Impact of judicial review on the development of evidentiary standards in competition law enforcement

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Abstract

Despite the fact that judicial review is an important part of competition law enforcement under the administrative system, in which courts decide on claims to annul infringement decisions made by competition authorities, its role in the development of evidentiary standards of economic analysis is understudied. This paper attempts to fill this gap by analyzing the impact of judicial review on the application of market analysis in competition investigations by the Russian competition authority during 2008-2015. Although the guidelines for the assessment of competition are mandatory for many types of anticompetitive conduct and they require application of the Hypothetical Monopolist Test to delineate antitrust market, competition authority does not always do that. We test hypotheses on the impact of legal requirements, experience of application, and the outcomes of the judicial review on the probability to present either an informal market analysis or market delineation using the Hypothetical Monopolist Test in a particular decision. We find that positive outcomes of the judicial review of infringement decisions significantly increase the probability of undertaking a particular analysis in future investigations. The pressure of judicial review under the presence of mandatory standards of evidence is an important determinant of the development of evidentiary standards in competition law.

Key words: competition law enforcement, judicial review, evidentiary standards, Russia.

JEL codes: K21
1. Introduction

An effective appeals process as an error-corrections mechanism (Shavel, 1995; Shavel, 2006) is a necessary condition for the quality of law enforcement. For decisions finding legal violations, appealing allows the probability of wrongful convictions (Type I errors) to be reduced. Another important effect of appealing is that it affects the standards of evidence: decisions of higher courts influence future courses of action in lower instances and by regulatory bodies.

Both effects – avoiding wrongful convictions and developing standards of evidence – are important when a law is enforced by executives in public agencies rather than by courts. One important example is antitrust (or competition, in European traditions) legislation. In the administrative model of antitrust enforcement (Jenny, 2016) that quantitatively prevails throughout the world – from the US Federal Trade Commission to Chinese State Administration for Market Regulation – decisions on whether wrongdoing takes place are made by specialized public servants. Typically, investigation, prosecution and adjudication are made within the same agency and, sometimes, by the same group of officers. According to many experts (Wils, 2004), prosecutorial bias in this system is inevitable for a number of reasons.

In competition enforcement, prosecutorial bias is socially harmful, among other reasons, because wrongful convictions result from mistakes of act instead of mistakes of identity (Garoupa, Rizzolli, 2012). Effects from the mistakes of act are long-term (Easterbrook, 1984).

If a law is enforced on the basis of the administrative model, decisions of public agencies are subject to judicial review, which is supposed to provide incentives for state agencies to act efficiently (Dari-Mattiacci et al, 2010). However, there is skepticism about the ability of judges to effectively prevent wrongful convictions and contribute to the standards of evidence due to a lack of professional skills and knowledge. Competition enforcement is probably one of the best examples of why this skepticism arises. Models that underlie theories of harm and efficiency defense become increasingly complicated over time; their interpretation in a particular case and external assessments of this interpretation under judicial review present considerable difficulties.

Empirical evidence on the quality of judicial decisions on competition cases is mixed. Baye and Wright (2011) prove that specialized training of judges in generalist courts contributes to the legal quality of decisions. One year later, analyzing the outcomes of external judicial review and the quality of administrative decisions in the US FTC, the same authors were unable to find any evidence to confirm the effect (Wright and Diveley, 2012). Nevertheless, there is a consensus that the main advantage of the administrative vs. prosecutorial model of competition enforcement is the higher professional skills of specialized officers (Jenny, 2016). In the EU, legal scholars doubt that courts are able to analyze complex economic and technical issues in antitrust cases (Laguna de Paz, 2014). There is also skepticism about the ability of courts in the EU system to improve the normative standards of competition enforcement (Geradin and Petit, 2011).

Theoretical modeling does not provide a unanimous answer on the effects of judicial review of competition decisions. Judicial review of competition authority (CA hereafter) decisions may be superior to internal mechanisms of error correction, but only under a number of assumptions. Moreover, judicial review may not incentivize the authorities to use proper legal standards
(Katsoulacos and Ulph, 2011). At the same time, the model of the choice of legal standards by CA developed in Katsoulacos (2019a) suggests that a rational agency influenced by reputational concerns is not necessarily incentivized to use advanced economic analysis when investigating a case.

Our research is devoted to the ability of judicial review to contribute to the development of the standards of evidence in competition law enforcement. In contrast to many other papers, we address this question empirically. The research question concerns whether the outcomes of judicial review affect the decision of CA to apply the Hypothetical Monopolist Test (HMT, or Small but Significant and Non-Transitory Price Increase, SSNIP) and provide a relatively extensive analysis of market competition under investigation of competition law violation. The goal of this paper is to test whether judicial review in the administrative competition enforcement system affects the approach to economic analysis that CAs use if procedural rules contain requirements for economic analysis to prove violations and if judges take them into account when reviewing infringement decisions.

We provide empirical evidence that is consistent with the hypothesis on the role of judicial review as being a driving force for the development of evidentiary standards. The Russian competition jurisdiction is the focus of our analysis. It is relatively young, thus the probability of a wrongful conviction is considered to be high (Gringerson and Numerova, 2012), including due to self-incrimination (Pavlova and Shastitko, 2016). Judicial review by non-specialized judges promotes the use of specific instruments of market analysis due to the legal requirements for infringement decisions, which establishes a certain level of economic analysis.

The remainder of this article is organized as follows. The next section contains a brief literature review. Section 3 presents the model that allows us to empirically derive testable propositions on the determinants of evidentiary standards under administrative enforcement. Section 4 is devoted to the Russian context of judicial review of administrative decisions made by the CA and guidelines for competition investigations. Section 5 explains the empirical modeling approach and discusses the results of the empirical analysis. Section 6 concludes.

2. Related literature

Until now, studies analyzing judicial review of administrative decisions on competition law violations have been devoted to the legal quality of decisions (see Wright and Diveley, 2012) or the ability of judicial review procedures to protect the right to defense (see Bernatt et al, 2018). In both cases, error correction rather than a standard setting function is at the center of research. An important exception is the extensive review by Geradin and Petit (2011), who summarize approaches to judicial review in different theoretical traditions and analyze a dataset of judicial review of European Commission decisions regarding appeals of infringement decisions and fines. Their paper shows that judicial review in the EU follows a formalistic approach and does not promote evidentiary standards. Our study is closest to this study, with two important differences. First, because of the large scale of competition enforcement in Russia, we collected a much wider dataset of decisions on illegal conduct similar to the violations described in Articles 101 and 102 TFEU. Moreover, the large scale allows us to track the impact of judicial
review for different conduct groups over time. Second, with a longer history of competition enforcement in the EU and the greater amount of knowledge accumulated, Geradin and Petit (2011) are much more critical in their assessment of the use of economic evidence under judicial review than we are. An approach that appears to be completely formalistic in the EU may seem to be advanced for generalist judges in Russia.

In this article, we use a model that explains the choice of legal standards by a CA (Katsoulacos, 2019a) in response to the anticipated outcome of judicial review of the decision. Modeling shows that the CA may rationally apply lower legal standards than the one that courts consider to be the proper standard for the case. Empirical evidence on the outcomes of judicial review of competition decisions in Russia supports this implication. In other papers, we use predictions of the model to explain the impact of institutional settings, including diversification of the policy portfolio (Avdasheva et al, 2019) and performance measurements (Avdasheva et al, 2018) of the selection of enforcement targets and the welfare effects of enforcement. In particular, we show that motivation to achieve enforcement success, in terms of minimizing annulment of decisions following judicial review, might distort the structure of enforcement towards targets with lower benefits for social welfare (Avdasheva et al, 2019). To our knowledge, our paper is the first to provide empirical evidence on the standard-promoting effect of judicial review under administrative competition enforcement.

