Does bankruptcy reform affect the length of legal disputes? Empirical evidence from District Courts

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Abstract

Researchers widely recognize that prolonged legal proceedings are a significant factor contributing to an inefficient judicial system, which ultimately hampers economic growth. This paper evaluates the causal impact of Italy's 2016 bankruptcy reform, Legislative Decree No. 59, on the duration of civil proceedings in bankruptcy-related court sections. The reform introduced digital communication tools, streamlined procedures for creditors' committees, and stricter deadlines for asset distribution. Using a micro-level dataset of over 40,000 cases from the Court of Catania and a Difference-in-Differences (DID) design, complemented by robustness checks, we estimate the effect of the reform on trial duration. The results indicate that partial implementation in 2016 resulted in modest reductions in trial length (approximately 12%), while full implementation by 2018 generated significantly larger and statistically significant efficiency gains, with trial durations decreasing by around 50%. These effects are observed even in complex cases, suggesting that procedural innovations enhanced case management without undermining procedural safeguards. The findings provide robust evidence that targeted reforms, particularly those based on digitalization, can significantly improve judicial performance. More broadly, the study highlights how institutional innovation in high-friction legal systems can enhance creditor protection, mitigate economic uncertainty, and foster more efficient resource allocation.

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Keywords: duration of disputes; justice inefficiencies; reforms; difference-in-difference; Italy.

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1. Introduction

Judicial efficiency should be regarded as a core objective of any democratic state, primarily to mitigate the persistence of legal and procedural uncertainty that may result in prejudice and material harm to individuals subject to judicial proceedings (e.g., Finocchiaro Castro & Guccio, 2014; Nissi et al., 2019; Giacalone et al., 2020), and, secondly, due to the related positive effects to countries' economic growth (e.g., Gravelle, 1990; Spurr, 1997; Fenn & Rickman, 1999; Vereeck & Mühl, 2000; Feld & Voigt, 2003; Jappelli et al., 2005; Chemin, 2009; Aghion et al., 2010; Chemin, 2012; Giacomelli & Menon, 2013; Finocchiaro Castro & Guccio, 2014; 2015; Coviello et al., 2019; Berlemann & Christmann, 2020; Gonzales-Torres & Rodano, 2020; Marciano et al., 2019; Melcarne et al., 2021).

In particular, when it comes to the bankruptcy regulatory framework, a well-functioning insolvency system, as it provides the legal framework for a critical phase in the lifecycle of enterprises, permits to safeguard the economy by managing excessive debt without eroding value, creating and preserving jobs, business partnerships, and customer loyalty (e.g., Costantini, 2009; Bisogno, 2012; Haidar, 2012; Ponticelli & Alencar, 2016; Melcarne et al., 2020; Teti, 2024).

Nevertheless, inefficiencies within the judiciary continue to represent a significant institutional constraint across numerous advanced economies, with far-reaching implications for financial markets, corporate behavior, and the effective functioning of legal systems more broadly (Buonanno & Galizzi, 2014; Coviello et al., 2014; Berlemann & Christmann, 2020; Di Vita et al., 2024; 2025). This issue is particularly acute within continental European jurisdictions, where the judicial process is characterized by a high degree of formalism and procedural rigidity, rendering efforts to reduce trial duration and enhance procedural efficiency both urgent and institutionally complex (Di Vita, 2010; 2012; 2018; Finocchiaro Castro & Guccio, 2015; Coviello et al., 2015; Melcarne & Ramello, 2021; Ippoliti & Tria, 2020).

Italy serves as a paradigmatic example of these systemic inefficiencies. Despite the implementation of multiple legislative reforms over recent decades, it continues to report among the longest average durations for civil proceedings within the European Union, particularly in matters concerning commercial litigation (e.g., Giacomelli & Palumbo, 2011; Di Vita et al., 2025). To address these persistent delays, the Italian government enacted Legislative Decree No. 59 in May 2016, an emergency measure targeting improvements in the administration of bankruptcy and insolvency procedures, which was fully implemented by 2018.[1] The reform introduced several procedural innovations aimed at enhancing the efficiency of bankruptcy proceedings, reducing the duration of related litigation, and preserving business activity to protect the interests of stakeholders (e.g., debtors and creditors). Notable provisions included the digitalization of communications among stakeholders, the facilitation of remote hearings for creditors, and the imposition of stricter deadlines for distributing assets. Although national in scope, the reform's practical impact was anticipated to be particularly significant within court divisions specializing in financial and insolvency topics (Withers et al., 2011; Rodano et al., 2016; Stef & Dimelis, 2020; Thapa et al., 2020; Bose et al., 2021).

This study aims to estimate the causal impact of Legislative Decree No. 59—Italy's 2016 bankruptcy reform—on the duration of business-related civil proceedings within the Italian judicial system. To this end, the analysis employs a Difference-in-Differences (DiD) research design, leveraging a novel microeconomic dataset from a major civil court located in southern Italy. The

[1] For more details, see: Legislative Decree 2016, May 3rd, No. 59. https://www.gazzettaufficiale.it/eli/gu/2016/05/03/102/sg/pdf

empirical strategy exploits the institutional specialization within the court: specific civil divisions are primarily responsible for adjudicating financial and banking disputes (treated group), while others handle a broader range of general civil cases (control group). This institutional heterogeneity enables a credible identification of the reform's causal effect.

The central research question is whether the bankruptcy reform contributed to a reduction in trial duration in civil court sections specializing in banking and financial litigation, relative to sections outside the reform's operational scope. Additionally, the study investigates potential heterogeneous effects by examining whether the impact of the reform varied by case complexity.

