

BETTER WORK

Better Work Discussion Paper Series: No. 2

**Excessive Overtime, Workers and Productivity:
Evidence and Implications for Better Work**

Ji-Won Seo

May 2011



BETTER WORK DISCUSSION PAPER No. 2

**EXCESSIVE OVERTIME, WORKERS, AND PRODUCTIVITY:
EVIDENCE AND IMPLICATIONS FOR BETTER WORK**

Ji-Won Seo

May 2011

Copyright © International Labour Organization (ILO) and International Finance Corporation (IFC) 2011
First published 2011

Publications of the ILO enjoy copyright under Protocol 2 of the Universal Copyright Convention. Nevertheless, short excerpts from them may be reproduced without authorization, on condition that the source is indicated. For rights of reproduction or translation, application should be made to the ILO, acting on behalf of both organizations: ILO Publications (Rights and Permissions), International Labour Office, CH-1211 Geneva 22, Switzerland, or by email: pubdroit@ilo.org. The IFC and ILO welcome such applications.

Libraries, institutions and other users registered with reproduction rights organizations may make copies in accordance with the licences issued to them for this purpose. Visit www.ifrro.org to find the reproduction rights organization in your country.

ILO Cataloguing in Publication Data

Seo, Ji Won

Excessive overtime, workers, and productivity / Ji-Won Seo ; International Labour Organization (ILO) ; International Finance Corporation (IFC). - Geneva: ILO, 2011

1 v. (Better Work discussion paper ; No.2)

ISBN: 978-92-2-125109-5 (web PDF)

International Labour Organization; International Finance Corporation

overtime / labour productivity / occupational health / occupational safety / industrial management / management strategy / role of ILO

13.05.1

The designations employed in this, which are in conformity with United Nations practice, and the presentation of material therein do not imply the expression of any opinion whatsoever on the part of the IFC or ILO concerning the legal status of any country, area or territory or of its authorities, or concerning the delimitation of its frontiers.

The responsibility for opinions expressed in signed articles, studies and other contributions rests solely with their authors, and publication does not constitute an endorsement by the IFC or ILO of the opinions expressed in them.

Reference to names of firms and commercial products and processes does not imply their endorsement by the IFC or ILO, and any failure to mention a particular firm, commercial product or process is not a sign of disapproval.

ILO publications can be obtained through major booksellers or ILO local offices in many countries, or direct from ILO Publications, International Labour Office, CH-1211 Geneva 22, Switzerland. Catalogues or lists of new publications are available free of charge from the above address, or by email: pubvente@ilo.org

Visit our website: www.ilo.org/publns

Abstract

The paper presents a literature review on the issue of working time regulations and the impact of overtime on workers' health, safety and social life, as well as on productivity. In particular, the paper focuses on the relationship between 'excessive overtime' (defined as working hours that have negative consequences on workers), and labour productivity, looking at the implications of long working hours on factory performance. Practical measures for reducing excessive overtime are then presented, such as sound management systems, structural improvements, training and education programmes, and tailored recommendations for different stakeholders. Finally, the paper highlights the relevance of the issue for the design and operation of the Better Work programme.

TABLE OF CONTENTS

1. INTRODUCTION	1
1.1. BACKGROUND	1
1.2. THE NEED FOR WORKING TIME REGULATION	2
1.3. STRUCTURE OF THE PAPER	3
2. OVERTIME	4
2.1. WHAT IS WORKING TIME?	4
2.2 WHAT IS OVERTIME?	5
2.3 WHAT IS EXCESSIVE OVERTIME?	5
2.4 RATIONALES FOR OVERTIME.....	6
2.5 ROOT CAUSES OF OVERTIME.....	7
2.6 SURVEY ON THE NEEDS OF OVERTIME	8
3. THE IMPACT OF OVERTIME	11
3.1 THE IMPACT OF OVERTIME ON HEALTH AND SAFETY	11
3.1.1 <i>Impact of Long Working Hours on Workers' Health</i>	11
3.1.2 <i>Impact of Long Working Hours on Workers' Safety</i>	15
3.2. IMPACT OF LONG WORKING HOURS ON WORKERS' SOCIAL LIVES	17
3.3. OVERTIME AND LABOUR PRODUCTIVITY	18
3.3.1. <i>Definition of Productivity</i>	18
3.3.2. <i>The Relationship between Overtime and Labour Productivity</i>	19
3.3.3. <i>Costs of Long Working Hours</i>	21
3.3.4. <i>Decent Working Hours – Advantages to Businesses</i>	22
4. PRACTICAL MEASURES FOR REDUCING OVERTIME	23
4.1. MANAGEMENT SYSTEMS.....	24
4.1.1. <i>Healthy Work Schedule Design</i>	25
4.1.2. <i>Structural Improvements</i>	25
4.1.3 <i>Record and Control</i>	27
4.2. DECENT OCCUPATIONAL HEALTH AND SAFETY CONDITIONS	27
4.3. TRAINING AND EDUCATION PROGRAMMES	28
4.4. COLLECTIVE ACTION	28
4.5. MONITORING AND ADJUSTMENT	29
4.6. KEY RECOMMENDATIONS FOR STAKEHOLDERS	29
5. LINKS WITH THE BETTER WORK PROGRAMME	31
5.1. BETTER WORK METHODOLOGY	31
5.2 CURRENT OVERTIME LIMITS IN SEVEN BETTER WORK COUNTRIES	31
5.3 ADVISORY AND TRAINING SERVICES	33
6. CONCLUSIONS	34
REFERENCES	37

1. INTRODUCTION

Time spent working is a critical aspect of working conditions, as highlighted at the first International Labour Organization (ILO) convention in 1919, which defined acceptable work hours as 48 hours per week. Both the number and pattern of hours of work are an important factor for people, affecting not only their work life, but also their family life and their well-being.

Despite long-standing and widespread public agreement that work hours should be limited, and nearly every country having some type of regulation regarding working time (ILO, 2005), preventing overtime is a difficult issue, especially in developing countries and in the manufacturing industry (Joint Initiative on Corporate Accountability (JICAWR), 2005). Hence, this research hopes not only to tackle issues surrounding current practices, but also to provide productive and sustainable recommendations for both employers and employees, through the Better Work Programme.

1.1. BACKGROUND

If we look at the history of work hour regulation, we see that during the 19th century it was common to neglect the physiological and psychological limitations of workers (Spurgeon, 2003). At that time, workers were regarded as subordinate to the technological needs of the industrial process (ibid.). Early in the twentieth century, the ILO set up the convention on work hours, and a number of national legislative measures were introduced for the 8-hour working day in order to regulate working time, especially after the First World War. However, during this period, working time regulation was designed for one type of worker - men who were working full-time in a primary or manufacturing activity, and assumed to have homogeneous needs and preferences. Meanwhile, this definition of the 'ideal type' of worker excluded the different requirements of women and children (Messenger, 2004).

After the Second World War overall working conditions began to improve and incomes started to grow. Consequently, there was a growing debate about working time, particularly concerning the issue of workers' health and leisure activities. Finally there was a substantial reduction in actual working time, facilitated by full employment and sustained growth of the economy (Messenger, 2004). Interestingly, when the imbalances increased in society and the economy slowed with the first oil crisis in the early 1970's, there was active discussion as to whether the general reduction of worktime in many European countries would lead to reduced unemployment. It was hoped that existing jobs could either be expanded to employ more people by reducing individuals' working hours, or that at least existing jobs would be saved and the rising unemployment levels slowed. (Anxo and O'Reilly, 2002).

However, early in the 1980's, 'flexibility' debates started, proposing working time flexibility as a means of stimulating economic growth, and many countries' working time policies reflect this view (Messenger, 2004). The process of globalization resulted in intense competition between enterprises, and new patterns of consumer demand for goods and services in the '24-hour economy' have had a significant impact on production methods and work organization (ibid.). Moreover,

changes in consumer behaviour and production diversification brought on by the increasing number of enterprises, meant traditional methods of mass production were gradually abandoned. There followed a move to new methods of flexible production such as 'Just-in-Time' and 'Lean Production', which accompanied the adjustment of employment patterns and increased the variation of work hours (ibid.). Hence, historical trends of working time changed from standardization to a diversification, decentralization, and individualization of working hours (ibid.).

Advanced technology, increased competitiveness and customer demands for '24 hour services' meant an acceleration to more complex working time arrangements, such as shift work, night work, and much greater use of flexible systems and irregular hours (Spurgeon, 2003). In many cases, flexible working times are often associated with lower pay level and poorer work stability, such as the provision of fixed term or other temporary forms of employment contracts (Messenger, 2004). In addition, the increased feminization of the labour force, and the shift away from households with a single male breadwinner to dual earner households, have created new needs and challenges when considering working time patterns (ibid.). Furthermore, these changes have made employers rethink the structure of work hours; for example, a growing number of companies now focus on performance monitoring rather than strict control of working hours (ibid.).

Box 1

Reduced Working Hours and Increased Productivity

At the end of the 19th century, some pioneering experiments were carried out at the Mather and Platt engineering works in Manchester, UK (Mather, 1884). The management took the somewhat radical step of abolishing before-breakfast working and was able to demonstrate that the reduction in weekly hours actually increased production as well as reducing sickness absence. These experiments marked the beginning of a more general change in attitude towards the wellbeing of those in industrial work places.

Source: Spurgeon (2003: 18)

1.2. THE NEED FOR WORKING TIME REGULATION

Since the first ILO convention defined work hours, there has been an increasing recognition of the importance of occupational health and safety (Spurgeon, 2003). The main aim of establishing laws on working time was to combat the negative effects of long working hours on workers' mental and physical health, in order to reduce the high number of industrial accidents and to standardize employers' practices regarding working time. Since the Industrial Revolution, working time regulation has been rooted in concerns about health and safety and the preservation of free time (Messenger, 2004).

Although health and safety regulations exist in some form in most countries, the current international trend is deregulation, which allows some flexibility in terms of the achievement of good health and safety in the work place (Spurgeon, 2003). There is now a greater acceptance of the importance of rest and relaxation, but current trends in health and safety management need more careful consideration. This might include focusing not only on the importance of psychological well-being, but also on emotional distress and its impact on physical health. This will require stricter compliance with the law (Spurgeon, 2003).

The objectives of this research are to:

- establish a definition of overtime and excessive overtime;
- provide a rationale and root causes of excessive overtime in the garment industry;
- examine the physical., psychological., economic and social impacts of overtime ;
- examine the relationship between overtime and labour productivity;
- identify possible measures to reduce excessive overtime in conjunction with the Better Work Programme, including specific recommendations for government, global buyers, factory managers and trade unions.

This research ultimately aims to contribute to the understanding enterprises have of the relationship between overtime and productivity, to aid the Better Work Programme in designing more detailed services for factories, and to ensure that employees enjoy the benefits of decent work hours.

1.3. STRUCTURE OF THE PAPER

This paper consists of six sections: the Introduction explains the purpose of the research and provides some background to the overtime issue. Section 2 explores questions of what is working time, what is overtime, and what is excessive overtime, as well as examining the argument for overtime, the root causes of overtime, and employees' needs for overtime. Section 3 illustrates the impact of overtime on workers' health and safety, and their social and family life, as well as examining the relationship between overtime and labour productivity. Based on the existing empirical evidence it shows the cost of long working hours and the subsequent disadvantages for employers, and confirms the benefits to all of decent work hours. Section 4 suggests ways each stakeholder can improve the excessive working hour culture. Section 5 places the issue of excessive overtime in the context of the Better Work programme. The Conclusions summarise the issues raised and conclude the discussion.

2. OVERTIME

2.1. WHAT IS WORKING TIME?

The appropriate number of working hours is generally determined by national agreements. Almost all countries have national laws dictating working hours, and limiting the maximum number of consecutive work hours, maximum number of weekly work hours, and minimum duration of rest periods. Hence, depending on the country, working time can vary, and is also determined by a range of other factors associated with the needs and expectations of both employers and employees. The following section will further discuss the definition of 'normal' working hours and outline the historical patterns and origins of this concept.

Box 2

The Adoption of the Eight Hour Day

The eight-hour day, implying 48 hours per week, was a key demand of the working class all over the world before the ILO was established. To the workers, the extension and generalized application of the eight-hour day represented a reform which no other could equal in value – a chance to share in the concept of spare time. More generally, the need to safeguard the health and well-being of workers was recognized; overly long hours had been shown to be harmful to economic efficiency, as well as to the material and moral welfare of the workers, and to be incompatible with political democracy. Finally, there was a feeling in many sectors that international standards relating to hours of work might be a useful means of limiting the possibilities of unfair competition. In order to reflect this trend in world opinion, the adoption of the eight-hour day and 48-hour week was a prime objective of the ILO.

Source: ILO (1958: 3)

The first ILO Convention, the Hours of Work (Industry) Convention, 1919 (No.1) stipulated the principle of '8 hours a day and 48 hours a week' and excluded overtime hours. The Convention initially addressed the manufacturing sector and originally intended to limit working hours, also known as restraining overtime hours (Lee et al., 2007). Establishing this initial standard of the 48-hour week was important and reinforced workers' health and safety rights; it is empirically proven that a work week of over 50 hours is detrimental to health (Spurgeon, 2003). It became accepted that adequate leisure (non-work) time was necessary for the wellbeing of workers (ibid.). This rationale remains an integral part of many national policies aimed at keeping working time within this limit (Lee et al., 2007).

