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CAUSES AND TRENDS OF STRIKE ACTION IN EUROPEAN UNION COUNTRIES

THEODOROS KATSANEVAS

INTRODUCTION

In the daily reality of modern polycentric societies, strike action expresses the divergence of contrasting interest and expectations. It is "the morning lunch of Parliamentary Democracy"[1] which the mass media frequently endeavours to make it look or sound frightening, especially if there are some violent and blood clashes related to the dispute. The strike, however, is considered to be the most important source of organized labour in its struggle to win concessions. It is *"a planned withholding of labour designed to impose union demands on the employer from the employee or to prevent the employer from imposing his demands on the union".*[2] Although, there are multiple economic, social, legal and political interpretations, strike action has been defined as *"a temporary stoppage of work by a group of employees in order to express a grievance or enforce a demand".*[3]

An attempt has been made in this paper to determine the dominant influences of unemployment upon industrial disputes, as well as to trace the causes and trends of strikes in Europen Union countries in recent years. The main source of data is from the I.L.O's "Yearbook of Labour Statistics 1994". The original source of this same data is mainly drawn by the I.L.O. from goverment statistical services of the countries included in the study. For reasons of statistical comparability, the use of sources other than the I.L.O. (except in certain cases) has been avoided.

The estimates were also checked and compared with Eurostat statistics and publications especially, "The Rapid Reports", "Populations and Social Conditions", and "Trends in Industrial Disputes in the European Economic Area, 1983-1992. "There exist certain differences in statistical data between the two main sources, that is the "Yearbook of Labour Statistics of the ILO" and the "Eurosat of the EC", although the general trends and findings are rather similar.

For Belgium and the Netherlands, the time series are incomplete, while for Luxemburg they are not available. The data used for Greece draws on publications by "The General Confederation of Labour of Greece", which takes its information from data reported by "The Greek National Statistical Service". Although the Confederation may have over-estimated some of its strike data, its chronological series and sectoral analysis are usually daily complete, and known to be satisfactory.

It should also be noted that an attempt had been made to extend the conclusions from data based on a fairly long period of time, that is between 1973 and 1993. However there were many statistical differences and gaps in information which made the conclusions for that period questionable. Nevertheless, even when taking the deferent data into consideration it still appears that their is a negative correlation between unemployment and strike trends for the extended period 1973-1993. In this sense, there is a general lowering of strike activity which could be attributed, to a certain extent to the persistent increase of unemployment.

The extensive and methodological elaboration of statistical data was made with the co-operation of economist Stefanos Karakitsos, while the data was collected by economics graduate Georgia Tsetsou. Many thanks are due to Professor Chris Jecchinis for his important observations and contributions to this study.

A SURVEY OF PUBLISHED RESEARCH STUDIES ON STRIKE CAUSES AND TRENDS

The propensity to strike has been made the object of numerous research papers which have appeared in several international studies. There seems to be many aspects of the problem. In an old empirical research study of "strikes in 15 countries between 1890 and 1956", Ross and Hatman have pointed out a series of factors which cause their development, such as:

1. the organized stability and age of the labour movement;
2. leadership conflicts;
3. status of union-management relationship;
4. labour activity; and
5. role of the State.

In another well-known comparative study covering various countries, Clark Kerr and Abraham Siegel came to the conclusion that the factors which have a definite influence on strike behaviour are , the geographical and social isolation of a working class community, the limited occupational differentation among variables, and the coherence of the group.[5] After taking into consideration those variables, Kerr and Siegel add that there is also a high propensity to strike among workers in certain sectors of economic activity, such as mining, ports, and iron/metal industries. Furthermore, according to the same scholars other interrelated factors, should be considered such as the size of business, the structure of production, the degree of technological change, the type of work organization applied, as well as the costs of production and the existing market commodities.

Smith *et al* in a sectoral analysis of stikes in Great Britain for the period 1966-1973 concluded that, "*higher than average strike activity appears to be*

associated with high earnings in the industry, labour costs representing a high proportion of total costs, a high proposition of large establishments in the industry and a low proportion of female employees".[6]

The Donovan Commission in Great Britain, attributed the increase of strikes during the decade of 1960 to the increase of trade union organizations' power and to the decentralization of collective bargaining.[7] Turner and Roberts, conluded that, *"the normalization of company bargaining procedures and of stop stewards status to be a factor encouraging labour conflict".*[8] And according to Hue Clegg, " *the pattern of strikes is therefore closely associated with the structure of bargaining in each country".*[9]

Unquestionably, in addition to the above findings of prominent scholars, there are other factors which affect strike tendencies such as the political climate, the prevailing ideological trends, the values and behaviour of society as a whole vis-a-vis union militant demonstrations,[10] and in recent years, the impact of mass media.