3. The model

Our model\(^1\) explains the extent of economic analysis used by a CA. The extent of economic analysis broadly depends on the legal standard, i.e. the rule that determines how to make the assessment of a particular type of conduct and reach a decision. Broadly, there are two extreme types of legal standards – per se and effect-based (or rule of reason). Under the per se legal standard no detailed economic analysis of market conditions, no assessment of the impact of the particular conduct on welfare is undertaken in order to decide whether there is liability. The CA relies on presumptions of the effect of conduct in question on competition and welfare. Under an effect-based legal standard the decision on liability relies on the assessment of the real or potential effect of the specific conduct investigated on competition and consumer welfare. There exist also intermediate legal standards between per se and effect-based standards (Katsoulacos et al, 2016; Katsoulacos, 2019a). For many conducts, higher (that is closer to effect-based) legal standards improve welfare (Katsoulacos, Ulph, 2016, 2017). However, there is evidence that in many countries, authorities apply sub-optimal legal standards under investigations\(^2\).

The model explains sub-optimal (from social welfare point of view) legal standards and therefore, suboptimal use of economic analysis by CAs under judicial review. The model also allows us to derive predictions of the impact of guidelines on the application of economic analysis. The presence of mandatory standards makes it easier for judges to decide on

\(^1\) See for details Katsoulacos (2019a).

\(^2\) See for details, especially with regard to the European Commission and European countries, Katsoulacos 2019a & b).
reasonability of CA infringement decision. In turn, the CA reacts on courts’ decisions rather than on the presence of legal requirements as such.

Two assumptions are important for the model. The first is that the CA chooses legal standards and therefore economic analysis in the light of what is expects will be the courts’ choice of legal standards which are in turn influenced by the liability standard adopted\(^3\). The second is that the objectives of the CA as a public agency includes that of enhancing its public image or reputation. While the Commissioner(s) (Head) of the CA are concerned with the wider social benefits of the CA’s activities, as reflected in consumer welfare or the preservation of a competitive environment, they are also attaching value to how enforcement activities impact on their reputation and public image or they are concerned with satisfying performance criteria that are not related to the welfare impact of enforcement. These formal performance criteria include not only investigations undertaken and decisions reached, but also the share of decisions upheld under judicial review (Avdasheva et al, 2018).

3.1. The CA’s utility function

The utility function (U) of the CA depends on the reputation (R) and the quality (Q) of its enforcement activities. Reputation is determined by the Success of Enforcement (S) of the CA that we assume to be the number of infringement decisions which are upheld under judicial review. Assuming that the CA’s enforcement efforts are directed to K types of potentially anticompetitive business conducts, S is a function of enforcement success in investigations of these different conducts:

\[ S = S(S_1, S_2, ..., S_K) \]  

and reputation is given by:

\[ R = R(S), R'_S(S) > 0, R''_S(S) < 0 \]  

So reputation increases (at a diminishing rate) as \( S_k \) increases. Utility from enforcement related to conduct \( k = 1, ..., K \) can be expressed as:

\[ U_k = U_k(R_k(S_k(D_k, e_k(LS_k))))Q_k(LS_k)), \frac{\partial U_k}{\partial R_k}, \frac{\partial U_k}{\partial Q_k} > 0, k = 1, ..., K \]  

where \( e_k \) is a measure of the extent of economic analysis and \( LS_k \) is the legal standard applied for investigating the particular conduct \( k \); \( LS_k \in [PS; FEB] \), where PS – Per Se legal standard; FEB – full effect-based (or rule-of-reason) legal standard; \( \frac{\partial e_k}{\partial LS_k} > 0^4 \);

\( Q_k(LS_k) \) is a measure of the quality of enforcement in investigations of conduct \( k \), given the adopted \( LS_k \) (and, hence, given \( e_k \)), in terms of the welfare benefits of lowering costs of decision errors and adverse deterrence effects.

Enforcement success is assumed to be determined by:

\[ S_k(D_k, e_k(LS_k)) = D_k \left(1 - \Phi_k(e_k(LS_k))\right), k = 1, ..., K \]  

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\(^3\) See especially Katsoulacos 2019b.

\(^4\) For more detailed explanation on the dependence of economic analysis on the legal standard see in Katsoulacos, 2019a.
where
\[ D_k = \text{infringement decisions reached on conduct } k; \]
\[ \Phi_k\left( e_k(LS_k) \right) = \text{probability that an infringement decision is reversed by judicial review given the legal standard } (LS_k) \text{ adopted}. \] Reversed decisions harm the reputation of the CA and its public image. This has the implication that, ceteris paribus, the CA will prefer to adopt legal standards that lower the risk of having its infringement decisions reversed.

Expected reversals of infringement decisions reached on conduct \( k \) given the legal standard \( (LS_k) \) adopted, depend on the probability that an infringement will be appealed against and the probability that an appealed decision will be reversed by appeal courts we have:
\[
\Phi_k\left( e_k(LS_k) \right) = \varphi_k^i\left( e_k(LS_k) \right) \cdot \varphi_k^A\left( e_k(LS_k) \right),\ k = 1, ... K
\]
\`
(5)
```
where:
\[
\varphi_k^i\left( e_k(LS_k) \right) = \text{probability that an infringement decision on conduct } k \text{ investigated under } LS_k, \text{ that is appealed, is finally reversed in courts of appeal.}
\]
\[
\varphi_k^A\left( e_k(LS_k) \right) = \text{probability that an infringement decision of conduct } k \text{ given } LS_k, \text{ leads to an appeal.}
\]

The objective of the CA is to undertake investigations (and reach decisions, \( D \)) and to adopt legal standards (LS) and apply economic analysis (\( e \)), that maximize its utility taking into account a cost constraint and the constraints imposed by the anticipated choices of legal standards by courts of appeal.

### 3.2 The cost constraint of the CA

The CA utilizes its resources to detect and investigate cases and reach decisions and to defend its decisions under review. We assume that the CA will always be able to implement the optimal number of decisions and utilize the optimal amount of economic evidence per case, as determined below. Cost constraint of CA can be written as:
\[
\Sigma_{k=1}^{K} C_k \leq \bar{C}
\]
\`
(6)
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where
\[
\bar{C} = \text{total resources available to the CA}
\]
\[
C_k = \text{total cost of reaching infringement decisions on conduct } k \text{ given the LS adopted.}
\]
This is given by:
\[
C_k = c_k^D\left( e_k(LS_k) \right)D_k + \varphi_k^A\left( e_k(LS_k), \bar{x} \right) \cdot c_k^A\left( e_k(LS_k) \right)D_k
\]
\`
(7)
```
where
\[
c_k^D\left( e_k(LS_k) \right) = \text{cost per investigation (decision reached) on conduct } k \text{ given the LS adopted.}
\]
\[
c_k^A\left( e_k(LS_k) \right) = \text{cost per appeal against decisions reached on conduct } k \text{ given the LS adopted.}
\]
\[
\bar{x} = \text{all other factors that influence the probability of appealing an infringement decision.}
We will take it that:

\[ \frac{\partial c_k^P}{\partial LS_k}, \frac{\partial c_k^P}{\partial LS_k'} > 0, k = 1, \ldots, K \]  

(8)

that is, the cost per investigation and the cost per appeal increase when a higher LS (i.e. one closer to Effect-Based) is adopted (since this will require additional resources for extended economic analysis and evidence to be used).