This paper contributes to the law and economics literature in several important respects. First, it provides one of the first evaluations of a narrowly targeted legal reform within the Italian civil justice system, drawing on high-frequency, court-level data and a quasi-experimental methodology. Second, it advances empirical understanding of the institutional determinants of judicial efficiency, a topic of sustained relevance to both legal scholars and economists. Third, the findings directly inform ongoing European policy discussions on judicial reform, offering evidence-based insights into the procedural mechanisms most conducive to improving court performance.

By focusing on a real-world institutional setting where judicial delay is a first-order policy concern, this paper responds to the call for more empirical evaluations of legal reforms in high-friction judicial environments. Our results strongly confirm that the reform reduced trial length in key court sections. Its impact remained significant across models, proving its effectiveness despite variations among judges, courts, and cases.

From a policy perspective, these findings have broader implications for other civil law systems grappling with similar challenges and contribute to our understanding of how procedural innovation can enhance the efficiency of legal institutions.

The remainder of the paper is structured as follows. In Section 2, the institutional and literature background is reported. Section 3 describes the dataset and the empirical methodology employed. Section 4 presents the results, which are discussed in Section 5. Section 6 concludes by drawing some policy implications, limitations, and avenues for further research.

2. Literature Review and Institutional Background

2.1. The Italian bankruptcy system

Over the past few decades, the European Union has played an increasingly influential role in harmonizing national insolvency laws, promoting a common approach aimed at ensuring efficiency, transparency, and the protection of interests of both debtors and creditors (e.g., Gallagher et al., 2021; Epaulard & Zapha, 2022; Tirado, 2023; Teti et al., 2024; Fagetan, 2025). Within this scope, the principal instruments have been the EU directives focused on preventive restructuring and insolvency, which impose on Member States the need to reevaluate and modernize their domestic legal systems, primarily to shift the emphasis from punitive debtors' liquidation to early intervention and business recovery (Magri & Marchini, 2024).

In line with this general framework, Italian bankruptcy legislation, which has traditionally been prolonged and generally offered limited protection or enforcement powers to creditors (Costantini, 2009), has also undergone several reforms aimed at fostering a fair balance between the interests of debtors and those of creditors (Danovi et al., 2020). In particular, according to previous literature focusing on Italian case study (e.g., Bisogno, 2012; Garrido, 2016; Rodano et al., 2016; Stanghellini, 2023; Magri & Marchini, 2024), between 2005 and 2016, Italy enacted a series of

significant reforms to modernize its insolvency and bankruptcy procedures, spurred in part by the Parmalat scandal of 2003 and legal pressures from the European Commission. As a result, the reforms replaced the outdated 1942 Bankruptcy Law with more contemporary legislation, aligned with international practices as reported in Regulation (EC) No. 1346/2000, Directive 2014/59/EU, and Chapter 11 of the U.S. Bankruptcy Code.[2]

In detail, changes began in 2005 when policymakers dismantled the rigid 1942 bankruptcy framework, introducing two primary legislative instruments: the first, Legislative Decree No. 35 of 2005, which targeted restructuring, and the other, Law No. 5 of 2006, which targeted liquidation. The 2005 restructuring, clearly influenced by the American model, made it much easier for companies in difficulty to renegotiate credit agreements, while the 2006 reform of liquidation procedures allowed companies to sell their businesses as a going concern and pursue survival through restructuring agreements and rescue plans. As reforms continued, Legislative Decree n. 169 of 2007 marked broader adoption of insolvency coverage; the authorities began to focus on aligning recovery and liquidation strategies and brought in qualified professionals to evaluate the plans, limiting the committee of creditors' liability. By 2009, with Law n. 99/2009, the role of the judiciary began to decline, placing greater scrutiny on insolvency practitioners and creditors themselves. The intention was to simplify case management and allow those closest to the financial realities to take the lead. A further refinement occurred in 2012, with Legislative Decree n. 83/2012, when restructuring mechanisms gained flexibility, especially in cases where companies did not have a concrete plan, what became known as a "blank deal" (*concordato in bianco*); temporary protections against creditor claims and contractual waivers strengthened the possibility of keeping businesses alive during reorganization. In 2015, Law No. 132/2015 introduced rival reorganization proposals, tighter timelines for administrators, and more practical procedures for asset sales.

Finally, in 2016, with the Legislative Decree n. 59/2016 (converted into Law 119/2016), the system gained a more evident digital advantage, with the result that secured claims could be enforced outside of the courts, delays in auctions were reduced, and communications became increasingly electronic.

After 2016, other changes occurred in 2019 (Legislative Decree n. 14/2019, issuing the new insolvency Code), in 2022 (Legislative Decree n. 83/2022), and in 2024 (Legislative Decree n. 136/2024),[3] focusing on prevention, business continuity, and the simplification of procedures, extending protection to small businesses, professionals, and consumers. However, the short time span that has occurred so far does not allow for conducting a reliable and significant econometric analysis of their effect; therefore, this investigation is outside the scope of our research, which concentrates on the effect of the 2016 digital reform.

[2] Previous amendments were sporadic and fragmented: during the 1970s and 1980s, efforts were made to improve the management of insolvency procedures and protect creditors, while in the 1990s more substantial discussions emerged around the need for reform, though without introducing any major structural changes. These interventions left the original framework largely untouched, which remained rigid and poorly suited to the needs of modern businesses. It was only with the Parmalat scandal in 2003 that the debate gained momentum, ultimately paving the way for the comprehensive reforms of 2005.

