

WORLD HEALTH ORGANIZATION
REGIONAL OFFICE FOR EUROPE

WELTGESUNDHEITSORGANISATION
REGIONALBÜRO FÜR EUROPA



ORGANISATION MONDIALE DE LA SANTE
BUREAU REGIONAL DE L'EUROPE

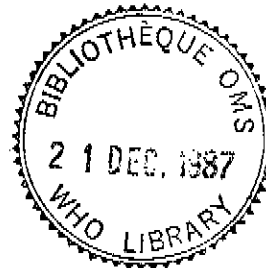
ВСЕМИРНАЯ ОРГАНИЗАЦИЯ ЗДРАВООХРАНЕНИЯ
ЕВРОПЕЙСКОЕ РЕГИОНАЛЬНОЕ БЮРО

NOTE - please add this document to the List of Working Papers issued 12.5.

W353

Meeting on Unemployment, Poverty
and Quality of Working Life -
Innovative Interventions to Counteract
Damaging Health Effects

Vienna, 12-14 May 1987



ICP/HSR 818/29
13 May 1987

ENGLISH ONLY

UNEMPLOYMENT, OVERTIME WORK AND
WORK INTENSITY

by

Bengt Starrin*

Bertil Lundberg

Bosse Angelow

Hans Well

The Section for Community Medicine
The County Council of Varmland
Sweden

(draft paper)

(*) WHO temporary adviser
Distributed at meeting

The issue of this document does not constitute formal publication. It should not be reviewed, abstracted or quoted without the agreement of the World Health Organization Regional Office for Europe. Authors alone are responsible for views expressed in signed articles.

Dieses Dokument erscheint nicht als formelle Veröffentlichung. Es darf nur mit Genehmigung des Regionalbüros für Europa der Weltgesundheitsorganisation besprochen, in Kurzfassung gebracht oder zitiert werden. Beiträge, die mit Namensunterschrift erscheinen, geben ausschliesslich die Meinung des Autors wieder.

Ce document ne constitue pas une publication. Il ne doit faire l'objet d'aucun compte rendu ou résumé ni d'aucune citation sans l'autorisation du Bureau régional de l'Organisation Mondiale de la Santé. Les opinions exprimées dans les articles signés n'engagent que leurs auteurs.

Настоящий документ не является официальной публикацией. Не разрешается рецензировать, аннотировать или цитировать этот документ без согласия Европейского регионального бюро Всемирной организации здравоохранения. Вся ответственность за взгляды, выраженные в подписанных авторами статьях, несут сами авторы.

INTRODUCTION

In the last ten years the Western Countries have experienced a marked increase in the rate of unemployment. It has been generally assumed that this is the result of the deep crisis the present economic system is thought to be in. The ever-increasing level of unemployment has led to greater attention being focused on problems related to unemployment; social and behavioural scientists have, in particular, studied its social and psychological consequences.

In a historical perspective, it is clear that research on the social and psychological effects of unemployment is linked to the so-called crisis in capitalist production. That it is concentrated to periods of economic crisis is of not without significance(1). Firstly, it means that this type of research is not yet a fully developed field with consistent concepts and theories; it has tended rather to raise and attempt to answer a series of questions about simple contexts. It lacks the theoretical directions or schools necessary to provide a holistic understanding of unemployment as a phenomenon and of the context in which this phenomenon occurs.

Secondly, the research has been one-sided and limited in its approach. It has been assumed that the social system as a whole is a continuous non-contradictory system which only on occasion is disturbed by forces that are intrinsically foreign to it.

Unemployment is usually looked upon as an immediate effect of disturbances in the system which are assumed to be related to a fall in the demand for labour, which in its turn is linked to contracting markets.

The aim of this study is to examine, on the basis of Swedish material, two little noted theses of Marx which may be of considerable significance for the development of research on unemployment. We would like to call the theses we have in mind "the paradox of unemployment" and "the intensification of labour". As these two theses have been virtually ignored, we shall provide a detailed account of the relevant passages in Capital.

