

SAM 24 2008

ISSN: 0804-6824

DECEMBER 2008

Discussion paper

Disability compensation and responsibility

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Disability compensation and responsibility

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Abstract: It is a central political goal to secure disabled individuals the same opportunities as others to pursue their conception of a good life. This goal reflects an ambition to combine an egalitarian and a liberal moral intuition. In this paper we analyze how disabled individuals who take part in economic activity should be compensated in order to respect these two intuitions. The paper asks how a system of disability compensation should be *structured* and what the *level* of such compensation should be. It also analyzes how the answer to these questions depends on whether or not the disabled individuals are held responsible for their choice of work effort.

Keywords: Disability, responsibility, equalization.

1. Introduction

To extend theories of justice to cover disabled individuals is a challenge that may require a reshaping of the existing theories (Nussbaum 2006). In order to take account of disabled individuals, a theory of justice needs to address the question of how individuals who do not have essential physical or intellectual abilities should be treated. This question has often been ignored, and many authors have followed Rawls (1971, 1993) in his assumption that "while citizens do not have equal capacities, they do have, at least to the essential minimum degree, the moral, intellectual and physical capacities that enable them to be *fully* cooperating members of society over a complete life" (1993, p. 183, our emphasis). We want to move beyond the Rawlsian approach and discuss how income should be distributed in a context where some individuals are disabled in the sense that they have physical or mental impairments that have a substantial and long-term adverse effect on their ability to carry out normal day-to-day activities. These effects might be a direct result of the impairment or a result of discrimination that reduces the work opportunities of disabled individuals. It is a central political goal to secure disabled individuals the same opportunities as non-disabled to pursue their conception of a good life, and therefore our focus is on how an egalitarian and a liberal moral intuition can be combined in the design of a fair compensation system for disabled individuals.¹

How liberal considerations of personal responsibility should be incorporated into egalitarian reasoning has been a central theme of modern theories of distributive justice (Dworkin (1981), Arneson (1989), Cohen (1989), Roemer (1993, 1996, 1998), Kolm (1996), and Fleurbaey (1995, 2007)). A common feature of liberal egalitarian or equal opportunity theories of justice is that they draw a distinction between factors individuals should be held responsible for, responsibility factors, and factors individuals should not be held responsible for, non-responsibility factors.² For a given cut between these factors, liberal egalitarian theory can be seen to incorporate an egalitarian and a liberal intuition. The *egalitarian*

¹ By this we do not intend to argue that income compensation is the only relevant way of addressing unjust disadvantages of disabled individuals. See Wolff (2008) for a discussion of alternative strategies in the design of just disability policies.

² A central issue in liberal egalitarian theory is where the cut between responsibility and non-responsibility factors should be drawn. One common way of drawing the responsibility cut, which we shall appeal to in this paper, is to define responsibility factors as factors within individual control and non-responsibility factors as factors beyond individual control. Our main results, however, do not rely on this particular specification of the responsibility cut.

intuition is that individuals should not be held responsible for non-responsibility factors and, therefore, inequalities due to factors for which the agent is not responsible are unjust and should be eliminated. The *liberal intuition* is that individuals should be held responsible for responsibility factors and, therefore, inequalities due to factors for which the agent is responsible are just and should be preserved.

We analyze how disabled individuals who take part in economic activity should be compensated in order to respect these two intuitions. In the analysis we distinguish between two possible effects of physical and intellectual disabilities in the design of disability compensation. First, disabilities might reduce the disabled individual's productivity. Second, disabilities might imply that a disabled individual cannot be held responsible for his choices. In this paper we study how these two possible effects of disability affect how a fair system of disability compensation should be *structured* and what the *level* of such compensation should be. The paper is primarily concerned with ideal theory and the main results of the paper are derived within a simplified framework where we assume that the government has full information. In the last section, however, we discuss the value of ideal theory and how our results can be extended.