[3] In particular, 2022 and 2024 changes were required to align the new 2019 Italian insolvency code (Codice della Crisi d'Impresa e dell'Insolvenza – CCII) with EU Directive 2019/1023 on insolvency and preventive restructuring.

2.2 Legislative decree May 2016, N. 59

The Italian Decree-Law No. 59, enacted in May 2016, introduced urgent measures to enhance the efficiency of enforcement and insolvency procedures. Specifically, Article 6 of this decree amends the Royal Decree No. 267 of 1942 (the Bankruptcy Law, hereafter referred to as BL) to expedite the resolution of business-related legal disputes. This reform was initiated in 2016 and fully implemented by 2018.

The reform introduced two major innovations: (i) the adoption of digital tools to replace traditional paper-based communication, and (ii) the acceleration of asset distribution to creditors. A notable change is found in Article 40 of the BL, which governs the establishment of the creditors' committee. The reform clarifies that the committee is considered officially constituted once its members accept their appointments, eliminating the requirement for a prior meeting with the bankruptcy trustee. Additionally, the reform enables remote participation in hearings involving a large number of creditors. These digital proceedings, facilitated by third-party information and communication technology (ICT) providers, must ensure accessibility and effective participation for all involved creditors.

Further modifications were made to Article 104-ter of the BL, which relates to the liquidation plan. The reform emphasizes the requirement to submit a detailed distribution plan outlining the available assets for creditors. Following Article 110 of the BL, the trustee is now obligated to provide a quarterly report detailing the available assets and a corresponding distribution proposal, while retaining only the amounts necessary for the continuity of the procedure. Failure to comply with this reporting requirement may constitute valid grounds for the trustee's removal, particularly if funds are available for distribution.

The reform also encourages the use of guarantees issued by banks, insurance companies, and financial intermediaries to expedite asset allocation. An additional provision under Article 110 of the BL states that even when litigation regarding liability injunctions is pending, the trustee must include in the distribution plan any amounts that can be immediately disbursed. For funds that require a waiting period, appropriate guarantees must be provided to ensure the restitution of any excess payments, including accrued interest, to the estate. Significantly, the enforceability of the distribution plan is not impacted by the existence of objections, further streamlining the allocation process.

3. Data and Methodology

3.1 Dataset

The empirical analysis relies on a panel dataset comprising 40,243 legal cases recorded from 1981 until 2022 in the Court of Catania. The dataset was manually constructed using court registry data and administrative records extracted from *Pacchetto Ispettore*[4], which enables detailed tracking of trial-level characteristics, judicial assignments, and procedural outcomes.

[4] The "*Pacchetto Ispettore*" refers to a standardized collection of statistical and procedural data compiled by the Inspectorate of the Ministry of Justice (Ispettorato Generale) during judicial inspections. This package includes both qualitative and quantitative data related to case inflow and outflow, such as the number of cases filed, resolved, and pending. It also contains information on trial durations, productivity statistics for each judge or court section, and data on case backlogs. This dataset is not publicly available; however, the data used in this research were obtained through a special agreement as part of the PNRR Project "Giustizia Smart – Tools and Models to Improve Efficiency of Judges," 2022 Edition.

Legal cases are randomly assigned to judges across sections, in accordance with Article 24 of the Italian Constitution, which establishes that "no one can be removed from their natural judge pre-established by law." This principle ensures that the allocation of proceedings is free from manipulation and that the distribution among judges contributes to the "orderly and peaceful conduct of judgments" (Italian National Association of Magistrates – CSM).

For this study, we focus on three civil divisions of the Court of Catania. Specifically, Sections 1 and 3, which primarily deal with civil business cases related to bankruptcy, serve as the control group. In contrast, Section 4, specialized in bankruptcy proceedings (*fallimentare*), is treated as the group of interest. Bankruptcy cases are particularly relevant to our research because they directly reflect firm-level financial distress and governance issues, making them a natural setting in which to investigate the relationship between judicial decisions, corporate sustainability, and broader economic outcomes. Section 2 is excluded from the analysis as it is specialized in Labor Law, which falls outside the scope of business-related proceedings. Similarly, Sections 5 and 6 (covering eviction validation procedures and other residual matters) are excluded, as their procedural nature makes them less comparable to the selected sample.

3.2 The dependent variable

The dependent variable in this analysis is the natural logarithm of the number of days to trial completion (*lndays_trials*), defined as the elapsed time between the official registration of a case and its formal closure. Taking the logarithm of trial duration is preferable for both econometric and substantive reasons. First, the distribution of raw trial lengths is highly right-skewed, as a relatively small number of cases experience exceptionally long delays. The logarithm transformation reduces this skewness, thereby mitigating the influence of outliers and improving the statistical properties of the estimators. Second, the logarithmic specification enables the coefficients to be interpreted in terms of approximate percentage changes, facilitating comparability across courts of different sizes and workloads.

In this setting, *lndays_trials* thus constitutes a refined measure of judicial duration and serves as a detailed proxy for court efficiency at the trial level. It captures the cumulative time required for case resolution, enabling a precise assessment of procedural timeliness across both treated and control courts. The use of trial length as an indicator of judicial performance is consistent with prior empirical contributions highlighting its centrality in evaluating institutional responsiveness (e.g., Berlemann & Christmann, 2020; Melcarne & Ramello, 2021). Leveraging a high-frequency court panel with over 40,243 observations further strengthens the robustness of this measure, ensuring that it closely reflects actual operational conditions within the judicial system. A reduction in *lndays_trials* is therefore interpreted as evidence of enhanced judicial efficiency, particularly within the civil section directly affected by the novelties introduced through the bankruptcy reform under examination.

