

CENTRE OF PLANNING AND ECONOMIC RESEARCH

No 69

Labour Market Segmentation  
in Greece:  
Historical Perspective  
and Recent Trends

by  
M. KARAMESSINI  
O. KAMINIOTI

December, 1999

Maria Karamessini  
Research Fellow  
Centre of Planning  
and Economic Research

Olympia Kaminioti  
Research Fellow  
National Employment Observatory



Labour Market Segmentation  
In Greece:  
Historical Perspective  
and Recent Trends

Copyright 1999  
by the Centre of Planning and Economic Research  
22, Hippokratous Street, 106 80 Athens, Greece

Opinions or value judgements expressed in this paper  
are those of the authors and do not necessarily represent those of the  
Centre of Planning and Economic Research.



## CENTRE OF PLANNING AND ECONOMIC RESEARCH

The Centre of Planning and Economic Research (KEPE) was established as a research unit, under the title "Centre of Economic Research", in 1959. Its primary aims were the scientific study of the problems of the Greek economy, encouragement of economic research and cooperation with other scientific institutions.

In 1964, the Centre acquired its present name and organisational structure, with the following additional objectives: (a) The preparation of short, medium and long-term development plans, including plans for regional and territorial development and also public investment plans, in accordance with guidelines laid down by the Government. (b) The analysis of current developments in the Greek economy along with appropriate short and medium-term forecasts; also, the formulation of proposals for appropriate stabilisation and development measures. (c) The further education of young economists, particularly in the fields of planning and economic development.

The Centre has been and is very active in all of the above fields, and carries out systematic basic research in the problems of the Greek economy, formulates draft development plans, analyses and forecasts short-term and medium-term developments, grants scholarships for post-graduate studies in economics and planning and organises lectures and seminars.

In the context of these activities KEPE produces series of publications under the title of "Studies" and "Statistical Series" which are the result of research by its staff as well as "Reports" which in the majority of cases are the outcome of collective work by working parties set up for the elaboration of development programmes. "Discussion Papers" by invited speakers or by KEPE staff are also published.

The Centre is in continuous contact with similar scientific institutions abroad and exchanges publications, views and information on current economic topics and methods of economic research, thus economics in the country.



## DISCUSSION PAPER SERIES

This series of Discussion Papers is designed to speed up the dissemination of research work prepared by the staff of KEPE and its external collaborators with a view to subsequent publication. Timely comment and criticism for its improvement is appreciated.



## TABLE OF CONTENTS

	<u>Page</u>
ABSTRACT .....	11
1. INTRODUCTION .....	13
2. LABOUR MARKET SEGMENTATION IN GREECE IN A HISTORICAL PERSPECTIVE .....	15
2.1 Authoritarian state regulation of the wage relationship and labour market segmentation in Greece during the post-war development phase (1950-1974)...	16
2.2 Changes in the wage relationship and the formation of the first internal labour markets after the fall of the dictatorship (1974-1985).....	18
2.3 Recent trends in labour market segmentation in Greece .....	20
2.4 The Greek case in the light of critics and adjustments of internal labour market and segmentation theories .....	20
3. LABOUR MARKET SEGMENTATION IN GREECE: AN EMPIRICAL ANALYSIS .....	23
3.1 Methodology .....	26
3.2 Results .....	29
4. CONCLUSIONS .....	34
REFERENCES.....	43

## LIST OF TABLES

Table 1: Average annual labour remuneration in different sectors.....	37
Table 2: Average wages according to the size of establishment.....	38
Table 3: Policy measures of manufacturing firms for the attraction, stabilisation and efficiency of their workers (1972).....	39

LIST OF CHARTS

Chart 1: Divergence of actually paid from minimum wages in manufacturing.....	40
Chart 2: Employment map.....	41
Chart 3: Employment map 1987.....	42

## ABSTRACT

Labour market segmentation in Greece is a historical phenomenon linked to the gradual formation of internal labour markets in big companies between 1970 and 1985 and the process of informalisation of large parts of the industrial structure as a response of tiny firms to problems of competitiveness during the crisis. The fragmentation of internal labour markets and the shed of labour by big firms since the mid eighties has probably led to the attenuation of segmentation in jobs. On the other hand, the results from our quantitative analysis of Labour Force Survey data for the recent period illustrate a clear trend between 1987 and 1994 towards the segmentation of the labour force, especially along the young/old divide. This finding suggests that the move towards greater flexibility of the Greek labour market and the reduction of union power during this period has not equalised employment insecurity among the different categories of the labour force but has increased the inequality of risk around a higher average of insecurity for all.





## 1. INTRODUCTION

The paper deals with the segmentation of the Greek labour market using both a historical/institutional analysis and an empirical analysis. Its first part which places segmentation in a historical perspective covers a period from 1950 until the recent years, while the quantitative analysis covers mostly the current trends.

Our starting point is that the phenomenon of labour market segmentation is inextricably linked with the particular historical process in each country, leading to the formation of internal labour markets in big firms. We also consider that contradictory processes may be at play during different periods of time favouring either the segmentation or the integration of the labour market. Their outcome is not always clear-cut and this is especially true during a period of structural crisis and transformation.

We share the opinion of the authors of the segmentation theory (Edwards, Reich, Gordon, 1975; Gordon, Edwards, Reich, 1982) and those of the French regulation school (Aglietta, 1978) that the dualism in the labour market is the result of the dualism in the industrial structure, which, in turn, is associated with the establishment of monopoly capitalism.

However, we endorse the critique which has been made to the theories of dualism and segmentation - at least to their earlier developments - as having exclusively focused on market instability and technology and the firms' strategies and neglected the importance of the social and institutional forces that underlie the organisation of the labour market (Marsden, 1989, Burchell & Rubery, 1990, Rubery, 1997).

Social struggles and institutional changes in the labour market have been certainly integrated in some studies of dualism since the late seventies (see for example Piore, 1978). However, the reciprocal relationship between the firms' labour force management policies, on the one hand, labour market changes and the employee's collective action, on the other, has not been fully explored.

Our analysis of the segmentation of the Greek labour market from a historical perspective reveals the relevance of this particular relationship. The formation of a monopolistic/oligopolistic sector in the developing Greek economy has not created by itself internal labour markets. This has happened only in relation to labour shortages and changes in the wage relationship after the political changes of the mid seventies.

Our paper explores two different aspects of segmentation. The second section focuses on labour demand. It explores both the structural features of capital accumulation and the institutional changes in the labour market leading to the formation of internal labour markets at the end of the sixties and the beginning of the seventies in Greece. It also describes the segmentation/integration processes during the seventies and eighties. We have used data on wage differentials and unemployment trends and information on firms' labour force policies.

The third section focuses on the association of different categories of the labour force with primary or secondary labour market characteristics. It explores labour market segmentation in the recent period by using data from the 1987, 1988 and 1994 Labour Force Surveys. Applying multiple correspondence analysis on two sets of variables, one referring to demographic characteristics and the other to job characteristics, we create an "employment map" examining the associations and clustering between the values of these characteristics.

"Macroeconomic dualism ... arises when there is a broad similarity across most if not all of the economy - first, in the pressures for a division between secure and insecure jobs; next, in the particular institutions through which the division is created and maintained; and finally, in the groups which are found to man the insecure sector" (Berger & Piore, 1980, p. 28). The first part of the paper reveals the historical circumstances, under which the first two conditions were satisfied in the case of Greece, whereas the second part deals with the third condition during recent years.

## 2. LABOUR MARKET SEGMENTATION IN GREECE IN A HISTORICAL PERSPECTIVE

The theory of labour market dualism and segmentation, associated with the experience and reality of developed economies, makes sense in the case of Greece only since the beginning of the seventies, despite the fact that the post-war industrialisation of the Greek economy took place under the dominance of monopoly capitalism and the pronounced dualism of the industrial structure.<sup>1</sup>

Both the authoritarian parliamentary regime established after the end of the civil war (1946-1949) and the dictatorship that followed the brief democratic interlude of the mid-sixties implemented a mode of regulation of the wage relationship, whose basic components were employment flexibility and state control of labour costs. If we add to this particular type of regulation the high rate of unemployment and under-employment, then it is understandable why internal labour markets existed during this period only in the public sector, where employees enjoyed tenure, and not in the private one.

The constitution of internal labour markets in the big firms of the private sector is a very recent phenomenon in Greece, associated with four important changes which took place in the seventies:

- a. the appearance of shortages in labour supply because of the fall in the unemployment rate;
- b. the creation of enterprise unions in most of the big manufacturing firms after the fall of the dictatorial regime;
- c. the rehabilitation of collective action and bargaining that brought about important gains for employees at the economy, the industry or the occupational level.
- d. the expansion of informal work in small firms, especially in some exposed sectors with a considerable weight in the country's productive structure and specialisation.

---

<sup>1</sup> Small firms with up to 10 persons occupy 72% of the employed and those with up to 50 persons 93%. The percentages for the private sector are 82 and 96 respectively, while for the "broad public" 34 and 83,5 (National Statistical Service of Greece, unpublished data from the Labour Force Survey of 1994).

