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# Synergy or competition? Case heterogeneity and court performance in Polish first-instance civil and commercial courts

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## Abstract

**Motivation:** The study uses data on Polish civil and commercial courts of first instance to examine the determinants of the court output measured by the number of cases they adjudicate.

**Aim:** Besides taking into account a caseload, number of serving judges and auxiliary court staff members, the novelty of the research is that it pays particular attention to the problem of the heterogeneity of cases on the docket which both types of courts are dealing with. Using a set of fixed effects panel data models and addressing potential endogeneity, we test whether this variation promotes court performance or, on the contrary, reduces it.
**Results:** The results confirm that judges play a significant role in resolving cases albeit it considerably varies between distinguished type of adjudications. The auxiliary court staff members also turned out to affect court output in a different way, depending mainly on the type of cases under examination. The results indicate that there can be both synergy and competition in resolving certain types of cases. This synergy can be explained by either judicial backlash or an increase in experience in judges and support staff that makes the judicial process more time-efficient. The competition between certain types of cases may be indicative of opportunistic behaviour in some courts.

**Keywords:** judicial efficiency, court performance, panel models, case heterogeneity
**JEL:** C23, K41, K15

## 1. Introduction

The judge has been always the centre of attention. The judge is blamed by parties who are unsatisfied with a judgment and are often subject to criticism by media and politicians. Having no purse or sword the judge is a vulnerable species. However, judges are not left alone in their 'ivory towers'. They are supported by a variety of staff and technology. The former has evolved into general or specialized clerks who seek to support judges in resolving cases. The role of technology in judicial processes can be associated with the procedures, software and hardware. Together they form a factory of justice. In other words, the court.

It is no surprise that various studies point to the fact that the court system has a positive impact on many aspects of society, including economic activity. For instance, they show a strong link between a well-performing judiciary and economic and social variables such as GDP growth (Kapopoulos & Rizos, 2024; Melcarne & Ramello, 2016), credit availability (Jappelli et al., 2005; Mora-Sanguinetti et al., 2017), entrepreneurship (Chemin, 2009b; García-Posada & Mora-Sanguinetti, 2015b), average firm size (García-Posada & Mora-Sanguinetti, 2015a; Giacomelli & Menon, 2017), their investments (Mora-Sanguinetti, 2021), market performance (Chakraborty, 2016) as well as market efficiency and economic development in general (Chemin, 2009a). Numerous studies point to factors that affect the performance of the courts – including their staffing, organization, management, the characteristics of the cases as well as other external factors including even some weather which we will shortly deliver in the next section. However, it shall be noted that performance is only one of many aspects of the assessment of the judicial

system. As Staats (2005) notes, the overall assessment may also include issues such as accessibility and independence – the topics which are not covered in this paper.

The main goal of our study is to investigate determinants of the court performance measured by the number of resolved cases in Poland. To this end, we employ unique database provided by the Ministry of Justice in Poland on several types of cases brought before commercial and civil district courts in Poland in years 2013-2020. The dataset allows us to carry out a detailed analysis on what factors determine the number of resolved cases including number of judges, number of new and pending cases of the considered type, a caseload of other cases that are being adjudicated in a court and number of auxiliary staff members. Although our research is limited to Poland, the results contribute to a discussion in the literature, indicating that judges do indeed contribute to the increase in the number of cases decided, and that the diversity of cases decided by the courts affects the outcome in different ways depending on the type of case. The results are robust to potential endogeneity, addressed by applying panel two-way fixed effects regression as well as instrumental variables.

Our results obtained with panel models and GMMs show the differential nature of the relationship between caseload structure in civil and commercial courts. In civil courts, we show that while a higher number of simplified writ-of-payment cases on the docket is negatively related to the number of full-trial cases, the relationship in the other direction is the opposite, i.e., more full-trial cases on the docket causes courts to hear more writ-of-payment cases. This may suggest opportunistic behaviour on the part of judges who, under pressure from the number of cases, focus on dealing with simpler cases to signal their productivity (in the meaning of enhancing cases which are easier to be closed). The competition for court resources manifested by the fact that the presence of writ-of-payment and other cases reduces the number of full-trial judgements is also borne out for the commercial courts. In their case, however, we did not observe a stimulating effect of writ-of-payment disputes on full-trial rulings, which may reflect the different working styles and complexity of cases in the two types of courts.

Our research makes multiple contributions to the existing literature on the determinants of court output. Firstly, we provide a comprehensive study of the civil and commercial courts in Poland which complements the scarce number of similar analyses conducted for the European transition economies. Secondly, we investigate the role played by judges and judicial staffing in resolving civil and commercial cases in Poland. On top of that, we analyse whether a caseload of other cases that are being adjudicated in a court affect its performance. To the best of our knowledge, the latter factors have been so far highly under-researched in the empirical literature. Lastly, the analysis was conducted separately for various types of civil and commercial cases that dif-

fer substantially in terms of the adjudication procedures and consequently in terms of the necessary involvement of judges and other court staff members.

The paper is organized as follows. Section 2 provides a brief overview of literature devoted to factors affecting court output. In Section 3 we present in detail the institutional setup and data. Section 4 covers estimation strategy we have applied to verify determinants of court output. Section 5 discusses the empirical results and section 6 concludes.

## 2. Literature review

The factors affecting court performance have attracted substantial attention in the literature. On the one hand, adjudication can be perceived as a dual-nature good by having characteristics of both private and public goods (Landes & Posner, 1979). On the one hand, it provides benefits to the parties of a legal dispute, but it does the same for the general public, as it reduces legal uncertainty and improves the regulatory environment for human action.

As pointed out by Marciano et al. (2019), studies on court performance tend to obscure the differences between effectiveness and efficacy. The first concept determines how well the court performs in using its resources (staff, cases on the docket) to maximise the product (number of cases disposed of). The second one defines how well the court system responds to the 'demand for justice' coming from citizens. In order to avoid the limitations of both concepts we focus on the court output which measures how well the courts perform in adjudication by treating the data on as external and using instrumental variables if necessary. Having explained the differences between various concepts their determinants can be analysed from the literature to deliver its main observations.

The determinants of court performance can be divided into two major categories: internal and external ones (Pappalardo & Tortorici, 2023).

In the first category, as proposed by Christensen and Szmer (2012), it is possible to enumerate three sub-categories: judges, courts and cases. It is not surprising that much of the literature focuses on the role of the judge, who is undoubtedly a key figure in the functioning of the courts. Unexpectedly, studies conducted for developed countries such as Israel (Beenstock & Haitovsky, 2004) and advanced transition countries like Slovenia (Dimitrova-Grajzl, Grajzl, Sustersic, et al., 2012) show that the number of judges is not significantly linked to the number of cases resolved. In more detail these studies point out that judges adjust their efforts to the number of cases they face in a given period of time (judicial slack). In contrast, the existence of a positive link between the number of judges and court output has been confirmed for some developing countries – e.g., Brazil (Sousa & Guimaraes, 2018), Nepal (Grajzl & Silwal, 2020), Bulgaria (Dimitrova-Grajzl et al., 2016) or Poland (Bełdowski et al., 2020). This disparity appears to be important for

judicial reform plans as the positive relationship might mean that increasing the number of judges will solve the problem of case delays.

