

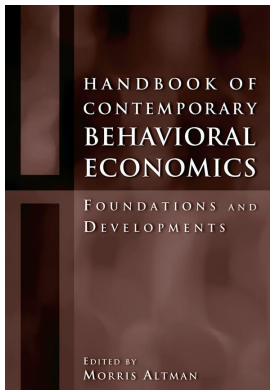
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Morris Altman

### **Hours of Labor Supply**

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## HOURS OF LABOR SUPPLY

### A More Flexible Approach

LONNIE GOLDEN

Why do people work as much as they do? What causes their hours of work to climb, recede, or shift in timing? Initial insights may be gained from applying behavioral economic perspectives regarding the root sources of why people work for pay generally (e.g., Wolfe 1997; Kaufman 1999; Kelloway, Gallagher, and Barling 2004). The particular question in this chapter is, once an individual decides to devote time and energy to work in the paid labor force, what is the process that determines how many hours and which hours he or she actually works? In addition, in what sense can someone be working “too much”? Finally, what inhibits the spread of alternative hours-of-work options and flexibility that might better match workers’ preferences with those of employers’?

The purpose of this chapter is to expand the conventional economic model of hours of labor by incorporating the various behavioral and social sources of constraints, preferences, and preference adaptation. The directions for expansion are consistent with the behavioral economic program of explaining real-world observations based on generalizations that accord with empirical evidence, but beyond those that currently overlap with neoclassical approaches (see Berg, this volume). A broader economic model of the processes that determine hours of labor is needed to better understand and predict developments regarding how much and which time people devote to work. Specifically, a model of labor hours should entail how preferences may be adaptable under social influences and how inflexibility in the workplace may often prevent individuals from getting their desired timing of work and/or a reduced number of hours. The extent of such inflexibilities puts at risk the long-term sustainability of labor as a productive resource. In a world where preferences are becoming more diverse, more prone to change over one’s life cycle, a year, or even each week, and perhaps ever more likely to deviate from required hours and schedules of work, a more flexible, dynamic approach is needed. Indeed, the notion of flexibility itself deserves more direct attention in models of hours-of-labor supply and demand. This chapter is in part an answer to Berg’s call (in this volume) for revised models with empirical roots that prioritize work effort, variable preferences, mental health, social interdependency, and normative analysis of labor market rigidities, particularly the potential for more flexible arrangements to provide efficiency improvements beneficial to both firms and employees.

The conventional microeconomic model of labor supply provides a parsimonious yet powerful foundational starting point to understand the relationship between hours of work, preferences, and individual well-being. The wholly separate model of firm labor demand also creates the groundwork for understanding the role of employers in determining work hours of their employ-

ees. The demand side may place constraints on some employees to often work hours and schedules that deviate from their preferred number and timing of work hours. However, by portraying humans' behavior as a two-dimensional world, centered mainly on the market wage rate, the minimalism of the conventional labor supply and demand approach renders it less and less useful in understanding the realm of worker behavior in a world where individuals increasingly have multiple and interconnected roles and jobs.

Several trends present in most advanced economic societies are raising the stakes in the process of how individuals' work hours and schedules are determined. This includes the well-established stylized facts of more multiple-earner households, a higher employment-to-population ratio (particularly among mothers of young children), longer average work hours per household unit (Mishel, Bernstein, and Allegretto 2005), a greater proportion of the workforce working long (fifty or more) weekly hours (Kuhn and Lozano 2004), longer average overtime hours in industry (Hetrick 2000), perceptions of greater job insecurity, working for more employers over a career, the shift of leisure time over the life cycle toward retirement years, the dissolving of the standard eight-hour-day and forty-hour-week norms, the potential for more work to be performed at home as work becomes more portable and products intangible, and so on.

### CONVENTIONAL MODELS OF HOURS OF LABOR SUPPLY

Once workforce participation is decided, the conventional model of labor-leisure choice portrays optimizing individuals as setting and adjusting their hours of labor supply toward their preferred number per week, to maximize their utility level. The model assumes that workers form their desired number of work hours based on their market wage rate, nonlabor income sources, and innate preferences for work and leisure. The pure neoclassical conception of the hedonic labor market assumes the quantity of labor desired by employers must, in the long run, equate with the quantity of labor desired by workers. The wage rate, the only factor common to both functions, serves as the equilibrating force to align the quantity of labor demand and supply. Workers and firms are assumed to sort themselves in ways that match up desired and required hours of work. The labor supply side approach rests on the three-legged stool of utility maximization behavior, equilibrating markets, and stable preferences (Humphries 1998). Workers maximize their utility by adjusting their hours until the unique point where the marginal rate of substitution (MRS), the relative preference for an hour of leisure vis-à-vis work, exactly equals the equilibrium market wage rate. At that point, the wage for the last hour worked is just sufficient to compensate workers for the disutility caused by that last hour of forgone leisure. Individuals are assumed to possess their own unique, inherent taste or distaste for work. In virtually all textbook treatments of labor supply, the focus is placed mainly on the opposing income and substitution effects of wage rate changes. The net effect reveals the slope (wage elasticity) of their labor supply curve, which may contain a point at which the curve begins to bend backward as wage rates reach relatively higher levels.

