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COURTS PERFORMANCE: THE CASE OF PORTUGAL¹

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Introduction

Countries' judicial systems are intrinsically connected to the economic development and growth of nations (Ramello and Voigt, 2012). The importance of judicial efficiency is on the rise, with major institutions worldwide issuing reports and recommendations on the status of several countries' judicial systems (Dakolias, 1999; WorldBank, 2018; EC, 2022). Given their pivotal function in society, the efficiency of judicial systems is also a concern on the rise. As a result, an ever-increasing amount of research and studies are being developed with information regarding techniques/tools to measure courts' optimal organization (scale), judicial systems' performance, and staff (judges and others) deficits/surplus in terms of number and incentives.

Courts' efficiency assessment is generally undertaken through KPIs that follow international guidelines. The European Commission for the Efficiency of Justice (CEPEJ) has put forth a number of KPIs based on which courts should be analysed (e.g. clearance rates, case turnover, backlog, case per judge, etc.) including quality indicators (e.g. distinction between processes finishing by merit decision and complete appreciation of the case, from the remaining cases). Many researchers have also undertaken comparisons between courts' performance and efficiency. Voigt (2016) provides a survey of 34 studies that relied on parametric and non-parametric techniques to measure the efficiency of courts. From most of the studies in Voigt (2016), within countries efficiency analysis are performed and only six consider more than two countries.

In this research we address judicial efficiency of Portuguese first instance courts at the level of the bench. We

¹ This Policy paper is based on the published paper Lopes and Silva, 2024

take a broader perspective than the two previous studies addressing Portuguese courts. Santos and Amado (2014) focused on an aggregate level of analysis - first instance courts or judicial counties (223 in total) and Silva (2018) focused on generic competence benches (267 in total). In this research we follow Silva (2018) but we focus on all types of benches and not just generic competence. Indeed, first instance judicial courts are organized within judicial districts, which in themselves are organized in judicial counties (comarcas), usually referred as 'courts'. Within courts (or judicial counties) judges are usually organized in benches (constituted in many cases by a single judge and some administrative staff). Benches can be of various types: generic benches or specialised (e.g. Criminal benches, civil benches, commerce benches, labour benches, etc.). The inclusion of several types of benches in the same efficiency analysis allowed us to investigate economies of scope in the Portuguese judiciary (i.e. the extent to which the joint 'production' is cheaper than the separate production of judicial services).

The reform undertaken in Portugal in 2014 (Law 62/2013 regulated by Decree law, 49/2014) which implemented specialized jurisdictions at the national level and resulted in the disappearance of most generic courts and on the centralization of work on specialized courts, was based on an implicit, but not tested, assumption that there were diseconomies of scope. Our research provides confirming evidence that indeed that is so, adding to the scarce number of studies analysing this issue (Mattsson and Tidå 2019).

Methodologically, we employ the non-parametric technique of Data Envelopment Analysis (DEA). DEA has been the prevalent technique used to measure the efficiency of courts, since the precursor study by Lewin et al. (1982) that analysed the efficiency of 100 criminal courts in the US state of North Carolina. DEA was first introduced by Charnes et al. (1978) and it can account for several indicators at the same time, contextualizing the outputs produced by the inputs consumed. This is the essence of frontier methods - that, when applied to courts, regard production units as consuming a number of inputs (the most important of which is judicial staff) to produce a number of outputs (the most prevalent of which is resolved cases of various types).

Methodology

First introduced by Charnes et al. (1978), DEA allows the computation of technical efficiency of Decision Making Units (DMUs). DEA allows the construction of a deterministic, non-parametric production frontier, which is used to compare the technical efficiency of the DMUs, based on the radial distance of each of those DMUs to the frontier. In our research we employed the Variable Returns to Scale (VRS) model of Banker et al. (1984) which allows for constant increasing and decreasing returns. We identified the type of returns to scale applying for each unit's projection on the frontier following the method of Färe et al. (1985), which requires three efficiency estimates in relation to three technological RTS specifications: CRS, VRS, and NIRS.

