Chapter 2

Conceptualisation and Methodology

Conventional understanding of the interrelationship between work and health centres largely on occupational health hazards. This theoretical formulation was emerged during the period of industrialisation in the late eighteenth and nineteenth centuries in the Western countries. The discussions on work and health hence could be traced back to the period of industrial revolution. Ramazzini's (1700) work on the conditions of stone masons and miners possibly was the first substantial attempt to bring occupational hazards in the discussions of health. It drew attention on the eye problems of the workers who were engaged in occupations such as gilding and printing. Occupational health hazards thereafter gained importance in the debates of work and health.

Another traditional understanding of health and work relates to the models of work, especially in the rubric of forms and types of work (Daykin, 1999). Earlier attempts to conceptualise work and health considered barely the typical employment, which has a definite nature and structure of production organisation, usually performed in centralised production environments. However, there have always been different forms and types of work, which are performed by skilled, semi-skilled and unskilled workers. The perspective of work and health, which centred on typical employment, hence, excludes those forms and types of work of a wide spectrum of workforce who are engaged in atypical work, including unskilled and semi-skilled workers, children and paid and unpaid women workers as well as its significant associated factors of health. This necessitates re-examining the conceptual premises of work and health and expanding its scope beyond occupational safety and health and formal employment to more qualitative aspects of well being.

This chapter examines the linkages of work and health in a broader framework. It seeks to delineate how health needs of workers were perceived and addressed in line with the changes in the world of production organisation and relations by surveying relevant literature. By examining work and health through the linkages of production and labour relations, it attempts to develop a framework for analysis.
Work and Health: A Survey of Literature

Early developments in the field of work and health can be found in the writings of Agricola (1556). Though his book *De Re Metallica* dealt more on mining and metallurgy, it gives a fair account of the diseases of miners and major causes of death of workers during that period. Similarly, works of Paracelsus and Ellenborg in the fifteenth century give a note of the occupational health problems of workers in the gold and mercury mines. The work of Ramazzini, an Italian physician, in 1700 on the health problems of stone masons, gilders, tinsmiths and blacksmiths opened up a new branch of industrial medicine. His work, *The De Morbis Artificum Diatriba* was an original attempt in the field of trade diseases and industrial hygiene. Ramazanni was the first to recommend occupational safeguards for the workers who were labouring under unsanitary conditions (Robinson, 1941). This had posed questions on the traditional diagnosis patterns of practitioners and underscored the importance to take note of the occupational and social situation of the patient while making a diagnosis. Building on the foundations laid by Ramazzini, Thomas Percival and Robert Owen, the two eighteenth century physicians, attempted to view diseases in the specific context of the nature of work that people engaged in. Percival studied factors such as conditions and hours of work in his work on typhus epidemic. This had not only contributed to the body of knowledge of work and health but to significant social reform initiatives such as the enactment of the first factory bill that came to be known as *The Health and Morals of Apprentices Act, 1802*. This was followed by a great deal of legislation pertaining to employment conditions. Robert Owen incorporated aspects such as workers' level of awareness and education for assessing workplace health. His inferences were derived out of an experimental research, which had been conducted in his own mill. The study revealed that reduction in the hours of work, adult education and elimination of child

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1 *De Re Metallica*, originally written in French in 1556, was the first documented attempt in industrial medicine. It tried to reflect the hazardous occupational conditions of miners of that period. For more details please see, Agricola (1556), *De Re Metallica* available at http://archimedes.mpiwg-berlin.mpg.de/cgi-bin/toc/toc.cgi?step=thumb&dir=agric_remeU)()Ua_1556, accessed on 21 September, 2007.

2 The Health and Morals Apprentice Act was introduced in 1802 in Britain. This legislation was the first attempt at reforming working conditions in factories, especially textiles mills that used child workers. The Act attempted to legislate for apprentices, especially children and fixed a maximum twelve-hour working day for children. It also contained provisions for hygiene, ventilation, rest rooms, cloths and education for apprentices. For more details see, Greenwood, Major and Collis, L. E (1977)
labour had improved the health status of workers. This had also contributed to the enactment of an Act for protecting young people in textile mills, prohibition of child labour and reduction in the working hours to ten for minors. The notable finding of his work was the association he identified between education and improvement of work environment (Wilkinson, 2002).

The theoretical premise of work and health was further expanded in the nineteenth century with the contributions of Charles Turner Thackrah, Anthony Ashley Cooper, E. H. Greenhow and John Thomas Aldridge. Among them, Thakrah, Greenhow and Aldridge who were English physicians, contributed academically to the foundations of the stream by publishing their works. The work of Thakrah, *The Effects of the Principal and Professions and of Civic States and Habits of Living on Health and Longevity*, published in 1832 was a milestone in the history of occupational medicine. Greenhow further strengthened the foundations laid by his forerunners scientifically by conducting an experimental study on crude death rates from pulmonary diseases in one of the lead mining towns in England with a control group from a nearby town. The association between chronic inhalation of dust and fumes and increased mortality was established by this work and it led to the implementation of some of the regulatory measures to control dust and fumes in the work environments. Similarly the work of Aldridge on the diseases of potters reinforced the association between filthy work environment and diseases.

Though there were substantial efforts to conceptualise work and health earlier, an ensconced model of workplace health was evolved in the context of industrialisation. The major focus of health of workers in the earlier period was on the hazardous physical environment that they faced at workplace. Within this framework, the relationship between work and health was established by identifying the unhealthy working conditions and occupational health hazards that prevailed in the period of industrialisation in the newly industrialised countries. There are quite a large number of evidences of deterioration of health of the labouring population due to their exposure to unhygienic and hazardous work environment in the context of the expansion of precarious employment subsequent to industrial revolution in Europe. History illustrates that industrialisation in Europe brought about several structural changes in the production and labour market structure. The transition from
agriculture economy to industrial capitalism resulted in the making of unskilled workforce. The British example showed that the development of industrial capitalism brought about the decline of traditional agriculture economy and massive unemployment in the sector (Doyal, 1979). The newly emerged working class, who were agriculture labourers, were forced to migrate to urban centres to work in the industrial settings (Ibid, p. 50). The abundant supply of labour force, largely due to the labour migration to industrial centres, decreased their demand in the labour market. This situation enabled the employers to hire labour at low costs without any additional efforts to retain them with incentives and benefits.

The process of industrialisation hence formed the context of analysis of much of the questions on work and health of the time. It was in this context that Engels, Chadwick and Rosen put forward their arguments on the relationship between work and health. The contribution of Engels has been rather significant in the field of work and health as he incorporated wide range of aspects such as nature of production organisation, class hierarchy and State in explaining work and health conditions. Engels observed that prevalence of this situation in Britain was primarily due to the rapid shift of the British economy to industrial capitalism. He argued that the problems of work and its adverse impacts on health of workers were the effects of capitalism that prevailed in the nineteenth century and the root cause of illness and death of the working class lays in the organisation of economic production and social environment (Engels, 1845). In his observation, industrialisation had reorganised production relations and class structure in several European countries. The new capitalist system thus created, forced the working class to live and work within the circumstances that led to ill health (Ibid).

Engels also highlighted the work induced behavioural risk factors of health. His analysis of alcoholism among workers, for instance, drew attention to work-related behavioural risk factors of health. He observed that alcoholism was firmly rooted among workers as a substitute for the absence of emotional gratification (Ibid, p. 142). His analyses also encompassed the unnoticed aspects of occupational health risks such as postures of the workers at workplace and stress, besides accidents and injury. Engels pointed to the orthopaedic disorders that stemmed from physical works and identified that curvature of spine, deformities of the lower extremities, leg
ulcers, flat feet and varicose veins as the manifestations of work that required long period of time in an upright posture (Ibid, pp. 190-193).

Engels pointed out the impact of social and living environment on health of workers, which were determined by their nature of employment. In his work, *The Housing Question*, Engels discussed how the problem of inadequate housing led to filthy living conditions of workers in the industrial centres of Germany and the way in which industrialists and the State attempted to solve the problem (Engels, 1872). Engels probed into class politics and he brusquely criticised all the reactionary policy reforms by the industrialists and the State. Giving new dimensions to the theoretical foundations of work and health, Engels argued, “it is not that the solution of the housing question simultaneously solves the social question, but that only by the solution of the social question, that is, by the abolition of the capitalist mode of production, is the solution of the housing question made possible” (Ibid, p.143). Engels’s analysis also addressed the gender division of work, which was assumed to have significant impacts on the health of women. Engels pointed out the specific problems of women such as deprivations, exploitation and harassment at workplace and their multiple responsibilities. Engels, thus, broadened the scope of work and health from the contours of industrial medicine and occupational health to wider areas of class politics, production organisation, hierarchy, social environment, gender division of labour and work-related behavioural risk factors and placed in the broader canvas of social origin of illness.

