

# **Employee is also a customer. How to measure employees' satisfaction in an enterprise ?**

Z. Kotulski, Z. Wąsik and B. Dorozko

## **1. Introduction**

A working place: factory, company, office, etc., is the place where employee spends one third of his life. Except of delivering immediate means for life, it is the place where he finds friends, life partners, or even more generally, where he forms his life (behaviour) standards. Thus, the technological constraints as well as human relations at the working place strongly affect the private life of people. Therefore, it is essential for a general happiness of the employee that he is satisfied (whatever it means) with his work and his working place.

Measuring satisfaction of people is not an easy problem. First, we must propose a measure to express quantitatively the satisfaction. Probably it is not possible to find an absolute measure of satisfaction (except of some very approximate and quantified measures, like: "I am satisfied" and "I am not satisfied"). More fruitful can be measuring relative satisfaction, especially in some context, e.g., changes of satisfaction after some action.

Moreover, if we detect a state of mind that can be classified as dissatisfaction, we can have problems with identifying real reasons of it. Any chaotic direct studies can disturb situation and false the answer, especially if the reason is sensitive, connected with some political views, religious feelings or interpersonal relations.

In this paper we propose a methodology of testing employees' satisfaction based on ideas coming from more popular customers' satisfaction. First, we present some introductory facts connected with concepts of satisfaction. Then we propose a new methodology of measuring satisfaction, leading to some numerical pre-computations and additional inquiry. Finally, we present results of experiments made in an industrial company to show practical effects of our method.

## **2. Measuring satisfaction**

Satisfaction is fulfilment of a need or desire and the pleasure obtained by such a fulfilment. Satisfaction is a good measure to evaluate personal attitude to the professional activity of enterprises. It also expresses a level of happiness of a person in his professional environment connected with interpersonal relations with colleagues and superiors.

Satisfaction is a feeling that is of continuous range. However, to quantify measuring satisfaction, authors of dedicated papers introduce three levels of satisfaction. They are:

- a. Dissatisfaction (expectations are higher than reality),
- b. Satisfaction (expectations are fulfilled),
- c. High satisfaction (reality exceeds expectations).

In a case of dissatisfaction a customer obtains a product/service that does not satisfy his expectations. Sometimes such expectations are not expressed explicitly, they are considered as obvious. They are threshold requirements. People realize these conditions only if they are not satisfied.

The satisfaction is when a customer knows what he wants and his needs are satisfied. Such requirements after some time become the threshold requirements. Thus, we have the performance of requirements.

The high satisfaction is when reality exceeds the customer's expectations. The customer obtains a product/service that satisfies conditions, which exceed his comprehension or his imagination about it; it has exciting properties.

So, we know that satisfaction is important for personal life of working people. We can also classify (at least approximately) levels of satisfaction. The problem to solve is how to measure the level of satisfaction of the employees in an enterprise. The methodology we propose in this paper is adopting methods of measuring customer satisfaction widely developed in marketing studies.

First of all, we find analogies of an employee and a customer. Looking at an enterprise we see that one can find many partners acting in an orbit of the enterprise and which can be considered as customers: they offer some "values", starting from economic products like money and ending on very abstract like support or good reputation of a company, and obtain in exchange "goods" delivered by the company (products, salaries, support, etc.). The sample partners ("customers") of the enterprise and their expectations (obtained "goods") are put together in Table 1 (prepared on the basis of the norms PN-EN ISO 9000, PN-ISO 14004, PN-N 18004).

Table 1 Partners of an enterprise and their expectations

<b>Partner</b>	<b>Expectations</b>
External/internal client	Required quality of products
External supplier	Stability of contracts
Credit Bank	Punctual debts repayment
Company owner	Profitable investments, legal protection
State/city authorities	Work according to legal conditions
Employee	Personal satisfaction, salary, security
Local society	Charitable activity
Society	Natural environment protection

As we see, the employee can be in a natural way considered as a customer of his working place. He pays by his work and time getting in change: a salary, personal and professional prestige, a pleasure of spending time at work with friends and colleagues, etc., with all consequences of such a transaction.

As we mentioned in Section 1, the employee, if satisfied of his workplace, is more satisfied of his life, what reflects on his personal life. On the other hand, the satisfaction makes that he is

ready to work more and better for his employer, what reflects in economical conditions of an enterprise.

### 3. Measuring employees' satisfaction

Measuring satisfaction of customers is not an easy problem. There are not completely objective methods as satisfaction itself is not objective. Generally, the existing methods can be classified into two groups: the direct methods and the indirect methods. Each of the group has its own constraints and advantages/disadvantages.

