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# INDUSTRIES, SECTORAL POLICIES

## **THE RUSSIAN AIRLINE INDUSTRY: CONTESTABLE MARKET OR...?**

SERGEY LUKYANOV, PH.D., ELENA TISSEN, PH.D.,  
NADEZDA KISLYAK, M.S.

Ural State Gorky University, Russia

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**Key words:** Entry-barriers, airline industry, contestable market, market structure

**Annotation:** The authors, based on the complete survey of Russian airlines that was conducted in winter of 2006-2007, analyze essential entry-barriers in the industry, and econometrically estimate efficiency of methods for overcoming entry-barriers in the Russian PAI. They find that there are significant technological and behavioral entry-barriers in the industry. The paper doubts that this industry is contestable in contemporary Russia, although it is typically contestable in Europe and the USA. Econometric estimation of entry-barriers points that administrative barriers are the most significant restrictions of competition.

The passenger airlift industry is a special indicator that demonstrates the state of economy as a whole. On its supply side, this market is characterized by the development of infrastructure driven by applied technologies unique to aviation. Its demand side is characterized by utilizing this unique technology which ultimately promotes a certain social good realized through population mobility. Of course, these suppositions lead to a special interest in the passenger airlift industry (PAI) analysis.

We intend to evaluate empirically the degree of competition within this industry and to prove, that its market structure is not contestable in Russia (it is important to note that this market is contestable in Western Europe and the US.); we will also propose the most effective ways for overcoming barriers to entry into this industry.

### **Russian airlift market contestability**

The passenger airlift industry (further in the text PAI) is supposed to be contestable (quasi-competitive) in both the US and Western Europe, therefore it is often analyzed as a contestable market. The concept of the contestable market was presented by Baumol, Panzar, Willing (1982) and Caves (1982). What is the degree of Russian PAI contestability? According to Baumol, a contestable market is a market where entry and exit are absolutely free (Baumol W., 2003). Such a definition implies that a newcomer has the same technology and the same product quality as an incumbent. The essential attribute of a contestable market is that any equilibrium must have zero profit and long-run prices must be equal to marginal costs – this reminds us of the perfectly competitive market. The perfectly competitive market is sure to be a contestable market, but not vice versa. Market

contestability doesn't depend on industry structure (Baumol W., 2003). The effects of scale and scope can limit the number of participants, but firms can not make their prices higher than marginal costs (high prices yield profit higher than normal and so newcomers would like to enter the market). Also the contestable market implies several conditions: free access to the technology for both incumbents and newcomers; existence of the real possibility of competition; negligible irreversible costs of entry; implementation of a "hit-and-run" strategy by the newcomers.

The PAI condition of free access to the technology for both incumbents and newcomers is potentially realistic. This implies the presence of airplanes in the first place and services of 'home' and 'host' airports. Recently there has been a case when an airport and a local airline were integrated into one company. This often hampers other airlines to offer new routes originating from this airport and thus it prevents them from competing with the incumbent airline(s).

In reality the best possible time for a competitor to enter the PAI occurs immediately after a considerable price increase was instituted by industry incumbents. This fact causes the airlines to constantly be searching for capital they can use to increase their business profitability.

The condition of low irreversible entry-costs requires additional proviso. Baumol regards the PAI as a market with negligible irreversible entry-costs. Upon first review, having airplanes and a discrete schedule of airline flights, does not increase costs when new destinations are added using the same number of airplanes. But more detailed analysis reveals that a schedule of new routes causes irreversible expenditures on negotiations with other airports about

landing right/fees, airplane parking fees, airport infrastructure improvement fees, counter space for ticketing and passenger check-in, advertisements in the airport and along the roads leading into the airport facility, etc. These expenditures can have a significant impact on the company's costs.

The implementation of a "hit-and-run" strategy is even less possible than previous one. The Contestable Market Theory framework proposes that a potential competitor can use any strategy, even the short-run possibility of profit gain, because he can enter the market and gain profit before prices have changed, and leave the industry having no costs. At the same time, incumbents wary of such an invasion by competitors will keep prices equal to the marginal costs, and the market will have attributes of a competitive market, even if it has a high concentration rate.

