TOWARDS A THEORY OF WORK INTENSITY

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INTRODUCTION

Workers care about the intensity with which they work during the hours they spend on the job. Too little effort, and boredom can set in; too much, and exhaustion, stress, and ultimately threats to health and safety will arise. Bosses are also concerned about the intensity with which workers work. Productivity and profits depend on it. Seldom are bosses and workers in agreement about the amount of intensity workers should put forth. Bosses want more intensity and workers want less. This essay is about the forces that determine work intensity in market capitalist societies and whether the determined amount is socially efficient.

Two grand theoretical traditions in economics speak to the resolution of this conflict between employers and employees regarding work effort. In the neoclassical tradition the conflict is resolved through market forces, in much the same way as the conflict is resolved between grocer and consumer over how many apples should pass from seller to buyer. The worker is a seller of effort, and the employer is a buyer. In the Marxian tradition, market forces play no role whatsoever in determining the intensity with which workers work. Instead, the domination of labor by bosses resolves the conflict of interest between capital and labor over the level of work intensity. The capitalist has purchased the worker's time in the market place and possesses absolute control over the consumption of the purchased commodity, just as the consumer has complete control over the consumption of purchased apples.

In the first part of this essay, I outline in greater detail these two theories of work intensity and assess their validity in light of the empirical evidence on the determination of work effort. Neither theory garners much empirical support. In recent years neoclassical and Marxian theories of labor effort have converged around principal-agent models of the workplace wherein institutional forces play a prominent role in determining work intensity. I briefly discuss this literature and offer some recommendations for how it should evolve in the future.

The neoclassical and Marxian theories of work intensity are tangential to the larger project of constructing a theory of value, resource allocation, and, for Marxists, labor exploitation. In neoclassical economics, the theory of resource allocation provides a basis for addressing normative questions regarding the adequacy with which resources are devoted to the satisfaction of workers' and employers' work intensity interests. In the second part of this essay, I address the issue of whether the allocation

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of resources to the provision of work intensity and the institutions that act to allocate these resources are socially efficient.

THEORIES OF WORK INTENSITY

The Neoclassical Theory of Work Intensity

The neoclassical theory of work intensity begins with workers' preferences, firms' production techniques, and the endowments of productive resources held by actors in the economy. Workers are sellers of intensity, the amount of which depends on their preferences, the value of their resource endowments, and the price they receive for work effort. Firms are buyers of intensity, the amount of which depends on their production techniques, the demand for their products, and the price they must pay for work effort. Work intensity is assumed to be scarce in the sense that, at a price of zero for intensity, workers would supply less intensity than firms would demand.

It is the labor market that resolves the conflict of interest between workers and firms regarding work effort. In equilibrium, a matching of workers and firms occurs, with workers who desire less intense work locating in firms whose production techniques require less intensity, and a price is established that clears the intensity market and is paid to workers as part of their wage.[1] This may be represented graphically in a demand and supply framework (see Figure 1), and in a worker-firm matching framework utilizing worker indifference curves and firm iso-profit curves (see Figure 2).[2] The equilibrium price in Figure 1 is equal to the slope—$\partial w(i)/\partial i$—of the locus of tangency points in Figure 2.