In an effort to explain the reduction in strikes recorded in most European countries, during the 1980's, Antony Ferner and Richard Hayman pointed out that the following factors may be responsible for declining strike activity:

1. the creation of new institutions of dispute resolution;
2. the finest tuning of old mechanisms;
3. the crystallization of new structure of workplace representation;
4. trends towards small work units; and,
5. the shift from manufacturing to services, and from manual to white collar (and the associated feminization of the workforce).[11]

John Hicks in an estabished, well thought of analysis, which is commonly known as *"the accident theory of strikes"*, concludes that *"strikes result from faulty negotiations"* and there are variables which increase the uncertainty of the two parties to a negotiation.[12] An alternative view is found in Arthur Ross's political theory of strikes, which is based on the assumption of descripancies in information or different aims between union leaders and the rank-and-file.[13]

There is also material to support the theory that the time of conducting parliamentary elections is a period which influences strike tendencies. This is because trade unions can exploit the pre-election time and press for wage increases when governments are particularly susceptible to concessions. Paldam and Pedersen support the disputable assertion that strike tendencies are stronger under a left-wing government than under a right-wing one.[14] They state that, *"either that left-wing governments are more likely to enact conflict-reducing reforms (the reduction could be through appeasement or control) or that workers feel more solidarity with left-wing governments which reduces conflict. The main reason to expect a negative co-effficient is that workers are likely to have higher wage expectations under left-wing than under right-wing.* In the opinion

of the author, Paldam and Pedersen conclusions are questionable at least for the countries with strong political parties/trade unions relationships, such as Greece, and where leading trade union officials have close relationships, with socialist olitical parties and governments. These situations often have a sobering effect on the decision to strike.

On the same issue Jack Skeels claims that, there is a positive relationship between strike frequency and having a Democratic President in the white House.[16] While Davies has concluded, (as it seems to be more logical) that, British strike frequency is significantly related to incomes policy and a tax-pressure variable,[17] wage-price controls appear to have reduced, at least for a certain period of the time, the propensity to stike. Once, however, these controls are lifted, conflict activity usually rebounds as unions seek to make up for lost gains.[18]

An increasing rise of profits on the one hand, and inflation uncertainly on the other, normally induces a higher level of strike activity,[19] because it forces the hand of trade union leaders for action.

Reviewing quarterly data for U.S. manufacturing over the period 1954-1974 Bruce Kaufman reported a significant positive relationship between work stoppages and inflation.[20] Before that, as early as 1952, Knowles presented graphs also showing a positive correlation between the number of stikes and the level of prices and wages in Britain, and a slightly less impressive negative relationship between strikes and the unemployment rate.[21]

Substantial rises in corporate profits may cause a rise in strike activity if corresponding expectations for higher wages are not met. A different view has been expressed by Paldam and Pedersen who seem to have reached a more acceptable conclusion. They maintain that "*changes in the wage structure is a dominating force behined change in conflict intensities. Conflicts may thus be generated by tensions between individuals' actual positions in the wage structure and their desired position-as formed by tradition, conceptions of justice and reason so forth*".[22] The same authors in their study of seventeen countries, have in fact found only a rather weak correlation between unemployment inflation rate and strike activity.

Legal regulations which are considered supportive to trade unions, such as the Wagner Act of 1935 in the United States, may also lead to more industrial disputes as unions want to exercise their new found organizing and bargaining rights.[23] On the other hand, hostile government intervention such as that of President Reagen's decision to fire the air traffic controllers during their wild-cat strike of 1981 had the opposite effect. As Bruce Kaufman stresses, that kind of action appeared to have had a chilling effect on the willingness of other unions to strike, since both labour and management interpreted the Reagen intervention as a signal that, from then on, it was permissible for strike breakers to replace workers who went on strike.[24] Strong arm government tactics against unions however, may have in some cases the opposite results, depending upon the prevailing political climate and the position of the mass media.[25]

Peter Crampton and Joseph Tracy in a recent study supported a model in which industrial dispute activity is driven by the level of uncertainly over the value added by organized labour under a new contract, and that the shape of disputes will shift toward strikes when the real wage falls during the prior contract and when labour market conditions are tight.[26]

