

THEORY OF RIGID PRICES AND THE 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 main 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.

JEL CLASSIFICATION & KEYWORDS

■ D21 ■ D40 ■ D81 ■ LANGUAGE MARKET ■ PRICING MODELS

INTRODUCTION

In the paper presented here I set as a main aim to employ some of the microeconomic findings in the field of pricing. I have chosen 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 in the first part of the paper and the formation of price in the specific sphere is thoroughly described in the second. The conclusion is an attempt how to combine the theoretical and practical parts and how the built-on theoretical apparatus can portray the principles of pricing in the examined market.¹

In the first theoretical part, I engage in the three main economic approaches, i.e. the classical (or better to say) neoclassical economics, post-Keynesian microeconomics and the Austrian movement. Each of those approaches (and I accept that in terms of magnitude and acceptance we can hardly compare the neoclassical with the other "marginal" ones) deals with the pricing problem with its distinctive manner, be it the market equilibrium or the producer's optimal choice.

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

¹ This paper has been elaborated as affiliated result of the research Education as information registered by the Internal Grant Agency of University of Economics in Prague with evidence number IG307021.

general mechanisms working in the tertiary sector in the Czech Republic.

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 enquire 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, in this paper I am focusing on the supply side, which in my opinion is primary for the theory of firm as a main field of interest.

Neoclassical theory of price

The neoclassical theory of price is approach often used in many economics classes and currently it is the main economic concept. There are two main principles in it: the dual problem of economic theory and the superiority of demand. The dual problem emerges every time when there are two different standpoints on both market sides. Simply put: whereas customers follow the utility maximization theorem, the producers employ the cost minimization theorem. These two categories – utility and cost – and their duality help us to reveal processes on both sides of the exchange. The second principle here is the superiority of demand. This can be seen in the fact, that no matter how strong the producer's position is, he or she is always submitted to the supreme position of customer's demand and to customer's willingness to pay a specific price. Moreover, the neoclassical approach makes us to distinguish between perfect or imperfect markets, what has great impact on the conclusions we could make.

It might be against the rules of economics, but I won't deal with the situation of the perfectly competitive markets, because this model is of little use in the situation of real markets. Furthermore, I will not distinguish different forms of imperfect markets, because they have one common point, the downward sloping curve of individual demand. Every student of an intermediate course of microeconomics learns a simple theorem saying that firm's optimal output is set by equalizing marginal revenues and marginal costs. The price required is the one derived from the demand, i.e. the maximum price the buyer is willing to pay.

For our issue this results in one possible outcome: if the producer or service provider wants to set up competitive price, his decision can be based only on the current demand and its elasticity. However, there is one major problem for praxis, because discovery of this demand function is unimaginably difficult. The static approach is of no use here, we have to switch to the dynamic one. The producer simply can't make that decision in one time period. If he really has to, then he has to use different attitudes outside of the neoclassical economics framework.

Only one remark before we turn to the dynamic approach. In the neoclassical microeconomic theory the producer doesn't decide the price, only the quantity he should produce and place to the market. Well, this is feasible only for some types of production, in others and in services is it the price what is decided, not quantity.

Let's get back to the dynamic approach and dynamic pricing in neoclassical microeconomics. We have to include the aspect specified below, so the pricing function will be following:

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

where p_t 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 θ 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.

Basic result of the neoclassical analysis of pricing policy is that it is impossible to ignore the market the firm is in.

Austrian pricing theory

The Austrian economics is one of the non-classical theories that come out of the same marginalist basics established by William Jevons and Alfred Marshall. Despite of the traditional microeconomics, the Austrian is so-called monistic, because in its exchange theory buyers and sellers are driven by the same reason, the utility. 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. This can hold absolutely for the simplest versions of barter business, but in case of complex goods we can't do without monetary intermediary.

Thanks to this exchange means, the seller can evaluate if the amount of cash after the exchange brings higher utility than the original amount without the exchange. Austrian economics doesn't see production cost as objective category (Kindlová, 2003, p. 50) 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. They express the seller's alternatives and during the last century were broadly accepted by classical economics. The invention of opportunity cost is assigned to Friedrich von Wieser though.

In comparison with the classical Marshallian economics, the Austrians came 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 (Sojka, 2010; Holman, 2005). Moreover, this system has the same problem with the static character of the exchange. On the other side, 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 processes².

