Improvement of the Methodology for the Justification of Retail Prices for Oil Products

Olga Viktorovna Lenkova*

Federal State Budget Educational Institution of Higher Education "Industrial University of Tyumen, 38, Volodarskogo Street, Tyumen - 625000, Russia. *Email: olga_lenkova@mail.ru

ABSTRACT

The purpose of this article is the development of the methodological tool for the formation of retail prices for oil products at the oil products supply (OPS) organization with regard to the regional industrial specifics and market conditions. The stated purpose predetermined the need for the consistent solution of the following tasks: The characteristic of the current pricing system at the OPS organization; the development of recommendations on the improvement of the efficiency of the pricing mechanism for fuel products; the approbation of the proposed methodological recommendations on the formation of retail prices for fuel products of the OPS organization. The article provides the results of the study of the practice of setting retail prices for target products by the OPS organizations. The article identifies the trends of the improvement of the current methodological tool, namely the possibility of accounting regional industrial features of the operation of appropriate sales organizations when justifying prices for oil products. The article offers the authorial approach to the setting of retail prices, which allows envisaging such factors as the level of consumer welfare in the local territory and the sensitivity of consumers to the price change (elasticity), and also the competitiveness level of the organization at the specific regional level. The article provides the results of the approbation of methodological recommendations.

Keywords: The Price, Oil Products, Well-being of the Population, Competitiveness of the Organization, Price Elasticity
JEL Classifications: D41, D60, O33

1. INTRODUCTION

Nowadays, regional oil products markets are characterized by a large number of business entities, supplying and selling oil products, the strengthening of the competitive struggle between them and the high level of the saturation of regional markets. The improvement of the competitiveness of oil products supply (OPS) enterprises of Russian oil companies in the current situation requires the active marketing policy, aimed at the attraction of consumers of oil products, the improvement of the quality of supplied products and provided services, and the security of oil products supplies. One of the main tools of the marketing policy is the pricing, which, besides of the key role in the competitiveness improvement and provision of the return and survivability of particular business entities, is highly important at the macroeconomic level. Oil products are energy carriers, the prices for which largely determine the inflation rate in the region and the country in general.

Although this problem is of obvious importance, it should be noted that there are primarily methodological problems in the pricing. The results of the conducted analysis of famous theories and practically applied pricing methods for oil products demonstrate that in most cases the dependence between the price and demand is weakly identified. Oil companies independently establish the pricing principles on the basis of general theoretical approaches. The situation is complicated by the fact that the oil products market is related to the oligopoly, where the implicit collision is possible, while the price dynamics of major market participants is under control of antimonopoly services.

The practical significance and pendency of many methodological problems of the pricing for oil products and related goods in regional markets in modern conditions determine the relevance of this study.

2. METHODOLOGY

One of the regional branches of the Russian vertically integrated oil company, whose price classification can be represented in the following way (Figure 1), was considered as an object of study.

The analysis of the structure of the aggregate turnover of the studied enterprise underlines the priority of retail sales, because the retail turnover is about 70% of the overall figure.

It should be noted that the cost-based pricing method is used at this enterprise. In this regard, the results of the structural analysis of retail prices are notably interesting in terms of types of oil products (Table 1).

The table illustrates that the purchase price has the biggest specific weight in the structure of the sale price (more than 60%), while the trade margin level varies between types of oil products. Particularly, there is the highest trade margin level for gasoline of the standard AI-92 and diesel fuel. Such situation can be

explained by the more intensive consumption (high demand) of these products. Larger volumes of sales of these fuel types, among other things, lead to the manifestation of the scale effect, which also explains the relatively low share of the purchase price in the total retail price.

According to the authorial logic, it makes sense to compare the results of the conducted structural analysis with the average figures in the region, represented in Figure 2.

Commenting the presented figure, it should be noted that the big specific weight of the purchase price in the structure of the retail price is typical for all OPS enterprises. It is explained by the fact that the purchase price for gasoline includes 12 components, more than half of which are unregulated or weakly regulated. On substance, taxes account for about 50% (MPT - 8.1%, profits tax - about 10%, value added tax - 15.3% and the largest component – excise duty, accounting for 17.6%). Production and transport costs in the purchase price for gasoline account for <20%. The oil production cost in the structure of the purchase price for gasoline is about 3%.

