Fast Adjudication and Bounded Rationality in Court Room

- Foreseeing Administrative Court System Response to Caseload Growth

[Draft version, work in progress]

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Abstract: Specialized administrative courts that handle disputes involving public institutions, constitute important part of many continental judicial systems. However, such courts seem to be particularly prone to sudden increases in caseload, generated by changes in public policies or regulatory framework. That in turn could lower the level of fair trial standard, by (i) increasing backlog and (ii) decreasing legal certainty due to human errors resulting from overload. This paper develops impact assessment tools to foresee how administrative court system would respond to such caseload increase, in terms of both backlog and legal certainty. It estimates Polish Voivodship Administrative Courts’ production function (OLS, SFA), and test its ability to explain backlog accumulation in out of sample setting. Moreover, it surveys the impact of increased caseload upon the quality of adjudication and the judicial strategy. The research questions in this part of the paper concentrates on presence and frequency of particular judicial heuristics and biases such as availability effect and anchoring effect, hindsight bias and illusion of validity in more complex cases requiring probability assessments and computation. The underlying hypothesis is based on the assumption that heuristics and biases according with the insights of behavioral law and economics enable fast thinking and more effective, albeit unreliable processing of information and decision-making under time pressure.

Keywords: fair trial standard, administrative courts, court performance, courts’ production function, legal certainty, behavioral law and economics, judicial heuristics.

JEL Codes: K40, K41, D23

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I. Introduction

Specialized administrative courts that handle disputes involving public institutions constitute important part of many continental judicial systems. However, by nature of their jurisdiction, they seem to be particularly prone to sudden caseload increases – that might result from changes in public policies, regulatory framework or business cycles. Thus, it is important to develop quantitative impact assessment tools, to foresee how such changes might affect the level of fair trial standard.

Specifically, two plausible impacts have to be considered: (i) increasing backlog due to insufficient capacity to absorb new cases and (ii) decreasing legal certainty due to human errors resulting from overload. In order to design effective countermeasures, it is vital to assess *ex ante* plausible scale of both effects. To do so, one need to develop (i) caseload forecasting capability, and (ii) quantitative model of court system, which feed with caseload forecasts would foresee its likely consequences in terms of backlog and legal certainty. This paper focuses on the latter problem, namely modeling court system response to the caseload growth.

From scientific point of view this work contributes, and attempts to integrate two strands of the literature: econometric modeling of court performance and studies of judicial decision making.

The former, utilizes concept of production function in order to model court performance and explain sources of backlog. Given supply-demand remedies to the court congestion problem – as classified in seminal OECD paper (Palumbo, 2013) – our analysis focus on administrative courts productivity (i.e. ability to adjudicate incoming cases in a timely manner as required by article 6 of European Convention on Human Rights). Thus, we estimate production function (OLS, SFA) on the panel of 16 Polish Voivodship Administrative Courts (VACs) during 2010 – 2015 period to verify its ability to explain backlog accumulation. Specifically, it we examine whether production functions estimated on 2010 – 2012 data would be able to predict backlog accumulation during 2013 – 2015 period – when volume of cases grown by 16 percent – given correct caseload forecasts. To our best knowledge, it is first attempt to systematically test court’s production function ability to explain backlog accumulation in such out of sample setting.
The later part focuses on the process of judicial decision making, especially how factors unrelated to the case (like overload) could affect quality of judgment.

The rest of this paper is organized as follows: section II reviews xxx and briefly introduces system of Polish Administrative Courts. Section III is devoted to court performance issues (namely, how caseload growth would affect backlog) while section IV address judicial decision making process (namely, how overload resulting from caseload growth impacts quality of judgments) analyses from the perspective of behavioral law and economics. Section V concludes and draws policy recommendations.

II. Administrative Court System in Poland

According to the constitution of 1997, Polish court system encompass two distinct subsystems: (i) common courts and (ii) administrative courts. The latter adjudicate disputes over public law, between companies or citizens and public administration bodies (such as tax authorities or regulators).

Administrative courts system consists 16 Voivodship Administrative Courts (VACs) that adjudicate complaints on public administrations acts (the first instance of court proceeding – which is preceded by second instance procedure inside the administration itself) and the Supreme Administrative Court that acts as a court of cassation from VACs judgments.

Contrary to the common court system – where executive branch (Minister of Justice) have strong influence on organization, staffing and management of courts – administrative court system is managed by the President of the Supreme Administrative Court.