The studies also examined how the number of cases decided is influenced by the individual characteristics of the judges. For instance, research points to the role of factors such as judges' salaries (Deyneli, 2012) as higher salaries are associated with more efficient courts in Europe. As shown by Schneider (2005), the educational level of the judges is also important as judges holding PhD degrees are shown to be more productive in Germany. Moreover, Dimitrova-Grajzl, Grajzl, Zajc, et al. . (2012) show that the performance of Slovenian judges is positively associated with promotion prospects (judges seek to demonstrate a track record to increase chances of promotion) and the dependence of productivity on age is U-shaped (youngest and oldest judges being more productive). Moreover, judges' performance may be affected by their colleagues as Martín-Román et al. (2023) showed a productivity decrease in Spanish labour courts where non-career/lay judges are employed.

The literature also examines other internal elements of the court that may affect its performance. For example, a positive relationship has been shown for the provision of IT tools to the court (Castelliano et al., 2023; Sousa & Guimaraes, 2018) as well as the presence of auxiliary staff (Deyneli & Mascini, 2020; Mishra, 2022) which relieves judges of administrative duties and allows them to concentrate on work. Particular attention is given to digital caseload management tools. Their implementation makes it possible to monitor the progress of proceedings and their deadlines, and to identify more quickly cases that require more work for judges and court staff. The use of such screening tools is associated with increased productivity of judges and shorter case processing times (Palumbo et al., 2013a, 2013b).

The third group of internal factors affecting court performance can be attributed to the cases themselves constituting the material from which judges and support staff 'manufacture' justice. Surprisingly, the scope of research concentrated on this area is scarce which opens up an interesting research gap. So far, the case heterogeneity was only addressed e.g., in the study of Polish commercial courts by Bełdowski et al. (2020) and Brazilian labour courts by Castelliano, Grajzl, Guimaraes, et al. (2021) In the latter study, the authors examined the relationship between the different types of cases and the court's performance in resolving them.

External factors also affect the operation of the courts, resulting from political decisions or even random events. For instance the political external factors are being analysed through the effects of previous reforms concerning the geographic distribution of courts (Achenchabe and Akaaboune (2021) for Morocco; Agrell et al. (2020) for Sweden) and make calls for changes that should be implemented (Falavigna and Ippoliti (2021) for Italy). In other words, such studies take into account how the courts are established via political decisions and whether such decisions may affect their performance. In

contrast, an important random event that also affected the functioning of the judiciary was the COVID-19 pandemic, which led to operational difficulties and sudden implementation of new technological tools. Castelliano, Grajzl, and Watanabe (2021) indicate that it had a negative impact on the number of judgements in Brazilian labour courts but did not affect the enforcement of these judgements. In turn, Baumet al. (2023) showed that the pandemic and a subsequent switch to e-procedure in Poland did not affect the performance of the country's commercial courts. It is also worth pointing out the less obvious factors influencing jurisprudence – e.g., weather. As shown by Heyes and Saberian (2019) an increase in temperature is associated with an increase in the severity of judges.

The current study focuses primarily on the internal determinants of court performance. Like Castelliano, Grajzl, Guimaraes et al. (2021), we examine whether and how the composition of the caseload (different types of cases) affects the number of judgements. However, our study is distinguished by its detail, as it includes both civil and commercial courts, and by the set of control variables we accounted for (i.e., demographic and economic data on the areas where the courts studied have jurisdiction).

## 3. Institutional setup and data

The Polish justice system has been affected by several 'reforms' in recent years, but they have not changed its fundamental distinction between civil and commercial disputes. The former ones are adjudicated in every district court (sąd rejonowy) whereas the latter ones are conducted in the commercial divisions of common courts established by the Minister of Justice who is competent to draw their geographical borders. The district court is the entry point for significant number of disputes as it is the lowest level of a common court system in Poland, and it comprises of the civil court by default and the commercial one if it has been established. These courts, or in fact departments of common courts, resolve cases of a value not exceeding PLN 75.000 (for civil cases, approx. EUR 17.000) or PLN 100.000 (for commercial cases, approx. EUR 22.700). If the threshold is exceeded the case must be lodged at the regional court (sąd okręgowy). The main distinction between commercial and civil courts concerns the parties involved in such cases. Commercial courts deal exclusively with ones involving entrepreneurs and disputes among them. On the contrary, cases involving other persons, e.g., consumers as well as disputes in which at least one of the parties is not an entrepreneur, are dealt with in the civil courts.

In the same vein, a selection process to appoint a judge is the same for civil and commercial district courts, although the candidate for a commercial vacancy is required to have some economic knowledge. However, this condition is obscure and leaves a lot of ambiguity in the selection process.

The role of auxiliary staff in the court depends on its features. The court clerk (urzędnik sądowy) may be allocated with general or specialised tasks whereas the judges assistants' (asystent sędziego) focus is on preparing written justifications of court judgments and lastly legal clerks (referendarz) are allowed to perform some judicial activities, in particular within non-contentious disputes (see in more detail Bełdowski et al., 2020).

It is also important to mention how the cases may be lodged to the civil and commercial courts. In general, they may be lodged before the court in whose district the defendant resides (civil courts) and in case of an action against a legal person or other entity that is not a natural person it shall be brough in accordance with the place of their registered office. The parties may agree on the selection of a different court, but it is not common practice to do so and the allocation of cases to different courts by the decision of a superior court are seldom and they were omitted from this study. However, some specialization may be observed in the multi-departmental courts or specialized courts established by the Ministry of Justice. But taking into account the latest developments the latter have not sped up Polish justice and the former is only observed in few big cities and hence both have negligible impact on our study if any. In the same vein, the case management system is not developed throughout the country and particular approach which tackle the problem cannot be observed either.

A dataset employed in this study was provided by the Ministry of Justice of Poland concerning civil and commercial courts of first instance. It contains annual data on the number of all types of cases received and handled by the commercial and civil courts in Poland in years 2013–2020 as well as data on their staffing (judges and three types of supporting staff, namely court clerks, judges' assistants and legal clerks. The dataset covers 55 commercial courts in the years 2013-2014 and 54 commercial courts in the years 2015–2020. For civil courts dataset includes data on 242 courts in the years 2013–2014, 315 courts in 2015 and 318 courts in the years 2016–2020. The changes in the number of courts result from judiciary reforms implemented in the considered period: a merger of two commercial courts into one larger one and the restoration of so-called small civil courts in smaller towns. In order to ensure that our results are not distorted by organizational changes resulting from the reforms introduced, all estimates have been carried out using data for courts whose jurisdictions have not changed throughout the period under study. Nevertheless, it should be noted that although we are able to distinguish between certain categories of cases, the dataset we use includes only aggregated annual data on court activity. As a result, we are unable to track individual cases or assess their resolution times.

