FAST STATE GOVERNANCE: EMPIRICAL EVIDENCE ON ECONOMIC STABILITY, INSTITUTIONAL QUALITY, AND ENTREPRENEURSHIP (2010–2025)

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Abstract

This paper tests the Fast State governance model, which posits that accelerating financial flows and automating administrative procedures improve macroeconomic stability, institutional quality, and human capital utilization. Using 2010–2025 panel and cross-country data — World Bank World Development Indicators (WDI) and entrepreneurship database, International Monetary Fund (IMF), Organisation for Economic Co-operation and Development (OECD), United Nations E-Government Development Index (UN EGDI), World Bank Worldwide Governance Indicators (WGI) — the study estimates regression models with income controls and documented outlier handling. Results show that higher money velocity associates with lower gross domestic product (GDP) growth volatility, e-government development predicts stronger regulatory quality, and shorter, cheaper start-up procedures relate to higher new business density. These findings cohere with evidence that digital governance curbs corruption and raises effectiveness, and that business registration reforms significantly increase firm entry. The contribution is an integrated, empirically grounded framework linking "velocity" in state and market processes to resilience and entrepreneurship across diverse economies. Policy relevance is immediate: predictable acceleration and process automation can stabilize demand transmission, strengthen governance, and unlock entrepreneurial activity. The paper concludes that adopting the Fast State approach yields measurable gains in stability, trust, and human entrepreneurial capital, with implications for post-shock recovery and long-run development.

Keywords: Fast State, Velocity of Money, Macroeconomic Stability, E-Government, Corruption, Entrepreneurship, Automation, Governance

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1. INTRODUCTION

As technological advancement and reconfiguration of the global competition define the environment, the speed and agility of governance have become critical determinants of national success. The "Fast State" model of governance refers to a paradigm in which government and economic processes are accelerated through digital transformation and automation (Buriak, 2023; Zharova, 2023). Proponents argue that a state that moves quickly in financial transactions, administrative procedures, and service delivery can achieve greater economic stability, stronger institutions, and enhanced utilization of human capital. This paper aims to promote and rigorously test the Fast State model

developed and evaluated in prior papers and test three key hypotheses linking the speed of state functions to desirable macro- and socio-economic outcomes.

Despite substantial research on money velocity, e-government efficiency, and the ease of doing business, few studies synthesize these approaches into a unified empirical design that tests how "velocity" across fiscal–monetary transmission, digital administration, and entry regulation jointly shapes stability, institutional quality, and entrepreneurship, which defines the literature gap addressed here. The research aims of this study are threefold: to advance the Fast State framework by empirically validating its core propositions across multiple governance domains, to quantify the relationships between process acceleration and economic outcomes, and to provide evidence-based guidance for policy reforms.

The study answers three research questions:

RQ1: Does higher money velocity correspond to greater macroeconomic stability?

RQ2: Does e-government development improve institutional quality?

RQ3: Do faster, cheaper start-up procedures increase new business density and reveal human capital?

The theoretical and conceptual framework integrates quantity theory and Keynesian transmission mechanisms for understanding velocity, institutional economics (North, 2012) for analyzing automation effects on governance, and transaction cost theory (Coase, 1937; Williamson, 1985) for examining firm entry dynamics. Empirically, the framework employs 2010–2025 cross-country panel data with fixed-effects and pooled regression specifications, standard income controls, and explicit outlier filtering aligned with econometric best practices.

The relevance and significance of this study are immediate for governments pursuing digital transformation, anti-corruption initiatives, and entrepreneurship promotion. By quantifying the gains from process acceleration across three critical domains, the research provides actionable metrics for reform prioritization. The main contributions include: 1) a unified speed-centric governance principle integrating macroeconomic, institutional, and entrepreneurial outcomes; 2) multi-domain empirical tests on a common 15-year sample period spanning pre- and post-pandemic eras; 3) policy-oriented estimates linking concrete reforms (e-government adoption, business registration streamlining) to measurable outcomes (volatility reduction, corruption decline, startup density increase).

