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## STUDY ON COMPANY EXECUTIVES' WILLINGNESS-TO-PAY FOR OCCUPATIONAL SAFETY AND HEALTH IN POLISH ENTERPRISES

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*SUMMARY: A study on willingness-to-pay of company executives for occupational safety and health (OSH) has been undertaken as an attempt to specify whether and how much, company executives value the health and safety of company workers. The study was performed as part of "Health at Work" research programme under 7th Framework Programme of the European Commission (FP7). The willingness to pay data has been collected among 147 representatives of managers from 25 medium- and big-sized enterprises in Poland with use of a questionnaire. Findings obtained show that 70-80% of the managers interviewed are willing to increase expenditures on different activities aimed at improving occupational safety and health performance in their companies.*

**Key words:** *willingness-to-pay (WTP), occupational safety and health (OSH), occupational accidents, work-related health problems, work-related stress*

### INTRODUCTION

The value of occupational safety and health (OSH) can be assessed primarily basing on the information about economic impact of accidents at work and occupational diseases. As for companies, accidents at work generate considerable losses due to, among others, working time loss, reduced efficiency and quality of work or production disruptions. They increase the cost of production and adversely affect the company image. The estimated average cost of an accident at work borne by a company in Poland totalled EUR 730 in 2004, and EUR 10 000 in case of a fatal work accident (*Rzepecki, 2005*). The cost of inadequate occupational health and safety

conditions in the company is bound to increase as it often comprises the cost of workers' health complaints that can lead to absence from work. According to statistical data evidence, every fourth worker suffers from work-related health problems in Poland (*Central Statistical Office - CSO, 2008*) and the number of employees' absenteeism due to sickness totalled 240 474.8 thousand days in 2008 (*CSO, 2009*). At the same time, the expenses companies incurred in order to improve OSH were below 1% of the total labour cost (*CSO, Labour costs in the national economy, 2009*).

A study on willingness-to-pay of company executives for OSH has been undertaken as an attempt to specify whether and how much, the health and safety of company workers are valued by company executives. The concept of willingness-to-pay has been applied for many years in social studies related to, among others,

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environmental protection (Flejterski et al., 2008, Żylicz et al., 1995) and human safety and health (Marra et al., 2004, Cherm et al., 2002, Rizzi & Ortuaz, 2006, Norin, 2009, Boccaletti & Moro, 2000, Mendenhall & Evenson, 2002). The primary aim of this study was to determine the willingness-to-pay of the company management for increase of expenditure on occupational health and safety as well as identify the willingness-to-pay affecting factors. The study was performed as part of "Health at Work" research programme under 7th Framework Programme of the European Commission (FP7).

## METHODS

The research has been based on the concept of willingness-to-pay (WTP) for OSH in enterprises. The willingness-to-pay is defined in monetary terms as the maximum cost that can be paid in exchange for potential benefits. The value attached by the company executives to OSH has been estimated on the basis of their declared willingness to incur the OSH related costs.

A questionnaire for company executives has been prepared with a view to perform research under this study. It consists of two basic parts, the first focused on questions characterizing an individual respondent, and a given company with a particular regard to data such as a company size, the employment structure, company's financial situation, current spending on OSH, risks inherently involved in the basic work activities as assessed by a respondent, a number of registered accidents at work and days of absence resulting from work-related diseases, psycho-social work environment and also the opinions the respondent presented regarding the connections between occupational safety and health, and productivity.

In the second part of questionnaire, a respondent had to answer some questions on how much he or she would be prepared to increase the OSH –related spending (compared with the current level) in order to:

- reduce the number of accidents at work, including the expenses to:
  - increase participation of employees in the activities aimed at improvement of working conditions,
  - provide proper training to all workers as well as dissemination of information on occupational safety and health,
- reduce absenteeism due to sickness,
- improve the psycho-social working environment, particularly reduce the work-related stress.

## RESULTS

### Population studied

The study was conducted among 147 executives representing 25 companies from the manufacturing sector, including 75% companies employing over 250 employees. In the respondent group, only 5% represent top management (figure 1). Vast majority of respondents are the employees in charge of direct supervision or middle-level managers with each group representing about 30% of the study sample, which comprised 147 respondents, 94% of whom were men.



