

## **COST-BENEFIT-ANALYSIS OF ECONOMIC INCENTIVES AT NATIONAL LEVEL**

### **Introduction**

According to the European Foundation economic incentive methods can be described as methods which financially reward those enterprises that ensure and develop good and safe working conditions (European Foundation for the Improvement of Living and Working Conditions, 1995). In recent years European policy makers have become more and more interested in economic instruments such as economic incentives to improve the working environment, mainly because strict regulation approaches have not been proved as effective as imagined (Elsler and Nikov, 2003). The community strategy on health and safety confirms the role of economic incentives as levers for raising awareness and complying with legislation: "*The development of awareness may also be reinforced, particularly in SMEs, by providing direct or indirect economic incentives for prevention measures. Such incentives could include a possible reduction in social contributions or insurance premiums depending on the investment made in improving the working environment and/or reducing accidents, economic aid for the introduction of health and safety management schemes, introduction of health and safety requirements into procedures for the award of public contracts.*" (A new Community strategy on health and safety at work 2007-2012, European Commission, Brussels, 21.01.2007, COM (2007) 62 final).

Several examples of economic incentives exist in all member states of the European Union, but few countries implement economic incentives as a macro-economic instrument to improve the quality of the working conditions (see case and policy report). Furthermore, even though there is some information available on the effectiveness of incentive schemes, the question is seldom raised if incentives are cost effective.

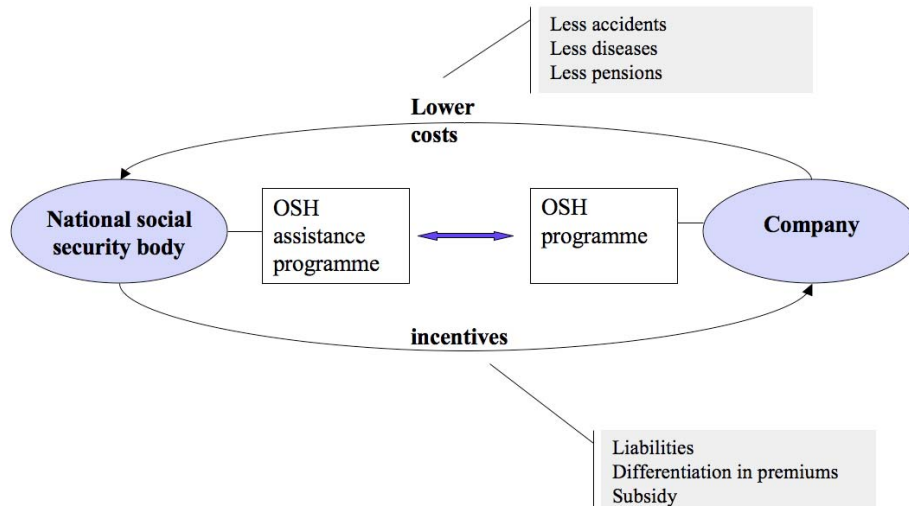
### ***Costs and benefits for whom?***

Economic incentives, and especially external financial incentives, are often issued by national social security bodies. The underlying economic rationale relies mainly on the argument that incentives will improve the quality of the working environment and thus resulting in a reduction in the use of the healthcare system. Healthy working conditions improve the health of the population as a whole. The reduction in people using medical and rehabilitative services leads to savings in public health service expenditure. Furthermore, occupational safety and health programmes can make a contribution to the issue of extending working life. The ageing of the workforce brought about by demographic change is one of the major challenges facing the future world of work, which occupational safety and health can help to master by helping workers to remain employed throughout their working life.

Figure 1 shows the mechanisms behind an incentive scheme (De Greef, M., Van den Broek K., 2004). The costs of occupational injuries and illnesses (costs of not implementing preventive OSH measures and/or workplace health promotion activities) are influenced by the national social security system. In addition, the national healthcare system may have cost effects. The extent to which these costs are borne by those who caused the injuries or illnesses differs from country to country. In many countries systems exist that bring the costs back to the company or the person who inflicted the costs (cost internalisation). Methods for cost internalisation are e.g. liabilities, legal sanctions, differentiation in premiums, etc. (Mossink J., De Greef M., 2002). Some of these methods can be used by national social security bodies as incentives for companies to implement OSH programmes.

