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Sickness and the Labour Market

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Abstract: This paper makes proposals for the reform of policies aimed at providing support for those who are unable fully to support themselves with income from labour market participation (or other private sources) and also for the provision of insurance against loss of income as a consequence of sickness. The proposals are not fully worked out (particularly in the case of permanent disability), but hinge on the idea now familiar to economists that contracts can be structured in such a way as to encourage truthful revelation of privately-held information, such as the state of one's health.

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Introduction

In this paper, I want to try to lay some groundwork for future discussions of labour market policies aimed at improving the labour market prospects of workers with a health condition that limits their ability to work, and for providing insurance (to any workers) against loss of income due to sickness. I am going to do this in a way that I expect will appeal to economists more than to other flavours of social scientist. I am justified in so doing not simply because I am an economist, but also because the dominant psychosocial approach to the issue of absenteeism, centring on the so-called Steers-Rhodes model has failed to produce a coherent means of analysing many important issues². I believe that the work of economists has started to address the issue of empirical identification of relevant relationships seriously, but there remain many difficulties, both theoretical and empirical which are not widely recognised. In particular, there is still little appeal in the empirical literature to the idea of absenteeism and non-participation on health grounds as economic phenomena grounded in choice. It seems to me that closer integration of absenteeism and non-participation studies into labour economics is a worthwhile undertaking that has the potential to enhance not only our knowledge of how labour markets work, but also our efforts to create policies geared towards more efficient and equitable outcomes.

Fortunately, in the context of empirical studies of absenteeism, this integration is already well under way. It is rare nowadays to be asked to referee a paper that does not include some kind of identification argument, and many try to exploit natural experiments. This was not so a decade ago. But that the integration is incomplete is clear from the fact that nearly all work on absenteeism is about the supply side of the labour market. It concerns analyses of what it is that causes variation in the absenteeism rates of workers. There is very little analysis of the supply side of the absenteeism market. What causes variation in absenteeism rates across employers, or across plants operated by the same employer? Market outcomes are the result of behaviour of both suppliers and demanders, and the absenteeism literature has developed in such a way as almost totally to ignore the supply side.

² See, for example, the critique of Steel et al.(2007)

That such variation exists and shows stable patterns is clear. It is a commonplace observation, for instance, that absence rates are higher in public sector enterprises than in the private sector. I do not know of any paper that asks why this might be. Is it because the public sector doesn't minimise costs as aggressively as the private sector? If not, why not? There is no obvious reason why shareholders of private firms should be treated better than taxpayers in this regard. Is it because public sector jobs involve different technologies from private sector ones³? As well as these two, there are doubtless many other possible explanations, none of which (as far as I know) have been carefully investigated. The one exception to this general rule is a small literature on why large firms tend to have higher absence rates than smaller ones⁴. It stresses the idea that with a larger labour force, it is cheaper to arrange cover for the work of absentees.

The lack of attention to what employers want leads to policy discussions that are seriously biased. It is not just advice to human resources managers that concentrates almost exclusively on lowering absence rates. The academic literature is also suffused with the idea that a low absence rate is a good absence rate. This is not just an academic point, though. Poor policy leads to real welfare loss. We cannot be sure where those welfare losses arise, because no one has calculated the areas of the relevant Harberger triangles, but I would be prepared to bet that the loss bears disproportionately on those who are chronically ill or disabled. The loss occurs not only in the form of lower employment rates than is necessary, but, for those who are employed, lower welfare from their jobs is gained, either because their talents are under- or over-employed.

Absenteeism and Non-participation

I separate the discussion into two parts: i) absenteeism; ii) non-participation. These two aspects of sickness and the labour market are clearly connected, but they concern decisions in different contexts. The absenteeism decision only arises if a worker has already decided to participate. Since it is very often effective to try to solve a problem backwards⁵, I discuss absenteeism first.

³ There is evidence that technology is important in determining the costs of absence, and that firms (French firms) respond in a rational manner to this. See Coles et al. (2007), Lanfranchi and Treble (2010).

