

The uses and abuses of time: globalization and time arbitrage in India's outsourcing industries

SHEHZAD NADEEM

*Department of Sociology, Lehman College,
City University of New York, Bronx, NY 10468, USA
shehzad.nadeem@lehman.cuny.edu*

Abstract *Globalization has undoubtedly altered our conceptions and experience of time. It has sped up the pace of life and some scholars even suggest that a new temporal order is supplanting 'natural' and pre-existing cycles and rhythms. Yet time is not dissolved in the global circuits of capital. Rather, globalization has brought about a complex mixture of temporal orientations; the workplaces of 'new economy', for example, are traversed by novel and retrograde modes of work pace, rhythm and time-discipline. In this article, I explore the temporal implications of the outsourcing of information technology-based service work to India. Drawing on fieldwork and interviews with workers, managers and executives in the Indian IT and Business Processing Outsourcing industries, I address the following questions: (1) How are corporations using time arbitrage to reap the full benefits of a globally dispersed labour pool? (2) What impacts are these temporal changes having on the health and social lives of Indian workers? For corporations, time arbitrage means increased efficiency and cost-savings. But for workers, it results in long hours, an intense work pace, and temporal displacement. Night-shift employees, such as call centre workers, are particularly vulnerable to such displacement, as manifested in health and safety problems and social alienation. Globalization therefore does not entail the loosening of temporal chains, but their reconfiguration: a combination both rigid and flexible that binds even as it liberates.*

Keywords GLOBALIZATION, TIME, WORK, INDIA, OUTSOURCING, IT INDUSTRY, CALL CENTRES, TIME ARBITRAGE

A central, if often neglected, aspect of globalization is its effect on time. Most typically, scholars argue that globalization has sped up the pace of life and some even propose a new temporal order: a 'timeless' or 'network' time that supplants or displaces 'natural' and pre-existing cycles (Harvey 1989; Hassan 2003; Virilio 2006). Castells (2000) writes of the general freeing of capitalism from the constraints of time, but this is only one part of the picture. Time is not dissolved in the global circuits of capital; ideologies of flexibility notwithstanding, there is considerable

evidence that time-discipline is as important as ever in the information economy (Head 2005; Sennett 1998; Thrift 2000). Also, today's regime is not something entirely new. Rather, globalization has brought about a complex mixture of temporal orientations (Adam 2003; Bauman 2000). Scholars can advance these debates by showing how corporate schemes interact with the raw material of everyday life. To this end, in this article I explore the temporal implications of the offshoring of information technology-based service work. Drawing on extensive fieldwork in India, I ask the following questions: (1) *How are corporations using time to their advantage, to reap the full benefits of a globally dispersed labour pool?* (2) *What impacts are these temporal changes having on the health and social lives of workers?*

The central concept driving offshoring is *labour arbitrage*, which one company defines as the 'ability to pay one labor pool less than another pool for accomplishing the same work, typically by substituting labor in one geography for labor in a different locale' (Simonson 2002). In addition to cost-savings, multinationals doing business in India also benefit from a strategic use of time. Consequently, I argue that transnational companies make use of *time arbitrage*. Time arbitrage can be defined as the exploitation of time discrepancies between geographical labour markets to make a profit. This operates on two scales. At the geographical scale, many companies exploit time zone differences to achieve a 24-hour business cycle. At the labour process scale, time arbitrage can mean the extension of work hours or the acceleration of the labour process. As one executive says of his Indian employees, 'You can get more out of them.' To be sure, the *raison d'être* of offshoring remains the reduction of labour costs. Time arbitrage is simply the endeavour to put time to profitable use.

There is, however, a tension between the network time of corporate globalization and the prosaic rhythms of everyday life (Birth 2007). While flexibility is heralded in developed countries as a means of recalibrating the work-life balance, it means something entirely different to the Indian software programmer who stays late into the evening for a conference call with New York or for the call-centre worker on the permanent night shift. The argument is that, in the Indian case, time arbitrage has resulted in long work hours, an intense work pace, and temporal displacement manifested in health problems and alienation from family and friends. Given that India accounts for approximately 80 per cent of the offshore market in low-cost services and that 73 per cent of Fortune 2000 companies say offshoring is an integral part of their overall growth strategy, it is increasingly possible to speak of a trend in global time arbitrage (*Economist* 2004; Overby 2006).

I have divided the article into three sections. The first focuses on how time arbitrage plays out in the workplace, through the stretching of work time and the speeding up of the labour process. The second section deals with the often-unintended social consequences of time arbitrage, namely temporal displacement and its adverse impacts on worker health, safety and social life. I close the article with a discussion of time as it relates to the balance of forces between capital and labour.

Research methods

I have culled the data for this article from a larger project in which I conducted 129 semi-structured interviews with workers, managers and executives between March 2005 and April 2006. The research design is comparative. As offshoring is beginning to affect different segments of white-collar work, the goal was to cover different steps on what is called the service value ladder. Workers at the lower to middle end, what is typically called ITES (IT-enabled services) and BPO (Business Process Outsourcing) work in customer service, transcription, claims processing, graphic and content development, and the like. At the higher end, in terms of work sophistication and compensation, are IT and software firms. Most of the fieldwork and interviews took place at five outsourcing companies in India, which I selected from a list that the National Association of Software and Service Companies provided.¹ The firms, moreover, are located in four of India's outsourcing hubs – Delhi, Bangalore, Bombay and Chennai – and this diversity provides a broader view of globalization's effects on the social landscape than would a study restricted to a single location.

Three of the selected companies provide BPO/ITES services. The fourth is the IT subsidiary of an investment bank and the fifth a major IT company. While they are often treated separately in the literature, the comparison is useful analytically in that we are able to see, for example, how time is 'compressed' in one and 'stretched' in the other. Given that IT workers generally work during the day and BPO workers at night, the comparison also elucidates the differential impact of night and day work. Interview transcripts and field notes were thematically coded. I used snowball sampling, relying on worker, employer, and union networks, to arrange additional interviews in order to test the general applicability of my findings. Names have been changed to preserve anonymity.

Time arbitrage

The view from above

Harvey (1989: 240) writes that 'the history of capitalism has been characterized by a speed-up in the pace of life, while so overcoming spatial barriers that the world seems to collapse inwards upon us.' Globalization and the spread of ICTs (information and communication technologies) are thought to have engendered a new temporality, what has been variously called 'real time', 'timeless time' and 'network time'. Simultaneity and instantaneity replace succession and duration, compressing time and space. Local and seasonal rhythms of everyday life stand opposed to the forward march of network time of which the imperatives of transnational corporations define the parameters (Adam 2003; Hassan 2003). The space of 'flows' supplants that of 'place' (Castells 2000: 101).