FIGURE 1

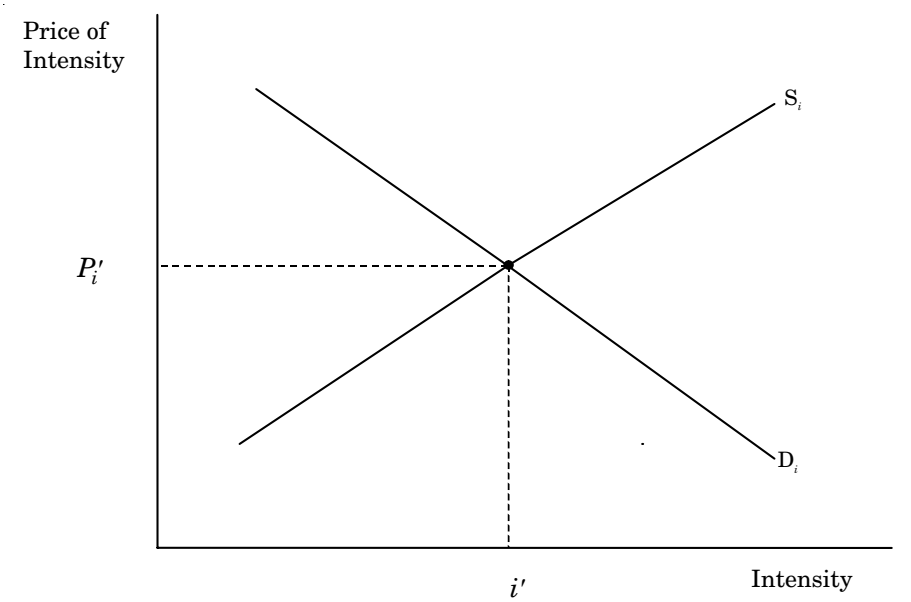
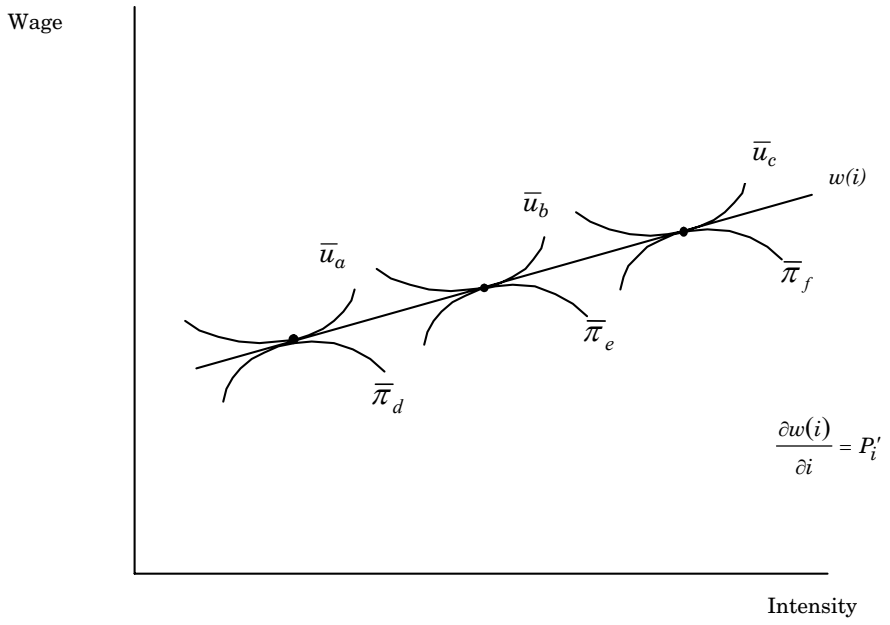


FIGURE 2



Disequilibrium is characterized by either an excess demand for or excess supply of work intensity, depending on whether the price of intensity is too low or too high. Disequilibrium will result in a movement of workers between firms, as workers and firms fail to find sufficient matches at the disequilibrium price, and a movement in the price of intensity towards equilibrium.

If worker preferences change so that, for example, workers desire less intense work effort, firms whose production techniques require intense work will witness an exit of workers. The compensation required to lure workers back to these firms will rise. Firms that are unable either to pay the higher price or lower intensity levels will go out of business and the others will conserve on their usage of intensity. Compensating payments will rise and intensity will fall with a decline in the supply of intensity.

If technologies change so that the demand for intensity falls among firms with the most intense work practices, then workers will exit these firms in search of firms demanding greater intensity and willing to pay for it. Few such firms will be found, however, and so, with many workers chasing few firms, the price of intensity will fall along with intensity itself.

The value of workers' endowments of resources matters in this analysis because it allows them to purchase valuable commodities, including reduced workplace intensity, which they may convert into "workplace relaxation."[3] If, for example, the real purchasing power of a society increases or the distribution of income and wealth is changed in favor of those who labor the most intensely, the supply of intensity should fall, the price should rise and the equilibrium quantity should fall.[4]

In sum, the neoclassical theory of work intensity describes a market resolution of the conflict of interest between workers and firms over work effort. The amount of

intensity put forth by workers depends on their preferences, their purchasing power, and the production techniques of firms. Firms are forced to take into account workers' intensity concerns because they must compensate workers for the effort they give forth. As a consequence, firms conserve on their use of intensity and have an incentive to structure production, through technological change for example, so as to utilize as little of it as possible.

What empirical evidence exists for the neoclassical theory that markets determine work intensity? If market forces mediate the conflict of interest between workers and employers regarding the intensity of labor effort, then this is accomplished through the price mechanism. The most straightforward test of the neoclassical theory of work intensity, therefore, is an empirical investigation into the existence of a positive price paid by firms to workers for the intensity of labor effort.

Because this price is folded into the larger compensation package paid to labor, establishing its existence requires netting out portions of the compensation package that constitute payments for other things, such as acquired skills. Moreover, since we are interested in the extent to which the labor *market* determines intensity, attention should be focused on those segments of the labor force in which market forces set pay and conditions, as opposed to segments in which political forces such as unions play an important role.

