



**BULGARIAN ACADEMY OF SCIENCES
ECONOMIC RESEARCH INSTITUTE**

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**Financial and economic assessment
of public investments on the results of enterprises
(following the example of the Working Conditions Fund)**

ABSTRACT

of dissertation for awarding educational
and scientific degree "PhD"

Sofia, 2021



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EXTRACT

of a dissertation on the topic

**Financial and economic assessment of the impact
of public investments on the results of enterprises
(following the example of the Working Conditions Fund)**

for awarding an educational and scientific degree "PhD"
in a doctoral program in "Economics and Management"
in the professional field "Economics"

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The author of the dissertation is a PhD student in part-time form of doctoral program at the section "Economics of the company" of the ERI of BAS, scientific specialty "Economics and Management", PF 3.8. Economics.

The dissertation has a total volume of 219 pages and is structured in an introduction, presentation in three chapters, conclusion, references and appendices. The used literature includes 119 sources, of which 102 in Bulgarian, 11 in English, and 6 Internet websites.

I. GENERAL CHARACTERISTICS OF THE DISSERTATION WORK

Relevance of the problem

The implementation of a purposeful social policy to ensure safety and health at work is a diverse and complex process related to the implementation of a set of legislative, organizational and economic, social, technical and health measures. In today's increasingly dynamic and high-tech world, there is a growing need to improve the quality of all types of work and to permanently improve social policy, providing opportunities for a longer and more productive life for people.

In this regard, public investment to improve working conditions in enterprises is gaining weight.

The relevance of the study is reinforced on the basis of the following arguments:

- There are many problems affecting the conditions and quality of work in enterprises;
- The need for formation and implementation of methodologies and models for financial and economic analysis and evaluation of investments to improve working conditions in enterprises is constantly growing;
- Numerous publications have been devoted to the management theory of financial and economic evaluation of investments, but few to assess the impact of public investment to improve working conditions and the results of enterprises.

It is also increasingly understood that quality and low-risk working conditions are not only a legislative requirement, but can also be a powerful catalyst for innovation and higher productivity. "Good working conditions are not a luxury that rich organizations can afford, but management practices that have added significant value to the development of any prosperous business."¹ to the better economic well-being of those who had the strategic foresight to recognize them as a priority and to implement them.

The Bulgarian Strategy for Safety and Health at Work 2008-2012 assumes that companies that invest in protecting the health of their workers through active prevention policies should receive measurable benefits such as: reduction of costs due to frequent absences from work; reducing staff turnover; higher customer satisfaction; increase motivation; improving the quality of products and services and a better image of the company. assessments of the impact of hazards on the occupational and health status of the workforce; development and

¹ National study of working conditions, under project BG051PO001 "Prevention for safety and health at work", 2011

dissemination of scientific and applied knowledge and experience; development of effective programs for management and control of professional risks, related to the application of new technologies and technical solutions, adapted to the modern development of science and technical progress.

The following definition is found in European strategy papers: “Investments in working conditions and safety and health at work must lead to the development of safety and health at work activities and follow the basic guidelines and principles of European and international law for: avoiding the risks; assessment of risks that cannot be avoided; limiting the risks at the source of their occurrence; adapting the work to the worker, especially with regard to the design of workplaces, the choice of work equipment, working and production methods, in order to eliminate monotonous work, work with a imposed rhythm, as well as to reduce their impact on the health of the worker. adaptation to technical progress; replacing the dangerous with a safe or less dangerous one; identification of existing hazards and sources of factors harmful to health and safety; implementation of a consistent comprehensive policy for prevention, covering technology, work organization, working conditions, social relationships and the impact of the elements of the work environment and work processes, etc.

Given the above, the dissertation outlines the need for financial and economic assessment of the impact of direct investments of the Working Conditions Fund on enterprises in Bulgaria. The aim is to reveal that these investments can be identified as a direct tool for the impact on the improvement of working conditions in enterprises, and hence on their economic results.

II. STRUCTURE AND CONTENTS OF THE DISSERTATION

The dissertation is structured in accordance with the set goal, research tasks, research hypothesis, object and subject of research and reflects the author's approach to the topic. The main text contains 12 figures and 9 tables. The appendices include 13 tables and 4 text applications.

The exhibition contains the main author's text, presented in 140 pages (excluding the list of used literature and appendices).

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III. MAIN CONTENT OF THE DISSERTATION

Introduction to the dissertation

The introduction substantiates the relevance of the study and introduces the issue of the emergence and development of policy on health and safety at work in the European Union and in Bulgaria.

The subject, the object, the main goal, the tasks of the research hypothesis and the restrictions made for the research are indicated:

The main goal of the development is to establish the effect of public investments of WCF on the number of accidents and to develop a methodology for financial and economic assessment of the impact of these investments on enterprises.

In order to achieve the formulated goal, the following **tasks** have been set for implementation:

First: To study and systematize the main policies and regulations for safe and healthy working conditions in the European Union and in Bulgaria.

Second: To consider the activity of the Working Conditions Fund for the period 2008-2018, in the part of investments in Bulgarian enterprises.

Third: To prepare a general assessment and financial and economic analysis of the investments of WCF.

Fourth: To calculate the efficiency of the investments of WCF, analyzing the occurred accidents at work and the losses from them before and after the investments made by the Fund.

Fifth: To develop and test a methodology for financial and economic analysis and evaluation of the investments of the Working Conditions Fund on the results of enterprises.

The object of the research of the dissertation is the impact of the public investments of the Working Conditions Fund on the working conditions in enterprises in Bulgaria.

The subject of the research in the dissertation is the financial and economic assessment of the impact of the public investments of the Working Conditions Fund.

The research hypothesis is formulated as follows: The investments of the Working Conditions Fund have a positive impact on safety and health at work in Bulgarian enterprises by reducing accidents at work, reducing lost working days and reducing paid benefits for temporary incapacity for work.

For greater specificity and significance of the study, the same was done with certain **limitations**:

- Within Bulgarian enterprises it is possible to invest funds to improve working conditions with a diverse source - operational programs, private funds, own funds and others. Current work focuses only on the resources provided by the Working Conditions Fund (WCF);

- The second restrictive condition is related to the time period. It covers the period from 2008 to 2018. In general, the WCF has been operating since 1997, when it was established under the Health and Safety at Work Act;
- Results related to the reduction of occupational accidents, reduction of lost working days and reduction of paid benefits for temporary incapacity for work were studied;
- Only theory and methodology for financial and economic evaluation concerning public investments for healthy and safe working conditions were used.

CHAPTER 1

EUROPEAN AND BULGARIAN STANDARDS, POLICIES, AND INSTITUTIONS FOR ENSURING SAFETY AND HEALTHY WORKING CONDITIONS

Chapter 1 examines and systematizes the main policies and regulations for safe and healthy working conditions in the European Union and in Bulgaria. The structure and functions of the Working Conditions Fund were also revealed.

The content begins with an overview of the creation and development of European standards for ensuring safe and healthy working conditions.

Fundamental to the definition of health and safety at work as one of the fundamental human rights is the Universal Declaration of Human Rights, adopted by the UN General Assembly in a resolution of 10 December 1948.

Article 1 of the Declaration reads: "All human beings are born free and equal in dignity and rights. They are endowed with reason and conscience and should treat each other in a spirit of brotherhood." The first sentence of this article is the content of Art. 6, para 1 of the Constitution of the Republic of Bulgaria.

In Art. 23, item 1 of the declaration states that "everyone has the right to work, to free choice of employment, to just and favorable conditions of work and to protection against unemployment".

The right to health and safety at work is consistently defended by the International Labor Organization. Since its inception, it has devoted 23 Conventions and 22 Recommendations to this issue. Convention №155 of 1981

has universal significance among the acts of the International Labor Organization, which protect the provision of healthy and safe working conditions. on occupational safety and health and the working environment and Recommendation №164 on its application. This Convention requires each Party to develop, implement and periodically update national policies in the field of labor, occupational health and the working environment in accordance with relevant standards and practices, and in coordination with the representative organizations of employees, and of employers.