III. Caseload Growth and Administrative Courts Performance

This section deals with two research questions, namely (i) how caseload growth would affect backlog in VACs and (ii) whether model estimated on 2010 – 2012 data is able to predict backlog accumulation during 2013 – 2015 period – when volume of cases grown by 16
percent (see fig. 1). Thus, the former question involves nature of court system reaction to the caseload growth, while the latter regards predictability of this reaction in *out of sample* setting.

**Fig. 1** Administrative cases flow in VACs during 2007 - 2016

![Graph showing administrative cases flow in VACs during 2007-2016](image)

*Source: VAC’s statistics available at www.nsa.gov.pl/statystyki-wsa.php*

**III.1. Modeling Court Performance**

It is worth to mention at least two approaches to modeling court performance.

The former, popular among court administration practitioners (Lienhard, Kettiger, 2011), is based on the notion of weighted caseload. It attempts to recalculate raw volume of filed cases (*caseload*) to judicial *workload*, using *case weights* – empirically determined typical amount of time, required to resolve given type of case. Thus, *workload* can be interpreted as amount of judicial working time, required to handle incoming cases. Obviously, that figure can then be confronted with number of serving judges multiplied by their annual number of working hours, in order to determine staffing needs.

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1 VAC’s have been created in 2004, as part of administrative judiciary reform, and received substantial caseload (leading to huge backlogs). They handled them for few years (note that number of resolved cases exceeded number of filings in 2007 and 2008), so we decided to start our sample in 2010 – period of VAC system stability.
Crucially, this approach assumes that adjudicating typical case of given type requires roughly constant\(^2\) amount of working time. That in turn implies, that there is roughly constant maximal number of cases, that can be adjudicated within given period.

That assumption have been criticized by Beenstock and Haitovsky (2004) who noted that despite growing caseloads, court systems managed to handle them without proportionate staffing increases. That observation inspired them to build ‘rational judge’ model, assuming that number of resolved cases\(^3\) is subject of choice between ‘exerting more effort and thereby improving performance, or taking it easier, thereby risking the wrath of the court president’.

In order to test this proposition, authors estimated econometric model of court performance – production function taking the following Cobb-Douglas form\(^4\):

\[
\ln(\text{resolved cases}) = \alpha + \beta \ln(\text{caseload}) + \gamma \ln(\text{number of judges}) + \varepsilon
\]  

(1)

Results\(^5\) convinced them, that ‘planners of the judiciary might cynically conclude that they should let growing caseload pressure over-work judges even further, thereby increasing their productivity. After all, this strategy has worked over the last 40 years, so why not continue? Better still, if the number of judges makes no difference to the output of the court, why not cut the number of judges?’ Both, empirical strategy and results obtained by Beenstock and Haitovsky inspired strand of Law and Economics literature applying production functions to court performance (see summary by Voigt, 2016).

It is also worth noting, that assumptions of weighted caseload methods can be incorporated to production function approach. At the end of the day, Cobb-Douglas production function, applied by most researchers\(^6\), implies\(^7\) that judge confronted with growing caseload would indefinitely increase number of resolutions. Weighted caseload methods suggests, that at some point\(^8\) this increase would no longer be possible, so production function became flat (Jonski, Mankowski, 2014).

This brief summary of the relevant literature on court performance modeling suggests, that estimation of court’s production function involves model uncertainty – as contradicting model

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\(^2\) Practitioners tend to reestimate case weights every few years, in order to capture potential changes in procedures, technology and complexity.  
\(^3\) Assumed predetermined and roughly constant in weighted caseload approach  
\(^4\) They used aggregated, unweighted data on all case types.  
\(^5\) Statistically significant, positive \(\beta\) coefficient, interpreted as growing caseload incentivized judges to work harder  
\(^6\) Van der Torre et al. (2007) are notable exception, as they allowed translog specification  
\(^7\) This is – usually silent – assumption taken just by applying this form of functional relationship  
\(^8\) Precisely, when workload will equalize number of judges multiplied by their annual number of working hours
assumptions (and specifications) seems to be somehow justified (see tab. 1). In order to cope with this uncertainty, it is prudent to estimate both models, and compared their in- as well out-of-sample performance.

