

# The Analysis of the Influence of Changes of Legal Standards on Enterprise in the Sector of Small Medical Organisations

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*Abstract:* The enterprise in health care is influenced significantly by the state, its interventions into the enterprise environment primarily with the form of legal standards. Their stability and accuracy are very significant factor. The influence of this factor is changeable in time depending on political decisions and the quality of their transformation on legal standards. The article presents primary research of the influence on the stability of incomes of small medical organisations, price regulation by the state and simultaneously the influence on demand for services in economic consultancy in health care sector. The research reacts on the failure of legislature in the field of market with the obligation of price establishing. On the basis of the results of questionnaire processing with the method of mathematics statistics of dispersion analysis it was confirmed that it is not difference in incomes of medical organisations in the period with different obligation of price establishing. But simultaneously it was confirmed significant influence of decrease of the demand for services in the field of price establishing. In the context of supposed changes towards higher participation of patients which also brings necessary participation of medical organisation management, this research appears to be needed and current.

*Key-Words:* enterprise, health care, analysis, law, regulation, price, obligatory procedure, demand, services, dentistry.

## 1 Introduction

No doubt American economist Kenneth J. Arrow belongs to the most often quoted economists in the health care economy area. In December 1963, it was published [1] his article "*Uncertainty and the Welfare Economics of Medical Care*" in "*The American Economic Review*", K. J. Arrow also pointed out to implicit and explicit problems of price establishing [1]: "*It is looked at price competition with contempt on the medical care market. Agreements of this kind are not unusual and they are not the object of anti-monopoly disputes. It is obvious that inflexibility so called administratively stated prices weakens own flexibility of the offer strongly.*"

The price regulation in health care is reflection of social order made by the Constitution of the Czech Republic and realized by concrete arrangement of political forces in particular period. Everyone has a right for protection of their health. On the basis of public insurance citizens have a right for free of charge health care and for medical aid on terms that the law sets. Just the price

regulation by price authorities is significant tool of policy in health service. The price regulation is understood price fixing or their limits which can be negotiated in or the fixing of a method at their negotiating. Material price coordination constitutes certain significant part of this regulation. It is supported by fixing of conditions by price authorities for negotiating of the prices. Although the term "coordination" sounds more gently, it is price regulation. According to the price regulations the most often regulated conditions are:

- maximum extent of possible increase of goods price in specified period,
- maximum share which it is possible to show increase of goods price into a price in specified period,
- obligatory procedure at price establishing or at price calculation including involving of a profit into a price [2].

The state influences performance management of medical organizations significantly with its practical policy. The importance of manager accountancy,

calculation and establishing of prices is growing in these organizations.

It is true that all mechanisms of performance measurement and management are adequate and useful if they are designed to achieve goals. A universal model of performance measurement is not defined anywhere and varies in different organizations, but it is an integral part of management. We can call it a set of mechanisms and procedures to ensure quality and efficient management of the organization [4].

Operations within accounting units are the domain of In-house Accounting, which usually tracks operations according to the individual internal departments and within their framework, also according to the individual performance and operations of the enterprise. The forms, organisation and orientation of this in-house accounting process are determined by the Accounts department itself in line with internal rules and regulations. Czech legislature only states that in-house accounting must ensure verifiable supporting materials for the financial accounting process on the following:

- About the state and changes to the state of inventory created by one's own activities;
- In order to express the activation of one's own performance;
- For the valuation of inventory and other performances created by one's own activities. [6].

In-house accountancy has become viable potential for tactical decision making and fulfilment of obligation resulting from standards of price regulation. It has also become significant data source which can show the importance of regulation [3].

This analysis dealt with only obligatory procedure at establishing of a price which as the only one has effect significantly on essential part of medical organisations.

## 2 Obligatory Procedure at Establishing of a Price

Obligatory procedure at establishing of a price is the only one indirect regulator with state influence on establishing of a price in health service. The price organisations do not set any numbers here. The price regulations speak about economically authorized costs and adequate profit here. The regulations define what can not be considered to be rightful costs and what must not be appeared as an item which influences the price of a product or performance in possible authorized procedure at

establishing of a price. For economically rightful costs can not be accepted particularly:

- penalties, fees for delay, caused deficits, payments for time-barred debts, interest on delay and money compensation of damages relating to capital construction,
- property manage and costs linked to their removal (except damage caused natural disaster) including price decreasing of non-usable supplies and physical disposal of supplies, damage compensation and recompense,
- all bonuses of statutory organisation members and other organisations of legal people, fines, fees from delay, interest from delay, penalties and other fulfilment for breach of obligations according to the contracts and regulations (even ecological), idle operating costs linked to preparation and security of capital construction (lost investment),
- costs for stopped preparation and running-in of production and for stopped research and development,
- additional fees to fees paid for air pollution, alternatively other payments with sanction type (e. g. for damage caused on agricultural land),
- depreciation of time-barred and bad debts,
- repeatedly included costs which were paid,
- depreciation higher than is equivalent really applied depreciation according to special legal regulation,
- superannuation additional insurance of employees paid by a employer over the limit stated with specific legal regulation,
- depreciation of property acquired free of charge transfer with the exception of maximum share which it is possible to show price increase into goods price in the specified period [8].