Post-Keynesian theory of price

The third group of ideas I want to deal with is the opposite pole for the previous one, the doctrine based on the work of

² As one of the main differences we should also mention that Austrians don't see as necessary dealing with different market structures (Kindlová, 2003, s. 64).

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 two aspects, post-Keynesian theories of company pricing on one side and explanations of the basic (post)Keynesian proposition about the inflexibility of prices on the other.

Lee (1998) distinguishes three basic theories that form post-Keynesian pricing theory: theory of mark-up prices, theory of normal cost prices and theory of administered prices (also called target rate of return pricing theory). All these three concepts have many things in common and differ in only one aspect, the motives of producers how to set prices for their goods and services when they try to place it to the market. What these theories have in common, is that this decision comes always before the product gets to the actual market. The market interactions used by the neoclassical theory can't help here at all, because the price must be set much earlier. Moreover, the price is calculated usually for more than one selling period (different in every industry) and is intended to be kept constant for more than one period.

Price setting of course isn't a guess without data. There are only different variables that specify what the final price should express. We name these theories separately because there are different historical developments and background behind each of them. In contrast to Austrian economics, post-Keynesian authors accentuate the importance of different market structures, especially because these structures shape final possibilities of price administration³. At the same time they say that big corporations use large range of pricing policies in particular (Lee, 1998). Referring to Lee (1998), the 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.

Blinder (1991) has done an interesting research where 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. According to his paper (Blinder, 1991) the 12 explanations are:

1. Delivery lags / service – producers and service providers prefer to offer additional services or shorten delivery times rather than cut prices down due to decreasing demand.
2. Coordination failures – companies hesitate to change prices, because they don't want to be the first to make the change possibly not to be followed by their competitors.
3. Cost-based pricing – prices are tied up to cost by the fixed margin and they won't rise until the cost rise.
4. Implicit contracts – unwritten and customary contracts with customers about specific (fixed) prices.
5. Explicit nominal contracts – written price contracts.
6. Costs of price adjustments – menu costs, adjusting prices very often is costly.
7. Pro-cyclical behaviour of elasticity – the idea that demand becomes more elastic when prices decrease and this has to be compensated by higher margin.
8. Pricing points – some prices are not to be exceeded due to psychological reasons, e.g. 99,-

³ Important research was done especially by Joan Robinson.

9. Inventories – some companies prefer to produce for stock rather to decrease prices.
10. Constant marginal costs – theory saying that prices are rigid because marginal costs are constant during the economic cycle.
11. Hierarchies – impossibility to change prices due to administrative complications in large corporations.
12. Judging quality by price – fears that customers will mistake price decreases for quality lowering.

The controlled interviews showed that in practice⁴ price rigidity could be explained only by minority of these theories, especially the first four – 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 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. On the contrary, the four last mentioned theories were refused as irrelevant for firm's decision-making.

After this outline of pricing theories I start to deal with the practical issues. I focus on one specific segment of the tertiary sector, the language market. I am interested in two questions:

- A. How are the prices set in the language market?
- B. Are those prices flexible or rigid?
 - a. If they are flexible, how does it come to their adjusting?
 - b. If they are rigid, what are the reasons of this rigidity?

Prices in the market for language services

Topic of this paper is the language services market in the Czech Republic and I start with brief characteristics of it. This market is consists of many (mainly private-run) language schools that work as agencies. They deliver language instruction to companies (or individuals) and simultaneously hire language teachers as external suppliers.

The market is rather differentiated because different subjects on the market offer larger scale of different products. In order to compare the pricing policies, I 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 further limit the product locally to Prague.

We could define this market as transitional type between monopolistic competition model and oligopoly with more than two subjects from the course-book point of view. In the following, I pursue the aim to capture the process of price formation both in short-range and long-range aspects. I also deal with some other (and more general) theoretical aspects of theory of firm.

Basis of pricing and other market characteristics

So, how a company in the language school market decides about its products' (namely our reference-product's) prices? From my own professional experience I derive two basic (and neither surprising nor exclusive) methods. Method taking into account the competitive environment and method of cost-based pricing. Let's start with the former and keep in mind that we got to get back to the latter later.

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 we can

⁴ The target group were American companies with annual revenues over USD 10 millions.

notice various imperfections there. The company is not a price-taker; however, it can't set up the price absolutely freely, too. Such a company has to take into account its *relevant competition* and the price level of it. Then, the subject is endowed with some degree of pricing freedom, but with restraints. Before we move to this, we have to explain the notion of relevant competition in greater depth.