Baumol gives an example of charter flights to prove that the PAI is contestable. The charter flight price depends on the number of seats filled on an airplane. So charter routes allow newcomers to enter the market spending no significant resources. Incumbents operating the PAI and implementing charter flights can ignore the newcomer appearance. And the newcomer will have already managed to gain profit before an incumbent begins to change its ticket prices with a purpose to crowd a newcomer-company out of the market. However it is important to note that commercial airline service is generally characterized by a quick response by incumbents toward any unique, cut rate pricing offered by newcomers.

The condition of relatively low irreversible expenditures is closely associated with the condition of a "hit-and-run" strategy implementation by a newcomer. If investments are reversible, firms don't care about how long they might remain in the industry, because they always can sell their basic assets at the price not lower than their market value. But if irreversible expenditures are present, the basic assets depreciation becomes a crucial factor. The larger the irreversible expenditures, the longer the period of time required to cover all costs. Thus, the "hit-and-run" strategy will be less successful.

So, the preliminary analysis of the basic theoretical conditions of the Concept of Contestable Markets allows us to doubt that every compulsory proviso of the PAI contestability holds in Russia. We will now check this hypothesis by describing the PAI structure in Russia and performing an empirical estimation using survey data.

#### **Econometric estimation of the Russian PAI contestability**

We have already noted that market contestability as a dependent variable in the econometric model specification can be determined by

several factors. They are free access to technology for both incumbents and newcomers; existence of the real possibility of competition; negligible irreversible entry-costs; implementation of "hit and run" strategy by newcomers.

Our empirical research is aimed at two main objectives: the first is to test econometrically whether the mentioned four independent variables are significant for the Russian PAI contestability estimation; the second is to estimate every independent variable with descriptive statistics in order to see whether it is significant for Russian PAI.

#### **Data and methodology of the empirical research**

The main source of information is the data of Federal State Unitary Enterprise "State Corporation for Air Transportation in the Russian Federation (FSUE "ATM Corporation)". The research contains data about 355 Russian airline companies that have entered the market between 1991 and 2006 inclusive<sup>1</sup>. Besides these sources we have used results of our own survey. We questioned 156 experts of various Russian airline companies by means of a questionnaire.

The significance estimation of having the contestability conditions in the PAI is derived from the econometric model:

$$\Pr (Y_i=1) = F(\beta_0 + \beta_1 \text{FreeEntry}_i + \beta_2 \text{Competition}_i + \beta_3 \text{EntryCosts}_i + \beta_4 \text{Strategy}_i), \quad (1)$$

where,  $Y_i$  - contestability presence (1) or absence (0) in the PAI;

$F(\cdot)$  - standard normal distribution function;

FreeEntry - experts' evaluation of free access to the technology (from 0 to 10; 0 - there is no access, 10 - free access);

Competition - experts' evaluation of potential competition (from 0 to 10; 0 - absence of competition threat, 10 - competition threat is maximum);

EntryCosts - experts' evaluation of irreversible entry-costs (from 0 to 10; 0 - absence of irreversible entry-costs, 10 - irreversible entry-costs are insuperable);

Strategy - experts' evaluation of possibility of "hit-and-run" strategy implementation (from 0 to 10; 0 - any company can implement this strategy, 10 - no company can implement it).

Experts evaluating the market contestability consider that every independent variable is significant.

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<sup>1</sup> Additionally, we used statistical materials and reports of the Russian Aviation, Transport Clearing House, Federal Agency of Air Transport at the Ministry of Transport of Russian Federation.

Table 1 demonstrates this conclusion. Hence, we can sum up that the four mentioned contestability

parameters are necessary indicators for estimating the PAI contestability level.

TABLE 1. CONDITIONS OF CONTESTABILITY PRESENCE IN PAI  
ESTIMATION OF SIGNIFICANCE FOR INDEPENDENT PARAMETERS

Independent variables	Coefficients
Const	-0.018195 (0.624518)
FreeEntry	0.013628*** (5.768325)
Competition	0.103686*** (4.587693)
EntryCosts	0.000318*** (4.800122)
Strategy	-0.018195** (-2.255429)
Pseudo R2	0.726
Sample	156

Note: Z-statistics are in parenthesis; \*\* 5% level of significance; \*\*\* 1% level of significance