Marginal cost (MC) of decisions of type k are equal to the average cost of decisions (AC) of type k, and depends on the legal standard in the following way

\[ AC_k^P = \frac{c_k}{D_k} = MC_k^P = c_k^P(e_k(LS_k)), \phi_k^A(e_k(LS_k), \lambda) \cdot c_k^A(e_k(LS_k)) \]  

(9)

where

\[ \frac{dMC_k^P(LS_k)}{dLS_k} = \frac{dAC_k^P(LS_k)}{dLS_k} > 0 \]  

(10)

3.3. The probability of annulment function

Let \( \hat{LS}_k \) be the optimal legal standard adopted by the courts for conduct k. Let \( \hat{e}(\hat{LS}_k) \) be the optimal e associated with \( \hat{LS}_k \). There are two effects of the choice of economic analysis, on the probability of annulment (\( \Phi \)) of infringement decisions. Assuming that the CA always applies the optimal legal standard adopted by the courts and the corresponding optimal level of economic analysis then \( \frac{\partial \phi_k(\hat{e}(\hat{LS}_k))}{\partial e_k} \geq 0 \). On the other hand, given the courts’ optimal legal standard \( \hat{LS}_k \), the probability of annulment as e changes decreases for all \( e < \hat{e}_k(\hat{LS}_k) \) and remains constant thereafter, i.e., for all \( e \geq \hat{e}_k(\hat{LS}_k) \). So:

\[ \frac{\partial \phi_k(e_k(\hat{LS}_k))}{\partial e_k} \leq 0 \]

The first effect arises from the fact that as the optimal legal standard increases (i.e. as it shifts from PS to FEB) this implies additional units of economic analysis of increasing sophistication and complexity (as the assessment extends beyond identifying the characteristics of the conduct and the market to more sophisticated market delineation and measuring market power and then to identifying a theory of harm, identifying the strength of potential efficiencies and, finally, the impact of the conduct on welfare). This clearly increases the disputability of the decision. The second effect arises because, when the CA uses a lower level of e than that associated with the optimal legal standard of the courts for conduct k, \( \hat{LS}_k \), that is, when \( e < \hat{e}(\hat{LS}_k) \), increasing e towards its optimal level, for the given legal standard, will lower the probability of annulment, as e moves from a sub-optimal to an optimal level. Increasing e beyond its optimal level, for the given legal standard will be disregarded by the courts and hence will not affect the probability of annulment\(^5\).

\(^5\) Detailed explanation of the interrelation between the legal standard expected by the court, legal standard applied by the CA, and the probability of annulment is presented in (Katoulacos, 2019a).
3.4. Choice of legal standard by a reputation-maximizing CA

To determine the optimal economic analysis and evidence utilized by the CA in assessing some conduct type, we use a simplified version of the utility function (3), for conduct $k$ when some $LS_k$ is adopted. To start with, we assume that

$$ R_k(S_k(D_k, LS_k)) = f(D_k)S_k(D_k, e_k(LS_k)) = f(D_k)D_k \left(1 - \Phi_k(e_k(LS_k))\right), \quad k = 1, \ldots, K $$

(11)

and that:

$$ f(D_k) = \left(\frac{1}{\alpha}\right) D_k^{\alpha - 1}, \alpha \leq 1 $$

(12)

Then assuming here without loss of generality that $\alpha = 1$ we can use the following version of utility function (3):

$$ U_k = \left[D_k \left(1 - \Phi_k(e_k(LS_k))\right)\right]^\gamma Q_k(LS_k)^{1-\gamma}, \quad k = 1, \ldots, K $$

(13)

where $0 \leq \gamma \leq 1$. The CA is pure reputation maximizing when $\gamma = 1$ and pure welfare maximizing when $\gamma = 0$. A pure-reputation maximizing CA (henceforth indicated by subscript $R$), which does not take into account, when selecting $LS$ and $e$, the impact of its choices on the quality of enforcement, will choose by maximizing reputational enforcement success $S_k(D_k, LS_k) = D_k(1 - \Phi_k)$, minus the cost of enforcement. More generally, the CA will adopt the $LS$ and the amount of economic analysis and evidence that maximize the difference between $U_k$, given by (13), and $C_k$. That is, the optimal choice of $LS_k$ and hence of $e_k^C\alpha$, will be given by:

$$ \max_{LS} \{U_k - C_k\} $$

$$ \max_{LS} U_k = \left\{\left[D_k \left(1 - \Phi_k(e_k(LS_k))\right)\right]^\gamma Q_k(LS_k)^{1-\gamma} - AC(e_k(LS_k)), \quad k = 1, \ldots, K \right\} $$

(14)

and, for a CA that neglects the influence of its choices on the quality of enforcement, this is ($\gamma=1$):

$$ \max_{LS} \left\{D_k \left[1 - \Phi_k \left(\frac{e_k^C\alpha(LS_k)}{e_k^C\alpha(LS_k)}\right)\right] - AC \left(\frac{e_k^C(LS_k)}{e_k^C(LS_k)}\right)\right\} $$

(14’)

We can use the term Average Reputation Effect (ARE) to indicate:

$$ ARE_k \left(\frac{e_k^C\alpha(LS_k)}{e_k^C\alpha(LS_k)}\right) = 1 - \Phi_k \left(\frac{e_k^C\alpha(LS_k)}{e_k^C\alpha(LS_k)}\right) $$

(15)

so that (14) becomes:

$$ \max_{LS} U_k = \left\{\left[ARE_k\left(e_k(LS_k)\right)\right]^\gamma Q_k(LS_k)^{1-\gamma} - AC(e_k(LS_k)), \quad k = 1, \ldots, K \right\} $$

(16)

and (14’) becomes:

$$ \max_{LS} \left\{D_k \left[ARE_k \left(\frac{e_k^C\alpha(LS_k)}{e_k^C\alpha(LS_k)}\right)\right] - AC \left(\frac{e_k^C(LS_k)}{e_k^C(LS_k)}\right)\right\} $$

(16’)

Given (15), the dependence of $ARE_k$ on the extent of economic analysis replicates the properties of the function $\Phi_k(e_k(LS_k))$: so, $\frac{\partial ARE_k(e_k(LS_k))}{\partial e_k} \leq 0$, and $\frac{\partial ARE_k(e_k(LS_k))}{\partial e_k} \geq 0$. Figure 1 illustrates the choice of a $CA_R$. 
Figure 1. Choice of the extent of economic analysis by reputation-maximizing authority, under certainty and uncertainty about legal standards.

In Figure 1 the line AFM \( ARE_k(\hat{e}_k(\hat{LS}_k^*)) \) represents the Average Reputation Effect (ARE) as \( e \) increases, if the CA always chooses the optimal legal standard \( LS = \hat{LS}_k \) chosen by the courts and the optimal \( e = \hat{\epsilon}_k(\hat{LS}_k^*) \) associated with the optimal legal standard. As noted above (section 3.4) this is declining (because \( \Phi \), the probability of annulment increases as \( e = \hat{\epsilon}_k(\hat{LS}_k^*) \) increases. The line BFL \( ARE_k(e_k(\hat{LS}_k^*)) \) represents the ARE as \( e \) increases given the optimal legal standard chosen by the courts is \( \hat{LS}_k^* \), with corresponding optimal \( e = \hat{\epsilon}_k(\hat{LS}_k^*) \). As noted above (section 3.4) this is increasing with up to \( \hat{\epsilon}_k(\hat{LS}_k^*) \) and then it is constant.

**Proposition 1**: A CA\(_R\) will never choose a legal standard higher than the optimal legal standard (\( \hat{LS}_k \)) that it anticipates to be adopted by the courts. Correspondingly, a CA\(_R\) never chooses more economic analysis than required by the legal standard adopted by the courts, i.e. more than \( \hat{\epsilon}_k(\hat{LS}_k) \).
Proof: This follows immediately from the fact that an increase in the legal standard over $\bar{L}S_k$ and the extent of economic analysis over $\hat{e}_k(\bar{L}S_k)$, will increase $AC^D_k$ while leaving $ARE_k$ unchanged.