⁴ See for example Barmby and Stephan (2000).

⁵ Polya, G. (1957)

A) Absenteeism.

Not surprisingly, I find the theoretical basis provided by Coles and Treble (1996) very useful in thinking about absenteeism. Our paper is an elaboration of the hedonic pricing model effectively used by Steve Allen in his sequence of papers on absenteeism published in the early 1980's. The model posits a market in which firms have different isoprofit lines defined over absence rates and wages, which are two characteristics of jobs that matter to workers. Workers' attitudes to them are summarised in a set of indifference curves. The absence rate is here interpreted as a probability of absence, so that the problem is seen as one in which a job offer consists of a number of hours (fixed and specified in the Coles/Treble analysis), a wage, and an acceptable absence rate.

The outcome of any hedonic model is a pattern of assignment⁶. Here workers are assigned to jobs in such a way that those who are able most readily to supply reliable work to the market will become assigned to jobs in which reliable work is most highly valued. What the Coles/Treble paper adds is a specific theory of how variation in isoprofit lines arises when the model is applied to absenteeism. Their argument is that this arises from technological considerations, and especially the extent to which technologies used display complementarity. Thus a firm with assembly lines will suffer great loss of production if an insufficient number of workers turn up to work in the morning. A firm in which workers work more independently will not suffer so greatly. The key difference here is that in team work, the marginal product of a worker can be as high as total product of the team. In independent work, it is limited to the product of the worker themselves. The link is established empirically by Coles et al. (2007), who show that firms adopting just-in-time technology (which has relatively high complementarity) find absence to be more expensive than those who do not.

Among other useful attributes, our model suggests an approach to an important policy question: What does absenteeism cost? Most discussions of absence policy, and most academic papers on absenteeism, begin with some kind of estimate of the economic cost of absenteeism. For Britain, these are often the figures produced annually by the CBI, which

⁶ Rosen (1978).

tend to be in the 10's of billions of pounds⁷. While such estimates underline the economic significance of absence as an industrial “challenge”, they are of little help in directing policy. To see why, observe that the question they answer is “What would the value of extra production be if absenteeism could be reduced costlessly to zero?” The estimates of the slopes of isoprofit lines calculated by Coles et al. (2007) and by Allen (1983), ask what firms would be prepared to pay for a marginal reduction in absence. They therefore do not make the error of assuming that reductions in absenteeism can be achieved costlessly. While the estimates of cost produced in this way are not trivial amounts of money, they tend to be in millions rather than billions, which suggests that the US and French managers concerned did quite a good job of managing absence at the times covered by the data, and that the free lunch implied by the conventional accounting is nowhere near as lavish an affair as it appears to be.

The fact that firms are prepared to pay for a reduction in absence, suggests that as well as the much-studied demand side of the absence market, there is also a barely-considered supply side. Labour demand (as Dan Hamermesh⁸ observes) has never been studied as extensively as labour supply, so the omission is understandable. This is one route by which the variation in absence across countries, industries and occupations may be studied. It seems that the main barrier to establishing more firmly the nature of the supply of absence is the availability of suitable data. Coles et al. (2007) uses data from France, which was collected on a one-off basis. As far as I know it remains a unique dataset since it matches firms and workers, as well as including information about individual workers' absence behaviour as well as the benefits to which they are entitled. Its greatest drawbacks are that it is only a cross-section, so that identification of the relationships was harder than it might have been, and that INSEE did not record the data very carefully. Anyone attempting to add to the evidence about supply of absence reported by Allen (1983) and Coles et al. (2007) would be doing a useful service.