Our main result with respect to the structure of the disability compensation is that such compensation must be conditional on the choice of work effort made by the disabled individuals. Surprisingly, this is the case even in situations where the disabled individuals are not held responsible for their choices. In such situations, however, the compensation should be decreasing rather than increasing in the choice of work effort. Our main result with respect to the level of the disability compensation is that the compensation should ensure that the disabled individuals, on average, earn the same as non-disabled individuals. This conclusion is also independent of whether we hold disabled individuals responsible for their choice of work effort or not.

The paper is structured as follows: in the next section we defend two principles that capture the egalitarian and the liberal intuition in a context with disabled individuals. In section 3 we analyze the implications of these principles for the design of disability compensation under the assumption that we want to hold disabled individuals responsible for their choices. This assumption is in some cases unreasonable, and in section 4 we discuss how we should compensate disabled individuals if we do not want to hold them responsible for their choices.

The results of the paper are derived within a simplified framework where all disabled individuals are assumed to have the same productivity and to be responsible for the same factors. The final section concludes with a discussion of the implications our results in situations where disabled individuals differ with respect to both these dimensions and when the government do not have full information.

2. Two moral principles

There is a large literature on what restrictions the egalitarian intuition and the liberal intuition impose on a fair income distribution.³ In this literature, however, there has been no explicit focus on the possibility that we might not want to hold individuals responsible for the same set of factors. In this paper we introduce an egalitarian principle and a liberal principle that take account of this possibility and allow for individual-specific responsibility sets. Throughout the paper we assume that disability compensation satisfies a minimal requirement of anonymity (or impartiality) saying that individuals who are identical in all respects should have the same post-tax income, that is, the identity of individuals should play no role in a fair system of disability compensation.

The egalitarian intuition is that any *inequality* between individuals must be justified by appealing to differences in some responsibility factors. This intuition implies that individuals who are identical with respect to *all* responsibility factors should have the same outcome. The following principle of equalization therefore captures a core element of the egalitarian intuition.

The principle of equalization: *If two individuals are responsible for the same set of factors and they are identical with respect to these factors, then they should have the same post-tax income.*

This is a generalization of the classical egalitarian principle in the social choice literature, which presupposes that people are held responsible for the same set of factors (see Fleurbaey, 2007). The principle of equalization is consistent with an income distribution where disabled

³ See Fleurbaey (2007) for a careful overview of this literature, including both the philosophical and the social choice literature.

individuals working the same number of hours as non-disabled individuals receive a lower post-tax income, if the non-disabled individuals but not the disabled individuals are held responsible for working hours. So the principle of equalization does not necessarily require redistribution between non-disabled individuals and disabled individuals.

To illustrate the principle, consider a situation where a person's pre-tax income is determined by how many hours he works and by his productivity and where two individuals are held responsible for how many hours they work, but not for their productivity. The principle of equalization then implies that if the two individuals work the same number of hours, then it is fair that they receive the same income even if they do not have the same productivity and therefore have different pre-tax incomes. The principle does not, however, place any restrictions on the distribution of income between individuals who work different number of hours or individuals who have different responsibility sets. The principle is for example consistent with an income distribution where those who work most hours receive all the income. It is therefore much weaker than the strict egalitarian principle that income always should be equalized between all individuals.

The liberal intuition is that *redistribution* only can be justified by appealing to differences in non-responsibility factors. The implication of this intuition is straightforward in situations where all individuals are identical with respect to their non-responsibility factors. In such situations all income inequalities are a result of differences in responsibility factors and accordingly there should be no redistribution. We can formulate this as the minimal principle of responsibility.

The minimal principle of responsibility: *If all individuals are responsible for the same set of factors and they are identical with respect to all non-responsibility factors, then there should be no redistribution.*

This is a reformulation of the classical minimal responsibility principle in the social choice literature, where it is presupposed that people are held responsible for the same set of factors (see Fleurbaey, 2007).

This principle can be illustrated by considering a situation where all individuals are responsible for how many hours they work, but not for their productivity and where everyone

has the same productivity. In this situation all income inequalities would be due to differences in choices and there should be no redistribution.