In Figure 1 if the optimal legal standard adopted by the courts is $\bar{L}S_k^*$ clearly the CA will not apply a legal standard (resp. level of $e$) above $\bar{L}S_k^*$ (resp. $\hat{e}_k(\bar{L}S_k^*)$).

**Proposition 2**: A $CA_R$ may choose a lower legal standard than the one adopted by the courts. Further, a $CA_R$ that does not know with certainty the legal standard that will be adopted by the courts is more likely to choose a lower legal standard than a $CA_R$ that knows the courts’ legal standard with certainty.

Proof: In Figure 1 if CA knows with certainty that the optimal legal standard adopted by the courts for conduct $k$ is $\bar{L}S_k^*$ it will choose the lower legal standard $\bar{L}S_k^* - \Delta$ instead, if $BE > FH$, or, if $DE > FG$ or if $DE > FB$ (in the circumstances shown in Figure 1 this does not hold and the CA will choose $\bar{L}S_k^*$). Under uncertainty, assume that the CA anticipates with probability (1/2) that the courts will choose $\bar{L}S_k^*$ and with probability (1/2) that it will choose $\bar{L}S_k^* - \Delta$. If the CA chooses the latter ($\bar{L}S_k^* - \Delta$) then its utility will be $(1/2)(AE) + (1/2)(BE)$. If the CA chooses $\bar{L}S_k^*$ its utility will be $(1/2)(FH)+(1/2)(AH)$ – given that if the CA chooses $\bar{L}S_k^*$, with $e_k = \hat{e}_k(\bar{L}S_k^*)$, and the optimal legal standard of courts is $\bar{L}S_k^* - \Delta$, the ARE will be given by the distance between the horizontal axis and point A. So the CA will choose legal standard $\bar{L}S_k^* - \Delta$ if $(AE)+(BE) > (FH)+(AD)$. Or, if $(DE) > (FH) - (BE) = (FG) - (DE)$, or, if $2(DE) > (FG) = (FB)$. So it is much more likely that the lower legal standard will be chosen by the CA under conditions of uncertainty concerning the legal standard adopted by the courts.

**Corollary**: As (a) a $CA_R$ becomes more productive over time (which will reduce the convexity of the AC function), or (b) the courts increase the legal standard adopted for the particular conduct (that is, they increase $\bar{L}S_k$) or (c) over time the $CA_R$ becomes better informed about the legal standard adopted by the courts, the CA is likely to shift to a higher legal standard and to apply a greater amount of economic analysis and evidence.

This corollary provides empirically testable results that allow us to derive hypotheses that will be tested using data on the appealed decisions of the Russian CA.

4. Russian context of judicial review of administrative decisions of the competition authority

In Russia, the rules of administrative adjudication, reconsideration of administrative decisions and judicial review provide a valuable opportunity to empirically analyze and compare the impact of the authority’s experience and the outcomes of judicial review on the standards of evidence that are used under administrative investigation. To show this, we describe the main characteristics of the rules of judicial review of administrative enforcement, Russian competition law and of making administrative decisions within the authority.

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6 Note that $(AD) = (AH)$.

7 For details of these results see Katsoulacos (2019a), Propositions 1 – 3 and Corollaries.
4.1. Judicial review of administrative decisions in Russian commercial courts

In Russia, if a law is enforced by the administrative authority, all types of decisions - infringement decisions, decisions on fines, remedies, acquittals, decisions not to initiate the case on complaints – are potentially subject to judicial review. Commercial (arbitrage) courts, which are responsible for resolving claims towards legal entities, consider this group of claims. The system of commercial courts consists of first instance courts (85 courts), appellate instance courts (21 courts), cassation instance courts (10 courts) and higher instance court. Before 2014, the Supreme Commercial Court was the highest instance court in the system of commercial courts. Since 2014, the highest instance court is the Supreme Court of the Russian Federation.

When losing a case in a lower court, the party has the right to appeal to a higher instance. The main difference between the first instance and the appellate instance is the number of judges that make decisions (one vs. three). The cassation instance, which is responsible for the control of procedures in lower courts, can annul a decision of a lower court and either adopt a new decision or send the case back to the first instance. A higher instance with supervisory power is the only court that has the power to consider or not consider a case and is also the only one that cannot make a final decision. In the case of an annulment of the decision of a lower court, the Supreme Court sends the case back to the first instance.

A remarkable feature of the Russian system of judicial review of administrative decisions is that either court has the power to consider new evidence presented by either party. According to one of the classifications (Asimow, 2015), Russian courts follow the open judicial review model, in contrast to the closed one. A company, when claiming to annul an infringement decision, can present to the court new data, new expert testimony, and so on, that were not previously presented to the CA. In turn, if the first instance court annuls the infringement decisions, the CA can file a claim for the appellate instance to annul the first instance decisions and can present new data and evidence. Either instance can attach new data and evidence to the case, including the testimonies of experts hired by the parties, and can also appoint experts itself to assess evidence. An interesting feature of the Russian commercial court system is the combination of open judicial review with the low specialization of judges. The only specialization is, a division of commercial courts into chambers responsible for civil cases and administrative cases.

Fees for claims are very low; in 2018, fees started at 1,500 RUB per claim, or less than 25 USD. Charges by specialized legal companies (if the claimant prefers not to present the case on his own) may be high, but the absence of any restrictions on representation (the person who represents the claimant may have no legal education) and qualification requirements to present a claim to annul the administrative decision (Trochev, 2016) pushes the price of professional representation down. It is also worth noting that courts are strongly motivated to make timely decisions. The easy access to appellation together with the timely review explain the large numbers of claims to annul decisions of enforcement agencies, including CAs. For instance, in 2017, Russian commercial courts considered 7,300 claims to annul infringement decisions by the Russian competition authority the Federal Antimonopoly Service (FAS hereafter) and 2,300

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8 In larger commercial courts (for instance, in Moscow), specialization of groups of judges on, say, tax issues, is possible. However, this is not the case for smaller regional commercial courts, and there is no specialization, for example, on competition cases.
claims to annul decisions on administrative penalties without challenging the decisions on infringements\(^9\).

The share of administrative decisions upheld under judicial review in Russia is generally lower than that in EU member states (see, for instance, the data on Croatia reported by Bajakić and Kos, 2016, or the data for US courts reported by Pierce and Weiss, 2011); however, this is not the case for competition legislation. For decisions on anticompetitive agreements and unilateral conduct, the available statistics allow us to evaluate the share of appealed infringement decisions to be above 1/3. The percent of competition infringement decisions annulled by Russian first instance courts (845 out of 2,300, or more than 1/3 in 2017, with the usual reservation that annulment may refer to a claim submitted in previous year(s)), is higher than comparable data from the EU (see Geradin and Petit, 2011).

4.2. Competition legislation

Historically, the blueprints for Russian competition legislation were European competition rules. Articles 10 and 11 of the Law on Protection of Competition are almost pure translations of Articles 102 and 101 of the Treaty of the Functioning of European Union. The penalties for anticompetitive conduct are also similar, but with a lower cap of 4% of a company’s turnover. However, there are also important differences. First, Russian competition legislation contains specific provisions on the restrictions of competition by executive authorities. Second, within the legislation on anticompetitive agreements and unilateral abuses, there has been a strong shift toward exploitative conduct (as defined by Vickers, 2008).

In 2011, important changes and amendments were introduced to the law (known as the ‘third antimonopoly package’). Among others, the amendments differentiate between two groups of illegal conduct according to the criteria of actual or potential effects. The first group consists of conducts with anticompetitive effects. The second group consists of conducts that only harms counterparties (consumers or suppliers) but does not necessarily have market power enhancing or competition restriction effects. In other words, the first group is exclusionary conduct and the second group is purely exploitative conduct. For the first group, turnover penalties are applied, while for the second group of conduct, the CA imposes only fixed penalties with a relatively low cap (1 mln RUB, or approximately 16,000 USD). The changes made in 2011 were important for the development of evidentiary standards both in courts and CAs because they clearly stressed that for certain groups of conduct (which correspond to commonly accepted notion of anticompetitive conduct), restriction of competition should be either presumed or proven with the relevant evidence. These changes are important for the empirical strategy presented in the next section.