The nineteenth century also witnessed several health movements pioneered by people like Edwin Chadwick. Sanitary Movement was one among them. Sanitary movement has a place in the history of public health as it identified and explicated the social context of health problems. With the publication of the report of *Poor Law Commission* in 1842, which underlined the association between filthy living and working environment and epidemic diseases, Chadwick expanded the Chadwickian tradition that formed the pillars of social model of health. The report highlighted the pertinence of prevention of diseases by the provision of clean water supplies,

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3 Sanitary movement was one of the major public health initiatives in Europe in the context of industrial revolution during 1840s. It was based on the report by Edwin Chadwick on the “Sanitary Conditions of the Labouring Populations of Great Britain published in 1842. For a detailed discussion on sanitary movement, see Hamlin, Christopher (1998).
effective sewerage and drainage, cleaning of roads, control of industrial effluent and establishment of new standards of environmental and personal cleanliness (Rosen, 1943; 1958). Subsequently, the Public Health Act of 1848\(^4\) was passed and the historic Public Health Movement came into existence.

Works after Engels and Chadwick tended focus more on relating occupational conditions and psychological distress to health. By that period, through social legislations and public health movement, workplace health problems, to a certain extent, were addressed in all industrial societies. It is important to note that much of the legislative interventions of that time were grounded on the theories of Malthus, Ricardo and Bentham. For instance, Malthus, Ricardo, and Bentham argued for a change in the welfare interventions through the amendment of Elizabethan Poor Laws based on their theories of population and poverty\(^5\), iron law of wages\(^6\) and stigmatising relief\(^7\) respectively. In 1834, The Poor Law was amended in Britain with the principles of exclusion of less eligibility\(^8\) and the workhouse test\(^9\), emphasised in the Poor Law Commission. The period from 1870s to late 1930s witnessed the beginning of State intervention through the enactment of various Acts related to public health, labour and welfare. By the end of nineteenth century, several European countries introduced legislations against industrial injuries; by the outbreak of the First World War, many had passed legislations for retirement pensions and health insurance; and by the outbreak of the Second World War most had introduced insurance schemes against unemployment (George and Page, 1995).

\(^4\) The Public Health Act of 1848 was enacted in Britain in the context of the sanitary movement followed by the publication of Chadwick’s Sanitary Report in 1848. For detailed discussion on the Act, see, Porter, Dorothy (1999).

\(^5\) Malthus argued that population was increasing beyond the ability of the country to feed it. The Poor Law was seen as an encouragement to illegitimacy, and this would lead in turn to mass starvation. For more discussion see, Poynter (1960).

\(^6\) Ricardo’s iron law of wages was believed to show that the Poor Law was undermining the wages of independent workers together with the roundsman system, where paupers were hired out at cheap rates to local employers. For more discussion see, Poynter (1960).

\(^7\) Bentham argued that people did what was pleasant and would not do what was unpleasant - so that if people were not to claim relief, it had to be unpleasant. This was the core of the argument for stigmatising relief. For a discussion see, Poynter (1960).

\(^8\) Less eligibility was an elimination criterion of the people from assistance. As per the less eligibility criterion, the position of the poor must be 'less eligible', or less to be chosen, than that of the independent labourer. For a discussion see, Poynter (1960) and Laybourn (1995).

\(^9\) Workhouse test, similar to less eligibility was an exclusion criterion. It emphasised on not giving relief outside the workhouse. For a discussion see, Fraser (1973) and Bruce (1978).
In Britain, series of legislative measures such as *Employment Liability Act* (1880), *Notification of Diseases Act* (1895) and *Workman's Compensation Act* (1908) were introduced during the period of liberal reforms between 1880 and 1920 (Ibid, p.6). In Sweden, in response to the impact of industrialisation and massive emigration, legislations pertaining to social insurance and old age pension schemes were introduced. After 1930 since the election of Social Democratic led Government, services such as housing, maternity benefits, pension payment etc. were introduced for workers (Ibid.). Similarly in Germany, legislations against industrial accidents, for health insurance protection, retirement pension and employment benefits were introduced during this period. Thus as a response to the adverse effects of industrialisation, State intervened in many cases and introduced remedial measures. State provision of public measures was more evident in the post Second World War period. For instance, in Britain the development of National Insurance and National Health Service was introduced in this period, largely based on the *Beveridge Report* of 1942, which proposed a system of national insurance.\(^{10}\)

There were three important developments, which catalysed the introduction of welfare provisions for the working class during this period. First was the working class pressure for better working and living conditions. The *Great General Strike* of 1920s and 1930s is a classic example of it. The Trade Union Congress (TUC) in 1924 came up with series of demands pertaining to clean working conditions, control of working environment and space for bargaining (Wilkinson, 2002; *op. cit*). Second was the need to sustain and improve industrial production, which started declining due to the appalling health conditions of workers. For instance, introduction of health policies in Britain during the consolidation of industrial capitalism was largely to sustain production, which was severely hampered by the decline health conditions of workers (Doyal, 1979; *op. cit*). Similarly, the development of industrial health policies in the beginning of twentieth century in many of the colonies in Asia and Africa was due to the increased prevalence of infectious diseases like tuberculosis and malaria that decelerated production. For instance, industrial health policy in South Africa was developed in the context of the

\(^{10}\) The *Beveridge Report* proposed a system of national insurance in Britain based on family allowances, a National Health Service and full employment. The report considered the whole question of social insurance, arguing that want could be abolished by a system of social security organised for the individual by the state. For a discussion, see Cole, G.D.H. (1942).
decline of production in goldmines due to higher rate of disability of workers due to tuberculosis (Packard, 1987). Third was war emergency. When closely examined, it is seen that the reform and welfare measures in the industrial societies were largely introduced out of the economic interests of capitalists. Welfare provisions for workers were introduced in order to improve profitability and legitimisation of the capitalist system.

**Regimes of Production Relations: Post War Welfarism to Neoliberalism**

The origin of welfare state was primarily around the introduction of social insurance, extension of citizenship and the de-pauperisation of public welfare and growth of social expenditure (Pierson, 2006). The theoretical works of welfare economists like Keynes, Pigeau, and Schumpeter in fact provided sufficient justification for increased taxation, deficit financing for welfare activities during this period. It should be noted that most of the policy reforms and state interventions in the golden era of welfare state assume its theoretical edification from the works of these welfare economists. Based on it, by 1945, the vision that aggregate demand through public spending must be used to maintain full employment was well entrenched (De Regil, 2001). The social insurance scheme was derived from the works of Beveridge and Keynes, which underscored that the incapacity to earn a living through eventualities such as old age, sickness or unemployment was normal conditions in societies and it was the responsibility of the state to organise for the collective provisions against the loss of income arising out these eventualities (Flora and Heidenheimer, 1981). Similarly, based on their positions, the notion of citizenship

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11 The term neoliberalism here refers to the "policies and processes whereby a relative handful of private interests are permitted to control as much as possible of social life in order to maximise their personal profit" as Robert W. McChesney defines. The term neoliberalism suggests a system of principles that is based on the classical liberal ideas, originating from the theories of Adam Smith. Here the term is used as the defining political and economic paradigm, which explains the present production relations in the context of diminishing role of nation States and emerging role of market. For a detailed discussion on neoliberalism, see, Jessop (1992), McChesney (1999) and Chomsky (1999).

12 Keynes was the economist who took a complete theoretical and practical departure from the classical paradigm and succeeded in influencing the economic policies of many nations. He challenged the assumption of full employment of resources. He argued that the adequate level of wages and interests would not produce an allocation of all workers into employment and all capital into investment. He asserted that discretionary behaviours from the investors define their disposition to invest in productive ventures; and that these behaviours could be rooted in their perception of the market opportunities or simply rooted on personal reasons that had nothing to do with the economy. For details, see, Keynes (1936).
was rearticulated as “the receipt of public welfare is not a barrier to political participation, but a benefit of full citizenship” (Goodin, 1988). Consequently, public provisioning with regard to social insurance and social expenditure witnessed an increase in the welfare states.

