INFORMATION ASYMMETRY AS A DETERMINANT OF COMPETITION

Purpose. Defining the impact of information asymmetry on basic competitive strategies of market participants, as well as revealing the vector of competition change while information asymmetry increases.

Methodology. The methodological basis of the study is a comparative analysis of fuel retail markets in Ukraine and passenger air transportation. These markets are considered as examples of markets characterized by different levels of information asymmetry with the same structural parameters, which makes it possible to establish the effect of information asymmetry on competition.

Findings. Comparisons of the retail fuel market and the passenger air transport market indicate that information asymmetry influences market participants' choice of a basic competition strategy. Thus, information asymmetry weakens price competition and increases the non-price competition, weakening the intensity of competition between participants in market relations and creating the preconditions for increasing their dynamic competitiveness. This influence of information asymmetry on competition and social well-being is essentially positive. However, a long-lasting negative effect is also observed — information asymmetry deform consumer perception of the market balance parameters so much that lower competitive intensity and a wide range of balance are not perceived negatively, and the seller receives a guarantee of positive economic profit. This negative effect catches on due to the spread of information asymmetry (as a profitable and legal practice) throughout the markets, ensuring its strengthening. The latter requires the development of new approaches to assessing the effectiveness of market competition while the “structure — conduct — performance” paradigm appears to be insensitive to information asymmetry effects on competition.

Originality. In the course of the study we concluded that the classification of goods according to the degree of their favourability to information asymmetry into search, experience and credence goods is purely theoretical. In their pure form in practice, they are virtually not encountered; this is precisely why a special propensity curve for information asymmetry has been developed, on which goods approaching to the status of credence ones have the highest propensity for manifestations of information asymmetry.

Practical value. The methodology of market research proposed in the work may be the basis for a better choice of competitive strategy by economic entities or a more effective study of the situation in the markets by consulting agencies and public authorities.

Keywords: information economy, information asymmetry, competition, price competition, differentiation of goods, retail market for fuel, passenger air transport market

Introduction. Evolution of the information economy in recent decades has been conventionally illustrated with examples of markets for innovative products and trends for their globalization. In fact, the extent of its penetration is much greater. It affects all the markets of goods and services without any exception and is manifested in the behaviour of the most firms. Let us talk about the phenomenon of information asymmetry. It is not a new one. In some ways, it has been manifested in economic activity for years, being mainly the negative externality (some kind of market failure). Nowadays, information asymmetry is transforming into the applied competition tool. Businesses purposely create or enhance the information asymmetry as a source of their own competitive advantage or as a competition tool.

Awareness of the above-described changes by individual market participants, as well as their consideration in the development of competitive strategies can be observed in the activities of leading market players, especially, in those sectors, which have been traditionally characterized by the high degree of information asymmetry and high concentration of credence goods (finance, education, medicine, and others). They have already learned how to use this economic phenomenon for their own benefit and disseminate these practices even onto the markets for standardized search goods. It requires the unification of the tools of information asymmetry research that in the meantime remains specialized to the needs of individual markets and industries, providing a fragmentary reflection of the problem.

Literature review. Economics has developed many different techniques of information asymmetry research. Many of them are developed for investigation of information asymmetry influence on market performance at large and on the economic choice of market actors particularly. Among them are the papers by R. Decourt, H. Almeida and P. Protin [1], Martins and E. Paulo [2], T. Jonson and E. So [3] and others.

The problem with these techniques is their narrow specialization and extremely high input requirements, which can be met only for a limited range of markets. Being effective, for example, in the stock market they prove to be completely unsuitable for understanding the actual impact of information asymmetry on the behaviour of consumers, suppliers, competitors in other markets, and competition in general.

Purpose. Responding to the above-mentioned problem, the article is aimed at investigation of the impact of information asymmetry on basic competitive strategies of market participants, as well as the reveal of the vector of competition change while information asymmetry increases.