A comparative analysis of European legislation shows that Article 3 of the Treaty establishing the European Coal and Steel Community provides for "an improvement in the living and working conditions of workers, leading to improvement in each sector". Occupational health and safety is the subject of many programs and research related to hygiene, ergonomics and occupational medicine.

The development of the European Treaties began with the Treaty of Rome, which was based on the belief in the positive effects of competition, economic growth and social progress. Its Article 117 reflects the optimistic outlook for the European Union. The text is moved to Article 151 of the Treaty of Rome: "Member States agree on the need to promote the improvement of living and working conditions and to harmonize these conditions between them. They hope that such developments will contribute to both the better functioning of the common market and the harmonization of the social systems and procedures provided for in this Treaty for the approximation of laws, regulations and administrative provisions ”.

With the Single European Act, which entered into force on 1 July 1987, the situation changed. The revision of the Treaty provides a solid basis for the development of genuine Community social law. The act has the ambition to strike a better balance between the economic and social provisions of the Treaty. To this end, and in line with the dynamics of the single market, it in its own way, by introducing a new Article 118a, "institutionalizes" the requirement to protect workers' health.

Many international and European legal instruments recognize health and safety at work as a fundamental, fundamental social right.

On 7 December 2000 in Nice, the European Council adopted the Charter of Fundamental Rights of the European Union. Article 31 of the Charter deals with health and safety at work.

The European Social Charter has been adopted by the Council of Europe, which includes 47 European countries. Various provisions in it are related to health and safety at work. In addition, all Council of Europe countries accede to the European Convention on Human Rights and Fundamental Freedoms.

EU action in the field of safety and health at work (OSH) over the years has been carried out in the context of a policy that includes two main components:

1. a comprehensive legislative framework that covers the most significant occupational risks and provides common rules adapted by Member States to their different national conditions;

2. a series of multiannual action programs between 1978 and 2002, followed by European strategies covering the periods 2002-2006 and 2007-2012, which set out priorities and common objectives, provide a framework for coordinating national policies and promote a holistic culture of prevention. As a result of the implementation of the strategy for 2007-2012, all Member States, including Bulgaria, have developed national strategies.

Risk prevention and the promotion of safer and healthier working conditions are key not only to improving the quality of jobs and working conditions, but also to promoting competitiveness. Maintaining the health of workers has a direct and measurable positive impact on productivity and contributes to improving the resilience of social security systems. Protecting workers from serious accidents or occupational diseases and promoting the good health of workers throughout their working lives from the very first place of work is crucial so that they can work longer. This therefore contributes to overcoming the long-term effects of an aging population, in line with the objectives of the Europe 2020 strategy for smart, sustainable and inclusive growth.

The key challenges, which are common across the EU and require further policy action, are reflected in the Community Strategy 2014-2020. This strategy has been identified as a key EU policy document to date.

Economic incentives related to the introduction of safe and healthy working conditions refer to the processes by which organizations are encouraged to introduce and maintain a safe and healthy work environment. There is a growing interest in economic incentives as tools to motivate organizations to invest in OSH, as regulatory enforcement alone is often not enough to convince organizations of the importance of safe and healthy working conditions.

Economic incentives can complement regulatory requirements as they financially encourage organizations and give weight to good business practices with regard to OSH, which is a clear message to business managers in all Member States.

The Community Strategy on Health and Safety at Work 2014-2020 reaffirms the role of economic incentives as levers for raising awareness and complying with legislation. According to the strategy, “awareness-raising activities, especially in small and medium-sized enterprises, can be supported by direct and indirect economic incentives for preventive measures.

The review shows that economic incentives are offered in all Member States, regardless of the traditions of their social security systems and whether the occupational accident insurance system is private or public.

Studies by the European Agency for Safety and Health at Work show that:

1. The incentive scheme should not only promote the results of good management of safe and healthy working conditions in the past, ie. for the level of accidents at work in the past, but specific preventive activities that aim to reduce accidents at work and deteriorating health in the WCFure must also be encouraged.
2. The incentive scheme shall be open to enterprises of all sizes, paying particular attention to the special needs of small and medium-sized enterprises.
3. The incentive should be large enough to motivate employers to participate.
4. There must be a visible and direct link between the preventive activity desired by the undertaking and the incentive.
5. The incentive scheme should contain clear criteria for incentives and be as easy to use as possible in order to maintain a low level of administrative burden for both undertakings and organizations offering incentives.

6. If the incentive is to be targeted at a large number of companies, the most effective are insurance incentives or tax breaks with well-defined criteria (closed system).

7. If the aim is to promote innovative solutions for specific areas most effective for subsidy schemes (open system).

The economic consequences of occupational injuries and occupational morbidity related to OSH are constantly being investigated by European authorities.

The section "Policy on safe and healthy working conditions in Bulgaria" pays attention to the harmonization of national legislation with the norms and practices of the European Union regarding safety and health at work. It is an inalienable and important condition for the admission of Bulgaria into the family of European nations. But working conditions policies and practices in Bulgaria began much earlier than the pre-accession period.

It is believed that the beginning of this policy dates back to the beginning of the twentieth century, when industrial production in Bulgaria developed, many factories appeared and the number of workers increased significantly. Industrial relations in Bulgaria cause many problems, the main of which is related to safe and healthy working conditions for workers in enterprises. Evidence for the development of working conditions policy can be found in numerous historical documents.

The first Bulgarian law in the field of occupational safety and health was adopted in 1917 (Occupational Health and Safety Act). This law was repealed in 1951, when the Labor Code was adopted, which regulates labor relations in the Republic of Bulgaria.

Over the years, the legislation on ensuring healthy and safe working conditions has developed and enriched under the influence of international law. It is known that Bulgaria has been a member of the International Labor Organization since December 6, 1920, ie. for a hundred years without interruption, despite the vicissitudes of social development. Since then, Bulgaria has ratified a large number of Conventions and Recommendations of the International Labor Organization, the provisions of which play an important role in shaping national legislation. To date, Bulgaria is among the 10 countries that have ratified the largest number of conventions, including the 8 fundamental, 3

of the 4 priority and 90 of a total of 177 technical conventions. Out of a total of 101 ratified conventions and one protocol, 64 are in force to date.²

Bulgaria has been a member of the Council of Europe since May 7, 1992. and has adopted the European Convention for the Protection of Human Rights and Fundamental Freedoms and the European Social Charter, revised in 1996 and signed by the member states, including Bulgaria.

Since January 1, 2007, Bulgaria is a full member of the European Union and has transposed all Community Directives, which become part of its domestic legislation in the field of safety and health policy.

It is believed that the beginning of the development and implementation of the modern system for management of safety and health at work in Bulgaria is related to the adoption in December 1997 of the Law on Health and Safety at Work. It basically transposes Framework Directive 89/391 / EU into national law. The Health and Safety at Work Act defines the basic rights, obligations and responsibilities of all participants in the labor process: the state; employers; workers; persons who, at their own expense, work alone or in a partnership; as well as other organizations and legal entities.

The purpose of the law is "to introduce general principles for prevention and measures to stimulate improvements in the safety and health of workers: prevention of occupational risks; protection of safety and health; elimination of the risks and causes of occupational injuries and occupational diseases; information, consultation and training; balanced participation. "

With the adoption of the Health and Safety at Work Act, conditions are created for a complete renewal of the national normative acts and the practice in carrying out the activities for prevention, health and safety at the workplace. Other important laws have been adopted, which create preconditions for the real implementation of the achievements of European law and for the establishment of a modern system for management of safety and health at work at national level and at the level of trade and enterprise. They fulfill the conditions for harmonization of the Bulgarian legislation with that of the European Union.

Regarding the legislation, the following summary can be made: Bulgaria has ratified 64 Conventions regarding labor norms and norms of safety and health at work. 28 are the main directives of the European Union in the field of

² Mrachkov V., "What is the ILO and is there ground for it in our country", "Trud" newspaper, April 4, 2019.

health and safety at work. The international standards applied in Bulgaria are 7 and the European standards are 10. The standards for conformity of the working environment are 29. The harmonized standards to regulations and European directives are 197. Only Directive 2006/42 / EC of the European Parliament and of the Council has about 800 standards relating to the safety of machinery and 3 relating to the safety and health of workers. All these norms are incorporated and applied in the implementation of the policy on safe and healthy working conditions.