We therefore analyse labour market segmentation in relation to the overall situation of the labour market and the form of wage relationship prevailing in distinct periods of recent political history. We also examine the validity in the Greek case of the basic assumption of the theory of dualism and segmentation, namely that the size of firm accounts for the creation of differentiated mechanisms in wage determination, labour allocation, as well as working and employment conditions within different sub-segments of the labour market.

## **2.1. Authoritarian state regulation of the wage relationship and labour market segmentation in Greece during the post-war development phase (1950-1974)**

The rapid development of the Greek economy between 1950 and 1974 is the outcome of intensive industrialisation as well as the expansion of tourism and international maritime transports. The authoritarian state regulation of the wage relationship has been an important condition for industrialisation, based on low labour costs.

This mode of regulation of the wage relationship, associated with the authoritarian character of the political regimes of the period, consisted of:

- a. the control of real wage increases, which were kept well below productivity increases, through the direct or indirect state involvement in the affairs of the union movement and the collective bargaining system (approval of the clauses of collective agreements on wages and compulsory arbitration);
- b. the limitation or suspension of the right to strike;
- c. the emigration policy, which was meant to alleviate the unemployment or under-employment problem in the Greek economy by encouraging a massive exportation of the labour force to more developed economies;
- d. permissive legislation towards atypical employment forms, especially limited duration contracts and homeworking;
- e. the absence of control measures against individual and collective lay-off and extremely low severance pay for blue-collar employees;
- f. the non enforcement of labour and social law.

During the post-war development phase the only internal labour markets were those of the public sector (public administration, state companies and

organisations, banks under state control) and the basic cleavage in employment and working conditions was that between the public and the private sector. The employees of the public sector enjoyed tenure, advancement opportunities and higher wages, whereas the employees of the private sector – especially blue-collar workers – suffered from employment insecurity, lack of career opportunities and lower wages (Table 1).

The size of the firm affected wages but not the stability of employment in the private sector. During the sixties there had been a trend towards the reduction of wage differentials between small and big manufacturing firms as well as between the minimum and the average wage in manufacturing (Chart 1). Nevertheless, in 1970, the average wage in the big firms of 50 or more persons was 1.76 times higher than that in tiny firms of 1 to 9 persons (Table 2).

The massive emigration<sup>2</sup> and the intensive economic development of the fifties and sixties caused a fall in the unemployment rate<sup>3</sup>. By the beginning of the seventies, the Greek industrialists had started complaining about scarcities in qualified labour and the high rates of absenteeism and turnover in the workforce (Fakiolas, 1974). A survey, conducted by the Association of Greek Industrialists in 1972 among a sample of 420 big firms in manufacturing, revealed a variety of instruments used by management as remedies to the above-mentioned problems: offering of wage rates higher than conventional minima and of different kinds of bonuses, use of unlimited duration contracts, award of a white-collar status to professional blue-collar employees<sup>4</sup> (Table 3).

Data on wages illustrate that between 1970 and 1974, the year of the fall of the dictatorship in Greece, the divergence between minimum and average wages in manufacturing became greater. The same happened to the gap of average wages between small and big firms.

From the preceding analysis it follows that state control of wage increases during the fifties and sixties had been accompanied by the shrinking of wage differentials in manufacturing as long as unemployment and under-employment

---

<sup>2</sup>. Nearly one million and a half persons left the country between 1955 and 1973.

<sup>3</sup>. From 5,9% in 1961, the unemployment rate fell to 3,1% in 1971 (National Statistical Service of Greece, *Population censuses* of 1961 and 1971).

<sup>4</sup>. The white-collar status gave access to much more days of holidays and higher severance pay. It was equivalent to a guarantee of employment.

were prevailing in the Greek labour market. Since the beginning of the seventies, the scarcities in qualified labour and the high rates of absenteeism and turnover led to policies of labour force stabilisation in many big firms of the private sector and the increase of wage differentials between small and big firms.

Some authors call the labour force policies implemented by big firms in order to stabilise their personnel as authoritarian paternalism (Petraki, 1996). These policies mark, in our opinion, the origin of the first internal labour markets in the private sector. These “markets” were consolidated after the fall of the dictatorship and it is a direct outcome of gains of the union movement at all levels.

## **2.2. Changes in the wage relationship and the formation of the first internal labour markets after the fall of the dictatorship (1974-1985)**

The year 1974 is important for the recent history of Greece. It is the year of both the establishment of a really democratic parliamentary regime and of the beginning of the economic crisis. The liberalisation of the dynamics constrained by the former authoritarian post-war regimes brought about the burst of social struggles and change in the industrial relations system. Factory unionism made its appearance in a great number of large manufacturing firms together with wildcat strikes and informal bargaining at the company level (Ioannou, 1992).

Real wages increased on the average faster than productivity over the 1974-1985 period, without being associated to a certain norm of progression and in spite of explicit income policies implemented during the whole period (Doukakis, 1988).

Data on the evolution of wage differentials between small and big firms show an increase in wage differentials between firms occupying 50 persons or more and those employing between 20 and 49 persons, but the differentials between very tiny firms of less than 10 persons and big firms of 50 or more persons have remained stable, at least until 1980.<sup>5</sup> This means that the wage increases in big firms of the private sector were more or less equivalent to basic wage increases obtained through collective bargaining and influenced by incomes policies, which explicitly aimed not only at taming inflation (between 1975 and 1981) or protecting the erosion of the purchasing power of the

---

<sup>5</sup>. It is the last year for which we have data for wages in manufacturing firms with less than 10 persons.

employees (between 1982 and 1985) but also at improving the relative wages of the less well paid part of the workforce.

In terms of employment stability, the trend in the previous period concerning the employers' policies towards the stabilisation of the labour force and the award of fringe benefits in the big firms of the private oligopolistic sector becomes generalised to the whole labour market in Greece. This trend was reinforced by a law imposing administrative permission and control for collective lay-off.

However, the introduction of seniority-related pay grading structures in big firms during this period has been the direct outcome of the establishment of seniority increments through collective bargaining. According to special provisions integrated in the national general collective agreements between 1975 and 1982, all unskilled employees of the private sector are entitled to these increments provided they can prove their seniority in employment, obtained by working for the same or different employer(s). Similarly, occupational collective agreements based pay grading structures and advancement on seniority in the same occupation, the latter not necessarily exercised in the same firm.

In fact seniority increments favoured occupational rather than internal labour markets. The latter were thus created by big organisations through fringe benefits and pay in excess of occupational minima established by collective bargaining.

Another important phenomenon of the period in question is the spread of informality, especially in exposed sectors dominated by small firms, as a response of tiny enterprises to the erosion of their competitive position stemming from the improvements in the labour and social law and rapid increases in wages. The expansion of homeworking and informal work which started at this period is therefore the outcome of the raising of the social norm and produces a real - though invisible by official statistics - segmentation effect in the Greek labour market.

The result of the processes described above is the segmentation of the Greek labour market during the period that spans from the fall of the dictatorship and ends in the mid eighties. This segmentation has not so much to do with the widening of wage differentials or with the security of employment. It has to do with the differentiation of mechanisms of wage determination and labour allocation, as well as the establishment of working and employment conditions in different segments of the labour market.

The Greek case does not only illustrate a division between large and small firms, but



also identifies another tier within the secondary segment, the one that corresponds to homeworking and informal work, which is associated to a labour force essentially composed by women, ethnic minorities and - more recently - illegal immigrants. Informality is one of the main ways around the limitations imposed on small firms by the radical changes in the wage relationship between 1975 and 1985.

### **2.3. Recent trends in labour market segmentation in Greece**

The period from the mid eighties to our days is characterised by a decline in real wages and institutional changes favouring labour market flexibility. Union power was seriously challenged by employers and their organisations, whereas enterprise unions either vanished, became inactive or engaged themselves in concession bargaining, especially in firms that have proceeded in massive lay-offs.

As far as wage differentials are concerned, the available data (Table 3) shows a relative decrease of differences between small and large firms. At the same time, massive lay-offs in large firms have destabilised *de facto* employment in the latter and operate - in a period of high employment rates - in the direction of generalisation of employment insecurity among the different segments of the labour market and labour force categories.

There has been a general trend during this period towards precariousness which does not only include employment insecurity but also segmentation of the labour force within large firms by hiring of temporary personnel in order to adapt to fluctuations of orders. Recent empirical surveys (Georgakopoulou & Kouzis, 1996, Lyberaki & Mouriki, 1996) have illustrated that a great proportion of the large firms of their samples- around one third - use a precarious labour force, mostly employed under limited duration contracts, in order to insure a numerical flexibility - according to Atkinson's model of the flexible firm (1985).