Labor economists have devoted their substantial empirical skills to the search for compensating wage differentials through regression analysis, in which wages are regressed on a variety of determining factors—for example, education, labor market experience, gender, race, and industry dummies—including working conditions. Positive compensation for work intensity or its various correlates, such as health and safety outcomes, would be indicated by a positive estimated relationship with wages, *ceteris paribus*. Numerous empirical searches for the existence of a positive price on working conditions, such as whether the work is "hard" or "physically demanding" or "fast" or even dangerous (as reflected by the injury or fatality rate for the job), have turned up mostly empty handed, with the possible exception of compensation for certain injuries [Brown, 1980; Viscusi, 1979].

However, few of the empirical tests of the theory of compensating wage differentials isolate segments of the labor force in which market forces are likely to be the most important determinants of wages and working conditions. In unionized settings, for example, market forces may be usurped entirely through collective bargaining agreements that set pay and working conditions.[5] Through collective bargaining, unions may negotiate positive compensation for bad working conditions where no such compensation is dictated by market forces. Alternatively, unions may suppress market-determined positive compensation for bad working conditions for ethical or political reasons. For example, jobs requiring great intensity may be negotiated also to receive low pay, and these positions may be assigned to less senior workers with the expectation that pay and working conditions will improve with seniority.

Only a handful of empirical studies of compensating wage differentials that separate the union and nonunion sectors for separate analysis exist [Fairris, 1989; 1992; Dickens, 1984; Viscusi, 1979], and Fairris [1989] is the only one to have done so for measures of work intensity. The evidence is clear from these studies that nonunion

labor markets consistently fail to generate positive compensation for intensity or its various workplace correlates. Indeed, in those instances in which positive compensation is found to exist—primarily related to health and safety—when the two sectors are analyzed separately, it is invariably the union sector that possesses positive compensation for bad working conditions whereas the nonunion sector possesses none.[6] In summary, then, evidence in support of the neoclassical theory that market forces determine work intensity is virtually nonexistent.[7]

The Marxian Theory of Work Intensity

No tradition in economic theory devotes greater attention to the work site and to the activities that take place therein than the Marxian tradition. For Marx, the market plays no role whatsoever in determining conditions in the labor process. While workers are free to engage with employers in the labor market regarding the price they receive for the hours they appear on the job, the intensity with which they work once on the job is, for Marx, a matter of the complete domination of labor by capital. This notion is most clearly spelled out in *Capital* at the end of Chapter 6, which is entitled "The Buying and Selling of Labor-Power," where Marx writes:

> This sphere (the labor market)…is in fact a very Eden of the innate rights of man. There alone rule Freedom, Equality, Property, and Bentham. Freedom, because both buyer and seller of a commodity, say of labour-power, are constrained only by their own free will. They contract as free agents, and the agreement they come to, is but the form in which they give legal expression to their common will. Equality, because each enters into relation with the other, as with a simple owner of commodities, and they exchange equivalent for equivalent. Property, because each disposes only of what is his own. And Bentham, because each looks only to himself.…On leaving this sphere (and going into the labor process)…(h)e, who before was money-owner, now strides in front as capitalist; the possessor of labour-power follows as his labourer. The one with an air of importance, smirking, intent on business; the other, timid and holding back, like one who is bringing his own hide to market and has nothing to expect but—a hiding [1974, 176].

Marx views labor power (that is, the potential for work) as a commodity that is priced and exchanged like every other commodity in a market context. Labor power is unique among commodities, to be sure, in that it gives forth more value in production than the value required for its own reproduction, but in every other respect it is simply a commodity. Therefore, employers purchase labor power in the labor market and consume it in the labor process according to their own wishes and will, just as any consumer does with any purchased commodity.

Marx apparently never entertained the notion that workers' freedom to choose their employers also gave them the power to influence work intensity through market forces and compensating payments. Perhaps he considered the reserve army of

the unemployed to be disruptive of labor market forces to such a degree as to eliminate such influence. He clearly ruled out the possibility that employers demanding greater labor effort would have to pay higher wages in order to compensate workers for the larger consumption basket they would require in order to reproduce their labor power. The price of a commodity is the socially average labor embedded in its production.

For Marx, therefore, the value workers place on intensity—or, rather, relaxation at work—is not registered in the determination of labor effort. The will of employers and, ultimately, the needs of technology and the maximum development of the forces of production, are all that count. The limit to the intensity of labor effort in production is the physical and mental exhaustion of the worker.

A wealth of empirical evidence exists to refute the Marxian theory of work intensity, at least in the form that professes the complete domination of labor by capital in the labor process. Throughout the twentieth century, personnel and human resource specialists have made clear the great extent to which workers shirk their responsibilities in production, and have offered a variety of measures—from carefully calculated incentive pay to more humane management techniques—by which employers might combat it. Frederick Winslow Taylor was perhaps the first and best known of a long line of such advisors.