The direct methods are mainly based on public opinion poll. Any method of this group is based on conducting a pool among customers, with appropriately prepared questions. An advantage of such methods is that we can obtain exact answers to asked questions, as detailed as we need. Disadvantages are connected with reliability of such methods. Avoiding suggestions in answers needs some „camouflage”. Anonymity is a very sensitive condition of honest answers: if respondent suspects a possibility of unmasking following with some threat, he can answer according to predicted expectations of an organizer of the pool. Such a situation is in a working place where the employee can expect some restrictions from his employer in a case of undesirable answers. Moreover, the public opinion polls cannot be taken too often. In a case of repeating very similar questions, respondents (being bored) can start answering non-precisely. They can also suspect that the poll is repeated due to some expectations of the organizers (not satisfied in previous polls) and try to adjust answers to the imagined expectations. Costs (personal and material) of taking the polls cannot be neglected as well.

Another direct method of apprising humans' level of satisfaction is an interview. Such a method is not representative for all employees; however, it reflects individual opinions that can be a basis for wider studies (e.g., can suggest questions for an inquiry).

Indirect methods are not classified in details. They are based on observation of humans' (customers', employees', etc.) behaviour and, if it is possible, on studying changes of certain parameters obtained from economics registers, market data, insurance companies, banking sector, etc. In a case of factories we can take into account some parameters of production/productivity and absence/accidents of personnel. An obvious advantage of such methods is that measurements can be made permanently, without direct participation of the main objects of the research that is the employees. Disadvantages are connected with needs of specific interpretation of the measured data (detection, if something happens with the level of satisfaction). Some other disadvantage is the fact that such a method does not identify explicitly reasons of satisfaction/dissatisfaction. Here again we need interpretation or supplementary investigations. The examples given in the following sections can clarify this problem.

### 4. Experiment 1

To verify how the presented methods can work in practice of an enterprise we made several experiments. First, we describe our test bed. We had a good luck to enter inside a company, with an access to some production data and possibility of contacts with employees. We made our measurements and analyses in MEBELPLAST S.A., a joint stock company founded in 1988, producing upholstery furniture in just-in-time production management system. To present the scale of the company we can say that it produced (in a time when we had been making the experiments) 326 models of furniture, each with possible cover patterns: 315 tapestries and 30 leathers. 85% of the furniture is exported to 30 countries, the annual income

of the company is 25,000,000 €. The number of employees in the company was 613, 254 of which were female and 359 male.

At the first step we tried to measure the satisfaction in an indirect way. The method applied is based on the hypothesis that people, when unsatisfied, escape in disease. They simply try to avoid coming to the working place. Thus, we follow parameters of absence to deduce changes of the level of satisfaction.