The standard utility function is  $U(X, L)$ ;  $T = H + L$  where  $T$  is total time endowment (per day or week),  $L$  denotes hours of leisure, and  $H$  is hours of paid work. Utility is increasing and concave in both arguments  $X$  and  $L$ , strictly concave in at least one and twice differentiable. Income from working at an hourly wage of  $w$  is  $wH$  or  $w(T - L)$ . The individual decides optimal labor supply after knowing  $w$  and nonlabor income,  $N$ . The budget constraint on consumption of goods and services is total income ( $Y$ ):  $Y = wL + N$ . To maximize utility, an individual chooses a level for  $H$ . The first-order condition is  $U_H - wU_X = 0$ , where subscripts denote partial derivatives. The sufficient second-order condition is  $U_{HH} + 2wU_{XH} + w^2U_{XX} < 0$ , to satisfy the assumption of

concavity. An increase in nonlabor income is always positive on utility and negative on desired labor supply.

### THE NEED TO AMEND THE MODEL OF LABOR SUPPLY AND UTILITY

Even most neoclassical approaches recognize there is a potential divergence of optimally desired hours of labor supply from the hours of labor demand of employers, jobs, or relevant labor markets. Thus, most workers will at some point face exogenous, binding constraints of their actual labor supply. Employers often establish fixed shift lengths, particularly in the presence of continuous-production technology. They also tend to set minimum hours per employee, stemming from quasi-fixed costs of labor. The fixed costs of adding employees tend to increase with the skill requirements and thus human capital investment in jobs, as well with the increased cost of contributions to employee benefits because such contributions are commonly structured as fixed per employee rather than per hour worked (Hart 2004; Contensou and Vranceanu 2000).

Conventional labor supply models have been modified further to incorporate the various cost incentives for employers, in the vein of either the principal-agent or efficiency wage type models, that preclude downward adjustment of work hours for many workers (e.g., Landers, Rebitzer, and Taylor 1996; Lang and Kahn 2001). If workers would be willing to give up some income to reduce their hours of work burden but lack that option at their current job, they are in a state of overemployment, in which a worker is not able to optimize (see Appendix 24.1). Conversely, if they are unable to get as many hours of work and income as they would prefer at their current job, that is, if they would be willing to give up some hours of nonwork time for additional income, they are experiencing underemployment.

The standard labor supply model has proven itself versatile in that it has been expanded to integrate many contributions rooted in behavioral labor economics. This includes the literatures that examine: incentives created by taxation to vary labor supply or effort, workers' relative positioning behavior, labor contracts with social norms, trust and reciprocity, and worker heterogeneity (see Berg chapter, this volume; Goldsmith et al. 2004). Pertaining to work hours, Berg suggests there is still much room to develop the concepts emphasized in the current chapter, including differential desires for income, worker participation and control, synchronization of schedules to maximize leisure with other people, and the impact on absenteeism of the structure of the workweek, including overtime and a compressed workweek.

The key insight of Becker (1985) was to amend the utility function to include unpaid household production ( $P$ ) as a distinct, third argument in the utility function. Household production entails self-produced goods and services, such as cooking and caregiving, that substitute for those market-produced and paid for. Because these activities have elements of both work and leisure, it may be regarded as a separate argument in the utility function:  $U = f(Y; L; P)$ .

Nevertheless, each one of the conventional model's three legs is too simplistic. First, worker welfare increasingly depends on more than just the standard determinants of income ( $Y$ ) and leisure ( $L$ )—even when the model is expanded to Becker's third component of time allocation, self-directed time for self-producing household goods and services. Second, the labor market may indefinitely diverge from equilibrium, with extended periods of unemployment, underemployment, and overemployment existing simultaneously. Even when labor markets do equilibrate, the result may be suboptimal for workers, in part because of negative spillover costs on others in the family, household, or public. Third, preferences for income and leisure are not necessarily stable but are naturally adaptive. They are not only determined by individuals or even by the family but may be heavily influenced by the surrounding workplace and culture.

With the rise of dual-earner households, rather than a division of labor, the importance of *combining* market work and unpaid work activities on a daily basis has become elevated. Thus, a separate and distinct contributor to individuals' well-being has become the timing or scheduling ( $S$ ) of work activities. For a given duration of work hours ( $H$ ) and leisure time ( $L$ ), a worker's well-being may be influenced by work schedule fit (see Barnett, Gareis, and Brennan 1999). Utility is positive in the degree to which the timing is the schedule that is preferred by the worker:  $U = f(Y; L; P; S)$ .

### RISING IMPORTANCE OF WORK SCHEDULING

The importance of  $S$  to individual well-being arguably has been increasing. Not only workers with direct care responsibilities but also younger and older workers seem to be placing a higher value on having the ability to stagger work schedules or synchronize with others. Synchronization is more likely to occur with workplaces that institute practices such as flextime, compressed workweeks, teleworking, and generally more autonomy in determining the timing and location of work. The value of flexible scheduling lies in the improved capacity to coordinate competing activities, such as reducing the frequency, size, or risk of time gaps around daily caregiving responsibilities. For example, there is more tag-team parenting and nontraditional shift work among parents (e.g., Presser 2003). As the complexity of household production activities grows with more time spent in the paid workforce, it increases the value of having the ability to adjust not only the number but the scheduling of work hours, in response to either unanticipated or anticipated changes in preferences, and the ability to transition seamlessly between income earning, caregiving, and leisure activities over the course of the day or the life cycle. Those lacking flexibility are likely to become more prone to multitasking. Overlapping activities are quite common and not only cut into leisure time but also cause stress (Floro and Miles 2003; Hamermesh and Lee 2004; Ruuskanen 2004). Indeed, the value of scheduling coordination is reflected in the fact that workers with flexible daily starting and ending times seem prepared to make sacrifices in the form of either leisure time or average compensation, since flexible schedules are associated with working excessively long hours or being employed part time (Golden 2005).