All the evidence, therefore, points to a process of extracting labor from labor power that is conflictive, costly, and rarely bent to the complete will of the employer. The market may play a role, at least in allowing workers to refuse intensity levels that exceed certain limits, but political forces appear to reign supreme. It is the relative configuration of power between employers (and their representatives) and workers (and their representatives) that determines the intensity of labor effort. Power is embedded in the technology and in the formal and informal institutions of shopfloor governance. Contemporary neoclassical and Marxian theories are finally coming to grips with this reality.

An Institutional Approach to Work Intensity

In recent years, neoclassical economists have abandoned the position that markets determine labor effort, and have adopted instead a view that it is the institutional arrangements of the employment relation that matter most.[8] Marxian economists have abandoned the position that capital is completely dominant in the labor process, and have begun to view the extraction of labor from labor power as the outcome of the relative power configuration between capital and labor as manifested in the institutional arrangements of the employment relation. All eyes are now on institutions.

In fact, there has developed a convergence of views on how to model the determination of work intensity, and even significant agreement on the determining factors themselves. Nowhere is this convergence of views more evident than in efficiency wage theory, where the modeling efforts of radical economists, for example Bowles [1985], are virtually indistinguishable from those of neoclassical economists, for example Schapiro and Stiglitz [1984]. These are principal-agent models in which employers are given the authority to set personnel policies—such as wages, supervision, and

the conditions for contract renewal—and workers react to those policies by working as hard as they wish.[9]

The essential insight from efficiency wage theory is that profit-maximizing labor policies include the payment of a wage above the competitive, market-clearing level. While this drives up labor costs, it also fosters greater work effort, and thus output and revenue for the firm.

Empirical support for efficiency wage theory is fairly extensive. Since employers vary in the ease with which they can detect worker shirking, we should observe different efficiency wages across firms and industries, as well as different wage payments for similarly skilled workers across these same firms and industries. The existence of interindustry wage differentials, therefore, is supportive of the theory [Krueger and Summers, 1988]. Efficiency wage payments and supervision levels are substitutes in the generation of work intensity. The existence of a negative correlation between supervision and wages across firms with similar technologies, therefore, is supportive of the theory [Groshen and Krueger, 1990]. And, in a direct test of the relationship, Fairris and Alston [1994] find a positive relationship between intensity and supracompetitive wages, *ceteris paribus*.

The success, both theoretical and empirical, of efficiency wage theory has initiated a virtual cottage industry in principal-agent modeling of the employment relation, much of it taking place under the banner of the "personnel economics" movement. What challenges confront the further development of these and other theoretical models of work intensity?

The determinants of labor effort are varied and complex, and future models must strive to capture more of this complexity. Enlarging the range of company policies that affect work effort—beyond supervision and wages—is important. Collaborative research between theorists and labor historians, industrial relations scholars, or human resource specialists would be helpful for building in this complexity and ensuring realism in the strategic context within which employer and employees are assumed to interact.

It is important to explore the various principal-agent relationships within the firm and how they influence labor effort. Supervisors are agents for management, management is an agent for owners, and unions are agents for workers. Within the management ranks, the role of supervisors is key because they have enormous influence on work intensity and yet their decisions may well depart from formal company policy.[10]

In recent principle-agent modeling, the primary focus is on the elimination of worker "shirking"—a pejorative term that fails to acknowledge that workers possess legitimate concerns over the intensity with which they labor. Acknowledging the legitimacy of workers' interests in intensity is important, and is a precursor to a more careful analysis of how these interests come to influence labor effort. An analysis of worker voice mechanisms—such as unions, company unions, and works councils—and their impact on labor effort would be useful. This focus should not ignore informal shopfloor organizations, such as informal work groups, as these are extremely important components in the determination of work intensity.

Finally, it would be useful for some attention to be focused on the ways in which the state affects work effort. Legislation governing the formation of unions or works

councils is an obvious example of this, but at a more subtle level are state policies or judicial decisions that set out the rights of capital owners and workers in the operation of the firm. What difference does it make, for example, if intensity is deemed a mandatory versus merely a permissible subject of collective bargaining in labor law? What impact does the language regarding "management's prerogative to run the business"—which is contained in both collective bargaining agreements and judicial rulings—have on work effort?

Whether principle-agent models are up to these tasks is debatable. When efficiency wage theory emerged on the scene in the 1980s, industrial relations scholars noted that economists were merely formalizing insights that had been spelled out by institutionalists such as Sumner Slichter some sixty years earlier. Even if true, however, efficiency wage theory introduced a new generation of economists to the issue of work intensity, and led to a wave of empirical research with lasting value.

