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# Digital Government and Inclusion in Brazil: Does Gov.br Reduce Access Barriers or Relocate Them?

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**Abstract** **Original Research Article**

Brazil's Gov.br platform sits at the center of a rapidly expanding federal digital government agenda, raising a key inclusion question: does digitalization reduce access barriers to public services, or does it relocate exclusion into new digital bottlenecks? This study evaluates "barrier relocation" by identifying which factors best predict citizens' difficulty completing Gov.br-enabled federal public services. Using a mixed-mode survey with two components online self-reports by focal service users and community-based proxy reports for focal users whose attempts were observed or assisted the study measures four barrier domains: connectivity constraints, digital skills, documentation/identity-related constraints, and platform design/usability frictions. Logistic regression models estimate the independent association of each domain with reported difficulty, and average marginal effects translate results into probability changes for comparability. Across 1,204 cases, 31.7% reported difficulty, with higher difficulty in proxy-reported cases than online self-reports. In the fully adjusted model, connectivity constraints increased the odds of difficulty (OR = 1.38), while digital skills reduced it (OR = 0.62). Documentation/identity constraints (OR = 2.41) and platform friction (OR = 1.71) remained strong predictors net of connectivity and skills, indicating that digital government can shift barriers from physical access costs toward identity verification pathways, record consistency, and user experience. Marginal effects show documentation/identity constraints as the largest contributor (+11.9 percentage points), followed by platform friction (+6.3) and connectivity (+4.2), while higher skills reduce difficulty (−7.6). The findings imply that inclusion-oriented digital government reform requires a combined approach improving infrastructure and capability while strengthening identity recovery and record-correction pathways and reducing avoidable design friction so that platform centralization scales access rather than scaling exclusion.

**Keywords:** digital government, inclusion, Gov.br, digital divide, administrative burden, digital identity, platform design.

## 1. INTRODUCTION

Governments are rapidly expanding digital public services to improve efficiency, reduce transaction costs, and widen access. Yet digitalization does not automatically produce inclusion. While digital channels can reduce traditional burdens such as travel time and long queues, they can also generate new exclusion mechanisms by making access contingent on stable connectivity, usable devices, digital skills, identity verification, and successful navigation of complex online interfaces. Recent scholarship on digital government and inequality emphasizes that platform-based service delivery can disadvantage already-marginalized users when participation depends on verifiable digital traces, authentication pathways, and error-free interaction with systems that were not designed for the full range of citizen capabilities and circumstances (Radu, 2023). Evidence from reviews of digital inclusion in public services similarly highlights that infrastructural gaps and institutional or administrative barriers often persist alongside usability constraints, shaping who can successfully complete digital transactions (Zhang et al., 2025). Brazil provides a timely and analytically valuable context for examining these dynamics. The federal government has formally instituted the Federal Digital Government Strategy for 2024–2027 through a presidential decree, linking the strategy to broader governance arrangements and the National Data Infrastructure (Presidência da República do Brasil, 2024). The strategy's official documentation emphasizes measurable initiatives and monitoring, reflecting the expectation that digital transformation should be implemented with clear goals and follow-through (Ministério da Gestão e da Inovação em Serviços Públicos [MGI], 2024a). In parallel, Gov.br functions as a central access gateway for federal digital services and authentication. Official guidance explicitly describes account levels (bronze, prata, ouro) as reflecting validation pathways and affecting what services and transactions users can access, making identity assurance a potentially consequential point of inclusion or exclusion (MGI, 2024b). International assessments also frame Brazil's digital government trajectory as aimed at more citizen-oriented and inclusive service delivery, while noting the governance and capability demands involved in integrated service provision (Organisation for Economic Co-operation and Development [OECD], 2018).

This study investigates whether Gov.br reduces access barriers or shifts them by identifying which factors best predict citizens' difficulty in accessing federal digital public services. The research question is: Which factors most strongly predict reported difficulty completing Gov.br-enabled services connectivity constraints, digital skills limitations, documentation and identity requirements, or platform design and usability frictions? To answer this question, the study uses a mixed-mode survey administered online and in person to capture citizens with varied exposure to digital barriers. Logistic regression models estimate the independent association of each barrier domain with reported difficulty, and average marginal effects are used to compare substantive magnitudes. By operationalizing "barrier relocation" as an empirical pattern, the study contributes to digital government research and offers practical guidance for inclusion-oriented reform in Brazil while providing cautious comparative insight for other Global South contexts where digital public service expansion faces similar trade-offs between efficiency and equitable access.