3.2 The independent variable

The empirical strategy relies on a Difference-in-Differences (DiD) design, where the key independent variables capture the staggered implementation of reforms to Italy's bankruptcy framework. The treatment dimension is represented by the binary indicator *treated*, coded as one for proceedings adjudicated in Section IV of the Court of Catania, which specializes in bankruptcy proceedings (*fallimentare*), and zero for Sections I and III, which primarily handle civil business cases unrelated to bankruptcy.

To capture temporal variation, we construct two post-reform indicators. The first, *post-2016*, takes the value of one for cases initiated after the entry into force of Legislative Decree No. 59/2016, which introduced targeted measures to streamline insolvency procedures, and zero otherwise. The second, *post2018*, is coded as one for cases initiated after Legislative Decree No. 14/2019 (applied in 2018 as part of the *Codice della crisi d'impresa e dell'insolvenza*), which further revised the bankruptcy framework, and zero otherwise.

The central variables of interest are the interaction terms *Did2016* (= *treated* × *post2016*) and *Did2018* (= *treated* × *post2018*), which measure the differential impact of the reforms on judicial efficiency in bankruptcy cases relative to the control sections. Following the DiD framework, these coefficients identify the Average Treatment Effect on the Treated (ATT) under the parallel trends' assumption, isolating the reduction in trial duration attributable to the reforms net of contemporaneous shocks and division-specific heterogeneity.

This specification enables us to treat the reforms as a quasi-natural experiment in institutional design, providing causal evidence on how changes to the bankruptcy framework affect judicial performance in terms of case duration and procedural efficiency.

3.3 Other control variables

To improve the accuracy of the estimated treatment effects and reduce the risk of omitted variable bias, the empirical model includes several trial-level control variables that capture important dimensions of case heterogeneity. Among these, *judgment_grade* and *law_subject* play a central role in explaining variation in trial duration.

The variable *judgment_grade* denotes whether a case is adjudicated at the first or second instance. It serves as a proxy for procedural complexity, since appeals and higher-instance proceedings are generally associated with longer timelines and greater legal intricacy. This distinction is particularly relevant in bankruptcy disputes, where appeals are frequent and often involve multiple parties with conflicting interests, thereby amplifying both the legal and procedural complexity of the proceedings. By controlling for this dimension, the model adjusts for structural differences in case progression that may otherwise confound the treatment effect.

Additionally, *law_subject* is a categorical variable that identifies the specific legal domain of the dispute (e.g., contracts, torts, bankruptcies). This variable captures systematic differences in trial length arising from the nature of the underlying legal issue, thereby accounting for domain-specific procedural patterns.

Together, these controls ensure that variation in trial outcomes attributable to case complexity and subject matter is distinguished from the effects of the bankruptcy reform.

Finally, all regressions include judge, civil section, and year fixed effects, which address unobserved heterogeneity related to judicial style, institutional capacity, and broader temporal shocks.

3.4 Empirical Strategy

This study investigates the causal effect of the 2016 bankruptcy reform (Law No. 59/2016) on the duration of civil trials. The analysis relies on a DiD design, which compares the evolution of trial durations in judicial court sections primarily handling bankruptcy cases (treated group) with those in other civil law sections handling similar cases, such as insolvency-related and creditor-collective procedures (control group), before and after the reform (Angrist & Pischke, 2009). The treatment year is defined as either 2016 (the year of enactment) or 2018 (the year of full implementation).

$$DiD = \left(\bar{y}_{s=Treatment,t=\,After} - \bar{y}_{s=Treatment,t=Before}\right) - \left(\bar{y}_{s=Control,t=After} - \bar{y}_{s=Control,t=Before}\right)$$

[1]

where the outcome variable is the natural logarithm of the number of days between case registration and closure (*lndays_trials*). Thus, the equation [1] is estimated with the following econometric model:

$$lndays\_trial_{ist} = \alpha + \beta DID_t + \gamma treated_s + \delta post_t + \theta judgment\_grade_{ist} + \lambda X_{ist} + \mu_s + \nu_j + \tau_t + \varepsilon_{ist}$$

[2]

„here DID_t is the interaction term capturing the DiD effect ($DID2016 = treated \times post2016$) and ($DID2018 = treated \times post2018$); then, $treated_s$ denoted the treated civil court sections specialized in bankruptcy cases, 0 otherwise; $post_t$ is the post-reform indicator (post-2016 or post-2018 depending on the specification); $judgment\_grade_{ist}$ is a proxy for complexity of legal cases handled by judges. X_{ist} encompasses additional covariates (*law_subject*) while μ_s, ν_j and τ_t are court section, judge, and year fixed effects respectively. Finally, ε_{ict} is the error term.
The expected values of the outcome across groups are as follows:

$$\begin{gathered}
E(lndays_trial_{ist} | \, s = Control, t = Before) = \alpha + \mu_{Control} + \tau_{Before} \\
E(lndays_trial_{ist} | \, s = Control, t = After) = \alpha + \mu_{Control} + \tau_{After} \\
E(lndays_trial_{ist} | \, s = Treatment, t = Before) = \alpha + \mu_{Treatment} + \tau_{Before} \\
E(lndays_trial_{ist} | \, s = Treatment, t = After) = \alpha + \mu_{Treatment} + \tau_{After} + \boldsymbol{\beta}
\end{gathered}$$

[3]

The decomposition of expected outcomes across treatment and control sections, both before and after the reform, clarifies the logic of the DID design. In the control group, the expected duration of civil trials, is given by $\alpha + \mu_{Control} + \tau_{Before}$ in the pre-reform 2016, by $\alpha + \mu_{Control} + \tau_{After}$ in the post-reform period.