The *timing* of work and nonwork activity, in addition to the volume of nonwork time, matters for worker well-being. The daily and weekly scheduling of work (e.g., shop, office, school, class, or store hours) as well as leisure and nonwork responsibilities is often outside the direct control of the individual. To the extent that the scheduling of a given number of hours of work interferes or conflicts with workers' ability to execute their other responsibilities—particularly when these change unexpectedly, with little notice—the scheduling of work itself influences well-being. The scheduling of work may lengthen or shorten commuting times, hinder or facilitate attendance in formal classes, or inhibit or facilitate social, family, and couples interaction. The ease with which schedules allow individuals to transition between work and nonwork activities is often a highly valued feature of a job (Galinsky and Bond 1998).

The independent importance of work timing has not gone entirely unnoticed among more conventional models (e.g., Weiss 1996; Hamermesh 1999; García and Vázquez 2005). In the conventional economists' model, a smoothly operating labor market guarantees that employers will eventually move to accommodate a growing preference among workers for more flexible schedules, so long as workers are willing to accept a lower wage in return or make other concessions that save on costs (see Gunderson and Weiermair 1988). However, evidence points not only to a chronic excess demand for more flexible work schedules, at least among some workers (see, e.g., Galinsky and Bond 1998; Golden 2005), but to the absence of a compensating wage differ-

ential for the inconvenient timing of work (e.g., Ehrenberg and Schumann 1984; Altonji and Paxson 1988; Gariety and Shaffer 2001; McCrate 2002; Gagne 2003). Conventional economists have so far devoted too little attention to the adverse welfare effects of mismatches between employers' assigned schedules and workers' desired schedules.

### **THREE DEGREES OF FLEXIBILITY: FROM THE TIMING TO DURATION DIMENSIONS OF HOURS**

The term *flexibility* is generally amorphous. However, to workers, the concept of flexible hours connotes an ability to better fit work around other, competing demands on their time, reducing or eliminating otherwise recurring time conflicts. In actual workplaces, the degree of flexibility afforded workers in their work hours varies. Thus, the welfare gain workers receive from more flexible working arrangements clearly is also a matter of degree. While flexibility certainly occurs along a continuum, we may identify three distinct degrees along that spectrum. Welfare is likely to increase linearly with the amount of discretion to influence both the timing and number of work hours across the work day or workweek.

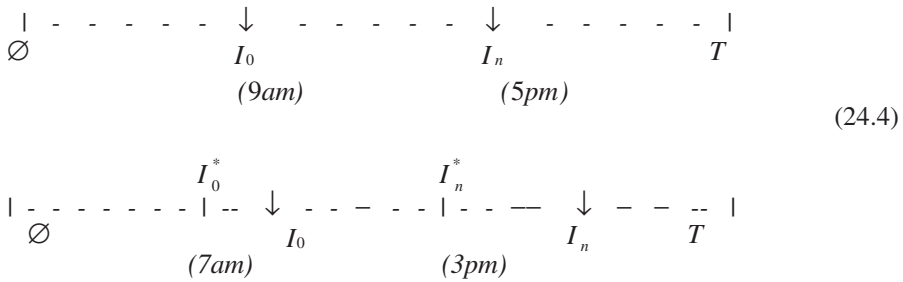
First-degree flexibility would exist if a worker's workplace features a set daily work schedule for employees but at least periodically allows the employee, if approved, to start or leave somewhat earlier or later than the usual fixed daily schedule. First-degree flexibility characterizes most flextime practices, formal workplace programs that permit employees to vary their starting and ending times in a range or band around a required core set of hours each day, such as starting anytime between 7 a.m. and 10 a.m. and leaving between 3 p.m. and 6 p.m. It may also reflect more informal flexible schedule arrangements, those that allow employees to vary their starting and/or ending times of their typical workday if it can be arranged with a supervisor and/or co-workers.

Second-degree flexibility goes further, providing workers the discretion, either at the onset or during the course of employment, to set and adjust to preference their own timing of work, across either the day or the week. Second-degree flexibility consists of more than just marginal changes in the daily starting and ending times with a predetermined set of core hours. For example, if there were no core hours at all on at least some days, this offers workers the option of compressing the required workweek over a worker's preferred days (e.g., off on Friday or Wednesday) or moving the location of work to the site most preferred by the employee, perhaps at home. Compressed workweeks allow employees to concentrate their standard workweek in fewer than five days per week, sometimes also around a core set of days. The second type of flexibility surely improves welfare potentially more than the first. Note that welfare does not depend on whether a schedule is flexible because of a formal workplace program or an informal arrangement with supervisors or fellow employees (informal is actually more common among those with flexible daily schedules; see Golden 2005).