Incentives aim at improving OSH in enterprises. This will result in less accidents, diseases and pensions and therefore lower the costs for national social security.

**Figure 1: Making the case of national social security bodies (De Greef M., Van den Broek K., 2004)**



### ***Cost-benefit analysis in practice***

This model shows that in theory the costs of incentives (subsidies, lower premiums) will be compensated by benefits (lower costs). However, in practice, incentives schemes are seldom viewed from a cost-benefit perspective. Research tends to focus on the effectiveness question and investigates whether or not incentives are effective instruments in changing business behaviour (e.g. Tompa E., 2007; Wright M., Marsden S., 2002). Although effectiveness is a crucial element in the cost-benefit analysis – if incentives don't work, they will not result in lower costs – it is important to take the discussion forward and also take into account the cost-benefit perspective.

Two examples that investigate the costs and benefits of incentive schemes will be presented. The first example is the financial incentive system of the Fleischerei -Berufsgenossenschaft (institution for statutory accident insurance and prevention in the meat-processing industry) in Germany (Krüger H., 2008). The second example looks into an incentivising scheme for return to work initiatives in the UK (Nera, 2006).

### ***Incentive scheme of the German butchery and meat sector***

The Fleischerei-Berufsgenossenschaft (FBG, institution for statutory accident insurance and prevention in the meat-processing industry) applies the legal tools - in addition to risk tariffs and the bonus malus system considering claims of the past years - to grant enterprises financial incentives (a premium) for prevention of occupational accidents and diseases, road accidents as well as for the prevention of work-related health hazards. The basic idea in the butchery and meat industry is that company prevention commitment is rewarded directly by differentiation of the premium. The preventive measures taken must exceed the legal minimum standards and have to be implemented in the year the scheme refers to. A catalogue of concrete measures is drawn up each year, with detailed explanation in the FBG's extranet on how to carry these out. The enterprises can pick from this list a number of measures they will set up during the year. Each measure results in bonus prevention points. The premium fee is diminished according to the bonus points collected. The reduction can amount to maximum 5% of the fee. The actual number and severity of accidents in the enterprise is not considered.

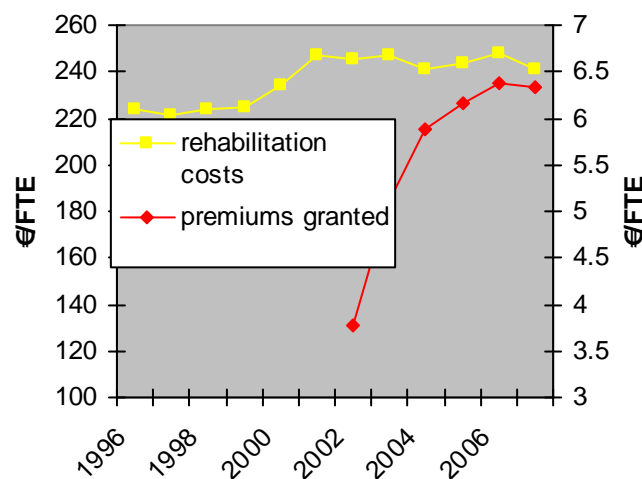
The system was introduced in 2002. The participation rate is 46%, which amounts to 8,000 companies.

In order to make a cost-benefit analysis Krüger (2008) considers 8 elements:

- the development of rehabilitation costs
- the relation between accidents and investing in prevention
- the relation between accidents and the use of premiums
- the performance of participants in the system
- the theoretical accident costs reduction
- the number of skin diseases (declarations)
- the costs of occupational diseases
- the effects of participating in the safety drivers training

The data on these 8 elements demonstrate overall a positive impact of the incentive scheme on the costs. Assessing the macroeconomic effect (lowering the costs for the social security body) of the premium system is somewhat difficult. For instance the data on the rehabilitation costs show clearly that these costs have been risen up to 2001. From 2002 onwards when the incentive scheme was launched, these costs remain rather stable. Krüger argues that it is difficult to draw conclusions solely based on the "reha" costs since several factors influence these costs such as rises in medical costs, changes in regulation to control medical costs and so on (figure 2).