STRIKES AND THE BUSINESS CYCLE

Several studies have shown that the single most important influence on activity appears to be the expansion and contraction of economic activity within the business cycle.[27] The typical pattern of strike activity logically should follow the cycle, increasing after the upswing of the business cycle and falling off after the downswing. Inflation uncertainty and new inflation projections often correspond with a higher level of strike activity.[28] Hansen in his 1921 analysis of strike data from 1881 to 1919 concluded that, *"strikes correlate inversely with the business cycle in periods of long run rising prices".*[29] Griffen examining strike data between 1881 and 1937 came to the same conclusion in 1940 and stated that increases in business activity were associated with increases in strikes and vice versa. The same author stated that "strikes have continued to oscillate in accordance with two factors. The first is the business cycle which, whether measured by prices or wages, has had a corresponding correlation to strikes. The second is the political climate".[30]

Griffin, like Yoder in 1938,[31] Burns and Mitchell in 1946,[32] JurKat and JurKat 1949,[33] Rees in 1952,[34] O'Brien in 1965,[35]Weintraub in 1966[36] and Bain in 1976[37] found a certain positive correlation between the business activity and strike action and/or unionization growth.

Kennan, more recently, after summarizing such earlier studies concludes that, *"there is persuasive although not conclusive evidence that the frequency and (more importantly and more doubtfully) the incidence of strikes are positively related to general cyclical movements in the economy. There is also more recent evidence that stike duration is negatively related to the cycle".*[38]

UNEMPLOYMENT VERSUS STRIKES

Particularly connected with the business cycle and the inflation rate, is the level of employment and unemployment. Empiral evidence are here worked on has shown that the cyclical trend of the unemployment rate of the European Union countries was found to be a serious factor influencing strike activity.

Albert Rees in a comprehensive paper written in 1952, asserts that, *"strikes occur during periods of rising employment to secure wage increases and other benefits in unionized plants and also to organize the unorganized. Rising employment and improving business conditions offer the unions a variety of stategic advantages: the employer's reluctance to lose his share of the expanding*

market, and his observation of rising wages elsewhere lower his resistance to union demands. During periods of business and employment expansion, *employers are softer to union demands because they are afraid to lose their share of expanding market*".[39]

On the other hand, as Rees indicates, strikes drop sharply during periods of falling business activity and rising unemployment. Employees not covered by unions are unwilling to unionize for fear of being easily dismissed. Unionized employees also see their bargaining power diminish, while employers' power is stregthened due to their ability to fill orders out of inventory or make up for lost production after the strike is over.

In periods of falling employment, Albert Rees stresses "*the union may fear that a strike or a granting of economic conscession by the employer would damage his competitive position and thus imperil the jobs of some union members. This will be especially true where the employer faces competition from non-unionized employers. Moreover, workers who keep full-time jobs during the early stages of a depression usually get real wage increases without striking. These are produced, on the one hand, by the general tendency of wages to be striking downward, reinforced by fixed-term union contacts, and, on the other hand, by the fall in consumer prices. As the downswing progresses a rising proportion of the diminishing number of strikes represents protests against wage reductions made or proposed by employers*".

In the civil service and the broader public sector, although unemployment does not threaten job security directly, the general climate of depression that prevails under the downtrend of the economy, is more likely to influence negatively trade union decision-making vis-a-vis strike initiatives. Therefore, unemployment appears to have a chilling effect on strike action not only in the private but also in the public sector.

Nevertheless, contrary to the above trends, there may be some positive influence of unemployment upon short-term strike action. This influence is linked to technological changes. This is so, especially in the present times of technological revolution, when whole industrial sectors and occupations have diminished, while others connected with high technology and services are growing. These changes have important repercussions upon activities. When the closing down of factories is followed by massive dismissals, they lead to intense strike action often with violent repercussions.[40] In this case therfore, unemployment has had the opposite effect, though short-term since it results in strike outbreaks.

UNEMPLOYMENT AND STRIKE TRENDS BETWEEN 1983 AND 1993 IN THE EUORPEAN UNION COUNTRIES

According to the empirical findings based on statistical data shown in diagram I, between 1983 and 1993 in the eleven European Union countries researched,[41] unemployment has generaly had a negative influence upon strike

activity. This correlation, at least for the periods where relatively trustworthy statistical data exist, is stronger for countries such as Greece, Ireland, Denmark, Netherlands and Italy. In other countries notably Germany, France, Portugal and United Kingdom, the same correlation is rather loose, while in Spain and Belgium it is almost non-existent (see diagram 2).