Practical impact of this regulation is more declarative because regulated economic subject in such way is primarily obliged to determine profit that should be adequate according to the law except costs with a way. Its adequate and real, number proportionality is determined with difficulty. Here is a question if it is possible practically. Because any proportionality would be always related to a place, time and conditions of concrete situation. For adequate profit in price regulations regarding obligatory procedure at establishing of a price is considered particularly profit linked to production and goods sale subjecting to material price co-ordination, intended for acquisition of tangible and intangible property and estate, for increase of basic capital, for fund making whose making and filling is imposed by specific legal regulations. We do not

find any numbers that would define "adequate" profit exactly in any parts of legal documents.

From the point of view of extent of indirect regulation just obligatory procedure has a significant share at establishing of a price or calculation on health market because intervenes all cases when a participant of health insurance is obliged to pay unpaid care at a doctor. This obligatory procedure at establishing of a price burdens mainly small medical organisations such as private surgeries where we meet with various services unpaid from health insurance and also insufficient division of labour in the management field.

Ambiguity of legal standards in laws in the field of obligatory procedure of establishing of a price under the supervision of price regulations has been a basic problem including regulation from its origin in 90s 20th century. This kind of price regulation was not formulated exactly in a law and was made factually with implementing regulations or interpretation of executive power or judicatory. For example sample calculation formula was determined with the public notice 450/2009 of Finance Ministry. It was determined minimum structure of price calculation at goods subjecting material price co-ordination:[7]

1. Direct material
2. Direct earnings
3. Other direct costs
4. Indirect costs
5. Other costs
6. Profit
7. Total price

Until publication of this public note, economic subjects determined the structure of calculation sample by themselves, better said on the basis of experience from price controls. But the opinions of clerks differ very much and it was very hard to stand in possible control in this situation.

## 2.1 Regulation Object

The object of material regulation with obligatory procedure at establishing of a price is partially paid care from health insurance or unpaid health care. From the point of view of obligation exercise of these economic procedures of price establishing in the context of legal regulations it can be stated that they must be performed in case when a patient must have financial share in health care. The exception is fees that are intended with law.

Nowadays in society heated discussion about installation of standard and above standard health care as something wholly new is going on. It is passed the fact that in the year 1997 with the authorization of the Act no. 48/1997 Sb., as amended by more recent regulations, it was determined a part of health dental care as unpaid from health insurance at use so called non-standard material. The attachment no. 1 of this legal regulation e.g. determines use of quality material of dental fillings as unpaid from health insurance besides other things [5]. Practically in that time it become division of health care into standard and non-standard even though in small extent. With this determination just dentistry medical organisations was obliged to proceed according to price regulations and determine the price of this unpaid care with firm procedure at establishing of a price including comprising of adequate profit into a price. These principles, where the price of unpaid health act is determined with firm procedure at establishing of a price, are in current innovations of the Act 48/1998. Innovations are based on a change of name to "health services" besides other things.

## 2.2 History of the Regulation

From the year 1990 the powers of price regulation in health service were in the administration of Finance Ministry which manages the system with its public notes and price journals. Legal awareness of regulated subject was consolidated with frequent control by relevant Finance management with frequent negative conclusions which could be found in price journals of Finance Ministry.

Legal standards regarding price regulation were changed significantly in 2008. With the Act no. 261/2007 Sb., about stabilization of public budgets, it was changed the Act no. 265/1991 Sb., about body province of the Czech Republic in the price field, as amended by more recent regulations with the effect from 1st January 2008, and province at price exercising and regulation at health acts, healing preparation, foods for specific medical purposes, dentistry products and health drugs/preparations was transferred from Finance Ministry to Ministry of Health. This changeover caused significant change particularly in the field of price regulation of dentistry products and acts in the field of unpaid or partially paid care according to the Act no. 48/1997 Sb., as amended by more recent regulations. The interpretation of legal regulations influenced with this change was that obligation of obligatory procedure at establishing of a price was

cancelled. The result was factual cancellation of price regulations of dentistry surgeries. According to the journals of Finance Ministry published from 2008 to 2009 any medical organisations was not controlled.