As mentioned earlier in this chapter, every phase of transition of production organisation is associated with certain specific developments, which always have an impact on working conditions and health. For instance, the post war welfarism brought about definite policy reforms and regulated the labour market by enacting labour legislations and social security interventions. The nature of State intervention in the welfare provisions of the workers in the capitalistic production had paramount implications on labour relations. State intervention was in such a way that it freed the industrialists from the responsibilities of public welfare to some extent. Thus it encouraged the capitalistic economic growth unfettered (Pierson, 2006; op. cit.). The impact of these developments had reflected on the labour relations during the period of the crisis of welfarism in many countries.

Post war period also witnessed the emergence of new regulatory regimes and world systems. The re-emergence of the relevance of International Labour Organisation (ILO) has to be closely seen with the rise of social welfare policies, which brought about the ‘capital-labour compromise’. With the Great Depression and, then, World War II, the need to implement international financial regulatory framework emerged to support reconstruction and development of the nations of North and South. Especially, late 1940s was characterised by the establishment of new international organisations which are known as ‘Brettonwoods Institutions’ such as GATT, World Bank, IMF. Though their interventions were minimal in the initial phase, later these organisations emerged as major actors in the changing international political economy, especially in the context of the crisis of 1970s.

There is a common agreement that the welfare states were characterised by the slowing of economic growth, fiscal strain and ageing of population in the late 1970s and 1980s. For instance, between 1965 and 1973, the economies of OECD countries showed an annual average growth rate of about 5 percent, in 1974, it fell to 2 percent and in 1975, it was below zero for nine OECD countries (Pierson, 2006, op. cit.). Declining economic growth rates coupled with the oil price rise put many countries
into crisis and resulted in the reduction of public expenditure, introduction of privatisation, and rolling back of the frontiers of the state wherever possible (Alber, 1988). Crisis of welfare state and crisis subsequent to the abysmal hike of oil prices had its impacts on the real world and economies of developing and underdeveloped world.

Most of the countries, which faced fiscal crisis, had to look forward to International Financial Institutions and countries of the North for loan servicing and financial aid. However, International financial institutions such as World Bank and International Monitory Fund (IMF) put forward certain policy reforms for securing and regaining economic growth. It included fiscal discipline i.e. small deficit in government budget, tax reforms pertaining to reduction of marginal rates, prioritisation of public expenditure on investment than redistribution and deregulation with regard to labour market (Pierson, 2006, op. cit.). Eventually, these policies, which were suggested by the international financial institutions, became part of the ‘conditionality’ of aid. Thus the policies of economic liberalisation, with emphasis on fiscal discipline, tax reforms, reduced public expenditure and deregulation were adopted by several developing and underdeveloped countries, which received aid from international financial institutions.

Subsequently, these countries embarked to structural adjustment policies such as pricing policy, fiscal policy, monetary policy, trade policy, land policy and institutional reforms such as financial and health sector reforms in order to stabilise the economy (Gupta, 1995). Among these, trade policies, which include export promotion, trade liberalisation and deregulation of labour market have significant place in labour relations since it accompanied with a new pattern of global trade. Major developments that have taken place in the global level subsequent to trade liberalisation are the global integration of production, sectoral shift from industry to the service sector in the developed countries and the international division of labour13 between North and South. It is well-entrenched that policies of trade liberalisation allowed the industries of the industrialised countries to enter the low cost production locations in the developing countries, which are labour intensive (Carr and Chen, 2001). Literature evidences that it contributed to the decline of

traditional industries like textiles, footwear and steel in these countries (Despande, 1999). Second is the new international division of labour, which configures a new division of labour between the advanced and the developing countries (Gordon, 1988).

It is widely noted that trade policies in various countries have brought about remarkable changes in the domestic labour market structure. Major changes in the labour market were flexibilisation of production, dismantling of labour laws, subcontracting of production and informalisation of formal sector (Gupta, 1995; Carr and Chen, 2001; op. cit; Pais, 2002; Unni, 2002). Similarly, a change in the employment pattern, mainly from formal to informal, organisation based to home based, wage based to piece rate based is appeared in many sectors. Flexibilisation of labour market\(^\text{14}\) is one of the major implications subsequent to structural adjustment programmes on the labour market that contributed to the expansion of informal sector (Nath, 1994). The demand for flexibility of labour market is grounded on the logic of flexible specialisation that any intervention by the State, trade union or any other institutions on wages, employment and work allocation would affect production and hinder employment generation. Though there are no substantial evidences to support this argument, labour market flexibilisation led to the increase in the incidence of casual workforce in the industries of the organised and the unorganised sectors in the developing countries on the other hand (Carr and Chen, 2001; op. cit.). Practices of sub-contracting, decentralisation of production to informal settings, informalisation of formal sector and casual employment, which have contributed to the expansion of informal employment, have been legitimised by the practice of flexibilisation of labour.

The number of workers in the informal working environments has significantly increased; attributable largely to this development. Available evidences show that, in several countries, during the period of economic reform, the informal economy expanded due to the mobility of workers in the formal sector to the informal sector

\(^{14}\) Labour market flexibility here refers to freedom of enterprises in deciding wages, employment and labour processes unfettered by any institutional and legal restrictions subsequent to the trade policy reforms. The demand for flexibility of labour market is mainly because of the market logic that any intervention by the state, trade unions or any other institutions on wages, employment and work allocation would affect production and hinder employment. For a discussion, see, Nath, G. B. (1994).
when public enterprises are closed or downsized (Breman, 2001). Another set of factors of informalisation of labor relates to economic growth. For instance, several countries have experienced little or no economic growth, while others have pursued capital-intensive growth with no significant employment generation, often referred to as jobless growth (Carr and Chen, 2001; op. cit). This may push job seekers in the formal sector, in both these contexts, to seek jobs in the informal sector.

As mentioned above, last two decades of the twentieth century witnessed an expansion of the informal sector, especially in the secondary and tertiary sectors, subsequent to liberalisation and economic reforms in the developing world. The linkages of informal employment and ill health have become strong and appropriated through external interventions and macro policies such as labor market reforms and health sector reforms. The manifestations of labor market reforms such as deregulation of labor market increased competition, labor market flexibilisation and sub-contracting are linked to excessive hours of work, the use of stimulants and other hazardous work practice and low wages (Quinlan et al., 2001). The specific policies of structural adjustment such as trade and institutional reforms limit the accessibility of workers to food, infrastructure facilities and their right to entitle the labor standards and statutory benefits. Health sector reforms and its implications such as user fee public-private partnership and cut down of public expenditure on health further decrease the health accessibility of the poor in general and the informal workers in particular. Therefore health consequences of informal employment are to be studied by situating the working and living conditions of workers in the context of such macro policies.

Following part of the chapter presents a survey of relevant literature that dealt with the theoretical and empirical analysis of work and health within the premises of the above mentioned macro-micro linkages, especially in the context of labor market deregulation and flexible production. Scope of the survey of literature is limited to studies that explicated health indicators such as morbidity, health care service availability and utilisation, health seeking behaviour, physically dangerous and psychologically stressful conditions of work in the context of nature of production organisation, labor market participation, labor market restructuring, flexible production organisation, casualisation, job security and labor relations.
Health of Workers under Changing Patterns of Employment

The significant recent development of production organisation, which is influenced by the changes in the real world, is flexible production. It is functionally defined as the ability to adapt rapidly to changes in conditions of work and technology. There are five types of defined flexibilities, namely numerical, functional, temporal and wage flexibility. Numerical flexibility implies the adjustment of labour inputs to changes in output and demand. Functional flexibility is the match between available workers and vacancies; temporal flexibility is the variety of working time arrangements, locational flexibility is the range of locations where work is undertaken and wage flexibility is the matching pay to productivity and profitability (Adnett, 1996). Outstanding among these different types of flexibility have been the growth of atypical or precarious employment and the decline of the standard full-time, permanent employment. Precarious employment could be any type of atypical employment including part-time work, on-call contracts, fixed-term contracts, seasonal work, agency work, home based work, tele-working, freelancing, self-employment and informal work (Delsen, 1991).