Heeks et al. (2001) argue that global IT relationships must either 'synch or swim', underlining the importance of aligning management and organizational culture. Being in synch temporally is equally important. As urban centres in the global South are integrated into global production and service networks, they must adapt to network

timings (Sassen 2001). Global software parks, such as TIDEL Park, the largest of its kind in the southern state of Tamil Nadu, are in accord with the ceaseless rhythms of the global economy. Its promotional material proudly proclaims that 'TIDEL Park understands that the IT world has its own clock.' Timeless time cannot afford to stop. Due to favourable economic policies and its large pool of educated and cheap labour, India has fast emerged as the favoured outsourcing destination. But as one IT worker whose company supports an investment bank explains, India also has certain locational advantages:

Geographically, India is located in a pretty good position to support the needs of the East and West. In the morning, around 7 a.m., you can talk to clients in Singapore, Australia, and Hong Kong. Between 12 and 4 p.m., you can cover the Middle East, Luxembourg, and the UK. And between 5 and 8 p.m., you can talk to the US guys. India is geographically positioned to cover most of the global markets.

Offshoring companies deal with the 9.5 to 12.5-hour time-zone difference between the United States and India in two main ways. Globalization allows the offshoring of business functions that require synchronous and asynchronous coordination. A call centre worker in Delhi receives and places calls somewhere from 10 p.m. to 9 a.m. Indian Standard Time, while a junior lawyer in Bombay working for an American client works during the Indian day. Companies see opportunity in both of these possibilities: having employees work the night shift allows them to talk directly to customers; having an Indian lawyer prepare a draft patent during the day means that it will be in the client's inbox first thing in the morning.

With the offshoring of synchronous work, such as customer service queries, Western business timings are exported across the globe. In migrating asynchronous work, such as IT maintenance, national timings are preferable because they allow firms to root out unproductive times and to approach a 24-hour work cycle. Where there has to be synchronous coordination in the latter, such as with conference calls between the 'onsite' and 'offshore' offices, Western timings trump national as workers and managers are required to stay late. There are thus multiple ways to exploit time differences and many companies employ both night and day workers.

The global reorganization of service work marks the confluence of the business ideals of 'flexible capitalism' and the '24-hour society'. *Outsourcing* signals the 'hollowing out' of the vertically integrated corporation. *Offshoring* allows corporations to farm out peripheral and repetitive tasks to contracted Third World labour, while the home office can busily contemplate its core business functions. Through fashioning a globally dispersed network of suppliers, business can function longer, if not continuously. The large transnational corporation, however, despite Thomas Friedman's (2006) rhetoric about the 'flatness' of the world, still dominates the global marketplace. With power unevenly distributed throughout the far-flung business network, control operates according to the principle of 'centralization without concentration' (Harrison 1997: 47; Lynn 2005).

While offshoring involves a spatial shift of capital to the developing world, one Indian executive reminds us that ‘American companies own intellectual property’. Moreover, corporate flexibility has come of age in an era of labour casualization and downsizing. Whereas scientific and technological advancements were supposed to increase both productivity *and* leisure time, working hours remained static or became longer and often more intense (Basso 2003; Schor 1991). The advanced technologies of the new economy coexist with ‘temporally regressive’ methods of labour control – the former tightening the screws of the latter – leading some critics to speak of ‘electronic sweatshops’ and ‘assembly lines in the head’ (Bain et al. 2002; Ong 2006; Taylor and Bain 1999). ‘Lean’ production methods are applied to service work. The goal is maximum productivity and the elimination of ‘dead’ time.

There are a number of means to achieve a compression of time. It can be realized by intensifying the work process, by reordering the sequence of tasks and processes, by flexible timings and by reducing unproductive times, as in just-in-time production (Adam 2003; Harvey 1989). The merit of a comparative lens is that we are able to see how various methods affect different types of employees. Whereas an IT worker’s working day is built around a series of tasks, that of a BPO worker is built around a designated number of hours or numerical targets. This translates into a difference in the method of time-discipline. In IT, time is stretched (overtime), while in the BPO it is condensed (quicken pace). This does not mean that call centre workers do not have to work overtime or that IT workers work at a relaxed pace. Rather task-orientation and time-orientation correspond loosely to the distinction between professionals (often salaried, who have to work longer hours without being paid overtime) and workers (whose time is closely monitored). In IT, while workers do have to log in hours, time schedules are relatively elastic and breaks irregular. In BPO, breaks are fixed and even the time elapsed during bathroom visits is noted. Incentive schemes are also structured to take this into account. In fact, workers actually billed a project for idle hours at one IT firm – time they spent waiting for work from the US office – something almost unheard of at BPOs.

Work speed-up: compressing time

While the prospect of significant cost savings is what motivates offshoring, many companies have reported substantial productivity gains, ranging from 15–25 per cent (Mattoo and Wunsch 2004). Consultants McKinsey report that one ‘British bank’s call-center agents in India not only process 20 per cent more transactions than their counterparts in the United Kingdom but also do so 3 per cent more accurately’ (Baily and Farrell 2004). Gains can partly be accounted for by the fact that wages are lower and thus companies are able to spend more on supervision and training. Workers may also be more highly motivated as the jobs have higher prestige in India. An executive says that Indian employees are more productive because ‘they’re better qualified, they’re better educated, they’re younger’. Or, as the CEO of a legal outsourcing firm puts it, ‘In many cases, we have people who are much more qualified than in the US. There no one would do it.’ In addition, managers often give cultural explanations,

arguing that Indian industriousness is a product of the culture's emphasis on education. One manager speaks admiringly of the 'Indian psyche'.

In call centres, at least, gains in productivity may have less to do with age, motivation or cultural inheritance than with an accelerated work pace and technologically induced efficiency. Larger call centres use automated dialling technology through which workers are fed only live calls. According to one manager, the rate of calls is variable: on average an American worker might have 45 seconds to a minute between calls whereas an Indian worker would have only five to ten seconds. By eliminating 'idle time', nominal working hours remain the same but *real* working hours are lengthened (Basso 2003). One worker, Adnan, says that in a day they handle about 200 to 250 calls, of which 80–90 last a minute and 50–60 last between three and five minutes. 'It a source of stress. You don't have a long gap after every call,' he says. His co-worker, Preethi, adds, 'It's seconds. There isn't a break after every call, though I would rather do an eight-hour than ten-hour shift with longer breaks.' Busy hours do not preclude an extension of the workday when necessary. One former worker complained that her shifts regularly extended from the required eight to nine and ten hours and that she handled hundreds of calls daily.

Workers also complain that they do not receive their promised salaries. Managers respond that this is because a large portion of one's 'salary' comes in the form of incentives, which are based on performance and adherence to pre-defined parameters. Two major components relevant to our argument are talk time (the quicker you can dispatch a customer the better) and the intervals between calls (a matter of seconds). The result is an internalization of time-discipline, which is manifested in a psychological pressure to perform. As Preethi remarks:

If I can't achieve target, it leads to an in-built stress. We know what we have to do every day. It's our own mind telling us, 'You have to do it.' The only thing we do is talk, talk, talk. We have about two seconds for the next call. Sometimes, though, you do have a long break. Those are the times we party.