Both the first and second degrees involve providing a given volume of daily or weekly work hours. Third-degree flexibility allows employees to adjust not only the timing but the duration of their work hours across a week or year. Such flexibility includes the ability to turn down overtime work when it is requested by the employer, or to reduce the length of the workday or the number of workdays per week (presumably with a commensurate reduction in compensation). The latter may involve going to part-time job status for a period of time when less work is preferred. While discretion at the margins of the work day is surely valued by employees, autonomy and outright control of work time are likely to be valued even more. The third degree thus is more welfare-improving than the most basic form of flextime. Indeed, the latter may not improve welfare much at all for those workers who prefer boundaries and borders in their work-life integration efforts (Kossek, Lautsch, and Eaton 2005).

**A SIMPLE MODEL OF SCHEDULE FLEXIBILITY AND UTILITY**

A simple framework shows that workers usually have some preferences regarding the precise time slot or interval ( $I$ ) for work, the block of time in the course of a day over which work is scheduled. Even if their actual hours ( $H$ ) and desired hours ( $H^*$ ) are identical in each week over an entire time period, utility cannot be *maximized* unless a worker's actual  $I$  is equal to his or her desired interval ( $I^*$ ) each day. Workers presumably are not indifferent to the time slot over which their total number of hours of work are scheduled. Workers might have some preferred interval ( $I^*$ ) of daily hours, from some shift start time ( $0$ ) to a particular finishing time ( $n$ ). For example, a worker may prefer a regular, predictable, traditional 9 a.m. to 5 p.m. daily schedule of eight hours each work day. Yet the worker's time may be scheduled on an inconvenient eight-hour evening or night shift that creates time conflicts with other required activities, such as parental or student responsibilities, or with natural circadian rhythms. Alternatively, a worker may be on a fixed daily schedule ( $I$ ) where the starting ( $I_0$ ) and ending ( $I_n$ ) times deviate from the worker's preferred work schedule times, denoted by  $I^*$ :



at starting times  $0$  and  $n$ . As an illustration, suppose  $H = H^* = 8$  for all five days of the workweek, but the worker's preferred daily schedule changes to 7 a.m. to 3 p.m.

The general degree of schedule flexibility can be represented by the expression

$$\Delta I_t = \gamma (I_t^* - \overline{I_{t-1}}), 0 \leq \gamma \leq 1. \tag{24.5}$$

The term  $\gamma$  captures the degree of responsiveness of the actual daily  $I$  slot, e.g., fixed at 9 a.m. to 5 p.m., toward the preferred daily schedule  $I^*$  in the case when  $I^*$  changes and thus deviates from  $\bar{I}$ . If  $\gamma$  is 1.0, a worker has second-degree schedule flexibility, accommodating his or her preferred timing.

The degree of inconvenience experienced each day by a worker who is not provided a fully flexible schedule is  $(I_0^* - I_0) + (I_n^* - I_n)$ . Summing these differences would reflect the detriment to worker welfare if the work schedule is entirely inflexible, unresponsive to the worker's desired starting time ( $0$ ) and ending time ( $n$ ), requiring that the worker be at the work site at time slots during which he or she experiences the need to be elsewhere, or that the worker remain off the work site at times when he or she would be most willing to be at work.

The utility impact of scheduling ( $S$ ) flexibility is captured by the expression  $U = U[Y, L; \gamma]$  *assuming* :  $dU/dY, dU/dL, dU/d\gamma > 0$ . Thus, to attain more flexibility in the scheduling ( $S$ ), workers would be willing to trade off at least some leisure time (more work hours) or income. Moreover, as the absolute difference between  $I$  and  $I^*$  gets larger, utility is likely to diminish at an exponential rate, assuming large gaps matter proportionately more than small gaps. A worker may be willing to tolerate inflexible or unpredictable schedules if these also involve relatively short workweeks. Conversely, a worker may accept long average workweek lengths if the daily timing is more open to workers' discretion. Conse-

quently, utility functions are amended to include an argument,  $S$ , that recognizes that workers may be trading off the volume of hours for better timing or vice versa. This trade-off may be subject to the usual concavity assumption (see Appendix 24.2). It also means that if the worker sacrifices either leisure time or income to get the flexibility, the employer can be induced to offer it (see Appendix 24.3). Given that flexible schedules are available more frequently at fifty hours or more and at thirty-four or fewer average hours per week, workers' indifference curve may be a more complex link of various indifference curves at different numbers of weekly or daily hours (see Appendix 24.4).

Evidence abounds that scheduling flexibility increases worker well-being in a variety of forms, at least under certain conditions. It clearly reduces the otherwise negative impact of work hours on workers' ability to balance work and nonwork commitments (Hill et al. 2001; Bond et al. 2002). At any level of work hours, employees whose work schedules are different from what they preferred are more disengaged, distracted, and alienated at work than are their counterparts who are working their preferred schedules (Barnett, Gareis, and Brennan 1999; Clarkberg 2001). In addition, flexible scheduling improves workers' satisfaction with and commitment to their jobs and organization (Christensen and Staines 1990; Scandura and Lankau 1997; Baltes et al. 1999). Workers' control over scheduling, independent of shift times, contributes to their general health and psychological well-being (Martens et al. 1999; Krausz, Sagie, and Bidermann 2000; Fenwick and Tausig 2001). However, the positive effects of flextime on job satisfaction may be either not very long-lasting (Baltes et al. 1999) or offset by resulting dissatisfaction due to inflexibility of nonwork (home) obligations (Kraus and Freibach 1983).