Tab. 1. Summary of assumptions regarding court performance and respective formulation of production function

<table>
<thead>
<tr>
<th>Assumption</th>
<th>Law &amp; Economics literature</th>
<th>Weighted Caseload approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Judge decide how many cases he will adjudicate during given time</td>
<td>There is objective limit to the number of cases that judge can adjudicate</td>
<td></td>
</tr>
<tr>
<td>Implication</td>
<td>endogenous productivity of judge</td>
<td>Judicial productivity constrained from top</td>
</tr>
<tr>
<td>Status</td>
<td>Accepted in the L&amp;E literature</td>
<td>Used in many court system management system</td>
</tr>
<tr>
<td>Implied reaction to the caseload growth</td>
<td>Adjustment</td>
<td>Depending on circumstances: adjustment if caseload below the limit, backlog explosion if caseload above the limit</td>
</tr>
<tr>
<td>Appropriate functional form</td>
<td>Cobb Douglas</td>
<td>“hockey stick” to capture max number of cases that can be adjudicate</td>
</tr>
</tbody>
</table>

*Source: own work*

III.2. Data and Estimation Results

To estimate production function models described above, panel data from 16 VACs during 2010 – 2015 have been used.

Each data point cover: backlog from previous year (backlog), number of cases filed (filed, thus caseload = backlog+filed), number of cases resolved (resolved) and number of serving judges.

To handle issues of model uncertainty highlighted above, we estimated two models: (i) model I, involving Cobb Douglas production function popular in the Law & Economics literature
and (ii) model 2, incorporating *weighted caseload methods* assumption. Specifically, model 1 is given by the equation (1), and model 2 by the following equation:

\[
\ln(\text{res. cases/judges}) = \begin{cases} 
\beta \ln(\text{caseload/judges}) + \epsilon, & \text{caseload/judges} < \Phi \\
\Delta + \epsilon, & \text{caseload/judges} \geq \Phi 
\end{cases}
\]

Where \( \Delta \) represents maximal number of cases that judge can resolve during the year, and \( \Phi \) is respective caseload. Together, these parameters define ‘hockey sick’ shape of such production function. Coefficient \( \beta \) is the slope of production function below threshold \( \Phi \) (see fig. xxx).

To facilitate out of sample exercise, all models were estimated in three time windows: (i) 2010 – 2012 – before caseload growth, (ii) 2013 – 2015 – period of caseload growth and (iii) 2010 – 2015.

To obtain first approximation of results, we estimated OLS regressions on pooled data.

As a next step, we estimated model 1 using panel Stochastic Frontier Analysis (SFA). SFA is a log-linear production function, whose error term (\( \epsilon \)) is modeled as a mixture of two components: (i) strictly nonnegative (half-normal) one, interpreted as inefficiency and (ii) symmetrically distributed one, interpreted as random noise (detailed description in Kumbhakar, Lovell, 2000).

Since model 2 is nonlinear\(^9\) and it is assumed that estimated relation holds regardless of court size, we decided to estimate it with pooled SFA. Results are presented in tables 2, 3 and 4, for 2010-12, 2013-15 and 2010-15 samples respectively.

Moreover, to illustrate shape of estimated functions, we plotted them on figures 2, 3 and 4. Since they present caseload per judge and number of resolved cases per judge, it is convenient to think of them as reaction of typical judge to the growing caseload.

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\(^9\) Problematic with individual effects, since they assume constant slope \( \beta \) and variable \( \Delta \).
Tab. 2 Estimation results, 2010 – 2012 sample

<table>
<thead>
<tr>
<th></th>
<th>MODEL 1</th>
<th></th>
<th>MODEL 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OLS (pooled)</td>
<td>SFA (panel)</td>
<td>OLS (pooled)</td>
<td>SFA (panel)</td>
</tr>
<tr>
<td><strong>constant</strong></td>
<td>.8459355***</td>
<td>-.0198743</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>(.2161965)</td>
<td>(.3282903)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>caseload</strong></td>
<td>.8228765***</td>
<td>1.043239***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.0489798)</td>
<td>(.0755621)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>number of judges</strong></td>
<td>.1184112*</td>
<td>-.151605*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.0604355)</td>
<td>(.0910684)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Slope of function below threshold</strong></td>
<td>.958926***</td>
<td>.9589274***</td>
<td>(.0018455)</td>
<td>(.0018077)</td>
</tr>
<tr>
<td><strong>Ln maximal number of resolved cases (Δ)</strong></td>
<td>4.965201***</td>
<td>4.965208***</td>
<td>(.017667)</td>
<td>(.0172975)</td>
</tr>
<tr>
<td><strong>Adj. R²</strong></td>
<td>0.9937</td>
<td>0.9999</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>48</td>
<td>48</td>
<td>48</td>
<td>48</td>
</tr>
<tr>
<td><strong>AIC</strong></td>
<td>-143.9744</td>
<td>-158.714</td>
<td>-138.7621</td>
<td>-134.7621</td>
</tr>
<tr>
<td><strong>BIC</strong></td>
<td>-143.9744</td>
<td>-158.714</td>
<td>-138.7621</td>
<td>-134.7621</td>
</tr>
</tbody>
</table>