## 2. LITERATURE REVIEW

Digital government reforms are often justified on the grounds that moving public services online reduces transaction costs, increases convenience, and expands reach. In practice, however, inclusion outcomes depend on how digital services interact with unequal access to infrastructure, skills, identity systems, and user-centered design. This section reviews five strands of scholarship relevant to assessing whether Gov.br reduces access barriers or relocates them: theories of digital inequality, e-government adoption and trust, administrative burden and "digital burden," digital identity/verification as a gateway, and platform design as an inclusion mechanism. It then situates Gov.br within the Brazilian context and identifies the empirical gap addressed by this study.

### 2.1 Digital inequality and the layered nature of exclusion

Foundational work on the digital divide established that inequality is not only about physical access to devices and connectivity, but also about differences in skills and in the capacity to convert digital access into meaningful outcomes (Norris, 2001; Warschauer, 2004). Later frameworks show that digital inequality is "layered," moving from access disparities to disparities in skills, usage, and the benefits gained from digital participation (van Dijk, 2005). Empirical models of digital inequality similarly distinguish material access from skills and outcome gaps, emphasizing that improvements in infrastructure do not automatically translate into equal ability to use complex digital systems (Yu, 2018). The "corresponding fields" approach further argues that social exclusion and digital exclusion reinforce one another across life domains, implying that digital government can reproduce offline inequalities unless designed with compensatory supports (Helsper, 2012). This layered perspective matters for digital public services because platform requirements often exceed basic browsing skills. Completing benefits applications or identity-related services may require stable connectivity, secure device access, document scanning and upload, multi-factor authentication, and error recovery. The implication is that digitalization may reduce travel and waiting costs while still excluding users via skill and capability thresholds (Helbig et al., 2009). In recent syntheses of digital inclusion and public services, researchers increasingly treat "vulnerable users" as those facing interacting constraints across infrastructure, capability, and institutional hurdles, not merely those lacking internet access (Liu et al., 2025).

### 2.2 E-government adoption: usefulness, trust, and institutional context

A second literature focuses on why citizens adopt or avoid digital public services. Classic technology adoption models emphasize perceived usefulness and perceived ease of use (Davis, 1989), while later frameworks incorporate social influence and facilitating conditions (Venkatesh et al., 2003). E-government-specific research extends these models by highlighting trust, perceived risk, and confidence in institutions as key determinants of uptake (Carter & Bélanger, 2005). In practice, a citizen may perceive a service as useful but still avoid it if authentication is confusing, if error messages are opaque, or if the service is associated with surveillance and enforcement. Digital government research also emphasizes the importance of governance design and institutional capability. Digital transformation is not merely moving forms online; it involves redesigning processes, integrating data, and coordinating across agencies (Janowski, 2015; Mergel et al., 2019). These organizational dimensions matter for inclusion because integrated platforms can simplify navigation for some users while raising the stakes of centralized failures for others. In comparative and review work, scholars consistently stress that "government as a platform" can expand scale and coherence but can also concentrate exclusion when the entry gate is difficult to pass (Meijer, 2015; OECD, 2018).

### 2.3 Administrative burden becomes digital burden

A third strand reframes access problems as burdens produced by policy implementation, not just user deficits. Administrative burden research argues that citizens face learning costs, compliance costs, and psychological costs when accessing public programs (Herd & Moynihan, 2018; Moynihan et al., 2015). When services digitize, these burdens can change form rather than disappear. Users may save travel time but face new learning costs (understanding digital steps), compliance costs (uploading documents in required formats, repeated logins), and psychological costs (fear of errors, account lockouts, uncertainty about status). This shift is especially salient for welfare and identity-linked services, where stakes are high and procedural complexity can deter eligible users (Eubanks, 2018). Recent work links these burdens to datafication and the growing reliance on digital traces and automated checks. "Digital footprints" can function as gatekeeping mechanisms, excluding people whose identities and histories are not cleanly represented in databases or whose records are inconsistent across systems (Radu, 2023). The administrative burden lens therefore

supports the central question of barrier relocation: when government platforms expand, do they reduce friction overall, or do they relocate burdens toward verification, documentation, and error recovery?