The Occupational Safety and Health Strategy 2008-2012 is a document through which the Government of the Republic of Bulgaria determines its vision in the field of safe and healthy working conditions. The aim is "to outline the commitments and direct the efforts of state bodies, employers' organizations, workers' and employees' organizations, non-governmental organizations and others. to ensure well-being at work, taking into account changes in the workplace and the emergence of new occupational risks. Achieving this goal is seen as an integral part of achieving the overall goal of economic development of the country, namely - improving the welfare and quality of life of all social groups in society.

The OSH Strategy sets out the path to achieving the goals of the Lisbon Strategy by placing occupational safety and health at the heart of quality work. This means that recognizing the key contribution of safe and healthy working conditions to achieving good quality and productivity stimulates economic growth and employment. The strategy is in line with the main priorities for reducing unemployment in Bulgaria and providing employment for the widest possible range of able-bodied citizens, encouraging the creation of such a working environment that enables workers to play a full role in working life until they reach old age. It is aimed at providing such working conditions in which the work to stimulate the health and well-being of people, to provide the opportunity to keep a job and to provide personal satisfaction from the work performed.

Chapter One analyzes the creation, structure and operation of the Fund, "Working Conditions".

The fund is a legal entity based in Sofia. It absorbs mainly public funds, which finance activities and activities to improve working conditions. Like any

fund in the financial sense of the term, the funds in the Working Conditions Fund are raised from specific sources and spent for specific purposes.

The Working Conditions Fund is a Bulgarian practice in the field of health and safety at work, operating since the establishment of the Health and Safety at Work Act in 1997. In essence, it is a scheme for economic incentives for Bulgarian enterprises to pursue a policy on safety and health at work.

The Working Conditions Fund is managed by a collective body set up on the principle of tripartism.

The strategic goal of the program of the Working Conditions Fund is to increase the quality of jobs through the active participation of the fund in the financing of projects and programs related to safety and health at work, prevention of employees, reduction of occupational and health risks. work place.

CONCLUSIONS:

As a result of the review of normative acts and policies, we can conclude that the most important, according to the degree of their comprehensiveness, are the Conventions of the International Labor Organization (ILO).

Bulgaria has ratified numerous conventions, adopted the Framework Directive and dozens of special directives, uses several international and European standards in the field of health and safety at work. It has created its own strategic and operational legislation, which it continues to develop. This gives grounds for the methodologies for assessing the impact of public investment on working conditions to comply with the technologies applied by the ILO.

Health and safety at work policy and the practices deriving from it, in particular the Working Conditions Fund, project in themselves the comprehensive European legislation and its practices. The study reveals that the Working Conditions Fund, which is the subject of the dissertation, is tasked with stimulating Bulgarian companies to pursue a policy of safe and healthy working conditions. In addition, the Fund participates in the financing of this policy. The study also reveals that the subject of activity of the Working Conditions Fund is a very small part of the working conditions, namely the physical risks of the working environment or in other words - the physical working environment of enterprises.

CHAPTER 2

DEVELOPMENT OF A METHODOLOGY FOR FINANCIAL AND ECONOMIC EVALUATION OF THE INVESTMENTS OF THE WORKING CONDITIONS FUND IN THE ENTERPRISES

Chapter 2 reveals the methodological basis for developing a methodology for financial and economic evaluation of investments to improve working conditions and on this basis a methodology for empirical research and general requirements for the application of the methodology are proposed. The need to develop a financial and economic model for evaluating investments in safety and health at work in enterprises using foreign examples has been revealed. A methodology has been developed for the analysis of the financial and economic assessment of the impact of the investments of the WCF on the results of the enterprises. A toolkit has been developed for the analysis of the financial and economic assessment of the impact of the investments of the WCF on the results of the enterprises.

In many countries, the high importance of health and safety at work is recognized. However, there are estimates that many workers still work in unhealthy and unsafe conditions (International Labor Office, 2011). In 2013, in the 28 EU Member States, there were around 3.1 million fatal accidents with at least four days off work and 3,674 fatal accidents. (Eurostat, 2016). Estimates made in the framework of an international project of the European Agency for Safety and Health at Work from 2017 show that work-related accidents and illnesses cost the EU at least 476 billion euros a year.

Sickness and accident cost analysis is the most commonly used macro approach. Cost-effectiveness analysis is also a general macroeconomic approach used to compare different alternatives. Simple financial evaluation is often used in micro- or firm-level analysis.

In the last few years, the World Health Organization, the International Labor Organization, and the European Agency for Safety and Health have implemented research projects based on cost-benefit analyzes of occupational safety and health measures for small and medium-sized enterprises and analyzed possible economic costs. incentives for preventive action.

In the dissertation two models from the European practice, DALY and TYTA, which have application at macro and micro level, are considered. The

DALY model has developed a methodology for calculating the severity of diseases, and the TYTA model allows to analyze and evaluate the economic effects of the work environment.

Based on the review of approaches and practices, a methodology for studying the effects of the financial support of WCF for enterprises has been constructed. It is divided into the following two main stages:

- First stage - General characteristics of the costs of WCF;
- Second stage - Measuring the efficiency of the funds spent by WCF.

In the first stage, general characteristics of the financing of the WCF are studied. The funds with which the WCF finances the enterprises can be analyzed in the following three aspects:

- Study of the amounts invested in the financed enterprises;
- Survey of the covered number of workers working in a healthy and safe environment;
- Study of the number of risk factors that are eliminated in the respective enterprise.

In the first stage of the first step, the study includes an analysis of the amounts paid by the WCF in each of the years of the study period. Here it is taken into account that the number of funded enterprises is different every year and financially each project has a different value.

The second step includes an analysis of the amounts paid by the WCF for each enterprise to improve working conditions in it.

The third step examines the amounts allocated to the number of workers to whom each project relates. There are companies that spread their projects to several workers and others to several thousand. This number is taken into account as a factor that shows the effectiveness of the project of the enterprise. The more workers the working conditions project concerns, the more successful it is considered. However, no comparison can be made with the size of the plant, because some of the companies improve the risk environment in one workshop or part of it, other companies carry out safety measures in several workshops or work sites. The choice for this is up to the management of the company itself and the amount of co-financing of the project. It should be noted here that each

company participates with specific amounts, which are conditionally three times higher than the amounts granted by the WCF. Due to these circumstances, the average amount allocated by the WCF per worker during the study period was calculated.

The fourth step compares the funds spent for each factor separately. From the analysis of the activity of WCF in the previous chapter it is clear that the risk factors are twelve. The study shows which of them are strongly represented and preferred for removal, and which others are much less often removed. It is important for the enterprises and the costs of the WCF to study which of all the factors is the most eliminated and how "expensively" the WCF pays for it.

In the last fifth step, a comparison is made of the three studied components for the entire period - from 2008 to 2018, by years. This step ends with the calculation for the whole period from 2008 to 2018 of the total amount paid by the WCF, the total number of employees, the total number of factors, the total number of enterprises financed by the WCF, the total average amount paid by the WCF for one worker, the total average amount paid by the WCF for one factor and the total average amount paid by the WCF for one enterprise.

The purpose of the empirical study in the first stage is to trace the relationship between the amount of funds invested by WCF in enterprises and the number of workers and the number of factors. It is also monitored how these dependencies are located in each year of the study period.

The second stage of the study covers the evaluation of the effectiveness of the funds invested by the WCF. It is based on the results obtained in the previous stage. What is important for the effect of subsidies is not only their size, but also their efficiency, ie. where these tools create the most value and whether these tools support production processes in such a way that fewer accidents at work occur in enterprises.

This part of the analysis is based on the consideration of three main indicators during the study period 2008 - 2018.

The first indicator is the number of accidents at work that occur in enterprises that are funded by the WCF in order to improve working conditions.

The second indicator that this stage of the study monitors and analyzes is the number of lost calendar days for enterprises as a result of accidents at work.

