

# PRICE REGULATION MODEL FOR POSTAL SERVICES

Libor Švadlenka<sup>1</sup>, Daniel Salava<sup>2</sup>

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*Summary: The method of price regulation of the domestic postal services within the regulation used in the Czech postal sector is not suitable. A more effective and more transparent method of price regulation of postal services would be the price-cap method which is already used in several EU member states. There is the need to consider the necessary scope of that price regulation, i.e. which concrete postal services should be regulated before the application of this regulation method.*

*Key words: regulation, prices, postal services, price-cap, model.*

## INTRODUCTION

Postal sector regulation can be understood as a part of complex of government regulation processes, which is applied above all for the reason of possibility of correction of important market failures. As main causes of it can be mentioned e.g. deformed prices, quantities and incomes. These characters of imperfect competition arise especially when the sector output is offered by a small number of firms. There are two main sources of imperfect competition, the cost conditions (especially economies of scale and scope) and competition barriers (patents, licences, product differentiation etc.) (1).

Postal sector is an example of this imperfect competitive market due to the existing economies of scale and scope (cost conditions), with which the postal sector can come near to the theoretical market situation – extreme natural monopoly. Regulation in postal sector is caused by state obligation to ensure accessible “basic” postal services for the inhabitants. For these reasons it is evident that the Czech postal sector regulation is unavoidable under the current conditions.

## 1. CURRENT CONDITIONS OF PRICE REGULATION ON POSTAL MARKET

The Act of the Czech Republic No. 221/2012 Coll. on postal services as amended sets out that the prices of the basic services, have to result from economically justified costs associated with the provision of such services. Prices of these services have to be also generally acceptable, accessible for all the interested persons and they have to be set transparently.

The current method of price regulation of domestic services used in the Czech postal sector by ex ante regulation regarding by cost-based prices is not suitable and sufficient either for universal service providers or postal service users, which are affected by some

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<sup>1</sup> Doc. Ing Libor Švadlenka, Ph.D., Univerzity of Pardubice, Jan Perner Transport Faculty, Department of Transport Management, Marketing and Logistics, Studentská 95, 53210 Pardubice, Tel.: +420 466 036 375, E-mail: [libor.svadlenka@upce.cz](mailto:libor.svadlenka@upce.cz)

<sup>2</sup> Ing Daniel Salava, Ph.D., Univerzity of Pardubice, Jan Perner Transport Faculty, Department of Transport Management, Marketing and Logistics, Studentská 95, 53210 Pardubice, Tel.: +420 466 036 394, E-mail: [daniel.salava@upce.cz](mailto:daniel.salava@upce.cz)

disadvantages. Universal service provider is constrained by the fact, that the prices are not in their competence and it lies “de facto” at the mercy of related ministry and their price decisions (often with some political context); postal service users – they similarly have to rely on one-off decisions of ministry without any transparent relation to the general price development in the Czech Republic.

Whichever the proposed method of price regulation of the Czech postal sector it should respect the following requirements:

- ensuring the provision of the universal service at affordable tariffs,
- furthering the interests of postal users wherever appropriate by promoting effective competition,
- encouraging efficiency and economy of the universal service provider,
- having regard for the need to ensure that universal service provider (licence holder) can finance their licensed activities,
- transparency,
- avoidance of perverse incentives.

## 2. SUGGESTION FOR PRICE REGULATION OF POSTAL SERVICES

Complying with the above mentioned requirements, the optimal method of price regulation of the Czech postal sector seems to be the price-cap regulation with tariff formula  $RPI - X$ , where  $RPI$  is the factor taking into account the inflation and  $X$  is a motivation factor taking into account, for example, the need of investment. This formula takes into account the development of the relevant input factors, with the coverage of the price regulation according to the result of competitive environment test (apparently comprising nearly all universal services provided by the Czech Post) and with two – five years regulation period. Concrete fulfilment of the proposed price-cap regulation model can be found in (2).

The proposed price regulation model is based on the price-cap regulation with tariff formula  $RPI - X$ , with coverage according to the result of the competitive environment test and with two years regulation period.

Initial for this method of price regulation is the dismemberment of regulated services into the so-called price (tariff) baskets, namely:

- letter items and valuable letter items including their complementary services ( $A$ ),
- parcels including their complementary services ( $B$ ),
- postal orders including their complementary services ( $C$ ),
- other obligatory services ( $D$ ).

Each of these tariff baskets is extra monitored, and so there would be no cross subsidies among them, i. e. each of these price baskets fully covers his allocated costs.