In dentistry care sector become to the situation when it was possible in case of unpaid care from health care to charge the price that was not declared with obligatory procedure at establishing of a price in any way. This situation lasted until the end of the year 2009. The change of the Act no. 403/2009 Sb., amount 130, from the date 18th November 2009, caused practical obligation of price establishing. In the year 2010 frequent controls of medical organisations were realized as price journal MF 2/2011, amount 3 declares. The awareness of the obligation to make register of price establishing got higher value.

### 3 Research Aim and Formulation of Hypotheses

The aim of the research was to find out influence of obligatory procedure at establishing of a price on stability of income of medical organisations. Presented research was focused on dental care sector because with the influence of the Act no. 48/1997 Sb., as amended by more recent regulations, this part of health care in terms of complicated management of prices was the longest time.

Basic supporting factor of the research is presumption of change in terms of price establishing. Liberalization of price regulation in dental care sector in 2008 and 2009 could be reflected into the stability of income of medical organisations. It was observed percentage growth or decrease of income of observed medical organisations among adjacent annual cycles.

#### 3.1 Research Question and Research Hypotheses

On the basis of research aim it was stated this research question:

- Do changes in obligation of obligatory procedure at price establishing have effect on stability of income of medical organisations?

On the basis of own research aim it was stated following hypothesis [9]:

- $H[0]$ : It is not difference in incomes of medical organisations in period with different obligation of price establishing.

Alternative hypothesis is:

- $H[1]$ : It is difference in incomes of medical organisations in period with different obligation of price establishing.

#### 3.2 Research Complex

Analysis drew from practical activity of economic company dealing with consultancy in manager decision making. Questionnaires have been offered regularly every year from the year 2005.

Dentistry organisations from whole CR were focus group. Registers IHIS (Institute of Health Information and Statistics of the Czech Republic) were database of respondents. The number of the questions in the form was 30. It was used only one for needs of this analysis. Deadline of this analysis was stated on 30th September 2011.

|                                  |             |
|----------------------------------|-------------|
| Period of demand analysis        | 2005 - 2011 |
| Number of sent questionnaires    | 5600        |
| Number of returned and filled in | 1767        |

*Table 1 Extent and Efficiency of Questionnaires (Source: Nikorjak [3])*

Researched parameter was total income (TR) of medical organisations in dental care sector in the period of accountingly closed year. The source of income was payments from health insurance companies and income from patients. While income from health insurance companies subjects to contractual price agreement and practically has not market impact, income from patients is influenced with market mechanisms and the price that is regulated with price regulations. The exception is regulation fees which are firm and according to their name they serve for influencing of demand. The income from fees has significant influence on income increase of surgeries in the year 2008 when it was the first step with effect of change in the Act no. 48/1997 Sb. in as amended by more recent regulations. In this observed year the growth of income was at average 5.3%, it is the highest year-on-year average in whole observed complex.

Researched period was bounded with years 2004 - 2010. This period constitutes quality character  $\xi$ . In chosen years, it was compared the growth or decrease of TR income of observed medical organisation to previous year. It is quantity character  $Y_{ij}$ .

$$y_{ij} = \left( \frac{TRx_i}{TRx_{i-1}} \right) - 100 \quad (1)$$

For starting they were chosen such medical organisations that fulfilled the condition of data existence of two followed periods at the same medical organisation. Another important condition was unchangeable volume of service providing among xi period and given number of doctors and identical surgery time. 950 organisations complied

in total from 1767 original ones. Given complex was from whole CR. Various conditions of price regulation in individual periods of quality xi characters showed on various numbers of y<sub>ij</sub> quantity characters in individual periods, caused with decreased or increased inquiry for services in primary data source. The results were also transferred into several graphic representations that show the distribution of values around zero change of incomes (see at figure 1 to 7).

Figure 1.

Graphical representation of the scattering values of 2004 - 96 measurements. Source: Author's own