### **2.4. The Greek case in the light of critics and adjustments of internal labour market and segmentation theories**

Initial formulations of segmentation theory assumed too harmonious a relation between the interests of workers and those of capital (Doeringer & Piore, 1971). By



so doing they failed to distinguish themselves from the neoclassical transactions cost approach to internal labour markets. They also tried to explain how stable divisions were reproduced. Our historical/institutional analysis of the Greek case pledges for a dynamic analysis of internal labour market systems where the form and extent of bureaucratic structures depends on internal and external to the firm power relations as well as on the technical need to incorporate and internalise the labour force (Osterman, 1994, Rubery, 1997).

A general problem with the internal labour market theory has been the overconcentration on internal conditions and a neglect of the influence of the external labour market and social norms in structuring the form of the internal labour markets (Marsden, 1989). On the opposite, our analysis has mostly stressed the role of external factors. It therefore complements already existing comparative research which has revealed the influence of different institutional arrangements - including education and training systems, trade union organisation, gender relations and legal systems - on the shaping of internal labour markets (Maurice et al., 1986, Marsden, 1992, Rubery et al., 1997, Deakin and Muckenberger, 1992).

The external factors have been introduced in our analysis through the concept of the wage relationship<sup>6</sup> and its changes. This concept has been elaborated by the French Regulation School,<sup>7</sup> according to which the particular configuration of economic structures and political relations in different social formations at different historical periods has shaped specific modes of constitution and forms of integration of wage labour. Even though many forms of organisation of the wage relationship coexist at a particular place and time, one of them dominates. "The stability of the divide between the primary and secondary sector depends on the success of total economic reproduction and not only on institutional and social features" (Boyer, 1980, p. 503).<sup>8</sup>

---

<sup>6</sup>. The wage relationship includes all the conditions that govern the usage and reproduction of the labour force i.e. the organisation of the labour process, the hierarchy of qualifications, labour mobility, the formation and utilisation of the income of labour.

<sup>7</sup>. Its main representatives are M. Aglietta, H. Bertrand, R. Boyer, B. Coriat, A. Lipietz, J. Mistral.

<sup>8</sup>. From their study of the transformation of the wage relationship during the different phases of capital accumulation, the regulationists have also derived that "the actual coexistence of the primary and secondary sectors is a new phenomenon only by reference to the importance that the primary sector has obtained and the imposition of its logic to the whole system and not by reference to the cleavage itself" (Boyer, 1980, pp. 497-498).

Having adopted the above mentioned approach, our study of the Greek case has revealed that during the first post-war decades the authoritarian regulation of the wage relationship was accompanied by a segmentation of the labour market only along the public/private divide, whereas the segmentation according to the size of firm has been the product of the rigidification of the wage relationship and its move towards fordist social standards after the mid seventies.

As for recent trends, the destabilisation of employment and the fragmentation of internal labour markets in Greece pose similar questions to those found in foreign literature (Capelli, 1995, Rubery, 1997):

- a. Are we witnessing the transformation or the breakdown of internal labour markets?
- b. Changes are towards more market-determined pay and employment systems or towards a new institutional order, which calls for a reinterpretation/adjustment of the standard internal labour market theory?

### 3. LABOUR MARKET SEGMENTATION IN GREECE: AN EMPIRICAL ANALYSIS

According to labour market segmentation theory, the outcome of historical economic forces is the division of the labour market into separate submarkets or segments, distinguished by different labour market characteristics and behavioural rules (Reich et al., 1973). There are two elements in the theory of dualism and segmentation: a dual economy which represents the organisational structure of capital and a dual labour market which represents the organisation of labour within capital structures.

As already mentioned, labour market segmentation theory suggests that as a result of the dynamics of the capital accumulation process, there has been a historical trend toward the development of two polarised economic sectors - monopoly and competitive or the centre (core) and the periphery. The most critical distinction between firms that belong to these economies is market power. Core firms are monopolists or oligopolists in their product markets, while periphery firms are competitors. Core and periphery firms have also been distinguished by a number of characteristics which determine their ability to influence their environment: financial and employment size, organisational type, long term planning capabilities and relationship to the government (Hodson and Kaufman, 1982). An important aspect of the dual economy model is the dependency relations between the two sectors. Core firms extract monopoly profits from the periphery firms to which they sell; and many periphery firms exist as satellites of centre firms.

The dual economy model links the economic segments to dual labour markets. Corresponding to the core and the periphery sectors respectively are two separate labour markets: a primary labour market and a secondary labour market. The explanations<sup>9</sup> for the origin of dual labour markets corresponding to the two economic sectors have relied on the differential ability of the sectors to maximise profits through the structuring of their labour processes.

The primary and secondary labour markets are differentiated mainly by stability and security characteristics (O'Connor, 1973). This difference in stability between the labour markets has been conceptualised in terms on internal versus external

---

<sup>9</sup>. In Hodson and Kaufman (1982) there is a detailed review of these explanations.

labour markets (Doeringer and Piore, 1971). Firms in the core have internal labour markets. Positions in these firms are linked in skill hierarchies which can only be entered from another position within the internal labour market or from specific entry points. Firms in the periphery operate within the external labour market in which there are no barriers to movement in or out of positions.

Jobs in the two markets differ in terms of rewards. Wages and fringe benefits are above average in the primary sector to keep worker turnover in the core firms low (Reich et al., 1973). In the secondary market, wages and fringe benefits are below average. The type of work in the two sectors also differs in the nature of employee discipline. In the primary sector, discipline is rule oriented because of the more formal structuring of the work process and the greater bureaucratisation of the core firms' supervisory structure. Discipline in the periphery firms is more harsh and arbitrary (Edwards, 1979).

Other characteristics of the jobs in the primary labour market are the use of skilled labour, stability, security, unionism, labour relations regulated by bureaucratic rules, continuing training and, in general, working conditions better than average. Jobs in the primary labour market are often filled by native men.

Jobs in the secondary sector do not require and often discourage stable working habits; wages are low; turnover is high; job ladders are few, most labour is non-skilled labour, higher unemployment exists, flexible types of employment is not rare; other characteristics in this segment include the lack of training, lack of unionism and working conditions being worse than average. Jobs in this segment are often filled by minority workers, women and youth.

An important element in the operation of dual labour markets is the existence of barriers to mobility between these two labour markets (Hodson and Kaufman, 1982). Bluestone (1970) and Gordon (1972) explain the persistence of poverty by the lack of mobility between the primary and secondary labour markets. People employed in the primary labour market have secure jobs, so they are protected from downward mobility. On the contrary, people employed in the insecure jobs of the secondary market acquire unstable work histories and do not obtain desirable skills and therefore face obstacles to entering the primary labour market.

Besides the segmentation between the primary and the secondary labour markets, labour market theorists point out to a division that has emerged within

the primary labour market between an independent primary and a subordinate primary segment (Edwards et al., 1975) or upper and lower tier (Piore, 1975). The independent primary sector includes professional and managerial jobs while the subordinate primary segment includes white and blue collar workers that perform routinised tasks. The mobility patterns of the independent primary sector workers tend to more closely resemble those of the secondary sector.

The main objective of this section of the paper is to examine the labour market segmentation process in Greece using empirical data. As a first step to this inquiry, we perform an exploratory analysis in order to examine the extent of labour market integration in Greece and the morphology of any existing segments in this market. Even though we do not test specific hypotheses, the variables used in the analysis are suggested by labour market segmentation theory and/or criticisms addressed to this theory. This analysis which offers a descriptive picture of relevant relationships and suggests trends will be eventually supplemented with a more structured explanatory analysis in which more specific hypotheses are tested.

The discussion of the methodology takes place in the following section. In this section we will only briefly justify the selection of the specific variables used in the analysis. As mentioned earlier, labour market segmentation is evidenced by the development of separated labour markets characterised by different employment characteristics (labour stability, etc.). The jobs in these labour markets are filled by people drawn from different groups or by people with different personal characteristics. These general statements suggested the inclusion of two sets of variables in the current analysis, namely one set referring to job characteristics variables and the other to personal characteristics. More precisely, labour market segmentation theory, as well as the availability of data, directed the selection of the job characteristics including job stability, tenure, full versus part-time job, size of enterprise, type of job (professional, etc.), and public versus private sector job. The distinction between private and public sector is directly related to the stability of the job but it is also related to a number of other characteristics. Eventually the examination of the interaction of these variables (for example a professional job in the public sector versus a blue collar job in the public sector) will be more helpful at a following stage of the analysis to highlight the relationships among these variables at the different labour segments. An additional variable about the

economic sector was added to the list of employment characteristics even though the inclusion of such a variable is not directly justified by theory.

As far as the selection of the demographic variables is concerned, they are also inspired by segmentation theory and specifically Piore's (1975) discussion of labour market divisions. According to Piore, labour market divisions are related to subcultures created by social institutions such as family and education. He claims that different schools, neighbourhoods and family backgrounds relate to the mobility chains people follow. With respect to education, he argues that it plays a role in the starting point of the mobility chain but not the same role when there is an effort to change an existing pattern of mobility. The example given is that a relatively small number of working class students exist that can use formal education for social mobility. On the other hand, human capital theory suggests that formal education is the basic vehicle for upward social mobility. The opposing arguments of human capital theory inspired the selection of the demographic variables for this analysis, namely gender, age, marital status and educational level.