The third indicator is the amount paid by the NSSI for the payment of temporary incapacity benefits (sick leave).

According to these three main indicators, all enterprises from the group of enterprises in which occupational accidents occurred year after year of the studied period are analyzed.

The study refers to data from the National Social Security Institute (NSSI), which shows all enterprises in which the Working Conditions Fund (WCF) has invested. The number of those in which accidents at work have occurred and the number of those enterprises in which there are no accidents at work are calculated. The average values of the observed parameters are calculated.

The efficiency of the investments of WCF is analyzed during the occurred work accidents, the lost calendar days, as a result of them and the amount of the paid amounts for compensations for temporary incapacity for work.

This section analyzes three aspects:

- 1) change in the number of accidents at work after the allocation of funds under the WCF;
- 2) the change in the the financial loss of enterprises and NSSI related to occupational accidents;
- 3) determining the ratio of the allocated funds from the WCF to these financial losses.

In the framework of the research in the second stage of the **first step** the general tendencies of the occupational accidents in the enterprises in which WCF invests are analyzed. The general trends of lost calendar days due to accidents at work are also analyzed.

The second step examines when accidents at work occur in time - before or after the allocation of funds from the WCF. In this part, the study uses data from the National Social Security Institute, which records each occupational accident that occurred during the study period, the number of occupational accidents by year and the number of lost calendar days due to occupational accidents. These data are key for tracking the trends of these two parameters, namely accidents at work and lost calendar days.

Also in the second step, the number of accidents at work is compared with the year in which the funds under the WCF were allocated. The values of the specially created index are added to the NSSI database, called in the methodology an index of the difference between the year of the accident at work and the year of financing by the WCF. For brevity, we call this index - I_{tz-s} . This index is of key importance, as it determines how severe the accidents are, how much they "cost", ie. what is their financial expression and especially what are the losses for the state, respectively for the enterprises, by these accidents. To calculate these losses, the NSSI data on the number of lost calendar days in each accident are used, and subsequently the financial expression of each lost day is calculated.

To evaluate the financial value of the calendar days lost as a result of an accident, the index of the difference between the year of the accident and the year of funding from the WCF - I_{tz-s} was calculated, which shows how labor accidents develop .

In order to determine the effect of the funds allocated by the WCF, two amounts of lost working days are compared: the sum of lost days with a negative index (before the allocation of funds) and the amount of lost days with a positive index (after the allocation of funds). For this purpose, the number of labor-related accidents (LRA) or their severity are not considered, but are compared with the year in which the funds under WCF were allocated.

The effect of the funds allocated under the WCF is monitored by subtracting the sum of lost days with a negative index (before the allocation of funds from the WCF) from the amount of lost days with a positive index (after the allocation of funds from the WCF). If the result obtained is positive, it has a lasting effect from the allocation of funds under the WCF.

The third step in the second stage is the calculation of the average daily allowance for one day, which the NSSI calculates for sick days. The efficiency of the funds allocated by the WCF is calculated on another basis, namely the financial value of lost working days as a result of accidents at work.

With available data from the National Social Security Institute for total allocated financial resources by years, as well as with the number of days for which these funds have been allocated, the average daily compensation is calculated.

The next fourth step is to calculate the lost calendar days with a negative index and those with a positive index. If it turns out that the total number of lost calendar days has decreased after the allocation of funds from the WCF, this is evidence of a positive effect of the investment of the WCF on enterprises.

After detailed calculations, it is established how much is paid by the NSSI in the negative indices ($I_{Iz-s} < 0$) and how much are the funds in the positive indices ($I_{Iz-s} > 0$). The study assesses whether there is a reduction or increase in the cost of accidents at work after companies have been allocated funds to improve health and safety at work.

The last, fifth step of the study is dedicated to the search for an effect on enterprises if the WCF changes the amount of investment for them. For this purpose, the elasticity of the allocated funds under the WCF is sought in relation to the direct costs of the National Social Security Institute for accidents at work, as well as in relation to the total number of accidents at work.

In order to study the elasticity of the total allocated funds under the WCF to the direct costs of the NSSI for accidents at work, as well as to the total number of accidents at work, the data by years of the funds paid under the WCF (adjusted for inflation) are considered. paid by the NSSI (adjusted for inflation), as well as the total number of occupational accidents. In order to calculate the amount paid by the WCF with inflation adjustment and the average amounts paid by the NSSI, the average values for the next 3 years after the allocation of funds are taken to take into account the effect of the subsidy.

For this last part of the study, the so-called dependency analysis and more specifically linear correlation as part of correlation analysis.

Following the review of the nature, structure and main activities of the WCF, the understanding of efficiency, and the constructed methodology for studying the effects of the financial support of the WCF for enterprises, the following definition was adopted: public funds of the WCF, measured by the reduction of accidents at work in enterprises, the reduction of lost calendar days as a result of accidents and the saving of funds from hospital days for the temporary incapacity for work of the affected workers.

This definition is the basis of the derived model for evaluating the efficiency of investments of the Working Conditions Fund in enterprises.

The review of the methodological bases for developing a methodology for assessing the impact of public investment on the activities of enterprises reveals that the effective improvement of working conditions leads to a reduction in the number of accidents and work-related health problems, reducing the pressure on public and social systems. private social protection, insurance and pension systems.

From the review of the models for calculating the efficiency of investments from the European practice, two models have been singled out, DALY and TYTA, which have application at macro and micro level. The DALY model has developed a methodology for calculating the severity of diseases, and the TYTA model allows to analyze and evaluate the economic effects of the work environment.

Effectiveness can be sought in prevention as a policy, but it can also be sought in the elimination of only the risk factors of the work environment, as well as in the prevention of occupational accidents or the elimination of their consequences.

In Bulgarian conditions, WCF practices only investing in the working environment of enterprises by eliminating risk factors in it.

Based on the review of approaches and practices, a methodology for studying the effects of the financial support of WCF for enterprises has been constructed. The methodology is described in two stages.

In the first stage, general characteristics of the financing of the WCF are studied. The funds with which the WCF finances the enterprises can be analyzed in the following three aspects: study of the amounts invested in the financed enterprises; a study of the number of workers covered who work in a healthy and safe environment and a study of the number of risk factors that are eliminated in the enterprise concerned.

The second stage of the methodology is based on the study of three main indicators during the study period 2008 - 2018 - number of accidents at work, the number of lost calendars and the amount paid by the NSSI for the payment of temporary incapacity benefits (sick leave).

Conclusion: The methodological bases for developing a methodology for financial and economic assessment of the impact of investments to improve working conditions have been studied and on this basis a methodology for

empirical research and general requirements for application of the methodology have been proposed. The methodology provides an opportunity to measure the effect of public investment on WCF by reducing occupational accidents in enterprises, reducing lost calendar days due to accidents and by saving hospital days for temporary incapacity for work of affected workers.

CHAPTER 3

RESULTS OF THE APPLICATION OF THE METHODOLOGY FOR EVALUATION OF THE EFFICIENCY OF THE DIRECT INVESTMENTS OF THE WORKING CONDITIONS FUND IN THE ENTERPRISES

Chapter 3 analyzes the amounts allocated by the WCF for all years of the study period and for each year separately; the number of workers covered by the improved working conditions; the number of risk factors that have been eliminated. The average values of the listed parameters are analyzed. A general description and financial and economic analysis of the investments of the WCF through the indicators of occupational accident and lost calendar days have been prepared. There is a positive trend between the amounts granted by the WCF and the amounts paid by the NSSI for short-term benefits, ie. the larger the amounts from the WCF, the smaller the amounts granted by the NSSI for lost calendar days.

