Time and Intensity Trade-offs at Work, at Leisure, and in Life

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ABSTRACT

This paper extends the work motivation, work-leisure, and work-life-balance literatures by developing a conceptual model to demonstrate the interdependence of the decisions that individuals make concerning their allocation of time between work and leisure; how hard they work while at work (work intensity); and how hard they play while at leisure (leisure intensity). We generate a series of testable propositions after proposing a typology of individuals based on their preferences to work more or less hours and more or less intensively and their preferences to take more or less leisure time and use it more or less intensively.

Key words:

Work effort, work intensity, leisure, leisure intensity, work motivation, work-life balance

INTRODUCTION

The motivation of employees to work hard is at the heart of our economic and social wellbeing. But employees face the fundamental trade-off between using their time for working or for undertaking leisure activities. The work-leisure trade-off has long been a topic of interest to economists (e.g. Marshall, 1920). Individuals allocate time between work and non-work activity based on the expected pleasure from goods and services (purchasable from the income attained from working) and the expected displeasure (deriving from fatigue, boredom, and so on) associated with working. Thus they allocate some proportion of their day, week or lifetime to 'working for a living' and then use the remainder of the time for resting, recreation, household chores, and personal and family pursuits.

But how hard will the worker work, while at work? Economists focused largely on the use of financial reward systems to induce employees to work harder in the best interests of the firm's shareholders. Conversely, organisational psychologists who questioned the importance of money as a motivator and were largely concerned with how the individual employee responded to the intrinsic and extrinsic benefits associated with the workplace. Cognitive theories of work motivation argue that high levels of work effort may be directly induced by the provision of intrinsic benefits associated with the job, or indirectly induced through extrinsic motivators including effective leadership, good management, pleasant co-workers, and other workplace

amenities (Locke, 1997; Locke & Latham, 2004). For an overview of work motivation theory see Steers, Mowday & Shapiro (2004) who lament that after a 'golden age' work motivation theory is in the doldrums and that we need 'entirely new models…to further our understanding of employee behavior and job performance in contemporary organizations' (2004: 379).

This paper responds to that call by building an economic model of the work motivation decision. In this paper work effort is regarded as the product of time spent working and the intensity of effort supplied during that time. Most empirical studies find work intensity difficult to measure and settle for work hours as a proxy for work effort (e.g. Buelens & Poelmans, 2004; Burke, Oberklaid & Burgess, 2004; Scott, Moore & Miceli, 1997; Spence & Robbins, 1992). Perhaps because of this, the conceptual development of the work effort construct has stalled, with very little conceptual or empirical work being done on the intensity aspect of the construct. The complementary relationship of work with non-work activities is also neglected by the work motivation literature, although it is well studied in the 'leisure' literature (see for example, Snir & Harpaz, 2002) and the 'work-life balance' literature (see for example, Greenhaus, Collins & Shaw, 2003). Nonetheless, there is scope for further work that integrates the decisions that individuals make about the allocation of their time between work and leisure with the decision to work and to undertake leisure activities at different levels of intensity.

This paper builds a comprehensive model of the individual's work and leisure choice – the individual simultaneously chooses how many hours to work (work time) and thereby necessarily chooses its complement (leisure time); and simultaneously chooses how hard to work (work intensity) and how hard to play (leisure intensity). In the next section the relevant literature will be reviewed for its contributions to the debate so far. The time-intensity trade-off will be examined in the work context in the third section, and in the leisure context in section four. These two contexts are brought together in section five, where the individual is treated like a person with two competing inner selves – one who wants to work and the other who wants to play. Section six offers a discussion of the issues that arise, develops a typology of lifestyles and several research propositions, and offers suggestions for management practice and for further research.