### **3.1. Methodology**

#### *A. Methods*

We examined the extent and type of labour market segmentation in Greece using multiple correspondence analysis and two sets of variables, one referring to labour market characteristics and the other to demographic characteristics. We used the statistical package SAS for the analysis.

Correspondence analysis<sup>10</sup> is an exploratory technique for categorical data related to principle components analysis which helps us understand the structure of a multivariate data set. It is a multivariate technique which finds a multidimensional representation of the association between the row and column categories of a matrix or a two way contingency table. Correspondence analysis is a geometric-based method for displaying the rows and columns of a matrix as points

---

<sup>10</sup>. Correspondence analysis is described in more detailed in: Benzecri (1973), Lebart, Morineau and Warwick (1984), Nishisato (1980), Greenacre (1984), Tenenhaus and Young (1985), Gifi (1981), Greenacre and Hastie (1987).

in a dual low-dimensional vector space (Greenacre, 1984). Its goal is to find another matrix representation (say matrix  $X$ ) of the rows of the initial matrix such that the Euclidean distances between rows in  $X$  approximate certain profile distances between the rows of the initial matrix (Benzecri, 1973). The term profile as used in Greenacre (1984) refers to a set of relative frequencies found in the representation of a data matrix which includes frequencies in each row expressed as percentages of their respective row sums. Simultaneously, another matrix representation of the columns of the initial matrix is derived whose Euclidean distances among columns approximate a certain profile between columns of the initial matrix.

The goal of correspondence analysis is to summarise the information in a two-way contingency table with  $r$  rows and  $c$  columns. It is a graphical procedure for clustering both the row categories (with respect to the column categories) and the column categories (with respect to the row categories). Both row categories and column categories are represented by scores from their respective two largest principal components so that the information can be plotted in two dimensions. Obviously, correspondence analysis is most useful when both the number of row and column categories are large. Otherwise, we could “see” the similarity between rows or between columns by directly examining the contingency table (Lewis-Beck, 1994).

The graphical display of this method allows for the examination of potential clustering of certain variables with respect to others. If we plot the job characteristics scores and the demographic characteristics scores in the same two dimensional space, then we can see if job characteristics or personal characteristics form clusters and, more importantly, if certain job characteristics and personal characteristics occupy the same regions of the two dimensional space which would indicate a correspondence between job and personal characteristics. In other words we can determine which job characteristics certain types of persons are more likely to enter.

## *B. Data*

The data for this analysis are from the Greek Labour Market Force Survey. The analysis was performed at the personal level for each year separately. The years



used for the analysis at the country level were 1994 and 1987. The years used for the regional level were 1988 and 1994.<sup>11</sup> We used the data for employed people 14-64 years old. Two groups of variables were used: demographic characteristics and job characteristics. A more detailed list of the variables used and the values of each follows:

Demographic variables:

- Gender: male, female
- Age: am1=14-30 years old, am2=31-45 years old, am3=46-64 years old
- Education level: e1=(up to) elementary school, e2=gymnasium, e3=lycium, e4=polytechnic, e5=university, e6=post graduate studies
- Marital status: s=single, divorced, separated, m=married

Labour market variables:

- Job stability: pj1=permanent employment, pj2=temporary employment
- Type of employment: fj1=full-time, fj2=part-time
- Tenure (in years): jy1=up to 2 years, jy2=3-5 years, jy3=6 years or more
- Job: i1=manager, i2=scientist, i3=white collar worker, i4=worker in the primary sector, i5=skilled worker, i6=not skilled worker
- Sector of economic activity: a1=primary sector, a2=industry except for manufacturing (mining, electricity, water), a3=manufacturing, a4=construction, a5=services
- Public/private sector: oc1=public, oc2=private
- Size of enterprise: cs1=up to 10 people, cs2=11-49 people, cs3=more than 50 people.

According to the labour market segmentation literature, the most critical distinction between jobs in the primary and secondary markets has to do with stability and security characteristics of the job. The data from the Labour Force Survey contain variables that can be used as indicators of job security and safety. We refer to the variables about permanent versus temporary employment and years of tenure. Although these variables do not fully describe the primary versus the secondary sector since there is no information concerning other characteristics such as wage and other job benefits, they provide a good indicator of labour

---

<sup>11</sup>. The selection of years was based on availability of data at the country and regional level.



market segmentation characteristics. Correspondence analysis shows the association of each variable with respect to the remaining variables and allows for the clustering of values of these variables based on these associations.

As a final word about the type of methodology used in this analysis, we should state that the purpose of the analysis is to provide a picture of the existing relationships of the variables mentioned in the theory. Multiple correspondence analysis is model-free allowing for all possible associations to be depicted in the produced diagram. Even though this analysis is model-free, it is structured by a selection of “relevant” variables leading to an appropriate way of describing categorical data and providing the necessary information for additional work on hypothesis testing.

### **3.2. Results**

Multiple correspondence analysis displays all the values of the variables in Euclidean space. It allows us to see clusters of variable values and the associations of specific variables with respect to the remaining variables. Using demographic and job characteristic data from the 1994 Greek Labour Force Survey we created an “employment map” for that year at the country level. We begin the discussion of the results utilising this map which is then compared to the employment map of 1987.

In the discussion of the results of the employment map of 1994 we will begin with the demographic variables, then discuss labour market variables and finally refer to the clustering that appears in the map. Concerning gender, we notice that men are placed close to full time, stable and permanent employment. Women are often white collar workers in the service sector. Significant differences appear with respect to the age of the employed. People 14-30 years old often have part-time, temporary positions, in small companies (up to ten employees) in the private sector. They usually hold this position for two years or less. People 31-45 years old usually hold full-time, permanent positions at medium or large size companies. They are employed just as often in the private as in the public sector. People of this age as well as older employees hold their positions for several years. The fact that young people (14-30 years old) are associated with the secondary labour market

while older people are associated with the primary market may indicate some mobility between the two markets as the person gets older. This finding agrees with Piore's (1975) argument according to which youths from all backgrounds hold secondary jobs. It may also indicate that there is a longer queue for entry into the primary labour market. This queue may affect the associations between age and labour market segments. In any case, the present analysis cannot answer this issue in a satisfactory way. As far as marital status is concerned, married people are closer to the primary labour market, namely close to full-time, stable, permanent employment. Non-married people are associated more often with the secondary labour market. Again there is agreement between this finding and Piore's (1975) argument on mobility chains traced among other factors to family types.

When we consider education, we notice that people with lower educational backgrounds are as often skilled or unskilled workers and that they are employed in the manufacturing sector, the primary sector or construction. Gymnasium graduates are often employed by small companies in the private sector. Highly educated (university graduates and post-graduates) persons are more likely to have scientific jobs and are more often employed in the public than in the private sector. Perhaps the most interesting finding about education is that all education levels appear in the diagram at approximately similar distances from the primary labour market. That is, there is no association between a specific educational level and employment in the primary market.

Continuing with the examination of the labour market variables in 1994, we notice that there is a strong association between full-time and permanent employment and between part-time and temporary employment. More than six years tenure is associated with full-time and permanent employment while less years of tenure are associated with part-time and temporary employment.

Small companies exist more often in the private sector and employ people with lower educational backgrounds than larger companies. The private sector employs persons with lower educational background than the public sector. This is especially true for people who are at least university graduates.

When we consider occupations, we notice that scientists and managers are often working in the private sector and are often working there for six years or more. White collar workers are more often women. The primary sector and the

construction sector are placed close one to another, suggesting a similarity between these sectors with respect to the remaining variables used in the analysis. The primary sector, construction and manufacturing are more often private than public. The opposite is true for mining, electrical and water plants.

The results of the multiple correspondence analysis for 1994 present a clear picture of labour market segmentation in Greece. The primary labour market appears slightly left and below the point where the axes meet. It is characterised by full-time, permanent and stable employment. Positions in this market are more often in the public sector in medium or large size companies. People employed in the primary labour market are usually 31-45 years old, married and more often men than women. Education does not seem to play a part in the participation in the primary versus the secondary market. It seems that participation in the primary market is associated with gender and age and not with education. This finding concerning education remains true even when the same analysis is performed including only women.<sup>12</sup>

Besides the separation of the primary from the secondary labour markets in Greece, the employment map of 1994 points out to another separation within the primary market. At the southern part of the map there is a cluster of points suggesting an association between people who hold graduate or post-graduate degrees, having professional jobs and being employed in the public sector. This cluster fits with the description of the upper tier in the primary labour market.

Concluding with the results of the employment map for 1994 in Greece, we point out that secondary labour market appears in the northern-eastern part of the diagram. Employment in this segment is part-time, temporary and with high turnover. The persons occupying positions in this segment are usually young, not married and are often working in small companies in the private sector. Additionally, there is evidence of a separation between the upper and lower tier in the primary labour market; the criteria for this separation are education and professional versus other type of jobs.