**Figure 2: The relation between the rehabilitation costs and the premium payments per capita**  
**Krüger H., Kosten-Nutzen-Betrachtungen zum Prämienverfahren der Fleischerei-BG, 2008**

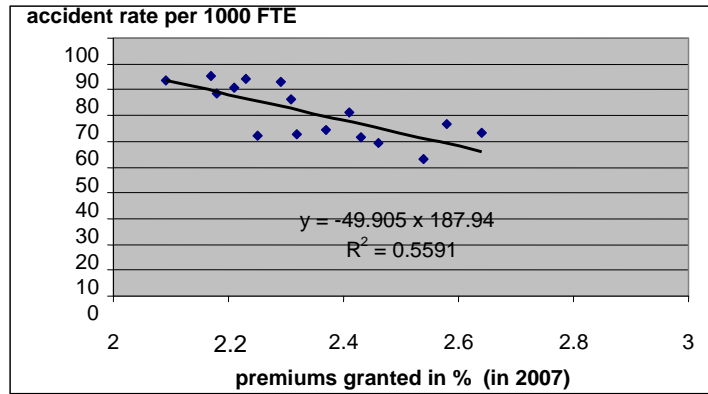


A positive correlation can be noticed between the costs/investment and the benefits. Say that the premium deduction in € (per company) is considered to be the cost. The reduction in compensation payments in € (per company) can then be considered to be the benefit since it provides an indication for the relative improvement of the accident level in that particular company compared to the average in the meat industry. The higher the premium received according to prevention measures carried out, the higher in fact the reduction in compensation payments is as well.

Other elements can only provide a rather indirect or theoretical indication of the financial benefits of the system. The results show for instance that there is a positive correlation between the relative number of accidents (number of accidents per 1000 full time workers) and the obtained premium

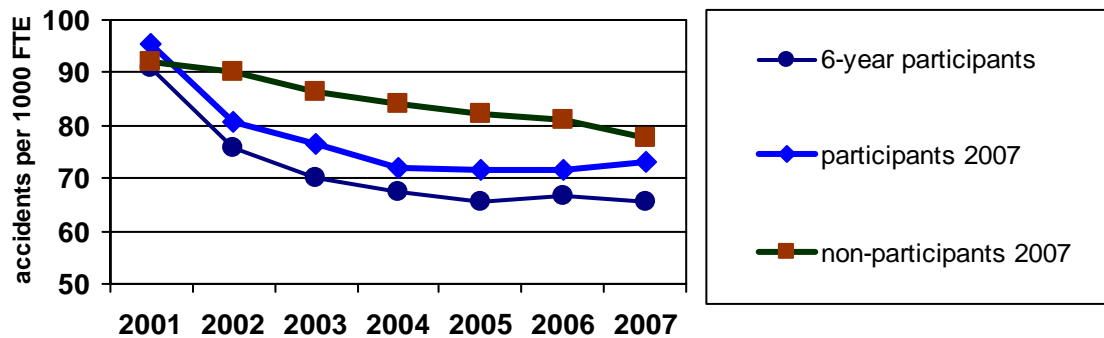
deduction (figure 3). More investments in preventive measures (resulting in more bonus points and thus in a higher premium payment) result in less accidents.