It is worth mentioning that notwithstanding the integration of the studied object into the large vertically integrated structure, which provides the opportunity for the acquisition of oil products at transfer prices, the share of the purchase price in the total retail price is higher than across organizations in average. However, the trade margin in the structure of the retail price of this enterprise takes the smaller share than across similar organizations in average, what may indicate its smaller return (loss of revenue) in comparison with competitors. This fact again confirms the need to make adjustments to the pricing methodology for eliminating the detected disproportions and increasing the profitability of the analyzed object.

The integration of the considered organization into the VINC will surely give a number of undisputed advantages, including, among

Table 1: Structure of retail prices for oil products of the enterprise in the reporting period

Name of the price element	Structure of the sale price, % of the total amount			
	AI-80	**AI-92**	**AI-95**	**Diesel fuel**
Purchase price	63.7	60.0	67.0	63.9
Sum of costs and profit	10.0	8.7	8.1	10.2
Wholesale price	73.7	68.7	75.1	74.1
Margin (profitability)	11.0	16.1	9.7	12.3
Sale price from GS without VAT	84.7	84.7	84.8	86.4
VAT	15.3	15.3	15.2	13.6
Sale price from GS	100.0	100.0	100.0	100.0

GS: Gas stations, VAT: Value added tax

Figure 1: Types of prices set at the regional branch of the oil products supply enterprise
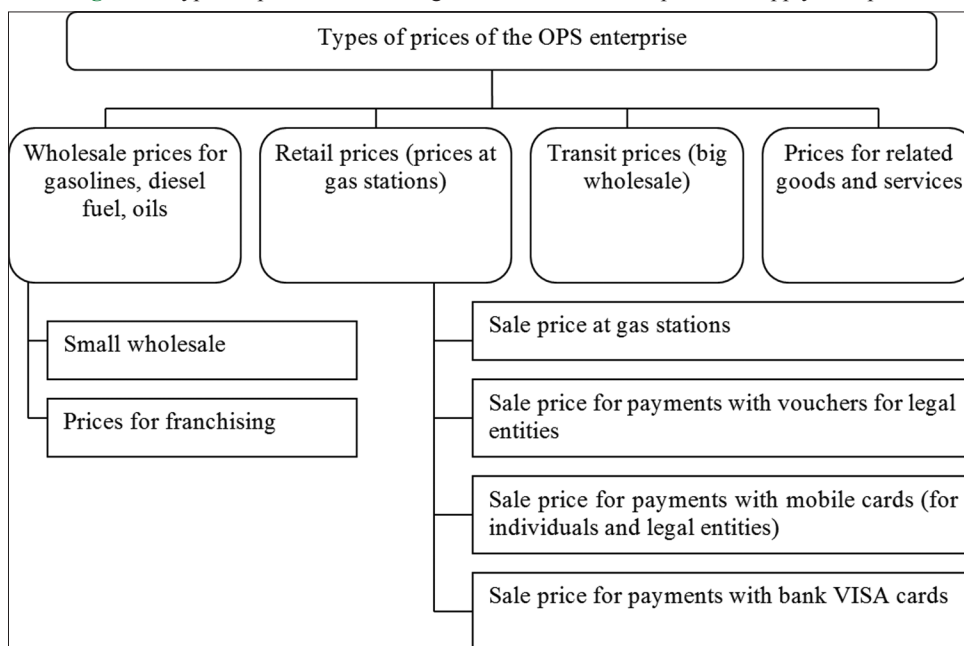
others, certain savings: The reliability of the oil products supplier allows to reduce inventory and therefore reduce storage costs; avoidance of some selling costs; savings due to the amount of tax payments. However, there are essential disadvantages in such situation. Being the business unit, the organization is primarily forced to purchase products from the mother company at the set price, even if this price exceeds the price of other suppliers. The enterprise can make up the need, acquiring oil products from other oil refinery plants, only if the main supplier has the product deficit.

It is clear that the price is a complicated market category; the level of prices is calculated under the influence of multiple factors. Such factors can be conventionally divided into regulated and unregulated ones (Figure 3). The gasoline price depends on such factors as refinery, production and transportation costs, while purchasers in turn pay greater attention to the gasoline quality.