Similarly, for the treatment sections, the expected trial duration is equal to $\alpha + \mu_{Treatment} + \tau_{Before}$ before the reform, and $\alpha + \mu_{Treatment} + \tau_{After} + \boldsymbol{\beta}$ after the reform. The coefficient β, therefore, measures the reform's additional impact on trial length in treated groups, beyond general temporal changes or persistent differences in efficiency across judicial divisions. Hence, a negative and statistically significant estimate of β indicates that the reform reduced the duration of trials in sections that primarily deal with bankruptcy cases, as well as in other civil sections that address similar legal subjects.

4. Results

Tables 1 and 2 present and compare the main findings from a difference-in-differences analysis that evaluates the effect of the 2016 Italian judicial reform on the duration of civil trials. In Table 1, the treatment year is defined as 2016, while in Table 2, it is shifted to 2018. This specification strategy allows for an examination of the causal impact of the bankruptcy reform, both at the time of its enactment (2016) and during its full implementation (2018), on the duration of civil disputes arising from bankruptcy proceedings. Both specifications employ the High Dimensional Fixed Effects

(HDFE) regression model, which integrates fixed effects for legal subjects, judges, courts, and years. This approach accounts for unobserved heterogeneity among individuals, judicial venues, and time. Model (1) serves as the baseline specification, while Models (2) and (3) are fully defined with fixed effects from legal subjects, courts, judges, and years. At the bottom of each table, the number of observations and the corresponding R-squared statistics are provided.

In both tables, the dependent variable is defined as the natural logarithm of the number of days between the registration and closure of cases (*lndays_trials*). This logarithmic transformation is used to address the right-skewness in the distribution of trial lengths, reduce the disproportionate influence of extreme values, and reflect the diminishing marginal impact of additional days on the perceived burden of trial duration. Without this transformation, exceptionally long or unusually short proceedings, such as complex bankruptcy disputes, cases involving multiple appeals or procedural interruptions, or, conversely, uncontested claims resolved almost immediately, could unduly affect the accuracy of the estimates.

In Table 1, the coefficient on the key variable of interest, *did2016*, has the expected negative sign in all models but is statistically significant at the 5% level in Model (3) only. It denotes a reduction in trial duration for the treated group (particularly courts that deal with bankruptcy procedures) after the reform. The estimate of -0.128 ($p < 0.05$) suggests that the partial implementation of the reform in 2016 is associated with an approximate 12% average reduction in trial duration, all else being equal.

The coefficient for *treated*, which identifies judicial courts primarily handling bankruptcy cases relative to the control group, is consistently negative across specifications. Statistical significance is observed in Models (1) and (3), while the estimate in Model (2) loses significance once court and judge fixed effects are introduced. The magnitudes suggest that, on average, bankruptcy-related disputes are resolved between 15% and 22% more quickly than other civil cases, even before the reform took effect.

The coefficient for *post-2016* is both negative and highly significant across all models, ranging from –2.47 to –1.08. These findings indicate a substantial reduction in trial durations across all civil courts after 2016, not just within the treated group. Specifically, the coefficient in Model (3) (–1.081, $p < 0.01$) suggests that, on average, the period following 2016 is associated with a reduction of approximately 20% in trial length, ceteris paribus. This strong effect likely reflects broader systemic changes in judicial functioning or concurrent reforms beyond the bankruptcy legislation we analyzed. It highlights the importance of distinguishing between treatment-specific effects and general trends over time.

Included only in Model (3), *judgment_grade* has a positive sign and a statistically significant coefficient (0.117, $p < 0.05$). It is inserted as a proxy for complex judicial cases. It suggests that higher levels of adjudication (e.g., appeals or higher judicial scrutiny) are associated with longer trials, consistent with expectations that complex or multi-layered procedures extend case duration.

Table 1. Main estimated results

	(1) HDFE lndays_trial	(2) HDFE lndays_trial	(3) HDFE lndays_trial
did2016	-0.135	-0.224	-0.128**
	(0.385)	(0.400)	(0.0429)
treated	-0.222***	-0.696	-0.152**
	(0.0250)	(0.477)	(0.0474)
post-2016	-2.472***	-2.291***	-1.081***
	(0.385)	(0.490)	(0.0449)
judgment_grade			0.117**
			(0.0276)
Law_subjects	NO	NO	YES
Court FE	NO	YES	YES
Judge FE	NO	YES	YES
Year FE	NO	YES	YES
Constant	7.366***	7.555***	7.264***
	(0.0250)	(0.292)	(0.0781)
Observations	40,243	40,243	40,243
R-squared	0.324	0.428	0.761

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

By contrast, in Table 2, *did2018* is negative and statistically significant at the 5% and 1% levels across all specifications, with larger magnitudes (–0.57 to –0.65), corresponding to a reduction of approximately 50%. This contrast indicates that while the partial implementation of the reform in 2016 had only a modest and specification-sensitive effect, the full enforcement in 2018 produced a much more robust impact on shortening trial durations. This suggests that the reform led to a substantial and systematic decrease in the length of legal proceedings once it was fully enacted.

The coefficient for *treated* is never statistically significant and even changes sign across different specifications. This variation suggests that the relative advantage of bankruptcy-related courts in handling cases more quickly, observed before 2016, diminishes or becomes unclear once the analysis focuses on the period following the 2018 reform.