The multiple correspondence analysis of the Greek Labour Force Survey data show that in 1994 there is clear labour market segmentation between a primary and

---

<sup>12</sup>. Some analyses suggest that education may have a more significant role for women than for the whole population. In order to examine this possibility, we perform the analysis on a sample that included only the women employees.

a secondary labour markets. The same analysis was also completed with the 1987 data<sup>13</sup> to examine whether the same phenomenon existed then and the extent of its existence.

Examining the employment map of 1987 we notice that it is quite different from the employment map of 1994. In 1987, part-time and temporary employment are depicted as being further away from the remaining labour market characteristics as was the case in 1994. The difference in 1987 is that part-time and temporary employment, that is the indicators of secondary labour market are not associated with any demographic characteristics as is the case in the 1994 map. All the demographic characteristics (gender, age, educational background and marital status) are at almost equal distances from the centre of the axes where the characteristics of the primary labour market are located. The employment map for 1987 shows that at that time there seems to be some differentiation between part-time and temporary employment and the remaining labour market characteristics but there is no labour market segmentation in terms of certain social groups being associated with specific labour market characteristics. The comparison of the 1987 and 1994 findings suggests that in 1987 we begin to see a labour market segmentation process which is much more fully developed by 1994.

As far as the distinction between the upper and lower tier in the primary labour market is concerned, we notice a similar distinction in the 1987 map. At the southern part of the diagram there is a clustering of values suggesting an association between managerial jobs and jobs held by highly educated people. The difference between the upper tier in 1994 and the upper tier in 1987 is that in 1994 professionals are included in this cluster whereas in 1987, managers are included instead.

The previous analyses were based on data at the country level. The same analysis at the two time points was also performed using regional data and, more specifically, data from the northern part of Greece, Macedonia, and the region of Attiki which includes half of Greek population and the capital of Greece, Athens. The employment maps for the two time points for Macedonia are approximately the same when compared to the employment maps for the whole of Greece. In 1994

---

<sup>13</sup>. Certain variables are not available at the Labour Force Survey data of 1987, such as turnover and size of companies.

the map for Macedonia shows clear labour market segmentation while at the previous time point it shows a separation of part-time and temporary employment but no association with demographic characteristics.

The employment map of the region of Attiki for 1994 is also similar to the map for all of Greece and the one for the region of Macedonia for 1994 depicting clear labour market segmentation between primary and secondary labour markets and the separation between the upper and lower tier in the primary market. However, the map of Attiki for 1988 indicates that labour market segmentation existed in that region before it appeared in the rest of the country. In the employment map of Attiki for that year, part-time and temporary employment are separated from other labour market characteristics and associated with young people and women. The primary labour market is associated with men, married people and older employees. This map is similar to the employment map of Attiki for 1994. It shows that labour market segmentation was present in Attiki before it appeared in other regions of Greece and before it appeared in the country as a whole.

#### 4. CONCLUSIONS

Despite the pronounced dualism of its industrial structure and the dominance of monopoly capitalism during its post-war rapid economic development, Greece had not experienced until the seventies internal labour markets in the large firms of the private sector. The only segmentation in the labour market was along the public/private divide. This is due to the particular mode of regulation of the wage relationship, marked by the authoritarian state intervention in the industrial relations system, aiming at the control of labour costs, and a legislative framework favouring employment flexibility.

The theory on labour market segmentation, which associates the industrial dualism with dualism in the labour market, can be applied to the Greek case only after the mid seventies, when the democratisation of the political system brings about collective action, internal labour markets and broad institutional changes. Internal labour markets are in fact the product of: (a) labour supply scarcities since the beginning of the seventies and management policies for the stabilisation of the labour force in big firms, (b) social and political struggles and union action, through which the employees obtained the improvement of their standard of living and their employment and working conditions.

However, labour market segmentation is not only linked to the gradual formation of internal labour markets between 1970 and 1985. It was also generated by a parallel process of informalisation of large parts of the Greek industrial structure. This process should be viewed as a response of tiny firms to the loss of competitiveness provoked by the reforms in the labour and social law and by the increase of taxes and other regulations imposed on firms after the return to democracy.

The late eighties and the nineties saw a reversion in the power relations between capital and labour at the advantage of the first. Flexibilisation of the labour market has been the general trend since the mid eighties. Employment insecurity because of lay-offs and the development of precariousness among a peripheral segment of the personnel of large firms are the main processes affecting labour market segmentation, leading -as elsewhere- to the attenuation of segmentation along the large/small firms divide.

However, it is interesting to observe that the attenuation of the segmentation of jobs - as a result of the fragmentation of internal labour markets and the shed of labour by big firms - has been accompanied by a reinforcement of segmentation of the labour force. This second aspect of labour market segmentation has been explored by the quantitative analysis of empirical data in the second section of this paper.

Multiple correspondence analysis of Greek Labour Force Survey data has demonstrated that labour market segmentation exists clearly at the country and regional level in 1994. In 1987 there is no clear association of labour force characteristics such as age or sex with job characteristics belonging to distinct segments of the labour market at the country level, but it exists in the region of Attiki, the most economically advanced region of Greece. This finding suggests that between the two time points of the analysis an increased polarisation of the two main labour market segments has taken place.

The second part of the paper has been exploratory in nature. Its descriptive approach is the beginning of a line of research which will address more specific issues about labour market segmentation and eventually employ explanatory techniques to examine the extent to which certain variables affect the labour market segmentation process in Greece.

However exploratory this stage of empirical analysis may be, it suggests that the move towards greater flexibility of the Greek labour market and the reduction of union power observed since the middle of the eighties has not led to the equalisation of insecurity among the different categories of the labour force. Quite the opposite has happened: the inequality of risk has increased around a higher average of employment insecurity for all.



TABLE 1

Average annual labour remuneration in different sectors  
comparative scale (base = 100)

	1961	1970
Manufacturing (total)	<b>49</b>	<b>49</b>
<i>establ. &gt; 10 pers.</i>		55
<i>establ. &lt; 10 pers.</i>		34
Civil servants	<b>100</b>	<b>100</b>
Police forces	69	89
Telecommunications Organisation	123	120
National Power Company	147	129
Hellenic Post Office		86
Hellenic Railways		78
Bank of Greece	164	159
National Bank of Greece	123	102
Commercial Bank of Greece	83	77
Agricultural Bank of Greece	130	115
Ionian and Popular Bank of Greece	121	87

Source: Elaboration of data presented by Fakiolas (1974).



TABLE 2

Average wages according to the size of establishment  
comparative scale (base = 100)

<b>Size</b>	<b>1959</b>	<b>1970</b>	<b>1974</b>	<b>1980</b>	<b>1985</b>	<b>1992</b>
50 +	152	145	153	159	163	165
20-49	119	117	117	117	121	121
10-19	100	100	100	100	100	100
<b>Size</b>	<b>1970</b>	<b>1974</b>	<b>1980</b>			
50 +	176	182	183			
20-49	140	139	136			
10-19	120	119	115			
0-9	100	100	100			

Source: Elaboration of data from the National Statistical Service.  
Annual Surveys in Industry.