The dataset allows us to distinguish the following types of civil cases (Figure 1):

– Full-trial cases: Cases requiring a full trial between the disputing parties in which the judge (supported by the auxiliary staff) must resolve a contentious dispute.

- Writ-of-payment cases: Cases primarily involving arrears or payment arrears dealt with in a non-contentious procedure on the basis of bear application (writ of payment) e.g., copies of invoices not paid on time, or original documents (order for payment) submitted by the parties e.g. bill of exchange. As the dataset do not differentiate between both types of non-contentious procedure it is under a general headline of writ-of-payment cases.
- Non-full-trial cases: Cases where there is no dispute between the parties, but where there must be, for example, a determination of some fact by the court (e.g., successions or guardianships).
- 'Other' cases: Cases that cannot be classified in the previously enumerated groups.

For commercial courts, we use data for only three categories, i.e., full-trial, writ-of-payment and others (Figure 2). Commercial non-full-trial cases have been excluded from the database due to their marginal share of adjudication. Being aware that certain regions of Poland may bring different types of cases, in particular within 'other' cases, we were unable to break it into details due to the data collection constraints.

Descriptive statistics of all variables for civil and commercial cases used in the study are presented in Table A1 and A2, respectively.

## 4. Estimation strategy

The primary goal of the research is to establish factors determining court output measured by the number of resolved cases brought before district, first-instance courts in Poland. The empirical verification includes the estimation of a set of panel fixed-effects models separately for all the distinguished types of civil and commercial cases. Specifically, 4 types of civil cases (i.e., full trial, writ-of-payment, non-litigation, other) and 3 types of commercial cases (i.e., full trial, writ-of-payment, other) were examined. We employ a rich set of explanatory variables. Firstly, all specifications include the number of judges serving, new cases coming to a court during each year and the number of pending cases (i.e., cases that were received in previous years but have not yet been heard). Secondly, they incorporate number of other types of cases that are filed into a court. These variables are of crucial importance for the study as its primary goal is to examine how other cases affect court output. They allow us to verify whether there is a synergy or competition between cases adjudicated within a court. Specifically, we investigate whether a larger number of certain type of cases boost or hamper court output. In turn, we directly investigate an impact of caseload heterogeneity on court performance. If the estimated coefficients are positive, the presence of cases of a different type than the one examined makes the court better at adjudicating them. In such circumstances, synergies between resolved cases can be

postulated. On the other hand, negative coefficients indicate there is a competition between cases since the considered types of cases decrease court output. The model regressions control for number of auxiliary staff members (i.e., court servants, judges' assistants and court clerks) as well as a set of regional variables characterizing court jurisdiction. In particular, they include income per capita, the share of private enterprises, the number of companies per 10,000 residents and the population size to control for differences in economic development and the size of the regions under the jurisdiction of the first instance courts. The model specifications also include court fixed effects to control for unobserved court characteristics that potentially might affect their output, like e.g., a diversified complexity of cases filed into courts stemming from regional economic structure not captured by the included control variables or different quality of court management. Time fixed effects are included to account for unobserved country-wide features that have impact on court performance, e.g., business cycle or judicial reforms. To determine whether a fixed effects (FE) or random effects (RE) specification is more appropriate, we performed the Hausman test. The test compares the consistency of the RE estimator with the efficiency of the FE estimator under the null hypothesis that the preferred model is random effects. Rejection of the null indicates that the RE estimator is inconsistent, and that fixed effects should be used.[1]

The model specification is of the following form:

$$resplved_{nit} = \beta_0 + \boldsymbol{\beta_1 caseload_{nit}} + \beta_2 judge_{nit} + B_3 \boldsymbol{control_{nit}} + \mu_{it} + u_{ni} + \varepsilon_{nit} \quad (1)$$

where resolved denotes the number of resolved cases of the considered type, caseload is a vector of the number of new and pending cases of the considered type and judge represents the number of serving judges. The subscript n denotes a court, i – a case type and t – a year. A vector control includes a set of discussed control variables potentially affecting court output. All variables are transformed into natural logarithms and hence the estimated coefficients can be interpreted as respective elasticities. The exceptions are regional characteristics (income per capita, number of companies and a share of privately owned companies) that were standardized within each year to limit their heterogeneity across regions. Lastly, μ indicates time fixed effects, u court fixed effects and ε denotes random residuals. The model coefficients are estimated by ordinary least squares. Standard errors are clustered at the court level.

As pointed out in the literature (e.g. Bełdowski et al., 2020; Dimitrova-Grajzl et al., 2016; Dimitrova-Grajzl, Grajzl, Sustersic, et al., 2012), the em-

[1] The Hausman test results for both civil and commercial cases showed that fixed effects specification is preferred over random effects. Detailed results are available upon request.

pirical verification of determinants of court output should address an issue of potential endogeneity of independent variables. It can arise from two sources: firstly, the appointing body may decide to increase number of judges or auxiliary staff to courts facing difficulty in handling a caseload. Secondly, parties considering resolving a dispute may select courts where proceedings are particularly fast – they may refer their cases to other courts (in Poland, this is legal if the parties stipulate it in a contract) or resort to other methods of conflict resolution (e.g., mediation or arbitration). We address the potential issue of endogeneity and reverse causality by augmenting the model specification by a first lag of the dependent variable and then by employing Arellano-Bover (1995) GMM-system estimator. It uses moment conditions in which lagged differences are used as instruments for the level equation in addition to the moment conditions of lagged levels as instruments for the difference equation. This estimator is designed for datasets with many panels and few periods which is the case in our data. The GMM-system method requires that there is no autocorrelation in the idiosyncratic errors. We verified whether this condition is met by applying Arellano-Bond (1991) test for autocorrelation of order one and two in the first-differenced residuals. Under the null hypothesis, the test assumes no autocorrelation at the specified order. While first-order autocorrelation is expected due to the differencing process, the absence of second-order autocorrelation is necessary for the validity of the GMM estimator. Additionally, we also perform the Hansen test for overidentifying restrictions, which evaluates the overall validity of the instruments and is robust to heteroscedasticity. Its null hypothesis assumes the instruments are exogenous. Failure to reject the null supports the validity of the instrument set, whereas rejection suggests that the instruments may be invalid and should be reconsidered.

## 5. Results

### 5.1. Civil courts

The results for the full trial civil cases show that a number of resolved cases of this type is primarily driven by a case inflow as well as a number of pending cases that were not resolved in previous years (Table 1). Judges also play a significant role in court output, however the estimated coefficients for the number of judges are unstable.

Across all GMM specifications, the Arellano-Bond tests for serial correlation and the Hansen test for overidentifying restrictions consistently confirm that the instruments used are valid and exogenous. This reinforces the robustness of the GMM estimates and supports their prioritization in interpreting the results.