We are, however, concerned with the fact that disabled individuals differ from non-disabled individuals with respect to their non-responsibility factors. In such situations the minimal principle of responsibility is of little use. We therefore propose a principle that captures the liberal intuition even in situations where individuals are different with respect to non-responsibility factors.

To formulate this principle we need to introduce the notion of a responsibility-group.

A responsibility-group: *In any given situation, a responsibility-group is a group of individuals who are (a) held responsible for the same factors, and (b) are identical with respect to their responsibility factors.*

As an example, all individuals working the same number of hours constitute a responsibility-group if working hours is the only responsibility factor. Note that such responsibility-groups may differ with respect to non-responsibility factors. To illustrate, suppose that disabled individuals have lower productivity than non-disabled individuals and work four hours every day, whereas non-disabled individuals work eight hours every day. In such a situation, we have two responsibility-groups; the individuals working eight hours and the individuals working four hours, but these two groups differ substantially with respect to non-responsibility factors.

In the formulation of the liberal intuition, however, we want to appeal to a situation where all responsibility-groups are representative.

A representative responsibility-group: *A responsibility-group is representative if the distribution of non-responsibility factors among the members of the group is the same as the distribution of the non-responsibility factors in society at large.*

In the example above, we do not have representative responsibility-groups, since the distribution of productivity of those working four hours is different from the distribution of productivity of those working eight hours. But suppose now that half of the non-disabled

individuals and half of the disabled individuals work eight hours and the rest work four hours every day, i.e. that the relative frequency of hours worked is the same in both groups. In such a situation, we would have two representative groups in society; the group of individuals working four hours and the group of individuals working eight hours.

In a situation where all responsibility-groups are representative, it is not possible to appeal to differences in non-responsibility factors to justify a net transfer from the members of one responsibility-group to the members of the other responsibility-group. We therefore argue that it follows from the liberal intuition that there should be, for short, *no redistribution between responsibility-groups* unless these groups differ with respect to the distribution of non-responsibility factors. We can formulate the principle of responsibility as follows.

The principle of responsibility: *If all responsibility-groups in society are representative, then there should be no redistribution between the responsibility-groups.*⁴

It follows straightforwardly that this principle implies the minimal principle of responsibility given anonymity.⁵ More importantly, the principle of responsibility also restricts redistribution when individuals differ with respect to non-responsibility factors. To illustrate, consider again the situation where half of the non-disabled individuals and half of the disabled individuals work eight hours and the rest work four hours. In this situation, if we hold individuals responsible for working hours, then the principle of responsibility requires that there should be no net transfer of income between the group of individuals who work eight hours and the group of individuals who work four hours.

In the rest of this paper we shall discuss implications of *the principle of equalization* and *the principle of responsibility* for the design of a disability compensation system. In this discussion, we assume that no individual is responsible for their disabilities, and thus we

⁴ It should be noted that this principle is much weaker than the requirement that each individual should be held accountable for the actual consequences of their responsibility factors. It has been shown that the principle of equalization is incompatible with this strong interpretation liberal intuition when the consequences of responsibility factors depend on non-responsibility factors (Bossert and Fleurbaey, 1996).

⁵ To see the relationship between the minimal principle of responsibility and the principle of responsibility, consider a situation where all individuals are responsible for the same set of factors and identical with respect to all non-responsibility factors. In this case, all responsibility-groups are representative. Hence, the principle of responsibility implies that there should be no redistribution between responsibility-groups. Moreover, within each responsibility-group, all members are identical in all respects, and thus a minimal requirement of anonymity requires that there should be no redistribution within responsibility-groups. In sum, there should be no redistribution, which is in line with the minimal principle of responsibility.

ignore the possibility that society might want to hold individuals responsible for their disabilities, for example in cases where the disability is a result of particular types of risky choices.