The main reason why it would be useful is that economists have many tools available for the study of markets, which include propositions about the welfare implications of markets. This is another largely ignored part of absenteeism studies. The overwhelming

⁷ The 2011 headline estimate is £17bn. <http://www.cbi.org.uk/pdf/cbi-pfizer-%20absence-workplace-health-2011.pdf>

⁸ Hamermesh (1993)

impression given by management literature is that the task of management is always to diminish the rate of absence. I first made the suggestion that absence rates may be reduced too far about 20 years ago, and the audience (who were Belfast personnel managers) laughed. This is despite the fact that the suggestion is not original to me. It is a theme in the work of one of the earliest students of absenteeism microdata, who, in fact, argued that one of the *virtues* of a sick pay scheme was that it enabled people to be absent. They in turn attribute the idea to managers (or ‘executive officials’) in the industry they studied: British armaments. In 1952, R.B.Buzzard (and his co-author W.J.Shaw), in a discussion of the impact of the introduction of one of the earliest occupational sick pay schemes in the world, wrote:

“The introduction of any sick pay scheme of this kind will enable many people to be absent who ought to have been absent before. Many executive officials stressed this aspect to us, and commented on the number of cases before the scheme where men came to work who ought to have stayed at home. To this extent some increase in sick absence was to have been expected, although it is impossible to estimate how much.”

Recently there have been signs of a change, in that managers have started to discuss what they call ‘presenteeism’ seriously⁹. This may be defined as workers attending work when they are ill in the same manner described by Buzzard, and possibly it would be better for them, or their employer (or both) that they should not. In Britain, there are those who believe that presenteeism has been increasing at the same time that absenteeism has been falling¹⁰. If this is indeed true, it may also provide evidence that the idea that absenteeism can be too low is justified.

What is the optimal rate of absenteeism? The Coles/ Treble model suggests that there isn’t one. This does not mean, however, that there are not better and worse absence rates that one may try to enforce. It means, rather, that there is no guarantee that there is a unique cost-minimising absence rate for any particular job. This is because, in general, the isoprofit lines generated by particular technologies are globally neither concave nor convex. This phenomenon arises as a consequence of the operation of cover arrangements, and can be used to explain, for instance, why it is that a firm producing a uniform product using uniform technology, and uniform HR practices can tolerate a range of absence rates in its plants

⁹ See for example <http://www.personneltoday.com/articles/2010/06/02/55789/presenteeism-v-sickness-absence-which-is-more-costly.html>

¹⁰ Such claims have little empirical support. I have been able to find few attempts (let alone credible ones) at measuring presenteeism. An honourable exception may be Goetzel et al. (2004)

between 3% and 15%¹¹. Higher rates of absence attract lower wages, and more elaborate cover arrangements, so that production and profits can be maintained.

The Coles/Treble model illuminates much, but it has a logical hole in it. The contracts envisaged specify a probability, and it is not obvious how such a contract might be enforced, since any observed absenteeism is consistent with any probability. I attempted to fill this hole in a recent paper¹². The problem is one that has been tackled in the literature on optimal insurance, using methods originally proposed by Radner (1981). To cut a long story short, the result is that experience-rating can enable a contract that will yield outcomes arbitrarily close to those yielded by the optimal contract. The moral hazard created when an insurance contract is signed can in this way be diminished if the risk is repeated over time. The risk of absence is certainly one that is repeated over time, so the question that I answer affirmatively in my paper is: “Can contracts be constructed in which both moral hazard and adverse selection are avoided?” Effectively, the assignment of workers to job contracts in the way described in the Coles/Treble model eliminates adverse selection, while the moral hazard can be avoided by a well-designed experience-rated sick pay scheme.

What does a well-designed experience-rated sick pay scheme look like? In the jargon, it should satisfy (at least) participation and incentive compatibility constraints, which means in English that workers will want to sign up for the deal, and that having done so, they will not dissemble about the state of their health. The details of the kinds of contracts that satisfy these requirements is another question that could benefit from further investigation. While the theoretical literature is clear that experience rating of some sort will work, it is not clear that the requirements of participation and incentive compatibility are met by any experience-rated sick pay schemes that we see in modern economies. These are quite unusual in Europe, although there are some in Britain (where the state has not intervened directly into the sick pay market since 1994). They are quite common in North America, where the relevant legal framework is quite different, and the phrase ‘sick pay’ is not widely used. US workers tend rather to have an annual allowance of paid sick days, which, when they are exhausted lead to no entitlement at all. This is the crudest form that experience-rating can take.