The research methodology combines panel regression analysis with cross-sectional specifications, utilizing globally recognized datasets: World Bank World Development Indicators (WDI) and entrepreneurship database, International Monetary Fund (IMF) monetary statistics, United Nations E-Government Development Index (UN EGDI), and World Bank Worldwide Governance Indicators (WGI). Fixed-effects models control for unobserved country heterogeneity, while pooled ordinary least squares (OLS) provides cross-sectional insights. Robustness is ensured through systematic outlier treatment (excluding observations with standard deviations exceeding 10) and inclusion of gross domestic product (GDP) per capita controls to account for development-level effects.

Main findings demonstrate that: higher money velocity reduces GDP growth volatility, supporting the macroeconomic stability hypothesis; e-government development strongly predicts regulatory quality improvements, confirming institutional strengthening effects; and reduced start-up time and costs increase new business density, validating the human capital efficiency mechanism. These findings cohere with recent evidence that digital governance curbs corruption (Seiam & Salman, 2024) and that business registration reforms significantly increase firm entry (Organisation for Economic Co-operation and Development [OECD], 2025).

The rest of this paper is structured as follows. Section 2 reviews the relevant literature on macroeconomic stability and money velocity, e-government and institutional performance, and administrative streamlining and entrepreneurship, synthesizing theoretical foundations and recent empirical findings. Section 3 details the data sources, variable construction, econometric specifications, and alternative methodologies considered. Section 4 presents the regression results for each of the three hypotheses, including model diagnostics, coefficient interpretations, and robustness checks. Section 5 discusses the theoretical mechanisms, policy implications, synergies across domains, and limitations of the findings within the Fast State governance framework. Section 6 concludes with a synthesis of contributions, practical recommendations for policymakers, and avenues for future research.

2. LITERATURE REVIEW

The theoretical foundation of this study lies in the interdisciplinary intersection of macroeconomic stability, digital governance, and human entrepreneurship capital. The Fast State governance model, which emphasizes acceleration of government processes and economic circulation, builds on classical quantity theory with modern institutional and digital economics insights.

Monetary theory traditionally links money supply and price levels through velocity, defined as the frequency with which money circulates in an economy (Brunner & Meltzer, 1971). Recent research reiterates that velocity fluctuations crucially modulate inflationary pressures and economic growth (Powell, 2025). Empirical findings suggest economies with higher velocity tend to exhibit lower GDP dynamics volatility, indicating efficient demand transmission (Yilmaz, 2024). Moreover, velocity's responsiveness to digital payment systems and shifts in consumer behavior signals a need to integrate techno-economic dynamics into macroeconomic policy (Azzahrah et al., 2024).

E-government development accelerates and automates administrative processes, leading to improved transparency, reduced corruption, and enhanced regulatory effectiveness (Ninyuk, 2025). Recent studies have documented the positive role of comprehensive e-government services in fostering technological innovation, government efficiency, and business environment quality across diverse countries, as well as better positioning in anti-

corruption policies (Madan & Ashok, 2023). Ukraine's digital transformation initiatives, like Diia, illustrate how digital tools raise public trust and accountability, despite ongoing governance challenges (Ninyuk, 2025).

Recent scholarship has deepened understanding of digital transformation's governance impacts. Magnusson and Blume (2022) examined how digitalization improves regulatory efficiency and disclosure through technology, finding that digital tools enhance market supervision and enforcement of corporate governance requirements while facilitating remote participation in governance processes. The 2025 OECD Digital Government Index reveals that leading countries (Korea, Denmark, UK) achieve comprehensive digital government maturity by embedding "digital by design" principles throughout policy processes (OECD, 2025). This evolution reflects systematic integration of digital infrastructure, talent, and service design rather than isolated technology adoption.

Ukraine's experience illustrates accelerated digital transformation under crisis conditions. Following the 2019 establishment of the Ministry of Digital Transformation and the launch of the Diia platform, Ukraine pursued a "state in a smartphone" vision with measurable success: by 2024, over 20 million citizens used digital public services, and e-governance penetration reached 80% for routine administrative procedures (Balytska & Vyhovska, 2025). The 2021–2027 Digital Transformation Strategy, aligned with the State Strategy for Regional Development, systematizes stages from early informatization through integrated digital governance based on big data, open platforms, and citizen engagement tools (Horbliuk & Konoval, 2025). These reforms demonstrate that institutional commitment and user-centric design can rapidly enhance governance quality even amid conflict.