The Work-Leisure Choice

Assuming diminishing marginal utility of goods and services and increasing marginal disutility of work effort, economists argue that individuals will supply work effort up to the point where the marginal utility of income (to be spent on goods and services to meet one's needs and wants) from the marginal unit of work just compensates for the marginal disutility incurred from that unit of work (see for example Marshall, 1920). In the world of the classical economists it might have been easier to monitor employee's work effort and/or to pressure workers into working harder. Taylor's (1911) scientific management approach emphasised money as a motivator of work effort, but economists began to note that work effort might fall below acceptable levels when it could not be observed directly and/or where monitoring costs were relatively high. The principal-agent literature (Alchian & Demsetz, 1972; Jensen & Meckling, 1976; Ross, 1973; Shavell, 1979) then arose to propose income and risk sharing schemes that would induce the employee to work harder by aligning his/her incentive structure with that of the employer. Most recently Fairris (2004) notes that the determinants of work effort are complex and varied, and that there is a need for the development of work effort models that not only capture this complexity but take account of employee preference for work intensity.

Work Effort Decomposed and the Time-Intensity Trade-off

We consider an individual who has constrained choices of the combination of time and intensity that constitutes any particular level of work effort. We assume the individual gains disutility from both time spent at work and intensity of work, and has increasing marginal disutility for both time and intensity of work. We also assume that a specific level of output is obtainable by a variety of combinations of work time and work intensity, and that there is diminishing marginal productivity to both time and effort. Higher time inputs (given an intensity level) produce higher levels of output, and conversely higher intensity inputs (for any particular time input) produce higher outputs. By considering the employee's utility-maximizing combinations of time and intensity, one can determine their preferred method (time and intensity combination) of producing any specific level of output.

Individuals are different, of course, and so are work situations. Individuals are likely to have different trade-offs between time and intensity, and be expected to produce different minimum levels of output (on pain of disciplinary action) within standard working hours. For employees who prefer to achieve production targets by working less intensively over a longer period, the employer must permit these employees to come in early and/or stay later at work and/or take work home. If not, the worker must work at a higher level of intensity to meet the output target. The necessity to work at intensity levels higher than desired is likely to cause lower overall satisfaction, perhaps due to feelings of greater stress as a result of having to work faster. Alternatively, some employees might prefer to produce the minimum output level in lesser time with greater intensity, but are required to provide the 'full day' at work. Such workers will spend time socializing, or resting, or undertaking organisational citizenship behaviour. If not required to stay once the 'day's work' has been done, this employee might leave work and begin enjoying leisure activities. Thus we have considered two different types of workers – the former will sacrifice a relatively large amount of time to gain lesser intensity, while the latter will trade a relatively small amount of time for a relatively large amount of intensity.

The Time-Intensity Trade-off in Leisure

We now turn to the non-work part of our lives, which we refer to as 'leisure,' notwithstanding that this time must necessarily include work of a non-paid nature, such as housekeeping, other chores, and familial or societal obligations. Some authors have decomposed non-work time into a variety of activities including time for rest, recreation, family time, religious observance and personal time (see for example Harpaz, 1988, and Snir & Harpaz, 2002), but we will focus on the time-intensity trade-off issues. Some leisure activities are necessarily more intense than others, such as participation in contact sports and rigorous recreational pursuits like mountain climbing, and surfing the waves. Other leisure pursuits are inherently less intense, such as reading, watching sport, movies or television, and surfing the Internet. Some activities can be made more or less intensive by the use of vehicles, tools, appliances or other goods and services, such as sightseeing (on foot vs. by vehicle), cooking (make from 'scratch' vs. make from a packet), fishing (hand line off the dock vs. fishing rods in a boat), and so on. To clarify what we mean by leisure intensity, we mean (in parallel with our definition of work intensity) that leisure is taken more intensively when it takes more energy to accomplish a particular

(leisure) objective. The use of ancillary or complementary goods and services to assist in the accomplishment of a particular leisure objective may save both intensity and time. Thus, mountain climbing can be made less intensive *and* less time-consuming by the use of a helicopter to transit to the base of the mountain (rather than hiking there). Alternatively, mountain climbing can be accomplished in less time but with greater intensity by running up and down the mountain (as compared to walking).