It is important to note that organisation of production largely determines the nature of employment, whether formal or informal, paid or unpaid, home based or firm based, regular or contract. Flexible production has rearranged the capital-labour relations and brought about structural changes in the labour market such as flexibilisation, sub-contractualisation and casualisation and redefined the conventional employment relations. Precarious employment thus emerged has significant impacts on the health of the labouring population. Quinlan et al (2001) categorised the factors linking precarious employment to adverse occupational health and safety outcomes as economic and reward pressures on precarious workers, disorganised work processes or settings and the weakening or bypassing of conventional regulatory regimes. By examining these factors in the studies conducted in various environments Quinlan, et al concluded that precarious

15 Flexible production or specialisation here refers to the post-Fordist stream of organisation of production. It could be functionally defined as “manufacture of a wide and changing array of customised products using flexible, skilled, semi skilled or un-skilled, but adaptable workers”. In practice, it is decentralisation of production through small units and sub-contracting arrangements. It is often manifested as casualisation, deregulation and precarious working arrangements. For more discussion on flexible production and labour market flexibility, see Sabel, C. F. (2004); Robbins, S (1997) and Papola, T. S. (1994).
employment is associated to inferior health outcomes through factors such as workers' pressure in terms of competition for jobs, contracts, pressure to retain a job and liveable income, low level of organisation and non-regulation (Ibid).

Workplace reorganisation as a result of the combination of increased international competition, introduction of new technologies, de-industrialisation, repeated recessions and the privatisation of previously state owned industries, have led many industries and individual companies to engage in reorganisation, restructuring and/or downsizing. There are several studies that established the relationship between the health of employees and workplace reorganisation in various country situations. A study conducted in a British water company during the period of privatisation and subsequent organizational restructuring revealed that throughout the period leading up to privatisation, workers experienced decline in physical health (Nelson et al, 1995). Besides, Nelson and colleagues found that during the period of privatisation in Britain, manual and white-collar staff showed an increase in mental ill-health as measured by an 18 point scale gauging various affective symptoms such as reactive depression, free-floating anxiety, inability to cope and low self-esteem.

Gabriel and Liimatainen (2000) noted that a number of common threads appeared to link the high prevalence of stress, burnout and depression to changes taking place in the labour market, due to the effects of workplace practices, income and employment, which were deregulated by the process of economic globalisation. Landsbergis (2003) noted that recent trends in the organisation of work may affect worker health through a variety of pathways by increasing the risk of stress-related illnesses, such as cardiovascular disease, musculoskeletal disorders and psychological disorders and by increasing exposure to hazardous substances. Landsbergis (2003) based on this study argued that work organisation may increase the risk of occupational illnesses. Wahlstedt and Edling (1997) highlighted the effects of workplace reorganisation on gastrointestinal complaints and sleep disturbance in a study of a Swedish postal sorting terminal. The study findings showed that the company's reorganisation in fact led to a reduction in both gastrointestinal complaints and difficulties in sleeping. A study conducted in one of the ceramic industries in India cited that jobs in these units like packing of the fragile cups and saucers with straw in the poorly hit and unclean surroundings could severely affect the health of the labourers (Das, 2000). Kumar (2001) observed that
the affluent, fast expanding software and service industry in India is also undergoing informalisation and workers' salaries are reduced to a larger extent. The informal IT service sectors are featured by precarious work such as long working hours and low wages, generally paid on piece rate basis (Pearson and Mitter, 1993; Ramesh, 2004).

Several studies have attempted to approach work and health in the milieu of production organisation and changing patterns of employment. These studies examined the ways in which changing patterns of employment are creating new patterns of production and distribution of occupational hazards. Daykin (1999) argued that the concentration of economic power jointly with the mobility of capital and resources has led to the globalisation of many occupational hazards. Situated in the macro context of relocation of manufacturing industries from North to South, Johannaning et al. (1994) argued that workers in the South are facing newer threat of serious health risks such as asbestosis\textsuperscript{16}, mesothelioma\textsuperscript{17} and other breathing troubles after the relocation of asbestos based industries from USA and Europe to developing countries. Some scholars have approached this problem in the context of the declining regulatory power of State in the underdeveloped and developing countries and the global competition that results in the growth of structural unemployment and flexible employment in these countries subsequent to the process of globalisation (Pickvance, 1996; Cameron, 1995).

**Control on ‘Own Work’, Work Environment and Hierarchy**

Control on working systems and own work is a way by which workers could regulate their working conditions. However, the question here is what does entitle a worker to exercise control over the working system and own work. To answer this, it is crucial to examine the position of the worker in the work hierarchy and the social and economic opportunities that determine the particular position. It is also true that workers mostly in the lower strata such as unskilled and manual labour are from the lower social and economic background and it has significant role in determining the skill, education and adaptation to technology of the worker.

\textsuperscript{16} Asbestosis is scarring of lungs, which makes breathing difficult. For more discussion see, Rom, N. William and Markowitz, B. Steven (2006).

\textsuperscript{17} Mesothelioma is a rare cancer of the lining of the chest or abdominal cavity.
Some studies have shown that less control on work and low level of freedom at workplace resulted adverse health outcomes for workers. Karasek and Theorell (1990) using the job demand-control model\(^\text{18}\) proposed that the combination of heavy demands and limited decision latitude (control) to moderate these demands results in job strain, which in turn leads to negative health consequences (Platt et al, 1999). Kinnunen and Natti (1994) in a study of Finnish workers accounted the positional factors that are related to workers perceiving their employment as insecure. Nelson, et al (1995) looked at the perceived levels of control and uncertainty of three groups of workers including management, white-collar/administration and manual staff during the privatisation of a water company. The study showed that workers in the positions of less control and high uncertainty suffered the furthermost negative effects of major organisational change.

**Job Insecurity and Health Behaviour**

Another set of studies that focused on work and health have highlighted that redundancy and job insecurity can have effects on the health of workers. Hamilton et al (1993) in a study of American blue-collar autoworkers examined the relationships between being made redundant, coping styles and subsequent depression. The study showed that unemployment is associated with depression and also that depression is associated with subsequent unemployment. Introduction of new technology and related job insecurity has also been identified as one of the issues for analysing work and health by many scholars. Computer and information technology, for instance, has introduced new methods for work management and the surveillance and control of employee behaviour. There is extensive literature related to health problems and use of computer related technology. Studies of employees in high-technology industries have revealed that physical and psychosomatic symptoms are prevalent among the employees (Platt et al, 1999; op. cit.). Carter and Bannister (1994) found that Musculoskeletal (MS) problems are associated with computer related works among workers who use computers extensively. Similarly Arnetz and Wiholm

\(^{18}\) Demand control model in work place health literature talks about the psychologically stressful conditions of work both at work place and living environment. This model shows that high pressure coupled with low control on own work situations contribute to strain, particularly when combined with home stress and absence of social support. As per this model, the strain can be expressed in any form such as injury, infectious diseases, cardiovascular diseases, anxiety depression, hostility, dependence on alcohol, tobacco etc. For a discussion, see Moon, De Sam and Sauter, L Steven (1996).

25
(1997) cited evidences related to mental and physiological arousals and heavy dependence of computer in work.

Various studies have examined the health behaviour of workers that is associated with increased fear of job insecurity. These studies revealed that insecurity at work has been shown to add to the health burden of individual workers. Heaney et al. (1994) argued that chronic job insecurity is linked to increasing reporting of a range of physical symptoms in the light of the study conducted among US automobile workers. Daykin (1998) found that uncertainty at work affected workers' health behaviour, most importantly, attitude to occupational health services. The study revealed that workers did not report injuries and other ailments for the fear that information about their health and sickness would be used in decisions about the renewal of contract as well as promotion and redundancy (Ibid, p. 4).

Survey of literature based on the studies that examined health outcomes such as morbidity, health care service availability and utilisation, health seeking behaviour, physically dangerous and psychologically stressful conditions of work in the context of labour market phenomena such as nature of production organisation, labour market participation, labour market restructuring, flexible production organisation, casualisation, job security and changes in patterns of work, revealed various associations between work and health. Studies in the context of changing production organisation revealed that it has rearranged the capital-labour relations and brought about structural changes in the labour market such as flexibilisation, subcontractualisation and casualisation and redefined all the traditional employment relations. Another set of studies in the similar context established that precarious employment in the export oriented sectors is linked to inferior health outcomes. The relationship between the health of employees and workplace reorganisation subsequent to the changes in production organisation has been established in various studies in different country situations. Some studies attempted to approach work and health in the milieu of production organisation and changing patterns of employment. These studies showed that the ways in which changing patterns of employment are creating new patterns of production and distribution of occupational hazards. Studies focussing on health behaviour revealed that unemployment is associated with depression and also that depression is associated with subsequent unemployment. Introduction of new technology and related job insecurity has also
been identified as one of the issues for analysing work and health by many scholars. Some studies looked at the health behaviour of workers associated with increased fear of work insecurity. These studies revealed that insecurity at work has been shown to add to the health burden of individual workers.