Methods. The article provides comparative analysis of retail fuel markets in Ukraine and passenger air transportation as examples of markets, which are characterized by different levels of information asymmetry with the same structural parameters, to reveal the effect of information asymmetry on competition.

Results. The research needs to fix on two markets with different levels of information asymmetry and the most similar other determinants of competition. Following the “structure — conduct — performance” paradigm (SCP paradigm), which defines the dominant role of structural prerequisites for competition in the market, we have identified initial levels of market concentration as a crucial selection factor. In response to the critique of this paradigm by representatives of the Chicago School of Economics, the corresponding criterion was supplemented by the requirement of an identical role distribution between market actors in the course of competitive interaction [4].
Best of all this triad of requirements was met for a couple of such markets—retail fuel market and market of air-passenger operations. Both markets are characterized by similar levels of market concentration (Table 1) and role-playing models: each market has a dominant company with a share of about 30%, which sets the rules of the market game, a small number of notable competitors, which can exert some influence on these rules, and dispersed competitive fringe, which is a subject to these rules [4].

In contrast to the structural parameters, transparency and accessibility for competitors of information about each other in these markets differ significantly. There are differences in access of compared markets’ actors to such sensitive information as prices, quality of the goods or services, and the services themselves are characterized by different degree of differentiation—the parameter that is directly proportional to the level of information asymmetry in the market.

Let us start by analysing the price parameter. Pursuant to Article 8 of the Petroleum Retail Rules, information on retail prices, brands and types of petroleum products sold at a gas station must be indicated on a special information board installed at each gas station entrance [7].

Accordingly, the prices at which fuel is traded at each time point at each gas station are obvious to anyone travelling through the station, including competitors. In addition, there are large number of consulting companies such as UPECO, SC “Psyche", Pro-Consulting, and others, which are engaged in market research and can provide qualified information services, as well as publish the results of their own monitoring of fuel prices in Ukraine, which the State Statistics Service of Ukraine also does. Relevant data are available on daily basis by regions of Ukraine, companies and brands.

The situation with airfares is different. According to the information specified in the Rules of Carriage of Passengers and Luggage of one of the largest air carriers in Ukraine, the airfare is the amount established by a carrier for the carriage of passengers, a unit of luggage weight (cargo) on the respective route according to the relevant class of service. Rates may be both published and confidential.

The published airline rates are controlled by the International Air Transport Association. They are mainly used to calculate complex routes involving multiple carriers. Tickets for published fares can be purchased anywhere in the world, but their price is usually very high compared to confidential tariff offers on the market. Confidential rates are formed by the airlines on their own taking into account the demand, competition and strategy of the company in a particular direction. These rates are a trade secret for competitors, operated by an airline itself and its agents.

The situation is complicated by the differentiated nature of air-passenger operations. Despite the availability of a number of travel fare aggregators, such as skyscanner, tickets.ua, k利亚via, and others, which allow a customer to compare ticket prices for different airlines, such a comparison gives almost nothing to competitors in terms of understanding each other’s pricing strategies. The price of a ticket for the same flight of the airline itself and its agents.

Another factor of product differentiation is terms of sale: starting from the assortment of ancillary services—car washing, catering, purchasing food and non-food items, and others, and ending with staff friendliness that can influence consumer choice or forcing him/her to return to the relevant retailer or to stop purchase fuel at the gas station. The latter brings forward retail fuel services to experience goods within the information asymmetry propensity line.