*- Threshold Φ=170 have been chosen by minimizing AIC and BIC information criteria. Asterisks in table denote statistical significance on 10%, 5% and 1% level respectively. St errors of estimated coefficients in parentheses.

Fig. 2 Estimated production functions and data points, 2010 – 2012 sample

*- Since Cobb Douglas model allows for scale effects (estimation results suggests negative scale effects, in other words the larger court the lower number of resolved cases per judge), we plotted production function for median, as well as smallest and largest court.
Models will be refined to cover the most recent data. As presented in the tab. 2, model 1 estimates are quite unstable – as estimated coefficients change substantially, depending on estimation method used. Moreover, estimation coefficients (SFA) contradicts theory, as judges have negative impact on output. Also caseload coefficient (exceeding 1) looks highly suspicious.

It seems plausible, that this result is driven by small sample size (N=38) and can be fixed by including 2008-9 data.

Tab. 3 Estimation results, 2013 – 2015 sample

<table>
<thead>
<tr>
<th></th>
<th>MODEL 1</th>
<th>MODEL 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OLS (pooled)</td>
<td>SFA (panel)</td>
</tr>
<tr>
<td>constant</td>
<td>1.149164*** (.177011)</td>
<td>1.108154*** (.2299487)</td>
</tr>
<tr>
<td>caseload</td>
<td>.7466193*** (.0369708)</td>
<td>.766385*** (.0478592)</td>
</tr>
<tr>
<td>number of judges</td>
<td>.2164245*** (.0452078)</td>
<td>.1884187*** (.0581784)</td>
</tr>
<tr>
<td>Slope of function below threshold $\Phi=200^*$ ($\beta$)</td>
<td>.953413*** (.0025069)</td>
<td>.9534136*** (.0024542)</td>
</tr>
<tr>
<td>Ln maximal number of resolved cases ($\Delta$)</td>
<td>5.045395*** (.016323)</td>
<td>5.045398*** (.0159796)</td>
</tr>
<tr>
<td>Adj. $R^2$</td>
<td>0.9933</td>
<td>0.9998</td>
</tr>
<tr>
<td>N</td>
<td>48</td>
<td>48</td>
</tr>
<tr>
<td>AIC</td>
<td>-138.75</td>
<td>-136.2547</td>
</tr>
<tr>
<td>BIC</td>
<td>-133.1364</td>
<td>-125.0275</td>
</tr>
</tbody>
</table>

* - Threshold $\Phi=200$ have been chosen by minimizing AIC and BIC information criteria
Asterisks in table denote statistical significance on 10%, 5% and 1% level respectively. St errors of estimated coefficients in parentheses.
Since Cobb-Douglas model allows for scale effects (estimation results suggest negative scale effects, in other words the larger court the lower number of resolved cases per judge), we plotted production function for median, as well as smallest and largest court.

As presented in the table 3, estimated coefficients are highly statistically significant, robust to the estimation approach (OLS, SFA) and generally in line with underlying theory. Specifically, model 1 suggests that VAC’s are characterized by negative scale effects – in other words the larger court the lower number of resolved cases per judge.

As compared with 2010-2012 estimates, both models turned unstable. Specifically, in case of model 1 slope of production function noticeably decline (see also fig. 5). In case of model 2, both threshold $\Phi$ and maximal number of resolved cases ($\Delta$) are noticeably higher.