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\(^9\) These numbers include not only infringement decisions on the violation of antitrust legislation but also infringement decisions under other legislative acts that FAS is responsible to enforce. Among them are, among other things, legislation on public procurement, legislation on procurement of regulated companies, legislation on advertising and legislation on tariff regulation.
4.3. Rules to make administrative decisions by competition authority

The FAS, which consists of a central office and 84 regional sub-divisions, investigates and decides cases according to the administrative model (Jenny, 2016). Commissions, which consist of officers, including lawyers and economists, investigate, prosecute and adjudicate cases, generally in the same way as the Directorate-General for Competition in European Commission (Wils, 2004). The scale of enforcement is large. The number of investigations on Articles 10 and 11 of the Law on Protection of Competition by the FAS together with regional subdivision during last decade varied from 1,500 to 5,000 annually. No less than half of the investigations resulted in infringement decisions.

In addition to infringement decisions, the FAS can issue warnings and precautions, which are documents in which presumably illegal conduct is discussed offering motivation to companies to stop violating a law. Under warnings and precautions, much lower evidentiary standards are applied. Warnings and precautions are generally similar to the Statement of Objections in the EU together with specific conduct remedies. If companies follow these remedies, deeper administrative investigations are not initiated.

For administrative decisions that are made by regional subdivisions, a system of reconsideration has recently (from 2015) been developed within the FAS. Submission for reconsideration is not a necessary condition to claim for judicial review. Judicial review is still the main error-correction instrument in Russian competition enforcement.

Legislative rules establish a certain economic analysis as a necessary condition for infringement decisions. The ‘Guidelines for the assessment of competition’ (hereafter Guidelines) are elaborated to support the use of economic analysis under investigations of competition law violations. The Guidelines combine approaches for market delineation (using HMT) and competition assessment. In addition to HMT, the Guidelines contain consistent application of the Structure-Conduct-Performance (SCP) approach to show how the structure of relevant market affects the conduct of market participants, their performance and the magnitude of anticompetitive effects of presumably illegal conducts. Over time, the importance of the Guidelines in Russian competition enforcement increases. In a large number of investigations, correct application of the Guidelines helps to avoid mistakes in decisions, which becomes clear not only for CAs but also for legal experts and business. Under their pressure, the Guidelines becomes tools of analysis mandatory by law, first under investigations of abuses of dominance and then under investigations of certain types of agreements and concerted practices. The law contains a long list of exemptions – conducts and circumstances – for which the Guidelines are still voluntary. However, companies under investigation as well as judges in commercial courts, over time, expect application of the Guidelines to be increasingly frequent.

Non-application of the Guidelines is an important reason to annul an infringement decision at any instance. The cassation instance often considers non-application of the Guidelines to be a violation of procedural rules. However, this does not necessarily happen. A judge can decide that the conclusion on anticompetitive effects of a conduct is strong enough even without application of the Guidelines – even if they are mandatory. At the same time, superficial application of the Guidelines also may cause an annulment, for instance, because of serious mistakes in market boundaries delineation and/or in establishing a dominant position. Of course, inappropriate analysis of market competition is only one possible reason to annul an infringement decision.
Mistakes in market analysis, legal inconsistencies of the decision, and efficiency defenses are other reasons. Nevertheless, overturning infringement decisions, especially on abuses of dominance, is often the result of a critique of market analysis (see Avdasheva, Korneeva, 2018). Decisions by judges that market analysis is incomplete and/or imperfect explain a relatively large ratio of annulments on the abuse of dominance in comparison to those in Europe (Geradin and Petit, 2011) despite the fact that Article 10 of the Russian Law on Protection of Competition and relevant industry-specific laws (see Radaev, 2018) are very unfavorable to dominant companies.

4.4. Impact of [potential] judicial review on the strategy of Russian competition authorities

The fear of negative outcomes of judicial review substantially influences the strategy of the FAS with regard to enforcement. The importance of judicial review is supported by the fact that CAs are strongly motivated by enforcement success, which is measured by the ratio of infringement decisions that are not submitted for judicial review or upheld by courts to the overall number of decisions. In previous studies, we show that this type of motivation substantially affects the strategy of CAs. First, it motivates the CA to select enforcement targets with a lower expected probability of judicial review and apply qualifications of competition law infringements that does not allow for efficiency justifications to avoid the burden of comparing positive and negative welfare effects of a particular conduct (Avdasheva et al, 2018). Another way to decrease the probability of judicial review and negative outcomes of the review is application of warnings and precautions. The number of precautions issued by CAs has steadily increased since the adoption of this enforcement instruments and, in 2016-2017, exceeded the number of decisions made.

However, we aim to demonstrate that a high probability of judicial review also has a positive rather than only a negative impact on approaches to enforcement. The very fact of existence of mandatory evidence which needs to be presented in the infringement decision provides an important motivation to develop market analysis skills. Remember that superficial application of mandatory instruments of analysis, not only the absence of the analysis, may result in the annulment of a particular infringement decision. Under large-scale enforcement, judges, companies and legal experts who represent companies in commercial courts steadily improve their ability to analyze market analyses conducted by CAs. Over time, it becomes increasingly difficult to sustain infringement decisions with the same quality of market analysis in commercial courts. Consequently, even if CAs start with only formal application of the Guidelines, the proportion of decisions based on the Guidelines as well as the quality of the analysis may increase under a high probability of judicial review.

5. Empirical strategy, data and results

5.1. Market analysis in the decisions of competition authorities

In this paper, we use market analysis as a proxy for economic analysis in the infringement decisions of the CA. An adequate market definition is necessary to correctly assess the ability of
a particular conduct by a particular undertaking to restrict competition and/or impose harm on consumers. There are areas of competition law in which the very level of market share is important to divide between presumably lawful and presumably unlawful actions (for example, in Europe for horizontal and vertical agreements) or to predict the impact of market structure changes on competition (under merger approval). The very recent decision on the abuse of dominance by Google relies on the basic conclusion that there is a relevant market in which Google dominates (see Ratliff and Rubinfeld, 2014). The importance of the market definition in antitrust enforcement explains why it is still a subject of academic debate (Kaplow, 2015). Accurate market delineation and identification of market participants are important to develop the theory of harm relevant for a particular conduct. Overall, correct analysis of the effects of conduct depends on an appropriate definition of the market.

At the same time, HMT represents a specific approach that has been developed for competition analysis. HMT requires a deep understanding of demand-side and supply-side substitutions and cannot be replaced by any formal statistical test (Werden and Froeb, 1993). Adequate HMT analysis requires a long time and high skills to produce.

For these two reasons – the importance of market analysis for the correct identification of the effects of a conduct and the development of the theory of harm and specific requirement for HMT – we consider the latter to be a universal indicator of efforts that the CA makes to avoid substantial mistakes in the assessment of conduct that might be illegal.

In constructing market analysis variables, which are our variables of interest, we consider the analysis in a narrow sense. We distinguish between two types of the analyses depending on the application or non-application of HMT, which is indicated in the Guidelines. If the CA provides only a general description of the market (brief characteristics of demand and supply conditions, turnover, participants) and HMT is not applied, the market analysis is considered informal. If the CA undertakes HMT according to the Guidelines, it is a step towards more sophisticated evidence. In both cases, our market analysis variables do not include information on the effects of the conduct.