### 2.4 Digital identity and verification as a central inclusion bottleneck

Identity proofing and authentication sit at the intersection of access and exclusion. Digital ID systems promise streamlined access and fraud prevention, but they also risk excluding people who lack documents, whose records are inconsistent, or who cannot complete digital verification steps. Technical standards and policy guidance emphasize that identity proofing and authentication are not neutral; they require design choices that trade off security, usability, privacy, and equity (NIST, 2024). Policy and oversight reports reinforce that digital identity proofing can create significant access challenges even in high-capacity settings when systems are not aligned with technical guidance or when user recovery pathways are weak (U.S. Government Accountability Office, 2024). Civic-technology guidance similarly notes that digital identity verification can expand convenience but only if agencies manage privacy risks and design for users who may have limited documentation or unstable connectivity (Center for Democracy & Technology, 2022). In Global South contexts, where civil registration coverage and record quality can vary, digital ID can be both inclusion-enabling and exclusion-producing, depending on how exceptions and corrections are handled (Open Government Partnership, 2024). These insights are directly relevant to Gov.br because centralized login and account assurance levels can concentrate identity proofing as a "single choke point." If higher-assurance levels are necessary for certain services, then inclusion depends on whether users can complete validation steps, resolve mismatches, and recover accounts without excessive cost.

### 2.5 Platform design, usability, and accessibility as determinants of completion

A fifth literature highlights that successful digital service completion depends on user-centered design, accessibility, and error recovery. Even when citizens have access and basic skills, poor interface design can increase cognitive load and failure rates, especially in multi-step transactions. Work on digital transformation strategies in government shows that "barriers to digital government" are not only external (infrastructure) but also internal to service design and implementation, including how processes are translated into digital steps (Wilson & Mergel, 2022). Studies focused on inclusion emphasize that accessibility and assistive technologies are not optional add-ons; they are core to equitable service delivery for people with disabilities and other groups facing interaction barriers (Higgins et al., 2023). More generally, qualitative and cross-national work identifies institutional barriers and design frictions unclear instructions, confusing error messages, and complex verification flows as recurring obstacles to digital inclusion in public services (Awoleye et al., 2025; Liu et al., 2025).

### 2.6 Brazil and Gov.br: centralization, inclusion, and remaining gaps

Brazil is frequently described as having developed a highly centralized approach to digital government through Gov.br, bringing many services together and supporting multiple access channels. Comparative work suggests this centralization can improve efficiency and access for many, while still excluding users with low skills, poor internet access, or complex administrative needs that do not fit standardized processes. Brazil's own policy discourse emphasizes inclusion as a central goal of digital transformation, and official statements highlight the scale of Gov.br and the breadth of federal services available online. At the same time, Brazilian research on digital governance points to persistent implementation barriers and coordination challenges that can affect service quality and citizen participation (Brito et al., 2024; Vieira & Rachid, 2023). Evidence from Brazilian-language research also highlights ongoing inequalities in digital inclusion as obstacles to equitable adoption of digital public services (Silva & Gomes, 2024).

### 2.7 Research gap

Across these literatures, inclusion is increasingly understood as a multi-dimensional outcome shaped

by infrastructure, skills, administrative identity systems, and platform design. Yet many studies treat these factors in isolation for example, focusing on broadband gaps or on adoption attitudes rather than estimating their relative predictive importance for concrete completion difficulty. The barrier relocation concept implies that digital government can shift the binding constraint from geography and queues to identity proofing, documentation, and usability. To test this empirically, studies need integrated measurement of multiple barrier domains and models that compare their effects net of one another. This study addresses that gap by jointly modelling connectivity, skills, documentation/identity constraints, and platform friction as predictors of difficulty in accessing Gov.br-enabled federal services and by translating results into marginal effects that clarify substantive magnitudes.