Analyzing the modern Russian market economy, its following features can be identified: Unstable economic situation in the country and in the world oil products market. The policy regarding the oil industry taxation principles, which was formed amid the significant price growth in the world market and was expressed

Figure 2: Average structure of the retail price for oil products

by the policy, adopted by authorities and aimed at the increase of the bite of taxes, resulted in the rise in prices for oil products, and also the price growth in the internal market.

As for the industry structure influence on the pricing, it is believed that the vertical integration is itself the brake for the growth of internal fuel prices.

Only 5-10% of the oil output is freely sold in Russia; the remaining raw material is sold inside the VINC at nontransparent corporate prices, where these prices are lower than market ones (this is the economic sense of the vertical integration). Nowadays, prices in the Russian crude oil market are relatively high and differ from world prices by the transport cost value, related to the export of hydrocarbons.

Costs are prevalent amongst internal factors, influencing the level of prices for oil products. However, some components are beyond the control of the company (raw material prices, transport cost, and advertisement cost). Thus, the railroad rate for cargo transportation is unregulated by the enterprise. Tank farm services are another significant cost item. Not every branch has its own tank farm; therefore, it is forced to make rental payments. Nowadays, the growth of the sale volume through the small wholesale is usually limited by the capacity of rented tank farms.

In continuation of the study, it appears reasonable to conduct the competitive analysis of the price level (Table 2).

Retail prices for oil products of the analyzed company are relatively low and don't exceed prices of main competitors. However, taking into account the fact that the demand for oil products is sensitive to the price level and there is the non-price competition in this
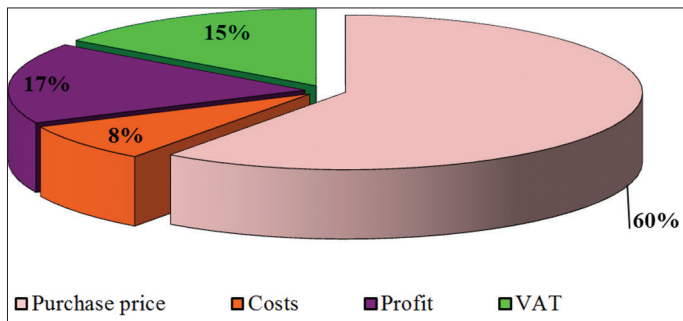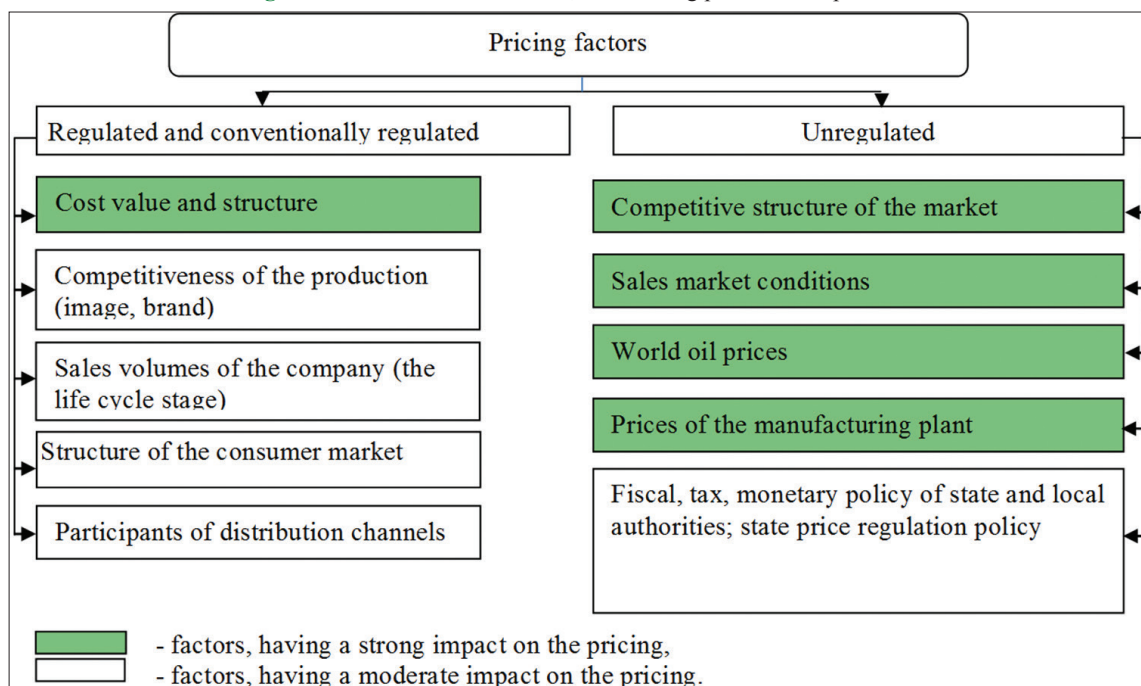
Figure 3: Classification of factors, determining prices for oil products