**Conceptual and Analytical Framework of the Study**

Discussions on work and health have historically been developed through the contributions of physicians, social reformers and social scientists. Initially the concept was based on work and wellbeing and was predominantly confined to the borders of physically dangerous occupational conditions and psychologically stressful conditions to health. This analytical framework was evolved during the period of industrialisation and hence, the focus of research was on the occupational conditions of workers and its health implications. Subsequent to the consolidation of industrial revolution, the focus of research on work and health was shifted to workplace health. However, perceiving health merely based on occupational problems has several limitations as it often fails to untangle the web of interrelationships of occupational conditions, social and family environment, power relations at the workplace and living conditions. Similarly it does not address the larger political and economic questions, which could explain much of the structural issues.

Engels and Rosen tried to place health of workers in the context of the social, economic and political determinants. To their understanding, health of workers is determined by the factors of economic production, social environment such as position in the work hierarchy, subordination, level of organisation and their control over the workplace. This framework of analysis could address issues such as position of workers in the production chain, living conditions and housing problems, wage structure and the power structure. Sociological analysis is yet another approach, which attempted to link work, stress and health. These analyses are primarily based on determinants such as hierarchy in the work ladder, class, control on working conditions, power, roles and relationships at the workplace. Though this analysis could explain issues related to subordination, power and relationships at

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19 There were several studies carried out during the period of industrialization relating occupation and health problems. For details read the works of Ramazzini (1964), Aldridge, Engels, Chadwick etc.

20 For a discussion, see Engels, (1973) and Rosen (1943).
workplace, it does not adequately deal with the economic variables such as wage
determination and other associated factors such as job insecurity, labour rights and
collective bargaining.

Another approach that attempts to link work and health is grounded on the power
relations at the workplace. This framework largely looks at the shifts in power
relations in a work environment and the ways with which workers negotiate their
space. For instance, based on this approach, Scott (2004) hypothesised that emerging
contingencies associated with the flexibilised employment relationships and
shrinking of workers' power have constituted work related insecurity as a chronic
stressor with several implications for long term health outcomes at the industrial and
societal levels. Nevertheless, a framework centred around power relations at the
workplace alone cannot explain job security of workers as it is also associated with
changes in the international market and production strategies when the production is
carried out along a value chain. This is more of a larger political question. Navarro
et al. (2004) employed a framework based on political economy for analysing
developments that occurred in the labour market and its impacts on labour relations
and health. They employed parameters such as nature of the State, policy measures
that the State adopts and the electoral mechanisms involved in it for contextualising
health question.

Studies thus have shown that changes in production organisation with regard to
forms of trade, phenomena such as labour market flexibilisation and informalisation
have close associations with variables of work and health such as labour relations,
work organisation, nature of employment, work protection, social security, living
conditions and health behaviour. Subscribing to this standpoint, paradigms of
production organisation in the real world in general and resultant rearrangements
through policy reforms in nation-states with regard to trade and labour market, in
particular, form the analytical context of the present study.

Examination of health consequences of informal employment in this framework
necessitates a broader approach and associations of informal employment and health
are to be looked at by taking the macro level policy changes and its corollaries at the
micro level with regard to the living and working conditions of workers into
account. Operationally, the analytical framework looks at workers' health in the
informal sector as determined by their income, living conditions, nature of work,
working conditions, social security measures entitled to them, health behaviour, work induced health seeking behaviour, degree of negotiation and collective bargaining, behavioural risk factors and physically dangerous and psychologically stressful conditions of work at the micro level. Chart 1.1 forms the conceptual base for exploring the relationship between informal employment and ill health.

Chart, 1.1: Linkages between informal employment and ill health
Background and Statement of Problem

Studies discussed earlier in this chapter have revealed that production organisation in the globalised regime has brought about structural changes in the labour market such as flexbilisation, decentralisation, sub-contractualisation and casualisation. Eventually, as many scholars noted, a change in the employment pattern, largely from formal to informal, organisation based to home based, wage based to piece rate based has appeared in several sectors (Gupta, 1995; Carr and Chen, 2001; Unni, 2001), which lead to further informalisation of labour by weakening workers’ organisation, bargaining power and job security.

Health and well-being of workers is a relevant question in the context of its interrelationships with the nature of employment, economic opportunities and resultant conditions of living, conditions of work including physically dangerous and psychologically stressful conditions, work induced health and health seeking behaviour and health security. The present study begins with the hypothesis that flexible production practices by dividing labour into core and periphery in the formal export oriented manufacturing sector multiply the adverse conditions of health of workers by informalising labour relations. It is also premised on the fact that changes in the regulation and governance of international trade have its impact on determining labour relations, nature of work, wages and conditions of work in the export oriented manufacturing sectors. The study, hence, is limited to export oriented manufacturing sectors that have adopted flexible production practices, specifically with regard to organisation of production along a supply chain, which is also integrated to global market, with division of labour into core and periphery and characteristics such as employment of contract or casual labour and decentralisation of production through small units and sub-contracting arrangements. Garments, automobiles, electronics, and sports goods are the major labour intensive industrial sectors, which also have a significant share in export in India that adopted flexible production practices in scale.21

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21 Taking attributes of flexible production such as higher levels of decentralisation of production, use of core workforce at firm’s primary production and contract or casual workforce at the secondary or tertiary levels who can be engaged or dismissed as the need arises, catering to a rapidly changing customer demands, into consideration, garment export, electronics, automobiles, and sports goods sectors in India appear to be more in accordance with the ‘ideal-type’ of flexible specialisation. For a discussion on ideal type of flexible specialisation, see, Murray (1989) and Atkinson (1985); For a discussion on changes in the electronic sector, see, Chhachhi (1999), Shruti and Nandakumar (1994), Joseph (1989), Kumar and Joseph (2004) and George (2006, c); For a discussion on garment sector on changes after trade liberalization, see, Breman (2001), Ghosh, (2001), ILO (2000) and Mazumdar, (2004); For a discussion on changes in automobile sector, see, Das and George (2006); and for a discussion on sports goods sector see, George (2008, e) and India Committee on Netherlands (2000)
Export oriented garment sector in the formal sector has been selected from these sectors primarily due to the recent context of the end of quota system existed in the international trade of textiles, clothing and garments. Notwithstanding the fact that trade liberalisation has had its impacts on all export oriented industries in India, complete elimination of quota system by 1 January 2005 brought about various changes in production, export and labour relations in the garment industry, which has been relatively protected than other sectors till then. It is also true that all the export oriented sectors have undergone changes with regard to investment (especially removal of the cap of foreign direct investment), international trade (reduction of tariffs) under multilateral, regional, bilateral and free trade agreements subsequent to trade liberalisation. However, integration of the garment export sector into WTO regime after the elimination of quota system that existed under Multi Fibre Agreement and Agreement of Textiles and clothing was relatively recent. Furthermore, it is widely discussed that export oriented garment industry in India has witnessed notable reorganisation of production subsequent to the progressive elimination of quota system in the international trade in textiles and clothing (Breman, 2001; ILO, 2000; Mazumdar, 2004, 2007; Mahadevia, 2001; Bhowmik and More, 2001; Hashim, 2005; Mezzadri, 2006). The sector has undergone changes with regard to international trade, production and work organisation and labour relations in the post reform period. Specifically, the sector has witnessed shifts of production from small informal units to large industrial setups on the one

22 Major change that occurred subsequent to the elimination of quotas is the full application of WTO rules to the textiles and clothing sector with regard to tariffs, rules on anti dumping, provisions for special safeguard mechanisms and provisions of rules of origin, for details, see, WTO (2007). Textiles and clothing sector has relatively higher tariffs than other sectors, which in turn affect adversely the export from developing to developed countries. Elimination of quota system also increased preferential treatment and trade agreements as per the regional and bilateral trade agreements subsequent to the quota phase out. Data on export of textiles and clothing from developing countries after quota eliminations showed trends of relocation of production of textiles and clothing paralleling to the general trend in shift of manufacturing from the developed to the developing world where cost of production is comparatively low, for details see, ILO (2000), CAW (2007) and Mazumdar (2004). It has also been reported from the garment exporting countries that production organisation and production relations have significantly been rearranged along with fluctuations in employment in response to the differences in advantage of countries and its relative international competitiveness after the phasing out of quotas, for details, see Ernst et al (2005), ILO (2006) and UNIDO (2005). Also countries where employment showed an increase, a significant chunk was generated in the informal sector, for details, see, Singh and Sapra, 2003; CAW, 2007). Countries like India witnessed decline in real wages for workers in the informal settings (Mazumdar, 2007). For more discussion, see chapter 4.
hand and to further decentralisation of production to home based and other informal environments on the other.