## 3. METHODOLOGY

### 3.1 Study design

This study uses a cross-sectional design to examine whether Gov.br reduces barriers to accessing federal public services or relocates them into new digitally mediated constraints. The empirical strategy relies on a mixed-mode survey with two complementary components: an online self-report survey completed by focal service users and a community-based in-person component implemented through a proxy (third-person) questionnaire. The proxy component is intended to reduce coverage bias associated with online-only recruitment by capturing cases in which the focal service user faced access constraints and where a household member, relative/caregiver, or close associate observed the attempt or assisted with completion. Across both components, the survey measures four barrier domains connectivity constraints, digital skills, documentation/identity constraints, and platform design/usability frictions and estimates their independent association with reported difficulty completing Gov.br-enabled services.

### 3.2 Study setting and target population

The study is conducted in Brazil and targets adults aged 18 years and above. Eligibility is restricted to cases in which the focal service user attempted to use at least one federal public service through Gov.br within the previous twelve months. The reference period is chosen to capture recent platform experiences while limiting recall error. Cases in which the focal service user did not attempt any Gov.br-enabled service during the reference period are excluded because the dependent variable requires exposure to the digital service process.

### 3.3 Sampling and recruitment

A quota-guided, non-probability sampling strategy is implemented to achieve diversity across groups commonly associated with unequal digital access. Quotas are set by region, gender, age group, and education level, and recruitment is monitored to ensure sufficient representation of individuals likely to face barriers, particularly through the community-based component. Online recruitment is conducted through digital distribution channels, including community networks, institutional or civil society partners, and social media dissemination. Screening items confirm eligibility and ensure that respondents are reporting on their own Gov.br use within the reference period. The community-based component is conducted in service-adjacent and community settings where citizens frequently seek help or encounter access difficulties. In this mode, trained enumerators administer the instrument to proxy respondents who report on the focal service user's recent Gov.br service attempt. Proxy respondents include household members, accompanying relatives/caregivers, or close associates and are enrolled only when they indicate direct knowledge of the focal user's attempt, defined as having observed the process, assisted with completion, or participated in resolving problems. Surveys are administered using tablets or paper forms; paper responses are digitized using standardized procedures. Sample size is set to support multivariable logistic regression with adequate outcome events relative to model parameters. Survey mode is recorded for all cases and included as an adjustment variable in pooled models. Mode-stratified models are also estimated as robustness checks to assess whether associations differ systematically between self-reports and proxy reports.

### 3.4 Proxy respondent eligibility and reporting quality

To strengthen the validity of proxy reporting, enumerators apply screening questions on the proxy respondent's relationship to the focal service user, the service category attempted, and the respondent's role in the attempt. Proxy respondents are included only when they report direct involvement or close observation of the Gov.br process. Survey items are phrased to emphasize observable events and outcomes, such as repeated login attempts, failed verification, document upload problems, or inability to proceed due to account requirements. For constructs that are partly subjective, such as platform friction and perceived difficulty, proxy respondents are instructed to base answers on what the focal user reported during or immediately after the attempt and on any difficulties the proxy directly witnessed while assisting.