For the mature competition jurisdictions, the suggested variables of market analysis are unlikely to reflect an advance of evidentiary standards. However, for a young competition jurisdiction, such as Russia, that has been criticized for its formalistic approach to competition law enforcement and insufficient application of economic analysis under investigation (OECD, 2013), they seem to be adequate.

5.2. Hypotheses

The frequency of application of market analysis in antitrust cases in Russia is not stable over time (see Figure 2). There are no clear increasing/decreasing trends in the dynamics of the share of cases in which market analysis is applied. The data do not show interrelation of the share and the ratio of annulment of FAS decisions by courts.
The aim of empirical analysis is to show that the successfulness of CA infringement decisions based on market analysis (in terms of their non-annulment after judicial review) affects the probability of the application of the tool in further investigations of CA. The empirical strategy relies on the premise that CA follows adaptive expectations about the evidentiary standards required by a court. We expect that, over time, the CA infers from court decisions, for which conducts the absence of market analysis contributes to the increase of probability of annulment.

To show the impact of judicial review on the decision of the FAS to undertake market analysis, we test the following hypotheses:

**H1. Mandatory standards hypothesis: the probability of market analysis application in the decision is determined by legal requirements**

The legal requirement to apply market analysis might not be ignored and is expected to have a strong influence on the probability of its application. We also expect decisions that can be rebutted by defendants to demonstrate a higher frequency of market analysis applications being more disputable and requiring deeper effect-based analysis.

**H2. Learning by doing hypothesis: the probability of market analysis application in the decision increases with experience (the number of decisions made)**

Market analysis is costly. Over time, the cost decreases with the experience accumulated by the CA due to the ‘learning by doing’ effect. ‘Learning by doing’ might emerge because of the

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10 The assumption of the adaptive expectations of regulatory agencies is often applied to explain their decisions (studies see Belloc et al, 2013; Nikita and Belloc, 2016)
experience of market analysis (especially HMT as a special tool application) regardless of a specific conduct or because of the experience in investigating a specific conduct. CA accumulates experience both at the level of regional subdivisions and at the level of the entire network. Thus, the variables of experience might be constructed in different ways to reveal different effects.

**H3. The effects of judicial review hypothesis: the probability of market analysis application in the decision depends on the expected success of its application in terms of the non-annulment of the decision after judicial review.**

Avoidance of mistakes in infringement decisions is important not only because the CA cares about welfare effects but is also important for correct application of the Guidelines, especially in investigations of conduct in which the law presumes the application. Furthermore, non-annulment of infringement decisions is a one of the most valuable measures of its performance (Avdasheva et al, 2019; Avdasheva et al, 2018). For a specific conduct, the CA does not know in advance the probability that a company is found to be infringing on claims to annul the decision and the probability that the court takes into account the approach used to define the market. The expectations of the CA on the latter are adaptive: the probability is derived from the outcomes of judicial review in the past. The evidence that courts do not always annul decisions made without application of the Guidelines supports the adaptive expectations.

**H0** is that neither factor listed above influences the decision of the CA.

Empirical hypotheses are derived from the Corollary in the previous section. **H1** and **H3** reflect point (c) in the Corollary. Mandatory application of the Guidelines (including market analysis) specifies legal standards both for the CA and the courts. However, if **H1** holds, it does not necessarily clarify whether an improvement of evidentiary standards takes place because of the effect of judicial review or for other reasons (the CA simply follows the legally approved guidelines). By contrast, if **H3** holds, we explicitly track the impact of judicial decisions under review on further actions of the CA under investigation. **H2** reflects point (a) in the Corollary, under the premise that, over time, the productivity of the CA increases and the cost of application of any specific instrument of analysis decreases.

### 5.3. Variables and descriptive statistics

The dataset that we use includes 1,133 observations, which are infringement decisions of 76 FAS subdivisions (out of 83) submitted for judicial review during 2008-2015.

Our sample represents a large part of the general population of decisions made (taking into account the characteristics of FAS decisions, about half of the decisions on competition infringements, see Avdasheva et al., 2016). The source of information, including the information on the deepness of market analysis, are decisions from Russian commercial courts of the first instance downloaded from kad.arbitr.ru. By reading and analyzing the texts of the decisions and the supporting documents, we attributed quantitative characteristics to each observation. The type of market analysis applied by CA was classified on the basis of the author’s expertise. Cross-checking of the coding by different team members was performed.

Table 1 presents the method of coding the variables and descriptive statistics.
<table>
<thead>
<tr>
<th>Variable name</th>
<th>Description</th>
<th>Obs.</th>
<th>Mean</th>
<th>St. dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MA_HMT</td>
<td>=1 if market analysis including HMT is applied; =0 otherwise</td>
<td>1133</td>
<td>0.22</td>
<td>0.41</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>MA_any</td>
<td>=1 if any (with and without HMT) market analysis is applied; =0 otherwise</td>
<td>1133</td>
<td>0.42</td>
<td>0.49</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>Trends (experience variables)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>exp_region</td>
<td>number of cases initiated in the past by the particular regional sub-division of the FAS irrespective of the type of conduct</td>
<td>1133</td>
<td>20.37</td>
<td>27.72</td>
<td>1</td>
<td>147</td>
</tr>
<tr>
<td>exp_conduct</td>
<td>number of cases on a particular type of conduct initiated in the past in all sub-divisions of the FAS</td>
<td>1133</td>
<td>84.99</td>
<td>68.78</td>
<td>1</td>
<td>263</td>
</tr>
<tr>
<td>exp_MA_HMT</td>
<td>number of cases initiated in the past in which market analysis with HMT was applied irrespective of the type of conduct and the sub-division of the FAS</td>
<td>1133</td>
<td>127.66</td>
<td>70.66</td>
<td>0</td>
<td>247</td>
</tr>
<tr>
<td>exp_MA_any</td>
<td>number of cases initiated in the past in which any (with and without HMT) market analysis was applied irrespective of the type of conduct and the sub-division of the FAS</td>
<td>1133</td>
<td>226.75</td>
<td>137.74</td>
<td>0</td>
<td>478</td>
</tr>
<tr>
<td><strong>Factor variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mandat</td>
<td>=1 if market analysis is mandatory by law; =0 otherwise</td>
<td>1133</td>
<td>0.34</td>
<td>0.47</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>law_period</td>
<td>=1 for cases initiated after the change of Russian antitrust legislation at the end of 2011, =0 otherwise</td>
<td>1133</td>
<td>0.60</td>
<td>0.49</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>success_rate_HMT</td>
<td>the ratio of the share of not annulled decision of the FAS in the total number of cases opened in the past in which market analysis with HMT was applied to the same share in cases without market analysis</td>
<td>1092</td>
<td>0.90</td>
<td>0.52</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>success_rate_any</td>
<td>the ratio of the share of not annulled decision of the FAS in the total number of cases opened in the past in which any (with and without HMT) market analysis was applied to the same share in cases without market analysis</td>
<td>1065</td>
<td>1.02</td>
<td>0.46</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>
The key characteristic of the case that is the focus of our study is the application of market analysis by the FAS when investigating a conduct. Two variables - MA_HMT and MA_any - which correspond to market analysis, including HMT and any (with and without HMT) market analysis, are coded.

To check for learning-by-doing effects, we use several experience variables, including the number of FAS decisions on cases by the type of conduct (exp_conduct), FAS regional subdivision (exp_region) and market analysis approach applied (exp_MA_HMT and exp_MA_any). The logarithm of the numbers is used. There is a positive correlation between different indicators of experience (Table 2).