3. Responsibility and disability compensation

How should disabled individuals be compensated when their disability reduces their productivity, if we still hold them (and the non-disabled individuals) responsible for their choice of hours worked? We study this question within a simple economy, where society only consists of two groups, the non-disabled and the disabled. Moreover, we assume that each individual's pre-tax income is determined by the number of hours worked and his hourly productivity, and that each person's average hourly productivity is constant and equal to his hourly pre-tax wage. All the non-disabled individuals is assumed to have the same productivity and all the disabled individuals have the same, lower, productivity, but this assumption is not essential for our results. We leave aside issues of risk-taking, by assuming that there is no uncertainty about the outcomes of individual choices. Finally, we assume that distribution of hours worked is the same among the non-disabled individuals and the disabled individuals, and that the choice of working hours is unaffected by the way in which we redistribute income. These assumptions greatly simplify the analysis, and we believe it provides a useful benchmark for the study of fair disability compensation.

3.1. Unconditional disability compensation

A common system of disability compensation is to give the same income compensation to all individuals with the same disability, that is, to let the compensation each disabled individual receives be determined solely on the basis of information about his disability and be independent of his or her choices. We shall refer to such a compensation system as *unconditional disability compensation*. How should fair unconditional disability compensation be designed within a liberal egalitarian framework? We first note that the principle of equalization has very strong implications for how we answer this question.

Result 1: *If all individuals are responsible for their choice of hours worked, but not for their productivity, then the only system of unconditional disability compensation that satisfies the*

*principle of equalization is one where (a) disability compensation is financed by taxing the income of the non-disabled individuals so that their hourly post-tax wage is equal to the hourly pre-tax wage of the disabled individuals, and (b) the tax revenues are divided equally among all individuals in society.*⁶

To see the intuition behind this result, note that, by definition, any system of unconditional compensation preserves the absolute level of pre-tax income inequality among the disabled individuals. The principle of equalization does not, however, justify any differences in post-tax income between non-disabled individuals and disabled individuals working the same number of hours as long as they are all held responsible for working hours, and consequently it follows that the hourly productivity of the disabled individuals also determines to what extent non-disabled individuals should be rewarded for hours worked. In order to implement such a compensation system, society has to introduce a marginal tax rate on the non-disabled individuals that makes their marginal post-tax income from work equal to the marginal productivity of the disabled individuals. The size of the unconditional disability compensation will then be the total revenue from this tax divided by the number of individuals in the economy.

To illustrate, consider an economy where half the population work four hours and half the population work eight hours and where a quarter of the population is disabled. Let us assume that the non-disabled individuals have a productivity of 40 USD per hour and that the disabled individuals have a productivity of 20 USD per hour. The pre-tax income of a disabled individual is therefore only half the pre-tax income of a non-disabled individual who works the same number of hours. Suppose that the disabled individuals are given an unconditional compensation for their disability. It follows straightforwardly that the post-tax income difference between the disabled individual working eight hours and the disabled individual working four hours will be 80 USD, which is identical to the difference in their pre-tax income. If we now turn to two non-disabled individuals working four hours and eight hours, respectively, then it follows immediately from the principle of equalization that they should receive the same post-tax income as the disabled individuals working the same number of hours. In other words, the post-tax income difference between these two non-disabled individuals should also be 80 USD. This implies that we have to impose a marginal tax of

⁶ The formal proof of this result and the other results in this paper are available on request.

50% on the non-disabled individuals, which again implies that their hourly post-tax wage will be 20 USD per hour. Finally, in order to satisfy the principle of equalization the non-disabled individuals and the disabled individuals must get the same unconditional transfer, which implies that the unconditional disability compensation is equal to 90 USD.⁷

Even if there exists a system of unconditional disability compensation that satisfies the principle of equalization, there does not exist any such system that also satisfies the principle of responsibility.

Corollary 1: *There is no unconditional compensation system that satisfies both principle of equalization and the principle of responsibility.*

This result follows from the fact that the unique system of unconditional disability compensation that satisfies the principle of equalization involves a net transfer from those who work many hours to those who work few hours even when these responsibility-groups are representative. In other words, this system violates the principle of responsibility.