Panzar and Willig (1981) developed the theoretical concept behind economies of scope, and Morita (2003) was among the first author to operationalise the concept of economies of scope in the non-parametric setting of DEA where no cost information was required. Morita (2003) expressed economies of scope as the existence of efficiency improvements, instead of cost savings, from joint production. In the present application to Portuguese courts, the joint production is represented by the generic benches, which deal with all types of cases, whereas the separate production are the courts that deal with only two or less than the 4 types of cases considered.

Data

Data used for this study consists of all Portuguese first instance benches from 2015-2021. We opted to leave military benches and Criminal instruction out, as the former are only used in some special occasions, and the latter are responsible for conducting the preliminary investigation to decide whether a case should go to trial or not (and do not perform trials per se).

Benches analysed are included in one of 10 types: generic, central civil, central civil and criminal, central

criminal, civil, commerce, criminal, enforcement, tutelary, minor crimes, and labour. The 10 types of benches were aggregated, for purposes of this study, into a smaller number of groups, based on the type of case they handled. This resulted in 7 different groups of benches, that deal with different mixes of the 4 types of cases that our dataset contains (civil, criminal, labour and tutelary).

After the data were cleaned, 3 365 observations remained (R software was used for both this purpose and data manipulation). The data were provided by the Portuguese Directorate- General for Justice Policy' statistics².

The inputs considered for the study at hand, consist of case load defined as incoming plus pending cases of the 4 different types (civil, criminal, labour, and tutelary) and personnel (Judges and Other Staff). As outputs, cases resolved of civil, criminal, labour and tutelary types were considered.

Efficiency Results

The investigation of returns to scale used all data pooled together and reveals steady efficiency results over time, with 2020 being the year with the lowest value of efficiency - probably justified by the COVID-19 pandemic. Excluding the year of 2020, the efficiency varies in a range close to 6%, from 68,64% (year 2018) to 74,19% (year 2021). This means that observed levels of resolved cases are in the order of 70% of the target frontier levels, or that the potential for output enhancement in Portuguese courts is in the order of 30%.

Regarding returns to scale, about 55% of the benches analysed experience over the whole period of analysis Increasing Returns to Scale (IRS), while about 36% experience decreasing returns to scale (DRS). Just a minor percentage of around 9% experience constant returns to scale. The benches that deal with civil cases (Agg. Civil) face mainly IRS (around 75%), while the ones dealing mainly with criminal cases face DRS (58%). Generic benches also face mostly IRS (75%). This implies that in most cases the size of the benches is not optimal with some benches being too small (the ones experiencing increasing returns) while others being too large (the ones experiencing DRS).

Our analysis allow us to conclude also that generic benches seem to operate optimally with 2 judges, while benches dealing only with civil cases should not be larger than 8 judges.

Regarding the geographical distribution of the efficiency scores, we do not observe any geographical pattern, but worst performing districts in the country are Algarve in the south, Leiria in the centre and Viana do Castelo in the north.

In the analysis of scope economies we used the VRS model and computed efficiency scores within group and against the pooled-frontier. Generic benches, which were above the average in meta efficiency, and had the second highest within-group efficiency, have the worst gap to the meta-frontier, which is 83,23%. This means that the frontier of generic benches are the farthest from the meta-frontier composed by all other benches. It is also possible to notice specialized benches, such as enforcement, labour, tutelary jumping into values above 90%. Agg Civil benches, which, per se, is a mix of civil and criminal cases, is also one of the worst. Therefore, it is possible to conclude that the more specialized, the closest the efficient frontier is from the overarching frontier of benches, and so, there are reasons to believe that diseconomies of scope apply in the Portuguese judiciary.