market, this may indicate the insufficient quality of products and service maintenance, offered by this company, from the viewpoint of purchasers.

It can be concluded from the conducted analysis that the adjustment of the methodological framework of the formation of retail prices for oil products is required and reasonable.

The following facts confirm the above finding:
- Prices for fuel at gas stations of the studied object are lower than those of main competitors, while the structure of the retail price is less reasonable (low return);
- Prices are formed according to the cost-based method without taking into account regional and market features, what can lead to the loss of returns in consequence of the lower market share in separate consumer segments;
- Opportunities for the improvement of pricing flexibility through the consideration of regulated factors are not used.

Table 2: Comparison of prices of main OPS enterprises in the regional market

Fuel type	Prices for the production of OPS enterprises, rubles		
	Object of study	Competitor 1	Competitor 2
AI-80	29.80	29.90	29.95
AI-92	31.95	32.50	32.70
AI-95	33.35	33.70	33.90
Diesel fuel	31.25	31.45	31.45

OPS: Oil products supply

It looks possible to offer the authorial algorithm of the justification of the market price for oil products (Figure 4) for the mitigation of mentioned disadvantages in the pricing mechanism.

This approach involves the setting of a range, within which the final market price can be determined. Nevertheless, approaches to the setting of the minimal and maximal price value (top and bottom border of the range) can be different.

The presented algorithm allows avoiding current disadvantages of the pricing, because it involves the consideration of features of the demand and competition in the particular regional market. It should be noted that the calculation of the minimal price can be carried out through the achievement of the target profit, assuming that the price should cover all circulation costs and provide the enterprise with the minimal profitability rate, needed for its development. The minimal price (critical sale price) can also be determined using the break-even method.

Carrying out the monitoring of competitive prices and the further use of its results can be another opportunity for the justification of the bottom price line, which is used in this work when making approbation calculations. Particularly, the lowest offer price for oil products of competitors can be accepted as the minimal price. Such price will be good for purchasers.

The maximal price level can be set by the enterprise at its discretion; the highest price amongst competitive proposals is recommended to be used as a basis in this work. The maximal

Figure 4: Algorithm of the adaptation of retail prices for oil products to market conditions of the operation of organizations

