# NON-FLEXIBLE PRICES IN THE CZECH LANGUAGE MARKET

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**Abstract**

The aim of the paper is to reveal the principles described by various pricing theories and find those principles in the real pricing policies of language market subjects. The theoretical section deals with the three in microeconomics essential pricing theories, the neoclassical, the post-Keynesian and the Austrian. Then, I am commenting the results of my own research concerning the pricing policies of different private language schools. I use the notion of „relevant competition" to describe the reactive pricing policy of various language schools as reaction to the pricing changes of the others. Based on that concept I find the principles of pricing in the respective market by distinguishing the long and short-term policies. One of the mail findings of the article is that there is a significant difference between short and long-term pricing strategy in the language school market, when both of these strategies are based on different theoretical pricing concept. Nevertheless, both these theories lead to some respect to rigid (non-flexible) prices.

**Key words:** prices, pricing strategy, price rigidity, imperfect markets

**JEL Code:** D21, D40, D81

## Introduction

In this paper[1] I deal with a specific sphere of interest, the market of language education in the Czech Republic. The paper consists of two main parts and the conclusive application. In the first part I summarize different approaches to the pricing theory in modern microeconomics and in the second the formation of price in the specified sphere is thoroughly described. The

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conclusion is an attempt how to combine the theoretical and practical parts and how the built theoretical apparatus can portray the principles of pricing at the examined market.

In the first part, I engage in the three main economic approaches, i.e. the classical, or rather neoclassical, post-Keynesian microeconomics and the Austrian movement. Each of those approaches (and I accept that in terms of magnitude and acceptance we can't compare the neoclassical with the other "marginal" two) deals with the pricing problem with its distinctive manner, be it the market equilibrium or the optimum of the producer.

I was brought to the research of prices in the language market by my professional experience and by some findings I have made in recent years, especially in relation to overall market changes. The target of this research is not only to point out the specifics of one market, but to reveal more general mechanisms working in the tertiary sector in the Czech Republic.

# 1 Pricing in microeconomic theory

The basic doctrine of microeconomics says that the price established in the market is the counterbalancing of supply and demand. No matter how generally and even to the layman comprehensibly this proposition sounds, we should never be satisfied by mere sticking to it. Once we pursue to enquiry other processes lying below equalizing supply and demand, we have to ask what those powers are determined by. I am far from saying that we should study one without the other; however, I am going to focus on the supply side, which in my opinion is primary for the theory of firm.

## 1.1 Neoclassical theory of price

I start with a simple model of neoclassical pricing system. I use a two-period model of imperfect competition where a firm has to take into account prices and quantities in the last period, so the pricing function will be following:

$$p_1 = f\,(p_0, q_0, p_c, q_c, \theta)$$

where $p_1$is the actual price, $p_0$ is price in previous period, $q_0$ quantity in previous period, $p_c$ competitors' price in previous period, $q_c$ competitors' quantity in previous period and $\theta$ is the individual factor of company pricing policy

The *θ-factor* is the company's sensitivity to demand of the previous period and to realization of their own expectations. Pricing is then a sequence of all those functions that bear all the

information about previous sales and information about competitiveness of the business environment.

### 1.2 Austrian pricing theory

Regarding to our topic, the Austrian approach is very different from the classical, because the value-making quantity for the producer shouldn't be cost but (the same as with the consumer) utility. Than the seller can evaluate, if the amount of cash after the exchange brings higher utility than the amount without the exchange. Austrian economics doesn't see production cost as objective category[2] and therefore it assesses the utility from the exchanged cash in a very subjective way. But this subjective perspective includes a very important category, opportunity cost.