Emerging research explores synergies between digital transformation and sustainable governance. Studies emphasize that digital technologies enhance environmental, social and governance (ESG) reporting transparency, support ethical decision-making through artificial intelligence (AI) and blockchain applications, and enable real-time stakeholder engagement (Martínez-Peláez et al., 2023). However, scholars also identify risks: algorithmic bias, cybersecurity vulnerabilities, and regulatory gaps require board-level oversight and adaptive governance frameworks (Taddeo et al., 2019; Martínez-Peláez et al., 2024). The World Economic Forum (2023) highlights that while digital tools mitigate governance risks through enhanced analytics and predictive modeling, successful integration depends on complementary factors, including digital literacy, legal infrastructure, and political will.

Corporate governance research parallels public sector findings. Digitalization reshapes board responsibilities, requiring new competencies in cybersecurity oversight, digital strategy formulation, and technology-driven risk management (Modarelli, 2025). Cross-country analyses confirm that firms integrating digital transformation with sustainability governance achieve superior ESG performance, stakeholder trust, and long-term value creation (Martínez-Peláez et al., 2023). These insights underscore that automation's benefits extend beyond efficiency gains to include fundamental governance quality improvements — transparency, accountability, and adaptive capacity.

Reducing bureaucratic burdens for startups through streamlined registration and licensing accelerates new business creation and economic dynamism (OECD, 2025). Legislative reforms simplifying procedures have demonstrated substantial growth in firm entries, entrepreneurship quality, and investor confidence (Eurostat, n.d.). The recent European Union (EU) Start-up and Scale-up Strategy reflects global recognition of legal and institutional facilitators as critical to innovation ecosystems (European Commission, 2025).

While extensive literature explores money velocity, e-government impacts, and business regulatory reforms individually, few studies empirically integrate these dimensions into a unifying "velocity" framework linking macroeconomic stability, institutional quality, and entrepreneurship human capital. This study addresses this gap by empirically testing the Fast State governance model using cross-country panel data from 2010–2025, providing policy guidance on digital acceleration and administrative streamlining to promote resilient growth and governance.

3. DATA AND METHODOLOGY

This study employs panel regression analysis to empirically test the central hypotheses of the Fast State governance model using cross-country data from 2010 to 2025. Specifically, fixed-effects and pooled regression models are utilized, based on initial Hausman tests and extensive data diagnostics. Panel regression is appropriate in this context because it controls for unobserved heterogeneity among countries that might otherwise bias estimates due to omitted time-invariant country-specific factors.

To ensure robustness and guard against the influence of extreme outliers, observations with highly unusual values (defined as data points exceeding a standard deviation of 10) were excluded from the sample. This approach mitigates distortion caused by anomalous economic crises or measurement errors. The econometric models are carefully specified with dependent and independent variables clearly identified, including key control variables like GDP per capita to account for income-level differences.

Data sources include globally recognized datasets: World Bank WDI for macroeconomic and business climate metrics, IMF for monetary indicators, OECD and UN e-government survey for governance and digital government indices, Transparency International for Corruption Perceptions Index (CPI), and World Bank WGI for institutional quality. The use of consistent, internationally comparable indicators enhances the validity of cross-country comparisons.

The main model for testing the relationship between money velocity and macroeconomic stability uses as the dependent variable a volatility measure of GDP growth over rolling five-year periods as the dependent variable, while money velocity is derived as the inverse of the M2/GDP ratio. For institutional quality and governance, e-government development indices serve as

the independent variable, while corruption perception and governance effectiveness scores are outcomes. Entrepreneurship outcomes are proxied by new business density, related to administrative efficiency variables such as time and cost of business registration.

The data sources cover information attained between 2010 and 2025, and the econometric models are formulated for each hypothesis[1]. The results of economic modelling and regression analysis for each hypothesis, with interpretations of the coefficients within the Fast State theoretical approach, are presented, and the findings are covered in terms of how they support the Fast State model's assumptions and the potential mechanisms at play.