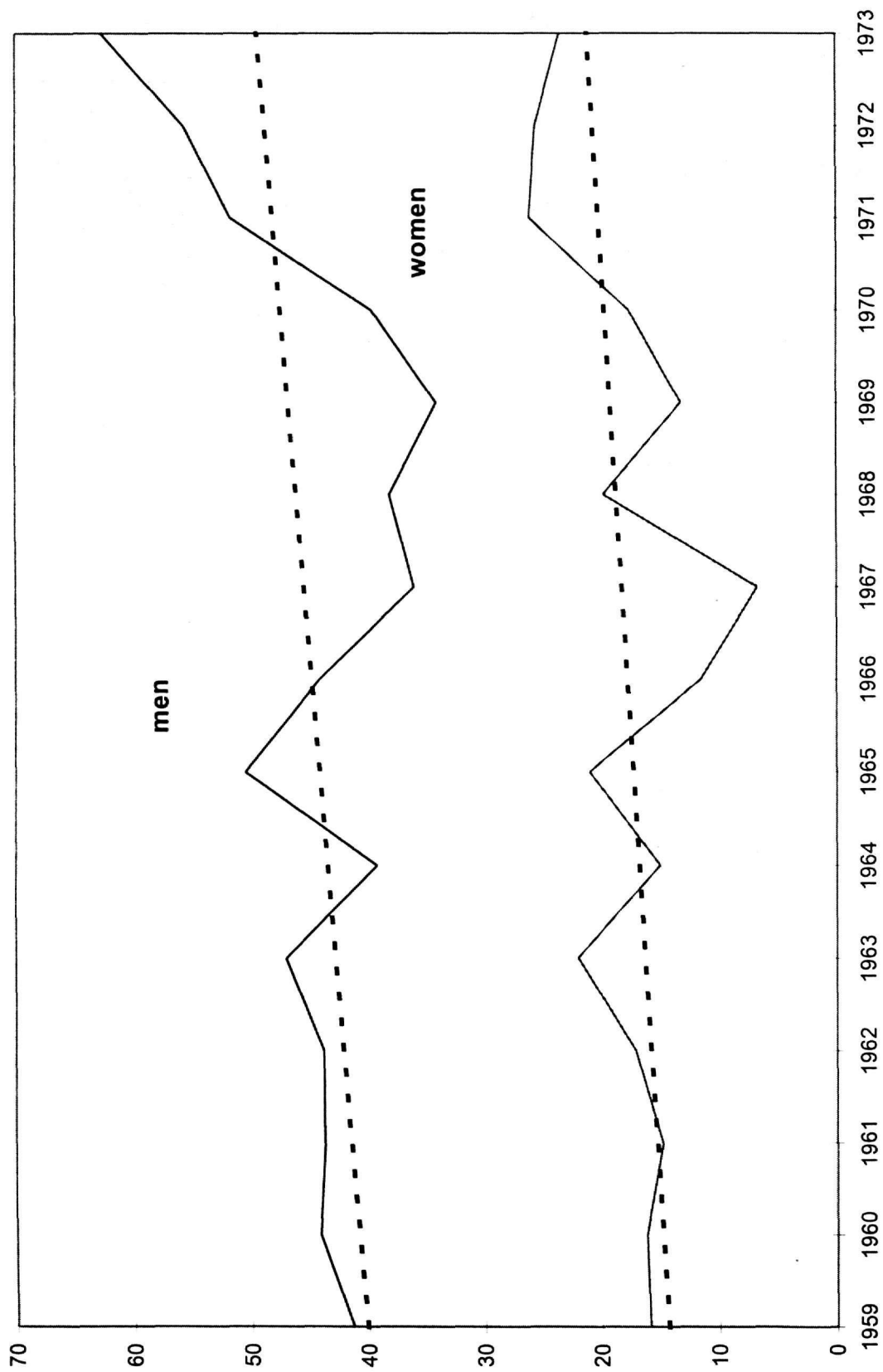
TABLE 3

Policy measures of manufacturing firms for the attraction, stabilisation  
and efficiency of their workers (1972)\*

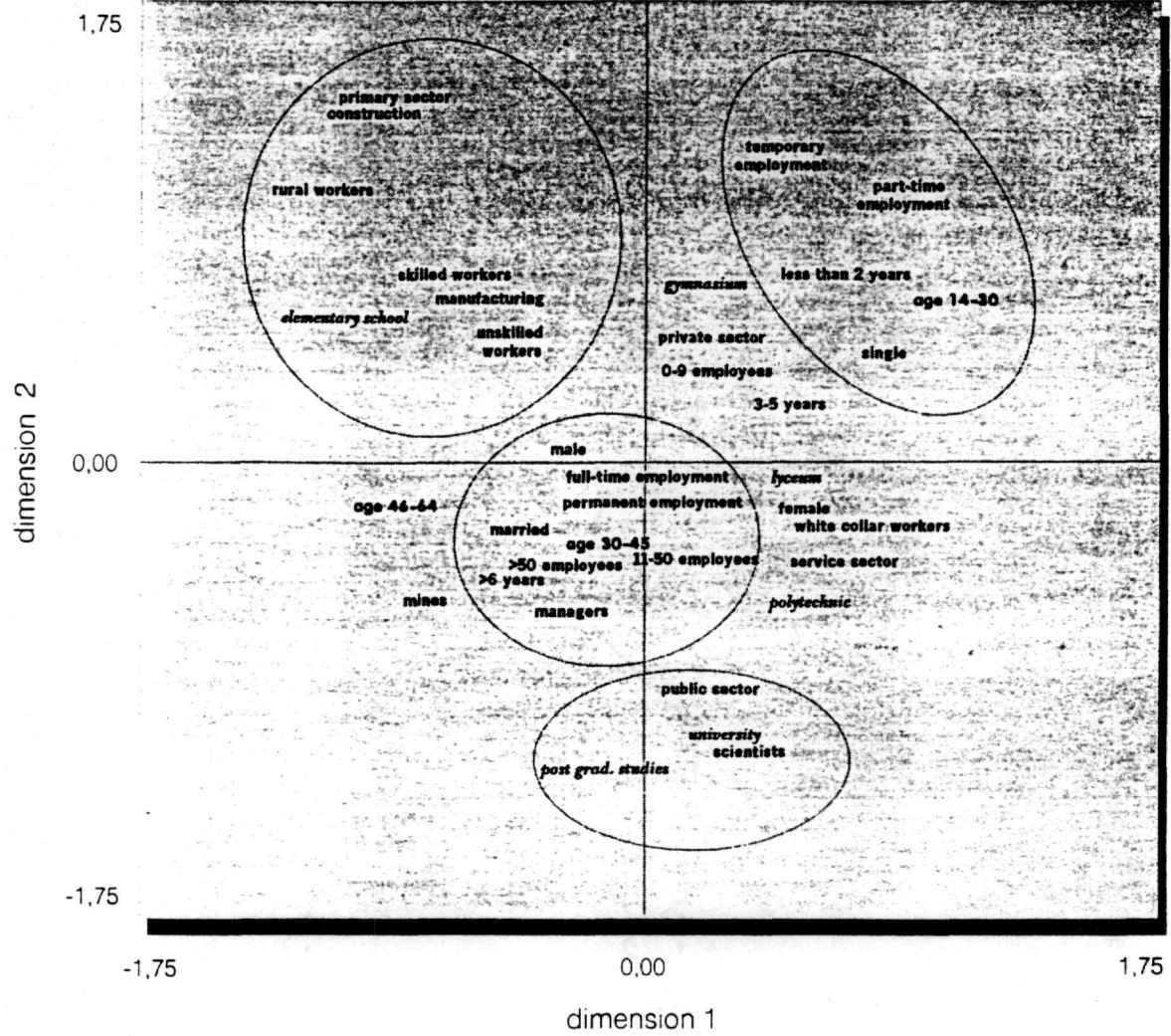
	% (out of 414 firms)
High wages	69,8
Illimited duration contracts, guarantee of employment, white-collar status	27,1
Efficiency bonuses, benefits and extra pay	34,8
Supplementary life, health, accident insurance	16,4
Improvement of working conditions	10,1
Housing in buildings owned by the firm	5,1
Responsibility bonuses, service increments	7,7
Prizes for the best workers	3,3
Offer or subsidising of meals	3,1
Celebrations, excursions and camping facilities	5,8
Interest for the workers' personal problems	3,6
Financial support, credit facilities	14,0
Coverage of education expenses	2,4
Other measures	13,5

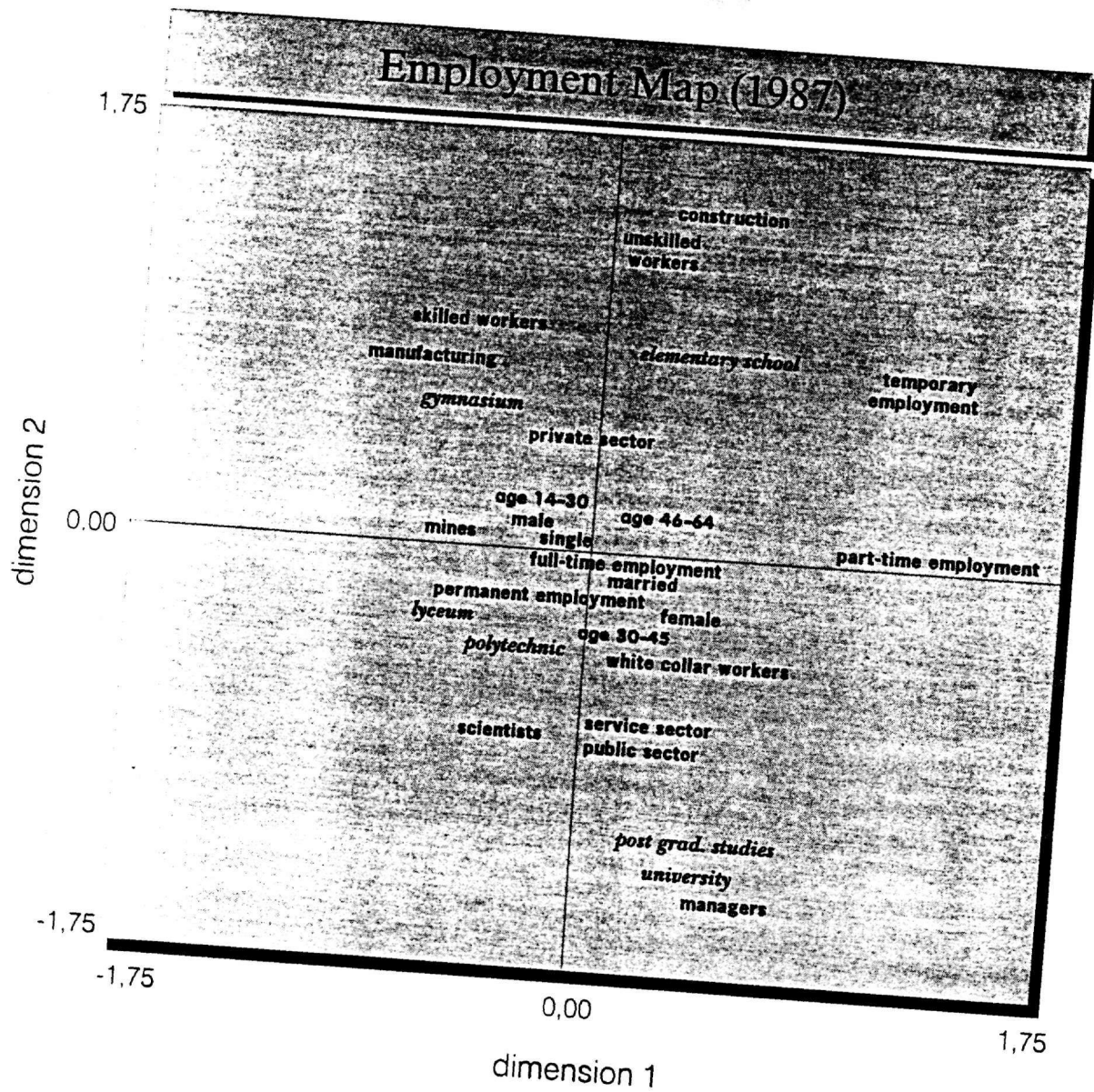
\*Results of a special survey realised by the Association of Greek Industrialists in October-November 1972, among 568 of the biggest firms in manufacturing (Fakiolas, 1974).