$$P_{market} = P_{min} + F \cdot (P_{max} - P_{min})$$
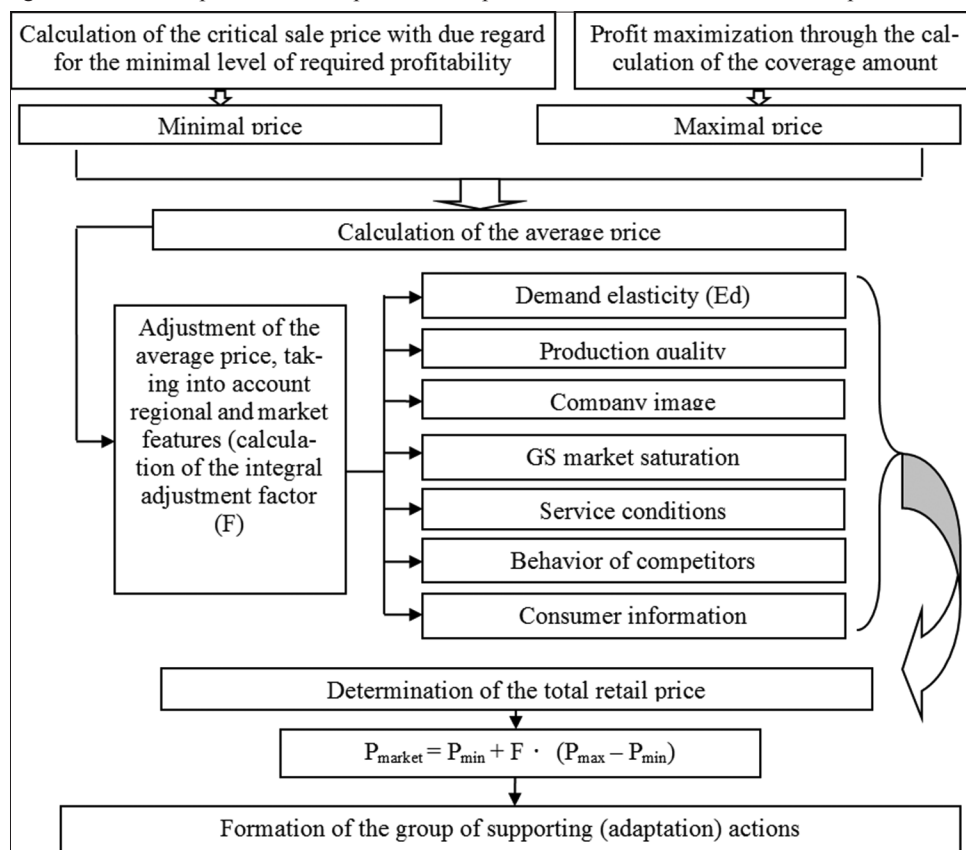
price should provide the enterprise with excess profits, but it must be absolutely confident that the goods are valuable to consumers. This price is good for the seller.

The final market price (the acceptable value for the purchaser as well as for the seller) is recommended to be set through the adjustment of the minimal price, taking into account market conditions. The use of the model, offered by M. Porter, which allows carrying out the structuring and selection of factors for the further analytics, can be very helpful for these purposes.

The model "Five competitive forces", which is widely known in the theory and management practice, is applicable for the OPS enterprise with the partial adjustment. The threat of the occurrence of new competitors is unlikely, because the OPS market is the oligopoly and barriers for the entrance to this industry are very high. There are no threats from suppliers, because the studied enterprise, as already noted, is integrated into the large vertically integrated oil company. When setting prices, There is no need in taking into account the probability of substitute goods appearance due to their absence. Some scientists tend to perceive gas as a substitute good for oil products, but this statement is disputable, because heavy costs for the installation of special equipment in the car are required to switch customers to this substitute. The main competitive force, influencing the development of OPS enterprises, is the influence of consumers, namely the value and the potential of the growth of market segments, the dynamics of the demand for the production, the solvency of customers and the elasticity of demand for goods.

In addition, intra-industry competition is the serious element of the external microenvironment, demanding to be considered in the pricing process.

This study proposes the implementation of the adjustment of the minimally justified price, using the integral adjustment factor (F), which can be calculated using the following formula:

$$F = \frac{Fw \cdot Fc}{Ce} \qquad (1)$$

Where F_w - the population welfare factor;
F_c - the enterprise competitiveness factor;
C_e - the standardized coefficient of elasticity of demand for goods.

$$Fw = \frac{Fwr}{FwM} \qquad (2)$$

Where F_{wr} - the population welfare factor in the studied region;
F_{wM} - the population welfare factor in Moscow.

$$Cc = \frac{\sum S}{\sum S \max} \qquad (3)$$

Where S – the score of this enterprise, given by experts;
S_{max} - the maximum possible score, given by experts.

The competitiveness coefficient is recommended to be calculated, according to the expert appraisal on a five-point scale according to the following criteria: The market share, variety of goods, service maintenance, promotion activities, popularity level, quality of the

oil product, price level, price differentiation, additional services (shops, washers, service station), and a flexible discount system. Criteria may be adjusted depending on the error decreasing when calculating this coefficient.

It makes sense to standardize it for purposes of the use of the coefficient of elasticity in the proposed model. It is recommended to carry out the standardization in the following way: If the demand for the product is elastic, the coefficient is assigned the value 2; at the inelastic demand - 1. However, other quantitative evaluations are possible at the standardization implementation.