In the GMM model (col. 4), the coefficient is less than half the size of those estimated in the fixed effects specifications (col. 1-3). The coefficients reflecting caseload of other civil cases resolved within a court provide mixed results. The fixed-effects models suggest (col. 1-3) that non-full trial civil cases significantly constrain courts' capacity to resolve full trial cases, a result confirmed by the GMM estimates. The GMM model also indicates a negative impact of writ-of payment civil cases on the number of resolved full trial cases, though this effect is not statistically significant in the fixed-effect models. Consistent with the GMM results, other civil cases increase the number of adjudicated cases with a full trial, but again these results were not significant in the fixed effect models.

Given that IV-GMM estimates account for potential endogeneity and reverse causality, they should be prioritized in interpretation. These findings point to a competition for court resources between full-trial cases and both adjudication and non-trial cases. At the same time, they suggest potential synergies with other types of civil cases.

Regarding court staff, the number of clerks is found to significantly increase the number of resolved full trial cases across all model specifications. However, the estimated effect in the GMM model is more than three times smaller than in the FE models. Extending the model specification to include control variables accounting for regional characteristics does not materially alter the main results, although the estimated coefficients for these variables are relatively unstable. The preferred GMM estimates suggest that a higher number of firms per 10,000 inhabitants and higher income per capita are associated with a lower number of resolved full trial civil cases. This finding may reflect greater complexity in cases filed in more economically developed regions, which could lead to longer adjudication times. Additionally, the results indicate that courts in more densely populated areas tend to resolve fewer full trial civil cases, possibly due to greater systematic congestion or higher case complexity.

The results for writ-of-payment cases adjudicated in civil courts show that number of resolved cases is primarily driven by the inflow of new cases (Table 2). In contrast to the findings for full trial cases (Table 1), the judge coefficient in the fixed effects specifications turned out to be statistically insignificant. However, it becomes significant in the GMM model (col. 4), though its magnitude is approximately half that observed for full trial cases. This suggests that while judges are necessary to carry out formal court procedures, their number is less critical to resolving writ-of-payment cases, which are generally less complex.

Interestingly, the caseloads of both full trial and non-full trial cases (the latter only in the GMM model) are positively associated with the number of resolved writ-of-payment cases. This contrasts with earlier findings showing that writ-of-payment caseloads hinder the resolution of full trial cases,

while the reverse does not hold. The study does not provide a definitive explanation for this asymmetry, one possible interpretation is that judges' engagement with more demanding full trail cases may improve their overall efficiency, prompting quicker resolution of simpler writ-of-payment cases. This could reflect a prioritization strategy, where judges focus their efforts on full trial cases and dispose of less complex matters more rapidly. Such behavior may be incentivized if resolution of full trial cases influences career advancement or performance evaluations.

The caseload of the other civil cases is negatively associated with writ-of-payment case resolution, although this effect is only statistically significant in the GMM specification. In addition, the GMM results highlight the positive contribution of both legal and court clerks to court performance, underscoring the importance of support staff in enhancing case throughput. Surprisingly, the GMM estimates also show that court output is higher in more economically developed regions, as reflected by positive associations with income per capita and firm density. In contrast, courts located in more populous areas tend to resolve fewer writ-of-payment cases, possibly due to congestion or higher systemic burdens.

The results for resolved non-trial civil cases show that their number is primarily driven by the inflow of new cases, and to lesser extent, by pending cases and the number of serving judges (Table 3). The estimated coefficients for the caseload variables are mixed and inconclusive, suggesting no consistent pattern across specifications. The estimates from the preferred GMM estimator (col. 4) indicate that the courts' ability to resolve non-trial cases improves with a higher volume of other civil cases filed into a court, but declines with a higher volume of writ-of-payment cases. This supports the notion that there is a competition for court resources, where the burden imposed by certain types of cases reduces the courts' capacity to process others. However, due to the observed instability of the coefficients, these findings should be interpreted with caution. The results also provide evidence that court clerks play a significant role in increasing the number of resolved non-trial cases. However, this effect is statistically significant only in the GMM specification, which again calls for a cautious interpretation of the findings.

Similar to non-full trial civil cases, the resolution of civil cases classified as 'other' is primarily driven by the inflow of new cases, as well as by the number of serving judges (Table 4). The preferred GMM estimates reveal that all previously discussed categories of civil cases, i.e., full trial, non-full trial, and writ-of-payment, significantly reduce the number of adjudicated 'other' civil cases. However, these relationships are not statistically significant in any of the fixed effects specifications.

One consistent finding across all models concerns court clerks, who significantly increase the number of resolved 'other' civil cases regardless of the estimation method used. This underlines the critical role of this category of

auxiliary staff in smooth adjudication of such cases. The GMM results also suggest that other staff members contribute positively to court performance.

With regard to regional control variables, the estimates show that court located in more economically developed areas - reflected by a higher number of firms and a greater share of privately owned enterprises – tend to resolve fewer 'other' civil cases. Similarly, court output is lower in more densely populated regions. These findings might indicate that courts in such areas face more complex caseloads, which in turn hampers their overall output.

### 5.2. Commercial courts

The estimates for commercial courts indicate that both the number of judges and the size of the caseload are key determinants of the number of resolved full trial cases (Table 5). The results show that the resolution of these cases is significantly dampened by the writ-of payment caseload, reinforcing the notion that different case types compete for limited court resources. In contrast, the caseload of other commercial cases does not have a statistically significant effect on the number of resolved full trial cases. Among auxiliary court staff, only judges' assistants appear to significantly enhance courts' capacity to adjudicate full trial commercial cases.

The analysis of writ-of payment cases in commercial courts yield results broadly consistent with those observed in civil courts (Table 6). The number of resolved writ-of-payment cases is driven almost entirely by their own caseload. The number of serving judges is only weakly significant in the fixed effects specifications as well as in the GMM model. However, the GMM estimates provide some evidence of a negative impact from the full trial caseload on the resolution of writ-of-payment cases, as well as positive contribution from legal clerks.

Finally, the results for 'other' types of commercial cases show that their resolution is significantly reduced by the caseload of full trial and writ-of-payment cases filed within the same court (Table 7). These findings further support the existence of competition for court resources, where a heavier load of more complex or demanding case types adversely affects court output. However, none of the auxiliary staff categories - including legal clerks, court clerks, or judges' assistants - show a statistically significant effect on the resolution of these cases, suggesting that their role may be limited or context-dependent in this particular case category.

## 6. Conclusion

On the basis of the results, several general conclusions can be drawn regarding adjudication by civil courts of first instance in Poland:

First, the role of judges varies by case type. Judges have a significant impact on the resolution of full-trial and non-full-trial cases, but their effect is either insignificant or considerably lower in writ-of-payment and other civil cases. This likely reflects the nature of cases: while full-trial and non-full-trial cases are more individualized and complex requiring greater judges' involvement whereas writ-of-payment and other ones tend to be more standardized and repetitive.