Price regulation within baskets  $A$ ,  $B$ ,  $C$  has to meet these fundamentals:

- the regulation has to take into account the total price of the tariff basket,
- the regulation has to take into account the input changes,
- price changes will be realized on dates defined in advance.

As a matter of fact, the National regulative authority (further in the text: NRA) defines for each basket individual price-cap based on the resulting estimated revenues. Thus, the Czech Post management has full competency to set prices for particular weight step of items (based on its marketing experience) and their interrelated services in a particular basket. There is the possibility of defining one fixed price (if needed), for example, for letter items up to 20g. Thus, the management will not be allowed to ensure for themselves such a high revenue from the most common weight step (20g) of a particular basket, and the management will not be forced to undertake any active price policy in other weight steps of a particular tariff basket.

Price regulation within tariff basket  $D$  will be enforced only if needed and the form will be the maximum prices.

Each of the tariff baskets  $A$ ,  $B$ ,  $C$  involves all the particular services and the frequency of individual services in the basket responds to the real frequency during the period of one year.

It is necessary to calculate the level of price-cap for the expected reality in the half of the period, when the price-cap is in force, i.e. there is the necessity to estimate (based on the development in the past) the rate of inflation and further relevant characteristics similarly to how the price-cap would be defined in the half of the period. In this way the Czech Post has the benefit in the first half of the regulation period when it profits from the difference between the inflation and the value of other characteristics at the beginning of the period and halfway through the period, whereas in the second half of the period the Czech Post is emasculated. So the motivation of this price-cap method lies in the fact that there is scope for the management of the Czech Post to mobilize its activities (the Czech Post has higher revenues without any effort in the first half of the period) to do some rationalization actions, to increase labour productivity (etc.) in order to be able to get profit in the second half of the period as well. So it means that the acquired company's profit even creates the scope for the price reduction.

This method does not exclude cancellation of the already set price-cap in case of extreme inflation accumulation and sets the new one within the same principles.

The base is to set the initial price-cap of tariff basket  $P_0$  on the basis of the Czech Post cost calculation of individual services included in the relevant basket. At first, it is useful to do an audit by independent auditory company, which would investigate both objective affiliation of common costs to individual regulated and unregulated services and justifiability of the showed costs. The audit should assure fair-minded setting of the above mentioned initial price-cap.

This initial price-cap  $P_0$  of individual tariff baskets will be verified by tariff formula (1) in two-year intervals.

The new total price of individual tariff basket (there is a basket of letter items as a model in this paper) within the Czech Republic postal sector is established in the following way:

$$P_1 = P_0 * (I_i - X) \tag{1}$$

$$I_i = (a_{sc} * I_{sc}) + (a_{cops} * I_{cops}) + (a_{cpv} * I_{cpv}) +$$

$$+ (a_{ct} * I_{ct}) + (a_{cvnd} * I_{cvnd}) + (a_{cpo} * I_{cpo}) + a_0 \quad (2)$$

where:

- $P_0$  – original price of tariff basket,
- $P_1$  – new price of tariff basket,
- $X$  – decision-making factor – range from 0 to 0,04,
- $I_i$  – input inflation index,
- $I_{sc}$  – customer price index,
- $I_{cops}$  – other business services price index,
- $I_{cpv}$  – industrial producer price index,
- $I_{ct}$  – telecommunication price index,
- $I_{cvnd}$  – domestic freight transport price index,
- $I_{cpo}$  – insurance price index,
- $a_{sc}$  – take of personal costs on total costs,
- $a_{cops}$  – take of costs on other business services on total costs,
- $a_{cpv}$  – take of costs of purchase from industrial producer on total costs,
- $a_{ct}$  – take of costs of telecommunication services purchase on total costs,
- $a_{cvnd}$  – take of costs of transport services purchase from external companies on total costs,
- $a_{cpo}$  – take of costs of car and property insurance on total costs,
- $a_0$  – take of costs exempt from inflation on total costs.

NRA fix the level of decision-making factor  $X$  in particular on the basis of judgment of investment necessary and the possibility of its funding by productivity increase. Its (factor  $X$ ) allowed range should be between 0 and 4% (for a two-year period), which is in compliance with the range of analogical factor used in the formula for the telecommunication sector. This factor motivates the company to increase the demand for its services, which is crucial for setting the prices in the postal sector.

Price increase means transmission of inflation impact to relevant inputs, which is evident from Equations 1 and 2. The inflation impact is specified by way of the weighted average of the inflation index of individual cost group.

The construction of input inflation index  $I_i$  results from the concept of taking into account the relevant costs of the Czech Post, which has crucial impact on the resulting price of the regulated postal services.