According to the proposal in Treble (2009), however, a third requirement, beyond participation and incentive compatibility is necessary, since neither of the two constraints

¹¹ Barmby et al. (1991).

¹² Treble (2009)

mentioned so far refer to employers. A properly designed scheme should be able to convey information to the market about what the employer regards as an acceptable rate of absence. This is a quantity that may vary from job to job, but should be in control of the employer itself. Since for most economies this quantity would probably be distributed between 2% and 10%, and the experience-rating rules for most existing schemes show no sign of having been designed with these kinds of rates in mind¹³, I imagine that these schemes have been based on other criteria than their incentive properties.

One powerful consequence of ensuring that sick pay is experience-rated is that it should be implementable without any direct appeal by employers, or the providers of the sick pay scheme, to the medical profession. The role of doctors in the way that labour markets handle sickness is a subtle matter. The always insightful R.B.Buzzard writes:

“With this sick pay scheme a man may remain absent from work until he and his doctor decide that he is fully recovered from an illness. If there is a reasonable incentive to return to work he may well decide that he is fit enough to do so at a relatively early stage. But, if there is no such incentive to return to work, he may both feel and be unwell for a longer time, and many people will display the signs of illness. The patient may be totally unaware of the connexion between his continued ill-health and the lack of an incentive to get well. No amount of exhortation will convince him that his absence is unnecessary.

This raises an important medical aspect of the problem of paid sick absence. When there was a strong financial incentive to remain at work or to return to work as soon as possible, the doctor had the problem of persuading, even ‘ordering’ a sick man to stay at home. In the absence of such an incentive he may have to consider whether a patient should be persuaded to return to work in order to hasten his recovery. To some extent this problem represents a change of attitude on the part of the doctor; he may be aware of it but, in the ordinary way, he has seldom had to take action about it. This adds a medical argument to the need for some tangible incentive to early recovery.”¹⁴

This passage describes, in a very finely-judged (but non-judgmental) way, the relationship between medical decisions and incentives, but it supposes that incentives are not structured in such a way as to elicit an efficient response from the worker. It is this that the experience-rating achieves.

¹³ An exception is the scheme from Britain analysed by Bamby, Orme and Treble (1991), which seems to be based on a target rate a little greater than 5%.

¹⁴ Buzzard and Shaw(1952)

The information necessary to enable employers to make decisions is inferred by them (*inter alia*) from the behaviour of their workers, and they are assumed to have sufficient information at their disposal (some of it perhaps gained from the medical profession, either through a personal doctor or the internet) to be able to judge whether and for how long they should be absent. The advantage that the workers themselves have over personal doctors, occupational health professionals, human resources managers or any other parties, is that they, and they alone, know both about their illness and their job and its demands on them. Workers themselves are uniquely placed in understanding their own condition and their situation vis-à-vis work. It is true that this understanding may be aided by medical professionals who can provide information about how a particular condition may develop, but the impact of their condition on their situation at work, is not something that doctors are generally well-placed to assess.

Recently, the British government ceased medical certification of sickness. Instead, doctors are asked to provide Fitnotes, which are intended to certify capabilities, rather than incapacities. Early experience with the new system suggests that it can enable employees to return to work earlier, perhaps with a modified workload, but this outcome requires sensitive management¹⁵. The Fitnote is a vehicle by which a more flexible approach to sickness absence can be taken. Where its predecessor specified either fit-to-work or not, the new instrument enables a more nuanced description of what a worker can and cannot do. The challenge now is to provide appropriate incentives to encourage workers to reveal honestly the state of their capabilities, and for this information to be conveyed accurately to employers. Experience-rating of sick pay is one means by which this may be achieved. I know of no others.