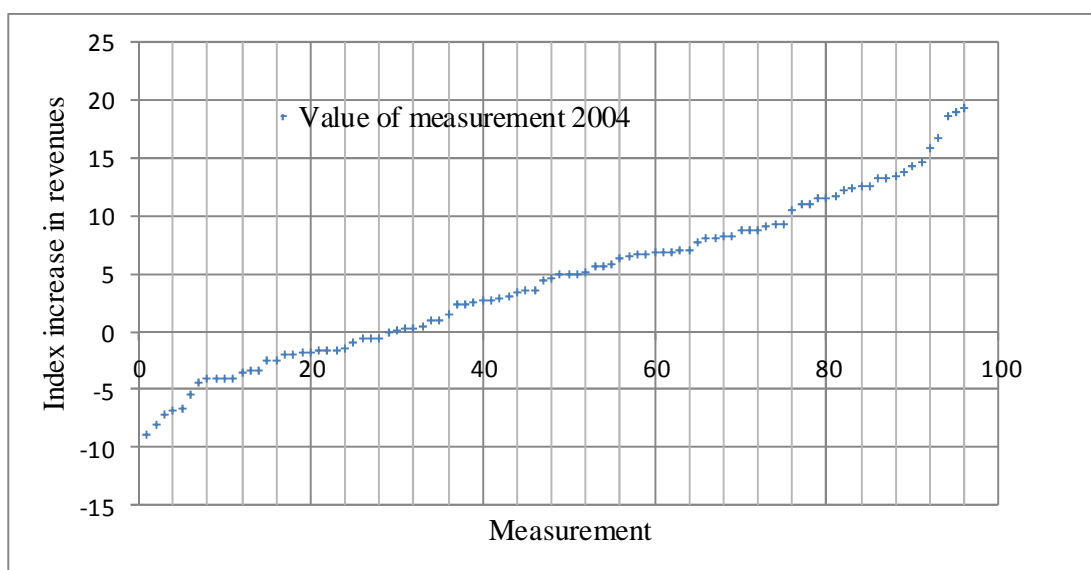


Figure 2.

Graphical representation of the scattering values of 2005 - 155 measurements. Source: Author's own

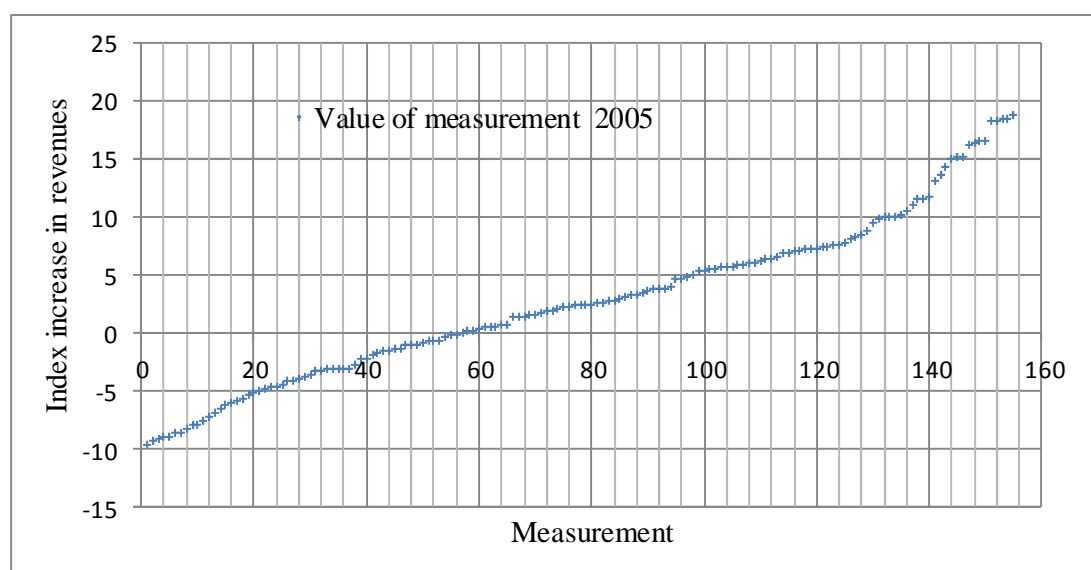


Figure 3

Graphical representation of the scattering values of 2006 - 198 measurements. Source: Author's own