Second, certain categories of auxiliary court staff contribute to court output, though selectively. Only court clerks are found to consistently increase the number of resolved full-trial and other civil cases. This suggests that clerks may either effectively support judges in complex tasks or even substitute for them in routine judicial operations.

Third, the results indicate some degree of synergy in the resolution of civil cases. For example, the presence of other case types on the docket is positively associated with the number of resolved full-trial and non-full trial cases. Similarly, both full trial and non-full trial caseloads enhance the number of resolved writ-of-payment civil cases. This can be explained by specialization effects within courts – judges and staff becoming more efficient through experience ('learning-by-doing') in handling specific types of cases.

However, competition for court resources is also evident. In most instances, additional caseloads from other case types negatively affect the resolution of civil cases. For example, a high volume of writ-of-payment cases is associated with a decline in the number of resolved full-trial and 'other' civil cases. This pattern may reflect opportunistic behavior in some courts, where judges prioritize simpler writ-of-payment cases to meet their performance targets. In overloaded courts, this strategy may help maximize the number of closed cases but at the expense of more complex, time-consuming ones.

When comparing civil and commercial courts, several common patterns emerge. First, both judges and court clerks play the central role in the adjudication of full-trial cases – a logical outcome given the complexity of these proceedings. Second, in both court types, the resolution of full trial cases is negatively affected by the writ-of payment caseload, again prompting to competition for limited court resources. We also find evidence that a high full-trail caseload can reduce the number of resolved writ-of-payment cases in commercial courts, while judges' assistants appear to have a positive effect in this context. Moreover, 'other' case types also exert downward pressure on court output, reinforcing the view that courts operate under tight capacity constraints.

Finally, courts located in more economically developed regions tend to resolve fewer cases. This likely reflects the greater complexity of cases filed in such areas, which require more judicial effort per case. While this trend is observable for civil courts, it cannot be confirmed for commercial courts due to their more limited geographic coverage.

Based on the findings of this study, a couple recommendations for improving the court performance in Poland can be formulated. First, courts should allocate resources according to case complexity rather than case volume. Complex cases, such as full-trial proceedings, require more time and expertise and should be prioritized in staffing and support. Second, specialization within courts should be more encouraged. When judges and staff focus on specific case types, they become more efficient and consistent through experience (e.g. the specialization may be achieved through introduction of more divisions within the court). Third, simple and high-volume cases like writ-of-payment claims should be processed more efficiently – ideally through institutional internal adjustments (e.g. establishing a subdivision only devoted to such cases) – to prevent them from consuming resources needed for complex cases. Fourth, investing in court clerks can yield clear efficiency gains. Well-trained clerks help reduce the burden on judges and support the resolution of more demanding cases. Lastly, courts in more economically advanced and densely populated regions, where cases tend to be more complex, should receive additional resources to reflect their higher workloads and ensure more balanced access to justice.

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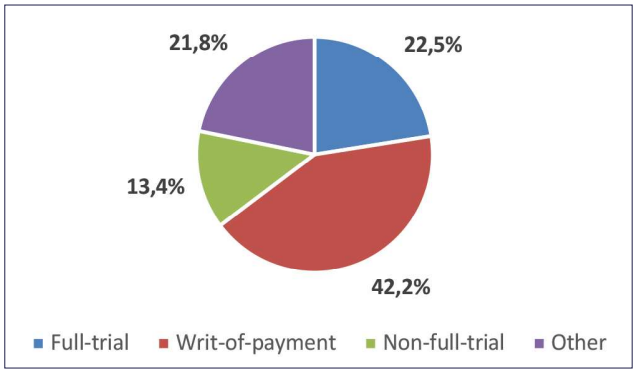
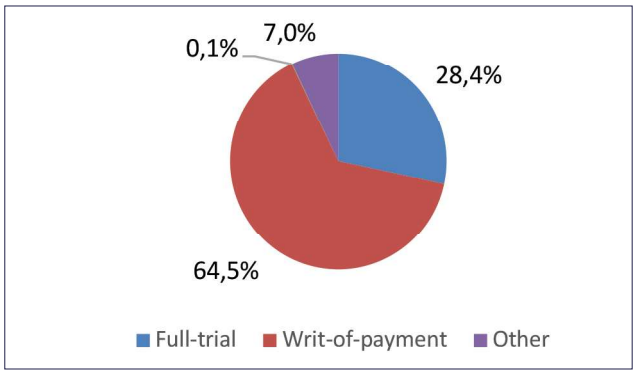
# Appendix

Chart 1. Structure of cases adjudicated by civil courts of first instance in Poland in 2013–2020.




Source: Own preparation based on data provided by the Ministry of Justice in Poland.

Chart 2. Structure of cases adjudicated by commercial courts of first instance in Poland in 2013-2020.




Source: Own preparation based on data provided by the Ministry of Justice in Poland.

Table A1. Summary statistics – civil courts

| Variable | N | Mean | S.D. | Min | Q1 | Median | Q3 | Max |
|---|---|---|---|---|---|---|---|---|
| New full-trial cases | 1936 | 7.53 | 0.76 | 5.17 | 6.98 | 7.45 | 8.06 | 9.80 |
| Pending full-trial cases | 1936 | 6.84 | 0.89 | 4.03 | 6.21 | 6.76 | 7.43 | 9.85 |
| Adjudicated full-trial cases | 1936 | 7.51 | 0.75 | 4.83 | 6.98 | 7.43 | 8.04 | 9.59 |
| New writ-of-payment cases | 1936 | 8.00 | 0.88 | 4.33 | 7.39 | 7.89 | 8.60 | 11.75 |
| Pending writ-of-payment cases | 1936 | 5.49 | 1.44 | 0.00 | 4.65 | 5.59 | 6.49 | 9.71 |