THE PARADOX OF UNEMPLOYMENT AND THE INTENSIFICATION OF LABOUR

In the chapter entitled "General Law of Capitalist

Accumulation" Marx examines the effect of the growth of capital on the destinies of the working class. During the course of this examination he takes up the relation between unemployment, overtime work and work intensity. Before considering this, we must look at some of the premises for his argument.

According to Marx, capitalist production requires an industrial reserve army or a cadre of unemployed to provide "free play", since the so-called natural increase in population forms a natural limitation which capitalist production cannot do much about.

The increase or decrease in variable capital i.e. the total value of all labour power expressed in money, corresponds precisely to the number of workers employed, provided the value of the labour power is given. In reality, says Marx, variable capital can increase although the number of workers remains constant or even decreases. This occurs when each worker supplies more labour than before and his wages therefore rise although the price of labour may remain unchanged or may even fall, provided that it falls more slowly than the amount of labour increases. The increase in variable capital shows, then, that more labour is carried out, but not that more workers are employed. Every capitalist thus has an absolute interest in extracting a definite amount of labour from a smaller number of workers instead of extracting as cheap or even cheaper labour from a larger number of workers. In the latter case his outlay of constant capital increases in proportion to the quantity of labour, in the former it increases much more slowly. The greater the scale of production, the more decisive this motive becomes. Its significance increases with the accumulation of capital.

According to Marx, this accumulation means that a larger variable capital generates more labour with no increase in the number of workers employed, whilst an unchanged level of variable capital extracts more labour from the same quantity of labour power at the same time as more-skilled workers are replaced by less-skilled workers.

At the same time as the means of production, as they develop in extent and effectiveness, gradually serve to provide less employment for workers, the situation is further aggravated by the fact that, as the productivity of labour increases, capital's supply of labour increases more rapidly than its demand for workers. Marx then goes on to formulate what we have called the paradox of unemployment:

"The overwork of the employed part of the working class swells the ranks of the reserve; while, conversely, the

increased pressure which, through competition, the members of the reserve exert upon those who are in work, spurs these latter on to overwork, and subjects them more completely to the dictatorship of capital. The condemnation of one of the working class to enforced idleness by overwork of the other portion, and the converse, become means for enriching the individual capitalist, and at the same time accelerate the growth of the industrial reserve army upon a scale corresponding to the progress of social accumulation(2).

He illustrates his argument by referring to a pamphlet issued by the cotton spinners in Blackburn during the cotton famine of 1863:

"Actually during the cotton famine of 1863, a pamphlet was issued by the cotton spinners of Blackburn which contained fierce denunciations of overwork... 'The adult operatives at this mill have been asked to work from 12 to 13 hours per day, while there are hundreds who are compelled to be idle who would willingly work partial time in order to maintain their families and save their brethren a premature grave through being overworked... We would ask if the practice of working overtime by a number of hands is likely to create a good feeling between masters and servants. Those who are worked overtime feel the injustice equally with those who are condemned to forced idleness. There is in the district almost sufficient work to give to all partial employment if fairly distributed. We are only asking what is right in requesting the masters generally to pursue a system of short hours, particularly until a better state of things begins to dawn upon us, rather than to work a portion of the hands overtime, while others, for want of work, are compelled to exist upon charity'"(3).

In Marx' view, the demand for labour is not equivalent to the growth of capital, and the supply of labour is not the same as the growth of the working classes. It is not a question, then, of two independent quantities exerting influence on each other but of capital acting simultaneously on two fronts. Marx writes:

"If its accumulation, on the one hand, increases the demand for labour, on the other hand, it increases the supply of workers by 'setting them at liberty'"(4).