The coefficient for *post-2018 is* both negative and highly significant at the 1% level across all models, ranging from –2.40 to –1.08. It yields a comparably high reduction of 20%. The similarity in magnitude highlights that systemic improvements in judicial efficiency were already underway after 2016 and continued through 2018.

Included only in Model (3), the coefficient on *judgment_grade* is positive and statistically significant at the 10% level (0.140, $p < 0.1$), indicating that more complex procedural trajectories tend to extend trial length.

Table 2. Main estimated results

	(1) HDFE lndays_trial	(2) HDFE lndays_trial	(3) HDFE lndays_trial
did2018	-0.566**	-0.629**	-0.645***
	(0.156)	(0.201)	(0.138)
treated	0.216	-0.303	-0.0901
	(0.253)	(0.317)	(0.0540)
post-2018	-2.046***	-2.438***	-1.048***
	(0.156)	(0.359)	(0.0660)
judgment_grade			0.140*
			(0.0509)
Constant	6.570***	6.164***	6.628***
	(0.253)	(0.328)	(0.150)
Law_subjects	NO	NO	YES
Court FE	NO	YES	YES
Judge FE	NO	YES	YES
Year FE	NO	YES	YES
Observations	40,243	40,243	40,243
R-squared	0.350	0.487	0.759

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

However, in both Tables, the DID coefficients (*did2016* and *did2018*) reveal that the specific incremental gains attributable to the bankruptcy reform became more pronounced in 2018 than in 2016, the year of its enactment.

4.1 Robustness Check

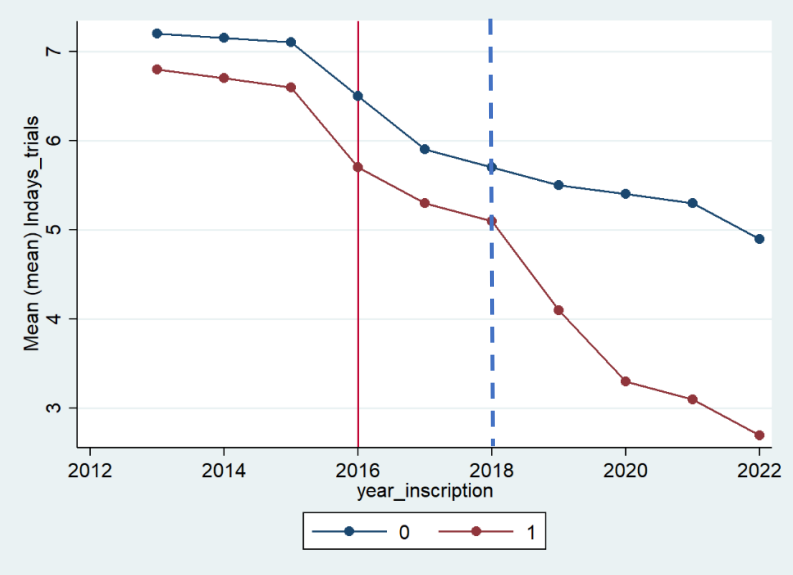
4.1.1 Parallel trend assumption

The first step in evaluating the robustness of our findings is to verify the validity of the parallel trend assumption. We conduct a test to determine whether we can reject or fail to reject the null hypothesis of parallel linear trends. The results show (Prob>F = 0.4715, with a p-value less than 0.05), indicating that we fail to reject the null hypothesis. This suggests that the parallel trend assumption holds.

Figure 1 shows the pre-treatment trends in the logarithm of trial durations for both the treated group (courts handling bankruptcy cases, labeled as "1") and the control group ("0") before and after the 2016 reform (and before and after its full implementation in 2018). For better clarity and interpretation, the figure begins presenting data from 2013, even though earlier observations are available in the dataset. This decision is based on the limited number of observations prior to 2013, which could introduce noise and obscure the visual trends. By focusing on the period from 2013 onward, the graph provides a more precise and accurate representation of the pre-treatment and post-treatment dynamics, ensuring sufficient data density for reliable trend comparisons.

Before the vertical red line that marks the treatment year (2016), both groups exhibit generally parallel trends, although the treated group consistently has lower average trial durations. This alignment in the pre-treatment trajectories provides empirical support for the parallel trends' assumption, which is essential for the validity of the difference-in-differences methodology.

Figure 1. Parallel trend assumption



Source: Authors' elaboration

After the reform, we observed a notable difference between the treated group and the control group, with the treated group experiencing a more significant reduction in trial duration. This difference following the treatment supports the econometric findings presented in Tables 1 and 2, which indicate that the 2016 reform had a meaningful and distinct impact on the treated courts. The presence of parallel pre-treatment trends further reinforces the causal interpretation of the DID estimates, mitigating concerns that the results might reflect pre-existing dynamics rather than the reform itself.

4.1.2 The Placebo reform test

Table 3 presents the results of a placebo DID analysis, which was conducted as a robustness check to support the causal interpretation of the main findings discussed in Tables 1 and 2. In this analysis, we assume that the reform was enacted in 2012 (*placebo2012*), four years before the 2016 reform rollout. This falsification test aims to determine whether the estimated treatment effects might be influenced by pre-existing trends or anticipatory behavior from judges or litigants, rather than being a direct result of the reform itself. Columns (1) and (2) replicate the specifications from the primary analysis and include fixed effects for judges, courts, and years. Additionally, Column (4) incorporates the judgment grade and controls not only for judges, courts, and year effects, but also law subject effects.