Relevant competition

This term defines the competition a firm is taking into account in benchmarking⁵. Within a broadly defined market there are companies that are closer in specific aspects. They make the inner segment of that market. This proximity is caused by following similarities:

- product
- target group
- style of promotion and advertising
- inner structure and workings.

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

This group is the main point of reference for a typical language agency to specify price. Now, realize we don't work in the monopolist competitive environment but in oligopolistic one. To sum up, one language school working in market of 80 competitors delimits itself to relevant competition of 10 subjects within a product group of 30 subjects.

Price spread within relevant competition

I made a price survey covering 13 subjects⁶. These schools were chosen as representatives of a product group in the Czech language market 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 mentioned schools, some of the subjects at the edge of the spectrum are eliminated and the number is lower, exactly in the above mentioned sense. The new price spread is than formally:

$$p_{rL} = 344$$

⁵ Benchmarking in this meaning is not meant towards one specific competitor but towards a larger group.

⁶ In alphabetical order: Akcent IH, Berlitz, Caledonian School, Channel Crossings, Glossa, JCL, Jipka, Noisis, Polyglot, Presto, Skřivánek, Spěváček, Ttime.

$$p_{rH} = 500$$

$$\delta_R = 156$$

where p_{rL} is the lowest price within relevant competition group, p_{rH} the highest and δ_R is the price spread within the relevant competition group. In this moment we have to realize that for every subject in the product group the relevant competition is different. So, in our next steps we can't start from price spread applicable for one subject, but we have to use a more general formulation. For simplicity reasons, I use median of this quantity from all subjects in the group. This average price spread in the relevant competition is easy to put together with the general spread of the product group and we gain an index that can be described as "market price concentration index" or, more precisely, "product group price concentration index".

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

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, it means 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. This would require more specific discussion of "product groups" which is not the main subject of this paper.

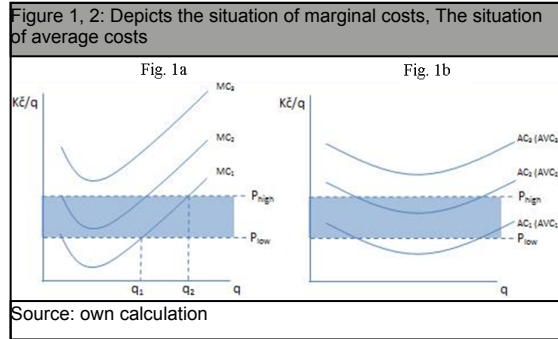
If the market price concentration index approaches 1, the market is very strongly concentrated in terms of price. The relevant competition price spread a company can use by its price decision is very similar to whole market's spread. This means either the market is very small with low number of subjects 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. With the standard graphic analysis we can illustrate the situation by following graphs. The figure 1a depicts the situation of marginal costs; figure 1b the situation of average costs⁷.

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.

⁷ In short-time period we can depict the situation in average variable costs as well.



A firm with the cost curve MC_1 can choose any price from the spread, whereas firm with cost curve MC_2 is significantly limited and cannot set up lower price than its marginal cost's minimum. A MC_3 -firm will find no market realization at all. The supply curve of firm 1 goes through the whole price spread and the quantities q_1 and q_2 show what amount will be firm 1 supplying by lower and upper price boundary. A firm with lower MC will be able to supply larger amount by a specific price than firm with higher MC. In figure 1b, there is similar situation formulated in terms of average (variable) costs. We can identify variable costs of language schools with teacher costs and therefore it is the variable costs that company uses in pricing decisions.

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 the more subjects is 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.

$$MC = p_x \left(1 + \frac{1}{\epsilon_x} \right)$$

where ϵ_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.

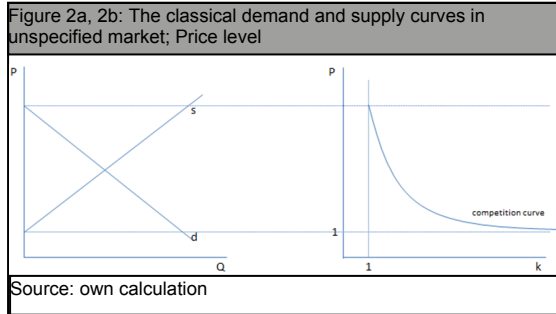
This can be after modification expressed as

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

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 (Hořejší a kol, 2006). If we interpret, further we can say that the more companies are in the market, the lower will be the equilibrium price.