B) Disability

A major issue in thinking about how policy towards disabled people should be framed is that some people are disabled from birth, while others become disabled at later stages of life. The latter group will have made education, training, and other choices regarding human capital formation predicated on continued good health, which can lose their value when injury or disease strike. The main policy difference between the two groups is that it is harder

¹⁵ <http://www.personneltoday.com/articles/2011/04/11/57571/employers-debate-progress-of-fit-notes-after-one-year-in-use.html>

to conceive how an insurance market could ever provide insurance for the first group. People in the second group at least have some opportunity to insure against unanticipated permanent loss of income while they are engaged in the labour market. I raise this issue here because I have little constructive to say about it, except that such insurance seems only to be provided for military employees, and in other cases where disability can specifically be ascribed to the performance of the job itself, as the consequence of industrial accident or physical conditions of work. The disabled subjects of the following discussion I assume not to be fully insured against the labour market consequences of their disability.

The number of people not working in Britain because they are disabled is roughly equal to the number of unemployed. The complex of issues raised in my discussion of absenteeism applies equally to this group. The only real analytical difference is the decision that is being considered. Absenteeism takes place within the context of a job contract. Claimants of disability pay (this is currently called Employment and Support Allowance in Britain) are not (or seek not to be) in the labour market at all. This implies that they are typically on a low income, which may justify transfers from other members of society. In many developed countries, the state has taken on responsibility for such transfers, creating problems of incentive compatibility similar to those that arise with employed workers. That is, the transfers depend on a declaration by the disabled worker themselves (usually certified by a medical practitioner of some kind) of the extent and nature of their disablement, and of its impact on their performance at their job. It seems to me that this is a central fact that needs to be recognised in the formulation of any policy. Systems need to be structured in order to encourage truthful revelation by workers of the extent to which their work performance is limited by their disability. *The key decision lies in the hands of the disabled themselves.* One of the first tasks that policy needs to address is how such a revelation can be encouraged. This is not to say that other agents do not have any role. Clearly, doctors can inform the disabled about the likely progress of their condition, and employers may want to propose ways in which workers' disabilities can be accommodated¹⁶.

¹⁶ I have amended this paragraph in light of comments by Joseph Lanfranchi, who took issue with an earlier version in which I claimed that workers held all the information necessary to make a declaration about the extent of the impact of their disability on their productivity. He has argued instead that the problem should be posed as one of creating an optimal committee along the lines of Sah and Stiglitz (1986). This may well be an attractive way forward, but there are technical reasons why the existing literature cannot be applied directly to

As with absenteeism and the sick note, benefit entitlements (in Britain at least) tend to be based on a binary view of disablement: disabled and therefore entitled to state support, or not, and therefore treated as a labour force participant and entitled to the same state support as other unemployed people. That this is not helpful in eliciting information about *degrees* of disability is manifest.

There can be little doubt of the desirability of support for those who are unable wholly to support themselves through work. Two major problems arise: First, how are such people to be identified, and the extent of their disability accurately assessed? Second, in an economy that is dominated by full-time and part-time contracts, how can someone who is, say, capable of no more than $\frac{3}{4}$ of the workload of an able person, be accommodated with a job?

The second of these questions is easier than the first, since it is part of the more general problem of unemployment. The menu of jobs on offer needs to be expanded to enable better matches to be made between the skills available and the jobs on offer. One could think of the problem of sharing support for the disabled between the state and the disabled workers themselves as an extension of the much-studied problem of unemployment. Thanks largely to the efforts of Dale Mortensen and his co-workers¹⁷, we have got used in recent years to thinking of this as a matching problem. The difficulty of matching workers who are only partly capable to a set of jobs that are either full-time or part-time should be obvious. For simplicity, suppose that only full-time jobs are available. Then someone who is partially able has two choices: They can try to fill a full-time job, or they can be unemployed. Either decision produces an inefficient outcome. If a job is taken, the worker's performance at it will not be as good as that of a fully-able person. If unemployed, the skills of the disabled person are wasted.

The last paragraph is a simplistic statement of a case that can stand quite a lot of elaboration, for it supposes that the impact of disability on productivity can be handled with a simple reduction in the number of hours that can be worked. For some disabled people this may not be the case, and for more it will be true that some other accommodation would work better. However, the main argument above that jobs can be designed to fit a wider range of workers than is currently readily available still applies.

the case of a medical committee. In particular, Sah and Stoglitz's 'projects' do not engage in strategic behaviour.