### **CHRONIC EXCESS DEMAND FOR SCHEDULE FLEXIBILITY**

Despite marked growth in availability of flexible daily scheduling to about 28 percent of the workforce, such schedules are not available for use on a daily basis and remain quite skewed in their distribution (Hamermesh 1999; Presser 2003; Golden 2001; McCrate 2002). Overall, about 80 percent of workers would like more flexibility in their schedule (Bond et al. 2002). Among several scheduling options, compressed workweeks and flextime were more than twice as popular as the standard workweek (Ahmadi, Raiszede, and Wells 1986; Bond et al. 2002). The likelihood of having a flexible daily schedule depends significantly on an individual's demographic characteristics, number of weekly hours devoted to work, and type of job. Specifically, women have somewhat less access than men to flexible daily work schedules. This is mainly because they have considerably less access to informal-type arrangements, which is the dominant form of flexible scheduling arrangements in the United States. In addition, flexible schedules are generally no more available to married workers but are somewhat more available for parents with young children. Moreover, workers with either part-time hours or long weekly hours get greater access to flexible schedules, particularly informally arranged flexibility. Workers in most managerial, professional, and sales positions have more flexibility in schedules than other workers. The distribution supports the notion that flexible hours tend to be adopted more because of employer preference than to meet the demand of particular workers who would most benefit from it.

### **THIRD-DEGREE FLEXIBILITY: ADJUSTING DURATION OF HOURS AND OVEREMPLOYMENT**

A third level of flexibility involves having discretion over the number of work hours in a day, week, or year. This is in addition to the inherent change in daily work schedule that this will entail. A wholly distinct dimension of people's working time is the extent to which some hours are



worked involuntarily. An individual's actual hours worked can exceed desired hours if, for example, there is unwelcome but mandatory overtime, no opportunity to cut back hours to part time, or inadequate vacation time in a job. While there are well-documented adverse welfare effects stemming from long work hours per se (e.g., Sparks and Cooper 1997, Spurgeon, Harrington, and Cooper 2001; Farris 2002; Caruso et al. 2004; Dembe et al. 2005), there are also documented additional negative effects on indicators of worker well-being of working required overtime hours (Spurgeon, Harrington, and Cooper 1997; Institute of Workplace Studies 1999; Fenwick and Tausig 2001; Dollard and Winefield 2002; Golden and Wiens-Tuers 2005).

A worker is experiencing overemployment when he or she is employed beyond the desired number of hours of work and is willing but unable to sacrifice either income or imminent raises for reduced hours at the current job (illustrated in Appendix 24.1). The source of overemployment must be either (1) an underlying inflexibility of work hours imposed by the employer that sanctions workers, explicitly or implicitly, for realizing a new preference for working fewer hours than the expected norm of the workplace or job, or (2) an unanticipated, indefinite increase in the employer's hours demanded, beyond the number in the original wage-hour bundle agreed to by the worker, without an explicit or implicit right of refusal. Exogenously fixed hours create a kinked budget constraint, driving a wedge between the market wage and a worker's marginal rate of substitution at the optimally preferred number of hours. Actual hours worked can exceed workers' desired hours as an equilibrium but suboptimal state, with workers settling for a longer than optimal workweek. Such settling may occur because switching to a shorter-hours job is too costly, either in terms of a transition to a new career or because compensation losses associated with part-time status, such as less benefit coverage, are considerably more than proportional to the hours reduction. Thus, while individuals might not alter either their employment or hours—that is, it may be considered rational to remain overemployed—the inability of a sizable segment of the workforce to obtain their optimally desired hours is well recognized by virtually all labor supply models (e.g., Stewart and Swaffield 1997; Feather and Shaw 2000; Altonji and Oldham 2003; Boheim and Taylor 2004) and the sociologically based literature (Jacobs and Gerson 2001; Bielinski, Bosch, and Wagner 2002; Reynolds 2004; Messenger 2004).

The existence of overemployment has long been recognized by economic historians. The highly competitive, unregulated market for labor in the nineteenth century contributed to long hours of work per week that left workers' desire for a shorter workday unfulfilled (Altman 1999; Bourdieu and Reynaud 2001; Attack, Bateman, and Margo 2003). Overemployment is recognized today as both an economic and social problem, not only because it leads to suboptimal worker utility but also as a well-documented source of costly worker absenteeism, tardiness, or excessive on-the-job leisure (Moss and Curtis 1985; Dunn and Youngblood 1986; Drago and Wooden 1992; Yaniv 1995; Thierry and Jansen 1998; Barnett, Gareis, and Brennan 1999; Brown 1999; Kaufman 1999, Burawoy et al. 2001; Major, Klein, and Ehrhart 2002; Lamberg 2004). In the extreme case, the worker quits or suffers burnout that results in labor force withdrawal.