Table 2. Correlations between different indicators of experience

<table>
<thead>
<tr>
<th></th>
<th>ln(exp_conduct)</th>
<th>ln(exp_region)</th>
<th>ln(exp_MA_any)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ln(exp_conduct)</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ln(exp_region)</td>
<td>0.36</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>ln(exp_MA_any)</td>
<td>0.62</td>
<td>0.56</td>
<td>1.00</td>
</tr>
<tr>
<td>ln(exp_MA_HMT)</td>
<td>0.62</td>
<td>0.55</td>
<td>0.99</td>
</tr>
</tbody>
</table>

Several factor variables are used to control for the requirements for market analysis established by Russian competition law:

**mandat** - reflects whether market analysis is mandatory by law for this particular type of conduct. In the beginning of the analyzed period, the approach is only mandatory for violations of a dominant company. In January 2015, it became mandatory for all types of anticompetitive conduct apart from bid rigging. Table 3 reflects the fact that legal requirements do not completely determine the actual application of market analysis in antitrust investigations. In approximately 30% of cases, the FAS omits even informal market analysis despite the fact that it is mandatory. On the contrary, in approximately 15% of cases, the CA applies market analysis with HMT, while it is not required by law.
Table 3. Legal requirements and actual application of market analysis

<table>
<thead>
<tr>
<th>Legal requirement</th>
<th>Market analysis is mandatory</th>
<th>Market analysis is not required</th>
<th>Statistical significance of the difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share of cases in which at least informal market analysis is applied</td>
<td>0.69</td>
<td>0.28</td>
<td>Prob. Chi2 = 0.000</td>
</tr>
<tr>
<td>Share of cases in which market analysis with HMT is applied</td>
<td>0.35</td>
<td>0.15</td>
<td>Prob. Chi2 = 0.000</td>
</tr>
</tbody>
</table>

*law period* – a binary variable that distinguishes two periods: before and after changes in Russian competition law at the end of 2011.

Our primary *independent variable* of interest is the variable of the success rate (in terms of non-annulment of FAS decisions by courts) of application/non-application of economic analysis in the past:

\[
\text{Success rate} = \frac{\text{share}_1\_\text{success}}{\text{share}_0\_\text{success}}
\]

where

*share*\_\text{1\_success} – the share of successful cases (decision of the FAS was not annulled) in the total number of cases opened in the past in which a particular type of economic analysis was applied (calculated by types of conduct);

*share*\_\text{0\_success} - the share of successful cases (decision of the FAS was not annulled) in the total number of cases opened in the past in which the particular type of economic analysis was applied (calculated by types of conduct).

Figures 3a, 3b, 4a and 4b illustrate that impact of application of market analysis in antitrust investigations on the probability that the decision were upheld by court is not obvious. The success rates are quite unstable over time and vary among types of conduct. It is appropriate that the variability decreases with the experience of litigation for cases on violations of competition law.
a. Market analysis is not required  
b. Market analysis is mandatory

Figure 3. Any (with and without HMT) market analysis: success rate dynamic (horizontal axis represents exp_conduct)

Types of conduct considered: 1 - unfair price (excessive or predatory); 2 - price fixing; 3 - bid rigging; 4 - concerted practice; 5 - RPM min; 6 - RPM max; 7 – tying; 8 – boycott; 9 - vertical exclusionary agreement; 10 - price discrimination; 11 - non-price discrimination; 12 - market sharing; 13 - exclusive territories; 14 – coordination.
a. Market analysis is not required

b. Market analysis is mandatory

Figure 4. Market analysis with HMT: success rate dynamic (horizontal axis represents exp_conduct)

Types of conduct considered: 1 - unfair price (excessive or predatory); 2 - price fixing; 3 - bid rigging; 4 - concerted practice; 5 - RPM min; 6 - RPM max; 7 – tying; 8 – boycott; 9 - vertical exclusionary agreement; 10 - price discrimination; 11 - non-price discrimination; 12 - market sharing; 13 - exclusive territories; 14 – coordination.
5.4. Model Approach

Since the dependent variable (application of a particular type of market analysis) is binary, we use a logit model for the binary response of the general form:

\[ P(\text{market\_analysis}_i = 1) = F(\alpha_{0i} + \alpha_{1i}X) \]

where \( P(\text{market\_analysis}_i = 1) \) indicates the probability of application of the \( i \)-type of market analysis; \( X \) denotes the set of explanatory variables. The maximum likelihood method is used to obtain estimates of the parameters of the regression equation.

Several specifications of the model (sets of repressors) are estimated to test the hypotheses:

**Model 1.** In this specification of the regression model, only the legal requirements for market analysis and the time trend are taken into consideration. The trends are measured in different ways: the general time trend, the experience of deciding cases on a particular type of conduct, the particular FAS regional sub-division experience of deciding antitrust cases, and the experience of application of a particular type of market analysis.

The model aims to test the mandatory standards hypothesis (\( H1 \)) and learning-by-doing hypothesis (\( H2 \)).

**Model 2.** We expect that the factors of Model 1 are still in force and include an additional variable to take into consideration the success rate (in terms of a non-annulment of FAS decisions by courts) of application/non-application of economic analysis in the past.

Following \( H3 \), we expect positive impact of \( \text{success\_rate} \) on the probability of application of market analysis. This would mean that deciding on applying a market analysis in the investigation the FAS takes into account the expected impact of this on the probability of the annulment of its decision after judicial review.

The models are estimated using all available data and two subsamples defined on the basis of time periods: before and after changes in competition law in 2011 (in force since 2012). We expect that this change enhances the application of specific instruments of competition analysis and increases the demand for economic analysis under judicial review. Thus, the results of the models’ estimation for the two time periods might differ, reflecting the changes. In the case of the subsample of decisions made in 2012-2015, the experience variables and \( \text{success\_rate} \) variable are recalculated using 2012 as the beginning of the period. These variables are marked with ‘_2012’ in the tables below.

5.5. Results and Discussion

The results of the estimation are reported in Tables 4 and 5. There is strong evidence that first, mandatory requirements provide a strong positive impact on the probability of application of market analysis in antitrust investigations, which is statistically significantly higher when the analysis is mandatory by law. This finding was expected and is consistent with hypothesis \( H1 \). However, it is necessary to stress that legal requirements explain less than half of the variation of the probability of application of both types of market analysis. Thus, other determinants are present.
Second, the different experience variables used to reveal the time trends have a different explanatory power. Nevertheless, at any time the effect of experience is statistically significant, its impact on the probability of application of market analysis is negative. The evidence does not support the learning-by-doing hypothesis ($H2$). By contrast, the evidence rather reflects that with time, the CA has been finding the balance of costs and benefits less favorable for application of the analysis. Two opposite effects should take place. On the one hand, past experience of applying market analysis makes it easier to perform it in the current investigation. On the other hand, comprehension of the nuances of application of the analysis develops over time, thus increasing the requirements to standards of evidence and cost of the analysis. The econometric analysis results allow for a conclusion to be drawn on the dominance of the second effect.

Third, decisions on the application of market analysis depend on whether the expected probability of success (in terms of non-annulment) is higher in case of its application compared to cases of its non-application. The success of application of market analysis in an investigation increases the probability of applying this approach in the next investigation, while non-annulment of infringement decisions without relevant economic analysis of the market decreases this probability. The finding is consistent with hypothesis $H3$. Thus, the experience of judicial review can be considered one of the most important determinants of the frequency of application of market analysis, especially that with HMT, which costs more for the CA.

Fourth, comparison of the results of the estimation of the regression models for two sub-samples (before and after ‘third antimonopoly package’ adoption in 2011) enables us to reveal several additional effects. First, the role of the legal requirements becomes stronger after adoption of amendments to competition law. The result is present for both types of market analysis. The attitude of the CA toward the results of judicial review in the past changes as well. Before the reform, the factor does not provide a statistically significant effect on FAS decisions on application of informal market analysis. By contrast, deciding on application of market analysis with HMT, the FAS seems to mostly rely on the expected probability of success when neglecting legal requirements. It should be noted that this period is characterized by high uncertainty regarding the attitude of judges to market analysis and the expected relative successfulness (in terms of non-annulment) of its application due to the lack of significant experience in court proceedings in antitrust cases and the absence of a clear statement in the law that a particular conduct is illegal only because of the restrictions of competition. After the adoption of amendments to competition law, courts have begun to pay more attention to the compliance of the infringement decisions with the Guidelines. The immediate reason is that under claims to annul infringement decisions, claimants refer to the Guidelines increasingly often.
Table 4. Results of Model 1 estimation.