Descriptive statistics allows estimating these variables for the contemporary Russian PAI. Free accessibility of newcomers to the incumbents' technology is evaluated by means of survey results for leading Russian companies. We concluded that there is a great difference between newcomers and incumbents. This difference is caused by the fact that first of all it is difficult to access technology of incumbents. For example, almost everyone surveyed (94%) noted that it is too complicated to get licenses to conduct periodic servicing of aircraft, as well as to conduct so-called "C-check" services on one's own planes (C-checks are compulsory to operate in the industry). There are also specific technologies such as flight information analysis. According to the Russian Aviation Authority, the share of decoded information should be more than 90%. For example, until recently there were only two companies – "Aeroflot" and "S7-Sibir" – had the mentioned Airbus license. So, we can regard the PAI as an industry that has significant technological entry-barriers. This fact decreases the possibility of access to the technology by newcomers considerably.

The possibility of real competition began to appear after 1990. There were a large number of entries into the market. For example, according to FSUE "State ATM Corporation", 33 newcomers entered the industry in 2006. Only seven companies out of 33 received the license to operate aircraft. More detailed analysis of newcomers' asset structure, number of personnel, their route system development and IATA (International Air Transport Association) and ICAO (International Civil Aviation Organization) membership allow to conclude that only the Sky-Express Company out of the 33 others has an airplane fleet and that it can be regarded as a strong participant in the PAI. Almost every expert (97%) concluded confidently that there are significant administrative entry barriers in the industry. Particularly, high transaction costs restrict the market

competition, for instance unofficial payments to functionaries (bribes) for permission to operate in the market, providing for landing slots at airports (time-schedules of take-offs/arrivals) and so on. So, we can conclude that there are significant behavioral (administrative) entry-barriers in the industry and this greatly decreases the possibility of potential competition strongly.

The sunk costs of entry magnitude demonstrates that the industry has a very high capital output ratio and 98% of the experts note this fact. Sunk entry costs form a dominating part of capital output ratio. They are determined by a high level of resource specificity in PAI market. The most important element of these types of costs are transaction costs (e.g. unofficial payments to functionaries (bribes) are more likely to be irreversible). Interviewing of experts has shown that the PAI has extremely high magnitude of transaction costs and that this fact is caused by the necessity to restrain newcomers' entry by established airlines. Conversely newcomers have to pay whatever amount may be required to gain entry into the industry. In order to reach this goal companies often do not use economic ways of competition but administrative ones. It is the administrative barriers that cause a high level of transaction costs in PAI market of Russia.

Comparative analysis of Russian and Foreign companies expenditure structure also demonstrates significant sunk costs in the Russian PAI.

As far as the implementation of the "hit-and-run" strategy is concerned all experts concluded that there is a very strong capital immobility (capital flows between segments). And the PAI is characterized by a low level of airport substitution both for airlines and passengers. The condition for airport substitution is the presence of their equal accessibility (e.g. connection between airports for passengers) and the ability to base aircraft

at selected airports. It is determined by the category of airport, certificate for receiving and servicing different types of aircraft, presence of licenses for route operation etc. Besides the absence of substitution that restricts the possibility of implementing a hit-and-run strategy, transaction costs in the industry are too high. This fact requires long-term business to compensate these expenditures. So, we can state that the possibility of implementing a "hit-and-run" strategy is very limited in the Russian PAI.

Thus, the analysis of the four contestability conditions shows that they "fail" in the Russian PAI. This implies undoubtedly that the PAI in Russia is a market with significant entry barriers, especially, with dominating administrative barriers. The "Discrete Competition" in the Russian passenger airlift industry means market concentration density is biased towards small regional companies. As a rule, these companies form groups based on joint ownership of property or "airport-airline" affiliation. These vertical structures have significant market power on the routes operated by them, but at the same time they have a small market share compared to the volume of airlift in Russia, and therefore this aspect significantly complicates the situation for the PAI in Russia.

### **Conclusion**

Based on the complete survey of Russian airlines that was conducted in winter of 2006-2007, we analyzed essential entry-barriers in the industry, evaluated the impact of division of vertically integrated structures ("airport-airline") on regional passenger welfare, and econometrically estimated efficiency of methods for overcoming entry-barriers in the Russian PAI.

We find that there are significant technological and behavioral entry-barriers in the industry. It makes us doubt that this industry is contestable in contemporary Russia, although it is typically contestable in Europe and the USA. Econometric estimation of entry-barriers allows us to conclude that administrative barriers are the most significant restrictions of competition.

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