In 1930 international limits were extended to cover all workers (except agricultural workers) by the adoption of the Hours of Work (Commerce and Offices) Convention, 1930 (No.30). Most countries have a range of 'normal working hours' which are between 35 and 54 hours, with a median of around 40 hours (Spurgeon, 2003). Later, the 40-Hour Week Convention in 1935 (No.47) set up a new standard of a 40-hour week, making an important contribution to the concept of 'work-life balance' (Lee et al., 2007).

Box 3

Conventions Regulating Working Hours

Regulating working hours and overtime (ILO, ETI 2009):

C1 - Hours of Work (Industry) Convention, 1919

C14 - Weekly Rest (Industry) Convention, 1921

C30 - Hours of Work (Commerce and Offices) Convention, 1930

C106 - Weekly Rest (Commerce and Offices) Convention, 1957

The Hours of Work Conventions require that working hours shall be limited to eight hours a day and 48 hours a week (subject to a wide range of exceptions). The Weekly Rest Conventions require that workers should be entitled to one full day's rest every week (again subject to exceptions).

2.2 WHAT IS OVERTIME?

According to recent ILO research (Lee et al., 2007), there are three ways of defining long work hours:

1. hours exceeding the normal statutory hours: this highlights the fact that the normal statutory hours determine a socially acceptable level of working time;
2. hours exceeding the maximum hours of work beyond which negative consequences on workers are known to be visible: the effects on health and safety are crucial;
3. hours exceeding those which workers prefer to work.

As article 16 of the ILO Reduction of Hours of Work Recommendation (1962) states, overtime means all hours worked in excess of normal hours (Spurgeon, 2003). Thus, in this research, we will follow the ILO definition that overtime means work hours exceeding the normal statutory hours which determine a socially acceptable level, meaning generally more than 48 hours per week.

2.3 WHAT IS EXCESSIVE OVERTIME?

The term 'excessive overtime' identifies not only the hours exceeding those maximum hours defined by national statutory regulations on working time or relevant international standards, but also the hours of work that have negative consequences on workers - the second definition of overtime (see above). The issue of workers being exposed to potential health and safety risks relating to long working hours is the key point that separates 'excessive overtime' from 'overtime'.

The European Union (EU) Working Time Directive (1993) states that the improvement of workers' safety, hygiene and health at work is an objective which should not be subordinated to purely economic considerations. Although the risks vary depending on how the hours are organized, the nature of the work, and the characteristics of individuals, there is strong evidence that working more

than 48-50 hours per week could expose workers to potential health risks (Spurgeon, 2003). These issues will be further explored later in this research.

The problem of excessive overtime especially in the garment production industry has long been the subject of concern. However the problem persists, with little investigation of the underlying dynamics and few suggestions for targeted remedies or solutions. Hence there is a need to examine the current approaches to the problem of overtime and its impact, and to find new and innovative methods to overcome this issue.

2.4 RATIONALES FOR OVERTIME

Expecting employees to work excessive overtime is a common practice in developing countries, particularly in the manufacturing industry (Dawson et al., 2004).

For example, in China, a survey in 2004 by Verité, an independent non-profit organization monitoring international labour rights abuses in off-shore production sites, showed that over 93 per cent of 142 Chinese supplier factories were reported to have practised excessive overtime during 2002 and 2003. Also, in Indonesia, workers in the PT Dae Joo Leoports factory are required to work at least two hours of overtime per day, and they often finish late at night to meet the production deadline of global buyers. Workers reported pressure from managers to do overtime and work the night shift, claiming that when they complained about this they were penalized (Workers Rights Consortium, 2003).

From the employers' perspective, there is a continuous pressure on garment firms to cut costs and increase quality to maximise fixed capital., resulting in increased hours of operation and reduced numbers of employee to produce the required amount of output. They need to deliver various products for different buyers, each in relatively small volumes, to meet different customer groups' needs; European buyers, for example, cater to cultural diversities and demand flexible product lines in factories abroad). In addition, the fluctuation of buyers' orders often cause unpredictable peak seasons. Thus, as the factory management endeavours to meet the tight deadlines imposed by various global buyers, this requires frequent overtime for employees (JICAWR, 2005).

From the employees' perspective, many workers in developing countries voluntarily want to work overtime because of their low hourly wages (ILO, 2009). That is, inadequate employment involving inadequate salaries is related to excessive hours (ILO, 2009; Lee et al., 2007).

According to research carried out by Better Factories Cambodia , employees reported 'no overtime', 'reduced working hours', and 'a shorter work week' to be causes of hardship in the global economic crisis period, as their low salary could not meet their basic needs (Kang and Dannet, 2010).

Similarly, in the Philippines, it is reported that more than 90 per cent of workers work more than 48 hours per week in order to earn more (Mehran, 2005).

In China, 53 per cent of workers in the garment industry reported that extra income is their primary motivation for overtime work, with 36 per cent saying overtime was mandatory, and 5 per cent saying that they work overtime to avoid punishment or to finish their quota (Verité, 2004).

Moreover, in China, although workers do not necessarily choose to work excessive hours, they are willing to work longer than the work limits set by Chinese national law in order to increase their salary. Enforcing working hours as set by legal limits would mean that workers' wages would dramatically decrease (Foster and Harney, 2005).

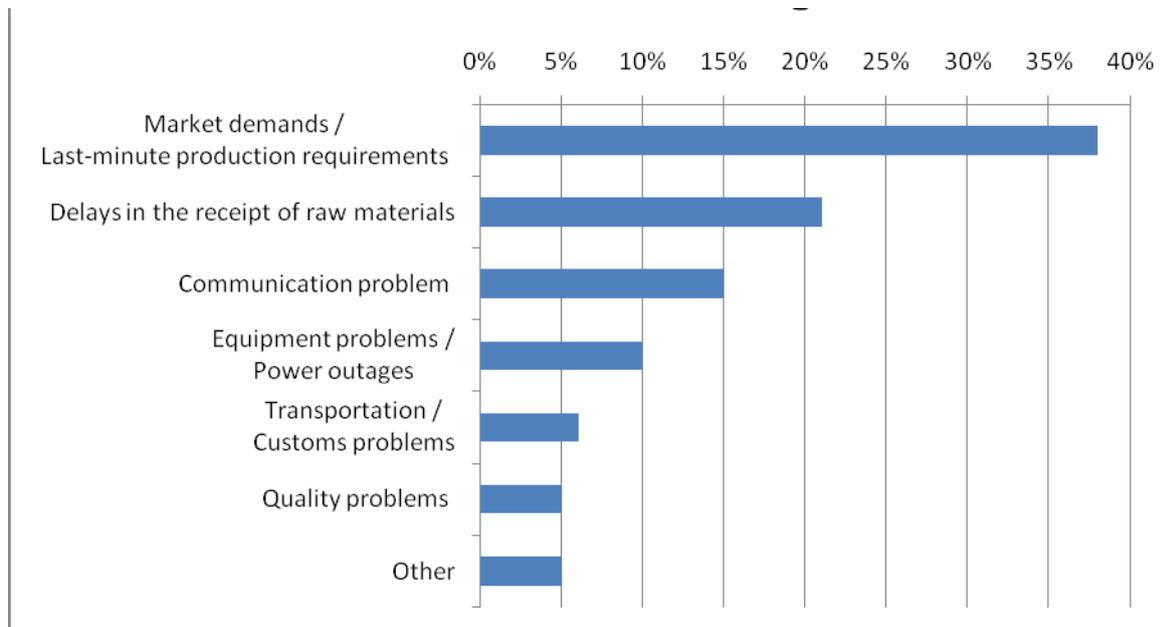
2.5 ROOT CAUSES OF OVERTIME

Factory workers do not just work overtime because of management decisions. Overtime can also be required because of supply chain delays in getting materials, or the low productivity of unskilled workers. Moreover, faced with the pressure of last minute style changes, some buyers avoid tackling the overtime issue so that their orders are shipped in time. This can be exacerbated by a lack of cooperation between buying companies, auditing departments and production departments (Stoop, 2005).

Broadly, there are a number of possible causes for the occurrence of overtime:

- delays in the supply chain: late arrivals of fabric and other materials, last minute style changes, short lead time (especially in the case of re-orders);
- production emergencies;
- limited ability to adapt to fluctuating orders during high and low seasons;
- re-working products due to quality problems;
- overbooking or bad planning by the factory vendor;
- low productivity of employees due to low skill levels;
- different working cultures between countries.

Figure 1: The causes of production emergencies



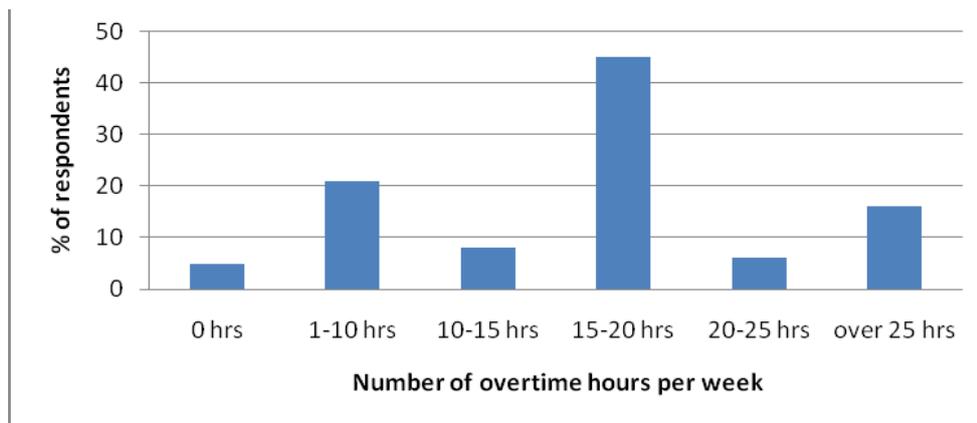
Source: Verité (2004)

Causes of overtime such as last minute style changes, lack of security in future orders and short lead times often originate from buyers and are rooted in their working practices; hence, changes to buying practices could be one solution to the problem. However, factory managers also have responsibility for overtime. For instance, overbooking is also a regular occurrence in the garment industry, and companies solve this problem partly through subcontracting and partly by arranging overtime. Moreover, the problem successful companies have is that they are not necessarily sure the order flows will be consistent, so they may hesitate to invest in capacity expansion (Stoop, 2005). Since the cost of excessive overtime is often under-estimated, factory management should have a system of calculating the costs and benefits of orders, which will enable them to say no to the less profitable orders and avoid overbooking.

2.6 SURVEY ON THE NEEDS OF OVERTIME

It is important to examine the workers' need for overtime, in other words, how much overtime workers want. The desire for overtime working hours differs according to economic, physical and social perspectives (Verité, 2004).

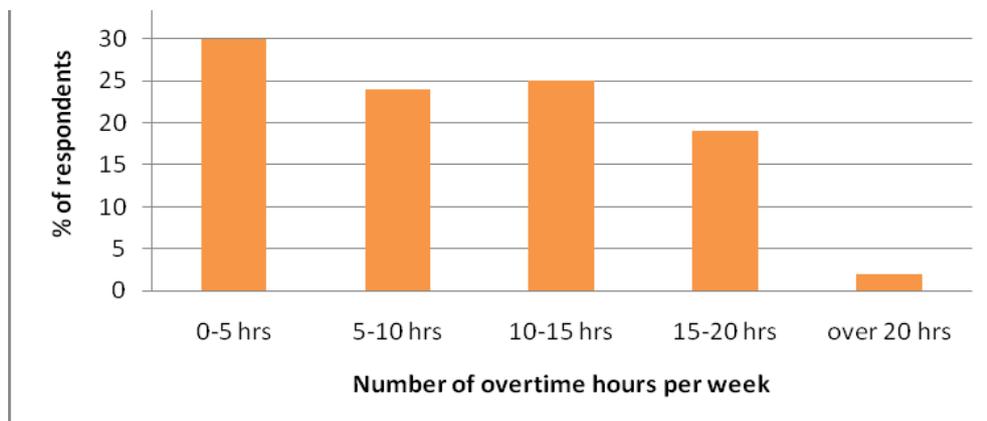
Figure 2: Preferred overtime hours per week (from an economic perspective)



Source: Verité (2004)

From a financial point of view, workers strongly desire overtime. More than 40 per cent of survey respondents claimed to want overtime in the range of 15 to 20 hours per week. However, the majority reported they didn't want to extend their hours beyond 60 work hours per week.