CHART1  
Divergence of actually paid from minimum wages in manufacturing



# Employment Map (1994)







## REFERENCES

- Aglietta, M. (1978), "Panorama sur les thories de l'emploi", *Revue economique*, No 1, janvier.
- Atkinson J. (1985), "Flexibility: Planning for an Uncertain Future", *Manpower Policy and Practice: the IMS Review*, Vol. 1, spring.
- Berger, S. and M. Piore (1980), *Dualism and Discontinuity in Industrial Societies*, Cambridge University Press.
- Benzecri, J.P., (1973), *L'Analyse des Donnees. T. 2, L'Analyse des Correspondances*, Paris: Dunod.
- Boyer, R. (1980), "Rapport salarial et analyses en terme de regulation: une mise en rapport avec les theories de la segmentation du marche du travail", *Economie appliquee*, No. 2.
- Bluestone, B., (1970), "The Tripartite Economy: Labor Markets and the Working Poor", *Poverty and Human Resources* 5:15-35.
- Burchell, B. and J. Rubery (1990), "Empirical investigation into the segmentation of labour supply", *Work, Employment and Society*, Vol. 4, No 4, pp. 551-575.
- Capelli, P. (1995), "Rethinking Employment", *British Journal of Industrial Relations*, 33: 4, pp. 563-602.
- Deakin, S. and U. Muckenberger (1992), "Deregulation and European Labour Markets", in A. Castro, P. Mehaut and J. Rubery (eds), *International Integration and Labour Market Organisation*, Academic Press, London.
- Doeringer, P.B, M.J. Piore (1971), *Internal Labor Markets and Manpower Analysis*, Lexington, MA, Lexington Press.
- Doukakis, D.-L. (1988), *Industrial Relations: Economy and Institutions*, Odysseas, Athens (in Greek).
- Edwards, R.C. (1979), *Contested Terrain*, New York: Basic.
- Edwards, R., M. Reich, D. Gordon (1975), *Labor Market Segmentation*, Lexington Books.
- Fakiolas, R. (1974), *Labour Market and Pay Structure in Greek Industry*, Association of Greek Industrialists, Athens (in Greek).
- Georgakopoulou, V. & G. Kouzis (1996), *Flexibilities and New Industrial Relations*, Institute of Labour-GSEE, Athens (in Greek).
- Gifi, A. (1981), *Nonlinear Multivariate Analysis, Department of Data Theory*, The University of Leiden, The Netherlands.
- Gordon, D.M. (1972), *Theories of Poverty and Underemployment*, Lexington, MA: Heath.
- Gordon, D., R. Edwards, M. Reich (1982), *Segmented Work, Divided Workers*, Cambridge University Press.
- Greenacre, M.J. (1984), *Theory and Applications of Correspondence Analysis*, London: Academic Press.

- Greenacre, M.J. and Hastie T. (1987), "The Geometric Interpretation of Correspondence Analysis," *Journal of the American Statistical Association*, 82, 437-447.
- Hodson, R. and R.L.Kaufman (1982), "Economic Dualism: A Critical Review", *American Sociological Review*, Vol. 47, pp. 727-739, December.
- Ioannou, C. (1992), "Wage Structure, Incomes Policy and Decentralised Bargaining: the Case of Greece", *Labour*, 6 (3) 23-44.
- Lebart, L., A. Morineau, and K.M. Warwick (1984), *Multivariate Descriptive Statistical Analysis: Correspondence Analysis and Related Techniques for Large Matrices*, New York: John Wiley and Sons, Inc.
- Lewis-Beck, M.S. (1994) (ed.), *Factor Analysis and Related Techniques, International Handbooks of Quantitative Applications in the Social Sciences*, Vol.5, Sage Publications.
- Lyberaki, A. & A. Mouriki (1996), *The Silent Revolution. New Forms of Production and Work Organisation*, Gutenberg, Athens (in Greek).
- Karamessini, M. (1998), "Specificites de la flexibilite et de la rigidite du travail dans un pays intermediaire: le cas grec", *Economies et Societes, Serie A.B.*, No 20, p. 167-203.
- Marsden, D. (1989), *Marches du travail. Limites sociales des nouvelles theories*, Economica, Paris.
- Maurice, M., F. Sellier and J.J. Silvestre (1986), *The Social Foundations of Industrial Power: A Comparison of France and Germany*, The MIT Press, Cambridge, Massachussets.
- Nishisato, S. (1980), *Analysis of Categorical Data: Dual Scaling and its Applications*, Toronto: University of Toronto Press.
- O'Connor, J. (1973), *The Fiscal Crisis of the State*, New York, St.Martin's Press.
- Osterman, P. (1994), "Internal labour markets: theory and change", in C. Kerr and P. Staudohar (eds), *Labor Economics and Industrial relations*, Harvard University Press, Cambridge.
- Petraki, G. (1996), *Power relations and employers' policies for the management and control of labour (1950-1993)*, Institute of Labour-GSEE, Athens (in Greek).
- Piore, M. (1975), "Notes for a Theory of Labor Market Segmentation", pp.125-150, in R.C. Edwards, M. Reich and D.M. Gordon (eds), *Labor Market Segmentation*, Lexington, Mass.: D.C. Heath.
- (1978), "Dualism in the labour market: a response to uncertainty and flux", *Revue iconomique*, No 1, janvier.
- Reich, M., D.M.Gordon, R.C.Edwards (1973), "Dual Labor Markets. A Theory of Labor Market Segmentation", *American Economic Association*, Vol. 63, No. 2, May.
- Rubery, J. (1997), "Fragmenting the Internal Labour Market", paper presented to the 19th Conference of the *International Working Party on Labour Market Segmentation*, July 15-19, Porto-Portugal.



- Rubery, J., F. Bettio, C. Fagan, F. Maier, S. Quack and P. Villa (1997), "Payment structures and gender pay differentials: some societal effects", *International Journal of Human Resource Management*, 8 (3), 131-149.
- Tenenhaus, M. and Young F.W. (1985), "An Analysis and Synthesis of Multiple Correspondence Analysis, Optimal Scaling, Dual Scaling, Homogeneity Analysis, and Other Methods of Quantifying Categorical Multivariate Data," *Psychometrika*, 50, 91-119.