In other words, model 1 estimated on 2010-12 sample (before caseload growth) overestimated, while model 2 underestimated the capacity of VACs to absorb more cases.
Tab. 4 Estimation results, 2010 – 2015 sample

<table>
<thead>
<tr>
<th></th>
<th>MODEL 1</th>
<th></th>
<th>MODEL 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OLS (pooled)</td>
<td>SFA (panel)</td>
<td>OLS (pooled)</td>
</tr>
<tr>
<td>constant</td>
<td>1.102955***</td>
<td>1.140767***</td>
<td>(pooled)</td>
</tr>
<tr>
<td></td>
<td>(.1207486)</td>
<td>(.129563)</td>
<td>(.025988)</td>
</tr>
<tr>
<td>caseload</td>
<td>.7597134***</td>
<td>.7648762***</td>
<td>(.0321279)</td>
</tr>
<tr>
<td></td>
<td>(.025988)</td>
<td>(.0272396)</td>
<td></td>
</tr>
<tr>
<td>number of judges</td>
<td>.1980457***</td>
<td>.1857579***</td>
<td>(.0321279)</td>
</tr>
<tr>
<td></td>
<td>(.0321279)</td>
<td>(.0338269)</td>
<td></td>
</tr>
<tr>
<td>Slope of function below threshold $\Phi=190$ ($\beta$)</td>
<td>.9566737***</td>
<td>.9566749***</td>
<td>(.0015719)</td>
</tr>
<tr>
<td>Ln maximal number of resolved cases ($\Delta$)</td>
<td>5.019008***</td>
<td>5.019014***</td>
<td>(.0121688)</td>
</tr>
<tr>
<td>Adj. $R^2$</td>
<td>0.9935</td>
<td>0.9998</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>96</td>
<td>96</td>
<td>96</td>
</tr>
<tr>
<td>BIC</td>
<td>-278.2732</td>
<td>-277.6336</td>
<td>-247.069</td>
</tr>
</tbody>
</table>

*- Threshold $\Phi=190$ have been chosen by minimizing AIC and BIC information criteria.

Asterisks in table denote statistical significance on 10%, 5% and 1% level respectively. St errors of estimated coefficients in parentheses.

Fig. 4 Estimated production functions and data points, 2010 – 2015 sample

*- Since Cobb Douglas model allows for scale effects (estimation results suggests negative scale effects, in other words the larger court the lower number of resolved cases per judge), we plotted production function for median, as well as smallest and largest court.
Also in case of full sample estimates, reported in the table 4, estimated coefficients are highly statistically significant, robust to the estimation approach (OLS, SFA) and generally in line with underlying theory. Specifically, model 1 suggests that VAC’s are characterized by negative scale effects – in other words the larger court the lower number of resolved cases per judge.

As compared with 2013-2015 estimates, both models turned pretty stable. Model 1 is almost identical, while in case of model 2 threshold \( \Phi \) and maximal number of resolved cases (\( \Delta \)) are little lower (see also fig. 5).

That supports hypothesis, that our 2010-12 estimates were flawed due to small sample. Thus we’re planning to extend that sample, to cover also 2008-9.

**Fig. 5 Summary of estimated production functions**

*.- Since Cobb Douglas model allows for scale effects (estimation results suggests negative scale effects, in other words the larger court the lower number of resolved cases per judge), we plotted production function for median, as well as smallest and largest court.

**III.3. Out of sample Exercise**

To assess predictability of administrative courts system response to caseload growth (in other words, how well can we predict VAC’s ability to accommodate new cases), model estimated on 2010 – 2012 data was used in *out of sample* exercise attempting to foresee backlog accumulation.
This section is still under development. Due to problems with 2010-12 sample described above, we’re working to extend it, in order to cover 2008 and 2009.

For illustration purposes it is worth to mention that in response to 11% growth of the number of filed cases (in 2013 as compared to 2012) model 1 predicted 10% increase in number of resolved cases. On the contrary, model 2 predicted only 2% growth in number of resolved cases. In fact, number of resolved cases increased by 3% (see fig.1). That suggests that first specification tends to overestimate court system’s capacity to accommodate growing caseload. Model 2 seems to be more realistic.

IV. Modeling Judicial Decision Making

The quality of judicial decisions seems to be one of the most salient topics in contemporary jurisprudence. The point of departure for the proposed analysis consists of the acceptance of three basic assumptions.

Firstly, it is assumed that the process of adjudication could potentially be analysed as a complex decision-making process, which is to be evaluated against a normative benchmark in the form of any normative decision-oriented model of application of law adopted within a particular jurisdiction.