A rise in strike activity (which is measured against the most comprehensive and representative indexes of the yearly average days lost due to strike action per 1000 employees), should logically follow the fall of unemployment. Nevertheless, according to the data shown in diagram 1 and 2, this is normally the case.

The diagrams and the table included here are derived primarily from statistical data of "The ILO Yearbook of labour Statistics"for the reasons given in the Appendix. In order to study the correlation between unemployment and strike trends, the data of the eleven European Union countries have been examined because, in their case, there is trustworthy and comparable yearly data of unemployment statistics for years researched. For furthur analysis of statistical trends and patterns in strike activity, three more countries have been added which were more recently included in the European Union That is: Austria, Finland and Sweden.

A special analytical methodology was employed for the available data in order to present the diagrams and the table included in this paper. The methodology is included in the Appendix at the end of the article, and given in a brief form because of the limited space of this paper.

For some countries, such as Belgium, Netherlands, Italy and Ireland, there is incomplete time series data. In the case of Greece the strike data provided by the "Greek General Confederation of Labour" has been used for reasons which are explained in the Appendix.

Unquestionably, statistical data has comparative and definitional problems.[42] In some countries for instance, unofficial, unconstitutional or wildcat strikes are not registered, or there is a level under which low number of strikes are not computed.[43] In other cases, employees who lose working days from strikes without their consent, or those who went on strike in order to support their striking colleagues, are included in the total number of strike data.

In some countries, such as Greece, political pressure has obliged the National Statistical Service to reduce the statistics for strikes as they had done occasionally in the case of unemployment and inflation indices.

Strike statistics, Hyman notes, *"are an imperfect measure of work stoppages; and that work stoppages themselves are only a partial indication of industrial conflict, let alone the general climate of industrial relations in a nation or an industry"*[44] As it is said there are "lies, damned lies and strike statistics".[45] Hugh Clegg, prominent professor of industrial relations, concluded that, *"although comparisons of the number of strikes between industries and*

between countries must be treated with some reserve, comparisons of the number of working days lost present a more accurate picture"[46] Bearing in mind the above remarks, the statistics are used here in an attempt to describe and explain general strike trends. No one, however can claim that statistics is a substitute for critical insight and substantive knowledge. Yet, when all is said and done, statistics remain a powerful instrument for describing, explaining and evaluating social phenomena.

OTHER NON-ECONOMIC VARIABLES

The different pattern that appears in the correlation between unemployment and strike trends among countries as shown in diagram 2, should be attributed to other variables which apply for the present period of time and for comparable systems, such as those of the European Union member-states.

After reviewing the findings and hypothesis of several other earlier studies already mentioned and considering the present industrial relations trends in Europe, it has been suggested that, the non-economic variables which influence strike propensity, (in addition to the important unemployment fact), appear to be mainly the following:

1. The year of election;
2. Income and tax policies;
3. Inflation projections, profit rises and wage structural changes;
4. Unionization density and strength;
5. Degree of centralization of collective bargaining structures and procedures; and
6. Political climate, traditions and government policies.

In an election year unions are usually more provocative in their demands and hence ther is a higher prosperity for strike occurrence in certain cases, however, weak governments headed by ambitious politicians, may be eager enough to accept union demands and thus strikes may be either of short duration and/or remain at the threatening stage.

Strict incomes and tax policies are also likely to encourage strike activity. The same is true in the case of high inflation projections and of profit rises, as well as when the wage structure under goes only normal wage increases. Unions with high levels of density and strength, and/or unions in the broader public sector of the economy, are more prone to go on strike, and pay less attention to the unemployment stituation.

However as most writers agree, in cases of centralized collective bargaining structures and procedures, there is a lower tendency to strike. Finally, in some countries such as Greece, Italy, Spain, and Portugal, the political climate and traditions encourage strike protest action usually of short duration, in contrast to central-north European countries such as Germany, Sweden, Austria and

and United Kingdom. Under political climate one should also include governmant policies towards unions which, in general, also influence strike attitudes.

For the testing of the above hypothesis on the influence of the non-economic variables mentioned above, in addition to the important unemployment factor, the reserach work for this paper concentrated on the case of Grece for which there is available considerable first hand information. Thus diagram 3 shows the obvious strong correlation between unemployment and the propsensity to strike in this country. Results show that at least for the period 1983-1993, when unemployment rose in Greece, strike activity fell and vice-versa.

Furthermore, when the non-economic variables are considered, it shows that strike activity fell after the 1981 and 1990 elections, but that it rose sharply before and during the 1989-1990 three successive elections, in which time the political climate and the weak coalition government of that period was particularly vulnerable to strike threats and action. Industrial dispute activity also increased sharply during the periods of strike incomes policy between 1985 and 1987.