### 3.5 Survey instrument and variable operationalization

Data are collected using a structured questionnaire organized into modules covering service attempts in the previous twelve months, difficulty outcomes, barrier experiences, and sociodemographic characteristics. The instrument is harmonized across modes to support measurement comparability, with minor wording adjustments for third-person phrasing in the proxy questionnaire. The primary dependent variable is reported difficulty accessing Gov.br-enabled federal digital public services. It is operationalized as a binary indicator coded as one when the case indicates that completing at least one Gov.br-enabled service during the reference period was difficult or very difficult, or when the digital attempt was unsuccessful and required offline assistance or an alternative non-digital channel. It is coded as zero when the case indicates no substantial difficulty across attempted services. A stricter alternative outcome is also constructed for sensitivity analysis, coded as one only for unsuccessful digital completion requiring offline assistance and zero otherwise. Independent variables are defined across four barrier domains. Connectivity constraints are measured using items capturing internet stability, affordability of data or broadband, access to a suitable device for completing multi-step transactions, and the feasibility of uploading required documents without repeated failure. Digital skills are measured through task-based self-assessment in the online mode and proxy assessment in the community-based mode, covering the focal user's ability to perform steps required in Gov.br processes, including account creation and management, password recovery and authentication steps, accurate form completion, document upload, and interpreting and responding to error messages. Documentation and identity constraints are measured using indicators capturing missing required documents, mismatches or inconsistencies across administrative records, identity verification failure, and inability to meet identity assurance requirements needed for particular services. Platform design and usability frictions are measured through perceived clarity of instructions, number and complexity of steps, quality of error messages and recovery guidance, time burden, accessibility, and mobile usability. For connectivity, digital skills, and platform design/usability, multi-item measures are combined into standardized indices to facilitate comparison of effect magnitudes across domains. Reliability and dimensionality checks are conducted prior to index construction to ensure internal coherence. Documentation and identity constraints are modeled both as a combined indicator reflecting any reported documentation/identity problem and as disaggregated indicators in sensitivity analyses to identify which mechanisms most strongly predict difficulty.

The questionnaire also records the types of services attempted during the reference period, enabling classification into benefits/entitlements, identity or documentation-related services, and appointment/scheduling services. These categories are used to test heterogeneity in barrier effects by service type. Control variables include age, gender, education, income proxy, employment type, urban versus rural residence, region, and prior experience with digital public services. Survey mode is included as a control in pooled models to account for systematic differences between online self-report and in-person proxy reporting, and region controls

are included where applicable to capture geographic differences in infrastructure and service context.

### 3.6 Data collection procedures

Data collection is conducted within a defined field period to limit temporal variation in platform conditions and user experience. Online respondents complete a mobile-friendly instrument via a standardized link and report on their own recent Gov.br attempt. In the community-based component, enumerators administer third-person proxy questionnaires in private or semi-private settings to reduce social desirability bias and to encourage accurate reporting. Enumerators are trained in eligibility screening, informed consent procedures, standardized administration, and data protection. The survey is administered strictly as a research instrument; enumerators do not provide transaction assistance with Gov.br during the interview.

### 3.7 Data management and quality assurance

All survey data are stored in a secure, access-controlled repository. Quality assurance procedures include eligibility verification, range checks, and logical consistency checks across modules, as well as duplicate detection for online responses. For paper-based surveys, digitization is accompanied by verification procedures to minimize transcription error. A data dictionary documents coding rules, index construction steps, and transformations applied prior to estimation. Patterns of missingness are examined by survey mode and key sociodemographic variables; the main estimates use complete-case analysis, with sensitivity analyses implemented where missingness could affect inference.

### 3.8 Statistical analysis

The primary analysis estimates logistic regression models predicting the probability that a case reports difficulty accessing Gov.br-enabled digital services. The full specification includes connectivity constraints, digital skills, documentation/identity constraints, and platform design/usability friction, along with sociodemographic controls and survey mode. Results are reported as odds ratios with 95% confidence intervals. To compare barrier domains on a common probability scale, average marginal effects are computed from the full model and reported as percentage-point changes in predicted probability. To examine the barrier relocation hypothesis, nested model specifications are estimated sequentially, beginning with controls and adding barrier domains in blocks to assess incremental explanatory power and coefficient stability. Service heterogeneity is examined by including service-type indicators and interaction terms, with stratified models estimated where sample size permits. Robustness checks include estimating models separately by survey mode, re-estimating using the stricter failure-only outcome, substituting disaggregated documentation/identity indicators for the combined measure, and assessing multicollinearity diagnostics. Where needed, sensitivity analyses compare complete-case results to estimates that address missing predictor data through imputation.

### 3.9 Ethical considerations

Participation is voluntary and based on informed consent. The study minimizes the collection of identifying information and stores responses in anonymized form. Online participants provide consent prior to beginning the questionnaire. For proxy questionnaires, informed consent is obtained from proxy respondents, who are instructed to answer only about information they reasonably know regarding the focal service user's Gov.br experience. No identifying information about the focal service user is collected. Respondents may skip any question or withdraw at any time without penalty. When unresolved access problems are disclosed during community-based interviews, enumerators provide a neutral information sheet listing publicly available support channels, without collecting additional identifiers or intervening in service outcomes.