In order to achieve the main goal of the present dissertation, all enterprises that the Fund "Working Conditions" has financed in the period 2008-2018 are considered. As it is clear from Chapter Two, the study has two databases - one from the WCF, the other from the NSSI. In the database of WCF the concluded contracts with the enterprises is equal to the number of the enterprises themselves, ie. one contract is equal to one enterprise (it is not taken into account that one enterprise has received several contracts during the period). In the database of the National Social Security Institute the number of enterprises is 232, as there are reported only the enterprises that are financed by the WCF and have fulfilled one, two or more contracts by the WCF. Based on the available data from the National Social Security Institute, it is calculated in how many of these enterprises occupational accidents have occurred and in how many they have not occurred. Calculations show that there are accidents at work in 112 companies and not in 120. In the NSSI database are available data for each occupational accident in the enterprises financed by the WCF during the studied period. This also takes into account the fact that all companies know when the accidents occurred - before or after the investment in WCF. Taking into account the total amount that WCF has invested in the analyzed enterprises, namely - BGN 16,311,453 for the studied period from 2008 to 2018 and the number of enterprises, which are 232, it turns out that each enterprise is financed. from WCF with an average of BGN 70,308 for the period. This means that 120

enterprises in which no accidents at work have occurred have received from the WCF for the improvement of working conditions approximately BGN 8,436,960. These amounts are net income for the enterprises because no taxes and insurances are paid on them. The data provided show that these investments were made in enterprises with approximately 13,190 employees. This can be interpreted as an improvement of these several thousand jobs, as a result of the funding from the WCF. As for the eliminated harmful factors, according to the data from the WCF, they are approximately 360 in these 120 enterprises in which no accidents at work have occurred. As a result, it can be concluded that in 120 enterprises, through the investments of WCF, the working environment has been improved, hundreds of risk factors have been eliminated and several thousand high-quality jobs have been created. In this case, it can be assumed that the investments of WCF lead to increased productivity, and hence to increased competitiveness of enterprises, as well as in the enterprises has been implemented and successful prevention against accidents at work and loss of funds from lost working days.

From the database of WCF, which the study has, it is clear that the funds that WCF invests in enterprises are directed in three directions. The first direction is related to the amount of funds that each company receives for the implementation of its project under working conditions. The amount of these funds has been studied in detail, the results are illustrated graphically and tabularly.

In the dissertation work graphs are made, from which it becomes clear the amounts paid by the WCF for one enterprise, one worker and one removed risk factor.

The second element in the cost structure of the WCF is the amounts allocated to the number of workers to whom each project relates. Enterprises have the project freedom to cover a different number of workers. Logically, large companies have the opportunity to spread their projects to more workers. Small and micro-enterprises are limited on a much smaller scale. Calculations prove that for the studied period the total number of workers for whom WCF has provided a safe working environment is 38 587.

The last, third element of the three-component structure of WCF costs is the cost of eliminating risk factors in the working environment of the enterprise. What and how many risk factors in the work environment will be eliminated

depends solely on the judgment of the employer or manager who manages the policy on safe and healthy working conditions in the company, who prepares the project and applies for funding with the WCF.

The summary of the structure of WCF costs for enterprises is shown in Table 1. To the numbers for the number of contracts with WCF, number of workers and number of eliminated risks are added the data from the costs for one enterprise, one worker and one factor. In the table, column 2 shows the amounts that the WCF has granted to the enterprises during each of the years of the studied period and the total amount for the whole period. Column 3 shows the number of workers covered by the funding of the WCF for each year separately and in total for the period. Column 4 shows the total number of removed factors for each year and for the whole period. Column 5 shows the number of contracts that are financed by the WCF each year and for the whole period. Columns 6, 7 and 8 calculate the amounts of FTT per worker, per factor and per enterprise, as well as the aggregated amounts for the whole survey period.

Table 1. Summary data on the cost structure of WCF in the period 2008-2018 and average values per worker, factor and enterprise

1	2	3	4	5	6	7	8
Year	APWCF	NW	NF	NC	APWCFw	APWCFf	APWCFe
	BGN	count	count	count	BGN	BGN	BGN
2008	2 066 446,31	4 105	141	46	503	14 656	44 923
2009	1 982 697,24	1 828	119	33	1 085	16 661	60 082
2010	727 797,20	848	54	13	858	13 478	55 984
2011	1 311 065,37	1 451	73	21	904	17 960	57 003
2012	987 394,10	1 251	49	15	789	20 151	65 826
2013	1 169 984,06	3 053	88	26	383	13 295	44 999
2014	2 632 588,42	6 841	172	59	385	15 306	44 620
2015	958 494,49	4 161	57	19	230	16 816	50 447
2016	2 038 767,96	8 790	135	60	232	15 102	33 979
2017	1 224 712,50	4 562	70	29	268	17 496	42 231
2018	1 211 506,09	1 697	74	28	714	16 372	43 268
TOTAL	16 311 453,74	38 587	1 032	349	6 352	177 292	543 364

Source: NSSI and own calculations

where:

APWCF is the amount paid by WCF

NW is the number of workers

NF is a number of factors

NC is the number of contracts concluded with WCF

APWCF_w is the amount paid by WCF per worker

APWCF_f is the amount paid by WCF per factor

APWCF_e is a sum paid by WCF per enterprise

In the dissertation, in addition to the financial indicators of the costs of the WCF, the efficiency of the funds spent by the WCF is calculated. the survey is based on data from the National Social Security Institute.

From the input data of the National Social Security Institute, the number of occupational accidents by years and the number of lost calendar days due to occupational accidents have been calculated by accumulation. These data are key for tracking the trends of these two indicators and their impact on the efficiency of enterprises financed by the WCF.

Table 2. Number of accidents at work and number of lost calendar days by year in the enterprises financed by the WCF

Year	Number of labor-related accidents	Number of calendar days lost
2008	108	6 861
2009	86	5 944
2010	102	7 607
2011	89	6 918
2012	88	7 226
2013	77	7 622
2014	102	7 236
2015	89	7 580
2016	99	6 302
2017	62	4 820
2018	79	5 429
ОБЩО	981	73 545

Source: own calculations

The figures in Table 2 show that the total number of accidents that occurred in the study period was 981, and the total number of lost calendar days

was 73,545. On average, for each year of the period, 89 accidents occurred and 6,686 were lost. calendar days. It should be borne in mind here that these figures refer to the group of 112 enterprises that have received subsidies from the WCF for the implementation of projects on working conditions.

Based on these data, the general trends for the number of accidents at work during the study period are considered graphically.

On average, for each year of the period, 89 accidents occurred and 6,686 calendar days were lost.