Table 3. Results – Placebo Reform

	(1) HDFE lndays_trial	(2) HDFE lndays_trial	(3) HDFE lndays_trial
didplacebo2012	-0.783	-0.386	-0.414
	(0.592)	(0.356)	(0.418)
treated	0.502	0.337	0.302
	(0.583)	(0.199)	(0.108)
placebo2012	-0.746	-0.600	-0.0489

	(0.592)	(0.363)	(0.409)
judgment_grade			0.185
			0.0671
Constant	6.350***	6.930***	6.858***
	(0.166)	(0.491)	(0.217)
Law_subjects	NO	NO	YES
Court FE	NO	YES	YES
Judge FE	NO	YES	YES
Year FE	NO	YES	YES
Observations	40,243	40,243	40,243
R-squared	0.157	0.354	0.778

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

From columns 1 to 3, the interaction term *didplacebo2012* does not remain statistically insignificant across all specifications. Although the coefficients are negative in sign, their lack of significance suggests the absence of any spurious reform effect in the pre-reform years. This finding supports the credibility of our identification strategy. It reinforces the interpretation of the post-2016 results as reflecting the actual impact of the bankruptcy reform, rather than unobserved pre-existing trends.

5. Discussion

The empirical analysis provides strong evidence that the 2016 bankruptcy reform significantly shortened the length of judicial proceedings in bankruptcy-related sections of the court. The reform's focus on digitalization, stricter time limits for trustees, and more explicit rules for creditors' committees proved effective in streamlining case management and reducing procedural delays. This aligns with previous research on the economic effects of judicial efficiency (Feld & Voigt, 2003; Giacomelli & Menon, 2013; Berlemann & Christmann, 2020), confirming that even narrowly targeted institutional reforms can lead to tangible improvements in judicial performance.

A key contribution of this study is its documentation of the dynamic nature of reform effects. The difference-in-differences estimates indicate that the year of enactment (2016) was associated with modest reductions in trial duration, averaging about 12%. However, these reductions were statistically significant only in models with complete control variables. These initial findings suggest that partial implementation does not yield substantial institutional gains. In contrast, the coefficients from 2018 show much more pronounced effects, indicating a reduction of approximately 50% in trial length.

This variation over time highlights the importance of viewing reforms as processes of institutional adaptation rather than as isolated legal changes. Digital infrastructures take time to be fully integrated into everyday practices, and judges, lawyers, and administrators must adjust to new procedural rules before the efficiency benefits can be fully realized.

The analysis of case complexity adds further depth to the interpretation. The positive and significant coefficients for *judgment_grade* indicate that appeals and multi-stage disputes remain inherently more time-consuming. Nonetheless, reductions in trial duration were observed even in these complex cases, implying that the reform improved procedural efficiency across the board. This result matters because the social and economic costs of delay are particularly severe in complex bankruptcy proceedings, which often involve multiple creditors, high stakes, and prolonged

uncertainty. The ability of digitalization and stricter temporal monitoring to shorten even these cases supports the view that reforms can improve efficiency without undermining procedural safeguards or the substantive rights of parties.

Prompt negotiation and resolution of agreements within insolvency proceedings are crucial, since the prospects for business recovery tend to improve when debtors address financial distress at its initial onset (Danovi et al., 2021). Moreover, the inability of bankruptcy frameworks to secure effective credit recovery mechanisms for creditors in cases of debtor insolvency undermines the institutional foundations of a market economy based on private property rights (Brogi & Santella, 2004). In this sense, Italy's 2016 bankruptcy reform, via Decree-Law No. 59, enhanced enforcement and insolvency procedures by digitizing communication, expediting asset distribution, simplifying the formation of creditors' committees, and allowing accessible remote hearings using ICT platforms.

The robustness checks strengthen the causal interpretation. The parallel-trends test confirms that treated and control sections exhibited comparable trajectories before 2016, validating the identifying assumption of the DID framework. The placebo test, assigning a fictitious reform to 2012, yields statistically insignificant coefficients, ruling out the possibility that unobserved pre-reform dynamics or anticipatory strategies drive results. Together, these exercises increase confidence that the observed effects are indeed attributable to the 2016 reform, rather than to unrelated contemporaneous changes.

From a broader institutional perspective, these findings contribute to ongoing debates about the role of legal systems in shaping economic outcomes. Prolonged bankruptcy proceedings constrain the efficient reallocation of resources, reduce expected creditor recovery, and limit debtor incentives to restructure, thereby amplifying financial distress and discouraging investment (Ponticelli & Alencar, 2016; Melcarne & Ramello, 2021). By reducing trial durations, the Italian reform likely improved credit market functioning and strengthened the institutional environment for SMEs, which are particularly vulnerable to judicial delays. Moreover, the results align with European policy discussions on harmonizing insolvency frameworks, suggesting that procedural innovations aimed at enhancing efficiency can have significant systemic effects, even in jurisdictions historically characterized by rigidity and delay.

Finally, the Italian case offers comparative lessons for other civil law systems. Many European jurisdictions share structural features that generate delays, high levels of procedural formalism, rigid rules of evidence, and limited reliance on technology. The evidence presented here demonstrates that targeted reforms emphasizing digitalization and time discipline can overcome at least part of these systemic constraints. More generally, the findings demonstrate that judicial reforms, often perceived as secondary to economic policy, should be considered as institutional investments capable of enhancing market efficiency and economic competitiveness.