Yet even breaks are a matter of dispute. Despite the bright furnishings and the game rooms, the conditions of work can be very strict. Breaks (including dinner, which might take place at two in the morning) are strictly monitored, and one worker complains that they 'are not given on time, if at all'. Another says that they are denied weekly offs and that 'sometimes we aren't even getting breaks if call flow is high'. Leave policies are another matter of contention. Said one BPO worker in Bombay:

You can't fall sick. You have to plan your sick leave in advance. It's almost like having to say 'I'm planning to be sick in three weeks.' They don't have a real sick leave policy. Someone had a bad fall once and they wouldn't sanction the leave at first. She came to work in intense pain and only then was told that she could go. They want you to come in first. Also, if one is sick then they don't get incentives because the sick days are construed as leaves, unless planned.

Another worker says that he cannot attend out of town gatherings because of work timings. Leaves, he claims, are hardly an option: 'If we take more than one leave then we will have to pay from our salary. And without money we cannot fulfil our social and family requirement.'

Often workers have to ask permission from a superior to use the bathroom. In one case, Neeta was dealing with a particularly cumbersome inbound call and, 30 minutes into the call, she requested permission from her team leader (TL) to use the restroom, the normal protocol being that another employee would handle the call from there. But the TL did not allow her to get off the line and, 20 minutes later when the call was completed, he congratulated her and said, 'I knew you could be a good rep if you put yourself to it.' For the company, the end result was a successfully handled call. After writing a letter to management itemizing this and other abuses, Neeta's services were suspended officially for 'dropping calls'. Another of her 'lapses' was returning from the toilet one minute and fifty seconds late. She claims that she vomited after her meal and had to be assisted back to her seat. As another worker at the firm carped, 'The food is not good. They contract service out to different caterers who prepare meals on a cost-cutting basis. This causes health problems and some have had a food poisoning.'

The authors of a recent study of the call centre industry by the Indian labour ministry-funded V. V. Giri Labour Institute argue that the constant surveillance in firms create an atmosphere similar to that in '19th-century prisons or Roman slave ships' (Sharma 2005). My observations suggest that while surveillance is indeed tight and can be a major source of stress, most employees would not make such comparisons. Many describe their work environments positively. However, overweening management can create a hostile atmosphere. Says one worker: 'Everything is monitored. They record every damn thing.' Furthermore, workers complain of unpaid mandatory overtime, despite often being expected to work six days a week and forego national holidays.

Long hours: stretching time

Executives, often Indians trained in the West, lament their compatriots' lackadaisical attitude toward time. They claim that Indians take more breaks and have difficulty dealing with deadlines. And, indeed, an intense focus on family and social life does not mesh well with the rigidity of organization time and clock discipline (Hareven 1982). Very commonly, IST – Indian standard time – is jokingly referred to as Indian 'stretchable' time. The rigid status distinctions prevalent in Indian society and the often servile attitude of workers toward their superiors (exemplified in the common Hindi word for job, *naukri*, which comes from the term, *naukar*, meaning servant), however, ensure that when workers are called on to put in longer hours they do.

While productivity and quality are said to be at least as good as they are in the USA, Indian workers in IT firms regularly work longer hours than their American counterparts. Employers, especially at elite IT services firms, rationalize this expectation with the notion that the company is a global business that works on a 24-

hour cycle. The compensations for workers are high salaries, comfortable facilities, the status boost of working for a multinational firm, and occasional opportunities to work 'onsite' in the USA where they are paid in dollars rather than rupees. But as denizens of a '24-hour work culture' they are expected to be available at all hours.

Even on his day off, Amir, an employee of an IT firm, received constant messages on his Blackberry. The device rarely left his person. His company maintains IT infrastructure for a variety of corporations, one of which is Wal-Mart. The longest he has had to spend in the office is two continuous days. 'I took meals at my desk. Afterwards, I could barely walk. I just collapsed there at my desk and went to sleep,' Amir remarks wearily, as if reliving the exhaustion. He is also required to travel extensively and says that Western workers feel threatened by his work ethic. He twice quit because he felt that his services were under-appreciated, only to be lured back by a pay rise.

Erran Carmel (2006: 46), who is no enemy of global capitalism, writes that offshoring involves various hidden costs and time delays. These hurdles, however, can be cleared. 'If Infosys has an elixir for the time zone gap,' writes Carmel, 'it is its organizational culture that expects a heightened commitment from employees.' He continues:

This commitment is to work longer hours and work off-hours. In short, it is a culture that expects heroics. ... India-based engineering staff members are also expected to perform heroics by being time-zone flexible. They work longer hours and sometimes they time-shift. Managers are used to staying late to overlap with US time. For example, one delivery manager said that he works 9-to-9 many days. The Infosys campuses in India are 24-hour campuses.

Despite a culture that exacts 'life style sacrifices', Infosys is highly selective in its hiring, accepting less than 1 per cent of its million applicants each year. 'Infoscons', as they are called, earn very good salaries and benefits by Indian standards. 'In return for being hired, employees know they are expected to contribute more than just their talent,' Carmel (2006: 50-1) concludes. Given that Infosys has a blue chip client base and that consultants A. T. Kearney named it as 'India's best managed company', this is a telling admission. Long hours are not unique to a few companies; they are generalized across the Indian ICT landscape.

The IT magazine *DataQuest* (2004) released a study on the ICT industry in which it concludes that long hours are the leading cause of stress for workers, followed by work timing. As it surveyed workers at some of the largest employers in India and is largely pro-industry in outlook, the findings are worth quoting:

Any average agent works for 11-12 hours per day – the number goes up to 14 in the case of companies that encourage overtime. The plight of the operational heads is worse – they regularly clock 17-18 hours per day working their shift besides staying back for customer conference calls.

In her comparative study of three software firms in China, Hungary and India, Perlow (2001) finds that Indian employees work the longest. The 'mandatory' workday is from 9.00 a.m. to 6.30 p.m., but workers regularly end at 7.00 p.m. and sometimes as late as 11.00 p.m. Saturday is also a full workday. Likewise, many employees I met spoke of frequent 12–14 hour workdays. Seeing long hours as a positive thing, one executive mused, 'Here people are much more willing to sacrifice their time and do things.'

Workers at small to middle-sized companies fare no better. Dilip, a manager at a middle-sized firm contrasts Infosys (a 'good paymaster') with smaller companies 'that exploit their workers too much'. Employees routinely work over 60 hours a week, he says, and 'too much pressure is given to the developer to complete work'. There are also occasional power shortages. When they occur, 'developers have to stay longer and work through the outage. Sometimes people have to work 18 to 20 hours continuously. It makes me feel like I should leave the industry, but there is satisfaction when I complete the work.'