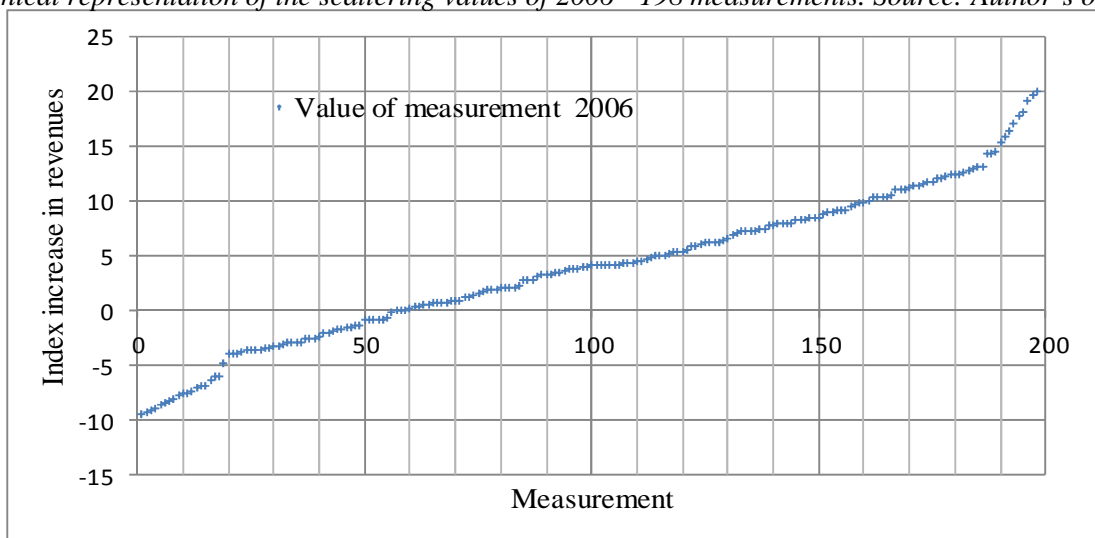


Figure 4.

Graphical representation of the scattering values of 2007 - 100 measurements. Source: Author's own

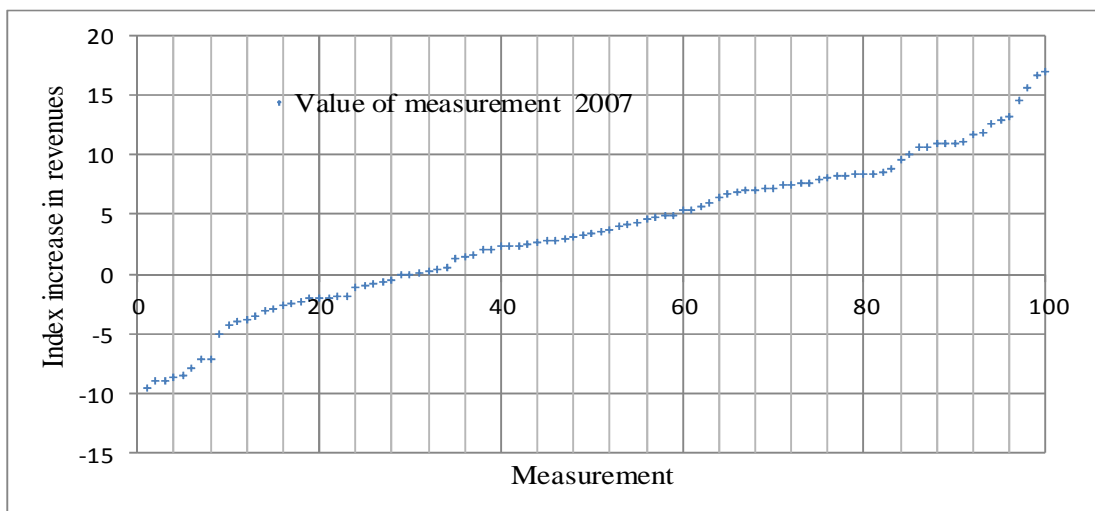
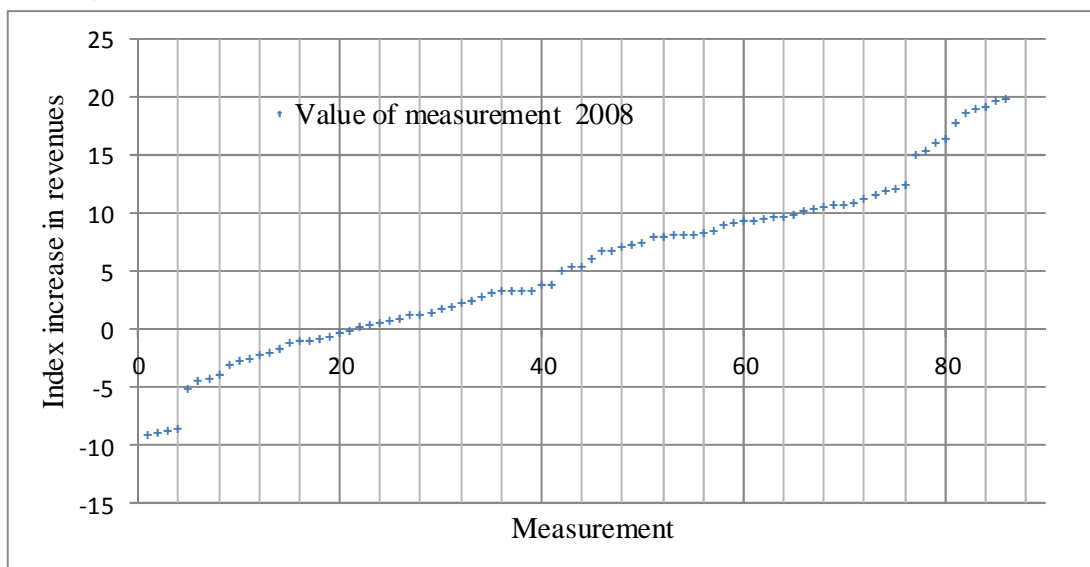