In comparison with the classical Marshalian economics, the Austrians come to more or less similar results, nevertheless their explanation of pricing and others aspects of the theory of firm is (due their subjectivism and monism) rather ponderous.[3] Moreover, this system has the same problem with the static character of this issue. The Austrians have come with the idea of market as perpetually rotating, which means the market is still moving. That's why the equilibrium price has almost no importance for them. Whenever is any market process on, the market conditions are always dynamically adjusting according to all undergoing processes.[4]

### 1.3 Post-Keynesian theory of price

The third group of ideas I want to deal with, is the doctrine based on the work of J. M. Keynes. The so-called post-Keynesian theory of economics started to form itself soon after WWII and was gradually developed until the 1970's. I want to deal here with the explanations of the basic (post)Keynesian proposition about the inflexibility of prices.

Lee (1998) distinguishes three basic theories that formed post-Keynesian pricing theory: theory of mark-up prices, theory of normal cost prices and theory of administered prices (or target rate of return pricing theory). All three concepts differ in the aspect of producers' motives how to set up prices for their goods and services. Referring to Lee,[5] differences are caused by different cost-accountant systems. The result is the same, the non-flexibility of prices that don't equalize according to neoclassical principles of economics.

[2] Kindlová, 2003, s. 50.
[3] Sojka, 2010, s. 177; Holman, 2005, s. 252.
[4] As one of the main differences we should also mention that Austrians don't see it necessary to deal with different market structures (Kindlová, 2003, s. 64).
[5] Lee, 1998, loc. 2341.

Blinder (1991) has done an interesting research in that he wanted to explain why prices are non-flexible and why they don't accommodate to market transactions. Based on controlled interviews with directors and managers of American companies he tried to identify roots of non-flexibility. He has put together twelve post-Keynesian explanations of price rigidity and inquired the relevance these explanations are employed in real company decisions.[6]

The controlled interviews showed that in practice[7] price rigidity could be explained only by four of these theories – additional services, coordination failures, cost-based pricing and implicit contracts. The cost-based theory is one of the most important for our analysis and I will pay special attention to it in the second part of this paper. It is the cost-based approach making the pricing policy that becomes one of the most important factors of pricing.

# 2 Prices at the market for language services

The language market is quite differentiated because different subjects on the market offer larger scale of different products. In order to compare the pricing policies, I have to specify one reference unit / product. This product shall be instruction of general English (for non-English speaking people) provided for a corporate client at his premises. Unit of this product will be one teaching unit, i.e. 45 minutes. I will further limit the product locally to Prague. In the following, I pursue the aim to capture the process of price formation both in short-range and long-range aspects.

## 2.1 Basis of pricing and other market characteristics

How a company in the language school market decides about its products' (namely our reference-product's) prices? From the author's experience we can derive two basic methods - method considering the competitive environment and method of cost-based pricing.

The point of departure is the competitive nature of the market, specifically prices set by competing businesses and established in the market. I work on the assumption that there is no perfect competition in this market and the company is not a price-taker; however, it can't set up the price absolutely freely. Such a company has to consider its *relevant competition* and the price level of it. Then, the subject is endowed with restrained pricing freedom.

## 2.2 Relevant competition

[6] All of the 12 exaples can be found in Blinder, 1991.
[7] The target group were American companies with annual revenues over USD 10 millions.

This term defines the competition a firm is taking into account in benchmarking.[8] Within a broadly defined market there are companies that are closer in specific aspects. They make the inner segment of that market – the product group. This proximity is caused by following similarities: product, target group, style of propagation and inner structure/functioning.

I would estimate magnitude of that group within the language school market to 30-40 per cent. If we proceed from known numbers, we can say that there are some 80 companies that could be described as language schools (firms with more than three full time non-teaching employees, acting as agencies). That one product group of competitors is around 30 companies. Closer specification of that group might be for example, firms based in Prague, offering company in-house language training, having private Czech owner and/or Czech management. However, it is practically impossible for a subject to delimit itself with such a large product group. That's why we have to limit the real relevant competition to roughly one third, i.e. 10 subjects. It is only 10-15 % of the whole market that forms the relevant competition in our sense.