The CFO of one of India's largest ICT companies puts the issue of long and busy hours in comparative perspective:

People work very hard. And why do people work hard? They do so because they're a poor country. They're growing up. India's a poor country. So every country has worked hard. Koreans have worked hard; the Japanese have worked hard; the Germans have worked hard. To grow your national economy, a couple of generations work extremely hard. People in the US worked hard; people in the UK worked hard. Once you become wealthy, you work less, right. A wealthy country cannot dictate to an emerging country and say, 'You work less.' It's not going to happen because everybody's at a different state of development.

Thus, in addition to cost, part of the attractiveness of Indian labour is its willingness to 'work hard', its ability to shift from a trot to a gallop. Software developers who visited their US parent office for training said that American employees generally stick to a nine-to-five schedule. They, on the other hand, frequently have to stay into the evening to attend conference calls with 'onsite' personnel. They then stay on further still to fix software glitches, which leads to 'more than eight hours of working a day'. As an employee who has made frequent visits to the New York office remarked, 'People tend to work more here. We work later hours. ... We accelerate the pace in the evening.' Steve, a manager in the US office, says that the extended hours were unintentional: they simply were not mindful of the time in India. 'We have a big clock now that's set to Chennai time on the wall. It's not that big, perhaps it should be bigger, but we are much better about it now,' he says.

A BPO employee who previously worked at Reuters' offshore office in Bangalore, says that in the USA people are better at meeting deadlines. Indians, by contrast, 'are not all that cool with it. We work longer hours to meet their timelines. We're having to raise the working level.' She adds that her parents are not very comfortable with

her working late. Moreover, commutes to suburban worksites can take up to two hours in company vans and taxis, which can extend the 'work day' considerably. Says one call centre worker of his nightly commute: 'It's sightseeing in Bangalore. They should provide a greater number of cabs but they think to cut costs first. ... They put all of Bangalore in one cab.'

Long hours and overtime can also have a negative impact on health. A growing body of research finds that overtime and extended work schedules increase the risk of hypertension, cardiovascular disease, fatigue, stress, depression, musculoskeletal disorders, chronic infections and diabetes, among other things (ILO 1998). Moreover, simply looking at the length of work hours masks their qualitative density, revealed in infrequent breaks and heightened intensity.

Temporal displacement

The night shift and health problems

For hundreds of decades we have been sleeping in the dark and waking in the light. When we attempt to do the opposite of this set body program, we are fighting against generations of programming. ... However, it is not impossible to reset the internal biological clock – all it requires is a little effort from our side to consciously regulate the biological clock so that it depends on us and not on daylight or darkness for its functioning. ... And, all along, a 'mantra' that you should keep in mind is: 'My 2 a.m. is the rest of the world's 9 a.m.'

Surviving Night Shifts, a flier distributed to workers at a Bangalore call centre

What is almost unique to the ITES industry is the permanent night shift. According to one Indian manager, 'working the client's hours at night is often preferable as the client is easier to coordinate with. We can provide real-time updates. Development is available in the same time zone.' However preferable the night shift is for businesses, it exacts a social and physical toll on workers and gives rise to safety concerns. Coping with this temporal inversion, however, is a necessary condition of employment.

On any given night, from the empty parking lot behind Kalkaji post office and across a pitted road, one can discern a narrow band of light emanating from beneath a propped door. Behind the door and down the concrete steps are about 40 call centre workers and their boss, Ajay, a young entrepreneur who has started more than twenty outbound call centres throughout northwest India. In contrast to the steel and glass modernism of India's burgeoning technology companies, Ajay's centre is run out of a large basement in South Delhi. Whereas the interiors of many multinational call centres are painted infantile shades of blue, orange and canary yellow to create an atmosphere of fun and play, the walls here are a sombre grey. And, instead of centralized air conditioning, small fans are mounted on the walls. There are no windows on the work floor, which matters little as the daylight has long expired by the time the workers arrive.

As is the case in the industry at large, most of Ajay's employees are recent college graduates, though he just hired someone who had only completed his twelfth standard [grade]. As one manager remarked, 'the less educated, the cheaper. Freshers accept lesser pay.' The workers have a sharp handle of English, but their speech is laced with a North Indian lilt as Ajay cannot afford to offer extensive 'accent neutralization' training, which is intended to obliterate 'mother tongue influences'.

One worker, Anita, is a 22-year old Christian from Manipur in northeast India. The daughter of a pastor, she works the full-time night shift, which is around nine hours, six days a week, including national holidays. She lives in a joint family of eight whose combined monthly income is below 20,000 rupees (\$445). Anita herself makes 7000 rupees (\$158) a month, which translates to about 30 rupees or \$0.67 an hour (most call centre workers make approximately double that amount).

Working the graveyard shift, Anita says, is a health hazard. Asked of any job-related health issues, she mentions backache, eyestrain, earache, reduced appetite, insomnia and stomach cramps. She has no time for domestic activities; her only leisure time is on Sunday, which she spends sleeping rather than attending church. Anita's voice is small yet confident. She feels that call centre jobs are 'good for women. Otherwise, I'd be home.' When asked if she considers her employment to be a career option she replies ruefully but with a look of defiance: 'I want to live a long life. If I live like this, I won't live long.'

Anita's case is not untypical of the two million people working in India's growing ICT industry (NASSCOM 2008). Even in cases where the night shift exacts an appreciable toll on their health, workers are willing to give it a go, viewing their employment more as a lucrative stopgap arrangement than a career. It is thus important not to overdramatize their plight. At times, they are very happy, especially when they indulge in consumption binges at shopping malls or arrange romantic trysts at suburban nightclubs and cafés. Such are the consolations of a relatively hefty paycheck. Their pathos is the pathos of globalization: the product of the cyclical joys and humiliations of life under the new dispensation.

According to the International Labour Organization (1998), 'The night shift is the most disruptive of all shifts in terms of physiological adjustment, sleep and well-being.' It disturbs socio-temporal patterns and circadian rhythms, leading to stress and sleep disturbances, all of which increase susceptibility to disease. Night shifts have been linked to gastrointestinal disorders, such as constipation and diarrhoea, and peptic ulcers, and there is growing evidence of a tie between shift work and coronary heart disease and breast cancer (Davis et al. 2001). They may also contribute to miscarriages and low weight and premature births among pregnant workers (Knutsson 2003).