Secondly, the scope of those decisions may vary within any legal system, in the sense that the adopted normative decision-oriented models differ in axiological and justificatory elements, allowing different forms of valid legal reasoning.

Thirdly, both in legal theory and in practical legal discourse it is generally assumed that the judicial decision-making process should be evaluated against two benchmarks: rationality and accuracy of rulings. Both aspects seem to be controversial, but generally it is accepted that rationality of judicial decisions is strongly connected with the equivalence between justification and assumptions that were accepted because of the knowledge and preferences of decision-makers.

We will argue that instead of predictive rational choice theory, the model of adjudication should rather be based on the more explanatory approach offered by the theory of bounded rationality. This theory takes into account that human cognitive abilities are not unlimited and therefore human agents, including judges and officials, have limited computational skills and memory. That in turn implies, that quantitative increase of the caseload modelled in the
previous section from pure case-flow perspective could exert considerable impact on the quality of jurisprudence.

The main research question in this part thus pertains to the conditions under which judge made law could expand, under the assumption that the quality of law is to be maximized, given the fact that judges cognitive capacities are strictly constrained.

The process of the application of law may be regarded as a special case of decision-making. It is a formalized process where the crucial role is performed by rule-based categorization. Such an arrangement results in the repetition of verdicts and also to the repetition of omissions. Nevertheless, as it has been indicated and proven by S. Shavell, the multi-level structure of the process of the application of law diminishes the number of judicial and administrative errors.

In this context one may ask about the specific role of intuition within the decision-making process. The relevant answers formulated in jurisprudence are based on three possible attitudes towards the complexity of cognitive processes and their influence upon the outcome of the application of law.

The concept of judicial rationality seems however to be far from obvious, since there is no single and universally accepted criterion of rationality. In practice courts are simply expected to deliver a coherent and persuasive justification based on the meaning of statutes and precedents. The more detailed concept of rationality of judicial decision-making has been articulated by law and economics scholars, who assume that judges tend to maximize their utility function. This concept is based on the assumption according to which a single judge could in general be characterized by a set of coherent and intransitive preferences. It has to be noted that rational choice theory is based upon the assumptions according to which preferences should be characterized by the following features: stability, durability, constancy, persistence. According to this model, individuals act according to the theory of rational choice, which was presented by von Neumann and Morgenstern (1944). The notion of rationality of players means that both of the actors aim at the maximization of their functions of utility. Moreover, the concept of rationality is based on the theory of revealed preferences based on the subjective theory of values which means that moral norms are limited to hypothetical imperatives and should be linked to the actions of a player aiming to maximize their satisfaction. The notion of rationality is thus a purely instrumental concept. It is connected to the effective realization of aims rather than to autonomous choice of those aims. According to this theory a given subject has invariable, ordered and non-transferrable
preferences with regards to all possible states of things or actions. Such rationality is not connected to the behaviour of particular individuals but rather is used as a convenient tool for predicting future actions. Concurringly, the concept of judicial rationality is predicative rather than descriptive (Golecki 2014).

The only criterion of rationality used within this notion is connected to the existence of a limited coherence of preferences. Nevertheless, the process of their formation is basically outside the scope of the research of law and economics. The primary aim of the concept of rationality is to introduce some order in existing relations rather than to describe or to explain them. It is assumed that a decision making process is deliberative, i.e. it is a process of a conscious character, controlled, free, sequential and based on criteria and rules. Such rationality is linked to four aspects: validation, interpretation, evidence and legal consequences (Wróblewski, 1988). Although this model could be regarded as the adequate reconstruction of adjudication practice, nevertheless, it does not take into account the characteristic features of the cognitive apparatus. The proponents of the theory of bounded rationality in cognitive psychology and behavioural law and economics stress the influence of unconscious, automatic processes, of associational character, that would be intuitive upon the process of decision-making performed by judges (Rachlinsky, 1998), (Guthrie et al., 2000).

Nevertheless, it seems that the attempts that are formulated within those movements that aim to explain the indeterminacy of decisions in the application of law are unsatisfactory. The indeterminacy of decisions means that their content depends not only on the legal rules or legal reasons, but also on other elements of unconscious character: intuition, impulses and complexes. Those explanatory attempts failed, because of their purely speculative character. They were not verified empirically or the proposed verification was incorrect and proved unsatisfactory within the light of later achievements in the field of cognitive psychology or cognitive sciences. It seems that the only exception to this state of affairs is behavioural economic analysis of law which is just a modification of classical economics in order to take into consideration the limits of cognition (bounded rationality) and to examine the consequences of the so-called duality of cognitive processes (DPT).