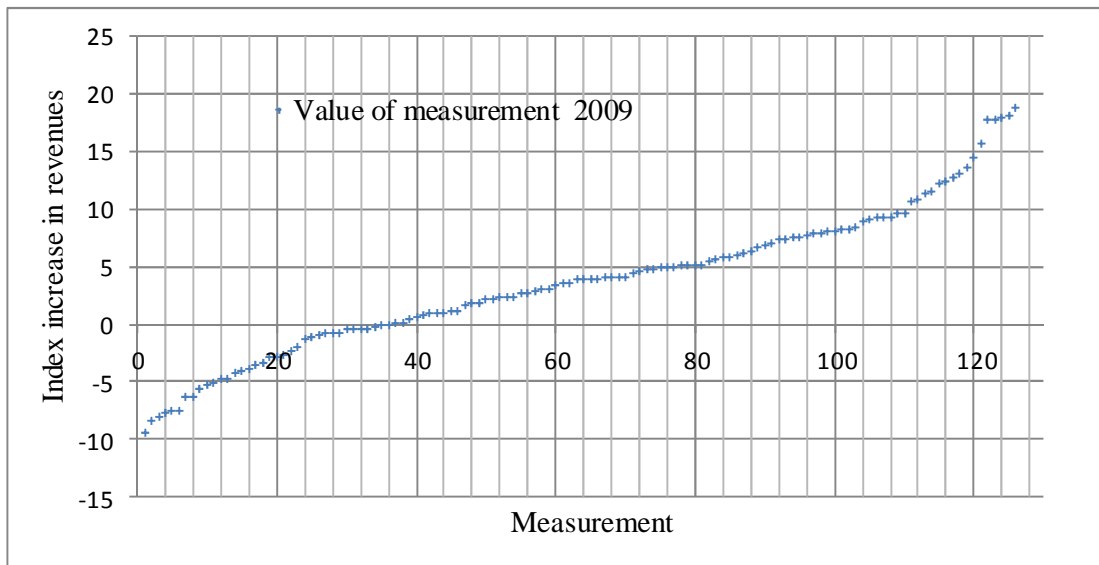
Figure 5.

Graphical representation of the scattering values of 2008 - 86 measurements. Source: Author's own

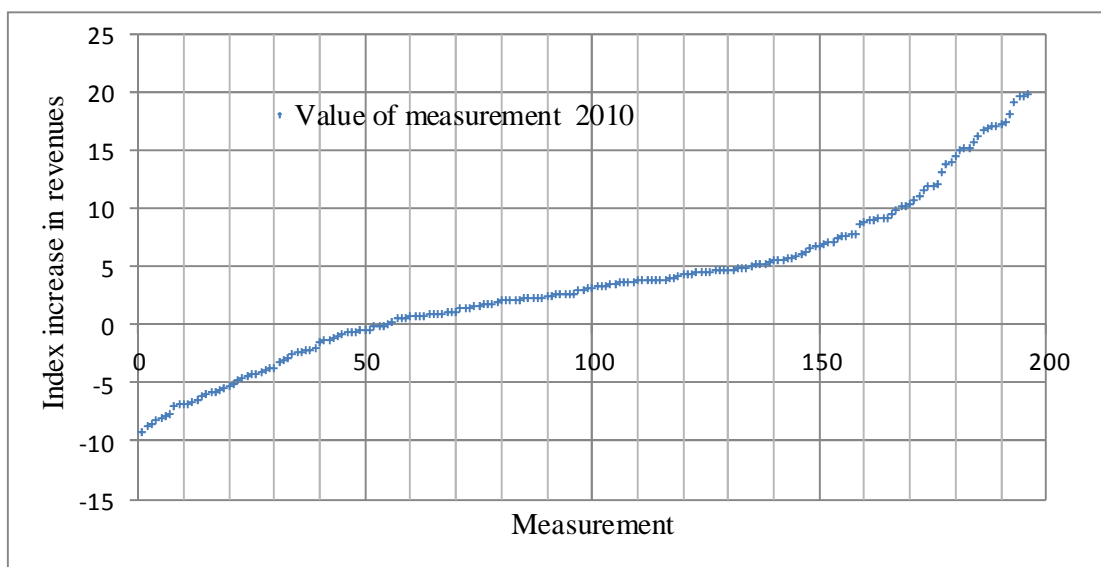


*Figure 6.*

*Graphical representation of the scattering values of 2009 - 126 measurements. Source: Author's own*

*Figure 7.*

*Graphical representation of the scattering values of 2010 - 126 measurements. Source: Author's own*



### 3.3 Data Processing

For basic data processing and data selection it was used MS Excel programme for statistic analysis, then MS Excel programme - Data Analysis - "ANOVA one factor". This tool performs simple dispersion analysis of data from one or more selections. Analysis tests the hypothesis which supposes that individual selections come from the same basic division of probability, in comparison with alternative hypothesis which supposes that basic division of probabilities is not same at all selections. Further it supposes normally divided character with parameters  $\mu_0, \sigma$ .