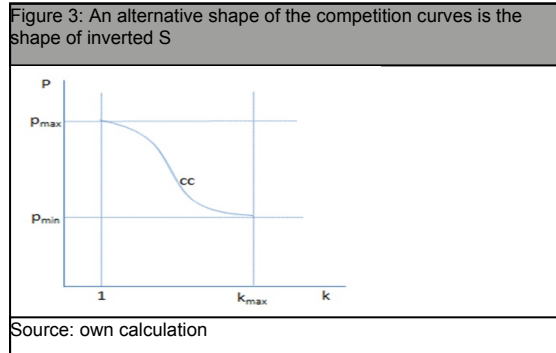
We can express this rule graphically in the following way:

In figure 2a we can see the classical demand and supply curves in unspecified market. It is obvious that in case of very high price there will be only small amount of the product realized in the market and this quantity can be provided by only one firm. Therefore 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.

An alternative shape of the competition curve is the shape of inverted S (see fig. 3), with the curve concave for lower values of k and convex for higher values of k . The principle holds well here as well, the relationship between number of market subjects (the market or sector competitiveness) and market price is negative, but course of this relationship is slightly different.



In figure 3, p_{max} is maximal market price by minimal demanded amount, p_{min} is minimal possible price in the perfect competition conditions and finally k_{max} is the highest number of market subjects – perfect competition with zero economic profit.

In the situation close to perfect competition (many market subjects) the curve is definitely convex, because one additional subject has not the strength to change the market price. Much more interesting is the situation close to the price maximum. If there is only one company in the market (monopoly), the price is at its top. But what if the market is opened for one another subject? Will the price drop down rapidly (convex curve) or will it stay high for some time and start to drop significantly after entry on other firms (concave curve)?

The slope of the contract curve 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:

$$dp = \gamma (dc + dpm)$$

where dk is the change of market subjects, dp is price change.

Short-term pricing in the language schools market

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

In this respect, pricing applies only for new contracts. Existing contracts show a high degree of price stickiness, even in the case of revolving contracts or new order within a running contract.

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:

$$p_i = 0 \times p_{rH} + (1 - 0) \times p_{rL}$$

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

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. I assume⁸ most of the subjects prefer revenue maximization before profit maximization in short-term conditions. Now we turn to long-term period and it is easy to see that a company has to generate profit if it intends to stay in the market for more than several periods.

This leads to a simple price equation:

$$p = (pc + oc) \times (1 + pm)$$

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:

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

The pricing principle is based on the profit margin setting. Provided that a firm is only a price-taker in the sense of a price spread explained above, it has to accept the price spread set by the market and use it for its own price setting. Therefore we have to substitute (6) for period 1, into

⁸ I have to present this assumption without evidence and I suppose to present it in a later research

equation (5) adjusted for period 2. For simplicity reasons we replace production and operational costs by integrated cost function: $pc_t + oc_t = c_t$.

$$p_2 = c_2 \times \frac{p_1}{c_1}$$

$$p_2 = \frac{c_2}{c_1} \times p_1$$

thus and generally expressed as

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

Now we see that we can eliminate the profit margin from the equation and express the period 2 price 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:

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

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.

Firstly, the firm has to assess cost, which means by setting a specific price, there is necessary to always cover all cost, including overhead expenses. Alongside that, company has to achieve zero or plus economic profit, that's why it is necessary to add the profit margin. Its magnitude depends on each subject individually.

Now we can get back to the theoretical part of the paper, where one of the most important reasons for price stickiness was costs 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. I have to point out to the fact that we haven't taken into consideration the typical neo-classical aspects as quantity decisions, price taking and cost minimization.

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 for example γ). This index can range between 0 (maximal sensitivity to implicit contracts) and 1 (no sensitivity). Let's formulate the equation in difference form:

$$dp = \gamma(dc + dpm)$$

where dp is change of price, γ 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 first question from the end of the first part of this paper about existence and sources of price stickiness. Differences between long and short terms are only in reasons, not in 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 term periods. It seems justifiable to think that this techniques work in a broader sphere, especially in other subsectors of tertiary sector, too.

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