The concept of bounded rationality has been introduced in cognitive psychology, and later on successfully in applied in economics and legal theory (Jolls et al., 1998). The theory of bounded rationality, at least to some extent, supplements traditional rational choice theory. It takes into account that human cognitive abilities are not unlimited and therefore human agents including judges and officials have limited computational skills and memory.
We assume that legal theory may sensibly respond to cognitive failures in much less the same way as classical economics responded to the problem of market failure, and later on to the problem of bounded rationality. Firstly, following classical behavioural law and economics literature, it should be observed that agents often take their cognitive limitations into account, attempting to minimize the costs of decision-making process and at the same time trying to diminish the rate of errors. This state of affairs leads to wide usage of mental shortcuts and rules of thumb in some specific contexts. The problem remains however, given the assumption that in some cases, because of these tools, human behaviour differs in systematic ways from that predicted by the standard economic model, namely the rational choice theory, and it should be emphasized, that this strategy may result in predictable mistakes. The departures from the standard model are generally divided into two categories: judgment and decision-making. It is widely accepted in the psychological literature that judgments are based on rules of thumb leading to systematic departures from models of rational predictions, whereas actual decisions usually violate the assumptions of expected utility theory, as it has been described within the framework of the prospect theory of Kahneman and Tversky (1979).

Both judgments and decisions demonstrate systematic departures from the rational choice model. This finding refers both to legal and non legal contexts. It has been observed that judges are prone to both types of departures from the standard rational choice model (Vermule, 2006). This phenomenon is partly explained by the way in which actors apply the so called rules of thumb (Kahneman, Tversky, 1979). In the context of applying law, those rules of thumb are very often based on the so called availability heuristics, where the frequency of some event is estimated by judges on the basis how easy it is to recall other instances of this type. The analysis of the departures from the rational choice theory could be applied both to civil law and common law systems, following the authors, who consider judge made law as a universal phenomenon rather than a particular feature of the common law system (Erlich, Posner 1974; Hadfield 2005, 2008; Ponzetto, Fernandez, 2008).

It does not necessarily mean, however, that legal theory should uncritically adopt the findings proposed by cognitive psychology or behavioural law and economics. It seems that the complexity of cognitive processes requires a more independent approach, based on the implementation of the results of empirical studies conducted also in a strictly legal context, including some experiments designed to verify the theoretical propositions applied to the application of law, understood as a specific type of decision-making process, followed by particular justification produced within a process of legal discourse.
Thus some fundamental theoretical explanations of the characteristics, origin and the nature of cognitive process are to be applied as a defeasible hypothesis. One of such theories is associated with dual process theory. According to the model of dual process theory (DPT), intuitive processes in the form of heuristics and cognitive inclinations may be explained with the acceptance of a hypothesis of a complex character of cognitive process where, alongside conscious (deliberative) activities, there are also unconscious (intuitive) activities. The functional complexity is being analyzed within DPT with regard to evolutionary psychology as well as experimental cognitive psychology. According to the second thesis, the delimitation of both systems: intuitive PT1 and deliberative PT2 is of a purely functional character, yet their activities may correspond to an action of relevant parts of human brain (Bennett, Broe 2010). Moreover, it is stressed that intuitive processes are connected with emotions (Damasio, 1994).

The DPT urges theoreticians to take the position of scepticism towards the commonly accepted assumptions concerning the deliberative character of decision-making processes within the field of the application of law. According to some dual-process theories, a clear distinction between intuition and deliberation is possible. Intuitive processes, on the one hand, are described as unconscious, automatic, fast, parallel, effortless, and having a high capacity. Deliberate decisions on the other hand, are thought to be accessible to conscious awareness, slow, sequential, effortful, rule-governed and having a limited capacity (Kahneman, 2011).

The strong separation thesis has been offered by Sloman (2002), who claims that intuition and deliberation are completely distinct and separable processes, since they are: “two systems, two algorithms that are designed to achieve different computational goals”.