Of 103 night-shift workers I surveyed, 63 respondents report experiencing job-related health problems. These include but are not limited to loss of appetite, insomnia, eyestrain, fatigue, stomach cramps, acidity and constipation, headaches and backaches. One worker complains of 'acute health loss in 2003 leading to hospitalization'. Another says he feels 'his memory power reducing'. The figures above may underestimate the actual number of people with health problems as many

workers, especially male workers, were reluctant to disclose ailments, but later admitted to experiencing problems. A handful of workers say that they acclimatize to night shift after an initial period of adjustment, and research suggests that a permanent night shift may be better than erratic shifts as it permits some degree of circadian adaptation. However, even this adjustment is ephemeral (Barton et al. 1993). Any benefits are lost when workers revert to standard routines, which is inevitable on weekends and days off as they struggle to make up for lost time with friends and families. Thus, the ILO (1998) concludes, ‘the body rhythms of permanent night-workers are constantly in a state of disruption’.

The night shift is also linked to behavioural changes such as smoking and poor diet. According to one worker, ‘it’s working against the nature. It really impacts the health. It’s more of a chip and coke culture and I’ve seen a lot of people falling ill. This industry’s helping the tobacco industry a lot.’ One former call centre worker recalls ‘falling ill and having headaches, migraines. Intakes of medicine were very high and I started losing weight.’ Others say that they have gained weight because of the sedentary lifestyle the job promotes. The *New York Times* reports on the startlingly high incidence of Type-2 diabetes among India’s middle class and suggests that junk food eating, keyboard tapping software workers are particularly easy prey for the disease (Kleinfeld 2006).

Rupa, a 22-year old call centre worker, says that her firm is a ‘very nice place to work. But your whole routine changes because of the night shift. If I get a day off I can’t sleep until four or five in the morning. But you get used to it.’ Wilson, a 24-year old commerce graduate, interrupts: ‘But it is difficult,’ he says, ‘You compromise a lot. You have only Sundays to see family. You lose appetite as you can’t eat breakfast at one in the afternoon. For those staying alone, it’s very difficult.’ He added that making calls is ‘a major angle of stress. When you start, OK, it’s just a new thing. [As] with any new toy, it’s easy to play with. But then it becomes very monotonous.’ Outside, their 26-year old team leader clenches a plastic cup of coffee in one hand and a cigarette in the other. Asked her how many hours she sleeps each day, she says ‘five or six maximum’.

The prolonged combination of stress and fatigue at BPOs now goes by the acronym BOSS – Burn Out Stress Syndrome. A worker tells of its symptoms:

Since I will have to work the night shift hours it severely affects our daily lives. I missed most of my family affairs. But the most important thing is that I have suffered a number of diseases like sleeplessness, eyestrain, continuous headache. I couldn’t find any time to brace my mind or to take care of my health.

Consequently, one manager says that workers cannot stay on the job for more than two or three years. After that, ‘they burn out. It’s very hard on the body and not natural.’ A former 40-year old worker says that the combined pressure of health problems and managerial pressure was too much to handle. More than once she had high blood pressure and felt ill. ‘They said I was dropping my calls. I said I’m dropping the job,’ she says.

As the major factor that sets the body clock is bright light, offices are bathed in artificial light and blinds are closed to keep the darkness from view. 'We can't tell what time of day it is when we're at the office,' one worker says brightly. Caffeine is another weapon against drowsiness. Workers, however, often find it difficult to sleep after the shift as they return home in broad daylight. 'Wearing dark glasses on the way home if we are working the night shift prevents the morning sunlight from activating our internal biological clock,' suggests a company flier. A few workers mention using sleeping pills and drinking alcohol to help them fall asleep. Sleep restriction, even at moderate levels, results in increased levels of stress hormones and 'seriously impair waking neurobehavioral functions in healthy adults' (Van Dongen et al. 2003: 117). Over time the body's ability to compensate for this sleep deficit wanes, perhaps permanently (Meerlo et al. 2002). Importantly, this 'neurobiological "cost" which accumulates over time' applies to extended shifts as well as night shifts (Van Dongen et al. 2003: 117). Yet, as job tenure for BPO employees is very short, the health impacts are not as severe as they would be over time. High turnover, somewhat perversely, is good for workers' health.

Social and family problems: 'we are like owls'

Amartya, 27, is an employee of an ITES firm in New Delhi. Born in Calcutta, he is fluent in Hindi, Bengali and English and holds a bachelors degree in commerce. He works between ten and twelve hours a day, six days a week. He travels to work between eight and nine at night through a soft landscape of unfocused forms, dull wind, and intermittent street lamps that produce a crepuscular gloom. In contrast, the morning light is sharp and the air crisp when he returns home, whereupon he breakfasts on a glass of water and two or three glucose biscuits. He then sleeps heavily into the afternoon and takes lunch at the 'Hotel Kerala', a tiny restaurant tucked into an unpaved alley a short bus ride away. The fare there is 'simple and safe'. After lunch he takes another nap until evening and then goes back to work. 'Eat, sleep, work. Eat, sleep, work. I have become too dull,' he says with a laugh.

The second of three children and the son of a retired civil servant, Amartya is the only male child and this entails a certain financial responsibility. His dilemma is like that of many other workers in the industry. The job has uprooted him, but it pays comparatively well. As he explains:

I'm the lone earner for my family and ... I can support my family fully with my present job. But socially it's hampered me as we are in night shift any I can't visit Calcutta for receptions and marriages. But I don't have any option because someone has to compromise somewhere.

Of those workers who say that outsourced jobs have improved their lives, their reasons are chiefly economic and secondarily social. One worker joins these two strands: 'It has increased my social status, a little bit than being unemployed. Now, I have very limited time for family, but the positive effect is that the job has given an

economic stability and a little more security.’ Another employee describes his growing professionalism: ‘The job has brought discipline in my life. I have learnt to appreciate perfection in everything.’ But even these workers are unlikely to stay on for long. Whatever adjustments workers make, job tenure is extremely short and vertical mobility is limited. As one manager puts it, ‘Not everyone can be a team leader.’

In comparison with other shift systems, fixed night shifts impair personal relationships and mental well-being (Portela et al. 2004). One worker at Amartya’s firm puts it bluntly: ‘I feel that my organization’s working timings are very odd and that affects my social and family life ... which demolishes my happiness.’ Being conditioned to live as if one were in a foreign time zone while remaining fixed within one’s geographic space can lead to a measure of disorientation. Workers complain that their time with family and friends is curtailed (‘My girlfriend has left me, since I could not give her enough time’); that they are unable to participate in religious festivals (‘I can’t celebrate festivals, as I have to work on those days and that too in shift’); and that they feel cut off from the larger society (‘I’m not updated with the current world scenarios’). Nearly half of the overall survey respondents report social or family problems (58 out of 120; 20 non-responses), and the large majority of them work the nightshift. As Mirchandi (2004: 365) notes, workers are at a remove ‘from the spaces of social life such as markets, households, and transportation links, which occur only during the day.’