NORMATIVE FEATURES OF WORK INTENSITY

Theoretical analyses of work intensity determination may provide insights into normative features of work intensity outcomes. In neoclassical theory, normative assessment concerns the efficiency with which scarce resources are allocated to the satisfaction of given wants, including workers' desires for relaxation at work. In Marxian theory, the normative focus is on maximum development of the productive forces, leading to the eventual elimination of alienating and exploitative labor effort under Communism.

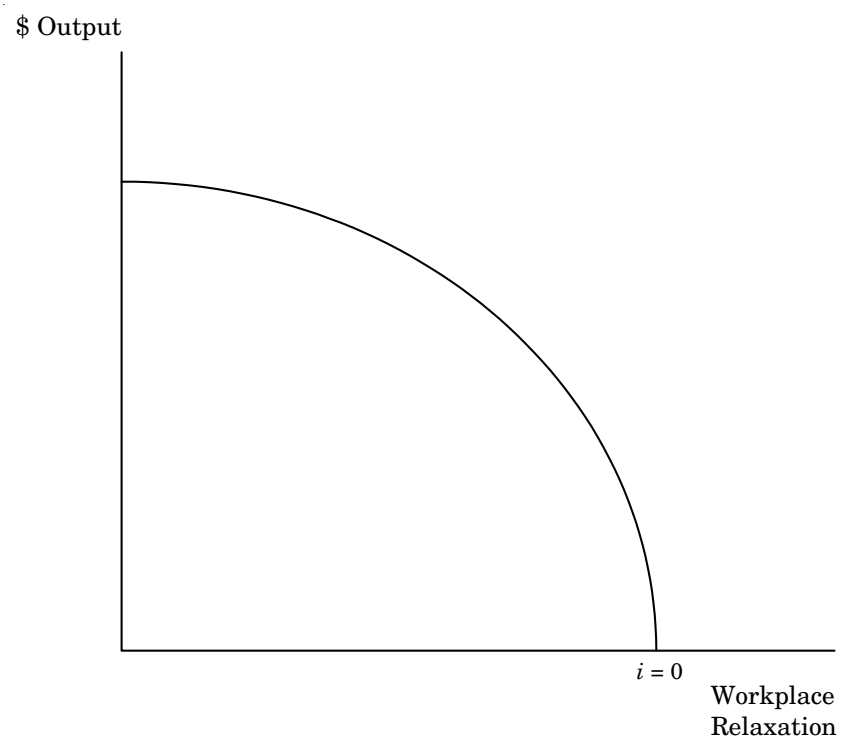
The recent convergence in neoclassical and Marxian models of labor effort has led to the view that neoclassical notions of efficiency are the criteria by which social systems are to be judged. I shall therefore limit my discussion in this section to the question of efficiency in work intensity outcomes, ignoring, as is common in neoclassical welfare analysis, justice in equilibrium levels of work effort and whether workers are alienated from their true preferences for labor effort by capitalist relations of production.[11]

Let us assume, to begin with, that the technological and organizational features of production are technically efficient in the sense that no other production technique offers more output for given inputs, including the intensity input. We can then construct a productive efficiency frontier between output and intensity for given capital and labor-hours inputs. The relationship between aggregate output and intensity in the economy is a concave one, where diminishing returns to increased intensity stem in part from the fixed physical capacity of workers. There is a maximum intensity for given labor hours. If the relationship is redrawn, with maximum intensity occurring at the origin and the horizontal axis measuring absence of intensity at work ("workplace relaxation"), we have a production possibility frontier as shown in Figure 3.

The axes measure quantities of commodities that are valued by consumer-workers and produced in firms. The slope of the frontier gives the opportunity cost of a less intense production environment. Allocative efficiency occurs when aggregate intensity and its distribution across firms and workers is such that no consumer-worker could be made better off without hurting another. This holds when the social opportunity cost of a less intense workplace equals the marginal social benefit workers place

on relaxation at work, and when the aggregate intensity burden is shared by workers according to the value each places on workplace relaxation.