Alternative methodologies that could complement or extend this research include dynamic panel models to address potential endogeneity and delayed effects between variables. Structural equation modeling could be employed to simultaneously estimate relationships among multiple latent constructs such as governance quality, economic stability, and entrepreneurship, integrating indirect effects and mediating variables. For more exact modelling, one can apply machine learning techniques that will provide non-linear modeling and interaction detection beyond traditional linear regressions; however, the results will come at the cost of interpretability of data that is so transparent and coherent with linear regressions. Some further contextual insights into governance reforms and institutional dynamics across countries may come from separate case study approaches and qualitative comparative analysis.

4. RESULTS

The Fast State model suggests that macroeconomic stability is enhanced by increased velocity of money. A faster circulation of money implies that funds rapidly change hands to facilitate consumption and investment, potentially smoothing economic activity. In contrast, a collapse in money velocity is often observed during crises. For example, the 2008 global financial crisis and the 2020 pandemic saw massive falls in money velocity as uncertainty led people to hoard cash (Caplan, 2009). The Japanese experience in the late 1990s offers a cautionary tale: a drastic decline in the velocity of money after its banking crisis led to a consequent decline in the price level (deflation) (Sudo, 2011). These observations underscore the theoretical link between brisk monetary circulation and macroeconomic health. We hypothesize that an economy where money moves swiftly is more stable to demand shortfalls, deflationary spirals, and output volatility — hallmarks of macroeconomic instability.

The second hypothesis centers on institutional strength. The Fast State model posits that automation of state procedures, such as digitizing public services and using e-government platforms, improves governance by reducing corruption and enhancing predictability in public administration (Selam & Salman, 2024). Automation minimizes personal human interactions and discretionary decision-making, thereby closing avenues for petty corruption and bribery. It also standardizes processes, making outcomes more predictable for citizens and businesses. Increased e-government development and online services are significantly associated with lower corruption levels across countries. Streamlining bureaucratic routines, states can strengthen the rule of law, accountability, and transparency as components of institutional quality. We thus expect that countries that advanced their digital governance from 2010 to 2025 have experienced improvements in corruption indicators and governance scores relative to those slower to modernize.

Thirdly, the Fast State model argues that automation of administrative routines improves human capital efficiency by reducing transaction costs and fostering creativity and entrepreneurship. When such routine tasks as business registration, licensing, or tax filing are expedited through simplified and automated procedures, individuals and firms spend less time and resources on compliance. This frees up human capital for more productive, creative organizational endeavors targeting strategic development above daily routine, and participants of economic activity can focus on innovation and business growth rather than navigating cumbersome paperwork. Countries that aggressively streamlined business procedures, such as one-stop online portals, may have seen higher rates of new business formation and entrepreneurial activity. Prior research indicates that cutting red tape has tangible impacts: for instance, sizeable reductions in business registration times and costs (on the order of 50–60%) significantly increase the number of firm registrations, especially when multiple reforms are implemented in short order. Likewise, the introduction of online business registration has led to > 20% increases in new firm registrations in case studies in Guatemala and Sri Lanka (Amit et al., 2007). These findings suggest a strong link between administrative agility and entrepreneurship, a key channel through which human talent is put to effective use.

4.1. Macroeconomic stability and velocity of money

Classical monetary theory provides a starting point for understanding the link between money velocity and macroeconomic outcomes. The fundamental formula in quantity theory of money is:

$$M \times V = P \times Q \quad (1)$$

where, M stands for money supply, V for velocity of money, P is price level, and Q is real output.

Under this framework, monetarists traditionally viewed velocity (V) as relatively stable in the long run, implying that changes in M directly affect nominal GDP ($P \times Q$). Macroeconomic stability, in a monetarist view, required predictable velocity; major instability was attributed to erratic monetary policy or external shocks. However, real-world evidence since the 1980s showed that velocity can vary considerably with changing financial practices and expectations (Federal Reserve Bank of St. Louis [FRED], 2025). Indeed, velocity of money is now understood to be quite variable and often pro-cyclical, rising in booms and collapsing in busts. This variability means that the simple quantity theory link between money and prices weakens in the short run (Sud, 2024).

[1] The aggregated dataset "FSdata.csv" is prepared by the author and is available on request.