6. Concluding Remarks

This study examines Italy as a paradigmatic example of European countries governed by civil law traditions, as its economic landscape is characterized by a predominance of small and medium-sized enterprises (SMEs) and limited market dynamism, as evidenced by entry and exit rates that remain significantly below the European Union average, according to Eurostat data (Melcarne & Ramello, 2020). Although it was born not from economic changes in small businesses but from the Parmalat scandal, which had shaken European financial systems and highlighted systemic fragilities, from

2005 to 2016, Italy began a ten-year process of reform of bankruptcy legislation, intending to move from a static legal process to a more dynamic and business-focused framework, with a progressive shift towards the modernization of corporate bankruptcy procedures, culminating in the digital revolution of 2016.

Our findings have several implications. First, they confirm that reforms aimed at simplifying communication, accelerating asset distribution, and leveraging ICT can yield measurable improvements to judicial performance (Di Vita et al., 2024), and generally to economic growth (e.g., Ali et al, 2020.; Brodny & Tutak, 2023; Patti & Schifilliti, 2023). Second, they highlight the importance of full implementation and institutional consolidation; the difference between the modest reductions observed in 2016 and the substantial effects in 2018 suggests that reforms should be assessed over a medium-term horizon, as their benefits materialize gradually. Third, they underscore that efficiency gains can extend even to complex cases, supporting the view that reforms need not trade off speed against procedural fairness.

While the study offers valuable insights, it is important to acknowledge certain limitations. First, the analysis would have benefited from a larger dataset that includes more bankruptcy courts. Second, the study is limited to a single national context, which means it overlooks the diversity and commonalities that arise in comparative analyses across different legal systems. Lastly, efficiency is evaluated only in terms of trial duration. Although this metric is important, it fails to encompass other aspects of performance, such as backlog reduction, creditor satisfaction, and the survival and restructuring of distressed firms.

These limitations open fruitful directions for future research. Extending the analysis to additional courts across Italy would provide insights into territorial heterogeneity in reform effects and the role of local institutional capacity. Comparative studies across European jurisdictions could clarify how national legal traditions mediate the effectiveness of EU-driven reforms, such as Directive 2019/1023 on preventive restructuring. Moreover, future work should broaden the scope of outcome variables by linking procedural efficiency to substantive economic impacts, such as firm survival, employment, and credit supply. Finally, evaluating the cumulative effects of successive reforms, including the 2019 Insolvency Code and subsequent legislative adjustments, would shed light on the long-term institutional trajectory of bankruptcy law in Italy.

In conclusion, the Italian experience demonstrates that even legal systems with entrenched inefficiencies can benefit from carefully designed procedural reforms. Digitalization and stricter temporal discipline have proven effective in reducing delays, thereby strengthening creditor protection, mitigating financial distress, and improving the institutional environment for business activity. These findings reinforce the broader proposition, central to the law and economics literature, that efficient legal institutions are a key determinant of economic performance. For policymakers, the message is clear: investment in judicial reform is not only a matter of justice but also a prerequisite for economic competitiveness and institutional resilience.

Appendix A

Table A1. Variables definition

Variable	Definition	Type	Notes
lndays_trials	Natural logarithm of the number of days between case registration and closure	Dependent	Proxy for trial duration; log transformation reduces skewness and allows interpretation in % changes.
treated	Dummy = 1 if case assigned to Section IV (bankruptcy-specialized), 0 otherwise	Independent	Identifies treatment group (bankruptcy-related section) vs. control sections.
post2016	Dummy = 1 if case initiated after entry into force of Legislative Decree No. 59/2016, 0 otherwise	Independent	Captures the timing of partial reform implementation.
post2018	Dummy = 1 if case initiated after 2018, 0 otherwise	Independent	Captures the timing of full reform implementation.
did2016	Interaction term = treated × post2016	Independent	DID estimator for the effect of the 2016 reform.
did2018	Interaction term = treated × post2018	Independent	DID estimator for the effect of full implementation in 2018.
judgment_grade	Indicator for appeal/higher-instance proceeding (1 = first instance, 2 = second instance)	Control	Proxy for procedural complexity.
law_subject	Categorical variable identifying the legal domain of the case (contracts, insolvency procedures, bankruptcy, etc.)	Control	Controls for domain-specific variation in trial length.
Judge FE	Fixed effects for individual judges	Control	Controls for heterogeneity in judicial style and productivity.
Section FE	Fixed effects for court divisions	Control	Controls for institutional heterogeneity between sections.
Year FE	Fixed effects for year of case initiation	Control	Captures temporal shocks and systemic changes.

Table A2. Descriptive Statistics

Variable	N	Mean	Std. Dev.	Min	Max
lndays trials	40,243	5.496	1.81	0	13.405
did2016	40,243	.506	.5	0	1
did2018	40,243	.425	.494	0	1
treated	40,243	.586	.492	0	1
post2016	40,243	.75	.433	0	1
post2018	40,243	.562	.496	0	1
judgment grade	40,243	1.027	.161	1	2
law sub trials	40,243	20.415	12.587	1	36
year inscription	40,243	2017.66	3.478	1981	2022
court id	40,243	3.291	1.045	1	4
judge id	40,243	59.489	25.986	1	98

Table A3. Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) lndays_trials	1.000							
(2) did2016	-0.236	1.000						
(3) did2018	-0.128	0.848	1.000					
(4) treated	-0.396	0.851	0.722	1.000				
(5) post2016	-0.274	0.584	0.495	0.311	1.000			
(6) post2018	-0.266	0.565	0.758	0.389	0.653	1.000		
(7) judgment_grade	0.138	-0.109	-0.098	-0.113	-0.103	-0.097	1.000	
(8) law_sub_trials	-0.240	0.294	0.423	0.164	0.335	0.468	-0.096	1.000

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