This leads Marx on to the other theses we are interested in: the intensification of labour. He comments:

"the pressure of the unemployed on the employed compels those that are employed to supply more labour, thus, to a certain extent, making the supply of labour independent of the supply of workers."4)

To summarize then, Marx' analysis of unemployment provides two interesting thesis: the paradox of unemployment and the intensification of labour. The former deals with the relation between unemployment and overtime where, as unemployment increases, there is a parallel increase in overtime work. This is due to the fact that, under certain conditions, it is in the interest of the capital owner to extract a specific amount of labour from a smaller number of workers instead of extracting as cheap or cheaper labour from a larger number of workers. Overtime work also provides the worker with the opportunity of maintaining or increasing his standard of living in times when real wages have decreased.

In one sense then, this is a paradoxical situation in that unemployment is not an expression of the scarcity of work.

The second thesis - regarding the intensification of labour - states that unemployment and overtime work increase the work rate and thus intensify labour. With an increase in unemployment comes an increase in the competition for jobs. There are a series of conflicts on the labour market, one being the conflict between workers. Wage earners compete with each other in their capacity of labour power, i.e. for jobs. The higher the level of unemployment, the sharper this conflict becomes. Thus, the unemployed exert pressure on the employed in that the former may be considered as competitors for the jobs that are available. This leads to those with jobs working harder for fear of losing their job.

In the following we examine a) the relation between unemployment and overtime, and b) the relation between, on the one hand, unemployment and overtime and, on the other, work intensity in selected Swedish industries.

METHOD

The study of the relation between unemployment and overtime refers to industrial workers and covers the period 1971-1983. The following industries are included:

- Textiles, clothing, leather and leather goods
- Food, drink and tobacco

- Mining
- Pulp, paper and paper goods
- Chemicals, petroleum, rubber, plastics and plastic goods
- Printing and publishing
- Engineering
- Iron, steel and metal goods
- Non-metalliferous mining
- Wood

The study of the relation between, on the one hand, unemployment and overtime and, on the other, work intensity refers to industrial workers and covers the period 1970/71-1982/83. The following industries are included:

- Textiles, clothing, leather and leather goods
- Food, drink and tobacco
- Chemicals, petroleum, rubber, plastics and plastic goods
- Engineering
- Iron, steel and metal goods
- Non-metalliferous mining
- Wood

The relation between unemployment and overtime has been calculated with the aid of product-moment correlation. Two sets of calculations have been made, one where there is no time lag between unemployment and overtime and one with a one-year delay, i.e. where the unemployment figures for a given year have been correlated with the overtime figures for the following year.

The relation between, on the one hand, unemployment and overtime and, on the other, work intensity has been worked out with the aid of regression analysis, where work intensity is considered as a dependent variable and unemployment and overtime as independent variables.

As a measure of unemployment the yearly averages for unemployment given in the Manpower Surveys have been used and for overtime, the total number of overtime hours in relation to the total number of hours worked. As a measure of work intensity figures for the volume of production per worked hour have been used. The figures for unemployment and overtime are per calendar year whereas those for work intensity are per fiscal year. Thus, in the analysis unemployment and overtime figures for 1971, for example, have been correlated with work intensity figures for the fiscal year 1970-71.

RESULTS

The results of the study are presented in tabular form in the appendix. Table 1 gives the figures for the relation between unemployment and overtime per industry for all workers and for men and women separately, both with and without the one-year time lag, for the years 1971-83. The table shows that there is a statistically significant relationship in 7 out of the 10 industries - negative in 2 cases and positive in 5.

The negative relationships are found in the food, and pulp and paper industries. In the former case only for men without the time lag between unemployment and overtime; in the latter for women with the one-year time lag.

The positive relationships are found in the textile, chemical, engineering, printing, and iron and steel industries. In the textile, chemical and engineering industries the relation is significant in the case of the one-year time lag. This is true for all workers as well as for men and women separately.

In the printing and iron and steel industries the relation is significant in the case of the one-year time lag; in printing this is only true for all workers taken together, but in iron and steel it is true both for all workers together and for men separately.