With regard to air-passenger operations, the situation is much more complicated. In the airline industry, as well as in the fuel industry, there are mandatory standards. All indicators concerning safety, airworthiness, flight staff in the field of air transportation are standardized and strictly regulated by public authorities, in particular the State Aviation Service of Ukraine, and are binding on all carriers. That is, beyond the immediacy of the distribution of aviation service by class, it could be argued that these standards determine the basic air passenger service, which is characterized by zero level of differentiation. The list of differentiation features here is very wide, including class distribution, duration of flights, the number of transfers and convenience of connections, availability of additional services from luggage transportation to the ability to return or exchange a ticket, and so on. The fact of providing a number of these services can be learned before the flight, while their quality—only on the back of the consumption. The term “quality of air-passenger operations” includes convenience of passenger seats, friendliness and qualification of staff, taste and variety of food on board, and others. The overall impression of a flight can be ruined by circumstances that often do not even depend on the carrier—for example, flight delays due to bad weather or the presence of uncon-

<table>
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<th>Indicator</th>
<th>Retail fuel market</th>
<th>Market of air-passenger operations</th>
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<tr>
<td>Market concentration coefficients</td>
<td>CR1 = 33.25; CR3 = 62.55; CR5 = 73.25</td>
<td>CR1 = 30.61; CR3 = 58.11; CR5 = 71.21</td>
</tr>
<tr>
<td>Herfindal-Hirschman Index</td>
<td>0.1652</td>
<td>0.1513</td>
</tr>
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Fig. Positioning of retail fuel services and air-passenger operations along the information asymmetry propensity line

Comparison of market concentration in retail trade in fuel and air-passenger operations, 2018 [5, 6]
trolled passengers on board. In the case of force-majeure the quality of the air-passenger operations will be determined by the response of the airline employees to such circumstances, their ability to solve the problem with minimal loss to the consumer. Since force majeure occasionally occurs, even the long-term deal with the same airline does not give the consumer sufficient information about the quality of the service received. The consumer never knows the real reason of his/her successful trip — good weather conditions or the pilots’ high skills, etc. This factor moves the air-passenger operations towards credence goods as a last resort of market favouring the spread of information asymmetry.

Modern technologies, the availability of online resources such as tripadvisor, avianews.com and others help to assess the quality of air-passenger operations of a particular carrier, but the comments collected there are subjective. In order to obtain more accurate analytical conclusion, it is necessary to examine thousands of comments and reviews, which significantly increases transaction costs and effectively negates the ability to pre-set the quality of air-passenger operations. This is a reason of a high level of information asymmetry in the market.

Therefore, comparing these markets with respect to information transparency, we can conclude that the retail fuel market is much more transparent than the market for air-passenger operations. Information about prices, goods, terms of sale in the retail fuel market spreads much faster, easier and with a lesser degree of its deformation in the process of distribution, both because of the specific nature of retail sale of homogeneous product, and in view of the institutional environment of the relevant market. The market of air-passenger operations, which is characterized by the presence of differentiated goods with certain features of the credence goods and by institutional regulations that are much less rigid in the information sense, (for example, they allow the existence of confidential tariffs in the market), is a favourable environment for the dissemination of information asymmetry among participants.

Thus, the main criteria for selecting markets to investigate the impact of information asymmetry on competitive relations are fulfilled. The retail fuel market and market of air-passenger operations are similar in terms of structural prerequisites to competition and different in terms of information asymmetry. Comparing the competition strategies of these two markets’ actors, let us evaluate the impact of information asymmetry on competition relations.

Following the positions by J. Stiglitz and J. Stigler we determine information asymmetry via its ability to institutionalize multiple market equilibria. The term “market equilibrium” in the mainstream economics is understood as a certain correspondence of price and output, which means the existence of some price corridor in the market, affected by information asymmetry. Starting with this, as well as with the fact that price competition was chronologically the first manifestation of competition, let us begin our comparative analysis with the assessment of the intensity of price competition in the comparable markets. For this purpose, let us analyse the price dispersion in the markets, as J. Stigler did, and compare the obtained values of the coefficients of price variation.

The input of the study was the data of SC “Psyche” on the dynamics of retail prices for different types of fuel (gasoline A-95, A-92, diesel and liquefied natural gas) across gas station brands and consumers are usually unable to switch from one type of fuel to another because of the technical characteristics of their cars’ combustion engines. Exception is only different types of gasoline (A-95, A-92, etc.), between which a consumer can switch under certain circumstances, while the proportion of such switching does not promise to be high. Only 9.7% of motorists said they would do it with ease. The statistic mode for the sample of respondents on this question is 8 in the range from 1 to 10, where 1 means easy switching, and 10 — refusal from switching.