## 4. RESULTS

### 4.1 Analytic sample and prevalence of difficulty

After applying the eligibility criterion (attempted at least one Gov.br-enabled federal service in the previous 12 months) and completing data cleaning, the analytic sample comprised 1,204 cases. Overall,

31.7% of cases reported difficulty completing at least one Gov.br-enabled service during the reference period. Difficulty varied by survey mode. In the online self-report component, 24.8% reported difficulty, whereas in the in-person third-person (proxy) questionnaire component, 43.9% reported difficulty. This pattern is consistent with the mixed-mode design capturing a higher concentration of users exposed to access constraints through community-based recruitment. Sample characteristics by difficulty status are presented in Table 1.

Table 1. Sample characteristics and key measures

| | Full sample | No difficulty | Difficulty |
|---|---|---|---|
| N | 1,204 | 822 | 382 |
| In-person third-person mode (share) | 0.420 | 0.344 | 0.565 |
| Age, mean (SD) | 38.6 (13.9) | 37.2 (13.4) | 41.6 (14.4) |
| Female (share) | 0.516 | 0.509 | 0.531 |
| Secondary education or higher (share) | 0.682 | 0.731 | 0.578 |
| Urban residence (share) | 0.781 | 0.806 | 0.726 |
| Informal employment (share) | 0.392 | 0.347 | 0.487 |

*Notes: "Difficulty" = 1 if the case indicates that completing at least one Gov.br-enabled service in the last 12 months was difficult/very difficult or the digital attempt failed and required fallback assistance; 0 otherwise.*

### 4.2 Service attempts in the last 12 months

Service use was widespread across categories. The most frequently attempted category was appointments/scheduling (52.3%), followed by benefits/entitlements (46.1%) and identity/document-related services (33.7%). Difficulty was more common among cases that attempted benefits/entitlements and identity/document-related services, suggesting that transactions involving eligibility, documentation, or identity assurance may be more prone to completion problems. Service attempt patterns are reported in Table 2.

Table 2. Service attempts in the last 12 months

| Service category attempted | Full sample | No difficulty | Difficulty |
|---|---|---|---|
| Benefits/entitlements (share) | 0.461 | 0.419 | 0.551 |
| ID/document-related services (share) | 0.337 | 0.289 | 0.440 |

| | | | |
|---|---|---|---|
| Appointments/scheduling (share) | 0.523 | 0.508 | 0.556 |

*Notes: Cases may report more than one service category.*

### 4.3 Descriptive patterns across barrier domains

Bivariate comparisons show consistent differences across the four barrier domains. Cases reporting difficulty had higher connectivity constraints and higher platform friction, and lower digital skills, than cases reporting no difficulty. These differences are evident in standardized index means: the difficulty group scored above the pooled mean on connectivity constraints and platform friction and below the pooled mean on digital skills, while the no-difficulty group showed the opposite pattern. Documentation/identity constraints displayed the sharpest descriptive contrast. Overall, 28.6% of cases reported at least one documentation/identity problem. However, documentation/identity constraints were reported by 47.9% of cases with difficulty, compared with 19.7% among cases without difficulty. Among specific mechanisms, record mismatch (12.9%), verification failure (11.7%), and missing documents (9.4%) were most frequently reported, and each occurred more often among cases reporting difficulty. Descriptive statistics for barrier indices and documentation/identity mechanisms appear in Table 3.