3. RESULTS

The necessary calculations were made for the calculation of the integral adjustment factor. Particularly, the study of the consumer sensitivity to price changes showed the following situation (Table 3).

The table illustrates that the demand for gasoline AI-80 and diesel fuel is elastic. Therefore, the sharp rise in prices is associated with the risk of the loss of clients, but the sharp decline in prices for goods of any category is also not recommended, because such method of influence on purchasers may mislead them and thus deter them. In contrast, consumers of fuel of grades AI-92, AI-95, AI-98 are weakly sensitive to price changes. In other words, prices for such types of products can be set at the high level without the risk of the loss of consumers.

The relative population welfare indicator for main regions of the Russian Federation was calculated for the consideration of regional features at the pricing, and, in particular, the difference in the population wealth status (as main consumers of the retail network), and, therefore, in the paying capacity of consumers (Table 4).

Table 3: Coefficients of elasticity for products

Indicators	Products				
	AI-80	AI-92	Diesel fuel	AI-95	AI-98
Change in the demand, %	4.6	1.6	7.6	1.7	3.6
Change in the price for the goods, %	4.5	9.2	7.3	13.1	10
Price elasticity	1.02	0.17	1.04	0.12	0.36
Standardized coefficient of elasticity	2	1	2	1	1

Table 4: Relative population welfare indicators (excerpt)

Region	Relative population welfare indicator
Moscow and the Moscow region	4.55
Saint Petersburg and the Leningrad region	3.58
Tyumen region	3.48
Sverdlovsk region	3.12
Perm region	2.96
Chelyabinsk region	2.74
Stavropol krai	2.48
Rostov region	2.46
Kursk region	2.30

The expert analysis was carried out for the justification of the coefficient, considering the enterprise competitiveness. The comparative characteristic of competitive positions of the studied object against strongest competitors was also given. It should be noted that the list of competitors for the carrying out of the comparative analysis may be extended. The results of the approbation of the scoring method, recommended to be used for defined purposes, are given in Table 5. The score showed that the competitiveness of the studied branch is lower compared with its main competitors. According to the scoring method, the requirements profile was formed, as well as areas of activity and key indicators, against which the organization loses in the competitive struggle, were identified (Figure 5). The results of the profile building may be useful when developing the group of supporting measures.

The justification of market prices for oil products was performed using the results of intermediate calculations (Table 6).

Table 5: Scoring of the activity of the evaluated branch and its competitors, score*

Factor	Studied object	Competitor 1	Competitor 2
Market share	2	5	2
Variety of goods	5	5	4
Service maintenance	4	5	4
Advertising activities	1	5	5
Popularity level	5	5	5
Oil product quality	5	5	4
Price level	5	4	4
Price differentiation	2	4	4
Additional services (washer, service station)	4	5	4
Flexible discount system	2	4	4
Total	35	47	36
Competitiveness level	0.70	0.94	0.72

*The expert analysis was carried out on a five-point scale

Table 6: Recommended market prices for oil products of the branch

Name of the oil product	P_{market}, rubles
AI-80	26.62
AI-92	31.55
AI-95	33.05
Diesel fuel	29.16

The minimal price level in this work was calculated using the cost-based pricing method, taking into account the minimal profitability level. The highest offer price in the market was taken as the maximal level.

The results of the calculation showed that prices for all oil products, offered by the branch in the regional market, are overvalued. It is clear that the sale of oil products at such prices is possible because of the presence of oligopoly and influence of non-price competition factors. However, it may be assumed that the decline in prices to the estimated level will cause the increase in the turnover.

The branch profile analysis showed the need of the development of management solutions in respect of adjustments of the pricing mechanism to the market requirements, which may be as follows:
- Implementation of the discount system, depending on the system of benefits, provided by competitors;
- Development of efficient advertising activities;
- Geographical price differentiation, etc.

These recommendations and their consistent implementation are aimed at the formation of the optimal market pricing mechanism, which will enable the company to improve the financial results of its key activities; will increase the number of repeat customers, will increase product sales volumes due to attraction of customers and therefore will raise the level of stability of the organization.