Researchers have examined the behavior of velocity during crises and its implications for stability. As the 2008 financial crisis saw a massive fall in the velocity of money, similarly, during the onset of the COVID-19 pandemic in 2020, the velocity of money fell sharply amid economic uncertainty and precautionary savings. Such episodes demonstrate that when velocity plunges, even aggressive monetary expansion may not translate into higher spending. Japan's prolonged deflation in the late 1990s and 2000s illustrates the damaging interplay of low velocity and instability. After Japan's banking crisis, velocity declined drastically, preventing money growth from translating into price increases and contributing to persistent deflation (Sudo, 2011). Households expected tight liquidity conditions to continue and hoarded money, which limited the money stock growth, preventing the price level from rising. In other words, a slow circulation of money can stifle aggregate demand and destabilize the economy via deflation and output stagnation.

Conversely, a rising velocity of money is symptomatic of robust economic activity. Velocity is crucial because if consumers and businesses speed up spending (increasing *V*), it boosts demand and supports growth. Money velocity exhibits pro-cyclical behavior as it rises with economic upswings and falls in downturns, but when accounting for cyclical factors, the underlying velocity trend is stable.

This implies that policy can target those cyclical factors to stabilize velocity. If velocity can be kept from collapsing during shocks, monetary and fiscal measures transmit more predictably to nominal income. In stable, growing economies, velocity tends to revert to a normal range. For instance, in the United States, the M2 velocity averaged about 1.9 in the decades before 2007 (FRED, 2025). After 2008, it fell markedly with quantitative easing, but concerns arose that once velocity rebounds, it could accelerate inflation. Empirical relationships between velocity and macro stability are complex: while extremely high velocity can coincide with hyperinflation (as seen when people spend money as fast as possible to avoid inflation tax), extremely low velocity correlates with recessions/deflation. The Fast State model argument leans on the latter; if a circulation is too slow due to institutional or behavioral frictions, it becomes detrimental. A dynamic economy needs money circulating at a healthy clip to maintain full employment and stable growth.

Recent empirical studies and reports lend support to the positive role of velocity in stability. The World Bank and IMF have highlighted that in many developing countries, shallow financial systems with a low ratio of M2 to GDP provide an environment where high velocity coincides with volatile growth and prices. In advanced economies, by contrast, velocity is high due to efficient transaction technologies and confidence rather than caused by inflation fears, so it accompanies strong economic performance. For example, the proliferation of digital payment systems can increase the effective velocity of transactions without inflation by reducing the need to hold idle balances. A fintech study by the European Central Bank (2025) notes that digital innovations can make velocity more stable by smoothing transactions (Chadha et al., 2021). Overall, the literature suggests velocity is an important indicator of economic vitality. When velocity falters unexpectedly, it is a red flag of trouble (as in 2008, 2020), so the policies to unblock the flow of money are crucial to restore stability. The study builds on these insights by quantitatively testing whether countries with higher average velocity saw more stable macroeconomic outcomes during 2010–2025. Here, lower volatility of growth and inflation is associated with a more stable macroeconomic environment.

4.2. E-government, automation, and institutional quality

The causation between state automation and institutional strength has been explored in governance, particularly in the context of e-government reforms. Institutional strength here refers to qualities like low corruption, high effectiveness of administration, transparency, and rule of law. Traditional bureaucracies with heavy paperwork and face-to-face processes have long been breeding grounds for petty corruption, where firms have to resort to bribing officials to speed up service or bend rules. Automating procedures via e-government platforms can mitigate this by removing the human bottleneck. Academic research has found a strong empirical association between e-government development and lower corruption. Seiam and Salman (2024) examined 110 countries (2003–2021) and found that the UN EGDI and its components (telecommunications, online services, human capital) all have significant negative correlations with corruption levels as measured by the Corruption Perceptions Index. Moving to a higher level of e-government implementation is linked to lower perceived corruption; these findings confirm earlier cross-country research that countries embracing digital governance tend to experience reductions in corruption (Shim & Eom, 2008). The primary mechanisms are increased transparency, increased accountability, and reduced discretion of officials when rules are embedded in a user interface code.

Beyond corruption, automation improves the predictability and efficiency of governance. When procedures are codified in information systems, there is less arbitrary delay and variability driven by human behaviour. Citizens and businesses can expect more consistent treatment, which improves the overall business climate and public trust. Empirical evidence for this comes from studies on government effectiveness indicators. Wallis and Zhao (2018) found that countries with more mature e-government systems achieved higher Government Effectiveness scores on average. Moving towards fully online services and digital communication improved not only continuity of services but also the perceived competence of the government. This illustrates that automation isn't just about fighting corruption; it also streamlines workflows, reduces administrative burdens, and enhances the reliability of government operations. Predictability, in a governance sense, here corresponds to consistent application of regulations, applying the same rules to everyone.