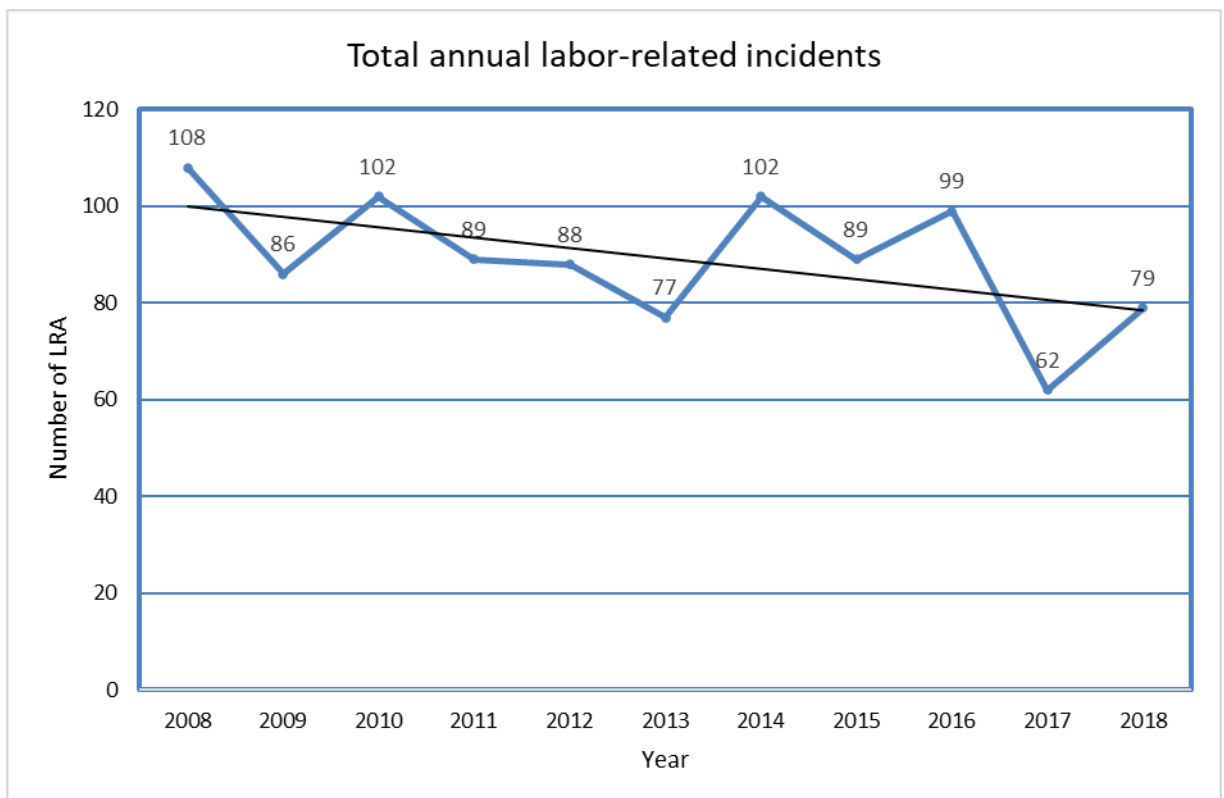


FIG. 1. Total annual labor-related accidents

Source: NSSI and own calculations

As can be seen from Figure 1, the number of accidents at work has been declining since 2008. The most - 108 accidents at work occurred in 2008 and the least, 62 in 2017. For the purposes of the comparative analysis it should be said that in 2008 the WCF allocated to all enterprises BGN 2,066,446. , and in 2017 BGN 1,224,712.

The next step in the study is to calculate the financial value of the accidents that occurred, because among the available data there is no information on how severe these accidents are and what are the losses from

them for businesses and the National Social Security Institute. The calculation of these losses is based on the number of lost calendar days in each accident, and subsequently the financial expression of each lost day will be given.

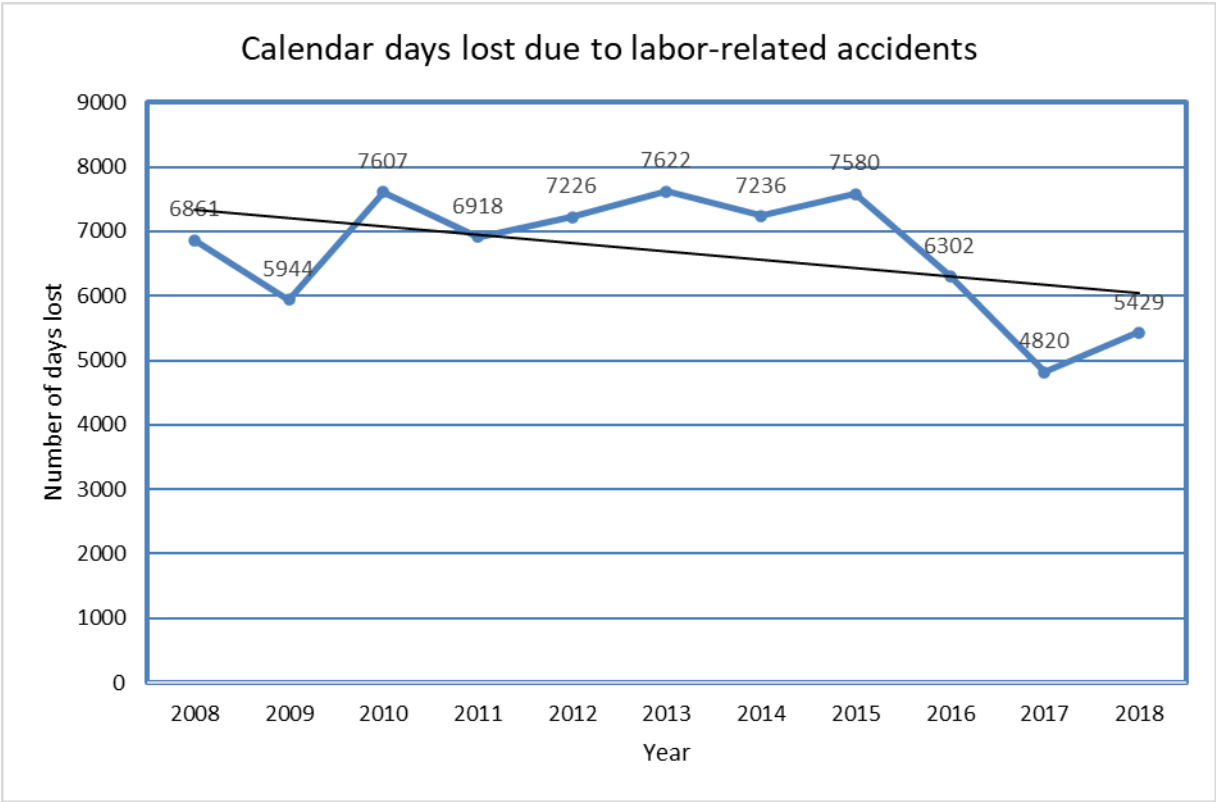


FIG. 2. Total calendar days lost from labor-related accidents by years.
 Source: NSSI and own calculations

The lost calendar days from labor-related accidents (Figure 2) are the most, 7,622 in 2013, and the least, 4,820 in 2017. The year 2017 is the "minimum year". It had the fewest accidents at work, 62 and lost at least a calendar day, 4,820.

Comparing the two trends, the two columns of Table 2 and Figures 1 and 2, it can be concluded that the average number of lost working days due to accidents at work is relatively constant - there is a positive relationship, or in other words a direct proportionality between the total number of accidents and the total number of lost working days.

After analyzing the general trends in the considered enterprises, we proceed to the analysis of the effect of allocating funds under the WCF. For this purpose, the number of accidents at work or their severity will not simply be considered. This number of accidents at work is compared with the year in

which the funds under the WCF were allocated. A column with the values of the specially created index, called in the methodology an index of the difference between the year of the accident at work and the year of financing by WCF - I_{tz-s} , is added to the NSSI database.

In order to calculate the lost calendar days compared to the year of the subsidy granted by the WCF, the data on the lost calendar days from column 6 in the database of the National Social Security Institute and the additionally calculated indices, I_{tz-s} are used.

Figure 3 and Table 3 show the dependence on how the number of accidents at work develops in relation to the year of allocation of funds under the WCF. Index "0" in the chart and table is the year of disbursement. Index "-1" is the year before the allocation of funds, index "1" is the year after the allocation of funds, etc. In this way, invariance is achieved with respect to the exact time of disbursement.