A graph of the relation in the engineering industry between unemployment and overtime with the one-year time lag is given in figure 1 (see appendix). This shows that as unemployment increases, there is, in the main, an equivalent increase in overtime the following year. Unemployment in a given year, then, more or less corresponds to the overtime rate the following year.

Table 2 gives the figures for the relationship between work intensity, unemployment and overtime. They reveal that only in one case, the iron and steel industry, is the relation between unemployment and work intensity significant. Significant relationships between overtime and work intensity are found in the textile, engineering, non-metalliferous mining and wood industries; the relationships are all positive.

Regression analysis reveals that unemployment and overtime "explain" 78% of the variations in work intensity in the textile industry, 50% in the engineering industry, 48% in the wood industry and 44% in the food industry.

SUMMARY AND DISCUSSION

What, then, do these results reveal about the relation between unemployment and overtime and between work intensity, unemployment and overtime? Firstly, it may be said that positive relations between unemployment and overtime are most clearly observable when there is a one-year time lag; this is particularly the case with the textile, chemical, engineering, iron and steel and printing industries. In all these industries this positive co-variation is valid for all workers and for men and women separately. In the food industry there is a negative significant relation between unemployment and overtime for men, without the time lag, and in the pulp and paper industry for women, with the time lag.

Secondly, the study shows that in one of the industries studied there is a positive significant relation between unemployment and work intensity and in four a positive significant relation between overtime and work intensity. Unemployment and overtime explain 78% of the variations in work intensity in textiles, 50% in engineering and 48% in the wood industry. Unemployment and overtime seem to force up the work rate, which is more noticeable in some industries than others.

Unemployment and overtime co-vary positively in 5 of the 10 industries studied and in these cases it seems that overtime is not, in the first place, an expression of the lack of workers. Why, it may be asked, should there be a positive relation between unemployment and overtime in some industries and not in others? Our discussion is limited to a comparison of those industries where a positive significant relation has been found with those where no such relation has been found; and then only the relations in the case of the one-year time lag and for men and women together are considered.

The industries revealing no positive significant relation are food, mining, pulp and paper, non-metalliferous mining and wood. The food industry is, in part, a sheltered industry and receives special state subsidies; it is thus not exposed to market mechanisms to the same extent as other industries. It is typical of the non-metalliferous mining industry that its products are mainly sold on the domestic market; it is a small and contracting industry.

Mining is a rather special industry, where the production of iron-ore, in particular, is heavily geared to export but in an extremely competitive market. Furthermore, iron-ore is mined in a geographically very limited area in the north of

Sweden and by one company (LKAB). Throughout the period studied the company has been subjected to extensive rationalization.

Like the wood industry, pulp and paper is a capital-intensive industry; it also operates on a shift basis. Whilst restructuring and rationalization lead to increased unemployment, an increase in demand does not result in any particular increase in the demand for labour - either in the form of new recruitment or as overtime. Instead, machine capacity is exploited to a greater extent and, as machines are manned 24 hours a day, there is no noticeable overtime effect. The overtime that does occur is, therefore, not related to the situation on the labour market but to "shut-down and maintenance" periods.

Against this background, we would like to formulate a general thesis concerning unemployment and overtime as parallel phenomena. Marx' thesis on the paradox of unemployment would seem to be valid mainly in those industries that are exposed to international competition and are not subsidized. Here overtime may be a more significant means of providing capital with the opportunity to expand more rapidly and respond more effectively to changes in the market and in competition than new recruitment and dismissal. The use of overtime work would thus reduce the economic risks.

The food industry reveals an interesting pattern which is significantly different from the other industries. Here we find a negative relation between unemployment and overtime in that, as unemployment increases, overtime decreases, especially for men.

A more detailed discussion of the differences between different industries as regards the relation between unemployment and overtime would, to be of any value, require greater knowledge of each industry's specific characteristics. We shall, therefore, terminate this discussion at this point.