### 2.3 Price spread within relevant competition

I have made a price survey covering 13 subjects.[9] These schools were chosen as product group representatives and all others members of this product group would fit in the price spread based on these 13 subjects. The lowest price in the product group $p_L$ is 290 CZK, the highest $p_H$ 532 CZK. and the spread then $\delta_{PG}$ = 233. If we focus on the relevant competition of one of the schools, some of the subjects at the edge of the spectrum are eliminated and the number is lower. The new price spread is than:

$$p_{rL} = 344$$
$$p_{rH} = 500$$
$$\delta_R = 156$$

where *prL* is the lowest price within relevant competition group, *prH* the highest and $\delta R$ is the price spread within the relevant competition group. We have to realize that for every subject in the product group is the relevant competition different. So, in our next steps we have to use general formulation. For simplicity reasons, I use median of this quantity from all subjects in the group $\overline{\delta}_R$. This average price spread in the relevant competition is easy to put together

[8] Benchmarking in this meaning is not meant towards a specific competitor but a larger group.
[9] In alphabetical order: Akcent IH, Berlitz, Caledonian School, Channel Crossings, Glossa, JCL, Jipka, Noisis, Polyglot, Presto, Skřivánek, Spěváček, Ttime.

with the general spread of the product group and we gain an index that can be described as "price concentration index" or, more precisely, "product group price concentration index".

$$i_{pPG} = \frac{\overline{\delta_R}}{\delta_{PG}} \tag{1}$$

In our case this index yields

$$i_{pPG} = \frac{\overline{\delta_R}}{\delta_{PG}} = \frac{156}{233} = 0{,}67$$

An economic interpretation of this index is intuitional. It can yield values form 0 to 1. If the index value approaches 0, the market is very big and/or much differentiated. Either there are many subjects on that market that can freely set their prices according to their policies, or the specific product groups differ so much that they are not substitutable.

If the market price concentration index approaches 1, the market is very strongly concentrated in terms of price. The relevant competition price spread is very similar to whole market's spread. This means either the market is very small with low number of subjects or the products are to be substituted easily and one company cannot differ from the others by price.

The effect of the index at the price level is ambiguous. For example, in case of high value of the index there can be pressure to higher prices (if there is limited number of market subjects) but again to lower prices if there is high chance of substitutability. We get to competitive price influences below.

Now let's look closer at a specific company's situation. The figure 1a depicts the situation of marginal costs; figure 1b the situation of average costs.[10]

**Fig. 1a**

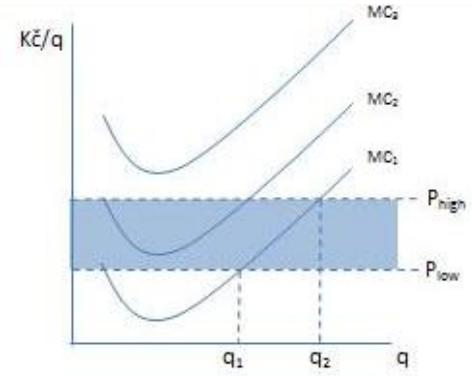
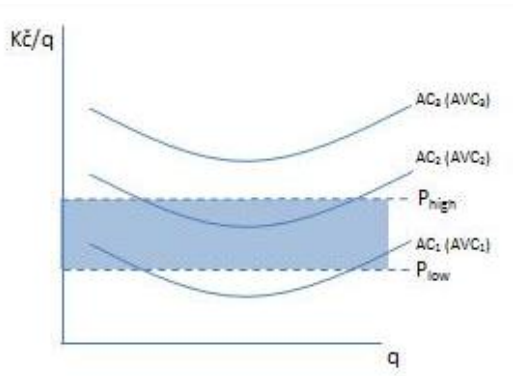



**Fig. 1b**




[10] In short-time period we can depict the situation in average variable costs as well.

In figure 1a we see the price spread as the highlighted area between $P_{high}$ and $P_{low}$ and various situation of representative firm's marginal costs. Despite the situation of perfect competition, the price is not represented by a horizontal line but by the marked spread. Different firms have different cost conditions and I expressed that by three possible MC curves. Firm seeking for an optimum by equalizing price and marginal costs is also restricted by its position in the price spread. In figure 1b, there is similar situation formulated in terms of average (variable) costs.