| Variable | N | Mean | S.D. | Min | Q1 | Median | Q3 | Max |
|---|---|---|---|---|---|---|---|---|
| Adjudicated writ-of-payment cases | 1936 | 8.01 | 0.88 | 4.56 | 7.40 | 7.91 | 8.61 | 11.62 |
| New non-full-trial cases | 1936 | 7.06 | 0.65 | 5.42 | 6.61 | 7.03 | 7.49 | 9.13 |
| Pending non-full-trial cases | 1936 | 5.49 | 1.44 | 0.00 | 4.65 | 5.59 | 6.49 | 9.71 |
| Adjudicated non-full-trial cases | 1936 | 7.04 | 0.66 | 5.38 | 6.59 | 7.00 | 7.47 | 9.12 |
| New 'other' cases | 1936 | 7.44 | 0.81 | 4.80 | 6.91 | 7.39 | 8.01 | 9.56 |
| Pending 'other' cases | 1936 | 6.16 | 0.89 | 0.69 | 5.59 | 6.20 | 6.80 | 8.62 |
| Adjudicated 'other' cases | 1936 | 7.45 | 0.81 | 4.57 | 6.93 | 7.41 | 8.03 | 9.53 |
| Judges | 1936 | 2.03 | 0.56 | 0.85 | 1.61 | 1.88 | 2.35 | 3.89 |
| Legal clerks | 1936 | 0.84 | 0.64 | 0.00 | 0.38 | 0.70 | 1.18 | 3.16 |
| Assistants | 1936 | 1.18 | 0.57 | 0.00 | 0.73 | 1.09 | 1.47 | 3.13 |
| Court clerks | 1936 | 2.52 | 0.62 | 1.23 | 2.06 | 2.35 | 2.91 | 4.40 |
| Full-trial cases in the caseload | 1936 | 7.96 | 0.77 | 5.64 | 7.42 | 7.87 | 8.50 | 10.42 |
| Writ-of-payment cases in the caseload | 1936 | 8.11 | 0.90 | 4.60 | 7.49 | 7.99 | 8.73 | 11.75 |
| Non-full-trial cases in the caseload | 1936 | 7.45 | 0.61 | 5.89 | 7.00 | 7.38 | 7.89 | 9.27 |
| 'Other' cases in the caseload | 1936 | 7.71 | 0.79 | 5.06 | 7.17 | 7.68 | 8.28 | 9.75 |

Note: Variables are expressed in logarithms. They have been incremented by 1 before logarithmization to avoid any issues arising from the non-existence of the logarithm from zero.

Table A2. Summary statistics – commercial courts

| Variable | N | Mean | S.D. | Min | Q1 | Median | Q3 | Max |
|---|---|---|---|---|---|---|---|---|
| New full-trial cases | 426 | 7.45 | 0.81 | 5.67 | 6.88 | 7.37 | 7.97 | 10.28 |
| Pending full-trial cases | 426 | 6.85 | 1.03 | 4.72 | 6.17 | 6.74 | 7.52 | 10.33 |
| Adjudicated full-trial cases | 426 | 7.41 | 0.81 | 5.7 | 6.85 | 7.31 | 7.92 | 10.14 |
| New writ-of-payment cases | 426 | 8.19 | 0.83 | 6.53 | 7.53 | 8.19 | 8.69 | 11.09 |
| Pending writ-of-payment cases | 426 | 5.86 | 1.23 | 2.48 | 4.94 | 5.86 | 6.64 | 9.34 |
| Adjudicated writ-of-payment cases | 426 | 8.2 | 0.84 | 6.51 | 7.56 | 8.16 | 8.7 | 11.07 |
| New 'other' cases | 426 | 5.83 | 1.05 | 0.69 | 5.26 | 5.75 | 6.46 | 9.2 |
| Pending 'other' cases | 426 | 4.03 | 1.1 | 0.00 | 3.33 | 4.01 | 4.65 | 7.38 |
| Adjudicated 'other' cases | 426 | 5.83 | 1.05 | 0.69 | 5.27 | 5.77 | 6.47 | 9.17 |
| Judges | 426 | 1.87 | 0.62 | 0.62 | 1.44 | 1.79 | 2.27 | 4.12 |
| Legal clerks | 426 | 0.75 | 0.61 | 0.00 | 0.34 | 0.64 | 1.05 | 3.1 |
| Assistants | 426 | 1.08 | 0.66 | 0.00 | 0.65 | 0.95 | 1.43 | 3.62 |
| Court clerks | 426 | 2.35 | 0.65 | 1.23 | 1.87 | 2.24 | 2.73 | 4.86 |
| Full-trial cases in the caseload | 426 | 7.91 | 0.87 | 6.06 | 7.3 | 7.81 | 8.43 | 10.93 |
| Writ-of-payment cases in the caseload | 426 | 8.3 | 0.86 | 6.62 | 7.64 | 8.28 | 8.79 | 11.23 |

| Variable | N | Mean | S.D. | Min | Q1 | Median | Q3 | Max |
|---|---|---|---|---|---|---|---|---|
| 'Other' cases in the caseload | 426 | 5.99 | 1.05 | 0.69 | 5.4 | 5.92 | 6.63 | 9.25 |

Note: Variables are expressed in logarithms. They have been incremented by 1 before logarithmization to avoid any issues arising from the non-existence of the logarithm from zero.

Table 1. Civil courts: full trial cases

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | OLS-FE | OLS-FE | OLS-FE | GMM-IV |
| Resolved full-trial cases (lagged) | | | | 0.14*** |
| | | | | (0.01) |
| Judges | 0.21*** | 0.18*** | 0.17*** | 0.081*** |
| | (0.03) | (0.04) | (0.04) | (0.02) |
| New full-trial cases | 0.66*** | 0.66*** | 0.66*** | 0.64*** |
| | (0.02) | (0.02) | (0.02) | (0.01) |
| Pending full-trial cases | 0.37*** | 0.37*** | 0.37*** | 0.33*** |
| | (0.01) | (0.01) | (0.01) | (0.01) |
| Writ-of-payment cases (caseload) | -0.011 | -0.015 | -0.017 | -0.053*** |
| | (0.01) | (0.01) | (0.01) | (0.01) |
| Non-full trial cases (caseload) | -0.021 | -0.033* | -0.035** | -0.043*** |
| | (0.02) | (0.02) | (0.02) | (0.01) |
| Other cases (caseload) | 0.022 | 0.010 | 0.012 | 0.057*** |
| | (0.02) | (0.02) | (0.02) | (0.01) |
| Legal clerks | | -0.014 | -0.018 | -0.018*** |
| | | (0.01) | (0.01) | (0.01) |
| Court clerks | | 0.087*** | 0.095*** | 0.028* |
| | | (0.03) | (0.03) | (0.02) |
| Assistants | | -0.0036 | -0.0049 | 0.013 |
| | | (0.02) | (0.02) | (0.01) |
| Income per capita | | | -0.003 | -0.020*** |
| | | | (0.02) | (0.01) |
| Share of private enterprises | | | 0.016** | -0.002 |
| | | | (0.01) | (0.00) |
| Firms per 10k inhabitants | | | -0.034** | -0.032*** |
| | | | (0.02) | (0.01) |
| Population | | | -0.031 | -0.079*** |
| | | | (0.05) | (0.01) |

| | | | | |
|---|---|---|---|---|
| R2 | 0.85 | 0.85 | 0.85 | |
| N | 1936 | 1936 | 1936 | 1694 |
| AR1 (p-value) | | | | 0.00 |
| AR2 (p-value) | | | | 0.62 |
| Hansen (p-value) | | | | 0.24 |

Note: For GMM model (col. 4) the table presents the p-values of the Arellano-Bond tests for zero autocorrelation in first-differenced residuals of order one (AR1) and two (AR2), as well as the Hansen test for overidentifying restrictions. Standard errors in parentheses. $^{*}$ $p < 0.10$, $^{**}$ $p < 0.05$, $^{***}$ $p < 0.01$.