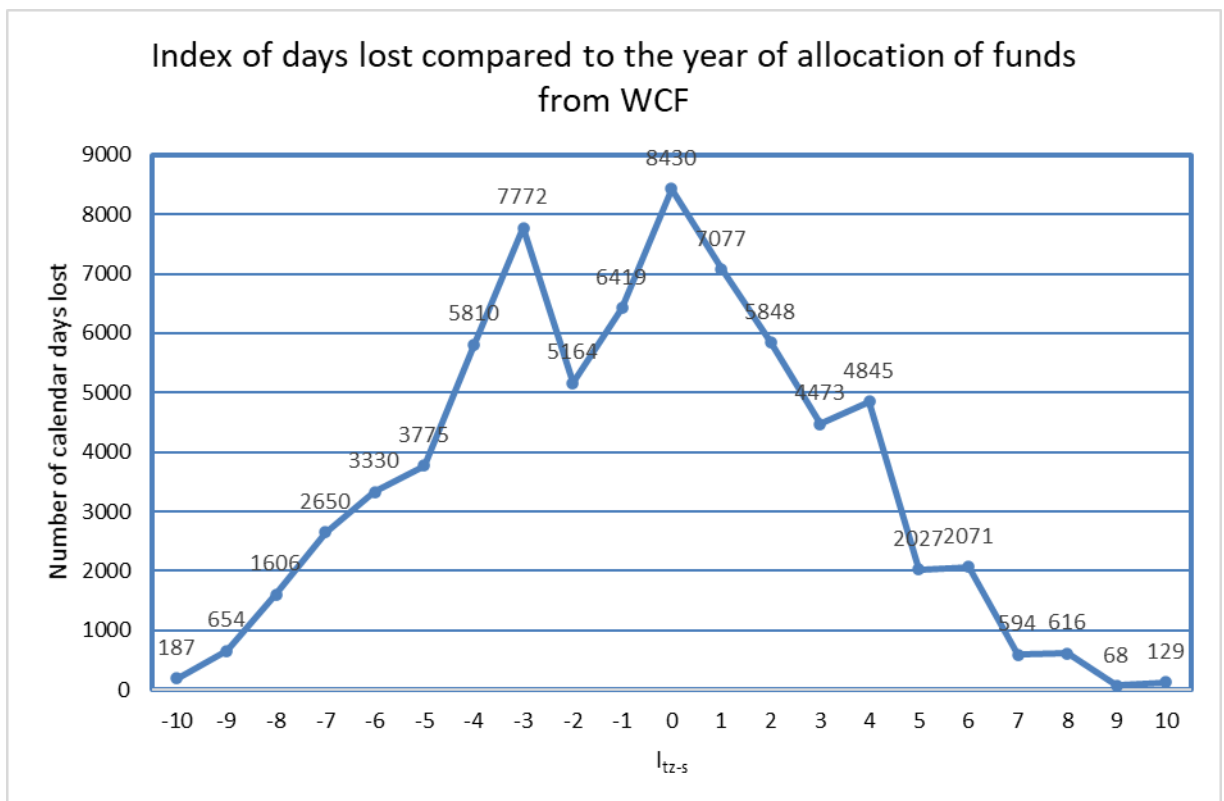


FIG. 3. Number of lost calendar days from accidents on I_{tz-s} .

Source: Own calculations

The effect of the funds allocated under the WCF must be considered by subtracting the sum of lost days with a negative index (before the allocation of funds from the WCF) from the amount of lost days with a positive index (after the allocation of funds from the WCF). If the result obtained is positive, it means that there is a lasting effect from the allocation of funds under the WCF.

Table 3. Number of lost calendar days from accidents on I_{tz-s}

I_{tz-s}	Calendar days lost
-10	187
-9	654
-8	1606
-7	2650
-6	3330
-5	3775
-4	5810
-3	7772
-2	5164
-1	6419
0	8430
1	7077
2	5848
3	4473
4	4845
5	2027
6	2071
7	594
8	616
9	68
10	129

Source: own calculations

From the data in Table 3 we calculate that the lost calendar days with a negative index are 37 367, and those with a positive index are 27 748. This is a decrease in the total number of lost calendar days from labor-related accidents(LRA) after the allocation of funds under WCF by 25.7 %, which is a statistically significant difference. This percentage also means that the number of days lost is affected by the subsidy granted by the WCF, ie. it is reduced by a quarter of the days that would be obtained if the WCF did not invest in working conditions in enterprises.

The second step in terms of the required effectiveness of WCF subsidies on enterprises and their results is the calculation of the financial value of the lost calendar days as a result of accidents at work.

With the calculations made so far, the study already has estimates for each accident at work in the enterprises to which funds have been allocated under the WCF, as well as the year in which it occurred. In the next step, they are expressed in monetary terms, in line with the officially reported inflation. The final step is to group and sum up the amounts paid by the National Social Security Institute for each occupational accident according to the I_{tz-s} index. These data are reflected in the following table (Table 4).

Table 4. Amounts paid by the NSSI for sick days under I_{tz-s}

I_{tz-s}	Calendar days lost	Amount paid by NSSI corrected for inflation
-10	187	3923.26
-9	654	13995.48
-8	1606	37907
-7	2650	62454.93
-6	3330	73083.18
-5	3775	88562.65
-4	5810	136964.17
-3	7772	184834.34
-2	5164	122745.52
-1	6419	159913.76
0	8430	210406.74
1	7077	188280.51
2	5848	153348.66
3	4473	121886.86
4	4845	133045.46
5	2027	58353.1
6	2071	60091.91
7	594	17546.76
8	616	17696.48
9	68	1990.36
10	129	4027.38

Source: own calculations

In the next step, the amounts paid by the NSSI in the years with negative indices and the amounts paid by the NSSI in the years with positive indices are calculated. The calculation shows that the amounts paid by the NSSI, in the cases with negative indices ($I_{tz-s} < 0$) have a total value of BGN 884,384.29, and in the cases with positive indices ($I_{tz-s} > 0$) with a total value of BGN 756,267.48. As a result of these results, it can be concluded that after the investments made by WCF in enterprises, NSSI pays less amounts for benefits for sick days after accidents at work compared to the amounts paid by NSSI in the years before the investments from the WCF for working conditions in the surveyed enterprises. It should be noted that while the difference here is not so

great - 14.5%, the amounts paid by the NSSI for sick days from work accidents are directly related to the average salary, which in the period 2008-2018 increased by 48.8%. However, this comparison shows an empirical reduction in the cost of accidents at work after companies have been allocated funds to improve health and safety at work.

Next, we examine the elasticity of the total allocated funds under the WCF to the direct costs of the NSSI for labor-related accidents (LRA), as well as to the total number of labor-related accidents (NLRA).

The average amounts paid by the NSSI in the next 3 years are calculated taking into account the following: the year of the grant.

To track whether there is a correlation, we will display the data in a two-dimensional plane, where X are the funds allocated by the WCF (APWCF) with inflation adjustment and Y are the direct costs of the NSSI for paid sick leave in the next 3 years.

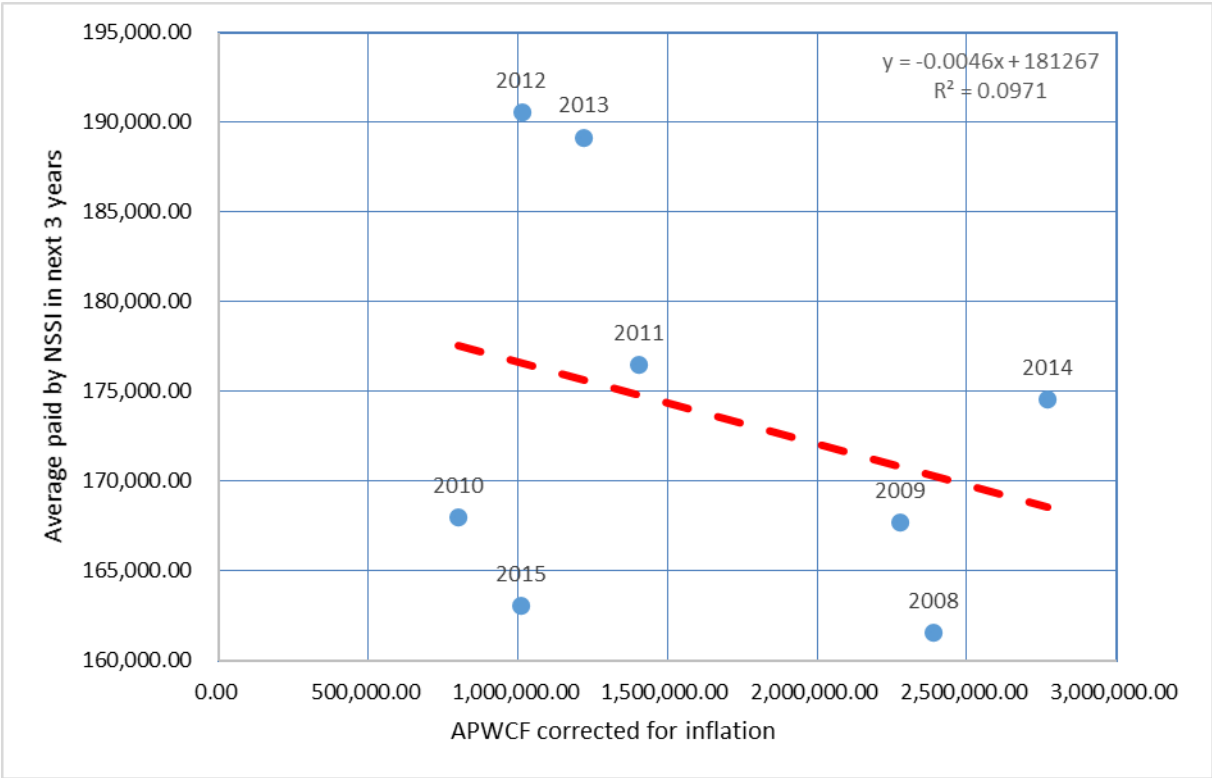


FIG. 4. Allocated funds from WCF compared to the average amount paid by NSSI in the next 3 years

Source: Own calculations

It can be concluded that the NSSI pays smaller amounts for sickness benefits after accidents at work, after investments of WCF in enterprises have been made.

