

The Cost of Distance

Digitalization and formalization of software registration in Brazil

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The digitalization of public services is seen as a way to reduce administrative inequalities, yet evidence remains scarce regarding its impact on regions historically underserved by the State. For this reason, this study analyzes the 2017 implementation of the electronic software registration system (e-RPC) by the National Institute of Industrial Property (INPI) as an institutional shock to evaluate whether mitigating logistical barriers drives the formalization of copyrights nationwide. Using a Differences-in-Differences econometric model, the research investigates whether this digital transition was able to increase the volume of computer program filings, especially in locations most penalized by access costs. Key findings include:

Positive shock to formalization

The implementation of digital registration in 2017 triggered an immediate 51% growth in the volume of software filings in the subsequent year - the largest increase in the available time series. This demonstrates that physical bureaucracy acted as an artificial bottleneck, stifling technological formalization in the country.

Mitigating geographic barriers

Prior to the reform, physical distance from the INPI headquarters (Rio de Janeiro) functioned as a "logistical tax." Following digitalization, the most distant regions showed the highest relative growth rates, demonstrating that digital platforms equalize opportunities for legal protection between the center and the periphery.

Regional deconcentration

The number of Brazilian municipalities with at least one software registration jumped from 211 to 443 between 2016 and 2024. There was a measurable decline in the Gini Index for software filings, indicating a gradual trend toward reduced inequality.

Efficiency and cost reduction

The transition to the electronic model eliminated travel and postal service costs, reducing institutional friction. The results suggest that the digitalization of public services can serve as a powerful tool to expand access to formal institutions by lowering the costs associated with distance.

Public Policy Implications

The digital transformation of the State is not merely a process gain, but an economic inclusion strategy that integrates peripheral regions without expanding physical bureaucracy. The INPI case demonstrates that mitigating the "cost of distance" optimizes public spending and validates the use of data-driven strategies to strengthen legal certainty and the competitiveness of the innovation ecosystem on a national scale.



Access the full study [here](#) and learn more!