‘We are like owls,’ says Karthik, a former call centre employee who now works at an IT startup. ‘We’re awake when family is asleep. We can’t socialize because of night work and this leads to depression. [Workers] are willing to spend whatever they can on boozing, shopping, whatever.’ A shift lead at a BPO who works 12 hours a day, seven days a week remarks, ‘My social life has gone for a toss. People at work expect more from you. I desperately need a break.’ All told, the jobs produce (relatively) high incomes and social estrangement in equal measure.

Safety issues

That time is so critical to global business operations is evident in the fact that the main changes to Indian labour law introduced for the benefit of the industry have had to do specifically with time. These include amendments that allow flexible work timings and shift work, including provisions to work on national holidays, and on overtime pay (Shops and Establishments Act 1947). Other amendments allow women to work the night shift (Factories Act 1948) and designate ITES and IT companies as ‘essential services’ (Industrial Disputes Act 1947), which makes strikes very, if not exceedingly, difficult. These changes have the cumulative effect of allowing businesses to function 24 hours a day 365 days a year. They also exempt firms from mandatory power outages and provide them with dedicated satellites and power supplies to ensure that an overtaxed municipal infrastructure does not undermine their time-sensitive operations. Businesses argue that such changes are necessary to attract foreign investment. Such concessions, however, are not without their costs.

On the night of 13 December 2005, Pratibha Srikant Murthy, a 24-year old Hewlett Packard (HP) call centre worker in Bangalore, boarded a cab that was to take her to work. The following morning, her bloodied body was found in a roadside ditch on the outskirts of the city and the driver was charged with rape and murder. Although HP has denied responsibility – the driver worked for a company to which HP had outsourced its transportation – the Karnataka government has filed a suit against the company under Section 25 of the state's Shops and Commercial Establishments Act (1961), which mandates that employers provide for the safety and security of their employees. If convicted, the company's then-managing director would face a token fine of 1000 rupees (\$25) (BBC News 2008). This and another act at the central level had been amended to allow women to work night shifts in special economic zones.

Her murder was not an isolated incident. In November 2007, Jyoti Kumari Choudhari, an employee of a Wipro call centre, was found raped and murdered on the Mumbai-Pune Express Highway and, on another occasion, in Pune, a lovelorn former driver threw acid on a female call-centre employee's face when she refused his advances (Sharma 2006). In Gurgaon, drivers have molested call-centre workers and during a visit to a call centre in Bombay, two employees told me of an attempted abduction of their co-worker by a driver. Such episodes prompted labour ministries to issue guidelines on transportation safety to ICT firms. A senior executive at one of India's largest IT firms, however, disputes the significance of these events:

Nightshifts are part of a choice that you make. ... You can always get a different job. This is all being blown up for nothing. Yes, it's a heinous crime. It's a chance occurrence that could have happened to anybody. ... It is sad, it shouldn't happen but it happened. It's not the end of the world, it's not like the industry is evil. The industry has taken care so much. How many industries drop people home in the night? How many people are well paid? How many people have used technology? This is, you know, going overboard.

NASSCOM, the ICT industry association, claims that the industry 'is the most responsible employer of women in India'. Likewise, a female call centre worker in Bangalore says that 'these things are blown out of proportion'. But while it is true that offshoring has generated employment for women, these are not one-off episodes.

Moreover, according to Gaurav, a former outsourcing consultant turned human rights activist, the industry's service workers 'are getting a raw deal'. This is especially the case for drivers who convey night employees. 'Rash driving by contracted drivers has led to a lot of accidents,' he says:

There is lots of pressure on time as they have the same timings as BPO employees. They make around 4500 rupees (\$100) a month; they have nice uniforms and haircuts but at the end of the day they're the worst hit. But on the other hand, they might not have a job otherwise.

In Bangalore, frustrated locals refer to the Dell cabs that speed through the streets of India's Silicon Valley as 'hell cabs'. Not only does night work lead to poorer performance, but it also leads to sleepiness, which, more than alcohol or drugs, is 'the greatest identifiable and preventable cause of accidents in all modes of transport' (Rajaratnam and Arendt 2001: 999; see also Akerstedt et al. 2005; Folkard et al. 2005).

Exit and choice

The logic of globalization is unremitting and unforgiving, a point made plain in the preceding discussion on the duration and density of work. However, to focus solely on these categories is to overlook time's internal texture, its rhythm. According to Thompson (1967), what was critical for the expansion of industrial capitalism was not the length of the working day *per se*, but the very acceptance by workers of the clock as a means of regulating work. Lefebvre (2004), moreover, writes that the linear, serial and exogenous rhythms of capitalism and the diverse, cyclical and irregular rhythms of ordinary life are always in perpetual interaction, producing a struggle over the definition of working time. In this section, I explore the concepts of time companies impose and how workers deal with them. I also assess the means available to workers to carve out a space for the emergence of collective rhythms that could counteract the atomizing pressures of a de-socialized work environment.

To begin, the mandatory night shift results in the wholesale inversion of night and day. Time, moreover, is closely regulated through two levels of surveillance: 'the deep layer of computer monitoring and the surface, and more quixotic layer of human supervision' (Freeman 2000: 199). For non-shift workers, the elasticity of the working day – which expands and contracts like bellows at the whim of the home office – signifies a collapse of the work-life boundary. While the absence of a strong demarcation between work and life could be seen as welcomingly reminiscent of pre-industrial work patterns, in the present case, they are not so much intermingled as life is subsumed by work. The piecemeal nature of the work exacerbates these tensions. The Indian outsourcing sector is a niche and dependent export-based industry. Work processes are standardized, replicable and predictable, one task following the other in serial progression (Taylor and Bain 2005). Consequently, workers complain about the unrelieved monotony of task and pace.

The struggle over working conditions, then, is increasingly about time (Fischer et al. 2004). Temporal autonomy could mean shortened work hours and rotating shifts, lighter workloads, reduced pressure, and a more relaxed working pace. It could also mean the increased frequency and duration of breaks and a greater appreciation of the unique time-bind that Indian workers face. Finally, it might also allow time for the unsupervised interaction between workers, thus injecting a social dynamic into the workplace. Only then could workers be said to exercise any meaningful degree of ownership over the labour process. It is thus not merely a fight to secure more 'leisure time' but also to integrate collective rhythms into the workplace setting.

What are the prospects of redressing worker grievances? Hirschman (1970) argues

that there are two main ways of expressing one's discontent in an organization. One can *voice* one's complaints through the appropriate channel and hope the grievance will be addressed, or one can *exit* from the organization and go elsewhere. Importantly, for the latter to be a meaningful option, one must have a measure of social and economic security: either the skills to acquire another job or some private wealth to fall back on. Otherwise, even voice becomes a perilous option. The issue is one of worker bargaining power. Wright (2000: 962) distinguishes between associational and structural power. The former concerns the power created by the formation of collective organizations like unions and political parties. Structural power, by contrast, accrues to workers 'simply from their location ... in the economic system' and 'results directly from tight labor markets' and 'from the strategic location of a particular group of workers within a key industrial sector' (Silver 2003: 13).