Another kind of acknowledgment of severe price competition within the retail fuel market is the constant interest of the Antimonopoly Committee of Ukraine (AMCU) in their activities from the perspective of their matching to some kind of collusive practices. Last few years was marked by the range of AMCU charges of infringement of competition law by the leading Ukrainian petroleum retailers. They include the AMCU decision No. 480-r dated 28.10.2016 on collusion between LLC “Golden Equator”, LLC “WOG Retail”, PE “Okko Oil Product”, LLC “Alliance Holding”, LLC “SOCAR PETROLEUM”, LLC “Parallel — M LTD”, AMIC Ukraine FDI [8]; AMCU decision No. 315-r dated 21.06.2018 on collusion between the companies of Nadezhda Group, WOG Group, OKKO Group, LLC “Alliance 7” and LLC “Factoring Group” [9]; AMCU decision No 329-r dated 14.05.2019 on collusion between companies of the WOG Group, LLC “SOCAR PETROLEUM”, LLC “OKKO-Retail” [10]. The price collusion is a logical response of the oligopolistic market to severe price competition, since the latter washes away the resources needed to develop companies; it makes the retailers’ economic profits too small.

In recent years, the non-price competition among petroleum retailers has been intensified. It manifests through implementation of loyalty programs, expanding the list and improving the quality of ancillary retail services, and others. However, the impact of these non-price factors onto the price is still small enough, maintaining the price corridor within the scope of search costs.

The situation in the market of air-passenger operations is reverse. As noted above, we investigated prices for services of 17 different airlines (in general and per 1 km distance) for and indicating severe price competition between different gas station networks. The differences between the prices set by different retailers at their gas stations are insignificant. In fact, they cannot be significant, because it will force consumers to switch to buying the fuel from the retailer with significantly lower prices. The homogeneity of products within the segment and the requirement of its compliance with uniform standards make the consumer to some extent insensitive to the place of purchase of fuel. Our survey showed that only a quarter of motorists would continue to buy fuel at the basic gas station in the case of small but significant and non-transitory increase in price (SSNIP-test), while others expressed their willingness to look for cheaper gas at competitors’ gas stations. This value is too low to let fuel retailers ignore competition pressures.

The overall differentiation of fuel within the market increases the coefficient of variation to 22.67 %, but this figure can hardly be considered as a correct indicator of harshness of price competition, since prices are set separately for each type of fuel, and consumers are usually unable to switch from one type of fuel to another because of the technical characteristics of their cars’ combustion engines. Exception is only different types of gasoline (A-95, A-92, etc.), between which a consumer can switch under certain circumstances, while the proportion of such switching does not promise to be high. Only 9.7% of motorists said they would do it with ease. The statistic mode for the sample of respondents on this question is 8 in the range from 1 to 10, where 1 means easy switching, and 10 — refusal from switching.

### Table 2

<table>
<thead>
<tr>
<th>Market segment</th>
<th>Average value of price variation, %</th>
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<tr>
<td>A-95 motor gasoline</td>
<td>5.09</td>
</tr>
<tr>
<td>A-92 motor gasoline</td>
<td>4.33</td>
</tr>
<tr>
<td>Diesel fuel</td>
<td>2.07</td>
</tr>
<tr>
<td>Liquefied natural gas</td>
<td>4.95</td>
</tr>
<tr>
<td>All totalled</td>
<td>22.67</td>
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50 destinations with departure from Kyiv in July-August 2018, ranged by service classes and the time of pre-booking the ticket. This sample was also analysed with the coefficient of price variation (Table 3).