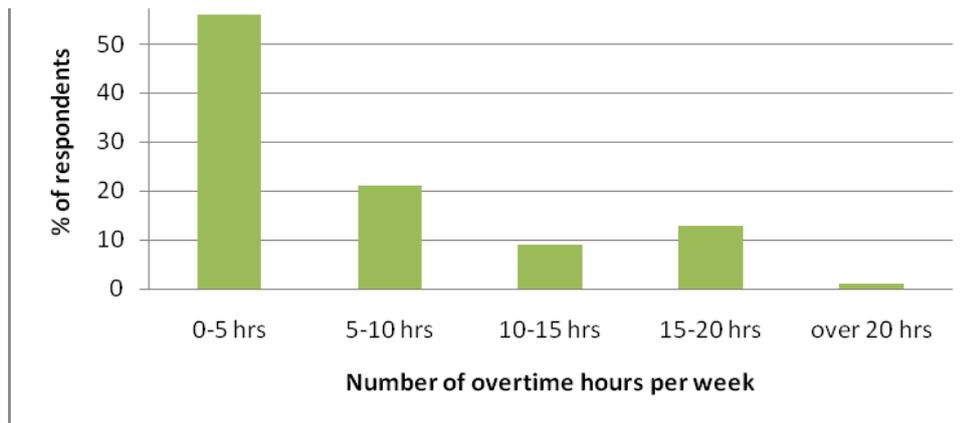
Figure 3: Acceptable overtime hours per week (from a physical perspective)



Source: Verité (2004)

Workers reported that physical well-being is also an important factor in the decision to take overtime. Considering their physical needs, the majority of workers reported that they wanted to work less than 20 hours overtime per week. The most respondents said they wanted to work between zero to five extra working hours, and only a small number of people said they would like to work more than 20 hours of overtime a week.

Figure 4: Preferred overtime hours per week (from a social perspective)



Source: Verité (2004)

Social and family relationships are also an important factor in overtime decision making. From a social perspective, more than half of workers said they would want to work fewer than five hours of overtime per week, with few people open to working more than five hours of overtime per week.

This survey also showed that an important first step, when setting up a new work schedule in a factory and negotiating with employers and buyers, is to know the employees' preferred number of overtime hours. Therefore factories in countries where the Better Work Programme is involved need to conduct a specific survey on the needs of workers, to be able to differentiate between voluntary overtime and compulsory overtime set by the factory management team.

Overtime is a significant and problematic issue in the manufacturing industry, and especially the garment industry, where greater effort is required to improve the overtime situation. Currently, garment companies are under increasing pressure from various stakeholders and a wide range of interest groups to tackle labour standards in the global supply chains. In particular, working excessively long hours is one of the most common examples of labour non-compliance in the garment industry. There is therefore a need for further research on the issue, and greater development of practical measures for improvement by Better Work.

3. THE IMPACT OF OVERTIME

3.1 THE IMPACT OF OVERTIME ON HEALTH AND SAFETY

3.1.1 Impact of Long Working Hours on Workers' Health

There is a variety of evidence to show that long hours of work are harmful to health, longevity, and the psychological well-being of workers (White, 1987; Spurgeon, 2003; Kerin, 2003). Excessive overtime can affect health directly, overtime indirectly leads to fatigue and stress related illnesses, while work hazards such as chemicals, noise and repetitive motion indirectly affect workers' health and well-being. Several studies categorize the effects of overtime as short-term and long-term. Short-term effects include acute injuries or accidents, fatigue, sleeping problems, and high blood pressure, while long-term effects include musculoskeletal disorders, disability retirement, and cardiovascular disease (heart attacks and strokes) (Verité, 2004).

Spurgeon (2003) draws the following conclusions:

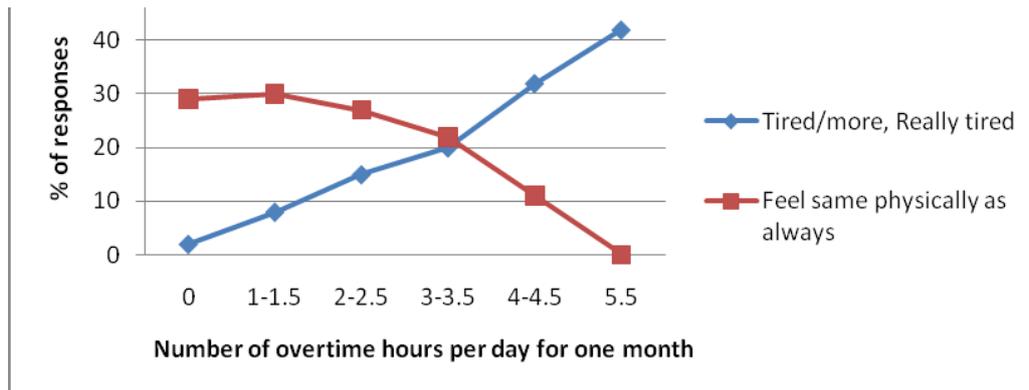
- Regularly working in excess of 48 hours per week appears to constitute significant occupational stress which reduces job satisfaction, and increases the risk of mental health problems.
- Regularly working more than a 60 hour week, and perhaps more than 50 hours per week, appears to increase the risk of cardiovascular disease.
- Long hours are associated with the increased prevalence of somatic symptoms and health-threatening coping behaviours such as increased smoking and a poor and irregular diet.
- Long hours of work can cause pre-term birth and musculoskeletal disorders in workers.

In terms of physical health, fatigue is a common complaint among people working long hours. Although the concept of 'fatigue' is exceedingly difficult to measure, according to the National Institute for Occupational Safety and Health (NIOSH), overtime caused severe fatigue problems in 15.4 per cent of workers who worked overtime (Dawson, Heitmann and Kerin, 2004).

Verité (2004) researched the relationship between extended overtime and fatigue among Chinese garment factory workers, with results showing that workers reported increased exhaustion after having worked overtime of between 2.5 and 3.5 hours per day for one month. 18 per cent of respondents reported eye strain, eight per cent reported back problems, and nine per cent reported feelings of sadness or depression. Moreover, 25 per cent respondents said long working hours had led to increased medical problems.

Figure 5 shows that as the number of overtime hours per day increases, over the course of one month, workers' tiredness increases.

Figure 5: The link between fatigue and overtime



Source: Verité (2004)

Also in the realm of physical health, there is significant evidence of a relationship between long working hours and an increased risk of cardiovascular disease:

- Japanese workers reported that excessive overtime was associated with an increased risk of acute myocardial infarction. 61 or more hours of work per week and less than two days off a month increased cases of acute myocardial infarction by two times or more (Liu and Tanaka, 2002).
- People who regularly work 10-11 hours per day are by two-thirds more likely to get heart diseases, according to a survey of 6,000 British civil servants. Doctors found those who worked three to four hours of overtime a day have a 60 per cent higher risk of heart diseases (Virtanen, 2010).
- Excessive overtime work has been shown to increase average blood pressure in workers who work 60 or more hours of overtime per month, compared to those working 30 or fewer hours of monthly overtime (Hayashi et al., 1996).
- Studies show a significantly elevated systolic blood pressure in salesmen aged between 50-60 years whose combined commute and work hours exceeded 61 hours per week, as compared with who worked 57 hours or less (Iwasaki et al., 1998).
- In Japan, a study of 203 cases of *karoshi*¹ (196 men and 7 women), where the worker suffered a fatal cardiovascular attack, linked the illness to the amount of time worked. Two thirds of those who dies from *karoshi* regularly worked more than 60 hours per week, or more than 50 hours of overtime per month (Uehata, 1991).

In many cases, long working hours were identified as a significant source of stress. Occupational stress may lead to negative behaviour patterns such as an increase in smoking, alcohol consumption and a poor irregular diet, as well as cognitive difficulties such as poor memory and concentration loss. Moreover long working hours are also linked to headaches, nausea, insomnia and exhaustion (Spurgeon, 2003).

¹ *Karoshi*, which can be translated literally from Japanese as "death from overwork", is occupational sudden death.

- There is evidence that work hour changes from a 40-hour work week to longer working hours caused an increase in smoking amongst both men and women (Shields, 1999).
- A research of smoking habits revealed that long working hours were positively related to smoking intensity and negatively related to smoking cessation (Westman et al., 1985).
- In the case of medical professionals, one study found that nurses who did overtime shifts reported higher alcohol consumption (Trinkoff and Storr, 1998).
- There is some evidence that overtime caused unhealthy weight gain (Nakamura et al., 1998).
- As overtime increases, there is a significant decrease in the percentage of workers participating in regular sports activity (Mizoue et al., 2001).
- Research on behaviour among Australian coach drivers showed that long working hours were the most significant predictor of stimulant use and related disorders, which in turn predicted reports of non-specific symptoms and more frequent visits to doctors (Raggatt, 1991).
- A survey on Japanese middle managers showed long working hours were related to a poor lifestyle characterized by irregular daily life, meals and sleeping patterns (Maruyama and Morimoto, 1996).

It has also been demonstrated that workers who work long hours in heavy and repetitive jobs have a high risk of problems related to the musculoskeletal system:

- Research into female grocery checkers in America showed that workers had hand/wrist symptoms characteristic of carpal tunnel syndrome, which was significantly associated with the average number of hours worked per week and years employed in that occupation (Morgenstern et al., 1991).
- A study on the combined influence of the domestic workload and overtime on workers of various occupations in Sweden found that an increased domestic workload in turn increased the cumulative incidence or prevalence risk of disorders of the neck in men and women who were already working overtime (Fredriksson et al., 1999).

Longer working hours may also increase the risk of pre-term birth among working women. One study has examined the influence of overtime and extended work shifts on pregnant women, rates of parental neonatal mortality and morbidity, or fertility. A study in France investigated the risk factors of pre-term birth among working women, from unskilled factory workers to secretarial and administrative staff. Researchers found there was a regular increase in the pre-term birth rate as the number of working hours per week increased, from 3.6 per cent for part-time jobs to ten per cent for jobs where employees worked more than 45 hours per week (Mamelle et al., 1984).

Overtime may also contribute to sleep disorders amongst workers. Moreover, Statistics Canada (2000) reported that women tend to spend more of their 'free' time away from work on child care and domestic responsibilities, which may reduce the time available to them for sleep and recovery from work.

Box 4

Financial Compensation and Overtime Health Complaints

There seems to be a correlation between overtime compensation and workers' health. A study on the relationship between pressure to work overtime and rewards (including salary, job security, and career opportunities) found that high pressure to work overtime in combination with high-value rewards caused a 3-fold increase in somatic complaints, compared with low overtime pressure in combination with high-value rewards (Van der Hulst and Geurts, 2001). Siu and Donald (1995) also researched the relationship between overtime and payment, finding that men from Hong Kong who received no payment for overtime reported more health complaints, compared with men who received a payment.

Box 5

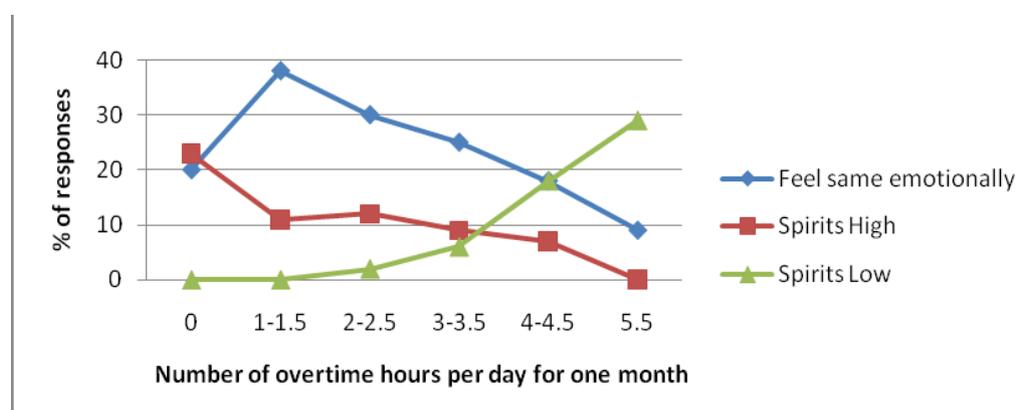
Prolonged Exposure to Toxic Chemicals

Verité (2004) interviewed medical and legal professionals at regional institutions in southern China to gather evidence of long working hours and prolonged exposure to toxic chemicals. The study proved that there were immediate and serious effects on workers' health, resulting in hospitalization and even, in a few cases, contributing to death. Reports included nerve damage among shoe and electronics workers who were over-exposed to n-hexane; sickness, vomiting and jaundice among garment workers who were over-exposed to dimethylformamide; miscarriage among pregnant workers who were exposed to benzene; numbness and paralysis in the hands and feet of shoe-factory workers who were overexposed to glues; high blood pressure among those working excessive hours; and the sudden deaths of two workers at a shoe factory during a period of 14 to 15 hour working days.

The negative effects of long working hours can also affect workers' mental health. Research by the ILO has shown that working over 8 hours per day can cause mental health problems and high stress levels (Spurgeon, 2003). However, similarly to fatigue, stress is a difficult concept to define and measure. In many cases, overtime is associated with an unmanageable work load; hence, it is difficult to separate the stress of working long hours from other sources of pressure.

Depression is the most common mental health disorder, and is associated with a significant increase in both absenteeism and reduced worker productivity (Sanderson and Andrews, 2006). In the US, Greenberg et al. (1993) estimated that in 1990 the annual cost of depression in terms of work loss and reduced productivity passed to employers was \$ 43.7 billion. Figure 6 shows that as the number of hours increased, workers' emotional stability decreased, with 'low spirits' and depression or sadness rising. After working 3.5 hours of overtime each day for a month, employees reported an increased incidence of low morality (low spirits).

Figure 6: The link between depression and overtime



Source: Verité (2004)

Bipolar disorder is an even more significant mental health disorder in terms of overtime and low morale. One study showed that employees with bipolar disorder had 65.5 lost workdays compared to 27.2 lost work days for employees with a major depressive disorder (Kessler et al., 1994). Another American-led research study found that workers with bipolar disorder had significantly greater sick leave, short-term disability and long-term disability absences, compared to those without bipolar disorder (Gardner et al., 2006).

