like Organization
O_1		Market-like Organization	Pure Organization

Figure 1: 7-Cell Framework of Resource Allocation Mechanisms, Imai and Itami (1984)

In organization theory, the interaction of organization and environment is emphasized. Namely, organization adapts to its environment both through organization design (environment → organization) and environmental management strategies (organization → environment). The latter strategies contain buffer

strategies (standardization, slack, leveling, forecasting, rationing, and growth), independent strategies (competition, P. R., voluntary response, and institutionalization), and cooperative strategies (implicit cooperation, contracting, coopting, coalition, and strategic maneuvering; Galbraith, 1977). Thus, there are bilateral relationships between organization and environment. Namely, organization is changed to fit the environment on the one hand, and, on the other hand, organization tries to change its environment to fit that organization.

II. The Corporate System as a Whole

There are different kinds of markets, and also various types of organization forms. Aoki (1994) puts corporate activities in general frameworks for his comparative analysis of institutions (Fig. 2), though he uses this model to show the characteristics of Japanese firms only. He shows the dynamic relationships between three types of markets and two attributes of organization.

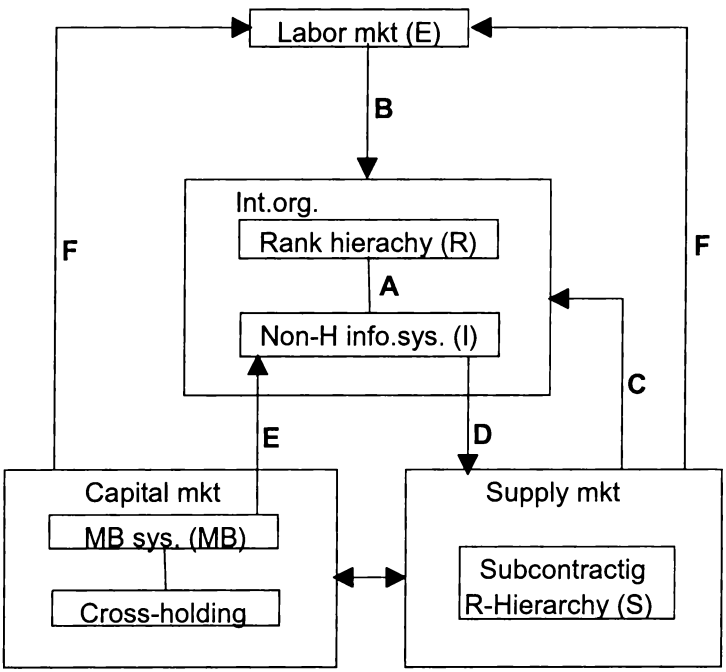

Figure 2: The Interconnectedness of Attributes of the Japanese Firm, Aoki (1994)

In organization theory, too, three levels of organizational environments are identified to analyze the relationships between each level of environment and or-

ganizational characteristics. That is, technology (internal environment), task environment (specific external environment), and cultural environment (general external environment) constitute these three levels of organizational environments. Technology mainly influences operational decision-making in work organization. Task environment has to do with the administrative decision-making in management organization. Top management coordinates these two types of decision-making to form the corporate strategy. In this way, we have three levels of hierarchies in organization.

C. Characteristics of Labor Markets in Japan and America

The institutional function of labor markets is to allocate labor power to specific tasks in the production process and to distribute the fruits of this labor to employed workers. Management controls labor processes through labor markets (Udo and Aldrich, 1988). The internal labor market may be viewed as a device of bureaucratic control (technical control + hierarchical control), and external control is easy to link to the occupational control. In general, it is said that Japanese labor markets are internalized and that American ones are essentially external. Imai and Itami (1984), however, point out that, in either country, organization-like elements creep into market resource allocation to remedy market failure and vice versa, and that only the patterns of the mixture are different in these two countries. In Japan, the low rate of unemployment and limited port of entry led to the development of internal labor markets. Therefore, Japanese labor markets are more organized than American ones. This, in turn, means the penetration of more market-like principles into Japanese internal labor allocation. Flexible movement of workers across job boundaries is an example of M_1+ O_1. Widespread use of subcontracting can be seen as a way to make the membership pool of internal labor transactions less fixed and open to a group of specified outside subcontractors ($O_2 + M_2$). In contrast, American external labor markets have seen the penetration of organization-like principles of allocation into their market-based resource allocation mechanism. One example is the strong industry-wide unions ($M_1 + O_1$) and the union shop ($M_2 + O_2$).

In summary, workers crossing the firm-market boundary but staying within the job boundary conduct the total allocation in America. Japan accomplishes its allocation by workers staying within the firm but crossing the job boundary.

Aoki (1991) summarizes the difference in the relationship between labor markets and internal organization in America and Japan as shown in Fig. 3. In America, external labor markets classified horizontally by job are complemented by vertical centralized information systems in order to integrate organization, while in Japan the vertical centralized organizational administration supported by the internal labor market is complementary to the decentralized information systems

in order to make use of workers' skills on the spot. This symmetric relation of a dualistic combination of centralization and decentralization is called "Duality Principle".

	Personnel	Information
Japan	Vertical	Horizontal
America	Horizontal	Vertical

Figure 3: Duality Principle, Aoki (1991)

From the above, we can grasp the outline of the differences between the labor markets in both countries. Next, the differences in work organization will be elaborated in detail.

D. Comparative Analysis of Work Organization

I. Comparison of Work Organization in Paper-Mills

Here, we compare two types of work organization. One is exemplified by Company D in Japan, and the other by Company M in America. Both types of work organization are said to be organized around "Autonomous Work Groups" as proposed by the researchers of the Tavistock Institute of Human Relations (Kondo, 1986).