Two major weaknesses persist in applying the conventional labor supply model toward understanding trends in work hours. One is its inability to explain sufficiently the level and timing of changes in the average hours per worker over the twentieth century (Altman 2002). The other is its discounting of hours mismatches that can result in sustained overemployment or underemployment in the labor market. Conventional models have not adequately explored the reasons why the rate of overemployment—as a share of the workforce—may rise or fall over time. In part this is so because the percentage of workers who are overemployed tends to pale in comparison to the proportion who are underemployed, particularly in the United States. Estimates of the overemployment rate range widely, not only between countries but within the United States, from

as little as 6 percent to as much as 50 percent (Shank 1986; Kahn and Lang 1995; Galinsky and Bond 1998; Schor 1999, Feather and Shaw 2000; Stier and Lewin-Epstein 2003; Reynolds 2004; Golden 2004; Scacciati 2004; Messenger 2004). Even the most plausible estimates vary greatly, largely because of the way the question is posed about the willingness to trade income for time. The most reliable estimates are that 13 and 23 percent of the workforce is in the state of overemployment, assuming that stated preferences match revealed preferences. Estimates are generally lower than this range if the survey includes an alternative to greater income through more hours of work. Estimates are higher than this range if respondents are presented exclusively with various options for reductions, such as the willingness to accept a 10 percent cut in pay, 20 percent cut, and so on to get proportionally lower hours.

### MODEL OF HOURS FLEXIBILITY

At the microeconomic labor supply level, the degree of flexibility in the duration of hours can be portrayed as the term  $\delta$  in the equation  $\Delta H_t = \delta (H_t^* - H_{t-1})$   $0 \leq \delta \leq 1$ . Thus, actual hours ( $H$ ) and desired hours ( $H^*$ ) will be synchronized only in the event an employer sets and adjusts hours according to employees' desires or, alternatively, hires only those workers whose preferences do not deviate from management's preference. The impact of all working time dimensions on worker utility ( $U$ ) is now captured by  $U = U[Y, L; \gamma, \delta]$ . Thus, worker well-being increases not only in income ( $Y$ ) and leisure time ( $L$ ) but in the speed with which  $H$  adjusts toward changes in desired hours ( $H^*$ ), as well as the daily schedule ( $I^*$ ). Suboptimal utility occurs anytime actual hours are slow to adjust toward either temporary or permanent changes in  $H^*$ . Note again that overemployed workers receive some form of a forced trade-off of greater than originally preferred income and/or greater flexibility in schedule (see Golden 1996).

### ENDOGENOUS LABOR SUPPLY AND THE DYNAMICS OF OVEREMPLOYMENT

By focusing on work hours preferences primarily as a reflection of changes in wages that generate opposing income and substitution effects, the conventional model of labor supply has paid insufficient attention to the importance of preference formation (see Nyland 1989). The factors that shift the entire labor supply curve are typically relegated to the status of exogenous changes in innate preferences or constraints. This oversimplification is unfortunate not only because knowing the source of labor supply shifts is important for understanding recent trends but also because some of the shifts may be endogenous.

Under the assumption that preference formation may be adaptive rather than static, one possible response of overemployed workers is to eventually adjust upward their number of preferred hours of work. Indeed, surveys reveal a much stronger preference for hours reduction in the more distant future than in the current period (Hart and Associates 2003). A greater aversion to income loss than the benefit from an equivalent income gain can be aptly explained by modified neoclassical labor supply models (Dunn 1996; Goette, Huffman, and Fehr 2004). However, less explored is the potential dynamic process by which an individual may start out being overemployed and later no longer prefer shorter work hours, without any reduction in their hours (Altman and Golden 2004). A truly rich model would explain not only lengthening work hours but the rise and fall of overemployment over time. Such an approach would apply the social and behavioral psychology basis of labor supply decisions to explain why workers' desired hours may rise commensurately with hours demanded and why initial preferences for shorter hours may eventually dissipate.

## **INDIVIDUAL LABOR SUPPLY SHIFTERS: WHY PREFERRED WORK HOURS MAY RISE**

Besides the net substitution effect of rising wages, or even the net income effect of falling wages (Sharif 2000; Prasch 2001), desired work hours may rise not only because of changes in a worker's family or household context, which is well recognized by neoclassical analyses, but also because of the influence of social reference groups and culture and diminishing institutional constraints such as government regulation or labor unions.

### **Relative Positioning in the Workplace and Income Spectrum**

Rising job and income insecurity may lead workers currently to prefer longer hours in order to build up savings to serve as a buffer against expected future job or income losses. Also, if workers believe their employer is screening before a downsizing or reorganization, they may view longer hours as an inoculation against the risk of future job loss, income loss, or demotion (Landers, Rebitzer, and Taylor 1996; Bluestone and Rose 1998). Moreover, the incentives of workplaces, occupations, and the labor market have heightened the economic motivation to strive for promotion. Working longer hours becomes a way to signal promotability to employers, who interpret the "presenteeism" as an indication of an employee's level of effort and commitment. A greater dispersion of earnings among occupations and industries as well as between racial groups has served to incentivize workers to work relatively longer hours. The wider the gap between pay grades, the larger the motivation to engage in such positive signaling tactics (Bell 2001; Bowles and Park 2005). Workers may attempt to equal or perhaps exceed the hours worked by their co-workers. Among those who expect to be in managerial positions, there is a clear positive empirical relationship between the number of work hours they prefer and the actual work hours of their co-workers (Eastman 1998; Brett and Stroh 2003). Similarly, there are negative signaling effects for workers requesting shorter hours (Rebitzer and Taylor 1995). Those expressing a wish to reduce work hours may be passed up for hiring, in an adverse selection model of hiring decisions. There is a rising presence of professions, including law and consulting, that reward and valorize long hours, which promotes a "rat race" with workers increasing their own work hours for reasons of long-term relative status (Landers, Rebitzer, and Taylor 1996; Haight 1997; Yakura 2001).