The most serious effects of long hours seem to be sudden death and suicides. According to the Japanese National Policy Agency, 922 workers committed suicide in 1991, and the number increased up to 1,257 in 1996. There are of course multiple factors behind these incidents. However, in the cases of *karoshi*, although there is no suggestion that they were specifically related to long working hours, undoubtedly occupational stress was an important factor. Moreover, work-related suicide appears to represent the extreme end of a spectrum of psychological harm which may result from excessive demands at work (Spurgeon, 2003).

Box 6.
Long Working Hours and their Effects on Health

Country	Study Population	Hours worked	Effects	Authors
Japan	Factory Workers	> 9 hours/day	Mental health problems	Ezoe and Morimoto (1994)
Japan	Managers	≥ 10 hours/ day	High stress, low quality of life	Maruyama and Morimoto (1996)
Germany	Medical staff	> 48 hours/ week	High stress	Kirkaldy et al. (1997)
UK	Junior doctors	> 73 hours/ week	Mental health problems	Houston and Allt (1997)

Source: Spurgeon (2003)

Ezoe and Morimoto’s research results showed that when factory workers in Japan were given extra work which was simply an extension of routine production, there was an increased risk of mental health problems. Maruyama and Morimoto (1996)’s research showed that if those working in managerial professional jobs, which are inherently subject to considerable general strain, work more than ten hours per day, they report high stress and low quality of life. In addition, UK and German cases showed that when health care workers (including doctors and nurses) worked long hours, this caused high stress and mental health problems (Kirkaldy et al., 1997; Houston and Allt, 1997).

Thus, overtime should be avoided where jobs are highly stressful (either physically or mentally), should not be scheduled continuously, and should be rotated among employees rather limiting overtime to certain employees only. In addition, workers should be consulted about the organization of their working time, and about unpredictable or irregular hours, particularly where these are beyond the worker’s control (Spurgeon, 2003).

3.1.2 Impact of Long Working Hours on Workers’ Safety

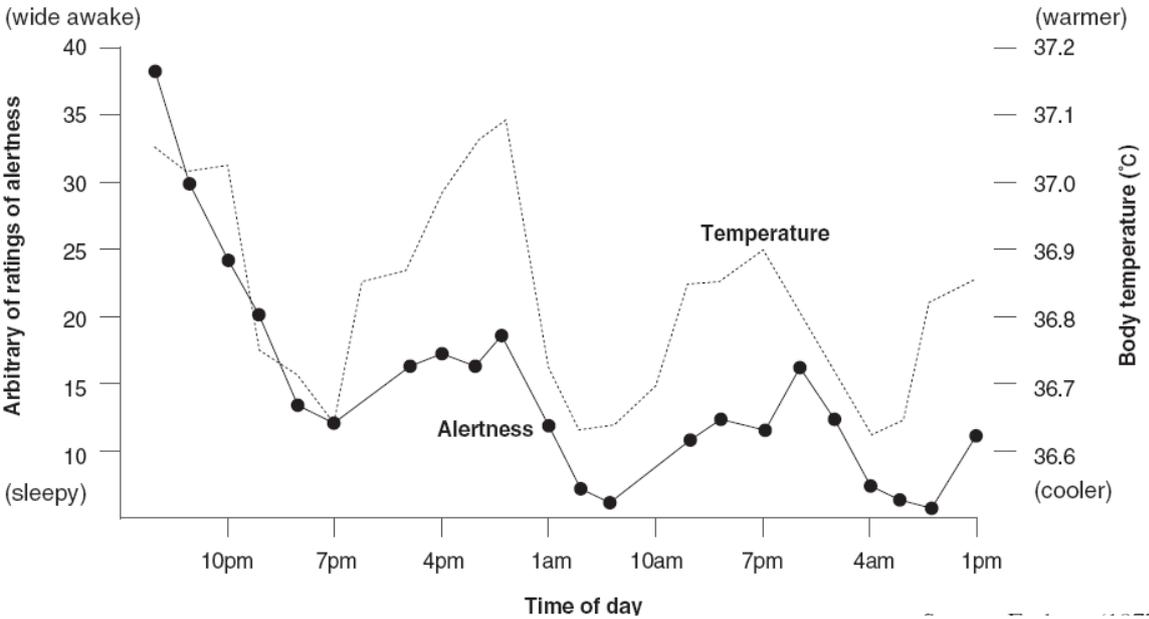
There is evidence that workers who worked long hours showed poorer performance and an increased rate of accidents, due to the strong connection between working time and fatigue (Harrington, 2001; Hanecke et al., 1998; Ong et al., 1982):

- There is a relationship between working time and the rate of accidents in the workplace. Evidence from data on 1.2 million accidents in workplaces in 1994 showed that the rate of accidents increased after the 9th hour at work, and in the evening time (Hanecke et al., 1998).

- The ninth to 12th hours of work are associated with feelings of decreased alertness and increased fatigue, lower cognitive function, a decline in vigilance, and increased injuries (Caruso et al., 2004).
- A study on hand injuries among Hong Kong machine operators showed that long working hours (average 11 hours per day) was a major contributor to injury rates (Ong et al., 1982).
- A study on the relationship between production errors and overtime work tested automotive workers, who worked over eight hours a day. Researchers set a range of cognitive performance tests, and looked for correlation with the number of hours worked. The result was a constant increase in accident or injury rate after the ninth hour of work, with a progressive increase thereafter. After 16 hours of work the rate was up to three times higher (Proctor et al., 1996).
- In a study of health care workers, increases in work hours were correlated to automobile crashes and on-the-job accidents, according to another study. Increased overtime was also significantly associated with impaired performance on several tests of attention and information processing (Kirkaldy et al., 1997).

Most accidents occur (directly or indirectly) as a result of human error, and this is closely related to the biological cycle (Spurgeon,2003). Interestingly, Froberg found that body temperature and performance show significant correlation, and that temperature could be used as a marker for general biological rhythms. As seen below in Figure 7, when the body temperature is in a rising phase, alertness also increases, which is highly related to performance. Conversely, when body temperature falls, alertness decreases (Froberg, 1977). In addition, when the type of task is less complex, performance is more affected by biological rhythm.

Figure 7: Body temperature and alertness from a group of 15 young subjects experiencing 72 hours of constant wakefulness



Source: Froberg (1977) as quoted in Spurgeon (2003: 73)

Figure 7 shows the effects of biological phase on alertness. This research measured the change of body temperature of 15 young volunteers, who stayed awake over a 72-hour period, and were tested in a wide range of cognitive skills to determine their alertness. The result was that as their body temperature begins to rise at 7a.m., activation energy levels and alertness also increased, however, when the temperature decreased after mid-evening around 9p.m. activation energy levels and alertness also declined. In addition, the experiment proved that the number of vigilance omission errors began to increase after 7p.m. until 8a.m. (Froberg, 1977).

Also, evidence from a study on 248 United Auto Workers shows that those individuals who worked overtime showed poorer performance on cognitive function and executive function tests (the ability to prioritize and plan tasks), compared with those who did not work overtime (Proctor et al., 1996).

3.2. IMPACT OF LONG WORKING HOURS ON WORKERS’ SOCIAL LIVES

Long working hours also have a detrimental effect on social and family life. For example, in many cultures the family dinner is typically the only daily event that allows for meaningful family togetherness, and parents working overtime may be unable to participate. Additionally, child care arrangements need to be made to accommodate the working schedule of parents. Women in particular find it more difficult to do overtime or night shifts due to their dual productive and reproductive roles and typically greater domestic obligations.

Men may also consider themselves negatively affected when women cannot adequately fulfill dual roles. Among dual-earner spouses in Canada, husbands expressed feelings of anxiety and depression

related not only to their own inflexible work schedules but also to the long working hours of their wives. On the other hand, the stress-determinants of wives were related solely to their own work schedule (Galambos and Walters, 1992). A survey among white-collar workers in the UK reported that 50 per cent of men felt their family life suffered due to their long work hours, and 20 per cent felt that their relationship with their partner had been put at risk (Knight, 1995).

A study on the relationship between long working hours and the mental health of urban bus drivers showed that drivers doing longer hours displayed poorer mental health rates than those of a comparison group, and also reported that family problems resulting from their long working hours were a major source of stress (Duffy and McGoldrick, 1990).

In the manufacturing industry, the majority of employees are women workers, who often have a greater obligation to domestic work and care responsibilities (e.g. child care and elder care) than male workers. Women workers reported that overtime does not allow them to do domestic work or spend time with their families (Fagan, 2007). Similarly, women in senior manager positions working in excess of 50 hours per week reported that they faced difficulties with family relationships. Over half of respondents felt that their family life had suffered and a significant 25 per cent felt that their relationship with their partner was threatened. Women who occupied less senior positions with shorter working hours were found to be less concerned about the risk to their family life (Spurgeon, 2003).

Conversely, migrant workers and employees who are single tend to count reduced overtime or no overtime as hardships, because they do not engage so much in family life, and are concerned about sending more remittances to their families at home. Research suggests these types of workers would rather work long hours in order to receive overtime premium pay (Kang and Dannet, 2010).

3.3. OVERTIME AND LABOUR PRODUCTIVITY

Excessive overtime not only has a negative effect on workers' health, and can lead to high rates of accidents and worker dissatisfaction, but it is also closely related to efficiency (Hurst et al., 2005). From this viewpoint, overtime seems to have an effect on labour productivity.

3.3.1. Definition of Productivity

Productivity is commonly defined as the ratio of a 'volume measure of output' to a 'volume measure of input use' (Organisation for Economic Co-operation and Development (OECD), 2001). In other words, it measures how efficiently production inputs, such as labour and capital, are used in an economy to produce a given level of output. One of most widely used measures of productivity at aggregate/macro level is Gross Domestic Product (GDP) per hour worked.

Generally, in the manufacturing industry, productivity is measured as total pieces per worker, per hour (Hurst et al., 2005). The garment industry in particular calculates the number of garments produced by a line of sewing machine operators in a specific time frame (Salinger et al., 2005).

3.3.2. The Relationship between Overtime and Labour Productivity

Productivity is directly related to overtime. If workers are able to do the same amount of work as a result of increased productivity, then there will be no need to work any extra hours. Actually, much empirical evidence has shown that reducing working hours increases productivity.

It has been shown that excessive overtime can lead to poorer worker health, reduced efficiency, high rates of accidents, and worker dissatisfaction, resulting in high worker turnover. In the second half of the 19th century, norm in many countries was to work 12 hours a day for a six day working week was the (Spurgeon, 2003). The relationship between hours of work and production was assumed to be a linear relationship. Hence, if ten units were produced in one hour, then it was expected that 120 units could be produced in 12 hours (ibid.). However, in reality it has been proved that the extension of working hours does not in general yield proportionate increases in total output, and may even lead to an absolute reduction in total output in the long run (White, 1987).

Other studies report similar findings:

- Shepard and Clifton (2000) analysed data from 18 manufacturing industries within the United States from 1956 to 1991, finding that overtime lowered average productivity (output per worker hour) for almost all industries in the sample. Specifically they reported a significant productivity decline of two per cent to four per cent for a ten per cent increase in overtime.
- Alluisi and Morgan (1982) have also reported that a general trend for longer hours was associated with lower productivity. While noting that several mediating factors such as the type of work, worker control, and worker's motivation could affect the trend, optimum hours were found to be a standard five day, 40 hour week.
- A study on white-collar workers showed that when workers worked more than 60 hours per week, their performance would decrease by 25 per cent (Nevison, 1992).

The link between excessive overtime and labour productivity is reflects the link between occupational health and safety and labour productivity. Health and safety at work is strongly affected by overtime, and several studies have found a high correlation between excessive overtime and higher incidences of cardiovascular disease, high blood pressure, on-the-job injuries and repetitive strain injuries due to poor occupational health and safety conditions (Spurgeon, 2003; Kerin, 2003). Long work hours tend to increase the rate of absence and sickness, which has a particularly serious impact on worker productivity and on production planning and scheduling (White, 1987). O'Donnell, explaining the linkage between health and safety, productivity and profits, states that, "Human performance is higher when people are physically and emotionally able to work and have a desire to work. Higher levels of human performance lead to higher levels of productivity, which in turn can lead to higher profits." (O'Donnell 2000: 215). In his research model, O'Donnell shows that health and safety improvement programmes play an important role in improving the physical and psychological wellbeing of workers, which in turn reduces absenteeism and presenteeism (i.e. an employee who is physically at work, but his/her mind is not on the job).

Other evidence (Spurgeon, 2003) shows there is a significant productivity decrease among overtime and shift workers who are doing five to seven consecutive 12-hour shifts. Moreover, after four weeks of six to seven consecutive 12-hour shifts, there is an even greater decrease in productivity.

When preventing diseases by promoting health, a company can reduce workers' absenteeism. Likewise, if a company helps manage the employees' acute and chronic health problems, it can improve worker performance, creativity and motivation, which may contribute to increasing productivity. In addition, if a company provides good environmental health and safety conditions, accident rates will decrease, resulting in savings in the costs of accidents and injuries. Moreover, companies can reduce the health care costs of employees by promoting a healthy corporate culture.

Workers' health has a direct influence on individual and group productivity. Workers' good health can improve the quality of goods and services, and can bring greater creativity and innovation, enhanced resilience and increased intelligent capacity (Riedel et al., 2001).