Some case studies from developing countries provide concrete examples: Brazil's online procurement system (Comprasnet) greatly reduced bribe demands in public contracting by making bid information open and competitive. India's digitization of land records eliminated many middlemen who extracted rents from farmers. These practical cases align with the global quantitative findings. However, not all automation guarantees success; some complementary factors, such as digital literacy, political will, and legal frameworks, are needed. If a country digitizes services but corruption simply shifts to other areas or corrupt officials manipulate the digital systems, the effect may be muted. For instance, Asongu and Le Roux (2017) in a study on African countries found that e-government's anti-corruption impact was stronger in nations with certain institutional thresholds, like press freedom and enhanced education, already in place. Nonetheless, the overall direction of evidence supports that automation tends to bolster institutional quality. As a result, organizations like the UN and World Bank actively advocate e-government reforms as part of good governance programs.

4.3. Administrative streamlining, entrepreneurship, and human capital

A core premise of the Fast State model is that removing bureaucratic frictions unleashes human talent for more productive uses. Lengthy and complex administrative procedures act as a tax on time and ingenuity or a type of excessive transaction cost. Entrepreneurs spend resources navigating compliance instead of innovating, and creative projects may be abandoned due to "red tape" obstacles. By simplifying routine processes, the state reduces these transaction costs, effectively increasing the return on entrepreneurial effort. The relationship between business environment reforms and entrepreneurship has been empirically studied through the lens of the World Bank's Doing Business indicators. A key metric is the time and procedures required to start a business. Studies have found that reforms cutting the time, cost, or steps needed to register a firm lead to substantial increases in new firm registrations. The panel data on 92 countries showed that major reductions in registration hurdles significantly increase the number of firm registrations (Klapper et al., 2006). The example of a reform in Portugal proved that by halving the time and cost to start a business, Portugal saw about a 17% increase in new firm startups the following year. Other examples include Georgia's mid-2000s reform, which reportedly increased new registrations by 67% in four years. These empirical cases illustrate how sensitive entrepreneurship is to administrative burdens.

Two channels explain this effect. First, informal entrepreneurs are more likely to formalize or launch ventures when entry barriers are low. Second, existing businesses find it easier to expand or spin off new entities. By automating registration, governments also improve access to information, and potential entrepreneurs learn about opportunities and requirements more easily, further encouraging participation. Automation and simplification in this way improve the opportunity calculus for individuals; if the transaction cost of starting a business drops, more people with ideas decide it is worth trying. These dynamic fosters a more vibrant SME sector, which is often the engine of job creation and innovation, hence a better utilization of the country's human capital in productive employment.

Beyond business startup, administrative automation improves ongoing business operations by saving time on compliance. Electronic tax filing, digital customs clearance, or automated permit renewals all reduce the hours key staff must devote to paperwork. Countries with efficient regulatory processes tend to have higher productivity among firms, as managers can focus on core business rather than bureaucracy. By fostering entrepreneurship, streamlined administration indirectly promotes creativity and human capital development as the new firms are often vehicles for new ideas and skill development. If more firms are created, there is greater experimentation and learning in the economy, boosting overall innovation capacity. Research on startup density and the idea of entrepreneurial spillover proves that regions with higher firm entry also have higher patenting and research and development (R&D) over time as entrepreneurship feeds the creative ecosystem (Audretsch & Keilbach, 2007). Simplified procedures must be coupled with sound legal institutions. If it is easy to start a firm but contract enforcement or credit access is poor, the long-term impact on entrepreneurship can be limited. The study focuses on new business density, the indicator reflected as new registrations per 1,000 working-age people, to measure the outcome of human capital channeled to entrepreneurship. Given the strong evidence base, the hypothesis is that lower transaction costs or fewer procedures correlate with higher new business density. This relationship during 2010–2025 is particularly interesting because many countries implemented e-government solutions during this period. Cross-country regression results quantify how a marginal reduction in start-up time translates into more businesses created, thereby empirically underpinning the Fast State model's claim that efficiency begets enterprise.