### 3.4 Dispersion Analysis

Before data processing in programme "MS Excel - Data Analysis - "ANOVA one factor it was needed to determine the level of importance  $\alpha$ . It was chosen the value **0,05**.

The results in table no. 2 show that it was calculated value **P = 0,124**. Because  $p\text{-value} = 0,124 > 0,05 \Rightarrow$  we accept  $H_0$ . **It is not difference in incomes of medical organisations in period with different obligation of price establishing.**

| ANOVA     |        |          |          |            |
|-----------|--------|----------|----------|------------|
| Selection | Number | Sum      | Average  | Dispersion |
| 2004      | 96     | 426,3302 | 4,440939 | 44,60672   |
| 2005      | 155    | 428,5547 | 2,764869 | 47,22097   |
| 2006      | 198    | 757,5405 | 3,825962 | 43,57971   |
| 2007      | 100    | 350,4285 | 3,504285 | 37,9884    |
| 2008      | 86     | 456,2312 | 5,305013 | 49,14667   |
| 2009      | 126    | 455,483  | 3,614945 | 37,45101   |
| 2010      | 196    | 672,7692 | 3,432496 | 41,81514   |

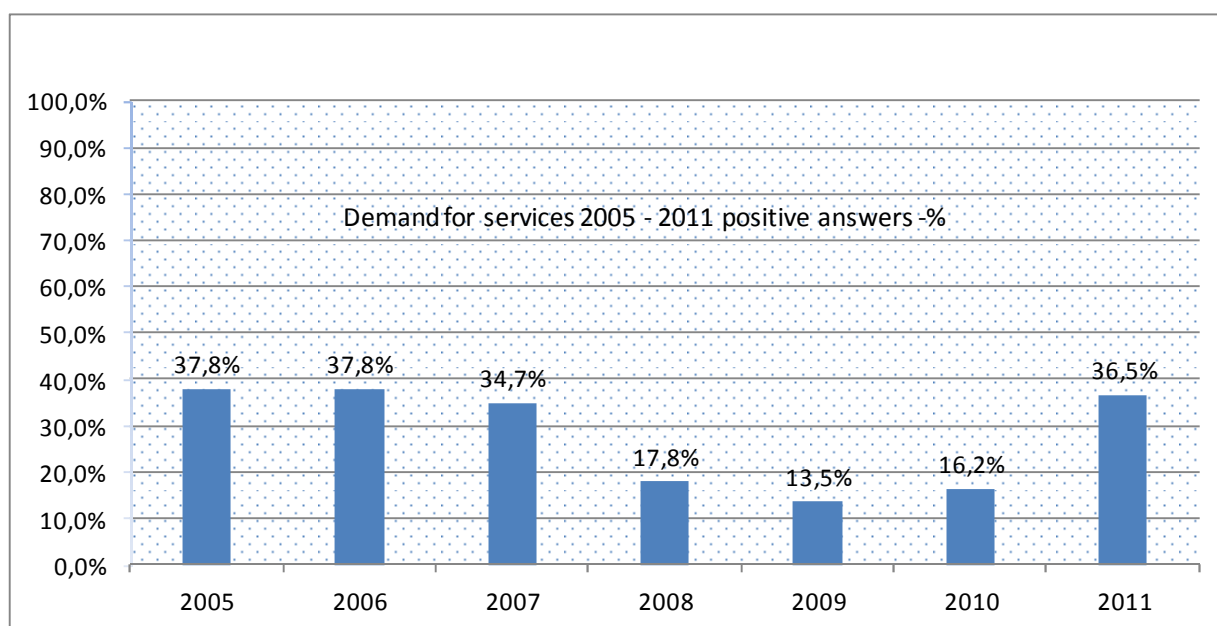
| ANOVA              |       |            |       |      |              |        |
|--------------------|-------|------------|-------|------|--------------|--------|
| Variability source | SS    | Difference | MS    | F    | P            | F krit |
| Among selections   | 431   | 6          | 71,94 | 1,67 | <b>0,124</b> | 2,108  |
| All selections     | 40868 | 950        | 43,0  |      |              |        |
| Total              | 41300 | 956        |       |      |              |        |

Table 2 ANOVA (Source: Nikorjak [3])

## 5 The Analysis of the Demand for Services

Consent is data source from the form of the questionnaire of this analysis - marking of "Yes" answer with an order of performance of economic analysis of price determination in medical professionalism of general dental practitioner. In the analysis there was processed 1796 positive answers in total. In total it was made the offer to 6509 subjects.