On the other hand, some theories proposed a very weak or even a “no separation” thesis. For example, the so called integrative model of automatic and deliberate decision making is based on the assumption that every decision is based on an automatic process. Such a theory has been endorsed by N. Horstmann, A. Ahlgrimm and A. Glöckner (2009), who demonstrated that “people can integrate a multitude of information in a weighted compensatory manner within a short time frame due to automatic-intuitive processes. However, these automatic-intuitive processes can be supervised and modified by additional operations of the deliberate system. Crucially, the deliberate decision mode is not conceived as a completely distinct and separable system. Rather, processes of information search, information production or information change affect the basic automatic process that finally determines the decision”.

Generally speaking, the role of intuition seems to be twofold: on the one side, it is a condition, if not a necessary condition, for initiating a decision-making process. The significance of
intuition is increasing within the situation of information deficit, shortening of the time horizon and activities performed within uncertainty. Hence, one may accept, following R. Posner, that intuition is increasing the effectiveness of decision-making processes (also within the meaning of economics, allocative effectiveness which is connected to the economic costs of decision making and law application).

The influence of intuitive processes on the application of law is visible within heuristics, which are gradually recognized (discovered), classified and explained within the context of duration of cognitive processes (cognitive aspect) as well as in regard to the consequences of their effect on the process of the application of law (institutional and legal aspect). The processes of this type consist of heuristics: anchoring and adjusting, availability, representativeness. It should be generally assumed that the catalogue of heuristics is not a finite list. The process of law application may be accompanied by some sui generis heuristics which are not yet identified or thoroughly examined. A crucial prerequisite in favour of this hypothesis may be the proposition introduced by C. Sunstein to broaden the catalogue of the identified heuristics in order to include some other heuristics which can fundamentally modify the process of law application. Such a result may occur in effect of unconscious use of certain intuitively appropriate rules which are regarded by Sunstein (2005) as moral, such as: „do unto others as you would have done unto you”, „treason should be severely punished”, „action is more conducive to damage than omission”. It seems obvious that the heuristics may influence the decisions concerning the acceptance of particular legal consequences within the process of law application (e.g. the amount of fee, compensation).

Going back to the influence of heuristics upon decision making process it should be emphasized that anchoring and adjusting can be observed within the process of non-reflexive acceptance of a given number and subsequent adjustment of the quantity according to the process of receiving of further, more detailed information.

Heuristics of availability are linked to the process of estimation of a given action as more probable in the context where this situation is more available as a hypothetical imagination than as a remembrance. A particular type of availability is delusion of hindsight bias, which is connected to the process of ascription of greater probability to situations which are already known to have happened, still their original probability (ex ante) was minimal. Heuristics of representativeness is visible within the process of categorization of objects with regard to their similarity to the prototype (exemplary, prototypical categorization). This type of categorization differs from theoretical categorization, based on the rule where the object is
categorized due to the description of its necessary features. Anchoring and adjusting heuristics are visible within the process of non-reflexive acceptance of a given number and subsequent adjustment of the quantity according to the process of receiving of further, more detailed information.

V. Conclusions

Specialized administrative courts handling disputes involving public institutions, are important parts of various continental judicial systems, however they remain particularly prone to the increases of caseload due to shifts in public policy of business cycle.

Moreover, although scholars developed tools to model their performance in quantitative, case-flow manner, it is still hard to predict the ability of the court system to accommodate such caseload increase.

Moreover, focus on tangible issues of case flow – in particular growing backlog (and thereby worsening time to disposition) could mask growing strains involving the very manner that judges decide cases. In effect, both problems could undermine the available standard of the right of fair trial, as described in the article 6 of the European Convention of Human Rights.

The aim of the paper is to scrutinize the prospects of development of descriptive model of adjudication and lawmaking under the assumptions of bounded rationality. The model is supposed to include the achievements of contemporary cognitive psychology, cognitive sciences and behavioral law and economics. The growth of judicial cases and the empowerment of courts demonstrate a clear need for revision of present models of adjudication. The fact that judges many times are forced to perform they tasks under veil of ignorance and are equally exposed to affects, heuristics, biases and manipulations gives sufficient ground for review of dominant concept of judicial rationality and impartiality. The claim put forward in this paper is a modest one. We urge to analyze the judicial rationality from the perspective of dual process theory so as to encapsulate heuristics and biases with the wider model of adjudication and judge made law. The model or array of models may be
developed and serve as benchmarks and basis for the correction of the contemporary normative models of application of law.

References

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