From the standpoint of impact of these developments on workers, garment sector in India bears much significance in terms of the number of workers in both organised and unorganised sectors. Major export oriented labour intensive industries in India are garments, leather, gems and jewellery, sports goods and bicycle. They comprised 9 percent of total employment in the organised manufacturing in India (Das et al, 2009). As per the official estimates, total number of workers in the textile sector across all categories is 33.17 million as on March 2006 (Ministry of Textiles, 2008). Out of it employment in the garment sector (readymade garments, including knit wear), has been estimated as 5.57 million. Annual Survey of Industries (2004-05) data shows that total persons engaged in organised textiles, wearing apparel, dressing and dyeing sectors during 2004-05 was nearly 1.74 million and NSS 60th round (2004) shows that employment in manufacture of garment, both principal and subsidiary status of workers, in 2004 was 5.2 million. Estimations based on NSS 61st round (2004-05) on unorganised sector casual and regular workers in manufacturing revealed that textile product and wearing apparel together accounted for 29.7 percent casual workers and 26.4 percent regular workers of the total unorganised sector manufacturing during 2004-05, which is more than that in sectors such as food products and beverages, leather, wood products, chemicals and chemical products and metallic and mineral products.  

Prevalence of low wages in the periphery level of the formal export oriented garment units as compared to contract workers in other manufacturing and export sectors is yet another important factor, which bears meaning for studying health and wellbeing. It is to be understood along with the spill over effects of international trade on wages, conditions of work and job security that the present study poses as contributing factors of adverse health outcomes of workers. Several studies have already noted that elimination of quota system led to further reduction of wages of

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23 For more discussion, see chapter 4, pp.108-09
24 As per the occupational wage survey, 2005, the average daily earning in garment industry in India is Rs. 60.6 for males and Rs.37.83 for females. Average daily wages in the manufacturing sector as per the 61st round of NSS (2004-05) was Rs.63.85 for males and 37.63 for females in the rural areas and Rs.68.85 for males and 41.04 for females in the urban areas. Also except agriculture, average daily wages was higher in all other industry group than the garment sector. For more details, see NCEUS Report (2007).
workers in the sector primarily due to increased competition (Breman, 2001, *op.cit*; Ghosh, 2001; Mazumdar, 2004, *op.cit*).

The present study thus is grounded on the assumption that changes or shifts in production practices in the export oriented garment sector would lead to a higher degree of informality and flexible practices of production due to the heightened competition among producing countries as well as firms and resultant cost minimisation strategies in production. This will have far reaching implications on the working and living conditions of the workforce in this sector, as it might lead to price-cutting and to practices of informality, reduction of wages and incentives for workers in the industry and eventually the well being of workers. In this context the study seeks to answer the following questions.

1. How informality by the practice of flexible specialisation is translated into adverse conditions of health of workers in the informal sector in general and export oriented manufacturing sector in particular?

2. How informality is multiplying the vulnerability of workers in the context of its associations with declining living conditions and well-being of workers?

3. How well-being and health of workers are articulated and dealt with in informal work arrangements?

4. What are the spill-over effects (risks) of international trade on labour in the informal export oriented garment sector with regard to wages, job security and conditions of work?

5. Have labour relations changed in the export oriented garment sector and if so, what are the changes in production practices and specific skill requirements of labour in the sector?

6. What are the emerging patterns of work organisation and gender composition of work at the periphery in the export oriented garment sector after the elimination of quota system?

7. Do informal labour relations reinforce the stereotyping of work of male and female semi-skilled and unskilled workers?

8. How chances of working in the informal sector, being poor and having/susceptible to adverse health outcomes are associated in the export oriented garment sector employment?

9. What are the adverse health outcomes of workers, which can be attributable to work and living conditions?

10. How do workers meet the cost of health care in the context of absence of employer responsibility in the sector and what are the other economic costs associated with health problems of workers and their family?
11. Are health and health seeking behaviours of workers in the informal arrangements associated with their employment, its nature, demands and economic rewards? If yes, how it varies across occupational groups and sex?

12. How do workers prioritise their health needs and what are the differences in health seeking of male and female workers?

Specific Objectives

1. To examine the trend of casualisation and informalisation and its ramifications on living conditions and wellbeing of workers in the informal sector in general and non-farm and manufacturing sectors in particular, subsequent to economic liberalisation in India.

2. To study the implications of quota eliminations in trade in textiles and clothing and introduction of trade policies on production organisation, labour relations, wages and conditions of work in the export-oriented garment sector in India.

3. To explore how informality in organisation of production leads to poor conditions of living and well being of workers in the informal sector.

4. To study how the conditions of informal employment and adverse health outcomes are associated and reflected in the formal export-oriented garment sector.

5. To study the perceptions of workers on their conditions of health and wellbeing.

6. To understand the interrelationship between work and health behaviour with special reference to the work induced health behaviour and health seeking of casual workers in the formal export-oriented garment sector.

Methodology

In line with the analytical framework outlined above, the study seeks to examine interrelationships of work and health in the larger context of the trade and labour market reforms at the macro level and its implications on labour relations, employment, wages, conditions of work and well being of workers at the micro level. Indicators for work and health are categorised as macro and micro based on this framework. The macro level indicators include nature of production organisation and changing patterns of employment, labour market structure and labour relations, regulatory mechanisms by the state and other apparatuses, social security and access to basic amenities and health care, which are appropriated through definite policies of trade and health. Micro level indicators constitute (a) social and economic background, (b) social determinants of workplace health, (c) wages and working conditions, (d) welfare provisions, (e) level of organisation and space for collective bargaining at workplace, (f) job security, (g) physically dangerous and psychologically stressful conditions, (h) living conditions (i) access
to health care and (j) health behaviour. To examine these indicators, the study employed both primary and secondary research methods.

Secondary Research

Secondary research was carried out to analyse the changes in the labour market in India and highlight the trends in production, export, employment and wages in the textiles and clothing sector in major exporting countries and in India after quota elimination. Overall trends in the informal sector with regard to employment, workforce participation, wages, poverty, expenditure on treatment and hospitalisation were examined with 50th and 61st rounds of National Sample Survey (NSS) on Employment and Unemployment Conditions, 55th and 61st rounds on Level and Pattern of Consumer Expenditure and 60th round on Morbidity, Health Care and Conditions of Aged. Data on poverty situation, real wages and conditions of workers in the unorganised sector were extracted from the report of National Commission for Enterprises in the Unorganised Sector (NCEUS), 2007, which is based on 55th and 61st rounds of NSS. Information on consumption pattern of various Monthly Per Capita Expenditure (MPCE) classes and annual rate of inflation were complied from Economic Surveys 2001-02 to 2007-08. Data on health care spending in India was obtained from the Report of National Commission on Macroeconomics and Health, Government of India, 2005.

Information with regard to trade in textiles, including export and import were compiled from WTO Trade Statistics from 2001 to 2007. Data on capacity installed, production, number of units and export of textiles, clothing and readymade garments in/from India were extracted from Compendium of Textile Statistics for various years, reports of the Textile Commissioner for various years, Annual Reports of Ministry of Textiles for various years and report of Directorate General of Commercial Intelligence and Statistics (DGCIS), 2007. NSS rounds on Employment and Unemployment Conditions from 50th to 61st rounds and reports of Annual Survey of Industry (ASI) 2001-02 to 2004-05 on Principal Characteristics of Textile Industry were the sources of information of employment, number of units and wages for workers in the textiles, clothing and readymade garments in the unorganised and organised sectors respectively. Data on wages, conditions of industry and work were also obtained from reports of Occupation and Wage Survey for various years and Standing Committee reports of the Ministry of Labour.
Besides, secondary information on evolution of employment and wages and labour cost in various producing and exporting countries in Asia were compiled from the published research reports of various academic institutions and other organisations. Furthermore, a review of relevant literature was included to highlight the conditions of working in various production environments.

**Primary Study**

Garment export industry in India is vastly diverse. It has production base in centralised large, medium and small production centres in formal sector on one hand as well as sub-contracted informal production arrangements on the other, including, small scale units that are located mainly in major metropolitan and a few other cities and home based sector (Kathuria and Bharadwaj, 2001). Since the study examines health outcomes of work in the context of increasing informality and changing labour relations in the formal sector in India, the study focuses on formal centralised export oriented garment units, which employ casual labour and where workforce is distinguishably divided into core and periphery. Sampling details of the primary study are as follows.