Figure 8.  
Demand for services 2005 - 2011 positive answers - %. Source: Author's own





As Figure 8 shows, the demand for services in the period of the years 2008 – 2010 decreased significantly with the influence of cancelled obligation of the obligatory procedure at price establishing.

In the year 2005 it was addressed 806 respondents. On the questionnaire 305 respondents reacted positively as it was 37.8% of all inquired ones. The year 2005 belonged for observed sector to the periods with the obligatory of registration and price establishing from the point of view of price regulations published by Financial Ministry CZ.

In the year 2006 it was addressed 864 respondents. On the questionnaire 327 respondents reacted positively as it was 37.8% of all inquired ones. The year 2006 belonged for observed sector to the periods with the obligatory of the registration and price establishing from the point of view of price regulations published by Financial Ministry CZ.

In the year 2007 it was addressed 880 respondents. On the questionnaire 327 respondents reacted positively as it was 37.8% of all inquired ones. The year 2007 belonged for observed sector to the periods with the obligatory of registration and price establishing from the point of view of price regulations published by Financial Ministry CZ.

In the year 2008 it was addressed 864 respondents. On the questionnaire only 161 respondents reacted positively as it was 17.8% of all inquired ones. The year 2008 belonged for observed sector to the periods when the meaning of law was inaccurate and the obligation of the registration and price establishing was limited strongly. Price regulations for given sector were published by Ministry of Health CZ on the basis of the changes according to the Act no. 265/1991 Sb., about the province of the body of the Czech Republic in the field of prices, as subsequently amended.

In the year 2009 it was addressed 910 respondents. On the questionnaire only 123 respondents reacted positively as it was 13.5% of all inquired ones. The year 2009 also belonged for observed sector to the periods when the meaning of law was inaccurate and the obligation of the registration and price establishing was limited strongly. The price regulations for examined sector managed Ministry of Health CZ.

In the year 2010 it was addressed 1025 respondents. On the questionnaire 166 respondents reacted positively as it was 16.1% of all inquired ones.

In autumn 2009 the meaning of price regulations was changed and so the year 2010 belonged for observed sector to the periods with the obligation according to these standards. The price regulations

for examined sector were managed by Ministry of Health CZ. In spite of the fact that the obligation so called subject regulation of prices for examined sector was renewed, the demand was influenced primarily with respondent ignorance of this legal fact.

In the year 2011 it was addressed 1120 respondents. On the questionnaire 409 respondents reacted positively as it was 36.5% of all inquired ones. The year 2011 belonged for observed sector to the periods when the obligation of the registration and price establishing were valid and they knew this fact. Price regulations for observed sector were managed by Ministry of Health CZ. In the year 2011 the demand for these services acquired origin value.

## 6 Conclusion

The result of dispersion analysis shows to stability in the field of incomes of dentistry medical organisations. The release of prices alludes to market mechanisms, their possible intense increase obviously does not give increased income because the inquiry decreases and it is lead to the field of fully paid care. Fully paid care actually makes permanent global competition of free price establishing. It is valid when given medical act is fully paid from health insurance simultaneously at some conditions. All these factors increase the need of practical and theoretical knowledge in the field of economy and increase the inquiry for services of economic character.

The stability in incomes also indicates inexpedience of price regulation in observed field. Efficiency of market mechanisms apparently exceeds the potential of arbitrary and non-managed increase of prices.

The analysis of the demand for services of price regulation shows significant influence on the change in legal regulations. Contrary to the analysis of price index, the demand for the services decreased with the influence of cancelled obligation of obligatory procedure at price establishing from 37.8% to 13.5%. The decrease of the demand by tens per cent shows strong influence of the obligation of the price regulation on the demand for services of economic character. Such decrease of the demand disturbs running of any company significantly and it can be faced only with suitable portfolio of offered services.

The services provided in the period once during one year belong to the services with tactical decision making. In these environments, portal-based IT platforms will integrate multi-agent collaborative

systems, collaborative tools, different enterprise applications and other useful information systems [10]. Therefore it is suitable to extend the offer with flexible services such as accountancy or even other ones added with a solution of the connection of information systems which help in effective decision making. In business we can deal with critical and urgent decisions every day and the performance of our work depends on their quality [11].

In spite of the fact that the decrease of the demand for services was significant, it can be stated, that the service was put into practice from now on and it shows on its usefulness in decision making in observed sector and the reason of its existence even in case when the obligation of economic analyses of price establishing is not ordered with law directly. It is needed to count with significantly lower demand.

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