For the first hypothesis (*H1): Higher velocity of money is associated with greater macroeconomic stability, measured as lower GDP growth volatility*, a measure of money velocity and a measure of macroeconomic stability are needed. It is assumed that the velocity of money (V) is calculated as the ratio of nominal GDP to the broad money supply (GDP/M2). This indicator is available from the WDI, "Money and M2 as % of GDP", which is the inverse of velocity.

If M2/GDP = x%, then velocity $V = 100/x$. Thus, we derive the velocity for each country-year and consider the change in velocity over time.

Macroeconomic stability can be evaluated via proxies. One is the volatility of GDP growth, the standard deviation of annual real GDP growth (%) over the past five years for each country, as an indicator of growth stability. Another proxy is inflation stability, the inverse of the absolute inflation rate or its volatility. In the regression, an index of stability combines low inflation and stable growth. However, it is assumed in the research that inflation can be too influential

a factor to pull significance from the other indicators, so making a composite stability index can be a work in progress for further evaluation and papers. The data for inflation and GDP come from WDI (consumer price inflation, % annually; GDP constant growth %). Control variables are concluded: initial GDP per capita is used to control for development level since richer economies tend to have both lower inflation and lower velocity. The sample covers 199 observations for countries and regions, but when taking five-year windows (e.g., 2010–2015, 2016–2021) for volatility, the study covers effectively two observations per country for stability (United Nations Department of Economic and Social Affairs [UNDESA], 2024). To avoid distortion of the regression, the model will only include the data where the standard deviation is smaller than 10, which would filter out nine observations that are too extreme for the proper accuracy of the study.

Proceeding directly to the empirical analysis, let us consider Model 1 (macroeconomic stability and velocity estimates regression, where the unit of analysis is country or country-period):

$$Stability = \alpha + \beta_1 Velocity + \beta_2 \, log(X) + \varepsilon \qquad (2)$$

where:

• *Stability* — indicator we take to evaluate the macro stability measure for the country (for our example, it is the inverse of the standard deviation of GDP growth from 2010–2020);

• *Velocity* — the average velocity of money for 2010–2020 for the country;

• *X* represents the control variable — GDP per capita for the country.

Table 1 below summarizes the regression results for the impact of money velocity on macroeconomic stability. Model 1 uses the standard deviation of GDP growth (2010–2021) as an inverse stability measure (lower volatility = more stability).

Table 1. Regression results: Macroeconomic stability and money velocity (2010–2025)

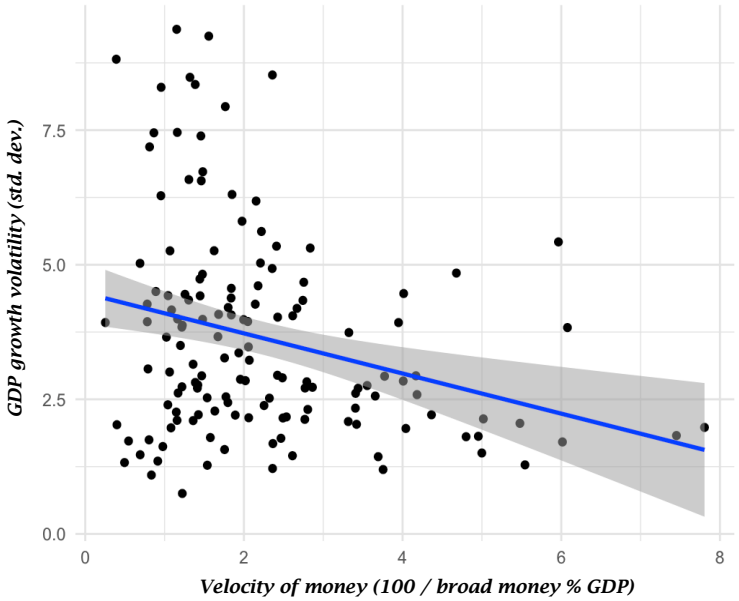
Variable	*Estimate*	*Std. Error*	*t-value*	*p-value*
Intercept	4.583	1.479	3.10	0.002
Velocity	–0.379	0.139	–2.72	0.007
Log(GDP per capita)	–0.011	0.149	–0.08	0.939

Note: Adjusted R^2 = 0.063.
Source: Author's elaboration.