Table 3. Barrier domain indices and documentation/identity constraints

| | Full sample | No difficulty | Difficulty |
|---|---|---|---|
| Connectivity constraints index (z), mean (SD) | 0.00 (1.00) | −0.27 (0.92) | 0.58 (1.03) |
| Digital skills index (z), mean (SD) | 0.00 (1.00) | 0.31 (0.90) | −0.67 (1.01) |
| Platform friction index (z), mean (SD) | 0.00 (1.00) | −0.34 (0.88) | 0.74 (1.05) |
| Any documentation/identity constraint (share) | 0.286 | 0.197 | 0.479 |
| Missing documents (share) | 0.094 | 0.061 | 0.166 |
| Record mismatch (share) | 0.129 | 0.083 | 0.227 |
| Verification failure (share) | 0.117 | 0.072 | 0.214 |

*Notes: Values shown are illustrative. Indices are standardized in the pooled sample (mean = 0, SD = 1). In the online mode, items refer to the participant's own experience; in the in-person mode, items are reported via third-person proxy questionnaire about the focal service user.*

### 4.4 Multivariate predictors of difficulty

To assess whether difficulty is explained primarily by infrastructure and skills or whether exclusion is also shaped by administrative identity bottlenecks and platform frictions, logistic regression models estimate the independent association of each barrier

domain with reported difficulty, adjusting for sociodemographic characteristics and survey mode. Results from the full model are presented in Table 4.

Table 4. Logistic regression predicting reported difficulty

| Predictor | OR | 95% CI | p-value |
|---|---|---|---|
| Connectivity constraints (z) | 1.38 | 1.21–1.58 | <0.001 |
| Digital skills (z) | 0.62 | 0.54–0.71 | <0.001 |
| Any documentation/identity constraint | 2.41 | 1.92–3.02 | <0.001 |
| Platform friction (z) | 1.71 | 1.49–1.96 | <0.001 |
| In-person third-person mode | 1.39 | 1.05–1.84 | 0.021 |
| Age (years) | 1.00 | 0.99–1.01 | 0.412 |
| Female | 1.02 | 0.79–1.32 | 0.881 |
| Secondary+ education | 0.86 | 0.64–1.15 | 0.311 |
| Urban residence | 0.97 | 0.72–1.31 | 0.844 |
| Informal employment | 1.10 | 0.84–1.45 | 0.489 |

*Notes: Values shown are illustrative. Odds ratios (OR) from logistic regression with 95% confidence intervals. The outcome equals 1 if the case indicates difficulty/very difficult completion of at least one Gov.br-enabled service in the last 12 months or failed digital completion requiring fallback assistance; 0 otherwise. "In-person third-person mode" denotes proxy-reported cases relative to online self-reports.*

All four barrier domains remain independently associated with difficulty in the fully adjusted specification. Connectivity constraints are positively associated with difficulty (OR 1.38, 95% CI 1.21–1.58, p<0.001), while digital skills are protective (OR 0.62, 95% CI 0.54–0.71, p<0.001). Importantly, difficulty is not explained solely by connectivity and skills: reporting any documentation/identity constraint is associated with substantially higher odds of difficulty (OR 2.41, 95% CI 1.92–3.02, p<0.001), and platform friction also independently predicts difficulty (OR 1.71, 95% CI 1.49–1.96, p<0.001). Survey mode remains significant after adjustment. Cases captured via the in-person third-person (proxy) mode have higher odds of difficulty than online self-reports (OR 1.39, 95% CI 1.05–1.84, p=0.021), indicating persistent differences between mode-recruited populations and/or reporting dynamics not fully absorbed by measured barriers and controls. In contrast, sociodemographic controls (age, gender, education, urban residence, informal employment) are not statistically significant in the

full model, suggesting that the barrier measures account for much of the covariation between these characteristics and reported difficulty once included jointly.

### 4.5 Substantive magnitude: average marginal effects

To compare barrier domains on a common, interpretable probability scale, average marginal effects (AMEs) are computed from the full model and reported in Table 5.

Table 5. Average marginal effects (AMEs) from the full model

| Predictor | AME (percentage points) | 95% CI |
|---|---|---|
| Connectivity constraints (z) | +4.2 | 2.6–5.8 |
| Digital skills (z) | −7.6 | −9.4 to −5.9 |
| Any documentation/identity constraint (0→1) | +11.9 | 8.9–14.8 |
| Platform friction (z) | +6.3 | 4.5–8.1 |

*Notes: For standardized indices, AME corresponds to a one SD increase; for documentation/identity constraint, AME corresponds to a discrete change from 0 to 1. Predicted probabilities are computed from the full model in Table 4.*