**Universe**

Out of major cities and pockets where export oriented garment production is concentrated, Delhi region has been selected for the study for the following reasons. First, Delhi is one of the important centres of centralised firm based production in terms of volume of garment production and export in India. Data\(^{25}\) from Annual Survey of Industries (ASI), 1999-2000 and 50\(^{th}\) and 55\(^{th}\) rounds of NSSO revealed that Delhi houses a total of 30,472 garment enterprises (Table 2.2). As per the combined estimations of ASI and NSSO, of 30,472 units in Delhi in the year 2000, 675 were registered and remaining 29,797 were unregistered.\(^{26}\) Estimates reveal that in the states of Tamil Nadu, Maharashtra and Delhi, most of the units in the second tier of the production chain are formally registered (Table, 2.1). Among these three

\(^{25}\) The Annual Survey of Industries covers all manufacturing units registered under the Factories Act. The National Sample Survey Organisation covers manufacturing units, which are not covered under the Factories Act and comprises of informal own account enterprises and enterprises of the informal employers. Both the figures together give the overall picture of garment manufacturing across the formal and informal sectors.

\(^{26}\) Registered and unregistered units are determined by examining whether or not the units are registered under the Factories Act.
states, Delhi has been chosen for the convenience in conducting research due to better access to workers through trade unions in Delhi region.

Table 2.1: State-wise number of readymade garments and hosiery units in India
(As on October, 2006)

<table>
<thead>
<tr>
<th>States</th>
<th>Readymade Garments and Hosiery Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delhi</td>
<td>1413</td>
</tr>
<tr>
<td>Gujarat</td>
<td>278</td>
</tr>
<tr>
<td>Haryana</td>
<td>87</td>
</tr>
<tr>
<td>Karnataka</td>
<td>614</td>
</tr>
<tr>
<td>Kerala</td>
<td>39</td>
</tr>
<tr>
<td>Madhya Pradesh</td>
<td>39</td>
</tr>
<tr>
<td>Maharashtra</td>
<td>1685</td>
</tr>
<tr>
<td>Punjab</td>
<td>659</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>355</td>
</tr>
<tr>
<td>Tamil Nadu</td>
<td>4126</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>208</td>
</tr>
<tr>
<td>West Bengal</td>
<td>168</td>
</tr>
<tr>
<td>India</td>
<td>9724</td>
</tr>
</tbody>
</table>

Source: Lok Sabha, Unstarred Question No. 260, dated 27.02.2007, Compiled by Indiastat

Table 2.2: Size of garment industry in Delhi

<table>
<thead>
<tr>
<th>Enterprises (Numbers)</th>
<th>Production (In lakhs)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ASI</td>
</tr>
<tr>
<td>All India</td>
<td>5055</td>
</tr>
<tr>
<td>%</td>
<td>0.65</td>
</tr>
<tr>
<td>Delhi</td>
<td>675</td>
</tr>
<tr>
<td>%</td>
<td>2.22</td>
</tr>
<tr>
<td>Delhi as a % to all India</td>
<td>13.35</td>
</tr>
</tbody>
</table>


Table 2.3: Exports of garments from Delhi

<table>
<thead>
<tr>
<th>Year/ %</th>
<th>Restrainted Countries</th>
<th>OBA Countries/Items</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Qty</td>
<td>Value</td>
<td>Rs.</td>
</tr>
<tr>
<td>1998</td>
<td>2283</td>
<td>11593</td>
<td>475924</td>
</tr>
<tr>
<td>%</td>
<td>25.17</td>
<td>34.83</td>
<td>34.71</td>
</tr>
<tr>
<td>1999</td>
<td>2374</td>
<td>12077</td>
<td>519133</td>
</tr>
<tr>
<td>%</td>
<td>24.98</td>
<td>35.12</td>
<td>35.10</td>
</tr>
<tr>
<td>2000</td>
<td>2758</td>
<td>14770</td>
<td>661561</td>
</tr>
<tr>
<td>%</td>
<td>25.85</td>
<td>36.33</td>
<td>36.26</td>
</tr>
</tbody>
</table>


Second reason for selecting Delhi region is its labour composition in terms of significant presence of migrant workers and less number of women workers in both firm based and home based units. It is estimated that Delhi employs nearly 1.02 lakh
workers in the garment industry (Table, 2.4). Of these, only 21469 workers are in the registered garment sector and 80051 workers are in the unregistered sector according to estimations based on the 55th round of NSSO. The total garment sector employment in Delhi is roughly 5.82 percent of the All India garment sector employment. This includes labour, which is employed in informal enterprises and establishments, including own- account enterprises. This however, does not include home based workers who work for fabricating units by bringing work home or engage in specialised tasks such as hand embroidery or other forms of garment adornment. The gender distribution of the estimated workforce suggests that in the garment workforce as estimated from NSSO data, men form roughly 96.68 percent of the total garment employment in Delhi, which is unique in Delhi region. It must be noted that at all India level, percentage share of women workers both in organised and unorganised sectors are higher than male workers (Table, 2.4). The share of women in the unorganised sector in Delhi region to the total workers in India is barely 3.32 percent. In Delhi's registered ASI sector women's share is slightly higher (17.87 percent) as compared to unorganised sector, however, significantly less than that of men's, share (82.13 percent) in the region. Similarly, share of male workers of Delhi region out of the total male workforce in India is 7.33 percent and corresponding share of women workers is 1.45 percent. Contrary to the higher participation of women workers in the garment sector in other major centres of production, Delhi region employs women workers significantly less, except in the home based sector. This contrast in the established gender stereotyping of work in the garment sector in Delhi is a question for further exploration in the study.

<table>
<thead>
<tr>
<th>All India</th>
<th>Delhi</th>
<th>Delhi as a % of all India</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>M</td>
<td>F</td>
<td>C</td>
</tr>
<tr>
<td>123284</td>
<td>175374</td>
<td>151</td>
</tr>
</tbody>
</table>

Table, 2.4: Share of Delhi in all India garment sector employment

<table>
<thead>
<tr>
<th>ASI (No and %)</th>
<th>NSSO (No and %)</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>F</td>
<td>C</td>
</tr>
<tr>
<td>All India</td>
<td>123284</td>
<td>175374</td>
</tr>
<tr>
<td>%</td>
<td>41.26</td>
<td>58.69</td>
</tr>
<tr>
<td>Delhi</td>
<td>17633</td>
<td>3836</td>
</tr>
<tr>
<td>%</td>
<td>82.13</td>
<td>17.87</td>
</tr>
</tbody>
</table>


M=Male, F=Female, C=Children
Thirdly, Delhi is an important centre to study due to the presence of all actors in the value chain of the garment export sector from retailers to producers at the home based settings within the region, which would help locate workers in the buyer driven international value chain of the industry. Major retailers and brands, which are sourcing from Delhi region include Lerner and Lane Bryant,27 Gymboree,28 the German mail order houses Otto, Karstadt, Quelle, Zara and Massimo Dutti,29 The Gap,30 Ralph Lauren and Marks and Spencer and the big retailers, like Wal-Mart, Tesco, Carrefour and Primark. At the production end, there are large registered firms of exporters and manufacturers, medium and small sized registered firms, small production units, workshops or fabricating units and home based units.

**Selection of Area**

The major garment export units in Delhi region are spread over the industrial areas of the nine districts and the adjoining NOIDA and Gurgaon area. Among the nine districts in Delhi, the West district has the major share of the second level sub-contracted garment production units in the formal sector whereas in other major centres of production in and around Delhi, including Okhla Industrial Area, Faridabad, NOIDA and Gurgaon, production is largely based on large centralised units, which fall in the first tier of production; managed by large exporters and manufacturers. Other pockets of production in Delhi region, which are spread over Munirka, Hauzrani, Govindpuri, Sultanpuri, Malviya Nagar and other suburban areas largely have home based production settings.