To illustrate, consider again the example where people either work eight hours or work four hours, and keep in mind that we assume that distribution of hours worked is the same among the non-disabled individuals and the disabled individuals. The principle of responsibility implies that there should be no redistribution between the two representative responsibility-groups, which is to say that the total post-tax income of those working four hours should be equal to their total pre-tax income. But this is not the case with the unique unconditional compensation system that satisfies the principle of equalization. With this compensation system there is, on average, a net transfer of 30 USD from those who work eight hours to those who work four hours.⁸

3.2. Conditional disability compensation

⁷ On average the able individuals work six hours and they thus pay an average tax of 120 USD. The disabled individuals do not pay any tax. The uniform compensation is thus 90 USD, since three quarter of the population is assumed to be able.

⁸ The average hourly wage in the economy is 35 USD and the average pre-tax income of those who work eight hours is therefore 280 USD. Their post-tax income, however, is 250 USD (160 USD plus the uniform transfer of 90 USD). The average net transfer is equal to the difference between the average pre-tax income and the average post-tax income.

A system of *conditional disability compensation* differentiates the compensation given to the disabled individuals based on their choices. Such a system might, for example, give a larger compensation to disabled individuals who work many hours than to disabled individuals who work few hours.

It turns out that there is a unique system of conditional disability compensation that satisfies our two principles.

Result 2: *If all individuals are responsible for their choice of hours worked, but not for their productivity, then the only system of disability compensation that satisfies the principle of equalization and the principle of responsibility is one where (a) disability compensation is conditional and increasing in hours worked, and (b) disability compensation and the financing of it ensures that the post-tax hourly wage is the same for the non-disabled individuals and the disabled individuals and equal to the average hourly pre-tax wage in the economy.*

The intuition behind this result is straightforward. Since we have assumed that the share of disabled individuals is the same at all effort levels, all responsibility-groups are representative.⁹ In such a situation the principle of responsibility implies that the total post-tax income received by all individuals in a responsibility-group should equal the total pre-tax income of that group. Since the average productivity is constant for all individuals, the principle of equalization then implies that all individuals should earn the average hourly pre-tax wage rate in the economy. This implies that the disability compensation is conditional and increasing in the number of hours worked.

To illustrate, consider again our example where the non-disabled individuals have a productivity of 40 USD per hour and the disabled individuals have a productivity of 20 USD per hour and assume that three quarter of the population is non-disabled. The average hourly pre-tax wage is then 35 USD, and the two principles in combination thus imply that an additional working hour should be rewarded with 35 USD for all individuals. By rewarding an

⁹ Further specification is needed on how to compensate in cases where not all responsibility-groups are representative. This problem has been discussed extensively in a more general context in the social choice literature (see Fleurbaey and Maniquet (2007) and Fleurbaey (2007) for overviews), where one proposal consistent both with the principle of equalization and the principle of responsibility is the generalized proportionality principle (Cappelen and Tungodden, 2007).

additional working hour with the average marginal productivity, the compensation of the disabled individuals becomes conditional on the choice of working hours. The disabled individuals receive a compensation of 15 USD per working hour, which implies that disabled individuals working four hours receive a compensation of 60 USD, whereas disabled individuals working eight hours receive a compensation of 120 USD. These transfers are financed by a 12.5 percent tax on the hourly pre-tax wage of the non-disabled individuals. The tax on the non-disabled individuals implies that they also earn 35 USD per hour after taxes. The system thus satisfies the principle of equalization. The principle of responsibility is also satisfied, because the total post-tax income is equal to the total pre-tax income for each responsibility-group.

In sum, the principle of equalization and the principle of responsibility have important implications for both the *structure* and the *level* of a fair system of disability compensation. There is a unique compensation system that satisfies both principles, and this system makes the compensation conditional on, and increasing proportionally in, how many hours the disabled individual chooses to work. Moreover, the two principles imply that the compensation per hour is set so as to ensure that the average post-tax income of the disabled individuals is equal to the average post-tax income of the non-disabled individuals.

4. Non-responsibility and disability compensation

So far we have assumed that disabled individuals should be held responsible for their choice of working hours. Some disabilities, however, might have as an effect that we do not want to hold the disabled individual responsible for his choices. There are at least two reasons for this. First, some disabilities might result in individuals not being competent to make some decision. Second, work-place bias might deny some disabled individuals employment opportunity and relegated them to part-time or marginal jobs. In this section we study how fair disability compensation should be designed when the disabled individuals are not held responsible for the same choices as non-disabled individuals.