The political climate, traditions, government policies, inflation, profit rising projections and wage structural changes, appear also to be relatively positive factors for the escalation of stikes between 1989 and 1990. The opposite has been the case with their downward trend after that period.

The above non-economic variables, thus appear to have influenced industrial conflict in Greece in addition to the dominant unemployment factor. As a result the negative correlation between unemployment and strike trends appears to be particularly strong in this country's case.

Unionization density and strength in Greece, is characterized by the fact that it is low in most parts of private industry and relatively high in the public sector (civil service, public utilities, public transport and public banks). Collective bargaining procedures in the country's case are controversial, depending largely upon the state authorities.[47] These variables appear not to have influenced strike trends to the extend that they may do so, as other countries in other studies previously mentioned have shown.

STATISTICAL FINDINGS AND COMPARISONS

According to Table A (and diagram 4) presented in this paper, high strike prone European countries (measured by the yearly average days lost due to strike activity per 1.000 employees), for the period 1983 to 1993 are the following:

1. Spain (413 days lost per year)
2. Greece (295)
3. Finland (272)
4. Italy (217)
5. Ireland (208)

Medium - strike prone countires which are closer to European yearly average of 133,6 days lost per 1000 employees, include:

6. United Kingdom (198)
7. Denmark (121)
8. Sweden (80)
9.Portugal (47)

Low prone strike countries are:

10. France (39)
11. Belgium (34)
12. Germany (30)
13. Holland (12)
14. Ausria(4)

The index of the number of strikers (measured by the yearly average number of strikes per 1000 employees) shows little differentiation in (see table A) as follows:

1. Spain (204.2 Strikers)
2. Greece (195.3)
3. Italy (183.2)
4. Finland (92.4)
5. Portugal (36.8)
6. Denmark (36.8)
7. Ireland (33.3)
8. United Kingdom (24.9)
9. Sweden (11.1)
10. Germany (7.7)
11. France (6.1)
12. Belgium (4.9)
13. Holland (3.9)
14. Austria (5.1)

Countries standing higher in list of the number of strikers index, in comparison to their relative position in the index of the days lost are: Italy, Denmark, Portugal and Germany. The opposite has been recorded in the case of Finland, Ireland, United Kingdom, Sweden, France and Belgium. For the fourteen counties researched, the average ratio of the same index is 58.6 strikers per 1,000 employees per year.

Also according to table A and diagram 6, countries with a long duration of strikes, (as measured by the index of the yearly average duration of strikes),[48] successively are:

1. United Kingdom (7.9 days)
2. Sweden (7.2)
3. Belgium (6.9)
4. France (6.5)
5. Ireland (6.2)

Of medium duration and close to the European average of (2.2) days lost per year, are successively:

6. Denmark (3.3)
7. Holland (3.0)
8. Finland (2.9)
9. Spain (2.0)

The limited duration strike action index includes:

10. Greece (1.5)
11. Portugal (1.3)
12.Italy (1.2)
13. Austria (0.8)

It is evident from the above analysis that, there is quite a different pattern of industrial disputes among European countries, if one compares the yearly average days lost and the number of strikes index to the "yearly average

duration of strikes". Countries such as Spain, Greece and Italy, although in the top of the list in the case of days lost and the number of strikes, are characterized by medium or limited duration of twin strikes, and thus close to the European average of 2.2 days lost per year (see table A).

On the other hand, countries which show a long duration of strikes, such as United Kingdom, Sweden and Belgium, are included in the list of medium-prone strike states.

In particular it should be noted that, at present Spain appears to the most turbulent industrial relations system, at least for the period researched, followed by Greece, Finland, Italy and Ireland. On the other hand, in Austria, and the Netherlands, strikes are almost non-existent there.

Diagram 4 shows the evolution of the yearly days lost due to strike activity per 1000 employees between 1983-1993 for each country researched, as compared with the respective European average. It is evident from the same diagram that, there are strong periodic fluctuations of the yearly days lost in certain countries, between 1983 and 1993, notably in Finland, Spain, United Kingdom, Greece and Denmark. The opposite is noted for Austria, Netherlands, France Germany and Portugal.

In general, there has been a reduction of strike activity, particularly during the 1990's - This fact should be attributed primarily to be the persistant increase of unemployment. This trend becomes evident if one studies the evolution of the most representatine index on strike action, that is the yearly average days lost per 1000 employees (see diagram 4).