Since the present study is focussing on casual workers in the formal garment production units, West district has been selected due to the presence of large number of sub-contracted medium and small production units in the formal sector; employing casual and contract workers in the production line. The industrial areas where garments production for exports are located in the West district are Mangolpuri Phase –I and Phase–II, Naraina, Keerthi Nagar, Mayapuri, Udyog Nagar, Sagarpur and Uttam Nagar. Mangolpuri Industrial Area was selected for primary study from various locations of production in the West district due to the higher concentration

27 Retailing company, which operates around 5000 stores in the US, specialising mostly on clothing for women.
28 Company which sells children's apparels and operates in around 500 retail stores in the US, Canada and UK.
29 Part of the Inditex Group with 1299 stores in 39 countries.
30 A US based apparel brand.
of firm based sub contracted units in the formal sector and the presence of trade unions. Selection of Mangolpuri is also grounded on the fact that production units in Mangolpuri are relatively newly established; mostly in the post quota elimination phase after the relocation of industrial units in the Delhi region. The changes in production and labour practice subsequent to quota eliminations therefore could be better captured.

**Selection of Units**

A pilot survey in Mangolpuri Phase I and Phase II identified some of the export oriented garment production units in the formal sector. Table 2.5 details the units and approximate numbers of workers in the units. It should also be mentioned here that the list given here is not encompassing the whole garment production units in Mangolpuri.

<table>
<thead>
<tr>
<th>No</th>
<th>Company</th>
<th>No. of workers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Male</td>
</tr>
<tr>
<td>1</td>
<td>A</td>
<td>60</td>
</tr>
<tr>
<td>2</td>
<td>B</td>
<td>120</td>
</tr>
<tr>
<td>3</td>
<td>C</td>
<td>125</td>
</tr>
<tr>
<td>4</td>
<td>D</td>
<td>70</td>
</tr>
<tr>
<td>5</td>
<td>E</td>
<td>210</td>
</tr>
<tr>
<td>6</td>
<td>F</td>
<td>200</td>
</tr>
<tr>
<td>7</td>
<td>G</td>
<td>100</td>
</tr>
<tr>
<td>8</td>
<td>H</td>
<td>400</td>
</tr>
<tr>
<td>9</td>
<td>I</td>
<td>325</td>
</tr>
<tr>
<td>10</td>
<td>J</td>
<td>800</td>
</tr>
<tr>
<td>11</td>
<td>K</td>
<td>460</td>
</tr>
<tr>
<td>12</td>
<td>L</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>3095</td>
</tr>
</tbody>
</table>

Source: Documents of CITU

From the production units, which were identified from Mangolpuri, Phase I and II, sample units were selected based on the criteria of unionisation, gender composition, strength of workers and practice of contract labour. Out of the twelve units identified (Table, 2.5), all employed contract workers in production lines. Therefore criteria of selection of units were based on unionisation, gender composition and strength of workers. Of the twelve, 4 units were partially unionised, and the remaining 8 were non-unionised. Of the partially unionised, only one unit had both male and female

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31 Name of the company is not given for the purpose of confidentiality.
workers. Therefore the unit which had both male and female workers in production line was selected. Of the non unionised, four units did not employ women workers. Therefore the remaining four units were selected. Thus out of twelve units identified, five were selected for identifying workers as given in table, 2.6 below.

Table, 2.6: Units selected for the study

<table>
<thead>
<tr>
<th>Unit</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>120</td>
<td>80</td>
<td>200</td>
</tr>
<tr>
<td>H</td>
<td>400</td>
<td>100</td>
<td>500</td>
</tr>
<tr>
<td>K</td>
<td>460</td>
<td>140</td>
<td>600</td>
</tr>
<tr>
<td>G</td>
<td>100</td>
<td>30</td>
<td>130</td>
</tr>
<tr>
<td>F</td>
<td>200</td>
<td>50</td>
<td>250</td>
</tr>
<tr>
<td>Total</td>
<td>1280</td>
<td>400</td>
<td>1680</td>
</tr>
</tbody>
</table>

Selection of workers

Selection of workers for the study was purposive since there were no attendance books, register or muster rolls available in the units. Efforts were also taken to keep proportionate gender representation in the sample. Out of a total of 1680 workers from five units, 156 (9.29 percent) were selected. Sample consisted of 99 male workers (7.73 percent of total male workers in five units) and 57 female workers (14.25 percent of total women workers in five units) out of 156 workers. All were casual or contract workers. Table, 2.7 details sample size per unit.

Table, 2.7: Sample size per unit

<table>
<thead>
<tr>
<th>No</th>
<th>Units</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>B</td>
<td>33</td>
</tr>
<tr>
<td>2</td>
<td>H</td>
<td>35</td>
</tr>
<tr>
<td>3</td>
<td>K</td>
<td>31</td>
</tr>
<tr>
<td>4</td>
<td>G</td>
<td>32</td>
</tr>
<tr>
<td>5</td>
<td>F</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>156</td>
</tr>
</tbody>
</table>

Data Collection

Identification and selection of workers from the units were done initially with the help of trade unions and afterwards through workers who were already identified for the study. Pilot survey was carried out in December 2005. Primary survey was conducted from September 2006 to March 2007. Initial rapport with the workers was built through trade union members. Workers were contacted near the workplace, mostly near gate of the units, near tea stalls, near dhabas and on their way back home from work, in the presence of trade union members who were also workers in the units in Mangolpuri. After identification and initial discussion with workers, an
appropriate place for interview was fixed. For most of the workers, who were residing near Mangolpuri area, interviews were conducted at their residence. For others, interviews were conducted in places like parks and tea stalls. All women workers were interviewed at their place of residence.

**Methods and Tools of Data Collection**

In-depth interviews, observation and discussions were the methods adopted for data collection. As explained above, the selected respondents were interviewed outside the premises of the workplace and at their residence as per the availability, willingness and convenience. A semi-structured interview schedule\(^{32}\) was administered for interview. However, interviews mostly were conducted in the form of discussions than point to point questions and answers. In some cases, where workers were interviewed in places like public parks and tea stalls, interviews were carried out through discussions for collecting general information; however, individual specific responses were recorded separately for each respondent. Information collected with the help of interview schedule from workers include personal profile, social and economic background, nature of job, earnings, mode of payment, facilities available at the workplace, level of organisation, working hours, job security, workload, occupational health problems, stress related problems, health behaviour such as food intake pattern, perceived health conditions, health seeking, living conditions and consumption expenditure on food and medical care.

Discussions were carried out with labour commissioners, trade union members and leaders, sub-contractors and management of some of the units. Information with regard to registration of units, wage structure, labour inspection and applicability of labour laws pertaining to unorganised sector in the informal production environments in the formal units of Mangolpuri were sought from labour commissioners in West district of Delhi. Information on locations of the unit, contract system, efforts in organising workers and labour practices in the units were obtained from trade unions. Discussions with a few sub-contractors from the selected units were held to understand the recruitment practices, payment of wages and relationships with management of the units. Information with regard to sourcing parent firms, brands and retailers were collected from the managements of some of the units.

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\(^{32}\) Please see Annexure for the interview schedule
Scheme of Analysis

Relevant data from the secondary sources were adapted, computed and compiled from the sources mentioned in the section of secondary research as per the requirement of analysis. Trends in casualisation of labour was analysed by extracting information on usual status of workers and unorganised workers in the organised sectors, regular and unorganised workers in the unorganised sectors in various agriculture, non-farm and manufacturing sectors using macro data sources of NSS and various reports based on NSS. Similarly feminisation was examined from the trends and shift in female employment from self-employed categories to casual employment and increase of women workers in the non-farm and manufacturing employment using the same data sources. Wages of workers were examined in the purview of stipulated minimum wages and changes in the real wages of workers in the informal sector over a period of time. Expenditure pattern was analysed by extracting information from the data of NSS and Economic Survey based on monthly per capita expenditure classes. Similarly, trends in employment, wages and working conditions in the textile, clothing and garment sectors subsequent to elimination of quota and introduction of trade policies were analysed from 1995 onwards as the year marked the progressive elimination of quota restrictions under ATC.

Primary data collected was analysed using the statistical package, SPSS. Collected data were segregated across gender and occupation category, based on skill levels and nature of work to analyse workforce distribution, education and skill levels, wages, work intensification, physical conditions at work place, facilities available, consumption expenditure, perception on health and health seeking. Informality and labour relations in the units were analysed based on the data on work contract, labour practices and extent of regulations with regard to applicable labour laws and code of conduct.

Limitations of the Study

The primary study has been limited to the second tier of production in the international garment supply chain. The entire supply chain at the production end, which is diverse and complex and involving multiple layers of sub-contracting, has not been traced in the primary study. Also, all export oriented garment units in Mangolpuri could not be identified while selecting sample units; largely because of the absence of proper address and name boards of the units. Therefore, the scope of the primary study is limited to identified units and workers in the area.