Many studies support the theory that improving occupational health and safety can increase productivity and performance, by reducing illness and injury (Bohle and Quinlan, 2000; Shearn, 2003; De Greef and Van den Broek, 2004; Frick, et al., 2000). However, the measurement of health and safety standards needs the support of multiple stakeholders, including not only the government, but also enlightened employers, managers and trade unions, which can encourage corporations to provide safer and healthier work schedules and places. This in turn translates into increased productivity, greater job satisfaction, and stronger bottom line results (De Greef and Van den Broek, 2004).

Interestingly, workers' productivity is not only related to occupational health and safety conditions, but it also has a fundamental connection with the psychological effect of working long hours. In practice, especially when hours are reduced considerably below 40 hours per week or eight hours per day, employees have motivation to work more effectively. In other words, high levels of productivity may depend on the psychological willingness of workers to use energy which has become available through shorter hours. In the 1890s there was an attempt among several British employers to change the normal ten-hour day (60-hour week) to eight-hour days (48-hour week). Despite reducing the total amount of work hours, employers found that workers continued to produce as much as usual and sometimes considerably more (White, 1987).

In a study on the pharmaceutical industry, work hours were reduced from 38.75 to 36.25 for workers who did simple but labour-intensive jobs. Management expected a fall in output and planned an increase in overtime to compensate for the deficit caused by reduced work hours. However, workers were unwilling to surrender the leisure time they had gained. Hence, this voluntary pressure made them maintain their output, and overtime actually reduced rather than increased. Overall productivity increased by 20 per cent due to workers' commitment to work at a proportionately higher pace (White, 1987).

These examples show that improvements in productivity can be achieved through shorter production time; while keeping the former output target, workers voluntarily increased both the pace and efficiency of their team work. Furthermore, although people can sustain work for remarkably long continuous periods, long hours are accompanied by a self-adjustment of pace or work intensity by slowing the movements and the interpolation of more pauses between movements. Thus, the work rate tends to be slower and less productive as time increases (Vernon, 1921; White, 1987).

During the First World War in the United Kingdom, the British munitions industry did not meet the demand of increased output, despite unrestricted budgets. Under conditions of patriotic fervour this led to long periods of overtime to meet the targets. Vernon (1921) and his colleagues investigated this trend, and showed that abnormally high levels of output could only be sustained for very short periods. If this occurs over any longer time period, workers seem to seek (unconsciously) a sustainable level (or equilibrium) of performance. White (1987: 42) comments that, "This equilibrium was considerably influenced by the hours of work, by the physical effort demanded in the work, and also by the regularity or irregularity of the work. Irregular work, for example, produced by bursts of overtime, tended to have disproportionately greater influence on reducing the pace of work, presumably because the worker adopted an equilibrium performance level which could be maintained during the longest working hours likely to be required".

In the United States, Frederick Taylor created techniques for the scientific management of labour productivity, finding that workers who take rest at scheduled times substantially increase their output. However, employees who are required to work long hours without proper breaks are systematically 'soldiered', which means they pretend to be working intensively while in reality they are restricting output to a level they can easily achieve to sustain the long working hours (White, 1987).

Although the psychological effects of long hours of work on performance still appear to be little known, management teams need to recognise the motivational gains made possible by reductions in working time, and to take steps to change working practices and methods to make use of these gains.

3.3.3. Costs of Long Working Hours

There are many disadvantages to overtime from an employer's point of view (Brewster and Tregaskis, 1996; Spurgeon, 2003). Overtime often involves extra costs which are paid for at premium rates. It can reduce employees' motivation to work effectively and it causes them to concentrate upon the time spent at work rather than the outputs they achieve. Furthermore, as discussed above, long working hours have a positive correlation with increased tiredness, sickness, stress, and accidents. This in turn may lead to absenteeism.

Generally, the cost of operating for extended hours goes unrecognized by employers. However, research by the National Institute for Occupational Safety and Health (NIOSH) showed that excessive overtime resulted in indirect costs. The health problems associated with overtime, such as increased heart attacks, high blood pressure and mental illness, the greater risk of retirement disability and the increased safety risks due to human error, may cause lower productivity and presenteeism, and may also increase high turnover and absenteeism. The loss of skilled workers means a new recruitment process with training and education for new employees, which may result in unplanned costs (Dawson et al., 2004).

Several studies have investigated the financial impact of long working hours. Data collected from 10,500 employees who did overtime in 60 companies, and from managers in over 1,000 companies

representing more than 150,000 employees across all major industries, shows that extended hours of operations led to higher costs than traditional daytime operations (Kerin and Carbone, 2003). The main reasons why potential business profits were eroded after excessive overtime were lower productivity (79.4 billion dollars (\$)); higher absenteeism (\$50.4 billion); greater employee turnover (\$39.1 billion); increased health care costs (\$28.2 billion); and more job-related accidents (\$8.5 billion). Hence, the unintended and largely unrecognized costs associated with irregular schedules, night shifts and extended hours have cost American businesses \$206 billion annually. Measured as output per employee hour, night time productivity is five per cent lower than day time productivity, and the annual cost of lower night time productivity is \$79.4 billion (Kerin and Carbone, 2003). American companies with extended hours of operations have a higher absenteeism rate at 4.9 per cent, which is over twice the American national average of 2.1 per cent, costing \$50.4 billion annually.

It is therefore encouraging that some employers have started to consider the direct and indirect costs associated with excessive overtime by taking several measures. These include making sure there is an appropriate number of staff to meet the various demands of the day, week, month and year; reviewing policies and operations to ensure that they do not encourage excessive overtime; increasing productivity during regular working hours; and minimizing the need for overtime to meet demand (Kerin, 2003).

3.3.4. Decent Working Hours – Advantages to Businesses

More and more enterprises recognize the needs and preferences of their employees regarding a healthy work-life balance, not just as a matter of corporate social responsibility, but also because it is good for business (Lee et al., 2007). Promoting work-life balance can indeed be used as an effective competitiveness strategy.

As substantial evidence shows, reductions in 'excessive' long hours of work (generally related to changes in work organization and methods of production) result in considerable productivity gains over the years (Bosch and Lehndorff, 2001). As long hours of work are positively connected to absenteeism and staff turnover, shortening these hours can also provide benefits to firms in terms of reduced absenteeism and lower staff turnover (Barmby et al., 2002; Meager et al., 2002).

Other empirical research indicates that increased productivity derives not only from physiological factors such as reduced fatigue, but also from psychological factors such as employee attitudes and morale. In fact, research shows a statistically significant positive relationship between employee feelings about work and the company's financial performance (Towers Perrin, Gang and Gang, 2003). Thus, a reduction in excessive overtime hours may lead to increased productivity and ultimately higher profits for firms.

The presence of work-life balance policies in an organization can show positive and harmonious labour relations, and demonstrate a corporation's sense of social responsibility. This in turn betters a firm's image and attracts both potential customers and recruits (Anxo, 2007); American companies now compete to be identified as one of the country's best in terms of promoting a good work-family balance. One such company is 'Working Mother', which uses such recognition in its public relations efforts, to promote a positive corporate image.

Flexible working time arrangements, as a way of reducing very long hours of work, may benefit firms by reducing fatigue and absenteeism. Flexible working is strategy which can potentially improve worker performance, as well as promote job satisfaction. Broader work-family reconciliation policies, including child care, leave and rights to return to work on a part-time basis, increase women's labour market attachment (OECD, 2001).

Box 7

Work-Life Balance Campaign (UK)

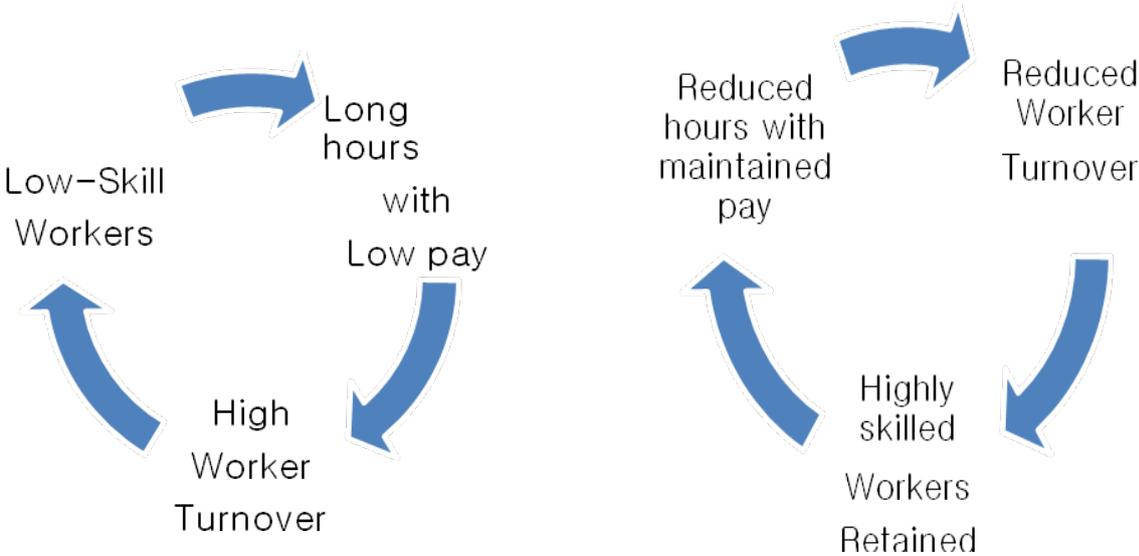
The British government promoted an initiative to promote work-life balance among a large number of British companies. The campaign statement for the initiative read: "Flexible ways of working will both help the business and enable staff to balance work and the rest of their lives" (United Kingdom Department for Education and Employment et al., 2000: 2). 52 per cent of firms involved in this Work-Life Balance Campaign reported that it helped lower worker turnover, reduce absenteeism, and retain employees, particularly amongst female employees (Hogarth et al., 2001: 233).

4. PRACTICAL MEASURES FOR REDUCING OVERTIME

In certain industries, there are uncontrollable and unpredictable requirements for overtime. The garment industry in particular depends on orders from global buyers. Doing overtime is thus a common practice to meet high quantity orders and fluctuations in peak season.

Research shows that certain levels of overtime (e.g. the ten to twelve per cent of work hour range, depending on the nature of the operation) can be positive (Kerin, 2003). Through overtime work, employers can meet fluctuating demand with flexibility, and employees can have the opportunity to earn extra pay. However, in many cases, overtime exceeds this limit. Moreover, we have seen that excessive overtime ultimately results in lower productivity, more fatigue-related accidents and injuries, costly increases in absenteeism and turnover, and need for higher medical costs. Excessive overtime also increases the chance of error or accident, which can severely damage the brand image and the company's financial performance.

Figure 8: Vicious circle to virtuous circle



Source: Hurst et al. (2005)

In the case of the vicious circle in the garment industry, most workers arrive at factories with low skills, and are often paid ‘by the piece’, whilst being excluded from overtime premiums. This in turn leads to workers accepting long work hours and overtime to compensate for the low salary. In addition, poor internal production systems with tight delivery schedules squeeze the workers and increase overtime. In turn, workers get tired easily, become ill, and consequently absenteeism and presenteeism increase. Finally, this causes high worker turnover and lost human capital., as skilled/trained workers are lost (Hurst et al., 2005). In order to break this vicious circle, companies need to improve their internal quality and productivity management systems, which can lead to a reduction in hours without reducing wages, since workers are making more pieces in standard hours.

In the virtuous circle, if hours are reduced but the current salary level is maintained, workers will be less tired and will be positively motivated to work. Therefore workers will be more productive and less likely to have accidents or get ill, which will have a positive reinforcing effect on productivity, quality and worker satisfaction. Ultimately this will result in a reduced turnover of workers, so that highly skilled workers are retained (ibid., 2005).

4.1. MANAGEMENT SYSTEMS

Amongst other things, excessive overtime hours are driven by inefficient internal production systems, poor human resource management and inadequate internal communications (Hurst et al., 2005). Hence, a good management system plays an essential part in reducing excessive overtime and increasing workers’ productivity. A good management system in this context means improving scheduling and work structure, by introducing control and records systems to monitor overtime.

It was widely predicted by experts in the manufacturing industry that the greatest increase in manufacturing productivity in the future would arise not through the introduction of new machinery

and processes, but by better management systems (Gunn, 1982). Moreover, even before new technology was widespread, efficient time utilization was a key factor, as it allowed for improvements in labour productivity through various methods of reducing non-productive time (White, 1987).

4.1.1. Healthy Work Schedule Design

Although overtime is unavoidable in peak season in garment factories, 'healthy working time' arrangements are essential for workers' well-being and labour productivity, which in turn will be related to longer-term factory profit. 'Unhealthy working time' should not be used as a tool to improve the company's profitability. This has been referred to in international standards on working time, such as the ILO Conventions No. 1 and No. 30. Furthermore, the European Union (EU) Directive on Working Time states, "Health at work is an objective which should not be subordinated to purely economic considerations" (European Industrial Relations Review, 1994: 29).

It is insufficient to solely discourage excessive hours of work. There is also a need to develop better time-accounting (including the optimum number of hours, optimal start and stop times, the optimal rest breaks and budgeting methods), and to measure the required input for particular tasks and to therefore monitor workloads. These should be combined with incentives and proper targets for line managers to reorganize work methods and to replace the 'long hour culture' with 'smart working' (Fagan, 2007).

