

**Thesis Title** THE STUDY OF THE IMPACT OF ECONOMIC CHANGES ON THE  
INDUSTRIAL INJURIES DURING 1980 - 1984 : AN INPUT -  
OUTPUT MODELLING APPROACH

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**Date of Graduation** 17 April B.E. 2534 (1991)

**ABSTRACT**

The study of the impact of economic changes on the industrial injuries during 1980-1984 : an input-output modelling approach covers the following aspects :

Firstly, the study focuses on 1980-1984 the production changes of the industrial sectors in the WCF. Based on the input-output modelling approach, the calculation process consists of the reformation of the 1980 national input-output table so that it is consistent with the 16 particular types under the WCF business classified, the RAS-method to update the tables during 1981-1984, and the adjustment of the values multiplied by the employment quotient. This allows the empirical results from the reformed and adjusted input-output tables to show the values of the production side of the

industrial sectors in the WCF by comparing the 1980-1984 input values of each industrial sector and the information about the gross domestic product (GDP) during the same years. The conclusion of this objective that the Thai economy during 1980-1984 has shifted from agricultural dependency to manufacturing dependency.

As a matter of fact, however, this information was constructed from the assumptions of the input-output model, updated by the limiting calculation of RAS-method, and re-adjusted the values by the employment quotient multiplication. Therefore, they were used to describe the economic changes given such limitation.

Secondly, the study concerned with the situation of the industrial injuries of the industrial sectors under the WCF during 1980-1984. By collecting data from each industrial sector on the cases of the industrial injury, classified into 5 levels of injury severity, and on the contribution and compensation money; and by calculating the productivity loss, this objective could be achieved.

During 1980-1984, the industrial injuries of the all sectors in the WCF have steadily increased at an average of 30,755 persons per year. This average when classified by the severity degree, death accounted for 0.96 %, permanent disability 0.04 %, partial disability 3.49 %, loss < 3 workdays 37.01 %, and loss  $\geq$  3 workdays 58.50 %. By industrial sector, the average injury per year in the food product sector of 5,380 persons per year was the highest. The lowest was in the public utility sector, at an average of 30 persons per year.

The total contribution money, at an average of 214.079 millions of baht per year, though fluctuates, shows an increasing trend. The changes in them were not consistent with the changes of the total value added changes because they were computed from the premium rate.

On the other hand, total compensation money for the injured workers increased steadily, with an average of 124.736 millions of baht per year. The important causes for the increase was the increase of the firms and the workmen coverage. There were the adaptation of the firms to decrease the cases of the industrial injury in order to qualify for a reduced premium rate of the contribution money paid to the WCF. These adaptation could be the improvement of the safety condition on the worksites which is a positive adaptation, or the underreporting of the industrial injuries which is a negative adaptation. All of them are for a decrease of the compensation money per unit of firm. The negative adaptation is an important problem which must be solved. During 1980-1984 the WCF obtained more contribution money than the total compensation money paid by approximately 446.715 million baht. This situation is not one to be happy about due to the steadily increase of the industrial injuries. Therefore, this is an important economic policy problem which must be solved.

As for the productivity loss, an indirect cost was estimated from the industrial injuries of the industrial sectors in the WCF. The total productivity loss, though fluctuates averages at 714.506 millions of baht per year. Of this total, death accounted for 66.69 %, permanent disability 2.71 %, partial disability 26.77 %, loss < 3 workdays 0.57 %, and loss  $\geq$  3 workdays 3.27 %. For each industrial sector, the average productivity loss per year of the transportation and communication sector at 115.749 millions of baht per year was the highest. And the lowest was the other manufacturing sector at the average of 1.054 millions of baht per year.

Finally, the third objective concerned with the relationships between the economic changes and the industrial injuries of the industrial sectors in the WCF, during 1980-1984. The economic changes were an important factor for several impacts. On the industrial

injuries, however, there are several other factors in addition to the economic changes, such as the safety condition on the worksites, the economic, education, and social background of the workmen. The existing data on the economic changes indicated by the value added changes of most industrial sectors in the WCF were not consistent with the industrial injury changes. And they were not consistent with the changes of the contribution and compensation money either. As opposed to the relationships between the value added changes and the productivity loss of the most industrial sectors in the WCF which show consistency. This is because the productivity loss was computed from the workdays loss of the injured workers multiplied by the average wages and salaries per person per day of the workmen in any sectors. The value added changed, whether increase or decline, following any substantial changes of the wages and salaries. However, this consistency did not occur in industrial sectors in the WCF. The productivity loss changes in some sectors were not consistent with the economic changes due to the vast changes of severity pattern, for instance, more or less death, permanent disability, and partial disability than the normal occurrences.

For each industrial sector, these relationships can be computed to the average coefficient impact vector per one million baht of value added. This impact vector consists of the coefficients on the four components of value added, the contribution and compensation money, the classification of the severity degree of the industrial injuries and the productivity loss. For the total industrial sectors in the WCF, it is concluded that any one million baht of value added is received by the society in four components: wages and salaries 252,050 baht, operating surplus 522,590 baht, depreciation 6,503 baht, and indirect tax 160,330 baht. The entrepreneurs had paid the WCF 1,120 baht as the contribution money and the WCF paid the injured workers 650 baht as the compensation money. And this one million baht of value added was effected to the case of the industrial injury

approximately 0.15902 and effected to the productivity loss of 3,660 baht.

These relationships and consistency indicate that for the construction of the forecast equation about the industrial injury one would not consider only the industrial injury changes. But one would consider both the economic changes and the accompanied changes, especially the productivity loss which were consistent. And the forecast equation of each industrial sector is more appropriated than the overall forecast equation due to the different changes of the severity pattern of each industrial sector.