In this study we have not been able to take into account possible spatial variations between unemployment and overtime. It is reasonable to assume that unemployment and overtime can occur in different geographical locations in the sense that there is not always a high level of unemployment in those areas where much overtime is worked. It would be of value to take up the spatial aspects of the question in a further study.

Turning to the question of the intensification of labour, we must admit first of all that we have had to make use of a very insensitive measuring instrument. However, the results

we have obtained would seem to suggest that the thesis on the intensification of labour is most valid in the textile, engineering and wood industries, where there is a parallel increase in work intensity as unemployment and overtime increase.

The relationship between work intensity and unemployment has been taken up by several authors. It would seem that the threat of unemployment has a disciplinary effect on those in work. The fear of unemployment causes them to work harder and to demand less as regards the work environment(6). At the same time the power of the trade unions is reduced in relation to that of the employers in that their wage claims and demands for improvements in the work environment are much more modest. It also seems to be easier for companies to evade regulations on environmental pollution etc. during periods of high unemployment than during periods of low unemployment(7).

The theses on the paradox of unemployment and the intensification of labour are of importance in the discussion of the health effects of unemployment, in particular for those aggregate studies which have shown a connection between the extent of unemployment and mortality from cardio-vascular diseases for example.8) Differing views have been expressed as to whether this assumed connection can be best explained by unemployment in isolation or whether there are other more complex factors involved. Eyer believes that these co-variations are the result of a complicated relationship between unemployment, work environment and overtime work(9). As the level of unemployment rises, there is a corresponding breakdown in the local community and also changes in working conditions and work relations. In line with Marx' thesis on the intensification of labour, Eyer maintains that unemployment produces effects at the work place. It weakens the worker's position and strengthens that of capital. Eyer gives figures for the textile industry in the U S for the years 1949-1975, which show that a peak in the level of overtime coincides with a peak in the mortality rate.

Observations from Germany show that at the same time as thousands of workers were dismissed, the remainder were forced to work overtime.10) Without supporting his argument with figures, Sinfield maintains that increased unemployment leads to a greater number of part-time workers and a drop in overtime.11) But this, he says, varies from country to country and industry to industry.

Finally, we wish to emphasize the fact that the interplay between unemployment, overtime and work intensity is probably much more complex than we have suggested here. It is very

important, therefore, that further research is carried out; this would be of value both from a scientific and from a practical viewpoint. On the scientific level it would enable us to understand better how capital functions in a changing market. Purely practically it might be of importance for union strategy and in the fight against unemployment.12)

NOTES

- 1) See Olsen, 1982
- 2) Marx, 1962:702-703
- 3) Marx, 1962:702-703
- 4) Marx, 1962:707
- 5) Marx, 1962:707
- 6) See Starrin, Lundberg, Angelöw, 1985 and also Sinfiled, 1984
- 7) See, for example, Ericsson, 1985
- 8) See, for example, Brenner, 1983, Starrin et al., 1984
- 9) Eyer, 1977
- 10) Sittig, 1975
- 11) Sinfiled, 1984
- 12) See Marx, 1962:707 where he comments on the co-operation between the employed and the unemployed.

REFERENCES

Brenner, H.: Mortality and Economic Instability. Detailed analyses for Britain and Comparative Analyses for Selected Industrialized Countries. International Journal of Health Services, 1983, 13, 563-620.

Ericsson,L.: Ett surt regn kommer att falla. Bokbox.
Lund,1985.

Eyer,J.: Does Unemployment cause the death rate peak in each
business cycle. International Journal of Health Services,
1977, 7, 625-662.

Marx,K.: Capital. London, J.M.Deut & Sons LTD,1962.