Thus, specific leisure objectives can be achieved more or less intensively, and there may be many different combinations of time and intensity that will allow achievement of any particular leisure objective. Accordingly, we will proceed to analyse leisure in the same way as we did with work, and will speak of 'leisure effort' as the product of leisure time and leisure intensity. Note that while time and intensity at work are each likely to generate net disutility (except for workaholics), time and intensity at leisure are each likely to generate net utility. Leisure effort is simultaneously determined with work effort. We know that leisure time and work time add to 24 hours a day, and we also view intensity as a finite variable. Accordingly, leisure intensity is the residual energy one has for leisure after one has already used up some part of one's finite energy reserves at work. Some people have greater energy reserves than others, and over time, physical exercise might operate to raise the energy levels of people both at work and at leisure, but an individual's energy reserves are nonetheless finite on any given day. Also, people with greater learned skills and/or natural abilities are likely to achieve work and leisure tasks using less energy than would less-able people.

The Work-Non-Work Trade-off in Time and Intensity Dimensions

It is instructive to model the individual as having an inner tussle between the 'worker self', who wants to work for material and psychic benefits, and the 'leisure self' who wants to enjoy non-work activities. The outcome of this tussle is the work-life balance struck by the individual (which may or may not please his/her employer or family). Since individuals have a finite supply of time and intensity, too much intensity at work will leave the individual incapable of highly intensive leisure activities, due to physical and mental exhaustion. In principle, the individual can choose to work more or less time (and at more or less intensity), and this work effort has the opportunity cost of leisure time and leisure intensity. At the margin, the disutility

to be gained from working another hour should be just equal to the utility to be gained by taking leisure for another hour. We note that the individual's work-life balance will be chosen by the individual as the combination that maximizes his/her utility from both work and leisure combined. This combination will in turn be dependent on the relative value that the individual places on provision of both time and intensity in both work and leisure.

The employer might impose both a minimum work time and minimum work intensity, as well as (or in lieu of) a minimum output requirement. Similarly on the leisure side, there is likely to be a minimum amount of leisure time necessary for sleeping, completing necessary chores, and minimal socialising. A minimum intensity of leisure is also arguable, since it takes some level of energy to get in and out of bed, prepare and eat food, and other minimal leisure activities. These minima enclose a set of feasible options for the individual, within which he/she must select a combination that maximizes overall satisfaction.

It can be shown that individuals can be induced to supply more than the minimum of work time and work intensity. This discretionary work time and discretionary work intensity is the corollary of the 'discretionary work effort' discussed in work motivation literature (see for example Barnard, 1938; Katz, 1964; Yankelovich & Immerwahr, 1983) also called 'organizational citizenship behavior' (Organ, 1988). Some individuals will undertake a relatively small amount of discretionary work time, but will have contributed a relatively large amount of discretionary work intensity, thus conserving a relatively large quantum of discretionary leisure time but relatively little leisure intensity. Others may contribute relatively large amounts of discretionary work time, but relatively little discretionary work intensity, thus leaving a relatively small residual for discretionary leisure time but conserving a relatively large amount of leisure intensity.

In is instructive to consider the notion of an individual who both 'works hard and plays hard'. But if time and intensity are each finite resources, one cannot both work with high intensity and play with high intensity, just as one cannot have both high work time and high leisure time. Thus 'working hard and playing hard' must involve either working relatively long hours at relatively low intensity and consequently having relatively brief leisure time at high intensity,

or conversely, working at high intensity for a relatively short time to allow relatively high leisure time which is taken at relatively low intensity.

DISCUSSION

The preceding analysis suggests a simple typology of work-leisure types, based on their revealed behavior in making the work-leisure time trade-off and the work-leisure intensity trade-off. For convenience here we shall call this a lifestyle typology, since the pattern implicit in each type reveals how people choose to allocate their time and their energy between work and leisure during their working life. In Figure 1 we show four lifestyle types, based on their time and intensity allocation patterns in both the work and the leisure environments.