The above results may somehow be influenced by scale efficiencies given the fact that generic benches tend to have the smallest number of judges. As a result, we repeated the calculation of within group and meta efficiency scores for a sub-sample of benches - those with a dimension between 2 and 6 judges in order to guarantee comparability in terms of size between the generic benches and the specialized ones (note that all generic benches with a single judge were excluded). The analysis of the sub-sample of benches reveal the same conclusions. Generic benches have the lowest average frontier gap implying that this type of bench is indeed the least efficient of all. The specialised benches dealing mostly with civil cases (and as we know also have criminal cases and therefore are not completely specialised) experience the second lowest frontier gap,

² <https://estatisticas.justica.gov.pt/sites/siej/pt-pt>

implying that more specialization indeed generates more efficiency. Notice that parametric and non-parametric tests revealed that differences between groups of benches are statistically significant.

Conclusion

In this reserach the efficiency of Portuguese first instance benches is analysed for the years of 2015-2021. Conclusions point to stable efficiency scores over time except in the year 2020, which we believe was a result of the pandemic. Overall a very small percentage of benches experience constant returns to scale (8.2%) and 55% experience IRS implying that they are smaller than optimum size. Generic benches dealing with civil cases are the ones where IRS are more prevalent, while in criminal benches DRS are more prevalent.

Overall our results suggest a huge impact of the case mix on the efficiency of benches, since those benches dealing with more civil cases tended to have lower efficiencies. Considering the question of whether Portuguese judicial system had or not economies of scope, we found diseconomies of scope in the sample analysed. This means that generic benches tend to be further away from the meta frontier than the specialized benches. This result is consistent when we considered the full sample of benches and also a subsample of benches with comparable sizes (between 2 and 6 judges).

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References

- Banker, R. D., Charnes, A., and Cooper, W. W. (1984). Some models for estimating technical and scale inefficiencies in data envelopment analysis. *Management Science*, 30:1078–1092.
- Charnes, A., Cooper, W. W., and Rhodes, E. (1978). Measuring efficiency of decision making units. *European Journal of Operational Research*, 2:429–444.
- Dakolias, M. (1999). *Court performance around the world: a comparative perspective*, volume 23. World Bank Publications.
- EC (2022). Justice and consumers - european commission. <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1658828718680uri=CELEX%3A52022DC0500>. Accessed: 2022-09-25.
- Färe, R., Grosskopf, S., and Lovell, C. A. K. (1985). *The Measurement of Efficiency of Production*. Kluwer-Nijhoff Publishing, Boston.
- Lewin, A. Y., Morey, R. C., and Cook, T. J. (1982). Evaluating the administrative efficiency of courts. *Omega, The International Journal of Management Science*, 10(4):401 – 411.
- Lopes, N. Q. M. & Silva, M. C. A. (2024). Scale and scope economies in first-instance courts: Portuguese specialized vs non-specialized courts. *International Review of Law and Economics*. Vol. 79, art. 106223.
- Mattsson, P. and Tidån, C. (2019). Potential efficiency effects of merging the swedish district courts. *Socio-Economic Planning Sciences*, 67:58–68.
- Morita, H. (2003). Analysis of economies of scope by data envelopment analysis: comparison of efficient

frontiers. *International Transactions in Operational Research*, 10(4):393–402.

Panzar, J. C. and Willig, R. D. (1981). Economies of scope. *The American Economic Review*, 71(2):268–272.

Ramello, G. B. and Voigt, S. (2012). The economics of efficiency and the judicial system. *International Review of Law & Economics*, 1(32):1–2.

Santos, S. and Amado, C. (2014). On the need for reform of the portuguese judicial system - does data envelopment analysis assessment support it? *Omega, The International Journal of Management Science*, 47:1 – 16.

Silva, M. C. A. (2018). Output-specific inputs in dea: An application to courts of justice in portugal. *Omega*, 79:43–53.

Voigt, S. (2016). Determinants of judicial efficiency: a survey. *European Journal of Law and Economics*, 42:183–208.

WorldBank (2018). Doing business - reforming to create jobs. *World Bank Group*, Washington.