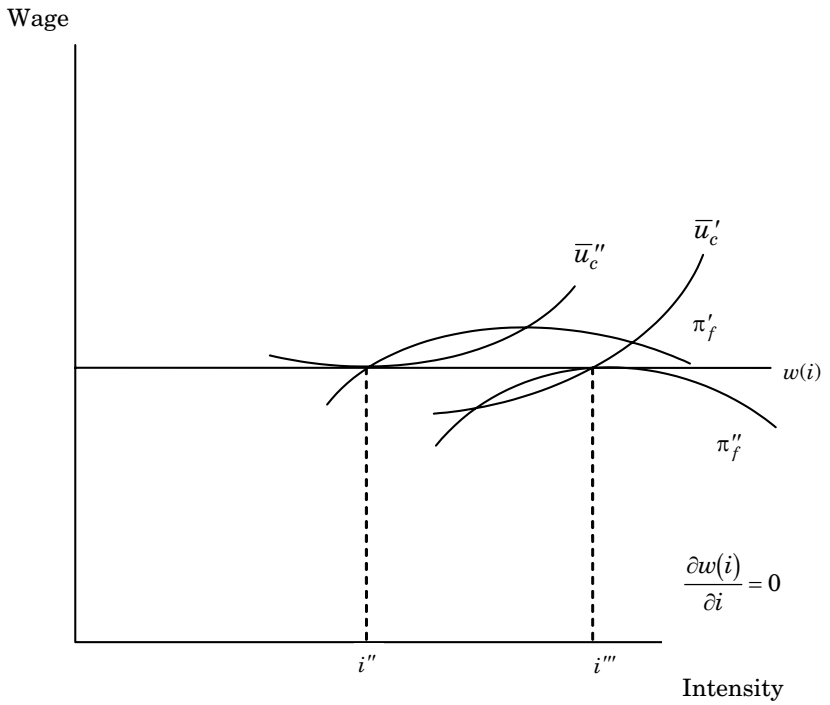
FIGURE 3



The first fundamental theorem of welfare economics says that a competitive market setting—with perfect information, perfect competition, costless mobility, etc.—will yield an allocation of resources to the provision of work intensity, and a distribution of that aggregate intensity burden among workers, that is Pareto optimal. The mobility of workers in the labor market establishes a price on work intensity that reflects the marginal social cost and benefit of work effort. In Figure 1, i' is allocatively efficient. Mobility also allows workers to position themselves in firms with intensity levels that accord with the value each worker places on workplace relaxation. In Figure 2, the distribution of intensity burdens is allocatively efficient.

The empirical evidence revealing zero compensation for work intensity in nonunion settings, where markets are arguably the primary allocative device, is suggestive that markets fail as an allocative mechanism with regard to work effort.[12] At a zero price, firms demand more work effort than workers are willing to supply. If, under such circumstances, either worker or firm is dominant in the choice of intensity, the chosen amount of intensity will be suboptimal. This is shown in Figure 4 for a particular worker and firm. If the worker is dominant, intensity level i'' is chosen; if the firm is dominant, intensity level i''' is chosen. Both can be improved upon in a Pareto sense due to the lack of tangency between indifference curves and iso-profit curves at the respective intensity levels.[13]

FIGURE 4



If market forces fail to establish a unique intensity level, then nonmarket allocative mechanisms—the institutional arrangements of shopfloor governance—will guide the ultimate choice of labor effort outcomes. However, there is no guarantee that these institutional arrangements will lead to allocative efficiency in workplace intensity outcomes. Indeed, various explorations of the efficiency of resource allocation in principal-agent models of institutional choice suggest that inefficiency is the most likely outcome [Shapiro and Stiglitz, 1984; Freeman and Lazear, 1995; Bowles and Gintis, 1993]. The reason is that, when markets are missing—due, for example, to imperfect information or positive transaction costs—institutional choice affects both the surplus (that is, value added) and its distribution between productive factors.

Whoever is granted rights to construct institutions has an incentive to choose institutional arrangements that maximize their share of the surplus rather than the surplus itself. An agent would rather have a larger slice of a smaller pie than a smaller slice of a larger pie. For example, firms have an incentive to choose institutional arrangements that offer little opportunity for workers' to realize their intensity concerns. The value workers place on workplace relaxation, therefore, may not be properly registered in workplace outcomes, the result being that the marginal social cost of workplace intensity to workers may outweigh its marginal benefit to consumers and firms, consistent with intensity outcome i''' in Figure 4.[14]

What are some implications of this theoretical analysis for empirical research on the efficiency of working conditions outcomes? One implication is that the choice of institutional arrangements in production may be socially inefficient. One finds in the radical labor process literature the claim that firms may adopt technologies and

organizational features in production that are profit maximizing, competitively viable, and yet socially inefficient. For example, Marglin [1974] has argued that the factory system was not efficiency enhancing compared to the putting-out system, but rather allowed capitalists to extract greater labor effort from workers. Presumably, similar inefficiencies could arise from institutional adjustments forced on employers by, say, a powerful labor movement. Seniority clauses in labor agreements, for example, are arguably inefficient arrangements for allocating labor to jobs, but they serve labor's interests by undercutting management's ability to lay off and promote based on the intensity of labor effort.

Offering hard evidence on the inefficiency of institutional arrangements in production is an important potential contribution of future empirical research. I have shown, for example, that the rising injury rates and productivity slowdown in U.S. manufacturing during the late 1960s and early 1970s resulted from an inefficient change in the institutions of shopfloor governance [Fairris, 1997; 1998]. The new arrangements emerged as management attempted to undercut the ability of workers to influence working conditions, such as safety and work intensity, through the extracontractual actions of shop stewards and informal work groups. The new institutions resulted in both worse working conditions and less worker cooperation with management (and therefore lower productivity) in production.