4.1. Non-responsibility and equal productivity

In order to address this question, it is instructive to start by making the assumption that the non-disabled individuals and the disabled individuals are equally productive and that the only difference between the two groups is that the disabled individuals are not responsible for his

choice of work effort. Hence, we hold the non-disabled individuals responsible for their choice of working hours, but not the disabled individuals. We still assume that the distribution of hours worked is the same among the non-disabled individuals and the disabled individuals.

Also in this case the principle of equalization and the principle of responsibility characterize a unique system of disability compensation.

Result 3: *If non-disabled individuals, but not disabled individuals, are responsible for their choice of hours worked, and all individuals are equally productive, then the only compensation system that satisfies the principle of equalization and the principle of responsibility is one where (a) disability compensation is conditional and decreasing in hours worked, (b) disability compensation ensures that the post-tax income of all the disabled individuals is equal to the average income in the economy, and (c) disability compensation only involves transfers among the disabled individuals.*

To see this, note that since the disabled individuals are not responsible for their choice of hours worked, all disabled individuals are in the same responsibility-group, independent of how many hours they work. Non-disabled individuals who work different numbers of hours are in different responsibility-groups, however. All responsibility-groups are furthermore representative because we have assumed that the productivity is the same for all individuals. Since all responsibility-groups are representative, there should be no redistribution between the non-disabled individuals and the disabled individuals or between non-disabled individuals who choose to work different number of hours. Moreover, the principle of equalization implies that all disabled individuals should have the same post-tax income independent of how many hours they work. Hence, there should be complete equalization within the group of disabled individuals, and thus, given that they are as productive as the non-disabled individuals, it follows that all disabled individuals should receive the average income in the economy. The disability compensation given to each disabled individual is therefore equal to the difference between his actual pre-tax income and the average income in the economy. This implies that the compensation is conditional and decreasing proportionally in the number of hours worked.

4.2. Non-responsibility and reduced productivity

The assumption that disabled individuals and non-disabled individuals are equally productive is not realistic in situations where the disabled individuals are not responsible for his work effort. It is reasonable to assume that an impairment that reduces an individual's control over his choices also reduces his productivity. It is likely that a person who is not responsible for his choice of working hours also is less productive than the average non-disabled individual. We therefore need to ask how we should compensate disabled individuals when their disability results both in a reduced ability to make autonomous choices and in a lower productivity.

The principle of responsibility is unable to guide us in such situations, because the responsibility-group consisting of all the disabled individuals is not representative. However, it turns out that a reasonable strengthening of the principle of equalization provides the needed link between these situations and the situations analyzed in the previous section. One way to formulate the egalitarian intuition is to say that *how* we distribute income between individuals should be independent of the distribution of non-responsibility factors in society. The distribution of non-responsibility factors may affect the total income that is to be distributed, but the share of the total income each individual receive should only depend on the distribution of responsibility factors. We thus introduce the following stronger version of the principle of equalization:

The strong principle of equalization: *If all individuals have the same responsibility factors in two situations, then each individual's share of the total income should be the same in the two situations.*

It follows straightforwardly that the strong principle of equalization implies the principle of equalization given the requirement of anonymity.¹⁰ More importantly, by combining the strong principle of equalization with the principle of responsibility, we can now formulate the following result.

¹⁰ To see this, consider any situation where two individuals are identical with respect to their responsibility factors, but differ with respect to their non-responsibility factors. Compare this to a situation where they are also equal with respect to non-responsibility factors, and everything else remains the same in society. Anonymity requires that they receive the same post-tax income (and share of the total income) in the latter situation. The strong principle of equalization requires that each individual's share of the total income should be the same in the latter and the former situation. In sum, they also get the same share in the former situation, and the principle of equalization is satisfied.