The proposed methodology for financial and economic assessment of the impact of WCF investments on the results of enterprises can be used as a good practice both at the macro level - for all financed enterprises, and at the micro level - for an individual enterprise.

CONCLUSIONS

Many of the issues related to the impact of investments on health and safety at work are complex, multifaceted and debatable. But on the other hand, research reveals that these issues need to be increasingly the focus of research.

The study of the results of the impact of public investments of WCF on the number of accidents allowed to develop a methodology for financial and economic assessment of the impact of these investments on enterprises and to partially test this methodology. This is a reason to assume with sufficient accuracy that the purpose and objectives of the study have been fulfilled.

In performing the first task as a result of the review of regulations and policies, it was found that the most important, according to the degree of their comprehensiveness, are the International Labor Organization (ILO) Conventions. It was established that Bulgaria has ratified many conventions, adopted the Framework Directive and dozens of special directives, uses several international and European standards in the field of health and safety at work. It has created its own strategic and operational legislation, which it continues to develop. This gives grounds for the methodologies for assessing the impact of public investment on working conditions to comply with the technologies applied by the ILO.

Health and safety at work policy and the practices deriving from it, in particular the Working Conditions Fund, project in themselves the comprehensive European legislation and its practices. The study revealed that the Working Conditions Fund, which is the subject of the dissertation, is tasked with stimulating Bulgarian companies to pursue a policy of safe and healthy working conditions. In addition, the Fund participates in the financing of this policy. The study also revealed that the subject of activity of the Working Conditions Fund is a very small part of the working conditions, namely the

physical risks of the working environment or in other words - the physical working environment of enterprises. "Nevertheless, this policy contributes to increasing the safety of the working environment and improving the health of workers.

The developed methodology for financial and economic assessment of the impact of WCF investments on enterprises revealed that these investments contribute to the well-being of workers, but this does not confirm European studies which show that the employer will have a double return on every euro spent on ensuring healthy and safe working conditions. One of the reasons is that the measures in the field of health and safety at work for Bulgarian enterprises must reach the largest possible number of workers, regardless of the employment relationship with which they are bound, and no matter what the size of the enterprise for which work. Also, measures must be results-oriented and not just on paper.

Despite the fact that Bulgaria has ratified sixty-four Conventions with regard to labor and occupational safety and health standards, that the main directives of the European Union in the field of health and safety at work are 28, that the International Standards that apply in Bulgaria are 7 that the Standards for compliance of the working environment are 29 the study through the applied assessment methodology revealed that the measures are not applied effectively. The results obtained from the study show that for the study period WCF has invested in 232 enterprises. Calculations show that after the investment of WCF, in 112 enterprises there are accidents at work, and in 120 they did not occur. The total amount that WCF has invested in the analyzed enterprises is BGN 16,311,453. Each enterprise has received from WCF an average of BGN 70,308 for the period. 38,587 is the number of workers who worked in a healthy and safe environment, and 1,032 is the number of risk factors that have been eliminated. It is also calculated how much WCF has invested on average per worker and how much for the elimination of one risk factor on average. The number of accidents at work is 981 and the number of lost calendar days is 73 545. The number of accidents at work has been declining since 2008, the same decreasing trend is in the case of lost calendar days as a result of accidents at work.

However, it turns out that in more than half of the companies in which WCF invests, the working environment has improved, removing hundreds of risk factors and creating several thousand high-quality jobs. In this case, it can be

assumed that the investments of WCF lead to increased productivity, and hence to increased competitiveness of enterprises, as well as that they have implemented successful prevention against accidents at work and loss of funds from lost working days.

Also, applying the adapted methodology, the methodology revealed that in the enterprises where accidents at work occurred, there was a decrease in the total number of lost calendar days from accidents at work after the allocation of funds under the WCF by 25.7%, which is a statistically significant difference. This percentage also means that the number of days lost is affected by the subsidy granted by the WCF, ie. it is reduced by a quarter of the days that would be obtained if the WCF did not invest in working conditions in enterprises.

As a result of the assessment it can be concluded that after the investments made by the WCF in the enterprises, the NSSI pays less amounts for benefits for sick days after accidents at work compared to the amounts paid by the NSSI in the years before the investments from WCF for working conditions in the surveyed enterprises. It should be noted that while the difference here is not so great - 14.5%, the amounts paid by the NSSI for sick days and accidents at work are directly related to the average salary, which during the period 2008-2018 increased by 48.8%.

The results of approbation of the methodology give grounds to address the following recommendations to the FUT and its practice to encourage companies to invest in safety and health at work:

First, the FTA should choose more economical and relatively more universal financial frameworks when preparing the preliminary financial evaluation of each project.

Second, the Management of FUT to negotiate with the NSSI a larger annual subsidy in order to provide an opportunity for the fund to invest in a larger number of enterprises and, accordingly, to cover more employees in them.

The results of the application of the methodology for financial and economic assessment of the impact of public investments of WCF reveal that the investments lead to a reduction of labor-related accidents, of the paid compensations for death and disability in case of an accident, as well as to a reduction of lost working days.

IV. CONTRIBUTIONS OF THE DISSERTATION

Contributions of theoretical, methodological, and applied nature

1. The theory is reviewed and the main policies and regulations for safe and healthy working conditions in the European Union and in Bulgaria are systematized.

2. A methodology for financial and economic assessment of the impact of WCF investments on the number of accidents has been developed and the general requirements for application of the methodology in Bulgarian enterprises have been substantiated.

3. Methodology for financial and economic assessment of the impact of public investments has been tested in 322 enterprises in the country, which in the period from 2008 to 2018 have received investments from the Working Conditions Fund for their projects for safe and secure healthy working conditions.

V. PUBLICATIONS ON THE TOPIC OF THE DISSERTATION

- Dyankova, Sv. Standards for occupational health and safety. – In: Collective Scientific Book of Faculty of Economics, "St. Cyril and St. Methodius" University of Veliko Tarnovo Annual Conference, dedicated to the 25th anniversary of the Faculty establishment, held on 28–29.09.2017 in Arbanassi, Veliko Tarnovo, titled: Development of the Bulgarian and European economies – challenges and opportunities, Vol. 1, Veliko Tarnovo: University publishing house, 2018, ISSN 2603-4093, pp. 226-230. (достъпно на: <https://www.uni-vt.bg>), COBISS.BG-ID – 1288419812;
- Дянкова, Св. Условията на труд – управленски и икономически фактор в предприятията. Социално-икономически анализи, т. 12, бр. 1, 2020, с. 113-121, ISSN: 2367-9379 (Online), ISSN: 1313-6909 (Print), (достъпно на: <http://journals.uni-vt.bg/sia/bul/vol12/iss1/>), COBISS.BG-ID – 1124917732;
- Dyankova, Sv. Analysis and evaluation of best practices in the European Union and Bulgaria on health and safety labor conditions. Международният научен журнал «Научные горизонты», № 3(43), 2021, pp. 23-32, ISSN 2587-618X, (достъпно на: https://www.sciencehorizon.ru/wp-content/uploads/2017/08/Nauchnyie_gorizontyi_3_43_2021.pdf)

VI. DECLARATION OF ORIGINALITY

I declare that this dissertation is entirely the product of the author and its development has used no outside publications in violation of their respective copyrights.