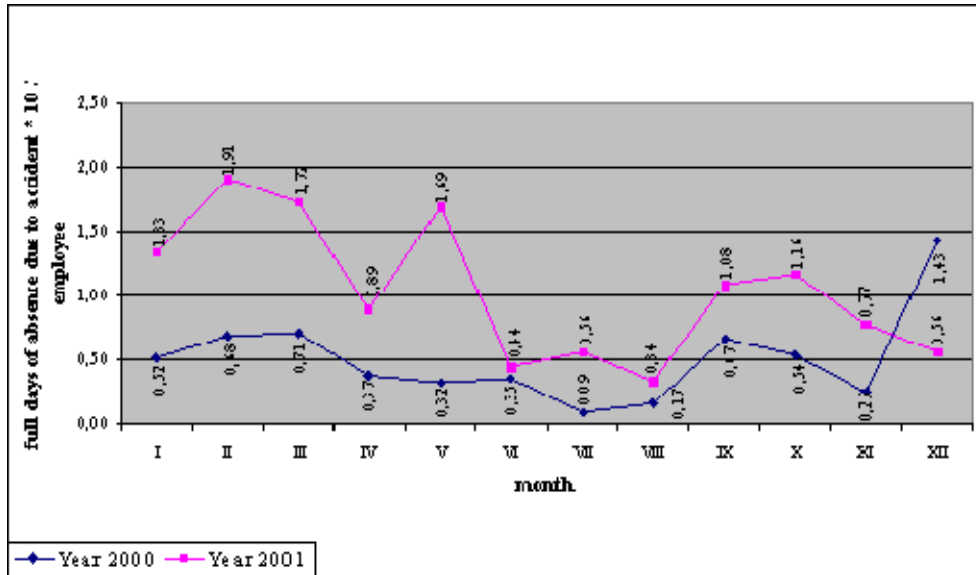


Fig. 1 Index of absence due to accidents

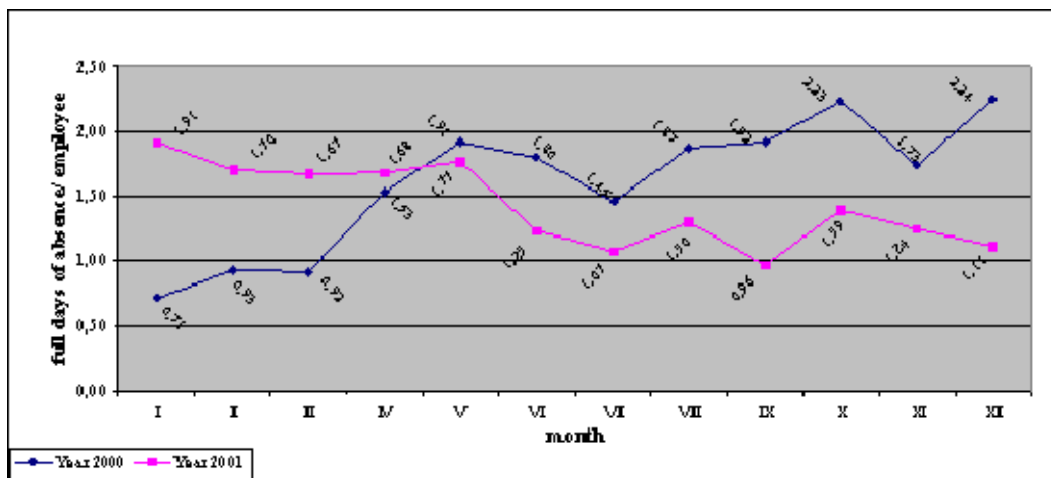


Fig. 2 Employee's average absence

In Fig. 1 we show rescaled by factor 10 average number of days of absence due to accidents per one employed person in a month in a period of two years. Analogously, in Fig. 2 we present an average number of absent days due to diseases (including accidents) per an employee in a month. In the plots we cannot see specific shapes that could indicate some effect of changing satisfaction. A minimum in Fig. 1, year 2001 at summer months (VI-VIII) was due to the limitations of production, usual at this period in furniture industry (people go for holidays and do not order the furniture). The observed in Fig. 2 small trend in the absence (increasing in 2000 and decreasing in 2001) is hard to interpret without any additional information about employees' situation at the company.

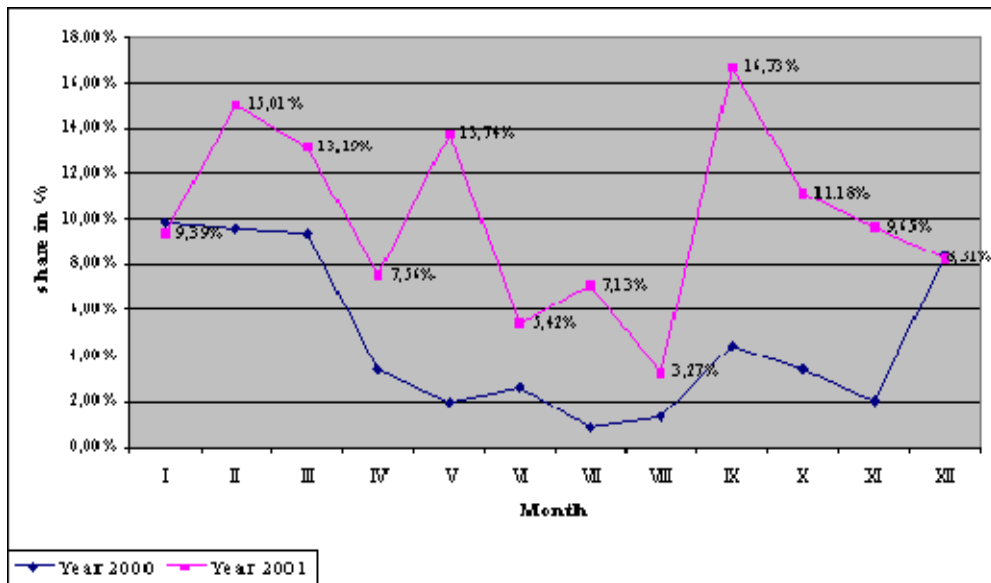


Fig. 3 Share of absence due to accidents in all absence

Finally, analysing data of this experiment we calculate a ratio of the number of absent days due to accidents to all the absent days due to diseases. We see (Fig. 3) that this ratio is in some reasonable frames, with a minimum in the time of less intensive production at summer (what is quite natural). Thus, the Fig. 3 confirms that our calculated parameters are objective and reflect the economical and social processes at a company. They could be used for further analysis of such a social process at our company as employees' satisfaction.

The second part of this experiment was an inquiry, where we asked employees a number of questions. We made two series of inquiries, the first one with 277 respondents and the second with 246 ones. The 24 asked questions covering the following problems potentially affecting the employees' satisfaction:

- Identification of reasons of satisfaction,
- Company internal communication,
- Level of salary
- Relations employee to superior
- Relations between colleagues

In Figs. 4, 5, 6 we presented partially the results of the inquiry. It is seen that the employees at the first place see their working place as source of income (80%) and in a lesser degree as a source of satisfaction from good work (25 to 28%) or a place of professional self-realization (5 to 13%), see Fig. 4. As a motivation to good work they indicated the system of salaries (53 to 56%) and an appropriate system of appreciation for good work (39 to 48%), see Fig. 5. Simultaneously, the most of the employees (43 to 56%) expressed satisfaction of their work just at this company (Fig. 6).