Nevertheless, although the number of days lost to industrial action is diminishing, the average number of strikes in the fourteen European Countries researched is not changing significantly. The same is also true for the average European Union duration of strikes index.

Diagram 5 demonstates the structure of strikes (as measured by the yearly average of days lost), among the fourteen countries and the period researched, divided into the following two main categories:

(a) Primary and secondary sector (agriculture, hunting, forestry and fishing, mining, quarring, manufacturing, construction).

(b) Tertiary sector (electricity, gas, water, trade, restaurants and hotels, transport, storage, communication, finacing, insurance, real estate, business service, community, social and personal services).

Although there might be some considerable statistical errors due to differentiation in data sources and definitions, it is generally found that, countries in which strike activity concentrates on the primary and mainly the secondary sector (above the average of 50%), are successively the following:

1. Germany (81%)
2. Denmark (78%)
3. France (76%)
4. United Kingdon (73%)
5. Belgium (66%)
6. Italy (62%)
7. Spain (61%)
8. Netherlands (58%)
9. Portugal (54%)

Strike activity concentrated in the tertiary sector (above the average of 50%), in the case of

1. Austria (71%)
2. Sweden (70%)
3. Greece (65%)
4. Ireland (62%)
5. Finland (54%)

In the latter countries as other studies have concluded there emerges a so-called "*tertiarization of conflict*": the theme here is that the service sector and in particular public services have become the cockpit of conflict, at a time when strike activity in manufacturing is diminishing.[49]

Differences in employment structure and in unemployment trends as well as other non-economic variables noted above, partly explain such diverse patterns of strike structure among the European countries reserached.

MAIN CONCLUSIONS

As indicated by several studies analyzed in this paper, unemployment seems to have generally a negative influence on the outcome of industrial conflict. This argument was found to be largely true in the analysis of unemployment and strike data of eleven European Union countries for the period of 1983-1993. The negative correlation between unemployment and strikes, appears to be stronger in countries such as Greece, Ireland, Denmark, Netherlands and Italy, to be rather nebulous in Germany, France, Portugal and United Kingdom; and almost non existent in Spain and Belgium. (although in Spain there is an overall strong tendency to strike).

This different pattern of strike action among the various countries, should be attributed to the influence of other non-economic variables such as:

1. the year of natural elections;
2. income and tax policies;
3. inflation projections profit rises and wage structual changes;
4. unionization density and strength;
5. the degree of collective bargening centralisation structures and procedures; and
6. political climate traditions and government attitude

The above variables are drawn from extensive examination of the international bibliography on the subject as well as from testing the case of Greece for which first hand information exists. Furthermore, several findings

are also derived from the analysis of strike trends in fourteen European countries researched and then compared to the European average. Spain appears to be the champion in industrial disputes, followed by Greece, Finland, Italy and Ireland. On the other hand, Austria, followed by Netherlands is characterized by the most peaceful industrial relations system.

The above findings are based on the examination of the index:*"yearly average days lost per 1000 employees"* and the *"yearly average number of strikers"*. Yet, there emerges quite different pattern of disputes among the countries researched if one compares the above index to the *"yearly average duration of strikes"*. Countries such as Spain, Greece and Italy, show a most turbulent industrial relations situation. However they are characterized by the short duration of strikes, which are close to the European average of 2.2 days per year. On the other hand, countries with a long duration od strikes, such as the United Kingdom, Sweden and Belgium, appear to belong to the medium prone strike action countries. It was noted also, that in recent years, strike activity in some countries, such as Austria, Sweden, Greece, Spain and Ireland, have been concentrated in the tertiary sector, a phenomen which has been called the "tertiarization of conflict".

More specifically, the course of unemployment in Greece, seems to have had a negative influence on the intensity of strike action. The data shows that when unemployment rises, strike action drops, and vice versa. In this repect the Greek record seems to support the conclusions searched by various research and studies carried out internationally. It is also confirmed by the record of other countries for the same period of 1983-1993. It is shown that the negative relationship between strikes and unemployment applies not only to Greece, but also to other countries, although there are some variations in intensity attributed to non-economic factors.

Nevertheless, it should be noted that in terms of the countries in the European Union, the average for the period of 1983-93 indicates a clear negative relationship between unemployment and strike activity, which in effect, supports the general hypothesis of this study and its findings.