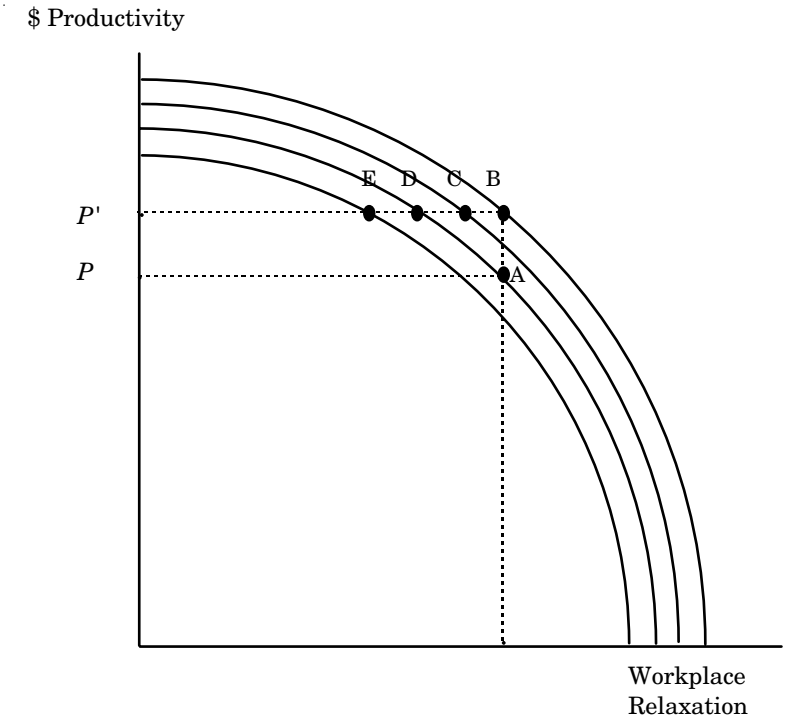
When institutional arrangements are inefficient, there may well exist an opportunity for mutually advantageous adjustment. This is a second implication of the theoretical analysis. Offering evidence of past adjustments of this sort, or of potential future adjustments that have so far gone unnoticed, is an important contribution of empirical research. I have argued [Fairris, 1995; 1997] that we might understand the rise of company unions in the 1920s as an efficiency-enhancing institutional change. Company unions granted workers a mechanism for revealing working conditions preferences to employers at a time when labor mobility and thus labor market forces were becoming impaired due to the increased specific human capital skills of workers in the mass-production industries. The empirical evidence suggests that company unions led to increased worker safety as well as to increased productivity and profits.[15]

A final implication is that empirical efforts to discern the productivity impact of institutional or technical changes in production may tell us very little about whether these changes are truly efficiency enhancing. This is because workers' intensity is also a factor in overall efficiency changes, as illustrated in Figure 5. Holding productive resources fixed, the vertical axis may be thought of as a measure of productivity. A productivity increase from P to P' in the graph may result from: (1) an increase in productive efficiency that leaves workers' power to influence intensity untouched (the move from point A to point B); (2) an increase in productive efficiency that nonetheless reduces workers' power to influence intensity (the move from point A to point C); (3) an undercutting of workers' ability to influence work intensity with no real change in productive efficiency (the move from point A to point D); or (4) a decrease in productive efficiency that also reduces workers' ability to influence intensity (the move from point A to point E).[16]

Empirical analyses of the efficiency of working conditions outcomes must rely on a comparison of the overall gains and losses to interested parties from changing technical and institutional arrangements in production. Recent research has focused largely

on the productivity implications of some of the newest developments in shopfloor governance—employee involvement committees, work teams, just-in-time production methods, and total-quality management schemes. Evidence suggests that the new institutional arrangements increase productivity and wages [Ichniowski, Shaw, and Prennushi, 1997; Appelbaum et al., 2000], but also suggests that these arrangements make labor more intense and less healthy and safe [Green, 2002; Brenner, Fairris, and Ruser, forthcoming].

FIGURE 5



Therefore, really important efficiency questions regarding these new developments remain largely unanswered. Are the new institutional arrangements in production efficiency enhancing in either a Pareto or Kaldor-Hicks sense, or do they instead generate meager benefits to some at a large expense to others? Is the marginal social cost of the increased intensity and workplace hazards for workers greater than the marginal social benefit to producers and consumers? Even if these new arrangements are efficiency enhancing, are there alternative institutional arrangements that could be adopted that are superior in efficiency terms? Answering these questions also should be a focus of future research on work intensity.