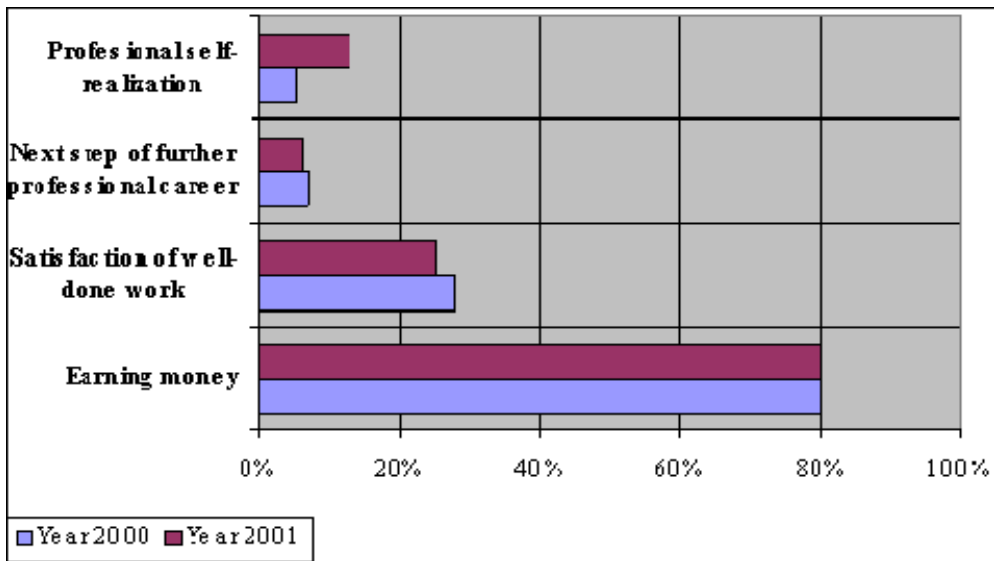


Fig. 4 Motivation to work at a company

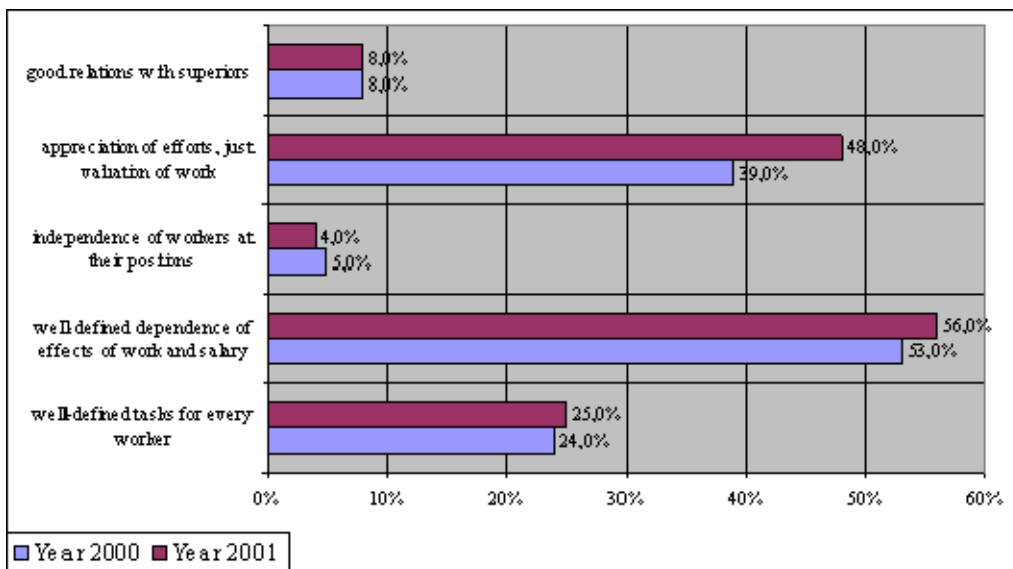


Fig. 5 Motivation for good work

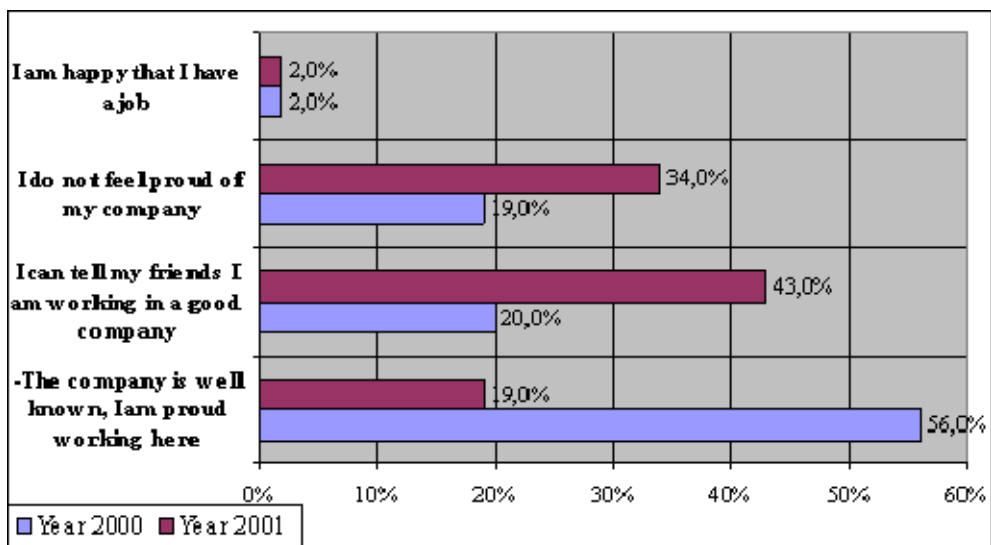


Fig. 6 Satisfaction of work

## 5. Experiment 2

As we obtained from the inquiry, an appropriate system of salaries is one of fundamental condition of satisfaction of work expressed by the employees. Therefore we tried to build an ideal structure of salaries, constructed according to the employees' opinions.