AME estimates indicate that documentation/identity constraints represent the largest single marginal contributor. Holding other variables at observed values, reporting any documentation/identity constraint increases the predicted probability of difficulty by 11.9 percentage points (95% CI 8.9–14.8). A one standard deviation increase in platform friction increases predicted difficulty by 6.3 percentage points (95% CI 4.5–8.1), and a one standard deviation increase in connectivity constraints increases predicted difficulty by 4.2 percentage points (95% CI 2.6–5.8). By contrast, a one standard deviation increase in digital skills reduces predicted difficulty by 7.6 percentage points (95% CI −9.4 to −5.9). Together, the AMEs show that identity/documentation bottlenecks and platform frictions are comparable in magnitude to infrastructure and skills barriers and, in the case of documentation/identity constraints, larger than connectivity supporting the claim that Gov.br can relocate exclusion toward verification and user-experience pathways alongside persistent digital divide constraints.

## 5. DISCUSSION

This study examined whether Gov.br reduces barriers to federal public service access or relocates them into new digitally mediated constraints. The results indicate that difficulty accessing Gov.br-enabled services is not driven by a single mechanism. Connectivity constraints and digital skills are important predictors of difficulty, but documentation and identity bottlenecks and platform design frictions also remain independently associated with difficulty after adjustment. This pattern supports a barrier relocation interpretation: digitization can

lower traditional access costs such as travel and waiting time while shifting exclusion toward identity validation, administrative record consistency, and the usability of digital processes. Connectivity constraints likely matter because unstable internet, high data costs, and limited device capability directly affect transaction completion, especially where services require document uploads, repeated authentication, or sustained sessions. Digital skills reduce difficulty because completing Gov.br-enabled services often involves multi-step navigation, account management, and error recovery. However, the persistence of documentation and identity effects suggests that even citizens with adequate access and basic competence can be excluded when personal records are inconsistent across registries, when identity verification fails, or when service completion depends on meeting assurance requirements. These constraints should be understood as interactions between citizens and state information infrastructures rather than as user deficiencies alone.

Platform design and usability frictions further reinforce the relocation argument. Unclear instructions, confusing error messages, and complex recovery steps can systematically disadvantage users with less time, confidence, or informal assistance. Because Gov.br functions as a centralized gateway, these design choices can scale exclusion: small frictions become widespread barriers when applied to large populations and multiple services. The results also imply that inclusion challenges are service-dependent. Verification-intensive services are more likely to amplify documentation and identity bottlenecks, while multi-step service flows can magnify usability constraints. Consequently, inclusion-oriented digital government reforms require a combined approach: improving connectivity and skills while strengthening identity recovery and record-correction pathways and reducing avoidable interface friction. These findings contribute to digital government research by providing an empirical framework to measure barrier relocation and to distinguish infrastructure, capability, administrative identity, and design channels as separate constraints. They also offer cautious comparative implications for other Global South contexts, including Nigeria: platform consolidation can simplify access for many, but it centralizes points of failure, making identity systems and user-centered design core elements of digital state capacity.

## 6. CONCLUSION

This study examined whether Brazil's Gov.br platform reduces barriers to accessing federal public services or relocates them into new digitally mediated constraints. The findings indicate that exclusion is multi-dimensional. Connectivity constraints and digital skills remain important determinants of difficulty, but they do not fully explain citizens' challenges. Documentation and identity-related constraints and platform design/usability frictions also independently predict difficulty, consistent with a barrier relocation dynamic in which digital government shifts the binding constraint from physical access costs toward identity verification pathways, record consistency, and user experience.

These results imply that inclusion-oriented digital government reform cannot rely on infrastructure expansion or digital literacy alone. A more equitable strategy requires parallel investments in reliable access and capability, alongside stronger identity recovery and record-correction processes, clearer escalation routes for verification failures, and user-centered design that minimizes avoidable friction in multi-step transactions. Beyond Brazil, the study suggests a broader lesson for Global South contexts pursuing platform centralization: consolidating services can simplify access for many, but it also concentrates points of failure. Inclusive outcomes depend on whether digital identity systems and service interfaces are designed not only for efficiency and security, but also for recoverability and broad usability.

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