Indian ICT workers have very little associational power. The major unions have expressed interest in organizing workers but have made no real effort. In terms of marketplace bargaining power, workers seemingly have it in abundance. They know English as well as specialized skills generally only available to the middle class. Furthermore, demand is outpacing supply so fast that companies have to raise salaries significantly each year for experienced personnel. As a trade union official puts it, 'You may say anything about health hazards and long work hours to which workers are exposed. But considering the compensation package, these are not hazards.' In addition, many workers are middle class and can depend on the family if they want to quit. The CFO of a major IT company lays emphasis on choice and the possibility of exit:

You must remember that this industry is resource-constrained; you can't force people to do anything you want. If you force people to do something, they walk away. ... Today you don't have to work in a call center. ... You choose to work in a call center. ... We are a democracy, let the people decide. If it's that there are no jobs and call centers are the only work, there's a point.

Being a link in the global service chain, moreover, gives them the ability to disrupt the network through a work stoppage. Many large corporations have become directly dependent on their offshore subsidiaries. A senior executive makes this point plain:

We operate in the extended team model. Almost 100 per cent, 99 per cent of the development process happens here. ... Only the requirements, business problem definition, and the production support is done in the US. As far as the development ... it's happening here. If [the subsidiary] is not operational or cannot deliver, [the parent] will have to stop. As far as [the parent], we are the heart, or the brains. ... We drive it.

A work disruption, he says, could prove disastrous for the US operation. Events in the outside world, such as social unrest, can also have ramifications. A strike in Bangalore following the death of the celebrated South Indian actor Rajkumar

disrupted work for two days. When companies like Microsoft and Sun refused to shut down operations, the mourners attacked them directly. While such difficulties may lead companies to reconsider their offshoring plans, the competitive nature of the global economy ensures that when a few major players make the transition, such as General Electric or IBM, others have to follow suit. As a US-based manager puts it, 'We have to make it work. We have little choice.'

Given these sources of structural power, it is difficult to argue that workers are somehow 'trapped' in these positions. Yet one must not mistake potential power for its realization. There are also sources of worker insecurity that reduce their leverage. Worker complaints of managerial favouritism are often ignored. As one worker comments, 'If you speak up, you'll become a bad person. People are very scared to go and speak.' Labour laws provide little protection and the lack of collective representation through a union is also a restriction on worker voice. In a changed labour market, an atmosphere of generalized insecurity could be used to bargain down wages and working conditions.

Coda

On the heels of the 1929 stock market crash, John Maynard Keynes (1932: 131–2) sought to allay the 'economic pessimism' of the day. 'We are suffering, not from the rheumatics of old age,' he wrote, 'but from the growing pains of over-rapid changes, from the painful adjustment between one economic period and another.' Scientific and technological advances would 'within a hundred years' usher in an 'age of leisure and abundance' and 'economic bliss'. Later technological optimists envisioned such a reduction of toil in the transition to 'post-industrialism'. Since, according to Thompson (1967: 73), the prevailing work pattern prior to the industrial revolution 'was one of alternate bouts of intense labour and of idleness, whenever men were in control of their working lives', one is tempted to ask whether the irregular working rhythms of the pre-industrial era have been recaptured in the flexibility of the post-industrial period?

Such dreams have not come to fruition. Despite technological progress, the trend is in the other direction, towards longer and busier hours. What is at stake, Basso (2003: 163) writes, 'is a *return to the past*, to hours that are not only long but extremely intense and variable, autocratically established by companies and by the state'. Time should therefore be brought to the forefront of discussions about working conditions. And, as the livelihoods of workers in the global North and global South are inextricably linked through international trade, a transnational perspective is increasingly important. Where technological advancements make it possible to move work seamlessly from Los Angeles to Bombay, for example, do not the job security and labour conditions of the Angeleno vary in inverse relation to that of the Bombay-ite?

Some 40 years ago, Thompson (1967: 93) observed (rather belatedly) that 'Without time-discipline we could not have the insistent energies of the industrial man; and whether this discipline comes in the form of Methodism, or of Stalinism, or

of nationalism, it will come to the developing world.’ Not only has time discipline come to the Third World, but also globalization has intensified work-time pressures. As offshoring gains momentum, a World Bank report argues, India ‘could drive down the global costs in services, just as China drove down global costs in manufacturing’ (Dahlman and Utz 2005: 7). One could say the same about working conditions, particularly as they relate to time. While firms do not go offshore for the benefits of time arbitrage alone, it can become an element in concession bargaining – ‘work longer or faster or we can go offshore where workers are more willing.’ Novel and retrograde modes of work pace, rhythm and time-discipline traverse the workplaces of ‘new economy’. Globalization therefore does not entail the loosening of temporal chains, but their reconfiguration: a combination both rigid and flexible that binds even as it liberates.

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Note

1. In addition, I spent time with workers in a variety of social settings, from homes to malls, cafés and nightclubs. This was, in part, necessitated by the restrictive nature of some of the interviews, as managers sometimes handpicked the subjects. While even these workers could be remarkably frank about their hopes and disappointments, the workplace setting has certain inherent limitations that I tried to overcome.

References

- Adam, B. (2003) ‘Reflexive modernization temporalized’, *Theory, Culture & Society*, 20 (2), 59–78.
- Akerstedt, T., B. Peters, A. Anund and G. Kecklund (2005) ‘Impaired alertness and performance driving home from the night shift: a driving simulator study’, *Journal of Sleep Research*, 14, 17–20.
- Baily, M. and D. Farrell (2004) ‘Exploding the myths of offshoring’, *The McKinsey Quarterly*, McKinsey Institute, www.mckinsey.com/mgi/publications/myths.asp, accessed 8 September 2008.
- Bain, P., A. Watson, G. Mulvey, P. Taylor and G. Gall (2002) ‘Taylorism, targets and the pursuit of quantity and quality by call centre management’, *New Technology, Work and Employment*, 17 (3), 170–85.
- Barton, J., L. Smith, P. Totterdell, E. Spelten and S. Folkard (1993) ‘Does individual choice determine shift system acceptability?’, *Ergonomics*, 36 (1–3), 93–9.
- Basso, P. (2003) *Modern times, ancient hours: working lives in the twenty-first century*, London: Verso.
- Bauman, Z. (2000) *Globalization: the human consequences*, New York: Columbia University Press.
- BBC News (2008) ‘Boss faces call-centre death case’, 22 February, <http://news.bbc.co.uk/2/hi/business/7258837.stm>, accessed 8 September 2008.
- Birth, K. (2007) ‘Time and the biological consequences of globalization’, *Current Anthropology*, 48, 215–36.