The allocation of an individual's time between various activities such as paid work, domestic work, care work, leisure and other social activities is very important and varies depending on the number and age of individuals in the household. Children are especially affected by the allocation of time in a household. Although the most time-consuming activities can, to some extent, be outsourced (by using market-based services such as child-caring facilities, private and public schooling and domestic help), a substantial portion of these activities remain within the family. In most cases, women are charged with these various non-paid activities (Lee et al., 2007). Women in developing countries do not generally have the access or means to outsource these responsibilities. Intensive workloads, non-standard schedules, and unpredictable working hours may make people conclude that their employment is incompatible with family responsibilities and other activities (ibid.). Hence, there is a need to redesign work schedules in a 'family-friendly' way.

4.1.2. Structural Improvements

In general., factory management can take three courses of action to reduce the need for excessive overtime:

- Using shift systems;
- Changing remuneration systems;
- Changing production methods.

Shifts systems can be an effective solution, relieving workers of excessive overtime. The knitting industry especially needs shifts to maximize the use of expensive high-tech machines. Knitting factories often use a shift system and by introducing a three-shift system, for example, overtime becomes virtually impossible. However, when the two-shift system is used for a 24 hour period, overtime will always occur (Stoop, 2005). In addition, when designing the shift systems, it is necessary to minimize the night shift, as the regular night shift can have a harmful impact on employees' health (Spurgeon, 2003).

Box 8

Case Study 1: The introduction of a three-shift system in an Istanbul factory

Before being unionized, the factory's normal working hours were 12 hours. However, the union effectively negotiated the introduction of a three-shift system, and an increase in hourly wages. Not only did the workers benefit from these changes, but in the employer's calculations, the new system was more cost effective. However, the shift system also had several problems. It was reported that the second shift was less productive, possibly because there were fewer managers in the evening and workers seemed a bit distracted due to their day-time activities. In addition, workers needed to adjust the machine for their convenience before starting work, and shift work also incurred extra costs for transport, food and energy.
Source: Stoop (2005).

The remuneration system can be another important element in a policy to reduce overtime. When workers rely on overtime payments to compensate for their low salary level, they might be especially reluctant to reduce overtime, and may even try to work more overtime by going slowly during normal hours. In this case, introducing performance-based payment can be an alternative way to solve this problem. In a performance-based system, performance can be calculated by individual or group/line performance. However, the system needs to be transparent and understandable, otherwise it may cause conflict among workers who feel unfairly treated. Unfortunately, factories using a strict line system cannot offer individual pay based on performance, because workers depend on the formal line's performance. In addition, workers who are charged with beading or another complex task (for example working on many different styles of garment) will be less productive than someone who makes large quantities of the same style (Stoop, 2005).

Changing the setup of the production system and using new technology can also limit the need for overtime. In an inflexible line system, bottleneck situations easily occur, so planning is difficult. Hence, introducing more flexible production lines and teamwork can sharply reduce target production times (ibid.).

Box 9

Case Study 2: An example of 'lean production' in the garment industry

A large company, which works on all stages of garment production, adopted a 'lean production' system in the factory. The fabrics were checked before being cut by special machines, while pre-cutting and pattern operations were done by computers. Furthermore, in the sewing department the classical line system was replaced by a 'modular system'. As many clients ordered garments in small quantities of 300-500 pieces, the formal line system was unsuitable as it was designed for higher quantities of at least 1,000 to 2,000 pieces. This change to a modular system was made by the company's research and development team, who devised the modular system to reduce interval stocks, and create better quality products in a shorter production time. In the sewing department all the production processes (except embroidery and pressing) were done by teams of 35-38 employees working in a circle. Each worker was trained to undertake several processes to avoid bottle necks and the work was overseen by supervisors to reduce mistakes. The workers knew that their wages were based on an evaluation of their performance. This approach increased the delivery performance by about 90 per cent.

Source: Stoop (2005: 16).

4.1.3 Record and Control

There are three steps to improving the overtime situation in a factory. Proper recording of overtime is the first step towards controlling excessive overtime. If the management team is recording and tracking overtime, it can be aware of the factors causing overtime and when it occurs. Management teams will then be able to control and ultimately reduce overtime.

Box 10:

Case Study 3: A factory implements better overtime management

A jeans factory with more than 1,000 employees started a strict system at the request of a big buyer, who put much stress on overtime compliance. The buyer receives the overtime records every week from the vendor, and reports are also displayed in public areas for workers to see. As the factory management analysed the overtime records, they realized the costs associated with overtime, and became more interested in reducing it. Employees voluntarily sign up on overtime lists, and the overtime is compensated by the hour. The line supervisor checks the total hours for each individual on a weekly basis, while the department manager and the HR manager keep track of overtime records. If overtime is foreseen, then the factory management team will consult with the buyer to make new arrangements. Moreover, if overtime has occurred, factory managers will analyse the reasons for this. Currently the factory can operate the production line without working overtime for six months, whilst for the other six months overtime must be worked. Furthermore, an incentive system has been introduced so that workers can earn extra. This means if the worker exceeds a certain level of productivity during normal working hours, they can receive a 'production premium'. However, there is still a need to make sure that workers have minimum wages within regular working hours. In addition, the factory adopted new software to keep track of the overtime hours of each worker, and issued reports weekly and monthly, checking these on a regular basis. The HR department then audits the overtime reports to ensure compliance with legal regulations. If excessive overtime is unavoidable, the management team introduces a second shift as soon as possible. These new arrangements enhance the production efficiency and workforce planning, and result in on-time shipment.

Source: Stoop (2005: 13-14).

4.2. Decent Occupational Health and Safety Conditions

Reducing occupational hazards and providing a better occupational health and safety environment can improve labour productivity (Antle et al., 1998). Although firms can be afraid of the costs of

improving health and safety conditions in the factory, these costs may not be as high as first appears. In fact, labour-related injuries, deaths and diseases carry with them hidden costs for the firm.

Occupational safety and health can promote 'smart' regulatory actions designed to change a firm's 'safety culture' (Lunes, 2002). Government regulatory agencies in particular can substantially change private sector behaviour, even with limited resources. Moreover, companies tend to make their compliance decisions for the potential benefits rather than actual penalties (ibid.). Hence, there is a need to design specific training programmes for employers, which can improve the occupational health and safety conditions in a workplace. Consequently, employees' increased desire to work directly improves human performance and company productivity (O'Donnell, 2000).

4.3. TRAINING AND EDUCATION PROGRAMMES

Many workers in the garment industry are not aware of their rights to work in a safe and decent environment and to be paid accurately for overtime. Hence, workers need to be better informed and educated in the use of occupational safety procedures and equipment, particularly in the industries where there is a higher risk of accidents (Lunes, 2002). Managers as well as employees need to understand the significance of healthy and safe work environments through reduced overtime, as this will improve morale and generate company loyalty.

In addition, employees need to be aware of their rights regarding pay rates, including the minimum wage and overtime premiums. A survey by Verité shows that approximately 40 per cent of Chinese workers interviewed were not aware of the legal overtime rates, nor did they not know that they needed to be paid according to legal overtime premiums (Verité, 2004).

4.4. COLLECTIVE ACTION

There is a large implementation gap between policy and practice aimed at reducing excessive working time. For working cultures to change, collective negotiation is a very effective method of promoting healthy working time. Through collective action, a company can be pressured to take working conditions and the needs of individual workers into account - higher union density is itself associated with a lower rate of excessive long working hours (Lee et al., 2007). In addition, the presence of trade unions can increase the effectiveness of monitoring working time, in relationship to the legislated norms of working time (ibid.).

However, employees may be worried about initiating campaigns for the adjustment of working time, in case line managers consider them to be uncommitted to the company. Employees may fear that this will hinder their chance of future promotion, or increase the possibility of dismissal. Line managers may sometimes punish efforts by employees to adjust work time by responding with harsher workloads. Moreover, using collective negotiation methods alone can do little to change legislation; it is essential to have a legal framework that specifies minimum standards while allowing for flexibility through collective negotiations (ibid.).

4.5. MONITORING AND ADJUSTMENT

When a management team adopts or invents a new system for better working conditions, including reducing overtime, there is a need to evaluate the effectiveness of the processes and outcomes of the new system. In evaluating the process of the new system, there is a need to check whether it meets the production needs of the factory, and at the same time whether it constitutes a decent working-time arrangement. In evaluating the outcomes of the new system, the management team needs to re-evaluate and track the factors which have an impact on the health, safety, and well-being of the workers (Spurgeon, 2003).

An important element of evaluation is the health of a factory's workers; hence, an evaluation needs to include an initial health assessment prior to work assignments, as well as regular health assessments thereafter. In particular, management teams need to monitor workers who work for longer than an eight-hour period, conduct a reassessment of physical and chemical health risks, and employ reliable accident monitoring systems (ibid.).

4.6. KEY RECOMMENDATIONS FOR STAKEHOLDERS

(i) For global buyers:

- Ensure that workers in supplier factories receive all necessary compensation, including not only a regular hour salary, but also overtime premiums and benefits.
- Improve factory-buyer communication, and increase the support for factory management to ensure compliance with overtime and occupational safety and health standards.
- Provide technical assistance and training to factories on production planning, which can help reduce the need for excessive overtime.
- Create internal planning mechanisms that reduce the need for excessive overtime, such as reducing frequent and late changes in design specifications.

(ii) For supplier factories:

- Invest in compliance with occupational safety and health standards, including training for workers on extra safety precautions to be taken during overtime shifts.
- Supervisors support voluntary decision-making by employees on whether to work overtime.
- Eliminate all illegal punitive measures like salary reductions, work point demerits and so on.
- Support the establishment of worker-controlled safety committees at the workplace.

(iii) For government agencies:

- Monitor factory compliance against legal requirements.
- Establish clear time limits when using a comprehensive work-hour calculation system that protects workers from excessive overtime hours.

(iv) For trade unions:

- Ensure that workers in supplier factories receive all compensation due to them under the law with regards to hours, overtime premiums and benefits.
- Work with factory managers to ensure proper training on extra safety precautions.
- Ensure that details about overtime are clearly communicated, orally and in writing, by the management to the workers.

Through each stakeholder's efforts, overtime can be reduced, and in doing so, another step taken towards a more productive and sustainable labour-intensive industry, which provides decent working conditions for workers (Verité, 2004).

5. LINKS WITH THE BETTER WORK PROGRAMME

5.1. BETTER WORK METHODOLOGY

Better Work operates through country programmes which support enterprises to improve their labour standards and competitiveness in global supply chains, and to provide independent enterprise compliance assessments with enterprise advisory and training services. Using STAR (Supply chain Tracking of Assessments and Remediation), Better Work's information management system, an enterprise can share compliance assessment information and show their buyers their efforts to improve. At the same time, buyers can reduce their own auditing, and redirect resources to fixing problems and finding sustainable solutions.

Better Work has eight clusters of labour standards. Four of the clusters are based on fundamental rights at work. The four categories of fundamental rights include: (1) freedom of association and the effective recognition of the right to collective bargaining; (2) the elimination of forced or compulsory labour; (3) the abolition of child labour; and (4) the elimination of discrimination in respect of employment and occupation. The four other clusters monitor compliance with standards primarily set by national law, so they vary from country to country. The four areas of national labour law include: (1) compensation; (2) contracts and human resources; (3) occupational safety and health; and (4) working time.

As 'working time' is one of the compliance assessment indicators, the Better Work Programme recognizes the importance of limiting hours of work, which can improve health and safety conditions at work and enable workers to balance family and work responsibilities. On this basis, the programme tries to persuade employers and buyers to ensure that workers work within the legal limits on working hours, and are provided with sufficient rest and the legally required leave from work.

5.2 CURRENT OVERTIME LIMITS IN SEVEN BETTER WORK COUNTRIES

As shown in the table below, there are currently seven Better Work country programmes. With regards to the national work hour limits, all countries have a weekly work hour limit of 48 hours or less, and have daily work hour limits of seven to eight hours. While limits on overtime hours vary depending on the country, Jordan especially shows a very low non-compliance rate, since there is no general overtime limit. In addition, 75 per cent of migrant workers are from Bangladesh, Sri Lanka, China, and other less developed countries, and a different work standard is applied in comparison to local workers (ILO, 2010), which makes for a low non-compliance rate on overtime when compared to Haiti and Vietnam. In addition, the labour law in Cambodia, Indonesia, Haiti, and Nicaragua stipulate overtime wages as of 50 per cent to 100 per cent of regular hour's wages.