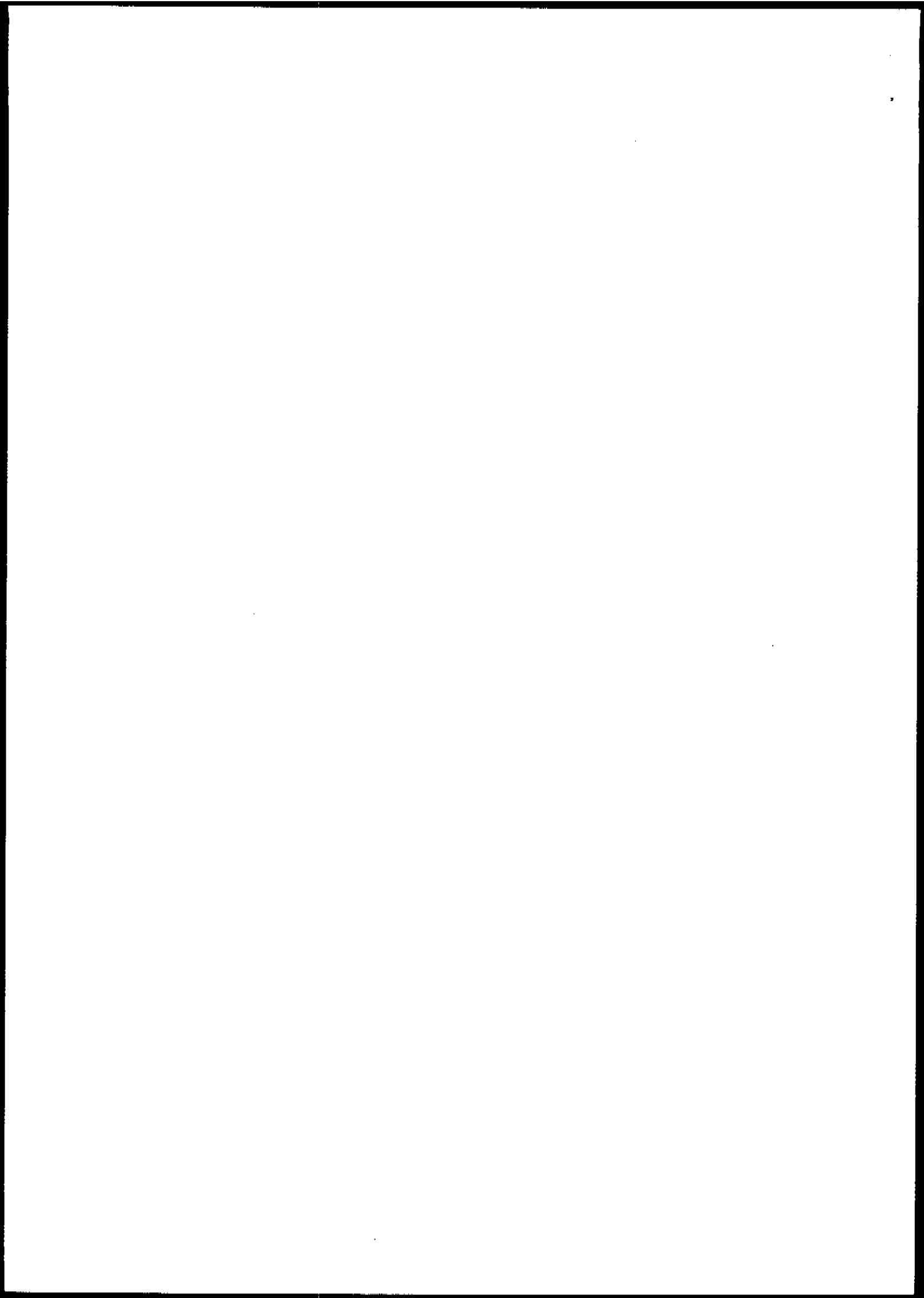
Olsen,P.: Arbejdsløshedens socialpsykologi. Köpenhamn. Dansk
Psykologisk Forlag, 1982.