CONCLUSION

There is a conflict of interest between workers and firms over the determination of work intensity. The labor market may fail, or simply be too costly, as a mechanism

for resolving this conflict, and so alternative allocative mechanisms embedded in the formal and informal institutional arrangements of shopfloor governance arise to serve this purpose. Future research on such arrangements should expand the current focus on the wage incentives of firms to include such things as worker voice mechanisms and the interests and behavior of supervisors and informal work groups in order to better understand labor effort outcomes.

The sorts of institutional arrangements that allow for efficiency in labor effort outcomes requires further theoretical and empirical research as well. Theory and a limited amount of empirical evidence suggests that in the contest to influence labor intensity, institutional arrangements may be chosen that are neither the most efficient possible nor even efficiency enhancing compared to formerly existing arrangements.

NOTES

The author thanks Ken Koford and participants in presentations at the Work Intensification Conference in Paris, France, and the Theory Seminar at the University of California, Riverside, for helpful comments.

1. Labor economists, who are primarily interested in the determination of wages, typically focus on the labor-market determined price of intensity—known as the compensating wage differential—rather than the amount of work intensity.
2. Figure 2 is an adaptation of the important contribution of Rosen [1974]. The equilibrium price of intensity is determined as the locus of tangency points between worker indifference curves and firm iso-profit curves. Workers and firms "match" depending on their preferences and production technologies. So, for example, the worker with indifference curves u_a very much dislikes intensity and thus matches with a firm whose iso-profit curves π_d reflect less need for intensity.
3. Work intensity is multidimensional. The conflict between employers and workers, therefore, may not be over fast versus relaxing work, but rather over the pace at which the work is completed versus, for example, the care with which the work is completed. All that matters for our purposes is that workers experience dissatisfaction in meeting employers' goals regarding intensity.
4. This assumes workplace relaxation is a normal good.
5. Political forces, such as government regulation, affect working conditions outcomes as well, including perhaps work intensity. They typically do so, however, by setting minimal standards for workplace outcomes, such as health and safety, thus making illegal the most onerous of working conditions but leaving market forces to determine the remainder.
6. However, since intensity itself is influenced by political as opposed to market forces in unionized settings, this greater compensation may not imply lower intensity. In fact, while unions appear to force greater wage compensation for workplace health and safety hazards, unionized employers also typically report greater health and safety threats than nonunion employers, *ceteris paribus* [Fairris, 1992].
7. The market freedom of workers to exit bad working conditions may prevent some very bad conditions from being viable.
8. Mainstream economists with an institutional bent have long offered convincing explanations for why markets might not govern the activities of the workplace. Herbert Simon pointed to the impossibility of setting out in a labor contract the various contingencies affecting the productive activities of workers. Ronald Coase pointed to the cost of using markets to resolve conflicts over workplace interests, and argued that investing the employer with the authority to direct workers in production economized on transaction costs.
9. Other variants of efficiency wage theory focus on reciprocal behavior (high effort for high wages) and social norms (of fairness and output restriction by informal work groups). See Akerlof [1982], Akerlof and Yellen [1990], and Lindbeck and Snower [1988]. That workers' dissatisfaction with work intensity is context specific—depending, for example, on workers' assessment of the legitimacy of managerial authority—is an important theme in sociological theories of the workplace.

10. Supervisors were principal actors in the "drive system" of the early 20th century, the "bootleg" (unofficial and noncontractual) shopfloor agreements of the post-World War II period, and (as team leaders) in the current implementation of "high performance" workplace arrangements.
11. The former would require an analysis of work effort outcomes under conditions of distributive justice in holdings. The latter would require an analysis of endogenous preferences, and a method by which worker interests might be objectively determined free from influence from the social relations of production.
12. Of course, markets may fail as an allocative mechanism for efficiency reasons. Suppose, for example, that there exists an impediment to worker mobility stemming from the joint investment made by workers and firms in specific human capital acquisition. This renders markets less capable of allocating adequate resources to workplace relaxation, but is a far more efficient arrangement for the transmission of specific skills in production.
13. This assumes there are no workers willing to work at i''' when there is zero compensation for work intensity.
14. If the value workers place on workplace relaxation is not registered in firm's decision making, intensity increases are tantamount to negative externalities in production.
15. Just because an institutional change is efficiency enhancing does not rule out the existence of yet further efficiency-enhancing changes. It might be claimed, for example, that independent unions would have been an even superior voice mechanism for both workers and society compared to company unions.
16. Note that I have said nothing about the social efficiency of these various moves. Improvements in productive efficiency are at least potentially enhancing of social efficiency (in the Pareto sense), whereas declines in productive efficiency are not. If point A is allocatively efficient, then the move to point D is not efficiency enhancing.

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