Figure 1. Number of executives participating in the survey in a breakdown by a position in the enterprise  
Slika 1. Broj menadžera u anketi prema mjestu u tvrtki

A relatively high safety level was observed in the companies subject to research in this study. In 11 of them, not a single accident was recorded in 2010 and, in only three of them, the rate of accidents exceeded the average national rate

for processing industry, which levels about 12 accidents/1000 employees per year. In every fifth enterprise, the number of sickness leave days per employee did not exceed 5, and in every third company the number of sickness leave days ranged from 11 to 33. At the same time as many as 1/3 of all the enterprises did not provide any information on the sickness absenteeism recorded in these companies.

Great majority of respondents assessed that the financial situation of their respective company was good (43% of the total), very good (12% of the total) or satisfactory (38% of the total). Only about 5% of managers in the study group declared that the financial situation of their companies was bad or very bad (figure 2).

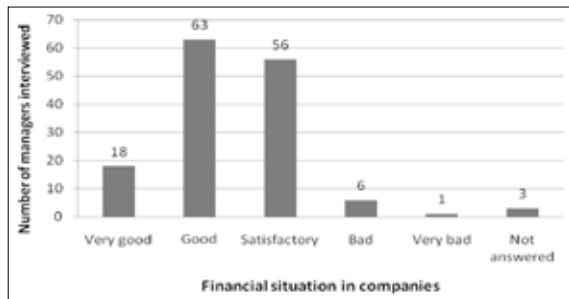


Figure 2. Assessment of a company's financial situation by the company executives

Slika 2. Menadžerska procjena financijskog stanja tvrtke

According to 63% of all respondents, the OSH spending increased in their companies last year, whereas 25% stated it remained unchanged, and only 4% were of the opinion that the spending decreased over the last year.

### Willingness-to-pay

As the research output indicates, a great majority of executives (almost 80%) expressed willingness to increase spending on activities aiming at reducing a number of accidents at work with the greatest share of those ready to increase the spending from 20% to 50%. Only an insignificant group of respondents expressed willingness to increase the spending by more than 50% of the budget currently allocated to reduce the number of accidents at work (figure 3).

To assessment whether there are some statistically significant differences among the values of variables (regarding, inter alia, positions, financial situation of the company, level of occupational safety and health) the analysis of variance have been conducted. Differences between level of spending on reducing a number of accidents at work for respondents on different positions at companies were indicated as statistically significant ( $p=0,052$ ).

The respondents employed as taskmasters or foremen were most inclined to increase this type of expenditure. They declared willingness to increase the OHS spending by 38% on the average. In case of declarations made by health and safety department managers and employees, the average spending was to go up 29% whereas the heads of other than health and safety department were ready to increase it by about 24%.

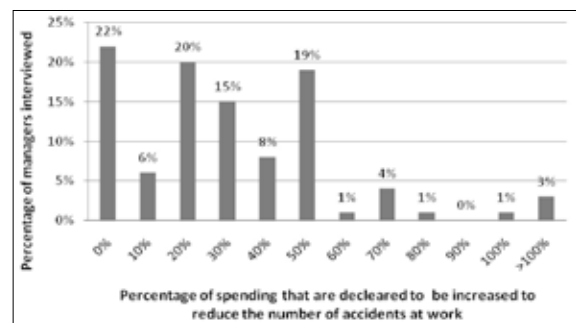


Figure 3. Percentage of executives declaring willingness to increase spending on measures to reduce the number of accidents at work

Slika 3. Postotak menadžera spremnih povećati troškove za mjere sprečavanja nesreća na radu

Analyses showed that there were weak correlations between the executives' readiness to increase the spending in order to reduce the number of accidents at work and:

- awareness that the tasks performed in the company involved risks to workers' safety and life (Pearson's coefficient=0,24;  $p=0,00$ ),
- belief that enhanced safety and health protection could result in higher company profitability (Pearson's coefficient=0,24;  $p=0,01$ ),

- assessment that their company's financial situation was good (Pearson's coefficient = -0,23;  $p=0,01$ ).

Over 80% of respondents were willing to incur additional spending to increase workers involvement in the OHS improvement efforts, and almost every third respondent was willing to increase such spending by about 50% compared with the current spending level (figure 4). The employers who did not provide their workers with the opportunity to work flexible hours were more willing to increase the spending. The employers with average willingness-to-pay for involvement of workers in the OHS improving activities were ready to increase the spending by 42% compared with the spending increase of 32% declared by employers allowing flexible working hours.