Result 4: *If non-disabled individuals, but not disabled individuals, are responsible for their choice of hours worked, and disabled individuals are less productive, then the only compensation system that satisfies the strong principle of equalization and the principle of responsibility is one where (a) disability compensation is conditional and decreasing in hours worked, (b) disability compensation ensures that the post-tax income of all the disabled individuals is equal to the average income in the economy, and (c) disability compensation is financed by taxing the income of the non-disabled individuals so that their hourly post-tax wage is equal to the average hourly pre-tax wage in the economy.*

To see this, note first that Result 3 also holds when replacing the principle of equalization with the strong principle of equalization. Result 3 implies that all disabled individuals should receive the average income in a situation where the disabled individuals have the same productivity as the non-disabled individuals. Consider now the new situation in which the disabled individuals are less productive than the non-disabled individuals, but where all individuals work the same number of hours as in the previous situation. The strong principle of equalization tells us that the share of total income each individual receives should be the same in the two situations, because there has been no change in responsibility factors. The disabled individuals should, in other words, still receive the average income, even though average income will be lower in the latter situation (since the productivity of the disabled individuals is lower). Hence, the disability compensation is conditional and decreasing in hours worked. The shares of the total income the non-disabled individuals receive should all be the same in the two situations, which is only possible if we impose a proportional tax on the non-disabled individuals such that their hourly post-tax wage is equal to the average hourly wage in the economy.

Again we note that the principle of responsibility and, in this case, the strong principle of equalization have important implications for the *structure* and the *level* of a fair system of disability compensation. There is a unique disability compensation system that satisfies both principles and this system makes the compensation conditional on how many hours the disabled individual works. This may seem surprising, given that we consider a situation where we do not hold the disabled individual responsible for his choice of hours worked. But the point is that this lack of responsibility implies that all disabled individuals should receive the same post-tax income. Given that they work different hours, this implies that the fair disability compensation has to be decreasing in hours worked. Furthermore, interestingly, we

note by comparing Result 2 and Result 4, that the total level of transfers from the non-disabled individuals to the disabled individuals is independent of whether we hold them responsible for hours worked or not. In both cases the disabled individuals get, on average, a post-tax income equal to the average income in society.

4.3. A challenge

A challenge to the system of disability compensation presented in Result 4 is that it violates another intuitively appealing moral principle. Consider the following requirement.

The no discrimination principle: *If two individuals are identical with respect to all factors determining their pre-tax income, then they should receive the same post-tax income.*

The non-discrimination principle implies that the fact that we do not hold the disabled individuals responsible for their choice of hours worked cannot *in itself* justify an inequality between the non-disabled individuals and the disabled individuals. Any fair inequality between individuals must be related to differences in factors determining their pre-tax income. In our framework, if two individuals are equally productive and work the same number of hours, then they should receive the same post-tax income.

Interestingly, it is not possible to combine this principle with the strong principle of equalization and the principle of responsibility.

Result 5: *If non-disabled individuals, but not disabled individuals, are responsible for their choice of hours worked, then there is no compensation system that satisfies the strong principle of equalization, the principle of responsibility, and the no discrimination principle.*

This result follows straightforwardly from applying Result 3, which shows that, given the assumptions of the result, all disabled individuals should get the average income in the economy and all non-disabled individuals should get their pre-tax income. A non-disabled individual working less than the average number of hours receives under such a system less than the average income and, therefore, earns less than a disabled individual working the same number of hours. This violates the no discrimination principle.

The proof of this result appeals to a situation where non-disabled and disabled individuals are equally productive, but the same kind of conflict exists even if in situations where the disabled individuals have lower productivity. Suppose that we reformulated the no discrimination principle, such that it states that an individual should not receive a lower post-tax income than another individual with lower productivity who works the same number of hours. It follows immediately from Result 4 that it is also impossible to combine this version of the principle with the strong principle of equalization and the principle of responsibility. We have already shown that in the case where both the non-disabled individual and the disabled individual work less than average hours and are equally productive, the non-disabled individual ends up with a lower post-tax income. But the strong principle of responsibility implies that this should hold even if the productivity of the disabled individuals is reduced, everything else being the same. Thus, the non-disabled individual will end up with a lower post-tax income than the disabled individual even though he works the same number of hours and is more productive.