### 2.4 Competition – price impact

I have mentioned above that the competitive environment has an important short-term price effect. Let's formalize this a bit. If we accept the assumption that the individual demand curve of particular company becomes more elastic with more subjects being on the market, we can also assume that the price falls with increasing number of firms. This is expressed in the inverse elasticity rule setting that the difference between price and company's marginal costs is determined by the inversed value of demand elasticity.

$$MC = p_x(1+\frac{1}{\varepsilon_x}) \qquad (2)$$

where $\varepsilon_x$ is the price elasticity of demand for good x, $MC$ the marginal costs of production of good $x$ and $p_x$ is the price of good $x$

This can be after modification expressed as

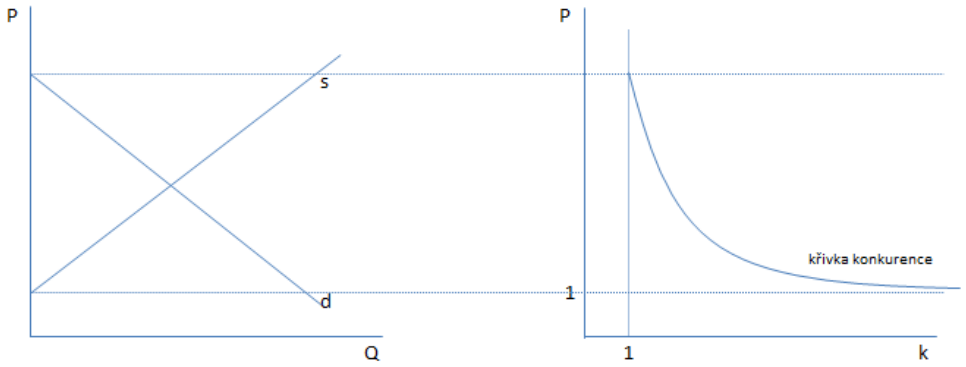
$$\frac{p_x - MC}{p_x} = -\frac{1}{\varepsilon_x}$$

Interpretation of this expression is obvious: the more elastic is the individual demand for company production, the smaller will be the difference between price and company marginal costs.[11] If we interpret further, we can say that the more companies are in the market, the lower will be the equilibrium price.

We can express this rule graphically in the following way:

[11] Hořejší a kol. 2006

**Fig. 2a** **Fig. 2b**




In figure 2a we can see the classical demand and supply curves in a product market. There is only one subject in figure 2b at the price level where demand curve intersects the vertical axis in figure 2a. The horizontal axis of figure 2b represents simply the number of market subjects. As this number rises, the price goes down, at first rapidly, later more and more slowly. That's why the competition curve is convex in *k*. On the other hand, if the number of market subjects grows and the price keeps falling down, there must be a boundary beyond which the number of subjects stays constant and becomes stable (perfect competition) and so does the price.

The curve itself can be described by a quantity called *marginal rate of market competitiveness – MRMC*. This rate is obtained as a proportion of rate of market magnitude changes and rate of price changes:

$$MRMC = \frac{dk}{dp} = \frac{MMM}{MMP} \qquad (3)$$

where *dk* is the change of market subjects, *dp* – price change, *MMM* (marginal market magnitude) – change of market subjects number and *MMP* (marginal market price) – change of price

## 2.5 Short-term pricing in the language schools market

Now we can get back to the issue of short-term pricing policy of language schools. Short-term period is defined as a period of one year, for that is the basic period in which language schools operate. During this period (it is a school year apparently) they don't change the teachers' contracts that are the main variable costs.

Firms base their pricing strategies on following principles:

- price is set within the price spread of relevant competition group,
- this spread makes about 67 % of the whole market price spread,
- within this spread, company can take advantage of price discrimination (1st degree) – they can set up prices accordingly to individual customer's demand,
- subjects assume that the competitors base their decisions on the same principles/assumptions.