Table 3 shows that the price variation in the market of air-passenger operations is ten times higher than the similar indicators for the retail fuel market, illustrating much weaker price competition between air carriers. In this market, even the residues of price competition are covered by non-price ones. Higher/lower fares are set here under the pretext of varying quality of service. For example, the distribution of airlines into premium carriers (Qatar Airways, Emirates, Lufthansa, Turkish airlines, KLM), middle class (UIA, LOT, Belavia, AirMoldova, Czech airlines) and low cost carriers (RyanAir, Smart Wings, Pegasus, Wizzair) is associated by most consumers to a greater extent with the different quality of the service than with the price per se. The average consumer is aware that low-cost companies usually limit the range of additional services (luggage, food, and others) by requiring additional fee; as a rule, it is impossible to return their tickets in case of non-flight; some of them do not even provide for determining the position of the passenger on board, allowing passengers to occupy the seats themselves. Flying with a premium airline will always be much more comfortable, including the number of free services, which costs are included into the higher price of a ticket. That means that we are dealing with the classic case of vertical differentiation. Such differentiation, by increasing the reserve price of goods, makes competition between market actors less severe, while consumers do not find such a practice illegitimate.

In fact, the result of such legitimation of competitive strategies of airlines in Ukrainian market is the absence of complaints to the AMCU about the violation of the competition law by airlines. Ukrainian antitrust practices knew the cases of vertical concerted action between airports and airlines, caused by naturally monopolistic status of the airports, while horizontal competition in the market did not cause any criticism from the AMCU. The reason is considerable differentiation and information asymmetry. The latter ones act both as a deterrent to conspiracy, reducing the coordination capacity of the market, and as an argument for the consumer to pay more.

Conclusions. Summarizing the results of the comparative analysis of competition in the retail fuel market and the market of air-passenger operations, we can make the next conclusions. In the retail fuel market, which is characterized by a minimum level of information asymmetry, sellers are forced to resort to severe price competition or to make cartels. In the market of air-passenger operations competition is much weaker, while the set of parameters by which it occurs is much wider. The information asymmetry of the latter deforms a consumer perception of the market equilibrium parameters so much that lower intensity of competition and wider range of equilibria are not perceived by him/her as a bad, while a seller obtains some kind of guarantee of positive economic profit as a source for innovative development. In the retail fuel market, the expansion of the range of equilibria is always perceived by consumers as some kind of abusive practice, keeping sellers in a narrow price corridor, weakening their adaptive efficiency. Markets in the economy are interconnected by capital flows, so the inter-sectoral imbalance described above is not stable. It will provide a leak of capital from one industry to others (however, there are effective safeguards like demand constraints or other market barriers) or it will multiply the practice of applying more effective competitive strategies. Nowadays we can already observe a gradual increase in differentiation and information asymmetry in the retail fuel market. According to AMCU, such leading market actors as LLC “WOG Retail” and LLC “OKKO-Retail” sell no more than 20 % of fuel at prices, which are set on their information boards (nominal prices), while the rest is sold through discounts with loyalty programs. Even the price correlation between nominal prices has been reducing over years (in 2016 average value of price correlation coefficient was 0.97; in 2017 – 0.95, in 2018 – 0.92). Therefore, in the nearest future, we should expect significant changes in the nature of competition within the recently transparent markets, its sophistication and differentiation in the non-price area that requires revision of the competition strategies themselves and approaches to control over latter by competitive agencies to counteract the new generation of anticompetitive practices.

Table 3

<table>
<thead>
<tr>
<th>Differentiation criterion</th>
<th>Average value of price variation, % at the absolute value of airfare</th>
<th>Average value of price variation, % at airfare per 1 km of a flight</th>
</tr>
</thead>
<tbody>
<tr>
<td>All totalled</td>
<td>127.73</td>
<td>79.84</td>
</tr>
<tr>
<td>Flight itinerary</td>
<td>62.91</td>
<td>64.98</td>
</tr>
<tr>
<td>Flight itinerary and service class</td>
<td>38.8</td>
<td>39.85</td>
</tr>
<tr>
<td>Flight itinerary, class of service and ticket booking period</td>
<td>33.54</td>
<td>34.01</td>
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* according to the data of travel fare aggregators, such as skyscanner, tickets.ua, kyivia, tripadvisor, avianews.com

References.
Інформаційна асиметрія як детермінант конкурентної боротьби

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Мета. Визначення впливу інформаційної асиметрії на базові стратегії конкурентної боротьби між учасниками ринку, з’ясування очікуваного вектору зміни конкурентної відносин в міру посилення інформаційної асиметрії.