Appendix I

Strike Statistics in fourteen European Countries 1983 – 93

Countries	Yearly average employment level (in '000)	Yearly average days lost per country (in '000)	Yearly average days lost per thousand employees	Yearly average number of strikers (in '000)	Yearly average number of strikers per thousand employees (in '000)	Yearly average duration of days lost due to strikes (duration of strikes) 1983 – 93
SPAIN	11.705,700	4.832,480	412,831	2.390,270	204,197	2,0
GREECE[1,3]	3.638,850	1.073,819	295,098	710,744	195.321	1,5
FINLAND	2.388,700	649,052	271,718	220,702	92,394	2,9
ITALY[2,3]	21.236,900	4.604,278	216,806	3.889,650	183,155	1,2
IRELAND[2,3]	1.103,060	229,717	208.254	36,824	33,383	6,2
UN. KINGDOM	25.556,400	5,067,600	198,291	638,780	24,995	7,9
DENMARK[3]	2.633,480	318,840	121,072	96,943	36,812	3,3
SWEDEN	4.286,500	345,006	80,487	47,723	11,133	7,2
PORTUGAL	4.496,270	213,550	47,495	165,640	36,839	1,3
FRANCE	21.926,370	874,080	39,864	134,350	6,127	6,5
BELGIUM[3,4]	3.669,030	123,205	33,580	17,841	4,863	6,9
GERMANY[5]	28.157,100	851,113	30,227	215,962	7,670	–
NETHERLANDS[3]	5.880,900	68,161	11,590	22,902	3,894	3,0
AUSTRIA	3.376,650	13,801	4,087	17,283	5,118	0,8
European Union	140.055,910	18.719,699	133,659	8.204,045	58,577	2,2

Source: Own elaboration of data from the ILO, "Yearbook of Labour Statistics 1994". See also Appendix for an analysis of the methodogly used.

1 Strike data for Greece derived from the General Confederation of Greek Labour for reason explained in the Appendix.

2 Average strike data for Ireland and Italy does not include the year 1993.

3 For some countries (Denmark 1993, Greece 1983, Belgium 1993, Ireland 1993, Italy 1993 and Netherlands 1992) data for unemployment was not available in the ILO Yearbook of Labour Statistics 1994 and it was assumed that for those years it reached the previous year's level. The use of other main source than the ILO except for certain cases, was avoided for reasons of statistical compatibility as explained in the Appendix.

4 Average strike data for Belgium refers only to the period 1988-1992 for which statistical information from ILO was available.

5 Data is not available in the ILO Yearbook 1994 for the number of strikes in Germany and therefore the average duration of strikes cannot be calculated.

Appendix II

A NOTE ON THE RESEARCH METHODOLOGY

As previously mentioned, the main source of data for this study was derived from the I.L.O.'s "Yearbook of Labour Statistics 1994". The original source of the same data is mainly drawn by the ILO from the government statistical services of the countries included in the study. For reasons of statistcal comparability, the use of sources than other those of the ILO except for certain cases, was avoided.

Our estimates where also checked and compared with Eurostat statistics and publications and especially the "Rapid Reports","Populations and Social Conditions", and *"The Trends in Industrial Disputes in the European Economic Area, 1983-1992"*. There exists certain differences in statistical data between the two main sources, that is "The Yearbook of Labour Statistics of the ILO and the Eurostat of the EC", although the general trends and findings are rather similar.

It should also be noted here that we attempted to extend our conlusions on data based on a long period of time, that is between 1973 and 1993 but there were many statistical differences and information gaps so that we avoided the issue. Nevertheless, taking into consideration the deficiency in data found, it appears that the negative correlation between unemployment and strike trends for the extended period of the twenty years between 1973-1993, in the sense that, there is very general lowering of strike activity which could be attributed, to a certain degree, to the persistent increase in unemployment.

The extensive and methodological elaboration of statistical data was made in cooperation with my collaborator economist Stefanos Karakitsos, while the data was collected by the young economist Georgia Tsetsou. Many thanks are due to Professor Chris Jeckins for his important observations and contributions to this study.

For Belgium and Netherlands, there is an incomplete time series, while for Luxembourg it is not available at all. The data used for Greece derived from data published by the "General Confederation of Labour of Greece", which develops its information from data reported by the "Greek National Statistical Service". Although the Confederation may have over-estimated some of its strike data, its chronological series and sectoral analysis are usually daily complete, and satisfactory.

Strike data refers to strikes of employees as well as to the lock-outs of employees because in most counties they are calculated together. Any deviation from these calculations is explained in a related footnote in the ILO Yearbook Labour Statistics initial and analytical data.