First, we assumed some reference salary. We assumed that an upholsterer's salary (who is the basic professional position in the company) is equal to 1.0. Next, a number of interlocutors were asked to assign the (relative) salaries to other positions of the employees of the company. We asked 38 persons who were the managers of lower levels (the persons, who know professional conditions at each position) to give their proposals. Then, the obtained results we related to the total number of employees at all positions and calculated statistics. The concluding results are presented in Fig. 7 and Fig. 8.

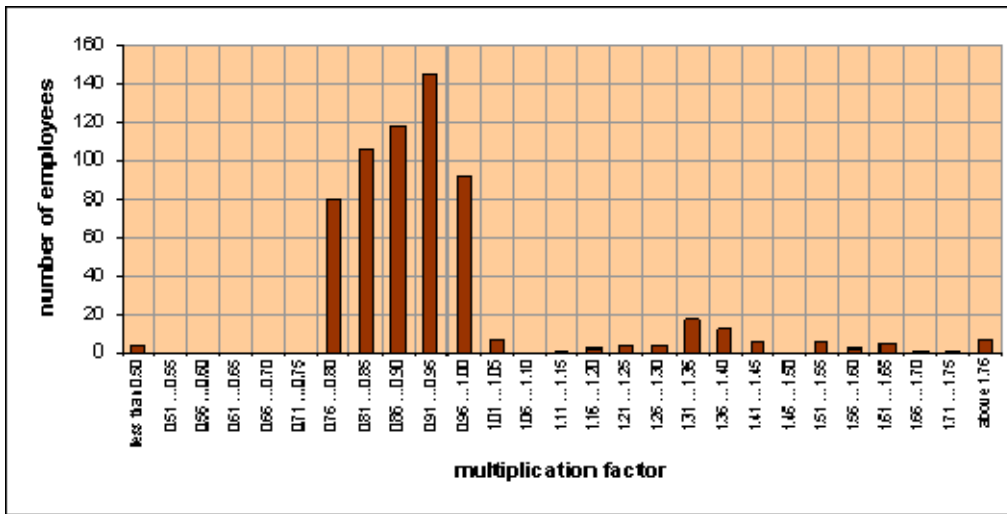


Fig. 7 Histogram of the expected salary (2001)

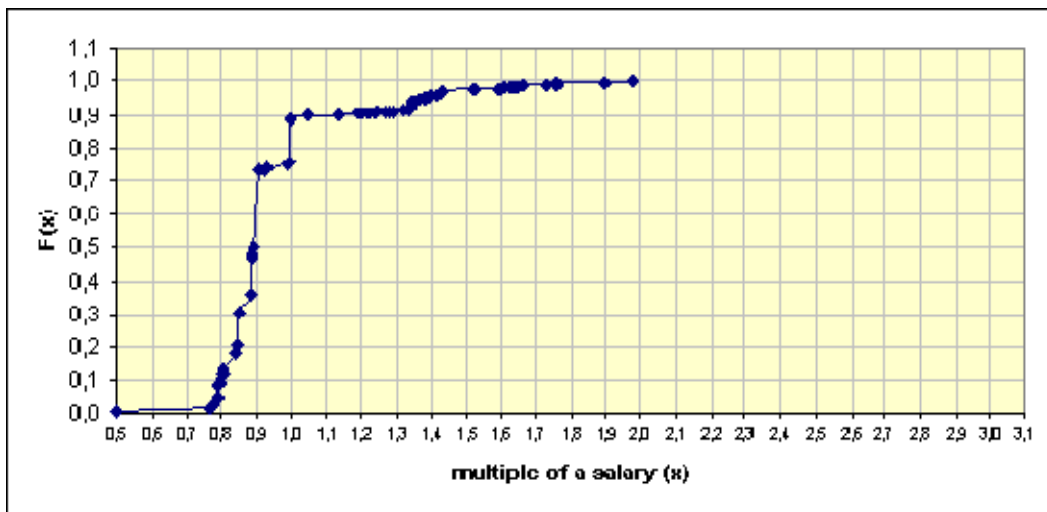


Fig. 8 Cumulative distribution function of the multiple of salary  $F(x)$  (2001)

The conclusions from the experiment can be obtained by an analysis of certain numbers. The range of the proposed salary is from 0.5 to 2.0. The most popular parameter of the statistics of salaries, the average value of the salary is 0.9448. The other one, which characterizes the central point of the distribution, is the median. The value at median is in our experiment equal

to 0.8900. If we take into account the real number of positions considered in the experiment, that is 610, we see that the number of employees under the average salary is 441 what is 72.3%. This means that the average value is not an appropriate parameter to characterize the structure of salaries in a company. This is especially important that such information is presented to an employee to locate his professional position (his range) in the company. He can feel (in most cases) as less valuable than some mythical “average employee”. Let us remark that the real salary range in the company at the time of our experiment was like 0.5 to 4.35 that is much less egalitarian than in the experiment.