- Carmel, E. (2006) 'Building your information systems from the other side of the world: how Infosys manages time zone differences', *MIS Quarterly Executive*, 5 (1), 43–53.
- Castells, M. (2000) *The rise of the network society*, Oxford: Blackwell Publishers.
- Dahlman, C. and A. Utz (2005) *India and the knowledge economy*, Washington, DC: The World Bank.
- DataQuest (2004) 'BPO employee survey 2004: industry stress factors', 8 November, www.dqindia.com/content/dqtop202k4/empSurvey2004/2004/104110816.asp, accessed 8 September 2008.
- Davis, S., D. K. Mirick and R. G. Stevens (2001) 'Night shift work, light at night, and risk of breast cancer', *Journal of the National Cancer Institute*, 93, 1557–62.
- Economist* (2004) 'Economist outsourcing survey: a world of work', 11 November, www.economist.com/surveys/displayStory.cfm?Story_id=3351416, accessed 8 September 2008.
- Fischer, F., L. Rotenberg and C. R. Moreno (2004) 'Equity and working time: a challenge to achieve', *Chronobiology International*, 21, 813–29.
- Folkard, S., D. A. Lombardi and P. T. Tucker (2005) 'Shiftwork: safety, sleepiness and sleep', *Industrial Health*, 43, 20–3.
- Freeman, C. (2000) *High tech and high heels in the global economy*, Durham, NC: Duke University Press.
- Friedman, T. (2006) *The world is flat: a brief history of the twenty-first century*, New York: Farrar Straus Giroux.
- Hareven, T. (1982) *Family time and industrial time*, Cambridge: Cambridge University Press.
- Harrison, B. (1997) *Lean and mean: why large corporations will continue to dominate the global economy*, New York: The Guilford Press.
- Harvey, D. (1989) *The condition of postmodernity: an enquiry into the origins of cultural change*, Oxford: Basil Blackwell.
- Hassan, R. (2003) 'Network time and the new knowledge epoch', *Time and Society*, 12, 225–41.
- Head, S. (2005) *The new ruthless economy: work and power in the digital age*, Oxford: Oxford University Press.
- Heeks, R., S. Krishna, B. Nicholson and S. Sahay (2001) 'Synching or Sinking', *IEEE Software*, 18 (2), 54–60.
- Hirschman, A. O. (1970) *Exit, voice, and loyalty: responses to decline in firms, organizations, and states*, Cambridge: Harvard University Press.
- International Labour Organization (1998) *ILO encyclopedia of occupational health and safety*, www.ilo.org/encyclopedia.
- Keynes, J. M. (1931) *Essays in persuasion*, London: Macmillan.
- Kleinfeld, N. R. (2006) 'Modern ways open India's doors to diabetes', *The New York Times*, 13 September.
- Knutsson, A. (2003) 'Health disorders of shift workers', *Occupational Medicine*, 53, 103–8.
- Lefebvre, H. (2004) *Rhythmanalysis: space, time and everyday life*, London: Continuum.
- Lynn, B. (2005) *End of the line: the rise and coming fall of the global corporation*, New York: DoubleDay.
- Mattoo, A. and S. Wunsch (2004), 'Pre-empting protectionism in services: the WTO and outsourcing', World Bank Research Working Paper 3237, Washington, DC: World Bank.
- Meerlo, P., M. Koehl, K. van der Borght and F. W. Turek (2002) 'Sleep restriction alters the hypothalamic-pituitary-adrenal response to stress', *Journal of Neuroendocrinology*, 14, 397–402.
- Mirchandi, K. (2004) 'Practices of global capital: gaps, cracks and ironies in transnational call centres', *Global Networks*, 4, 355–73.
- NASSCOM (2008) 'About NASSCOM', <http://www.nasscom.in/Nasscom/templates/NormalPage.aspx?id=5365>, accessed 8 September 2008.

- Ong, A. (2006) *Neoliberalism as exception: mutations in citizenship and sovereignty*, Durham, NC: Duke University Press.
- Overby, S. (2006) '2006 Global outsourcing guide', *CIO Magazine*, www.cio.com/archive/071506/global_outsourcing.html.
- Perlow, L. (2001) 'Time to coordinate: towards an understanding of work time standards and norms in a multicountry study of software engineers', *Work and Occupations*, 28, 91–111.
- Portela, L., L. Rotenberg and W. Waissman (2004) 'Self-reported health and sleep complaints among nursing personnel working under 12 h night and day shifts', *Chronobiology International*, 21, 859–70.
- Rajaratnam, S. and J. Arendt (2001) 'Health in a 24-hour society', *The Lancet*, 358, 999–1005.
- Sassen, S. (2001) *The global city: New York, London, Tokyo*, Princeton, NJ: Princeton University Press.
- Schor, J. (1991) *The overworked American: the unexpected decline of leisure*, New York: Basic Books.
- Sennett, R. (1998) *The corrosion of character: the personal consequences of work in the new capitalism*, New York: WW Norton & Company.
- Sharma, D. (2005) 'Shining India's swanky new sweatshops', *The Hindustan Times*, 20 September, www.hindustantimes.com/news/181_1527814,0008.htm.
- Sharma, R. (2006) 'Murder most foul', *Frontline*, www.flonnet.com/fl2227/stories/20060113006612500.htm, accessed 8 September 2008.
- Silver, B. (2003) *Forces of labor: workers' movements and globalization since 1870*, Cambridge: Cambridge University Press.
- Simonson, E. (2002) 'Part I: what's driving the growth of BPO? The impact of labor arbitrage', *BPO Outsourcing Journal*, www.bpo-outsourcing-journal.com/nov2002-everest.html, accessed 8 September 2008.
- Taylor, P. and P. Bain (1999) 'An assembly line in the head: work and employee relations in the call centre', *Industrial Relations Journal*, 30, 101–17.
- Taylor, P. and P. Bain (2005) "'India calling to the far away towns": the call centre labour process and globalization', *Work, Employment and Society*, 19, 261–82.
- Thompson, E. P. (1967) 'Time, work-discipline, and industrial capitalism', *Past and Present*, 38 (December), 56–97.
- Thrift, N. (2000) 'Performing cultures in the new economy', *Annals of the Association of American Geographers*, 90, 674–92.
- Van Dongen, H., G. Maislin, J. M. Mullington and D. F. Dinges (2003) 'The cumulative cost of additional wakefulness', *Sleep*, 26, 117–27.
- Virilio, P. (2006) *Negative horizon: an essay in dromoscopy*, London: Continuum.
- Wright, E. O. (2000) 'Working-class power, capitalist-class interests and class compromise', *American Journal of Sociology*, 105, 957–1002.