4. DISCUSSION

Nowadays there are a lot of works, focused on the issues of the marketing policy formulation in enterprises in general. The pricing policy is usually considered in these works as an element of the marketing complex. Domestic and foreign scientists are engaged in the consideration of the problems of the market economy (Golova, 2015), marketing and marketing analysis (studies) (Ambler, 2000; Kotler, 2009; Stone and Hitching, 2008; Capone et al., 2010), and pricing (Abryutina, 2002; Bernstein, 2008; Danchenko, 2003; Tarasevich, 2003). The use of strategic management approaches may also be interesting in this case (Guzinets, 2013; Plenkina et al., 2010; Thompson and Strickland, 2009).

Concerning industrial approaches to the consideration of the above matters, in some cases it makes sense to mention the studies of the problems in the oil and oil products market development in

Figure 5: Requirements profile based on the scoring method
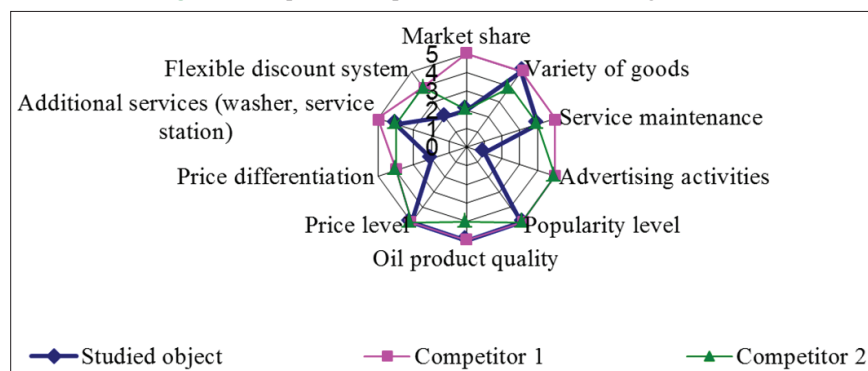
general (Ageev et al., 2015; Mikhailova, 2008; Rikoshinsky, 2002; Fomichev, 2008; Chizhevsky, 2007; Yurga, 2007). It should be noted that some scientists pay considerable attention to the issues of the pricing in these markets (Braverman, 2006; Gavrilova, 2012; Pospelov, 2000).

However, the practical issue, considered in the article, was analyzed simultaneously through the lens of the theory of the market economy, strategic management and marketing.

5. CONCLUSION

In conclusion, it is worth noting that the stated purpose to develop the methodological framework of the formation of prices for oil products is achieved. The proposed method is quite simple for the practical application and doesn't require substantial costs. However, it allows combining the cost-based pricing method and the demand evaluation. Higher labor intensity of its carrying out (compared to the traditional pricing method, used in the organization) due to the need for searching additional information and conducting a series of intermediate calculations may be defined as the disadvantage. But such disadvantage is mitigated by the increase in the objectivity of the method, and the opportunity of its adjustment.

The recommendations, given in the article, are of a practical nature and can be used by different OPS enterprises. The pricing, taking into account the competitiveness of enterprises, will enable them to implement their pricing policy and will give the chance to improve their positions in the market.

This approach underwent approbation at one of departments of a large oil and gas company, the structure of which involves the segment of the retail sale of oil products. The conducted calculations confirmed the reasonability of the application of the author's methodology when setting market prices at this industrial enterprise.

REFERENCES

Abryutina, M.S. (2002), Tsenoobrazovanie v Rynochnoi ekonomike: Uchebnik (Pricing in the Market Economy: Textbook). Moscow: Delo i Servis. p256.

Ageev, A.I., Loginov, E.L., Raikov, A.N. (2015), Formirovanie obshchego rynka nefti i nefteproduktov EAES: Fundament soyuznogo ostrovka stabilnosti v bushuyushchem mirovom okeane globalnykh spekulyatsii (Formation of the common oil and oil products market of the EEU: Foundation of the union island of stability in the fierce world ocean of global speculations). Ekonomicheskie Strategii, 5-6, 8-21.

Ambler, T. (2000), Prakticheskii Marketing (Practical Marketing). Saint Petersburg: Piter. p213.

Bernstein, L.A. (2008), Upravlenie Tsenoobrazovaniem (Pricing Management) (I.I. Eliseev, Translation). Moscow: Finansy i Statistika. p624.