Table 1: Legal work hours in Better Work programme countries

Countries	Daily work hours limit	Weekly work hours limit	Limits on overtime hours	Average non-compliance rates on overtime
Jordan	8 hours	48 hours	Maximum daily working time of 10 hours *No general overtime limit applies	10%
Cambodia	8 hours	48 hours	Maximum daily working time of 10 hours (including overtime) *overtime rates – 50% increase (day hours), 100% increase (night hours and weekly rest days)	n.a.
Lesotho	n.a	45 hours	11 hours overtime a week	n.a.
Indonesia	7 hours (6 day work week) 8 hours (5 day work week)	40 hours	3 hours overtime per day and 14 hours per week * overtime rates - 50% increase (for the first overtime hours), 100% increase (for the following hours); sufficient rest, meals and drinks need to be provided and these cannot be replaced by money.	n.a.
Haiti	8 hours	48 hours	2 hours overtime per day and 320 hours overtime per year *overtime rates- 50% increase	59%
Vietnam	8 hours	48 hours (40-state sector)	4 hours of overtime per day and 200 hours per year *300 hours overtime per year are allowed (in enterprises producing export goods)	36%
Nicaragua	8 hours	48 hours	3 hours of overtime per day and 9 hours per week * Overtime rates - 100% increase	n.a.

n.a = data not available

Source: Better Work Programme, International Labour Organization, Travail legal databases

Because of a lack of research and poor understanding of the overtime issue, compounded by looser national regulation and auditing, there is still a high non-compliance rate among the factories in the Better Work Programme countries. However, the Better Work Programme can potentially help companies move towards decent work hours by providing research outputs on this issue, diagnosing non-compliance and communicating with national governments and entrepreneurs.

5.3 ADVISORY AND TRAINING SERVICES

One of the advantages of the Better Work Programme is that it pairs compliance assessment with advisory services and training services. For example, while enterprises are responsible for identifying and implementing improvement plans, advisory services ensure a tailored approach that provides direction and capacity building. In addition, a series of quality training courses have been designed to support assessment and advisory services, with a strong focus on building capacity and ensuring enterprise engagement in the long term. Many of the Better Work training activities include follow-up factory visits to ensure that participants are able to transfer classroom-based learning back to their places of work. Thus by taking multiple approaches, the Better Work Programme is able to tackle the overtime issue and achieve gradual improvements through stakeholder cooperation.

Through the Better Work Programme, a company can overcome the limitations of third-party social auditing (Ethical Trading Initiative Annual Report 2003/2004, O'Rourke, 2000; World Bank Group, 2003). The company is then able to produce better outcomes and achieve sustainable human resources. The company can then contribute to raising public awareness and build a sound system at industry level, which will positively influence other industries as well.

6. CONCLUSIONS

Working excessive overtime is a widely-spread phenomenon and a problematic issue in the garment industry. Hence, the Better Work Programme researches this issue by establishing the definition of working time, overtime and excessive overtime and by understanding its relationship with workers' health and productivity.

The first ILO Convention stipulated that a standard of eight hours of work a day and 48 hours of work a week was needed, and a number of countries ratified the convention. Today, the appropriate number of working hours is generally stated in national law. Overtime is defined as working hours that exceed the national statutory working hours. Workers working overtime are generally working more than 48 hours per week. *Excessive* overtime means that workers' hours not only exceed the national regulations on working time, but also have negative consequences for workers, particularly relating to potential safety and health risks.

There are two rationales for overtime: one is from the employers' perspective and another from the workers' perspective. From the employers' perspective, as garment industries commonly have peak seasons depending on the order of global buyers, they do their best to meet the required orders and deadlines. By doing so, they put the pressure on the product line and the line managers, which generally causes frequent unpredictable and compulsory overtime work. From the workers' perspective, they may want to work overtime voluntarily to make up for low salary levels, which do not meet their basic needs. However, the root cause of overtime is not always because of factory decisions; it can also be the result of short lead times given by buyers, because of issues like last-minute style changes, the late arrival of fabric and other materials, in addition to overbooking by the factory. Surveys looking at workers' needs for overtime show that there are different desired overtime and working hours depending on a range of economic, physical and social reasons.

The impacts of overtime are various and can broadly be categorized into three different aspects - the impact on health, safety, and social life. In terms of physical health, many studies show that excessive overtime work can cause a number of physical health problems; fatigue, cardiovascular disorder, negative behaviour patterns, musculoskeletal problems, pre-term birth and sleep disorders. Interestingly, a study found that people who didn't have proper payment for overtime reported more health complaints compared to those who received proper pay. As for overtime impacting on mental health, it is reported that depression is the most common mental health disorder related to overtime, which in turn increases absenteeism and reduces labour productivity. Other serious mental health problems are bipolar disorder and suicide, caused by excessively long working hours combined with occupational stress. Hence, excessive overtime should be limited (especially with jobs which are highly stressful either physically or mentally), should not be scheduled continuously, and should be compensated with the proper rewards.

Long hours of work increase the rates of accidents, and result in poorer performance. Most accidents are due to human error, and are closely related to the biological cycle. Poorer performance in cognitive tests shows that concentration and energy levels decrease as body temperature declines, particularly in the evening (after 9p.m.)

The social impact of long hours on the other hand, causes serious strains on a workers' social and family life, especially in regard to children and spouses. Long working hours put workers' relationships at risk; in particular for women workers, who suffer more due to commitments to domestic work and child/elder care.

In the past, it was assumed that there would be a linear relationship between increasing work hours and increasing productivity. However, empirical evidence has shown the opposite relationship; that is, when work hours are reduced, productivity increases. Long hours of work tend to lead to increasingly high rates of absence and sickness, which have a serious impact on workers' productivity and on production scheduling. This is related to poor occupational safety and health conditions. Hence, if company takes actions to promote employees' health by reducing excessive overtime, it can increase productivity. In addition, by providing safe and healthy environments for workers and by developing healthy corporate cultures, firms can fundamentally reduce the costs associated with illness, accidents and injuries.

Furthermore, from a psychological perspective, reducing working hours can induce positive motivational effects in workers; employees can achieve high levels of productivity when willing to use energy which has become available through shorter hours. On the other hand, when hours of work become long, people seem to adjust their work pace to sustain themselves for the long hours. This is done by slowing their movements and the interpolation of more pauses between movements which in turn lowers overall productivity.

In considering excessive overtime and its general impact on enterprises, the cost of overtime tends to go unrecognized. Several studies have shown that excessive overtime causes unplanned indirect costs for the company; for example, the cost of illness, accidents, injuries, absenteeism, presenteeism, lower productivity, high worker turnover, the recruitment of new employees and related training costs. In addition, overtime leads to premium overtime pay rates and thus higher production costs. Decent work hours can be advantageous to the company, because they may increase productivity and contribute to a better company and brand image. Moreover, arranging flexible working time to ensure a good work-life balance can reduce overtime effectively and in doing so act as a strategy to improve workers' performance.

In general., the garment industry has a 'vicious circle' structure. Most workers initially have a low skill level, and are either paid low salaries or by the piece, and as a consequence work long hours. This means there are increased absenteeism rates which cause high worker turnover. In order to break this vicious circle, and change to a 'virtuous circle', the hours of work need to be reduced but the wages maintained. This reduces worker turnover and ensures that highly skilled workers are retained. Hence, reducing excessive hours of work is the first step towards change this structure.

In order to improve excessive overtime situations and other related labour standards in the garment industry, there are several suggestions for improvements to management and the work environment. Overtime is driven by inefficient internal production systems, poor human resource management, and inadequate internal communications; hence, a good management system is an essential part of a strategic change. A healthy work schedule is especially important in designing healthy and family friendly working time, and replacing the 'long hour culture' with a 'smart' working culture. In addition, structural improvement can be achieved by adopting shift systems, changing the remuneration system and production methods, and recording and controlling overtime.

Providing a decent occupational health and safety environment can increase labour productivity. In order to achieve this, partnerships with the government are necessary and can more effectively change private sector culture. This, combined with training and education programmes (for both employers and employees) and workers' collective action, is an effective methods of promoting healthy working time. The presence of trade unions can increase the effectiveness of monitoring working time. Furthermore, stakeholders such as global buyers, factories, government agencies and trade unions have different roles to play in creating a better working culture. Stakeholders need to cooperate closely and effectively in order for this to happen. There is a need to seek sustainable and feasible methods in partnership; only then will excessive overtime become an issue of the past.

References

- Alluisi, E.A.; Morgan, B.B. 1982. "Temporal factors in human performance and productivity". In E. Alluisi & E. Fleishman (eds) *Human performance and productivity: Stress performance effectiveness* Vol. 3, pp.165-247 (New Jersey, Lawrence Erlbaum Associates).
- Amador-Rodezno R. 2005. "An overview to CERSSO's self evaluation of the cost-benefit on the investment in occupational safety and health in the textile factories: 'A step by step methodology'", *Journal of Safety Research – ECON proceedings*, Vol. 36, pp.215-229.
- Antle, J. M.; Cole, D. C.; Crissman, C. C. 1998. "Further evidence on pesticides, productivity, and farmer health: Potato production in Ecuador", *Agricultural Economics*, Vol. 18, pp.197-207.
- Anxo, D. et al. 2007. "Implications for working time policies", in Lee et al. 2007. *Working time around the world: Trends in working hours, laws, and policies in a global comparative perspective*. International Labour Office (London, Routledge).
- Anxo, D. and O'Reilly, J. 2002. "Working time transitions and transitional labour markets", in G. Schmid and B. Gazier (eds) *The Dynamics of Full Employment* (Cheltenham, Edward Elgar Publishing).
- Barmby, T.; Ercolani, M.; Treble, J. 2002. "Sickness absence: An international comparison", *The Economic Journal*, 112, June: F315-F331.
- Barnett R. C. 2004. "Work hours as a predictor of stress outcomes", *Long working hours, safety and health: Towards a national research agenda conference*, University of Maryland, Baltimore, Maryland, 29-30 Apr.
- Barrientos S.; Smith S. 2007. "Do workers benefit from ethical trade? Assessing codes of labour practice in global production systems", *Third World Quarterly*, Vol. 28, No.4, pp. 713-729.
- Beswick, J.; White, J. 2003. *Working Long Hours*, (Sheffield, Health and Safety Laboratory).
- Better Factories Cambodia Website: <http://www.betterfactories.org/ILO/training.aspx?z=6&c=1> [15, Sep. 2010]
- Bohle, P.; Quinlan, M. 2000. *Managing Occupational Health and Safety in Australia: A Multidisciplinary Approach* (Melbourne, Macmillan).
- Bosch, G.; Lehdorff, S. 2001. "Working-time reduction and employment: experiences in Europe and economic policy recommendations", *Cambridge Journal of Economics*, Vol. 25, pp. 209-243.
- Brewster, C.; Tregaskis, O. 1996. International comparisons of overtime and annualised hours, *Flexible Working*, Vol. 1, No. 4, pp. 9-11.
- Burton, W. N. et al. 2008. "The association of worker productivity and mental health: A review of the literature", *International Journal of Workplace Health Management*, Vol. 1., No. 2., pp.78-94.
- Caruso, C. C. et al. 2004. *Overtime and extended work shifts: Recent findings on illnesses, injuries, and health behaviors*, U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health (NIOSH).

- Croasmun J. 2003. "Long working hours could be hurting the workplace", *Ergonomics Today*, 26 Nov.
- Dowson T.; Hetmann A.; Kerin A. 2004. "Industry trends, costs and management of long working hours", *Long working hours, safety and health: Towards a national research agenda conference*, University of Maryland, Baltimore, Maryland, in *Work schedules: Shift work and long work hours*, National Institute for Occupational Safety and Health (NIOSH).
- De Greef M.; Van den Broek K. 2004. *Quality of the working environment and productivity: Research findings and case studies*, (Belgium, European Agency for Safety and Health at Work).
- Duffy, C. A.; McGoldrick, A.E. 1990. "Stress and the bus drivers in the UK transport industry", *Work and Stress*, Vol. 4, No. 1, pp. 17-27.
- Ethical Trading Initiative. 2003/04. *Putting ethics to work: Annual report 2003/04*, (London, Ethical Trading Initiative).
- European Industrial Relations Review*. 1994. No. 242, March.
- Ezoe, S.; Morimoto, K. 1994. "Behavioural lifestyle and mental health status of Japanese factory workers", *Preventive Medicine*, Vol. 23, No. 1, pp. 98-105.
- Fagan. 2007. "Gender and working time in industrialized countries", in J. C. Messenger (ed) *Working time and workers' preferences in industrialized countries: Finding the balance*, International Labour Office (London, Routledge).
- Foster, L; Harney, A. 2005. "Doctored records on working hours and pay are causing problems for consumer multinationals as they source their goods in Asia", *The Financial Times*, 22 Apr.
- Fredriksson, K. et al. 1999. "Risk factors for neck and upper limb disorders: Results from 24 years of follow up", *Journal of Occupational and Environmental Medicine*, Vol. 56, No. 1, pp. 59-66.
- Frick, K. et al. 2000. *Systematic occupational health and safety management: Perspectives on an international development*, (Oxford, Pergamon).
- Froberg, J. E. 1977. "Twenty-four hour patterns in human performance, subjective and physiological variables and differences between morning and evening active subjects", *Biological Psychology*, Vol. 5, pp. 119-134.
- Folkard S.; Lombardi D.A. 2004. "Modelling the impact of the components of long working hours on injuries and accidents", *Long working hours, safety and health: Towards a national research agenda conference*, University of Maryland, Baltimore, Maryland, in *Work schedules: Shift work and long work hours*, National Institute for Occupational Safety and Health (NIOSH).
- Galambos, N. L; Walters, B. J. 1992. "Work hours, schedule inflexibility and stress in dual-earner spouses", *Canadian Journal of Behavioural Sciences*, Vol.24, No.3, pp.290-302.
- Gardner, H. H. et al. . 2006. "The economic impact of bipolar disorder in an employed population from an employer perspective", *Journal of Clinical Psychiatry*, Vol. 67, pp. 1209-18.
- Greenberg , P. E. et al. 1993. "The economic burden of depression in 1990", *Journal of Clinical Psychiatry*, Vol. 54, pp.405-18.