Table 2. Civil courts: writ of payment cases

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | OLS-FE | OLS-FE | OLS-FE | GMM-IV |
| Resolved writ-of-payment cases (lagged) | | | | 0.066*** |
| | | | | (0.00) |
| Judges | 0.026 | 0.016 | 0.012 | 0.043*** |
| | (0.02) | (0.02) | (0.02) | (0.00) |
| New writ-of-payment cases | 0.89*** | 0.89*** | 0.89*** | 0.85*** |
| | (0.02) | (0.02) | (0.02) | (0.00) |
| Pending writ-of-payment cases | 0.071*** | 0.071*** | 0.071*** | 0.057*** |
| | (0.00) | (0.00) | (0.00) | (0.00) |
| Full-trial cases (caseload) | 0.023** | 0.022** | 0.022** | 0.030*** |
| | (0.01) | (0.01) | (0.01) | (0.00) |
| Non-full trial cases (caseload) | 0.007 | 0.004 | 0.004 | 0.005** |
| | (0.01) | (0.01) | (0.01) | (0.00) |
| Other cases (caseload) | -0.013 | -0.016 | -0.016 | -0.019*** |
| | (0.01) | (0.01) | (0.01) | (0.00) |
| Legal clerks | | 0.005 | 0.004 | 0.029*** |
| | | (0.01) | (0.01) | (0.00) |
| Court clerks | | 0.017 | 0.017 | 0.017*** |
| | | (0.02) | (0.02) | (0.00) |
| Assistants | | 0.0071 | 0.007 | -0.004 |
| | | (0.01) | (0.01) | (0.00) |
| Income per capita | | | 0.006 | 0.020*** |
| | | | (0.01) | (0.00) |
| Share of private enterprises | | | 0.003 | 0.002*** |
| | | | (0.00) | (0.00) |

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | OLS-FE | OLS-FE | OLS-FE | GMM-IV |
| Firms per 10k inhabitants | | | -0.007 | 0.009*** |
| | | | (0.01) | (0.00) |
| Population | | | -0.046 | -0.059*** |
| | | | (0.04) | (0.00) |
| R2 | 0.96 | 0.96 | 0.96 | |
| N | 1936 | 1936 | 1936 | 1694 |
| AR1 (p-value) | | | | 0.00 |
| AR2 (p-value) | | | | 0.57 |
| Hansen (p-value) | | | | 0.42 |

Note: See note to Table 1.

Table 3. Civil courts: non-trial cases

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | OLS-FE | OLS-FE | OLS-FE | GMM-IV |
| Resolved non-full trial cases (lagged) | | | | 0.040*** |
| | | | | (0.00) |
| Judges | 0.058*** | 0.067*** | 0.067*** | 0.082*** |
| | (0.02) | (0.02) | (0.02) | (0.00) |
| New non-full trial cases | 0.94*** | 0.94*** | 0.94*** | 0.92*** |
| | (0.01) | (0.01) | (0.01) | (0.00) |
| Pending non-full trial cases | 0.16*** | 0.16*** | 0.16*** | 0.092*** |
| | (0.02) | (0.03) | (0.03) | (0.00) |
| Full-trial cases (caseload) | -0.032*** | -0.030*** | -0.029*** | -0.0039 |
| | (0.01) | (0.01) | (0.01) | (0.00) |
| Writ-of-payment cases (caseload) | 0.0068 | 0.0081 | 0.0082 | -0.012*** |
| | (0.01) | (0.01) | (0.01) | (0.00) |
| Other cases (caseload) | -0.022** | -0.019** | -0.018** | 0.016*** |
| | (0.01) | (0.01) | (0.01) | (0.00) |
| Legal clerks | | 0.001 | -0.001 | 0.00023 |
| | | (0.01) | (0.01) | (0.00) |
| Court clerks | | -0.021 | -0.013 | 0.039*** |
| | | (0.02) | (0.02) | (0.00) |
| Assistants | | 0.001 | -0.001 | -0.001 |
| | | (0.01) | (0.01) | (0.00) |

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | OLS-FE | OLS-FE | OLS-FE | GMM-IV |
| Income per capita | | | 0.004 | -0.007*** |
| | | | (0.01) | (0.00) |
| Share of private enterprises | | | 0.006 | 0.003*** |
| | | | (0.00) | (0.00) |
| Firms per 10k inhabitants | | | 0.0013 | 0.006*** |
| | | | (0.01) | (0.00) |
| Population | | | 0.0031 | -0.097*** |
| | | | (0.03) | (0.00) |
| R2 | 0.98 | 0.98 | 0.98 | |
| N | 1936 | 1936 | 1936 | 1694 |
| AR1 (p-value) | | | | 0.00 |
| AR2 (p-value) | | | | 0.63 |
| Hansen (p-value) | | | | 0.55 |

Note: See note to Table 1.

Table 4. Civil courts: other cases

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | OLS-FE | OLS-FE | OLS-FE | GMM-IV |
| Resolved other cases (lagged) | | | | 0.031*** |
| | | | | (0.00) |
| Judges | 0.052*** | 0.034* | 0.034* | 0.009** |
| | (0.02) | (0.02) | (0.02) | (0.00) |
| New other cases | 0.85*** | 0.85*** | 0.85*** | 0.84*** |
| | (0.02) | (0.02) | (0.02) | (0.00) |
| Pending other cases | 0.17*** | 0.16*** | 0.16*** | 0.13*** |
| | (0.02) | (0.02) | (0.02) | (0.00) |
| Full-trial cases (caseload) | 0.004 | -0.001 | -0.002 | -0.011*** |
| | (0.01) | (0.01) | (0.01) | (0.00) |
| Writ-of-payment cases (caseload) | 0.003 | -0.005 | -0.001 | -0.028*** |
| | (0.01) | (0.01) | (0.01) | (0.00) |
| Non-full trial cases (caseload) | 0.010 | 0.004 | 0.0025 | -0.006*** |
| | (0.01) | (0.01) | (0.01) | (0.00) |
| Legal clerks | | 0.012 | 0.012 | 0.024*** |
| | | (0.01) | (0.01) | (0.00) |

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | OLS-FE | OLS-FE | OLS-FE | GMM-IV |
| Court clerks | | 0.041** | 0.033* | 0.092*** |
| | | (0.02) | (0.02) | (0.00) |
| Assistants | | 0.002 | 0.003 | 0.014*** |
| | | (0.01) | (0.01) | (0.00) |
| Income per capita | | | -0.005 | 0.018*** |
| | | | (0.01) | (0.00) |
| Share of private enterprises | | | -0.006 | -0.006*** |
| | | | (0.01) | (0.00) |
| Firms per 10k inhabitants | | | -0.014* | -0.019*** |
| | | | (0.01) | (0.00) |
| Population | | | 0.032 | -0.042*** |
| | | | (0.05) | (0.00) |
| R2 | 0.98 | 0.98 | 0.98 | |
| N | 1936 | 1936 | 1936 | 1694 |
| AR1 (p-value) | | | | 0.00 |
| AR2 (p-value) | | | | 0.21 |
| Hansen (p-value) | | | | 0.59 |

Note: See note to Table 1.