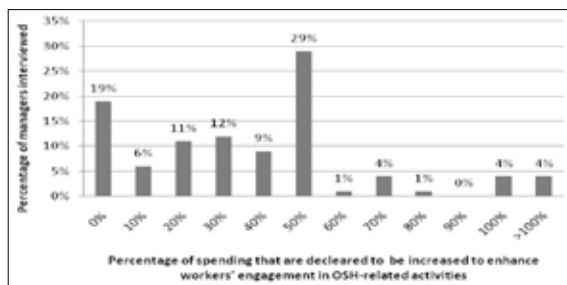


Figure 4. Percentage of executives declaring readiness to increase spending to enhance workers' engagement in working conditions improvement efforts

Slika 4. Postotak menadžera spremnih povećati troškove uključivanja radnika u poboljšanje radnih uvjeta

Of all executives, 80% were ready to incur additional spending on training and dissemination of information about safety and health at

work. The share of respondents ready to invest more in training and dissemination of information among employees were ready to increase the spending by half (figure 5).



Figure 5. Percentage of executives declaring readiness to increase spending to ensure proper training and information on OSH

Slika 5. Postotak menadžera spremnih povećati troškove kvalitetne izobrazbe o zaštiti zdravlja i sigurnosti na radu

Analyses showed that there was a correlation between the willingness-to-pay of executives for spending more on training and information dissemination as well as their awareness that the work performed in the company involved a risk to workers' safety and health (Pearson's coefficient =0,24;  $p=0,01$ ), and their belief that enhanced safety and health protection could result in augmented profitability of the company (Pearson's coefficient =0,31;  $p=0,00$ ).

The percentage of respondents declaring readiness to increase the spending to reduce the number of disease cases was almost 70%. The group of respondents willing to incur financial cost featured the highest share of those ready to increase this type of spending by 20% - 30%. A very small group of respondents was ready to allocate the budget augmented by more than 50% (figure 6).

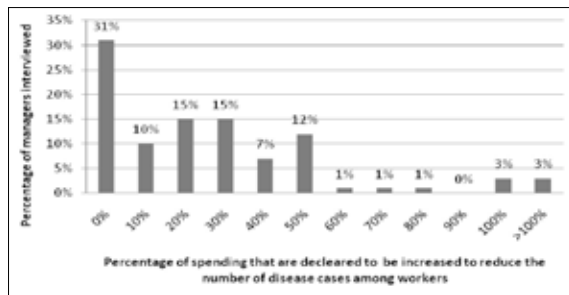


Figure 6. Percentage of executives declaring readiness to increase spending in order to reduce the number of disease cases among workers

Slika 6. Postotak menadžera spremnih povećati troškove kako bi smanjili broj slučajeva bolesti među zaposlenima

The research showed that there was a weak correlation between the readiness to incur cost to reduce a number of disease cases and the awareness that the work performed in a given company involved a risk to workers health and safety. (Pearson's coefficient =0,27 with  $p=0,00$ ).

Over 80% of executives were willing to increase spending on reduction of work related stress. Most of them declared readiness to increase the cost by 50% if compared with the present level. Compared with the responses about other aspects of workers' health and safety discussed earlier, a slightly higher percentage of respondents (figure 7) declared willingness to increase spending by 100% or more in order to reduce work-related stress.

There is a statistically significant relationship between the spending to reduce work related stress and the position occupied by a respondent (at  $p = 0.035$ ). It turned out that taskmasters or foremen were most inclined to incur this type of expenditure and they declared willingness to increase such spending by 50%. Managers and employees of health and safety departments declared cost increase by 31% on the average, while the heads of other units were ready to increase this cost by approximately 35%.

Willingness-to-pay for reduction of work-related stress proved to be associated also with changes in expenditures on health and safety in

the enterprise. Higher average spending increase was declared by the respondents representing companies where the spending on health and safety remained unchanged in the last three years. On the average, they were ready to increase spending almost by a half. The lower average willingness-to-pay was manifested by the respondents representing the companies where the spending on health and safety increased in the past few years. This group was willing to increase the costs to reduce stress by about 35%.