Following our earlier discussion of the 'work hard and play hard' phenomena, we note that two of the four lifestyle types can be categorized as such; viz: the 'Work Short and Fast, Play Long and Slow' and the 'Work Long and Slow, Play Short and Fast' lifestyles might be classified as different ways to earn the 'work hard and play hard' tag. Starting with the 'Work Short and Slow, Play Long and Fast' lifestyle, we suggest the following testable research proposition:

> *Proposition 1: Some individuals will reveal a strong preference for leisure time and leisure intensity and are not highly motivated by either income or by other intrinsic or extrinsic benefits provided by the workplace.*

The 'Work Short and Fast, Play Long and Slow' lifestyle category suggests the following testable research proposition:

> *Proposition 2: Some individuals will reveal a strong preference for working intensively over relatively short hours in order to preserve plenty of time for leisure activities, but having worked intensively, are characterized by low intensity leisure activities.*

The 'Work Long and Hard, Play Short and Slow' lifestyle category suggests the following testable research proposition:

> *Proposition 3: Some individuals will reveal a strong preference for working long hours at high intensity and thus are left with relatively few hours of leisure and prefer less-intensive leisure activities.*

Finally, the 'Work Long and Slow, Play Short and Fast' lifestyle category suggests the following testable research proposition:

> *Proposition 4: Some individuals will reveal a strong preference for working longer hours at relatively low intensity, in association with a preference for relatively short hours of high-intensity leisure pursuits.*

The 'work-life balance' implications of this model are that individuals make a personal choice between work time and leisure time, and similarly allocate their energies across work and leisure time according to what suits them best – that is, the combination that maximizes their personal utility. Pressure from employers/supervisors on the one hand, and from family members and friends on the other, push and pull the individual towards more or less work time and more or less work intensity. These pressures enter the model via the disutility of working and/or the utility of leisure, and may be positive or negative in impact. For example, an individual may prefer to stay at work longer because of a difficult home-life, or may try to minimize the time at work because of a demanding supervisor.

Summary and Implications for Managers and for Further Research

This paper makes several contributions to the work motivation and the work-leisure literatures. We decompose 'work effort' into its two elements, viz: work time and work intensity. Similarly we decompose non-work or 'leisure' activities into their time and intensity components, introducing the concept of 'leisure effort'. Bringing the time and intensity components of work and leisure together in this unique way, we argued that the individual effectively makes the trade-off decisions (between work time and leisure time, and between work intensity and leisure intensity) simultaneously. This allows us to characterize individuals in a typology of four different lifestyles based on the individual's preferences for work time, work intensity, leisure time and leisure intensity. The four-way typology suggested a series of testable research propositions to support or deny this typology. Finally, it was suggested that individuals, in the absence of coercion by employers or family members, effectively make their work-life balance decisions based on their individual preferences for work time, work intensity, leisure time, and leisure intensity.

This paper has implications for employers and managers. First, we provide an alternative analysis that demonstrates that unless employers provide and nurture workplace conditions that are conducive to the supply of discretionary work effort, employees will prefer to do the minimum (time and intensity) to keep their jobs and then spend the rest of their time and energy in the pursuit of leisure activities. Second, employers may benefit by recruiting individuals who have particular preferences that culminate in particular lifestyles, such as the 'Work Long and Fast, Play Short and Slow' type of person. Third, some types of jobs might require employees who willingly work long hours but do not have a strong preference for work intensity (such as security guards), or alternatively, require shorter hours but high intensity of work (such as flight controllers). To achieve a good fit between the person and the job, employers might seek preference information from job applicants to discern their attitudes to time and intensity of work.

Much scope remains for further research. Do employees always dislike work *per se*? If workaholics like working for its own sake, what impact does this have on the model? Do leisure takers, on balance, necessarily gain net utility from leisure, or do the chores required (and potential boredom) of non-work time make people gain net disutility from leisure, causing them to prefer to be at work? Does the potential dissatisfaction of leisure effort contribute to the motivation for some people to seek second jobs?

We acknowledge that this analysis is heavily simplified in order to introduce new concepts and techniques to a diverse audience. Both work and leisure are treated as aggregates, with no attempt to break either of them down into tasks or activities that might be best undertaken more intensively, or less intensively. This analysis effectively deals with the weighted average intensity of work and the weighted average intensity of leisure, and leaves room for further development of the model to accommodate the complexities of real life. Hopefully the conceptual framework presented here will facilitate further conceptual development and empirical research into these issues, such that our understanding of the complex issues of work motivation and the work-leisure trade-off will continue to grow.

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Figure 1: Lifestyle Typology based on Time-Intensity Trade-offs