However, with the apparent rising amenities of the workplace relative to household work, from on-site day care to a more stimulating, more rewarding, and less stressful environment, the office has a growing allure relative to the household (Hochschild 1997). More amenable working conditions, which make jobs less hazardous or unpleasant, may reduce the resistance to long hours, particularly among the more highly educated (Gramm 1987; LaJeunesse 2004). If work activity is becoming more intrinsically rewarding, stimulating, safer, discretionary, and autonomous, then this implies something much different than if work is becoming more stressful, anxiety-producing, onerous, routinized, and alienating. Work time might be yielding less disutility than it had historically (Wisman 1989).

### **Relative Positioning in the Household**

The member in the household with relatively greater earnings may attain a relative bargaining power advantage within the household, owing to his or her superior income. Such leverage is not symmetrically derived from bringing home more "leisure" time. The individual with relatively

greater income gains leverage in household decision making, increasing the relative weight his or her preferences receive in decisions such as consumption purchases, leisure time use, and allocations among sons versus daughters (see Winkler 1998).

### **Relative Positioning in Consumption**

Veblen effects in consumption mean that individuals may compete for higher status by acquiring or accumulating social-status-conferring goods and services. Individuals seek to emulate the consumption patterns of the rich in order to enhance their own relative status. In the context of rising income inequality, this requires that less well-off individuals work more hours in order to gain income to sustain their relative position in consumption levels (Rima 1984; Altman 2001; Pingle and Mitchell 2002). Indeed, as the top income bracket pulls away, those left behind, even with greater absolute income, may be no better off in welfare terms.

Intensified marketing and advertising arguably create tastes for more and more market goods and services. Wants may escalate over time, as they have over the past centuries, moving the income target ever further out, so that it is never actually reached or reachable (George 1997; Fraser and Paton 2003). Workers may start with metapreferences for a shorter working time, but the cumulative effects of intensifying promotional efforts for products eventually leads workers to prefer more income to purchase these now familiar products or services. Bandwagon effects and the interdependent utility function suggest that individuals derive satisfaction from consuming goods and services that others are consuming (see Altman 2001). As new commodities are introduced, new bandwagon effects are triggered, and what was once considered a luxury or amenity item gradually becomes a necessity, a new want to satisfy. Moreover, the steady increase in debt-financed consumption, which recently has led to record increases in consumer debt-to-income ratios and consumer-debt servicing on relatively high-interest-rate credit cards, makes longer work hours an option to avoid high-interest balances or risk of personal bankruptcy. This debt might, of course, be a product of an increasing target income.

### **Income-Targeting Behavior**

Income-targeting behavior suggests that individuals first assume a predominant identity or role, leading them to seek market work sufficient to support their preestablished goals regarding unsatisfied consumption wants and nonmarket time (Altman 2001). Goals reflect a hierarchical ordering of their physiological and unsatisfied needs. The positional effects suggest that individuals seek work hours in order to enhance their relative status in at least three spheres: consumption, the workplace, and the household. What restrains desired hours from escalating ever upward is that there is a hierarchy of needs, which includes the need for nonmarket time. But there may be a sequence of decision making, with individuals prioritizing the achievement of their income target, then adjusting future preferences or behavior in order to seek their targeted amount of nonmarket time.

### **Endogenous Labor Supply Preferences**

Suppose hours demanded by the employer rise above those preferred by an individual, creating a spell of overemployment. This creates a feeling of time scarcity in the household. This scarcity in turn will lead a household to eventually change its preferences from self-produced goods and services ( $P$ ) to those that are more market-produced, which requires income ( $Y$ ). The household

may also shift from time-*using* goods and services toward the more time-*saving* type. This shift requires more income. In addition, households are likely to shift preferences from time-intensive to income-intensive leisure activities. Together, these effects ratchet upward individuals' targeted consumption levels and gradually dissipates the initial desire for shorter work hours (Rothschild 1982). Overall, these various motivations yield the same predicted outcome—workers may be choosing to work longer than predicted by a model that assumes that individuals decide their hours in isolation from others, in a static climate. Moreover, actual hours worked might be greater than predicted by a model of income-leisure choice that neglects the interpersonal aspects of decision making and the importance of hierarchy of wants as core determinants.

### OVEREMPLOYMENT AT THE MACROECONOMIC LEVEL

Labor-leisure models portray overemployment as an individual labor-market phenomenon, but it can also be viewed from a macroeconomic perspective. Categorization of the contributing sources of overemployment can be treated as analogous to the categorization of sources of unemployment. There are three distinct types: cyclical, structural, and frictional. *Cyclical* overemployment occurs during periodic booms as aggregate demand (orders, customers) surges, leading to longer hours demanded per worker by employers. Demand for hours may be rising faster than workers' desired hours (e.g., induced by rising wage rates if the substitution effect on labor supply is dominant). *Structural* overemployment occurs because of the existence of structural incentives inherent in labor market institutions and work organization. Labor market institutions include the inherently fixed costs of employment faced by employers. Their sources may be increasing skill shortages and escalating employee benefit premiums, which facilitate an upward push in demand for hours of work per employee or the imposition of minimum-hours constraints. Such institutional practices also include the degree of willful compliance with and government enforcement of Fair Labor Standards Act (FLSA) overtime regulations. It also includes the recent exemption of many jobs from the purview of the FLSA, and these jobs tend to be more prone to uncompensated, extended hours (Hamermesh 2000; Cherry 2004). Finally, *frictional* overemployment occurs due to the bundling of wages and hours in employment contracts and incomplete markets and information. A lack of knowledge among employers about their employees' preferences and among worker applicants about job requirements leads to mismatches. Lack of accessibility and barriers to full information regarding alternative jobs and work hours arrangements can be one source. Because such frictions cannot be entirely removed (like unemployment), it is unrealistic to expect that overemployment can ever reach a rate of zero. However, it would be socially optimal if overemployment declined toward zero, or if overemployment spells could be made very short-lived.