The mandays lost because of strikes therefore refers to the total number of days lost per year because of a strike or a lock-out that effect and involve all employees directly and/or indirectly. In some cases, workers who have been

involved indirectly in a work stoppage, are not included in the offical statistics. Certain countries do not report strikes os a minimum magnitude in their statistics.

A special mathematical method has been used to compare developments in the index of unemployment and stikes. The two indices used, were calculated in a way which facilitates comparison.

The comparison of the evolution of the unemployment rate and days lost due to work stoppage indices, was elaborated after specific mathematical data conversation. The fact that those indices are based on different units (percentages and thousands of days), imposed their conversion to a unique counting scale in order to make possible their illustration on the same axis as follows:

$X'i = [(Xi - minX)/(maxX - minX)] * 100$
$X'i$ = New score
Xi = Original score
$minX$ = Minimum score of variable X
$maxX$ = Maximum score of variable X

For instance, in the United Kingdom, the following procedure has been adopted.

Year	*Original Rates*		*Conversed Rates*	
	% unem/nt	Lost Days ($\sigma\epsilon$ '000)	unem/ment index	Index of working days lost
1983	12,9%	3.754	100	12,12
1984	11,6%	27.134	81,42	100
1985	11,8%	6.402	84,28	22,07
1986	11,8%	1.920	84,28	5,23
1987	10,6%	3.547	67,14	11,34
1988	8,4%	3.706	35,71	11,94
1989	6,3%	4.127	5,71	13,52
1990	5,9%	1,901	0	5,16
1991	8,1%	761	31,42	0,87
1992	9,9%	528	57,14	0
1993	10,4%	650	64,28	0,45
min	5,9%	528		
max	12,9%	27.134		

(maximum unemployment-minimum unemployment) = 7%
(maximum lost days-minimum lost days) = 26.606

Thus for unemployment in 1993 we have: X'i= [(Xi-minX)/(maxX-minX)] *100 = [(10,4% - 5,9%)/(12,9% - 5,9%)] *100 = (4,5% /7%)*100 = 64,28 and so forth.

The difference between every rate minus the minimum rate of the variable is expressed as a percentage of the variable range. This procedure is useful only for grasping the meaning of proportional up-down swing of these two indices and not for estimating the evolution of their sbsolute changes.

Furthermore, such a transformation is not necessary for comparisons among different countries, because in this case rate's conversion is not required.

For the correlation between unemployment and strikes as presented in diagrams here, see notes in diagram 1. Also see other notes in table A and diagrams for particular explanations of methodology used.

The absence or the partial presentation of certain countries in the diagrams, is due to the lack of completed time series for unemployment and/or strikes.

The index of the "yearly average of strike activity days per 100 employees" was derived from dividing the number of days lost (in each one country covered by the study) by the total number of those employed in the same year. For certain countries where no related employment data was available, it was hypothesized that, the rates of employment remained about the same or that even if there were some minor differences, they were not of such magnitude which could affect significally the overall statistical presentation.

The rates concerning the index for the European Union total were calculated on the basis of the data provided by the member-States. Therefore, the index presented does not in this case give the exact average for the European Union, but an approximate one. For instance, Italy and Spain are not included for the year 1992, Belgium in not included for the years 1984-87 and Luxembourg, is not included in any repeated year because, as already mentioned, data simply does not exist at all in these cases.

The index for the yearly average number of strikes per 1000 employees, derived from dividing (in every country covered by the study) the employed of the same year by the total numbers of strikes per year. The same arguments mentioned above also apply in this case.

The index of the yearly duration of days lost due to strike action derived from the following mathematical model:

$$\frac{A/C}{B/C} = \frac{X}{Y} = Z$$

A= Number of days lost as result of strikes
B= Numbers of Strikers
C= Numbers of Strikes
X= Average Total of strike duration
Y= Average participation per strike
Z=Average duration of strikes

Country indices concerning calculations for the above model are subject to the same minor inefficiencies of the available data as mentioned previously.

The structure of strikes has been shown for a) The primary and secondary sector, and b) the tertiary sector. Estimates for each country in the study, concern the particular sector of the economy and the average days lost in the 1983-93 decade. The figures made for diagram 7 were based on those averages. For certain counties as for example Belgium, these averages include only the years for which data was available (1988-1992)

For Greece and Spain, there were a considerable number of strikes which were reported without specifying the particular sector in which they occured. Therefore, they were considered as strikes of all sectors and were allotted to the percentages established by the different sectors.

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Theodoros Katsanevas, is Associate Professor of Economics at the University of Piraeus, as well as Minister of the Greek Government and Member of Parliament.