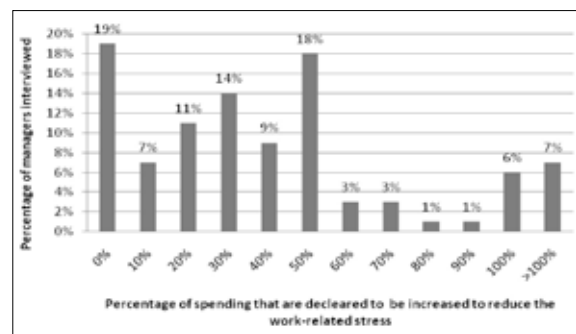


Figure 7. Percentage of executives declaring readiness to increase spending to reduce the work-related stress and improve psychosocial working conditions

Slika 7. Postotak menadžera spremnih povećati troškove kako bi smanjili stres na radu i poboljšali psihosocijalne uvjete

It was found out that there was a weak correlation between the willingness-to-pay for reduction of work related stress and the awareness that the work performed in the company involved a risk to workers' safety and health (Pearson's coefficient =0,25;  $p=0,00$ ). The correlation between that willingness-to-pay and the perception that the working environment was not healthy (Pearson's coefficient = 0,23 at  $p=0,01$ ) was also weak. Moreover, the results of analyses indicate also that in companies with higher shares of the production floor workers the executives were less inclined to increase spending to reduce the work related stress. (Pearson's  $r = -0,35$  at  $p=0,00$ ).

## DISCUSSION

The research output allows the evaluation of company managers' willingness-to-pay to increase the OSH costs. The analyses results show that

the managers are ready to increase the spending by an average of about 30% in respect of measures to reduce accidents at work. The important finding is that managers believe that increasing workers engagement in this type of activities is vital because they declared the willingness to increase the spending on this account by about 37% on the average, and to augment the cost of OHS training and information dissemination by 34%.

The relatively largest spending increase, by about 38% on the average, was declared regarding the measures aimed at reduction of work related stress. It needs to be reminded that the declarations concerned the increasing of spending to be incurred in the future as compared with the current level of spending for a given purpose. Majority of respondents did not specify the current spending amounts, which could also affect their tendency to increase spending.

Given the fact that the respondents could not estimate the amounts of the OSH costs incurred in their companies (only two respondents answered a question about such costs), the study did not allow to assess directly the willingness of the company management to incur the costs of occupational health and safety in monetary terms. In order to estimate these costs, the results of other studies conducted in 2009 by CIOP-PIB in companies of similar size and business profile were applied. According to the 2009 study, the spending incurred by companies in respect of occupational health and safety measures (excluding the spending aimed at reduction of work-related stress and disease prevention) was estimated at an average of approximately 250 to 300 euros per 1 employee (*Rzepecki, 2010*). Taking above into account, it can be estimated that every fifth respondent is willing to increase the spending to reduce accidents at work from about 50 to about 60 euro per 1 employee.

Awareness of risks to the company's employees' safety and health, and the belief that improving OSH contributes to increased profitability seem to affect the executives' willingness-to-pay to incur higher costs in respect of almost all activities aimed at improvement of occupati-

onal health and safety included in the study, although the existing correlations are rather weak. Willingness-to-pay also varies depending on the position of a respondent: the greatest willingness-to-pay for increase of spending on health and safety measures was declared by task masters and foremen, who are often directly involved in production activities, and may personally suffer the adverse consequences of existing occupational hazards.

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### **SPREMNOŚĆ MENADŻERA POLJSKICH TVRTKI ZA FINANCIRANJE SIGURNOSTI I ZAŠTITE ZDRAVLJA NA RADU**

**SAŽETAK:** Provedena studija pokušala je utvrditi da li i koliko menadžeri tvrtki vrednuju zdravlje i sigurnost svojih radnika. Studija je provedena kao dio istraživačkog programa "Zdravlje na radu" Sedmog okvirnog programa Europske komisije (FP7). Spremnost tvrtki da financiraju zdravlje i sigurnost na radu ispitana je na uzorku od 147 predstavnika 25 srednjih i velikih tvrtki pomoću upitnika. Rezultati upućuju da je 70-80% intervjuiranih menadžera spremno povećati iznose za razne aktivnosti koje vode ka poboljšanju sigurnosti i zdravlja u njihovim tvrtkama.

**Ključne riječi:** spremnost za financiranje, zaštita zdravlja i sigurnost, nesreće na radu, zdravstvene teškoće uzrokovane radom, stres uzrokovan radom

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