Sinfield,A.: The Wider impact of Unemployment. In High
Unemployment - A Challenge for Income Support Policies.
Paris. OECD, 1984

Sittig,T.: Arbeitslosigkeit und Überstundenarbeit in der BRD.
Aktuelle Umschau, 1977, 6, 6, 47-51.

Starrin, B., Larsson, G., Eriksson,J-O., Willebrand, K.:
Ekonomisk instabilitet, sociala problem, mänskligt lidande
och död - Värmland åren 1963 - 1981. Högskolan i Karlstad,
1984.

Starrin,B., Lundberg,B., Angelöw, B.: Tillsammans blir vi
starka - Arbetslöshetens elände vardag och motkamp.
Stockholm. Prisma, 1985.



APPENDIX

TABLE 1. The relation between unemployment and overtime by industry and sex. (Product-moment correlation).

INDUSTRY	OVERTIME TOTAL		OVERTIME MEN		OVERTIME WOMEN	
	No time lag	One- year time lag	No time lag	One- year time lag	No time lag	One- year time lag

Textiles, clothing leather, leather goods						
Unemployment(T)	0.06	0.52*				
Unemployment(M)			0.28	0.49*		
Unemployment(V)					0.00	0.47*

Food, drink and tobacco						
Unemployment(T)	-0.40	-0.01				
Unemployment(M)			-0.66 ****	-0.39		
Unemployment(V)					-0.17	0.20

Mining						
Unemployment(T)	-0.25	-0.19				
Unemployment(M)			-0.26	0.02		
Unemployment(V)					-0.40	0.01

Pulp, paper and Paper goods						
Unemployment(T)	0.38	0.36				
Unemployment(M)			0.20	0.39		
Unemployment(V)					-0.40	-0.58**

Chemicals, petroleum, rubber, plastics and plastic goods						
Unemployment(T)	0.03	0.48*				
Unemployment(M)			0.13	0.51*		
Unemployment(V)					-0.07	0.72****

 Printing and publishing

Unemployment(T)	0.32	0.50*				
Unemployment(M)			0.26	0.27		
Unemployment(V)					0.03	0.20

 Engineering

Arbetslöshet(T)	0.19	0.65***				
Arbetslöshet(M)			0.02	0.55**		
Arbetslöshet(V)					0.45*	0.87****

 Iron, steel and metal
 goods

Unemployment(T)	0.30	0.69****				
Unemployment(M)			0.23	0.64****		
Unemployment(V)					0.12	0.30

 Non - metalliferous mining

Unemployment(T)	-0.19	0.09				
Unemployment(M)			-0.24	0.00		
unemployment(V)					0.10	0.29

 Wood

Unemployment(T)	0.00	0.30				
Unemployment(M)			0.00	0.36		
Unemployment(V)					0.36	0.43

Level of significance

* = .05

** = .025

*** = .01

**** = .005

TABLE 2. The relation between unemployment, overtime and work intensity (Product-moment correlation)

INDUSTRY	Relation between unemployment and work intensity	Relation between overtime and work intensity	Multiple R Unemployment and overtime independent variables and work intensity dependent variable
Textiles, clothing leather, leather goods	0.26	0.84****	0.78
Food, drink and tobacco	0.28	0.44	0.44
Chemicals, petroleum, rubber, plastics and plastic goods	0.17	0.23	0.08
Engineering	0.38	0.67****	0.50
Iron, steel and metal goods	0.55**	0.15	0.33
Non-metalliferous mining	0.23	0.51*	0.37
Wood	0.33	0.61***	0.48

Unemployment and overtime per calendar year 1971-1983
 Productivity: Annual productivity index - volume of production per worked hour 1970-71--1982-83

Level of significance

* = .05

** = .025

*** = .01

**** = .005

FIGURE 1. Graph showing the relation between unemployment and overtime in Engineering for 1971-1983 (with a one-year time lag)