**Figure 3: The relation between accident rate and the use of premiums Krüger H., Kosten-Nutzen-Betrachtungen zum Prämienverfahren der Fleischerei-BG, 2008**



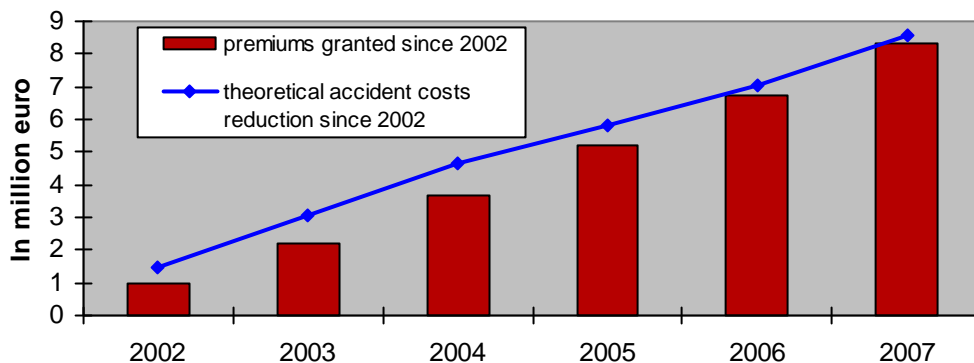
A positive correlation exist also between (regular) participating in the system and accident rate: the difference in the relative amount of accidents between non-participants and participants is 4.6 points for 2007. Regular participants achieve even 12.0 points difference in accident rate versus non-participants (figure 4). This means that theoretically 783 accidents were avoided in 2007 amongst participants of the incentive system. In 2003 even 1,271 accidents may have been prevented thanks to the premium system. Based on the average costs per year per accident, it is possible to calculate the theoretical reduction of costs due to the respective number of accidents avoided.

**Figure 4: The performance of participants in the system Krüger H., Kosten-Nutzen-Betrachtungen zum Prämienverfahren der Fleischerei-BG, 2008**



When adding up the premiums granted since the introduction of the incentive system in 2002 and putting these in context with the theoretical cumulative accident costs reduction, a kind of balance sheet can be drawn (figure 5). This shows that the benefits from the system at least theoretically exceeded the expenditures right from the beginning.

**Figure 5: The theoretical accident costs reduction Krüger H., Kosten-Nutzen-Betrachtungen zum Prämienverfahren der Fleischerei-BG, 2008**



Finally, there is a positive correlation as well between the number of declared skin diseases and the introduction of the incentive scheme; the average costs of skin disease cases dropped, whereas it climbed for another disease which was not yet included in the prevention measures catalogue; the accident rate of road accidents went down for those participating in the safe driver training offered by the incentive scheme, and it climbed for the non-participants in this training (Krüger, 2008).

### Incentivising return to work initiatives in the UK

A report for Norwich Union (insurer and provider of healthcare services in the UK) looks into the costs of workplace absence (Nera, 2006). The report provides evidence that there is a clear pay-back from early intervention to manage illness. This conclusion only leads to the question why, if pay-back is so evident, don't employers engage in workplace health initiatives on a wide scale?<sup>1</sup> According to the report this is due to the fact that no one stakeholder has an over-riding incentive to invest in programmes because of the nature of how the costs and benefits accrue.

For example:

- The costs of illness are spread across many different stakeholders: (e.g. employers, the National Health Service, the social security budget and individuals).
- There is uncertainty over when and how the benefits from early intervention accrue. As an example, employees are mobile, so investment in workforce will not always generate a return to the investing employer. Benefits will also accrue over time - the payback from investment may be five or ten years down the line – which increases both the uncertainty about the scale of benefits and about to whom they will accrue (Nera, 2006).

Furthermore from society's perspective, no stakeholder has an incentive to invest in programmes in a socially optimal perspective because each stakeholder considers the private costs and benefits rather than the societal costs and benefits.

The consequence of this distinction is that when employers set up workplace health interventions, they will under-invest from society's perspective because they focus on the private benefits rather than the social benefits. Incentives are tools that can be used to correct these kinds of market failures (Nera, 2006).