Gunn, T. 1982. "The mechanization of design and manufacturing", *Scientific American* (New York), Vol. 247, No. 3.

Hayashi T. et al. 1996. "Effects of overtime work on 24-hour ambulatory blood pressure", *Journal of Occupational and Environmental Medicine*, Vol.38, pp. 1007-1011.

Harrington. 2001. "Health effects of shift work and extended hours of work", *Journal of Occupational and Environmental Medicine*, Vol. 58, No. 1, pp. 68–72.

Hanecke, K. at al. 1998. "Accident risk as a function of hour at work and time of day as determined from accident data and exposure models for the German working population", *Scandinavian Journal of Work, Environment and Health*, Vol. 24, No.3, pp. 43-48.

Hogarth, T. et al. 2001. *Work-life balance 2000: Results from the baseline study* (Norwich, UK Department for Education and Employment).

Hurst, R.; Murdoch, H.; Gould D. 2005. "Changing over time: Tackling supply chain labour issues through business practice", *The Impactt Overtime Project*, Impactt Limited.

Houston, D. M.; Allt, S. K. 1997 "Psychological distress and error making among junior house officers", *British Journal of Health Psychology*, Vol. 2, pp. 141-151.

International Labour Organization (ILO). 2010. *Better Work Jordan: Garment industry 1st compliance synthesis report* (Geneva, International Labour Office).

International Labour Organization (ILO). 2009. *Key indicators of the labour market (Sixth Edition)* (Geneva, International Labour Office).

International Labour Organization (ILO). 2005. *General survey of the reports concerning the Hours of Work (Industry) Convention, 1919 (No. 1), and the Hours of Work (Commerce and Offices) Convention, 1930 (No. 30)*, International Labour Conference 93rd Session 2005, third item on the agenda: Information and reports on the application of Conventions and Recommendations, Report of the Committee of Experts on the application of Conventions and Recommendations (article 19, 22 and 35 of the constitution) (Geneva, International Labour Office).

International Labour Organization (ILO). 1958. *Hours of work: A world survey of national law and practice* (Geneva, International Labour Office).

lunes, R. F. 2002. "Occupational safety and health in Latin America and the Caribbean: Overview, issues and policy recommendations", *Labour Markets Policy Briefs Series*, Sustainable Development Department, Social Development Division, Operational Department 3, Inter-American Development Bank.

Iwasaki, K. et al. 1998. "Effect of working hours on biological functions related to cardiovascular system among salesmen in a machinery manufacturing company", *Industrial Health*, Vol. 36, pp. 361-367.

Joint Initiative on Corporate Accountability and Workers Rights (JICAWR). 2005. *Work hours, overtime, and codes of conduct*, JICAWR.

Kang, C.; Darnet, L. 2010. "Tracking study of Cambodian garment sector workers affected by the global economic crisis", Second tracking survey, Final report, International Labour Office, Better Factories Cambodia.

Kerin, A. 2003. *Overtime in extended hours operations: Benefits, costs, risks, and liabilities* (Lexington, Massachusetts: Circadian Technologies).

Kerin, A.; Carbone, J. 2003. *Financial opportunities in extended hours operations: Managing costs, risks, and liabilities* (Lexington, Massachusetts, Circadian Technologies).

Kessler, R. C. et al. 1994. "Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States: Results from the National Comorbidity Study", *Archives of General Psychiatry*, Vol. 51, pp. 8-19.

Kirkcaldy, B. D., Trimpo, R.; Cooper, C.L. (1997) "Working hours, job stress, work satisfaction and accident rates among medical practitioners and allied personnel", *International Journal of Stress Management*, Vol. 4, No. 2, pp. 79-87.

Knight, A. 1995. *Long hour culture*. Report presented at Institute of Personal Development Conference, Harrogate, UK, (London, Austin Knight).

Kojola B. 2004. "Organized labor's response to long work hours", *Long working hours, safety and health: Towards a national research agenda conference*, University of Maryland, Baltimore, Maryland, in *Work schedules: Shift work and long work hours*, National Institute for Occupational Safety and Health (NIOSH).

Lamm, F.; Massey, C.; Perry, M. 2007. "Is there a link between workplace health and safety and firm performance and productivity?", *New Zealand Journal of Employment Relations*, Vol. 32, No. 1, pp. 72-86.

Lee, S.; McCann, D.; Messenger J. C. 2007. *Working time around the world: Trends in working hours, laws, and policies in a global comparative perspective*, International Labour Office (London, Routledge).

LeGrande D. 2004. "Overtime, occupational stress, and related health outcomes: A labor perspective", *Long working hours, safety and health: Towards a national research agenda conference*, University of Maryland, Baltimore, Maryland, in *Work schedules: Shift work and long work hours*, National Institute for Occupational Safety and Health (NIOSH).

Liu, Y.; Tanaka, H. 2002. "Overtime work, insufficient sleep, and risk of non-fatal acute myocardial infarction in Japanese men", *Journal of Occupational and Environmental Medicine*, Vol. 59, No. 7, pp. 447-451.

Locke, R.; Kochan, T.; Piore, M. 1995. "Reconceptualizing comparative industrial relations: Lessons from international research", *International Labour Review*, July, (Geneva, International Labour Organization).

Lunes R. 2002. "Occupational Safety and Health in Latin America and the Caribbean: Overview, Issues and Policy Recommendations". (Washington, IADB).

- Mamelle, N.; Laumon B.; Lazar, P. 1984. "Prematurity and occupational activity during pregnancy", *American Journal of Epidemiology*, Vol. 119, pp.309-322.
- Maruyama, S.; Morimoto, K. 1996. "Effects of long work hours on life-style, stress and quality of life among intermediate Japanese managers", *Scandinavian Journal of Work, Environment and Health*, Vol. 22, pp.353-359.
- Mather, W. 1884. "The forty eight hour week: a years experiment and its results at the Salford Iron Works, Manchester". (Manchester, Guardian Printing Works).
- Meager, N. et al. 2002. "Working long hours in the UK executive summary: A review of the research literature, analysis of survey data and cross-national organizational case studies", *Employment Relation Research Series, No. 16.*, (United Kingdom, Department of Trade and Industry).
- Mehran, F. 2005. *Measuring excessive hours of work, low hourly pay, and informal employment through a labour force survey: A pilot survey in the Philippines*, presented at United Nations Economic Commission for Europe (UNECE)/International Labour Organisation (ILO)/Eurostat Seminar on the Quality of Work, Geneva, May.
- Messenger J. C. 2004. *Working time and workers' preferences in industrialized countries: Finding the balance*, International Labour Office (London, Routledge).
- Mizoue, T.; Reijula, K.; Andersson, K. 2001. "Environmental tobacco smoke exposure and overtime work as risk factors for sick building syndrome in Japan", *American Journal of Epidemiology*, Vol. 159, No. 9, pp. 803-808.
- Morgenstern, H. et al. 1991. "A cross-sectional study of hand/wrist symptoms in female grocery checkers", *American Journal of Industrial Medicine*, Vol. 20, pp.209-218.
- Nakamura, K. et al. 1998. "Increases in body mass index and waist circumferences as outcomes of working overtime", *Journal of the Society of Occupational Medicine*, Vol. 48, No. 3, pp. 169-173.
- Nevison J. 1992. *White collar project management questionnaire report*, (Concord, Massachusetts, Oak Associates).
- O'Donnell M. P. 2000. "Health and productivity management: The concept, impact, and opportunity. Commentary to Goetzel and Ozminkowski." *American Journal of Health Promotion*, Vol. 14, pp. 215-217.
- Organisation for Economic Co-operation and Development (OECD). 2001. *Measuring productivity: Measurement of aggregate and industry-level productivity growth* (Paris, OECD.)
- Organisation for Economic Co-operation and Development (OECD). 2001. "Work and Family life: How do they balance out?", *OECD Employment Outlook 2001* (Paris, OECD).
- Ong, S. G. et al. 1982. "A study of major factors associated with severe occupational hand injury in Hong Kong island", *Journal of the Society of Occupational Medicine*, Vol. 32, pp. 82-88.
- O'Rourke D. 2000. "Monitoring the monitors: A critique of PricewaterhouseCoopers (PwC) labour monitoring", Unpublished manuscript, Department of Urban Studies and Planning, Massachusetts Institute of Technology, pp.1-15.

- Proctor, S. P. et al. 1996. "Effect of overtime work on cognitive function in automotive workers", *Scandinavian Journal of Work, Environment and Health*, Vol. 22, pp. 124-132.
- Raggatt, P. T. F. 1991. "Work stress among long-distance coach drivers: A survey and correlational study", *Journal of Organisational Behaviour*, Vol. 12, pp.565-579.
- Riedel, J. E. et al. 2001. "The effect of disease prevention and health promotion on workplace productivity: A literature review", *American Journal of Health Promotion*, Vol. 15, pp. 167-191.
- Salinger M. et al. 2005. *Measuring competitiveness and labour productivity in Cambodia's garment industry*, Nathan Associates Inc., United States Agency for International Development (USAID).
- Sanderson, K.; Andrews, G. 2006. "Common mental disorders in the workforce: Recent findings from descriptive and social epidemiology", *Canadian Journal of Psychiatry-Revue Canadienne de Psychiatrie*, Vol. 51, No.2, pp.63-75.
- Shearn, P. 2003. "Case examples: Business benefits arising from health and safety interventions", , Research Report Series No. 13. (Sheffield, Health and Safety Laboratory).
- Shepard E.; Clifton T. 2000. "Are long hours reducing productivity in manufacturing?", *International Journal of Manpower*, Vol. 21, No. 7, pp. 540-552.
- Shields, M. 1999. "Long working hours and health", *Health Reports.*, Vol. 11, No.2, pp. 33-48.
- Siu, O-L; Donald, I. 1995. "Psychosocial factors at work and workers' health in Hong Kong: An exploratory study", *Bulletin of Hong Kong Psychological Society*, No. 34-35, pp. 33-48.
- Spurgeon, A. 2003. *Working time: Its impact on safety and health*, International Labour Office, Occupational Safety and Health Research Institute, Korea Occupational Safety and Health Agency.
- Statistics Canada. 2000. *Women in Canada 2000: a gender-based statistical report*, pp. 89-503-XPE (Ottawa, Statistics Canada).
- Stoop, S. 2005. "Overtime and excessive overtime: Legal requirements, compliance situations and opportunities for the Turkish (Istanbul) garment industry", *Briefing Paper No. 3*, Joint Initiative on Corporate Accountability and Workers Rights.
- The World Bank Group. 2003. "Race to the top: Attracting and enabling global sustainable business", *Business Survey Report*, Social Responsibility Practice, Project undertaken by Political and Economic Link Consulting and Ethical Corporation Magazine.
- Towers Perrin; Gang and Gang. 2003. *Working today: Exploring employees' emotional connections to their jobs* (New York, Towers Perrin).
- Trinkoff A.M., and Storr C.L. 1998. "Work schedule characteristics and substance use". *Am J Ind Med* 34:266-271.
- Uehata, T. 1991. "Long working hours and occupational stress-related cardiovascular attacks among middle-aged workers in Japan", *Journal of Human Ergology*. (Tokyo), Vol. 20, pp. 147-153.
- UK Department for Education and Employment et al. 2000. *Creating a work-life balance: A good practice guide for employers*, Department for Education and Employment (Sudbury), September.

Van der Hulst M.; Geurts, S. 2001. "Associations between overtime and psychological health in high and low reward jobs", *Work Stress*, Vol. 15, No. 3, pp. 227-240.

Verité. 2004. "Excessive overtime in Chinese supplier factories: Causes, impacts, and recommendations for action", *Verité Research Paper* (Sep. 2004), Massachusetts.

Vernon, H. M. 1921 *Industrial fatigue and efficiency* (New York, E. P. Dutton & Co.).

Virtanen M. et al. 2010. "Overtime work and incident coronary heart disease: The Whitehall II prospective cohort study", *European Heart Journal*, May.

Westman, M.; Eden, D.; Shirom, A. 1985. "Job stress, cigarette smoking and cessation: The conditioning effect of peer support", *Social Science Medicine*, Vol. 20, No. 6, pp. 637-644.

White. 1987. *Working hours: Assessing the potential for reduction* (Geneva, International Labour Office).

Workers Rights Consortium. 2003. "Worker Rights Consortium assessment Re Pt Dae Joo Leports (Indonesia) and Re Kawasan Berikat Nusantara Export Processing Zone", *Marunda and Cakung Branches (Indonesia) findings and recommendations*, 23 Aug.

The Better Work Discussion Paper Series is an original, peer-reviewed series that presents rigorous, work-in-progress research material for comment and feedback. It is addressed to researchers, policymakers and development practitioners to generate comments and encourage discussion.

The Better Work global programme is supported by (in alphabetical order):

- Australian Agency for International Development (AusAID)
- Federal Ministry for Economic Cooperation and Development, Germany (BMZ)
- International Finance Corporation (funds provided by IrishAid and The Walt Disney Company)
- Netherlands Ministry of Foreign Affairs
- State Secretariat for Economic Affairs, Switzerland (SECO)
- Funding from the United States Council Foundation, Inc. provided by select USCIB member companies



International
Labour
Office



IFC

International
Finance Corporation
World Bank Group