To summarize the experiment we come to the following conclusions.

1. The way the real economical parameters are presented to the employee can have an effect on their satisfaction of work. The median is much more objective to present the level of salaries in a company than the average value. The only reason the average value is used for this purpose is that it is easy to calculate from the collected anonymous data.
2. The employees prefer more flat structure of salaries than they have in reality. Existence of too high and too low salaries can effect on dissatisfaction of people of their working place.

## 6. Experiment 3

To verify methods we proposed for analysing employees’ satisfaction we decided to repeat the experiments 1 and 2. The new experiment can be called “The comparison of pre-EC and EC results”, because since 2000 and 2001 (time of the first experiment) the economical and social environment of Poland changed: Poland became a member of the European Community.

First, we decided not to repeat the inquiry. We observed in the previous experiment when two series of questions had been asked that the answers to some questions became more polarized (in Fig. 6, the number of satisfied and unsatisfied increased simultaneously at the second inquiry) what can be interpreted as: the employees think that we are not satisfied with the results of the first inquiry and expect more resolute answers. The inquiry repeated third time would be even more biased.

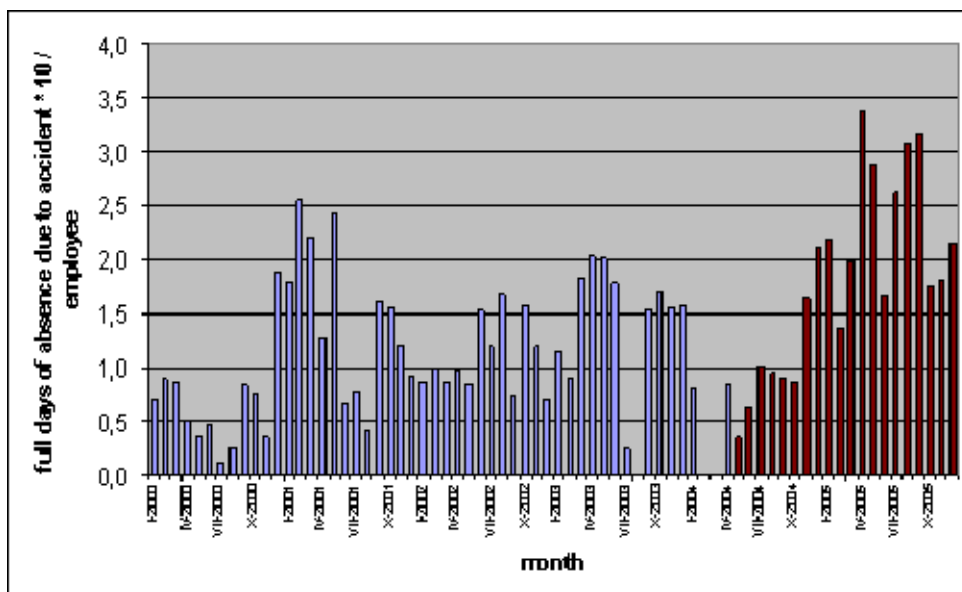


Fig. 9 Index of absence due to accidents



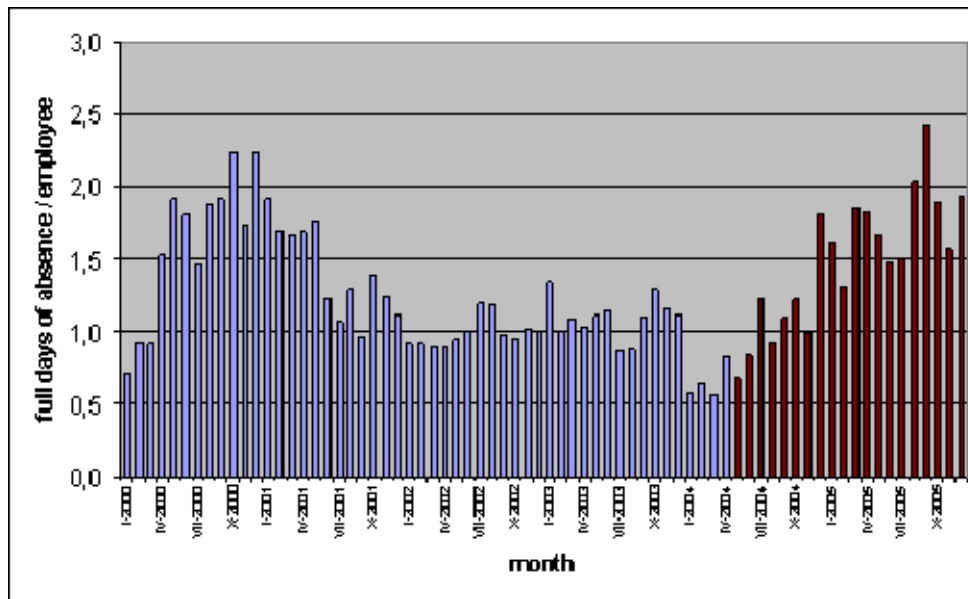


Fig. 10 An employee's average absence

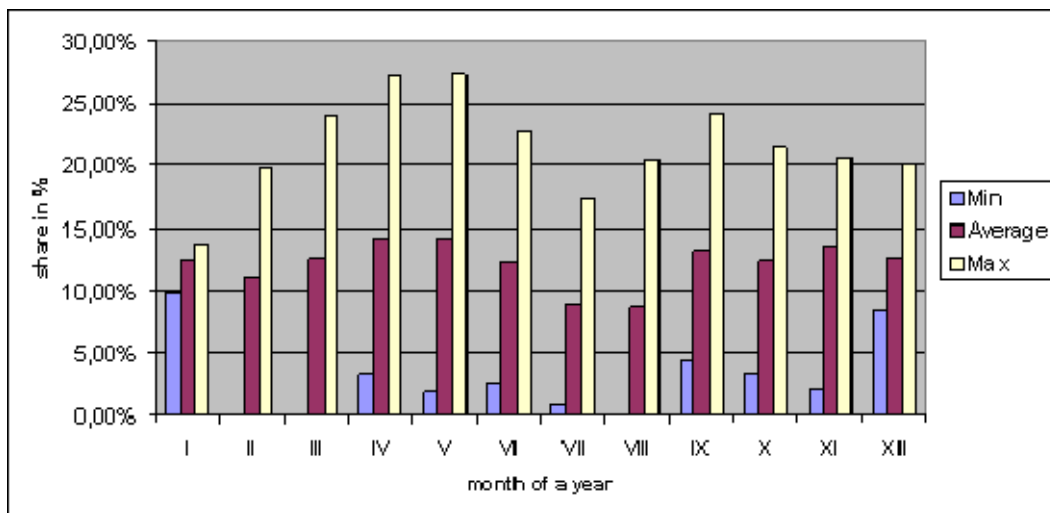


Fig. 11 Share of absence due to accidents in all absence, years 2000 – 2005

Thus, we decided to repeat two parts of our previous research: the analysis of absence due to diseases (accidents) and modelling the ideal salaries structure. Exact repetition of the absence plots (that is, average number of absent days per person in a month during a year) gave no interesting results. However, plotting this value in a scale of 6 year (from 2000 to 2005) gave an interesting result (see Fig. 9 and Fig. 10). In the figures we changed the colour of blocks corresponding to the level of absence in the month of Polish access to the European Community. It is visible (in both plots) the following trend: decreasing absence before the access (what can be interpreted as reflection of humans' positive expectations connected with the access) and gradually increasing absence to the previous average level after the access (realizing by people that the access cannot cause very rapid positive changes of personal life). Here we can come to two conclusions:

1. The observation of economical parameters of a company can give information about the employees' satisfaction. The average level of absence is such a parameter that carries information about the satisfaction.
2. Comparison of the two experiments: from years 2000-2001 and 2006 proves that appropriate choice of observation window is a fundamental condition for the correct

reasoning. The scale of one month occurred appropriate for reasoning in the state scale while local company's scale requires probably daily observation of the absence. Unfortunately, in our experiment we did not possess such data to rescale our reasoning.