Formally, we can set the price of i-th firm as:

$$p_i = \theta \times p_{rH} + (1-\theta) \times p_{rL} \tag{4}$$

where $p_{rH}$ is the upper boundary of relevant price spread, $p_{rL}$ is the lower boundary of relevant price spread, $\theta$ is normalized value of price elasticity of demand estimation $\theta = e^{\varepsilon}$, where ε is the of price elasticity of demand estimation.

### 2.6 Long-term pricing in the language schools market

It is easy to notice that there are no cost entries in the short-term pricing equation. That changes once we turn to long-term period. In long term company has to generate profit if it intends to stay in the market for more than a few periods.

This leads to a simple price equation:

$$p = (pc + oc) \times (1 + pm) \tag{5}$$

where $p$ is price, $pc$ is production cost (unit production cost, e.g. teacher's cost), $oc$ is unit operational cost and $pm$ is profit margin

We can reformulate the equation by solving for $pm$, so we can get:

$$pm = \left( \frac{p}{pc + oc} \right) - 1 \tag{6}$$

The pricing principle is based on the profit margin setting. Provided that a firm is only a price-taker, it has to accept the market price in the first period and afterwards it can use it for its own price setting. Therefore we can substitute (6) for period 1, into (5) for period 2. For simplicity reasons we replace production and operational costs by integrated cost function: $pc_t + oc_t = c_t$.

$$p_2 = c_2 \times \frac{p_1}{c_1} \qquad \text{or} \qquad p_2 = \frac{c_2}{c_1} \times p_1$$

and generally expressed as

$$p_t = \frac{c_t}{c_{t-1}} \times p_{t-1} \tag{7}$$

Now we see that we can eliminate the profit margin from the equation and express the price for period 2 only in dependence on previous period price and index of cost changes. The important assumption is that the profit margin stays constant between periods. If the *pm* changes as well, we have to supplement the equation by expression $pm_t/pm_{t-1}$ to express changes in the requested profit margin:

$$p_t = \frac{c_t}{c_{t-1}} \times p_{t-1} \times \frac{pm_t}{pm_{t-1}} \tag{8}$$

Based on (7) and its extension in (8) we can now define the pricing policies in comparison with theoretical approaches explained in the opening part of this paper.

One of the most important reasons for price stickiness was cost non-flexibility. We can see in (8) that unless the demanded profit margin changes, the price change is strongly linked to cost changes. Provided that they don't change, the price doesn't change either.

Cost stickiness is the main reason to price rigidity. However, we are able to embody the other sources of price-stickiness also. Even in the case of increasing costs the price can stay the same because of other reasons, e.g. implicit contracts. We can extend equation (8) by the index of implicit contract sensitivity (marked as $\gamma$). This index can range between 0 (maximal sensitivity to implicit contracts) and 1 (no sensitivity). Let's formulate the equation in difference form:

$$dp = \gamma(dc + dpm) \tag{9}$$

where $dp$ is change of price, $\gamma$ implicit contract sensitivity index, $dc$ cost change and $dpm$ profit margin change

## Conclusion

Thanks to analysis of pricing principles in the sector of language schools we were able to find important differences in pricing strategies between short- and long-term pricing. The short-term strategy focuses on the price setting in context of relevant competitors pricing policies, whereas the long-term strategy is based on cost (and profit margin) pricing. Both versions actually confirm that prices in the market show great amount of non-flexibility, but with completely different sources. This is the answer to my question about existence and sources of price stickiness. Differences between long and short terms are in reasons, not consequences.

By all means we can say that market subjects are at least partially price-makers, not mere strict price-takers. They can set up their prices arbitrarily, however in a specific range. The notion of relevant competition is therefore extremely important, for it delimits behaviour of the subjects towards competitors, especially towards their pricing policies. In the closing part I have delineated techniques of price making in the sector of language services with respect to short and long terms. It seems justifiable to think that this techniques work in a broader sphere, that is in other subsectors of tertiary sector, too.

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