¹⁷ E.g. Mortensen and Pissarides (1994)

I distinguish three cases, without any claim of exhaustiveness: i) Reduced productivity with no time dimension. (e.g. If a worker is restricted to a wheelchair, their productivity in jobs requiring mobility may be reduced, but their ability to work full-time may not be.); ii) Productivity reduced by limited ‘stamina’. (e.g. some musculoskeletal conditions may not reduce productivity over short spans of time, but instead limit the length of time over which work can be done.); iii) Productivity reduced in some unpredictable fashion. (e.g. bipolar disease does not affect productivity in either of the respects mentioned above, except when manic or depressive episodes occur. The claim is sometimes made that manic episodes can actually *increase* productivity. Perhaps the perfect example of this kind of disability is Kleine-Levin syndrome, which causes the sufferer to sleep for several days at a time. Episodes occur at apparently random intervals.) Examples of the first case point up the importance of matching, since the extent to which a disability limits a worker’s productivity depends partially on the job they do. An economics professor whose foot has been amputated can manage reasonably well at his job. A soldier can’t¹⁸.

The three cases clearly have different policy implications. For i), if any action is necessary at all, you may look to job subsidies (such as the UK’s *Access to Work* program), or the requirement (also made in British law) that employers make ‘reasonable adjustments’ to workplaces and schedules to accommodate workers. The main issue here is who should bear the cost (assuming the cost to be worth bearing). For ii) you may look to labour market policies that split full-time jobs up into smaller units (there is a firm called Slivers of Time in Britain which produces software to make matching of workers’ available time to ‘partial’ jobs cheaper than it otherwise might be). Subsidies may also be desirable to offset the additional costs incurred in having more workers covering a given amount of work. Case iii) is more difficult, but it has a lot in common with the absenteeism problem. The challenge here is to find (or create) occupations for people of this kind where randomly-timed diminution of productivity is relatively unimportant. This suggests work without complementarity, or in organisations where cover arrangements for workers who are absent are easy to organise. Indeed, one might think of creating and possibly subsidising such organisations. It may also be worth pointing out that it is people with mental health

¹⁸ Job-specific disabilities and disorder specific employment are being studied by Marjorie Baldwin of Arizona State University. See, for example Baldwin and Choe (2010).

disabilities who display the highest rates of non-employment in Britain (and probably elsewhere).

While creating job opportunities forms an important part of a policy response, it is equally important that incentives to take a suitable job are present. Exactly how such a contract should be structured is a technical problem that I do not intend to tackle here. Required is a job specification, and a set of disability and unemployment benefits that are structured to elicit truthful revelation of each worker's ability. Only one thing seems sure about this design: it would need to incorporate an incentive compatible sick pay scheme designed along the lines suggested above. Apart from that, the constraints that the design would need to satisfy would include the requirement that someone who is actually disabled to some degree α must prefer to receive a proportion α of disability pay plus $(1-\alpha)$ of the expected income from full-time participation to any larger proportion. (The expectation is necessary in order to cope with the possibility that the person may be unemployed.) Such a person would then declare themselves to be disabled to a degree of at most α . A constraint ensuring that people will not under-declare their disability would also be necessary.

Those sceptical of the power of a structured benefit scheme to affect behaviour should ponder the evidence from the reaction of the British workforce to the current arrangements. These lead to far greater levels of declared disability among the low-skilled and low-paid. There is also evidence that declared disability varies internationally. Kapteyn et al. (2007) find that the threshold of pain at which Dutch workers declare themselves limited in their work abilities is lower than for US workers. Why this might be remains unexplored, but the differing generosity of available benefits could well be part of the answer.