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>specification (1)</th>
<th>specification (2)</th>
<th>specification (3)</th>
<th>Sub-sample law_period = 0</th>
<th>Sub-sample law_period = 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandate</td>
<td>0.40*** (0.03)</td>
<td>0.41*** (0.03)</td>
<td>0.42*** (0.03)</td>
<td>0.11** (0.05)</td>
<td>0.54*** (0.03)</td>
</tr>
<tr>
<td>ln (exp_conduct)</td>
<td>-0.08*** (0.01)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ln (exp_conduct_2012)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ln (exp_region)</td>
<td></td>
<td>-0.03* (0.01)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ln (exp_MA_any)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of observations</td>
<td>1133</td>
<td>1133</td>
<td>1133</td>
<td>453</td>
<td>680</td>
</tr>
<tr>
<td>Prob &gt; chi2</td>
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<td>0.0000</td>
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<td>0.1170</td>
<td>0.1160</td>
<td>0.0206</td>
<td>0.2490</td>
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<td>Correctly classified (default = 0.5)</td>
<td>71.23%</td>
<td>70.87%</td>
<td>70.87%</td>
<td>64.46%</td>
<td>76.62%</td>
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</table>

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Mandate</th>
<th>ln (exp_conduct)</th>
<th>ln (exp_conduct_2012)</th>
<th>ln (exp_region)</th>
<th>ln (exp_MA_HMT)</th>
<th>Number of observations</th>
<th>Prob &gt; chi2</th>
<th>Pseudo R2</th>
<th>Correctly classified (default = 0.5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandate</td>
<td>0.19*** (0.03)</td>
<td>-0.05*** (0.01)</td>
<td>-0.04*** (0.01)</td>
<td>-0.01 (0.01)</td>
<td>-0.04*** (0.01)</td>
<td>1133</td>
<td>0.0000</td>
<td>0.0711</td>
<td>77.49%</td>
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<tr>
<td>ln (exp_conduct)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1133</td>
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<td>0.0504</td>
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</tr>
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<td>ln (exp_conduct_2012)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>1133</td>
<td>0.0000</td>
<td>0.0567</td>
<td>78.11%</td>
</tr>
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<td>ln (exp_region)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>1133</td>
<td>0.0000</td>
<td>0.0087</td>
<td>76.60%</td>
</tr>
<tr>
<td>ln (exp_MA_HMT)</td>
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<td></td>
<td></td>
<td></td>
<td>453</td>
<td>0.1166</td>
<td>0.1329</td>
<td>78.53%</td>
</tr>
<tr>
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<td>1133</td>
<td>1133</td>
<td>453</td>
<td>680</td>
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<td></td>
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<tr>
<td>Prob &gt; chi2</td>
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<td>0.0000</td>
<td>0.0000</td>
<td>0.1166</td>
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<tr>
<td>Pseudo R2</td>
<td>0.0711</td>
<td>0.0504</td>
<td>0.0567</td>
<td>0.0087</td>
<td>0.1329</td>
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<tr>
<td>Correctly classified (default = 0.5)</td>
<td>77.49%</td>
<td>78.20%</td>
<td>78.11%</td>
<td>76.60%</td>
<td>78.53%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note:* marginal effects (at mean) are presented; st. err. in parentheses; *p < 0.1, **p < 0.05, ***p < 0.01
Table 5. Results of Model 2 estimation.

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>specification (1)</th>
<th>specification (2)</th>
<th>specification (3)</th>
<th>Sub-sample law_period=0</th>
<th>Sub-sample law_period=1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandate</td>
<td>0.41*** (0.03)</td>
<td>0.43*** (0.03)</td>
<td>0.43*** (0.03)</td>
<td>0.16** (0.06)</td>
<td>0.44*** (0.04)</td>
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<tr>
<td>ln (exp_conduct)</td>
<td>-0.07*** (0.02)</td>
<td></td>
<td></td>
<td></td>
<td>-0.10*** (0.03)</td>
</tr>
<tr>
<td>ln (exp_conduct_2012)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ln (exp_region)</td>
<td></td>
<td>-0.02 (0.01)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>ln (exp_MA_any)</td>
<td>0.07* (0.04)</td>
<td>0.05 (0.04)</td>
<td>0.06 (0.04)</td>
<td>-0.00 (0.05)</td>
<td></td>
</tr>
<tr>
<td>success_rate_any</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.10*** (0.01)</td>
</tr>
<tr>
<td>success_rate_any_2012</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of observations</td>
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<td>1065</td>
<td>1065</td>
<td>392</td>
<td>600</td>
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<td>0.1407</td>
<td>0.1401</td>
<td>0.0151</td>
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<td>72.86%</td>
<td>72.86%</td>
<td>67.86%</td>
<td>84.00%</td>
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</table>

Note: marginal effects (at mean) are presented; st. err. in parentheses; * p < 0.1, ** p < 0.05, *** p < 0.01
6. Conclusions

The results of this study are consistent with the hypothesis that legal requirements and learning by doing effects are not the only determinants of the probability of application of market analysis in the assessment of potentially anticompetitive conduct. Within this study, we empirically confirm the impact of the judicial review on the development of evidentiary standards in competition law enforcement. This result is important in several ways.

First, our study proves the importance of courts within the administrative system of competition law enforcement. We should not underestimate their role despite the fact that under administrative enforcement, judges do not directly decide on evidentiary standards. Annulment of infringement decisions is an important instrument that influences the choice of the evidentiary standard applied by the competition authority.

Second, our study shows both the opportunities and the limits of the implementation of mandatory standards of evidence. On the one hand, the usefulness of these instruments crucially depends on the control for compliance. On the other hand, if independent judicial review without initial deference to the standards of evidence of competition authority is available, the legal requirements for economic analysis in antitrust investigations supports the fast development of its application. In Russia, mandatory application of the Guidelines drives the development of evidentiary standards in competition enforcement.

Russian experience shows that this empirically confirmed effect does not necessarily require skilled-equipped or highly specialized judges. Claimants and legal and economic experts can substantially contribute to the development of evidentiary standards. Under judicial review, their impact is higher if it relies on mandatory standards of evidence.

Third, our study shows limited effects of experience itself on application of economic analysis. It does not matter, regarding the probability of applying a particular technique of competition analysis, whether the competition authority obtains intensive experience of analyzing a particular conduct or applying a particular technique. The ‘demand’ side for economic analysis (mandatory standards and attitude of judges toward these standards) provides a greater impact than the ‘supply’ side (experience of particular team, experience of analyzing particular conduct, and the experience of applying particular technique).

Finally, our study has wider implications. First, it highlights the importance of economic expertise in commercial courts. The importance of economic expertise increases with the impact of judicial review on the decision of the competition authority. If generalist judges who are not specialized on competition cases can affect the approach of the authority to substantiate decisions, the impact of judicial review on evidentiary standards does not strictly depend on the skills in economic analysis that judges obtain. There are different ways to employ economic expertise in the courts, from economic education of judges to expert testimony under litigation. Second, a large share of the decisions appealed is an important condition for a substantial impact of judicial review on future administrative decisions. In Russia, this condition is satisfied due to the easy access to independent judicial review, which is also important prerequisite for the impact of judicial review on evidentiary standards.
References