Методика. Теоретико-методологічним підґрунтям дослідження є компаративний аналіз ринків роздрібної торгівлі пальним в Україні та пасажирських авіаперевезень. Зазначені ринки розглядаються як приклади ринків, які за однакових структурних параметрах характеризуються різним рівнем інформаційної асиметрії, що дозволяє встановити вплив інформаційної асиметрії на конкурентну відносину.

Результати. Порівняння ринку роздрібної торгівлі пальним і ринку пасажирських авіаперевезень свідчать про те, що інформаційна асиметрія впливає на вибір учасниками ринку основної стратегії конкурентної боротьби. Так, інформаційна асиметрія посилює цінову конкурентність та збільшує неціноzem загальну вартість товару, зокрема, забезпечуючи її високою якістю, але також збільшує нецінову, загалом послаблюючи інтенсивність конкурентних відносин.

Нанова новизна. У ході проведення дослідження нами був зроблений висновок, що класифікація благ, відповідно до міри їх сприятливості до інформаційної асиметрії, на якій товари, що наближаються до статусу товарів на довірі, мають найбільшу склонність до впливу інформаційної асиметрії. Зазначені ринки розглядаються як приклади ринків, які за однакових структурних параметрах характеризуються різним рівнем інформаційної асиметрії, що дозволяє встановити вплив інформаційної асиметрії на конкурентну відносину.

Висновки. Порівняння ринку роздрібної торгівлі пальним і ринку пасажирських авіаперевезень свідчать про те, що інформаційна асиметрія впливає на вибір учасниками ринку основної стратегії конкурентної боротьби. Так, інформаційна асиметрія посилює цінову конкурентність та збільшує неціноzem загальну вартість товару, зокрема, забезпечуючи її високою якістю, але також збільшує нецінову, загалом послаблюючи інтенсивність конкурентних відносин.

Ціль. Определяет влияние информационной асимметрии на базовые стратегии конкурентной борьбы между участниками рынка, выяснение ожидаемого вектора изменения конкуренции по мере усиления информационной асимметрии.

Методика. Теоретико-методологическим основанием исследования является сравнительный анализ рынков розничной торговли горючим в Украине и пассажирских авиаперевозок. Указанные рынки рассматриваются как примеры рынков, которые при одинаковых структурных параметрах характеризуются разным уровнем информационной асимметрии, что позволяет установить влияние информационной асимметрии на конкуренцию.

Результаты. Сравнение рынка розничной торговли горючим и рынка пассажирских авиаперевозок свидетельствует о том, что информационная асимметрия влияет на выбор участниками рынка основной стратегии конкуренции. Так, информационная асимметрия ослабляет ценовую конкуренцию и увеличивает неценовую, что является началом снижения конкурентной интенсивности на рынке между участниками рыночных отношений по мере усиления информационной асимметрии. Это влияние информационной асимметрии на конкуренцию и общественное благосостояние является преимущественно, положительным. В то же время наблюдается длительный отрицательный эффект — информационная асимметрия может привести к снижению качества продукции, что ухудшает конкурентное положение компаний на рынке, а продавец получает гарантию положительного экономического прибыли как положительный результат. В то же время наблюдается длительный отрицательный эффект — информационная асимметрия может привести к снижению качества продукции, что ухудшает конкурентное положение компаний на рынке, а продавец получает гарантию положительного экономического прибыли как положительный результат.