## IN THE SAME SERIES

- No 1 G. Alogoskoufis, Competitiveness, Wage Rate Adjustment and Macroeconomic Policy in Greece. Athens, 1990 (in Greek).
- No 2 L. Athanassiou, Adjustments to the Gini Coefficient for Measuring Economic Inequality. Athens, 1990.
- No 3 J. Dutta and H. Polemarchakis, Credit Constraints and Investment Finance: Evidence from Greece. Athens, 1990.
- No 4 C. Kanellopoulos, The Underground Economy in Greece: What Official Data Show. Athens (in Greek 1990 - in English 1992).
- No 5 N. Antonakis and D. Karavidas, Defense Expenditure and Growth in LDCs - The Case of Greece, 1950-1985. Athens, 1990.
- No 6 J. Geanakoplos and H. Polemarchakis, Observability and Constrained Optima. Athens, 1992.
- No 7 L. Athanassiou, Distribution Output Prices and Expenditure. Athens, 1992.
- No 8 N. Christodoulakis, Certain Macroeconomic Consequences of the European Integration. Athens, 1992 (in Greek).
- No 9 V. Rapanos, Technological Progress, Income Distribution and Unemployment in the less Developed Countries. Athens, 1992.
- No 10 V. Rapanos, Joint Production and Taxation. Athens, 1992.
- No 11 D. Maroulis, Economic Analysis of the Macroeconomic Policy of Greece during the Period 1960-1990. Athens, 1992 (in Greek).
- No 12 C. Kanellopoulos, Incomes and Poverty of the Greek Elderly. Athens, 1992.
- No 13 G. Agapitos and P. Koutsouvelis, The VAT Harmonization within EEC: Single Market and its Impacts on Greece's Private Consumption and Vat Revenue. Athens, 1992.
- No 14 C. Carabatsou-Pachaki, Elaboration Principles/Evaluation Criteria for Programmes. Athens, 1992 (in Greek).
- No 15 C. Carabatsou-Pachaki, Reforming Common Agricultural Policy and Prospects for Greece. Athens, 1992 (in Greek).
- No 16 P. Paraskevaides, Effective Protection, Domestic Resource Cost and Capital Structure of the Cattle Breeding Industry. Athens, 1992 (in Greek).
- No 17 Cl. Efstratoglou, Export Trading Companies: International Experience and the Case of Greece. Athens, 1992 (in Greek).

- No 18 C. Carabatsou-Pachaki, Rural Problems and Policy in Greece. Athens, 1993.
- No 19 St. Balfoussias, Ordering Equilibria by Output or Technology in a Non-linear Pricing Context. Athens, 1993.
- No 20 St. Balfoussias, Demand for Electric Energy in the Presence of a two-block Declining Price Schedule. Athens, 1993.
- No 21 P. Paraskevaides, Regional Typology of Farms. Athens, 1993 (in Greek).
- No 22 P. Paraskevaides, Evaluation of Regional Development Plans in the East Macedonia-Thrace's and Crete's Agricultural Sector. Athens, 1993 (in Greek).
- No 23 C. Eberwein and Tr. Kollintzas, A Dynamic Model of Bargaining in a Unionized Firm with Irreversible Investment. Athens, 1993.
- No 24 P. Paraskevaides, Income Inequalities and Regional Distribution of the Labour Force Age Group 20-29. Athens, 1993 (in Greek).
- No 25 A. Gana, Th. Zervou and A. Kotsi, Poverty in the Regions of Greece in the late 80's. Athens, 1993 (in Greek).
- No 26 Z. Georganta, The Effect of a Free Market Price Mechanism on Total Factor Productivity: The Case of the Agricultural Crop Industry in Greece. Athens, 1993.
- No 27 H. Dellas, Recessions and Ability Discrimination. Athens, 1993.
- No 28 Z. Georganta, Accession in the EC and its Effect on Total Factor Productivity Growth of Greek Agriculture. Athens, 1993.
- No 29 H. Dellas, Stabilization Policy and Long Term Growth: Are they Related? Athens, 1993.
- No 30 Z. Georganta, Technical (In) Efficiency in the U.S. Manufacturing Sector, 1977-1982. Athens, 1993.
- No 31 P. Paraskevaidis, The Economic Function of Agricultural Cooperative Firms. Athens, 1993 (in Greek).
- No 32 Z. Georganta, Measurement Errors and the Indirect Effects of R & D on Productivity Growth: The U.S. Manufacturing Sector. Athens, 1993.
- No 33 C. Carabatsou-Pachaki, The Quality Strategy: A Viable Alternative for Small Mediterranean Agricultures. Athens, 1994.
- No 34 E. Petrakis and A. Xepapadeas, Environmental Consciousness and Moral Hazard in International Agreements to Protect the Environment. Athens, 1994.
- No 35 Z. Georganta, K. Kotsis and Emm. Kounaris, Measurement of Total Factor Productivity in the Manufacturing Sector of Greece 1980-1991. Athens, 1994.
- No 36 C. Kanellopoulos, Public-Private Wage Differentials in Greece. Athens, 1994.

- No 37 C. Vergopoulos, Public Debt and its Effects. Athens, 1994 (in Greek).
- No 38 M. Panopoulou, Greek Merchant Navy, Technological Change and Domestic Shipbuilding Industry from 1850 to 1914. Athens, 1995.
- No 39 V. Rapanos, Technical Change in a Model with Fair Wages and Unemployment. Athens, 1995.
- No 40 V. Rapanos, The Effects of Environmental Taxes on Income Distribution. Athens, 1995.
- No 41 St. Balfoussias, Cost and Productivity in Electricity Generation in Greece. Athens, 1995.
- No 42 V. Rapanos, Trade Unions and the Incidence of the Corporation Income Tax. Athens, 1995.
- No 43 V. Rapanos, Economies of Scale and the Incidence of the Minimum Wage in the less Developed Countries. Athens, 1995.
- No 44 P. Mourdoukoutas, Japanese Investment in Greece. Athens, 1995 (in Greek).
- No 45 St. Thomadakis, and V. Droucopoulos, Dynamic Effects in Greek Manufacturing: The Changing Shares of SMEs, 1983-1990. Athens, 1995.
- No 46 N. Christodoulakis and S. Kalyvitis, Likely Effects of CSF 1994-1999 on the Greek Economy: An ex ante Assessment Using an Annual Four-Sector Macroeconometric Model. Athens, 1995.
- No 47 St. Makrydakis, E. Tzavalis, A. Balfoussias, Policy Regime Changes and the Long-Run Sustainability of Fiscal Policy: An Application to Greece. Athens, 1995.
- No 48 G. Kouretas, L. Zarangas, A Cointegration Analysis of the Official and Parallel Foreign Exchange Markets for Dollars in Greece. Athens, 1995.
- No 49 C. Kanellopoulos, G. Psacharopoulos, Private Education Expenditure in a "Free Education" Country: The Case of Greece. Athens, 1995.
- No 50 J. Henley, Restructuring Large Scale State Enterprises in the Republics of Azerbaijan, Kazakhstan, the Kyrgyz Republic and Uzbekistan: The Challenge for Technical Assistance. Athens, 1995.
- No 51 A. Balfoussias, V. Stavrinou, The Greek Military Sector and Macroeconomic Effects of Military Spending in Greece. Athens, 1996.
- No 52 V. Stavrinou, V. Droucopoulos, Output Expectations Productivity Trends and Employment: The Case of Greek Manufacturing. Athens, 1996.
- No 53 N. Glytsos, Remitting Behavior of "Temporary" and "Permanent" Migrants: The Case of Greeks in Germany and Australia. Athens, 1996.

- No 54 N. Glytsos, Demographic Changes, Retirement, Job Creation and Labour Shortages in Greece: An Occupational and Regional Outlook. Athens, 1996.
- No 55 D. Dogas, Thoughts on the Appropriate Stabilization and Development Policy and the Role of the Bank of Greece in the Context of the Economic and Monetary Union (EMU). Athens, 1996 (in Greek).
- No 56 Th. Katsanevas, The Evolution of Employment and Industrial Relations in Greece (from the Decade of 1970 up to the Present). Athens, 1996 (in Greek).
- No 57 Chr. Kollias and A. Refenes, Modelling the Effects of Defence Spending Reductions on Investment Using Neural Networks in the Case of Greece. Athens, 1996.
- No 58 Chr. Kollias and St. Makrydakis, The Causal Relationship Between Tax Revenues and Government Spending in Greece: 1950-1990. Athens, 1996.
- No 59 St. Makrydakis, Testing the Intertemporal Approach to Current Account Determination: Evidence from Greece. Athens, 1996.
- No 60 Chr. Kollias and St. Makrydakis, Is there a Greek-Turkish Arms Race?: Evidence from Cointegration and Causality Tests. Athens, 1997.
- No 61 M. Karamessini, Labour Flexibility and Segmentation of the Greek Labour Market in the Eighties: Sectoral Analysis and Typology. Athens, 1997.
- No 62 M. Chletsos, Government Spending and Growth in Greece 1958-1993: Some Preliminary Empirical Results. Athens, 1997.
- No 63 M. Chletsos, Changes in Social Policy - Social Insurance, Restructuring the Labour Market and the Role of the State in Greece in the Period of European Integration. Athens, 1997.
- No 64 M. Chletsos, Chr. Kollias and G. Manolas, Structural Economic Changes and their Impact on the Relationship between Wages, Productivity and Labour Demand in Greece. Athens, 1997.
- No 65 C. Kanellopoulos, Pay Structure in Greece 1974-1994. Athens, 1997.
- No 66 G. Petrakos and N. Christodoulakis, Economic Developments in the Balkan Countries and the Role of Greece: From Bilateral Relations to the Challenge of Integration. Athens, 1997.
- No 67 St. Makrydakis, Sources of Macroeconomic Fluctuations in the Newly Industrialised Economies: A Common Trends Approach. Athens, 1997.
- No 68 S. Diajic, S. Lahiri, P. Raimondos-Moller, Logic of Aid in an Intertemporal setting. Athens, 1997.