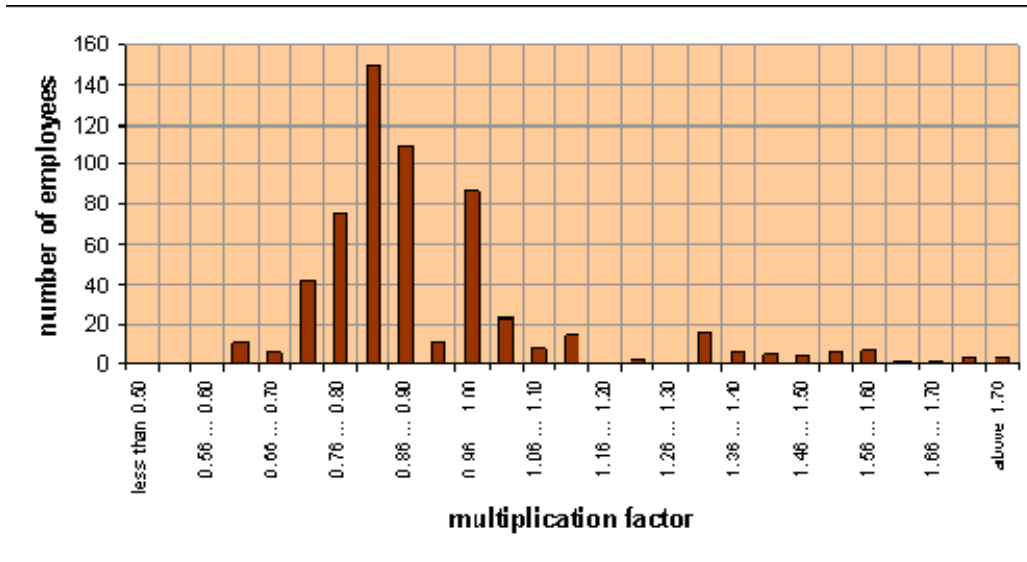


Fig. 12 Histogram of the expected salary 2006

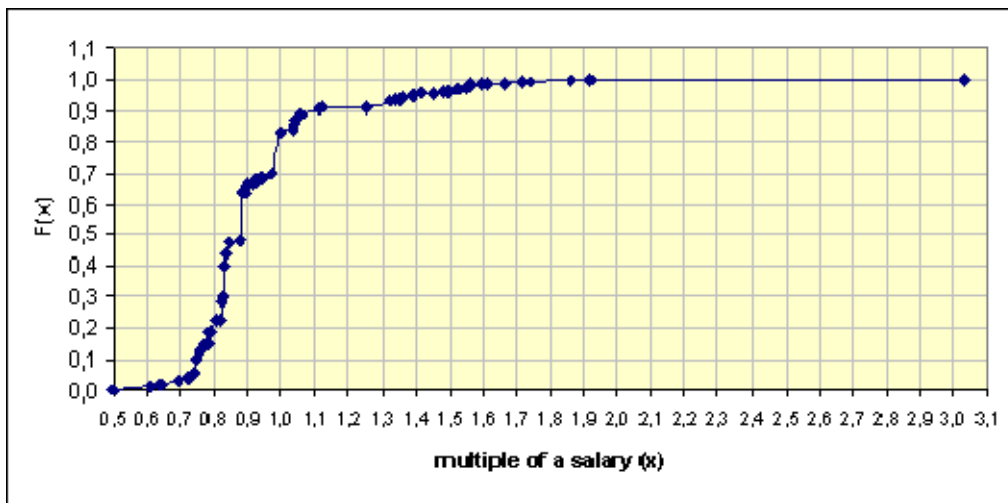


Fig. 13 Cumulative distribution function of the multiple of salary  $F(x)$  (2006)

The second experiment of generating an ideal salaries' structure made in the year 2006 confirmed our earlier conclusions. This time we asked 34 representative persons (managers of the lower level) to fill the questionnaire. The experiment was made in a new structure of employment, with some changes in position's names and a new position of director general. Moreover, it was made in a new economic/political reality (EC membership, changed political and economic moods of the public expressed by other political option exercising power). Now, the range of the proposed salary was from 0.5 to 3.0, the average value of the salary was 0.9284 and the salary's value at median was 0.8800. The total number of employees in the modelled structure was 589, so the number of employees under the average salary was 398, which is 67.5 %. Thus, the argument of non-representative character of the average value as the information about salaries in a company remains valid after the second simulation.

## 7. Conclusions

The research made in this paper leads to conclusions that are both, of technical nature, connected with measuring satisfaction of employees, and more general, related to interpersonal relations of people at the working place.

Thus, we think that presenting the employee as a customer of his enterprise lead to effective methods of measuring satisfaction. The well-known methods of direct measurement of customers' satisfaction can be effectively supplemented by indirect methods. Such methods proved to be very informative. On the other hand, we observed that the public opinion polls in such small groups as companies, strongly effects on the people's opinions. (Certainly, they are not statistical investigations but rather exhaustive tests). Thus, they cannot be repeated very often, if we want to obtain unbiased opinions of people. Therefore, a compound method seems to be optimal in small societies like a working place. In such a method we first make observations using indirect methods (that is, analyse appropriate data obtained from administration) and in a case of some "suspicious" observations we take the public opinion poll with appropriately prepared questionnaire.

To conclude the paper we cannot avoid answering the question: why should we measure satisfaction of the employees? We need not repeat hear the arguments related to usual relations of an employer and employees that happy people (what means, satisfied people) work better, they are more productive. We rather return to the fact that the workplace is just an institution that strongly affects peoples' personal life and the conditions of work have great impact on private life. We can also imagine that some group of people can influence other people changing their conditions of work. For instance, we can take a problem of open shops on Sundays, duty to work on holidays, request of several breaks a day for a prayer, or from another group of problems: longer work because of some sudden need of a company, later retirement age for women, etc. The open discussion on such problems in a scale of small company can rather generate conflicts than solve them. People would expect some solutions that are out of scope of a company, increasing their expectations. This would increase a seperation between the level of expectations and possibilities of satisfying them, leading directly to employees' dissatisfaction. In such a situation the proposed compound method of indirect measurement of the level of satisfaction at the first step and, in a case of any problems, asking people directly about possible solutions in a widely distributed questionnaire, is the best solution.