### CONCLUSION

The purpose of this essay has been to broaden the theoretical conception of labor supply so as to understand the economic importance of flexible work arrangements that facilitate a desired reduction in hours of labor supply or shift in work schedule. Existing labor supply models should be enhanced to incorporate the behavioral microeconomic and macroeconomic forces that account for the incidence of either inflexible schedules or overemployment. Because of the spillover costs of inflexibility and spillover benefits of flexibility, there is a strong public goods case for subsidizing both firms and workers to promote policies that minimize overemployment and prevent the dynamic process that ratchets upward desired work hours to the point where they threaten to become socially counterproductive.

Future research should develop further the extent and nature of the trade-offs workers incur for more flexible schedules or hours, the adverse welfare effects of inflexible schedules and overemployment irrespective of the duration of their actual hours, the role of competitive market and consumerist forces in producing ever-longer desired hours instead of the more socially optimal expansion of options for workers and firms to moderate hours, and the specific policies that reward firms for creating such options and reward workers for availing themselves of these options.

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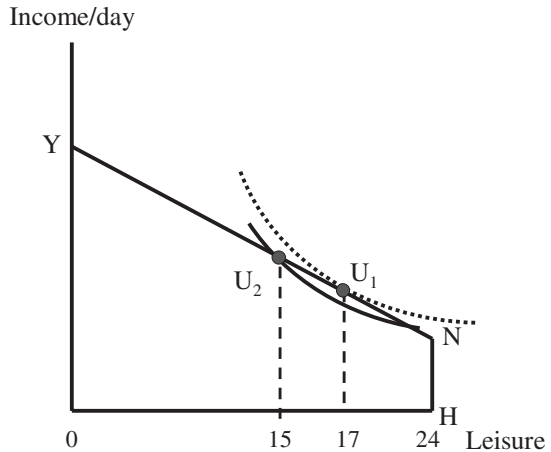
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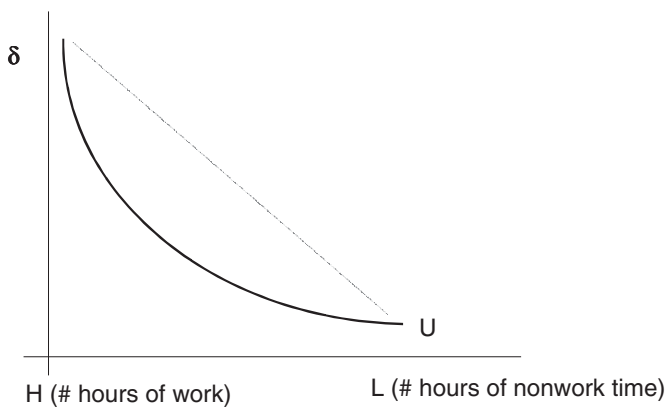
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Appendix 24.1 **Conventional Model of Suboptimal Utility with Overemployment**

- If an individual is free to choose the number of hours of work, he or she chooses point  $U_1$ , with 17 hours of leisure and 7 hours of work . . .
- If the individual is **constrained** to work a standard workday of 9 hours or not at all, he or she will choose point  $U_2$ , lower than optimal utility level, overemployed by 2 hours per day.

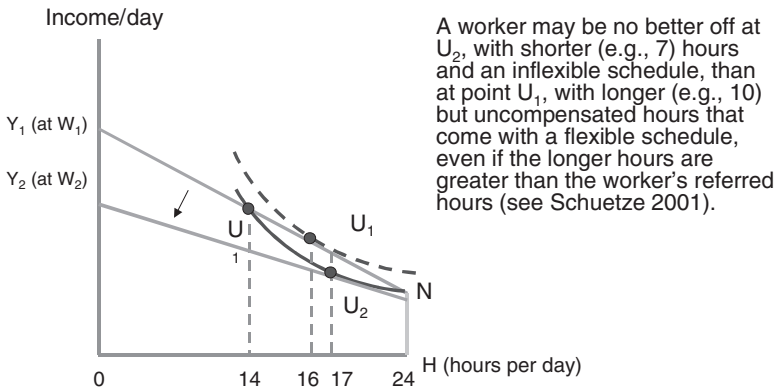


Appendix 24.2 **Trade-off Between the Duration and Flexibility Dimensions of Hours: Willingness to Trade Off Some Leisure Time or Income to Attain Schedule Flexibility**



$\delta$  = Flexibility to supply hours on worker's preferred schedule

**Appendix 24.3 A Firm Providing Flexible Schedule Induces Workers to Accept a Lower Wage Rate Per Hour**



**Appendix 24.4 Nonlinear Indifference Curve If Longer and Shorter Than Standard 8-Hour Days Comes with More Schedule Flexibility**