The dynamic and transparent relevant costs monitoring is ensured by linking individual cost groups to accessible price indices, i.e. to suitable price indices monitored by the Czech Statistical Office (further in the text: CSO).

At first, the costs (respective cost groups) have to be set, which have significant impact on the resulting price of the regulated postal services. These cost groups are set based on the analysis of the economic activity statement of the Czech Post and price indices (monitored by CSO) judgment. Then the cost groups are linked to selected CSO monitored price indices.

Personal costs are the most important expense item, which has significant impact on the resulting price (more than 60% on total costs), which is evident from the character of postal services. Personal costs are then linked to the customer price index  $I_{sc}$ .

Other costs that have crucial impact on the resulting price of regulated postal services (in compliance with the classification and contents of CSO price indices) are:

- costs on other business services,
- costs of purchase from industrial producer,
- costs of telecommunication services purchase,
- costs of transport services purchase from external companies,
- costs of car and property insurance,
- costs exempt from inflation.

These cost groups are linked to the below mentioned price indices:

- customer price index,
- other business services price index,
- industrial producer price index,
- telecommunication price index,
- domestic freight transport price index,
- insurance price index.

The calculation of coefficients  $a_{sc}$ ,  $a_{cops}$ ,  $a_{cpv}$ ,  $a_{ct}$ ,  $a_{cvnd}$ ,  $a_{cpo}$ ,  $a_0$ , (coefficients reflect the cost structure of the Czech Post) results from the Czech Post expense data (economic activity statement). The calculation of indices  $I_{sc}$ ,  $I_{cops}$ ,  $I_{cpv}$ ,  $I_{ct}$ ,  $I_{cvnd}$ ,  $I_{cpo}$  i.e. the calculation of their average values in the determined period results from the time series of individual price indices monitored by CSO.

The values of  $a_{sc}$ ,  $a_{cops}$ ,  $a_{cpv}$ ,  $a_{ct}$ ,  $a_{cvnd}$ ,  $a_{cpo}$ ,  $a_0$  coefficient can be set on the basis of the appropriate Czech Post foundations. But first, there is the need to adjust the total cost by the amounts, which are not related to the regulated services, i.e. extraordinary costs, financial expenses and goods sold.

Concretely, the equation for new regulated price should be as follows:

$$p_1 = p_0 * \left( \frac{100 + K}{100} \right) \quad (3)$$

where  $p_0$ ,  $p_1$  is original and the new price of standard letter items (up to 20g) and  $K$  is fixed percentage of price growth of the standard letter items during the regulated period (for example 3%).

Since there is general effort to reduce regulation procedures, the application of this instrument should be considered very carefully.

Finally, we should add that in case of application this price regulation method in order to set the maximum allowed price growth of the letter items basket in the current period, one of the time series extrapolative method for indices  $I_{sc}$ ,  $I_{cops}$ ,  $I_{cpv}$ ,  $I_{ct}$ ,  $I_{cvnd}$ ,  $I_{cpo}$  calculation has to be used.

## CONCLUSION

Postal sector price regulation results from EU Directive 97/67/EC requirements on this regulation and states individual types of price regulation focusing on ineffective price

regulation currently used in the Czech postal sector (especially within domestic services) and proposes a more effective method of price regulation. The principles of the proposed method of price regulation of the Czech postal sector may be discussed and concretely fulfilled of the price regulation model resulting from the price-cap and tariff formula  $RPI-X$  by concentration on its quantitative expression.

Finally, it is evident that the proposed price regulation model, based on the objective data input, is so transparent that the regulated company will not lie at the mercy of NRA and its political price plans, as opposed to the current price regulation method.

### **USED LITERATURE**

- (1) SAMUELSON, P. A., NORDHAUS, W. D.. *Economy*. Second Edition, Prague: Publishing house Svoboda, 1995. 1011 p. ISBN 80-205-0494-X.
- (2) GARAJ, V. *Econometric simulation*. Bratislava: Economic University in Bratislava, 1992. ISBN 80-225-0458-0.
- (3) MADLEŇÁKOVÁ, L. Poštový trh v SR. In *Perner's contact 2003, DFJP University of Pardubice*. Pardubice: University of Pardubice, 2003. pp. 18-25. ISBN 80-7194-524-2.
- (4) C. SCHWARZ-SCHILLING et al. Pricing Schemes in Liberalized Postal Markets. In *Competition and Universal Service in the Postal Sector*. Second conference Toulouse, December 2001. Available from: <<http://www.idei.asso.fr/Commun/Conferences/Autres%20Conf/Decembre2001/Papers/schwarz-S.pdf>>.