Table 5. Commercial courts: full trial cases

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | OLS-FE | OLS-FE | OLS-FE | GMM-IV |
| Resolved full-trial cases (lagged) | | | | 0.15*** |
| | | | | (0.046) |
| Judges | 0.20*** | 0.19*** | 0.19*** | 0.32*** |
| | (0.05) | (0.05) | (0.04) | (0.074) |
| New full-trial cases | 0.69*** | 0.69*** | 0.69*** | 0.50*** |
| | (0.04) | (0.04) | (0.04) | (0.062) |
| Pending full-trial cases | 0.12*** | 0.11*** | 0.11*** | 0.18*** |
| | (0.04) | (0.04) | (0.04) | (0.050) |
| Writ-of-payment cases (caseload) | -0.11*** | -0.11*** | -0.11*** | -0.16*** |
| | (0.03) | (0.03) | (0.03) | (0.060) |
| Other cases (caseload) | -0.0091 | -0.010 | -0.0094 | 0.035 |
| | (0.02) | (0.02) | (0.02) | (0.026) |

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | OLS-FE | OLS-FE | OLS-FE | GMM-IV |
| Legal clerks | | 0.035 | 0.035 | 0.022 |
| | | (0.02) | (0.02) | (0.054) |
| Court clerks | | -0.021 | -0.043 | -0.11 |
| | | (0.05) | (0.06) | (0.10) |
| Assistants | | 0.068*** | 0.067*** | 0.094*** |
| | | (0.02) | (0.02) | (0.034) |
| Income per capita | | | 0.024 | 0.038 |
| | | | (0.03) | (0.056) |
| Share of private enterprises | | | -0.003 | 0.014 |
| | | | (0.01) | (0.011) |
| Firms per 10k inhabitants | | | 0.031 | -0.032 |
| | | | (0.02) | (0.035) |
| Population | | | -0.14 | 0.026 |
| | | | (0.08) | (0.054) |
| R2 | 0.94 | 0.94 | 0.94 | |
| N | 669 | 669 | 669 | 605 |
| AR1 (p-value) | | | | 0.000 |
| AR2 (p-value) | | | | 0.722 |
| Hansen (p-value) | | | | 0.743 |

Note: See note to Table 1.

Table 6. Commercial courts: writ-of-payment cases

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | OLS-FE | OLS-FE | OLS-FE | GMM-IV |
| Resolved writ-of-payment cases (lagged) | | | | -0.002 |
| | | | | (0.026) |
| Judges | 0.031 | 0.038* | 0.039* | 0.068* |
| | (0.02) | (0.02) | (0.02) | (0.038) |
| New writ-of-payment cases | 0.91*** | 0.91*** | 0.91*** | 0.92*** |
| | (0.03) | (0.03) | (0.03) | (0.026) |
| Pending writ-of-payment cases | 0.050*** | 0.050*** | 0.050*** | 0.071*** |
| | (0.01) | (0.01) | (0.01) | (0.010) |
| Full-trial cases (caseload) | 0.028* | 0.027 | 0.027 | -0.055*** |
| | (0.02) | (0.02) | (0.02) | (0.019) |

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | OLS-FE | OLS-FE | OLS-FE | GMM-IV |
| Other cases (caseload) | -0.023** | -0.022** | -0.022** | 0.001 |
| | (0.01) | (0.01) | (0.01) | (0.005) |
| Legal clerks | | 0.025* | 0.025* | 0.043** |
| | | (0.01) | (0.01) | (0.022) |
| Court clerks | | -0.003 | -0.006 | -0.049 |
| | | (0.03) | (0.03) | (0.038) |
| Assistants | | -0.008 | -0.009 | 0.009 |
| | | (0.01) | (0.01) | (0.018) |
| Income per capita | | | 0.006 | -0.010 |
| | | | (0.01) | (0.010) |
| Share of private enterprises | | | -0.001 | -0.002 |
| | | | (0.00) | (0.002) |
| Firms per 10k inhabitants | | | 0.001 | 0.001 |
| | | | (0.01) | (0.005) |
| Population | | | -0.015 | 0.006 |
| | | | (0.04) | (0.010) |
| R2 | 0.95 | 0.95 | 0.95 | |
| N | 669 | 669 | 669 | 605 |
| AR1 (p-value) | | | | 0.00 |
| AR2 (p-value) | | | | 0.32 |
| Hansen (p-value) | | | | 0.13 |

Note: See note to Table 1.

Table 7. Commercial courts: other cases

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | OLS-FE | OLS-FE | OLS-FE | GMM-IV |
| Resolved other cases (lagged) | | | | -0.025 |
| | | | | (0.020) |
| Judges | 0.034* | 0.037* | 0.046** | 0.091** |
| | (0.02) | (0.02) | (0.02) | (0.035) |
| New other cases | 0.92*** | 0.92*** | 0.92*** | 0.89*** |
| | (0.01) | (0.01) | (0.01) | (0.017) |
| Pending other cases | 0.084*** | 0.083*** | 0.083*** | 0.16*** |
| | (0.02) | (0.02) | (0.02) | (0.023) |

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | OLS-FE | OLS-FE | OLS-FE | GMM-IV |
| Full-trial cases (caseload) | -0.016 | -0.018 | -0.017 | -0.078*** |
| | (0.01) | (0.01) | (0.01) | (0.027) |
| Writ-of-payment cases (caseload) | -0.045*** | -0.044*** | -0.043*** | -0.040** |
| | (0.02) | (0.01) | (0.01) | (0.019) |
| Legal clerks | | 0.0018 | 0.001 | -0.003 |
| | | (0.01) | (0.01) | (0.023) |
| Court clerks | | -0.014 | -0.034 | 0.004 |
| | | (0.02) | (0.03) | (0.044) |
| Assistants | | 0.013 | 0.013 | 0.005 |
| | | (0.01) | (0.01) | (0.017) |
| Income per capita | | | 0.021 | -0.010 |
| | | | (0.02) | (0.009) |
| Share of private enterprises | | | -0.007* | -0.001 |
| | | | (0.00) | (0.003) |
| Firms per 10k inhabitants | | | 0.008 | -0.004 |
| | | | (0.01) | (0.006) |
| Population | | | -0.057 | 0.007 |
| | | | (0.05) | (0.015) |
| R2 | 0.98 | 0.98 | 0.98 | |
| N | 669 | 669 | 669 | 605 |
| AR1 (p-value) | | | | 0.00 |
| AR2 (p-value) | | | | 0.11 |
| Hansen (p-value) | | | | 0.22 |

Note: See note to Table 1.