The researchers propose an offset against employer National Insurance Contributions as being the most appropriate way to provide a fiscal incentive for investing in employee health programmes. The compensation should cover for 50% of the costs of the workplace health intervention. This system

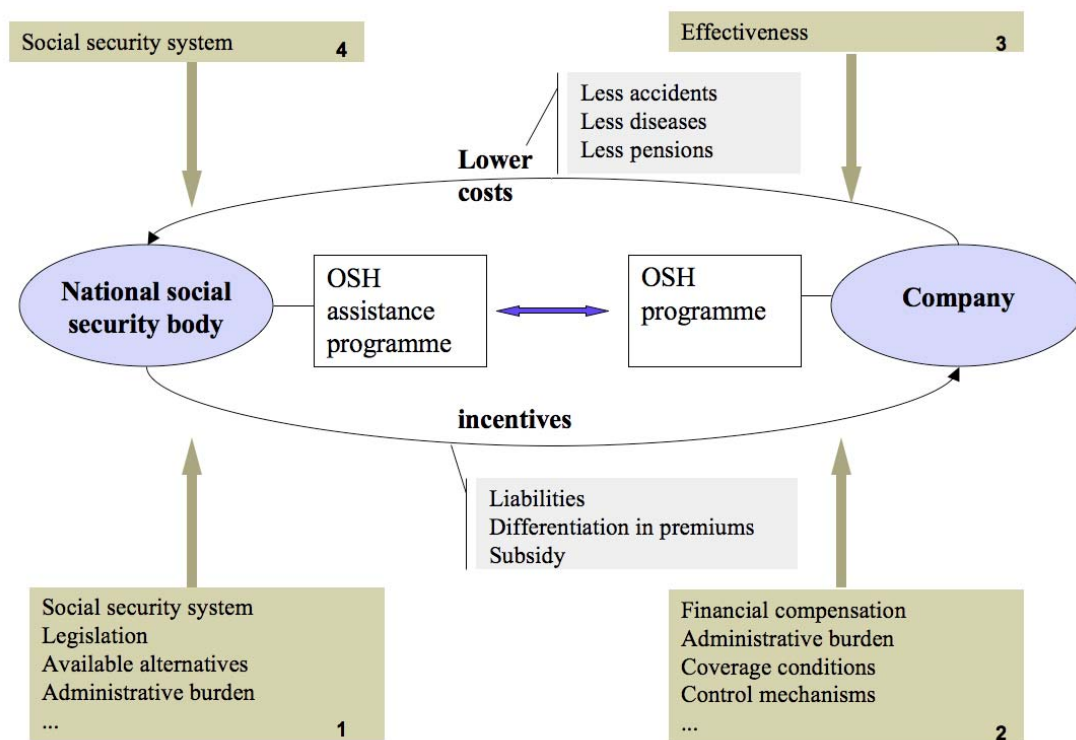
<sup>1</sup> Also other authors have addressed this question, see for instance Dorman (2000, 2002)

also offers the advantage that it both targets private and public companies. If an incentive would be based on corporation tax, the public sector would be missed.

The researchers make an estimation of the costs and benefits of such an incentive scheme. They address the cost-benefit analysis from the perspective of employers but also draw interesting conclusions on national level. Their estimates<sup>2</sup> suggest that private sector employers would require a fiscal incentive to invest in workplace health interventions for the benefits to exceed the costs. The researchers add to this conclusion that their estimates exclude savings to the National Health Service achieved through reductions in long-term health costs, or savings through reductions in future numbers of Incapacity Benefit claimants. *With these included, the cost-benefit ratios from society's perspective would be far more favourable, implying a net benefit to society from encouraging workplace health intervention under all scenarios* (Nera, 2006).

### Influencing factors

Both examples show that, although the mechanisms behind the costs and benefits of incentive schemes on national level might be evident in theory (see above), it remains difficult to show this in practice. This is probably due to the fact that several factors influence these mechanisms (figure 6).