Braverman, A.A. (2006), Marketing Dopolnitelnykh Uslug v Neftyanykh Kompaniyakh (Marketing of Additional Services in Oil Companies). Marketing v Rossii i za Rubezhom, 6. Available from: http://www.dis.ru/library/531/26212. [Last retrieved on 2017 Mar 25].

Capone, N., Kolchanov, V., Makhalbert, J. (2010), Upravlenie marketingom: Uchebnik dlya vuzov (Marketing Management: Textbook for Universities) (Translate from English). Saint Petersburg: Piter Lider. p832.

Chizhevsky, S.A. (2007), Strategirovanie Ustoichivogo Ravnovesiya na Regionalnykh Rynkakh Nefteproduktov: Avtoref. Dis. Kand. Ekonom. Nauk [Strategizing of the Sustainable Equilibrium in Regional Oil Products Markets (Ph.D. Thesis Abstract)]. Izhevsk: Udmurt State University. p25.

Danchenko, L.A. (2003), Konkurentosposobnye tseny: Voprosy analiza (Competitive prices: Issues of analysis). Marketing i Marketingovye Issledovaniya, 4(46), 28-34.

Fomichev, P.V. (2008), Formirovanie Uslovii Effektivnogo Funktsionirovaniya Lokalnykh Rynkov Avtomobilnogo Topliva: Avtoref. Dis. Kand. Ekonom. Nauk [Formation of Conditions for the Efficient Functioning of Local Motor Fuel Markets (Ph.D. Thesis Abstract)]. Tyumen: Tyumen State Oil and Gas University. p24.

Gavrilova, A.A. (2012), Mekhanizm konkurentsii i tsenoobrazovaniya na mirovom rynke nefti (competition and pricing mechanism at the world oil market). Vestnik Moskovskogo universiteta. Seriya 6. Ekonomika, 2, 54-81.

Golova, A.G. (2015), Instrumenty sovremennogo rynka (World Market Tools). Vol. 5. Energiya: Ekonomika, Tekhnika, Ekologiya. p54-63.

Guzinets, K.V. (2013), Osobennosti strategicheskogo planirovaniya i prognozirovaniya v usloviyakh rynochnogo khozyaistva (Features of strategic planning and forecasting in a market economy). Mikroekonomika, 2, 64-67.

Kotler, F. (2009), Marketing v tretem tysyacheletii: Kak sozdat, zavoevat i uderzhat rynok (Marketing in the Third Millennium: How to Create, Win and Dominate Markets). Moscow: AST. p230.

Mikhailova, N.A. (2008), Tekhnologiya Marketingovykh Issledovanii Konyunktury Regionalnogo Rynka Nefteproduktov: Avtoref. Dis. Kand. Ekonom. Nauk [Technology of Marketing Studies of the Regional Oil Products Market Conditions (Ph.D. Thesis Abstract)]. Volgograd: Volgograd State University. p23.

Plenkina, V.V., Lenkova, O.V., Chistyakova, G.A. (2010), Strategicheskii Menedzhment (v Skhemakh i Tablitsakh) [Strategic Management (in Diagrams and Tables)]. Tyumen: TyumGNGU. p192.

Pospelov, Y. (2000), O tsenakh na benzin i optimalnom chisle AZS (On gasoline prices and the optimal number of gas stations). Rossiiskii Ekonomicheskii Zhurnal, 8, 94-96.

Rikoshinsky, A. (2002), Nefteprodukty (Oil products). Konyunktura Tovarnykh Rynkov, 1, 6-10.

Stone, D., Hitching, K. (2008), Marketingovyi analiz (Marketing Analysis) (Translation from English). Saint Petersburg: Litera Plyus. p456.

Thompson, A.A.Jr., Strickland, A.J. (2009), Strategicheskii menedzhment: Kontseptsii i situatsii dlya analiza (Strategic Management: Concepts and Situations for Analysis) (Translation from English). 12th ed. Moscow: Williams. p928.

Tarasevich, V.M. (2003), Tsenovaya Politika Predpriyatiya (Pricing Policy of the Enterprise). Saint Petersburg: Piter. p288.

Yurga, V.A. (2007), Osnovnye faktory otsenki biznesa na rynkakh nefti i nefteproduktov (Main factors of the business valuation in oil and oil products markets). Neft, Gaz i Biznes, 5, 30-33.