We believe that this conflict poses a dilemma in the design of liberal egalitarian policies that aim at incorporating both non-disabled individuals and disabled individuals in the same sphere of justice. However, one might argue that the no discrimination principle is too strong a requirement on a theory of justice. One might for example argue that individuals with intellectual impairments do not *deserve* to be rewarded in the same way as non-disabled individuals for their work because they are not responsible for their choice of work effort.

5. Extensions

The ambition of this paper has been to study how a fair system of disability compensation ideally should be designed under the assumption that the disabled individuals belong to the same sphere of justice as other members of society. In particular we have been concerned with how a society that aims to satisfy two basic liberal egalitarian principles should compensate (i) individuals with impairments that reduce their productivity and (ii) individuals with impairments that directly or indirectly affect the extent to which they are responsible for their choice of work effort.

The main results of in this paper are derived in a simplified framework in which all disabled are assumed to have the same productivity and to be responsible for the same set of factors. In the real world these assumptions clearly do not hold. Disabled individuals differ both with respect to how their impairments affect their productivity and with respect to how their impairments affect the extent to which they are responsible for their choice of work effort. It is therefore important to address the question of how our results extend to a more general framework where disabled individuals might differ along these two dimensions.

The result that a system of disability compensation should be conditional on choices, Result 1, obviously does not depend on the assumption that there are only two productivity levels. The lesson from this result in the design of real world disability policies is that compensation only is justified if the impairment is a serious limitation in the pursuit of some goals, for example the goal of active participation in the labour market.

The main lesson from result 2 is that the disability compensation should be set so that disabled individuals receive the labour income they would have received in the absence of their impairment. In a world where some disabled individuals have severely reduced productivity while other disabled individuals are as productive as the non-disabled this result implies that the compensation must depend on the severity of disability. More precisely, the disability compensation should ideally be set equal to the difference between the actual income of the disabled individual and the average income individuals who make the same work effort.

We believe that these two results provide an important message in a debate on how to integrate disabled individuals in the labour market. If disabled individuals are to be treated as responsible and autonomous individuals then we must be willing to hold them responsible for their choices as well. There has, however, been considerable resistance against holding disabled individuals responsible for their choices. This resistance is similar to the resistance against holding individuals responsible for their choices in the context of health care (Cappelen and Norheim 2005). One reason for this resistance is that the call for individual responsibility often is associated with the position that individuals should face the actual consequences of their choices. In this paper we explain why it would be unfair to hold individuals responsible for the actual consequences of their choice of work effort when their productivity is reduced as a result of their impairment. More importantly, we show that it is

possible to hold disabled individuals responsible for their choice of work without at the same time holding them responsible for their impairments.

Another result from this paper that does not depend on our simplifying assumptions is the result concerning how society should compensate those disabled individuals that are not responsible for their choice of work effort. We argue that those disabled individuals who, either because they lack control over their choices or because they do not have employment opportunities, are not responsible for their choice of work effort should receive the average labour income in society. This result has strong policy implications because it suggests a much higher level of compensation than what is common.

The results in this paper describe what would constitute an ideal system of disability compensation. Implementing this system would require information that is not always available to the government. It is for example a well known problem from the literature on optimal tax policy that it is difficult to get reliable information about working time. We do believe, however, that ideal theory still is important as a standard against which one can measure actual policies. It is important to notice the difference between using information on effort, for example labour supply, in the *operation* of compensation systems and in the *evaluation* of such systems. Even if information about individual work effort can not be used directly by the tax authorities, there is a lot of statistical information available on labour supply that can easily be used in normative analysis of alternative compensation systems.

Finally, we want to stress that this article has assumed that individual choices of work effort are independent of the compensation scheme. We have done this in order to focus on what constitute a fair system of disability compensation. A complete analysis of disability compensation must, of course, take into account possible incentive effects. Such an analysis is, however, beyond the scope of this paper.

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