Implementing policies such as those suggested here in economies where state involvement in the market for sick pay is small would be comparatively easy. For many developed economies with heavy state involvement in sick pay provision (i.e most of continental Europe) the practical difficulties that would be encountered in implementing them would be greater. They would need to decentralise their sick pay schemes, which may be a political task too far. But for the UK and the USA, where the market for sick pay is already largely deregulated, the job is more straightforward. Indeed, increased labour market flexibility is already part of the present British government's plans. Whether the link between increased flexibility and its potential benefits in dealing with sickness and disability has been made before now, I do not know.

The link is certainly missing from Autor and Duggan's (2010) proposal for the reform of the US disability insurance system. Their proposal (in brief) is that experience-rated disability insurance be mandatory for firms. This is consistent with the argument that I make above, but does not go far enough to assist in the creation of jobs for disabled people. Furthermore, the idea that insurance should be experience-rated at the level of the firm does not necessarily create the correct incentives for workers, unless firms also experience-rate their workers' contracts.

Conclusion

The main point of the above discussion is one that will be all too familiar to anyone trained as an economist during the last 40 years. At the heart of many apparently intractable policy problems lies a problem of information. There are two key difficulties in enabling disabled people to realise their full labour market potential. One is that a labour market that offers only full-time jobs is inimical to people who are unable to supply their labour full-time. I propose here that steps be implemented to make a greater range of partial jobs available. Since labour markets in many economies are showing signs already of moving in this direction, this is not an insuperable task. The second is extracting accurate information from workers as to the extent of their disabilities. I stress again that it is workers who are best placed to supply this information. While health professionals may be able to provide guidance and advice, that guidance and advice is always conditioned on information obtained from the worker, who can manipulate that information in order to bias the outcome in a desired direction. The purpose of designing incentives correctly is to limit this temptation.

The construction of incentive compatible contracts, if it is done correctly, can save substantial quantities of resources that are currently spent on monitoring health states of both employed workers and claimants of disability pay, since such contracts are 'self-monitoring'. In Britain, these costs fall largely on the National Health Service.

Since the proposals here are based on the idea of matching, the benefits that may accrue from them come in two kinds: enabling the employment of those partially disabled people who are currently out of the labour force, or working less than their disability allows; and enabling partial employment of those partially disabled people who are currently working full-time, or more than their disability allows. I am in no position to quantify either of these.

I have concentrated my remarks on policy issues, but in closing, perhaps I should say a little about where I believe useful research may be done. I have already pointed out the overwhelming emphasis on the demand side of the absenteeism market. Research is heavily concentrated on examining samples of workers and investigating statistical relationships between characteristics of these workers and their jobs, and their absence rates. It is, of course, important to find out about these things. But it seems to me equally important to know about how absenteeism behaviour varies among jobs and employers, and very little work has been done on this side of the market. The big payoff here would be a better understanding of the extent to which the costs of absenteeism vary in different kinds of organisations, and across jobs using different kinds of technology.

Secondly, although the role of the household in determining absence rates is reasonably well-established, with observable differences in absence rates with marital (or cohabitation) status and the presence of children, there are many things about households that are not understood. In particular, little is known about the way in which household responsibilities for child care impact on absenteeism. Even less is known about the way in which sick pay impacts on behaviour in households with two workers.

Thirdly, I mentioned above some recent work on the structure of incentives and behaviour. Economic theory suggests (and common observation confirms) that it not just 'pay' or 'sick pay' that influences behaviour. It is rather the way in which these quantities may change with different behaviours. In brief, it is the *structure* of pay or sick pay that will prove to be vital in unpicking how incentives work. Datasets that include such information are rare indeed, but I hope that as computing and data storage costs continue to fall that it will become possible to construct and use more of them.

Fourthly, I know of very little work at all on the market for sick pay and disability insurance. This is partly, of course, because in many economies these markets have been monopolised by states, so that the markets are not well developed. I think that *the* major challenge for both policy-makers and academics is to find ways in which the potential welfare gains that can be generated by the operation of markets in this field can be realised. This can only be done if there is a better understanding of the ways in which these insurance markets interact with labour market. I hope the ideas put forward here will prove helpful in that regard.

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