1. One might argue that national social security bodies will not automatically set up incentive schemes. The benefits that might accrue from these schemes are not always convincing. The reasons behind this are similar to the reasons why employers not automatically invest in occupational safety and health. It is not always clear who benefits from the investment in incentives and the benefits might only be long term. The benefits to national security bodies by

<sup>2</sup> In order to estimate the cost and impact of such a scheme the researchers make several assumptions

- that employers who offer pension schemes to their employees also offer a workplace health intervention;
- such intervention reduces long-term absence by 25%; and
- workplace health schemes cost an average of £100 per employee; and
- 50% of that cost would be met by an offset of the National Insurance Contributions. Nera, 2006

reducing the future flow of incapacity benefit claimants, is a long term gain rather than immediate win. It is also clear that the social security system plays an important role in whether national social security bodies will be inclined to set up incentive schemes. In pay-as-you-go systems the need to incentivise the insured is less obvious than in fully funded systems. This is due to the fact the costs of the claims are borne by the total of salaried workers. Thus the insured persons of the future bear the claims burden of the current generation of insured. However, due to demographic changes also pay-as-you-go systems are challenged to make alterations to the system because it becomes more and more difficult to bear the burden of earlier generations (Munich Re).

Other influencing (or hindering) factors from the perspective of the national social security body are the administrative burden and the fact that there might be other, more profitable or easier to implement, alternatives. Mustard (2005) discusses the cooperation between insurance and prevention. He presents examples such as direct capital investment (investing the capital of insurance funds in projects that target workplace improvements on a larger scale) that show that investments from insurers in prevention can be cost effective. It is clear that systems such as direct capital investment are easier to implement than incentive schemes and that the link between the costs and benefits is more obvious.

2. Furthermore, it remains important that incentive schemes are technical feasible. The purpose of creating economic incentives cannot be to drive tariffs below their technical feasibility (Munich Re). This is obviously true but it can also lead to a hindering factor from the viewpoint of the company. In order to be acceptable, a financial incentive must promise sufficient financial gain. Wright and Marsden (2002) argue that when applying rebates on insurance premiums these must be sufficiently high, typically at least 25% of the normal premium. Other influencing factors on the acceptance of incentives by companies can be related to the design of economic incentives. They comprise elements such as the administrative burden (complexity), the coverage conditions and the time constraints (the period between the efforts made and the potential gain must be limited). The Munich Re report provides an overview of the factors affecting tariffs and economic incentives.
3. Even if companies act upon the incentives, this doesn't automatically lead to a decrease of costs for national social security bodies. It raises the question of effectiveness. Based on a literature review Tompa argues that there is moderate evidence that the degree of experience rating reduces injuries, limited to mixed evidence of general and specific deterrence of inspections and general deterrence of citations/penalties, and strong evidence that actual citations and penalties reduce injuries. However, one must be cautious in interpreting the effectiveness of legislative and incentive schemes. Occupational health and safety legislation for instance can certainly compel enterprises to develop an OSH management system. The question however remains if it is effective. In terms of effectiveness the most substantial problem is that firms who are unwilling to develop a management system voluntarily, may respond to compulsion by complying with the letter of the law rather than its spirit. In that respect Incentive-based approaches have considerable attractions. They can influence behaviour without direct intervention in the affairs of enterprises, they encourage them to seek out the most cost effective (and often innovative) solutions to problems, they decentralise decision making to enterprises who often have better information on how to solve a problem than government, and they reduce government's enforcement costs. However, the effectiveness of incentives will depend largely upon the design and appropriateness of the particular mechanisms adopted (Gunningham N. and Johnstone R., 2002).
4. When an incentive scheme results in positive outcomes such as less accidents, less diseases, it depends on the social security system whether these outcomes lead to lower costs for the national social security body. The possible gain might be relatively small or only relevant in the long term.

### ***From benefits to arguments***

As the discussion on the influencing (or hindering) factors showed, it could be a difficult task to show the profitability of an incentive scheme solely based on a cost-benefit analysis. On the other hand, it



is clear that arguments for setting up incentive schemes can be found that go beyond the cost-benefit analysis of a particular scheme. Examples are the benefits for society and individuals. Also, the financial calculation of possible side effects such as the gain that can be made by deploying less control, less regulation and thus more self-responsibility of employers and employees, could highly influence the benefits of incentive schemes. However, much work remains to be done to show not only the costs and benefits of incentive schemes but also the underlying mechanisms that influence the cost-effectiveness.

## Acknowledgements

This article has been prepared by Karla van den Broek (PREVENT) and Henning Krüger (FBG).

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