In the first place, regarding the number and kinds of tasks, in Company M, three jobs (operator, maintenance, and lab technician) are separated clearly, and these three jobs are deliberately designed to train multi-skilled workers. In Company D, the two manufacturing processes (coordination and scoop) are horizontally differentiated, but in each process, every worker performs all three jobs done by different workers in Company M. These workers became multi-skilled spontaneously because the mechanization in Company M made it necessary.

Secondly, concerning career development, job rotation prevails in both firms, though the scope of career within each process is narrower in Company D. However, career depth in Company D is larger, because it takes, for example, 15 years to become an assistant manager in charge of coordinating whole tasks.

Thirdly, in relation to the formation of work organization, both firms have multi-skilled flexible workers in common. However, Company M intentionally

tries to heighten the ability of the workers to deal with unexpected work variances across the job within the work team, while such a system is produced naturally through the traditions and customs in the work place in Company D.

There are three similarities – group work, multi-skilled and integrative work methods, and job rotation within the department. However, the following two differences should be noted: the wider career scope in Company M and narrower but deeper one in Company D, and the fact that multiple skills are developed spontaneously in Company D, whereas they are intentionally designed in Company M.

II. Toyota vs. Volvo

Both firms adopt teamwork methods and use multi-skilled workers, and are said to have flexible production systems in order to be able to respond quickly to technological and environmental changes. However, the following three points are different.

1. Technology

In the first place, the "Volvo System" involves a radical innovation in production methods (e.g. abolishment of the conveyor-belt system), while the "Toyota System" centers around the concept of "Kaizen" (incremental improvement) on the shop floors. Secondly, at Toyota, workers perform Kaizen activities guided by management proposals, but at Volvo, workers are expected to change their work methods autonomously in their own way. Thirdly, Volvo System is effective in the sense that technological change is accompanied by new and multi-skilled jobs, which require independent responses on the spot. In contrast, when technological change brings about the reduction of jobs and produces monotonous ones, the "Toyota System" is more flexible and efficient.

In this way, the "Volvo System" relies more on workers' abilities, while the "Toyota System" favors mechanization over human skills for efficiency and productivity. This partly explains the recent assertion by economists that the Japanese management system is appropriate for the intermediate level of environmental uncertainty and the middle level of scale economies (Itoh, 1996). This is also parallel to the assumption on leadership style by Fiedler (1967). He asserted that the interpersonal orientation of the leaders was effective for the intermediate level of task uncertainty, but that the task oriented leadership style is effective for low and high task uncertainty.

2. *Organizational Behavior*

The "Volvo System" becomes product-oriented because it is centerd around the individual group; for example, in the parallel production system of the Udevalla plant each group performs complete tasks. The characteristics of this system are the close interdependence within a group which takes charge of one set of whole tasks, and autonomy between groups and between management and workers. In contrast, the "Toyota System" is oriented towards specialization based on standardization because a group of workers takes charge of a part of a whole task. Its characteristics are the interdependence between management and labor, and the sequential interdependence between groups of workers supported by QC circle activities.

3. *Autonomy*

In the "Volvo System", there is a wide variety of autonomy which motivates workers to maintain social systems, while, at Toyota, management makes every effort to promote all members' participation in, for example, QC circle activities. Here, autonomy is often checked under the initiatives of managers. Sacks (1994) argues that economic conditions and the power relation between management and labor determine the type of work organization. That is, the weak unions and the pro-management government produced a work organization suited to the demands for productivity and efficiency by the managers in Japan. In Sweden, however, the national unions and government policy enforced the introduction of a work organization, which accepted the workers' needs (autonomy and satisfaction).

In summary, both systems have some characteristics in common; a flexible work organization with group work, and multi-skilled workers. However, in relation to the labor markets, there are some dissimilarities in technology, organizational behavior and autonomy. the "Volvo System" accepts a wide variety of autonomy, workers' satisfaction, and workers' independence from management under the conditions of an external labor market. With such a work organization, workers' scope of career becomes wider and workers become product-oriented. In contrast, an internal labor market enables management to pursue their goals of productivity and efficiency that force workers to be function-oriented, and promote narrower job contents. In that sense, contrary to what has generally been assumed, especially by Japanese labor economists, the Japanese management system as represented by the Toyota Production System has a narrower scope of jobs than its western counterpart as exemplified Autonomous Work Groups in the "Volvo System".

E. Conclusion

This article discusses work organization in relation to environments (markets). There are three types of markets including labor markets as well as other non-economic environmental factors. In addition, we have some kind of organization according to the levels of decision-making. However, labor markets in particular have something to do with work organization. Work organization in Japan may be influenced by the characteristics of internal labor markets; function-oriented, narrower career scope under the initiatives of management. This seems to contradict the widely accepted assumption that workers in Japanese firms have a wider sphere of jobs than those in Europe and America. This general assumption is correct only when we compare Japanese workers with Taylorian one man-one job workers. With the increasing uncertainty brought about by globalization and informatization, the flexibility of work organization is required to respond to such environmental changes. The "Toyota System" and the Autonomous Work Group are two such systems. The former is an extended version of the Taylorian system in that it emphasizes the technological system and efficiency to resolve a vast number of coordination problems under the strong power and initiatives of management. AWG, in contrast, is also a flexible form of work organization which emphasizes the social system and workers' autonomy and motivation.

Therefore, the work organization of the future which is needed to respond flexibly to the dynamic change in labor markets is proposed as follows: The new integrative work organization should be a kind of matrix which integrates the function-oriented system with the vertical coordination at Toyota, and the product-oriented system with the horizontal coordination in AWG.

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