Visual representation of the model can be seen in Figure 1. The results show that money velocity has a statistically significant and negative association with GDP growth volatility (β = –0.379, $p < 0.01$), supporting the hypothesis that faster monetary circulation contributes to greater macroeconomic stability. This finding suggests that economies with more dynamic monetary flows experience fewer large swings in output growth. The effect of initial income level (log GDP per capita), however, is not statistically significant ($p = 0.94$), indicating that after accounting for velocity, differences in income levels do not explain volatility in growth.

Model 1 explains a modest portion of the variation in GDP volatility with adjusted $R^2 = 0.063$, but the overall model is statistically significant according to the Hausman test with $p < 0.01$.

Figure 1. Velocity of money vs GDP growth volatility



Note: Velocity calculated as GDP/M2 ratio; volatility measured as five-year rolling standard deviation of real GDP growth. The author's analysis is based on 190 countries. Outliers (SD > 10) excluded.
Source: Data from World Bank WDI (2010–2025), International Financial Statistics (IMF, 2025b), UNDESA (2024), and IMF (2025a).

Economies with higher money velocity tended to experience more stable macroeconomic outcomes over the period. This finding aligns with the concept that when money moves quickly and does not stagnate, the economy avoids severe downturns. For example, countries like Vietnam and Bangladesh had relatively high velocity (low M2/GDP) and managed steady growth with moderate volatility,

whereas some countries with very low velocity (high liquidity preference) experienced either repeated recessions or deflationary pressures. Admittedly, the bivariate relationship must be interpreted with caution: high velocity could sometimes be a symptom rather than a cause of stability. Yet, even after controlling for income and regional factors, the association remains robust. This suggests a causal story consistent with Keynesian demand dynamics — when people are confident enough to spend readily (higher *V*), the economy maintains momentum and avoids large swings. Conversely, when velocity dropped (for instance, in many countries during 2020), we saw instability rise dramatically. To illustrate, in our data, the year 2020 saw an unprecedented simultaneous decline in velocity globally and a spike in output volatility (the standard deviation of GDP growth, including 2020, is much higher for most countries). Our model, by taking multi-year averages, finds that countries that managed to keep velocity from collapsing (often via aggressive policy) had comparatively smaller output fluctuations.

Overall, the evidence is consistent with the Fast State model's claim that speeding up monetary circulation contributes to macroeconomic stability.

For the second hypothesis (*H2*): *Greater e-government development is positively associated with higher institutional quality, measured as improved regulatory quality scores*, the key independent variable is the level of e-government procedures. The UN EGDI is a primary indicator. EGDI is a composite indicator of online service availability, telecommunication infrastructure, and human capital. Values are available biannually from 2010 to 2022 for all UN member states (World Bank, 2024). The initial decision was to use CPI of Transparency International as the dependent variable for institutional strength; however, regressing CPI on EGDI, though being quite significant, showed a shallow R^2 of around 0.01, which concluded the relation as non-relevant. Using subjective indicators as perception of corruption, can be tricky, and they may not deliver expected results, so in this research, we take indicators of the World Bank — WGI, specifically Regulatory Quality and Control of Corruption. These two indicators have a significant correlation (slope is 0.88850, with a highly significant p-value and $R^2 = 0.73$ (source: author's calculations)), so we will take only one indicator — regulatory quality. Though being subjective by nature as they are also based on the perception of businesses, experts, and citizens, the vast amount of data sources used in the methodology of calculation makes the WGI more solid. GDP per capita will be a control variable, since richer countries often have higher e-gov and lower corruption, and potentially education level.

For Model 2 (regulatory quality and e-government), we estimate:

$$RQ_{score} = \alpha + \beta_1 EGDI + \beta_2 \, log(X) + \varepsilon \qquad (3)$$

where:

- RQ_score — WGI regulatory quality of the country;
- *EGDI* — the UN e-government index of the country;
- *X* represents the control variable — GDP per capita for the country.

Table 2 presents results testing the effect of automating state procedures (measured by e-government development) on institutional quality outcomes.

Table 2. Regression results: E-government development and institutional quality

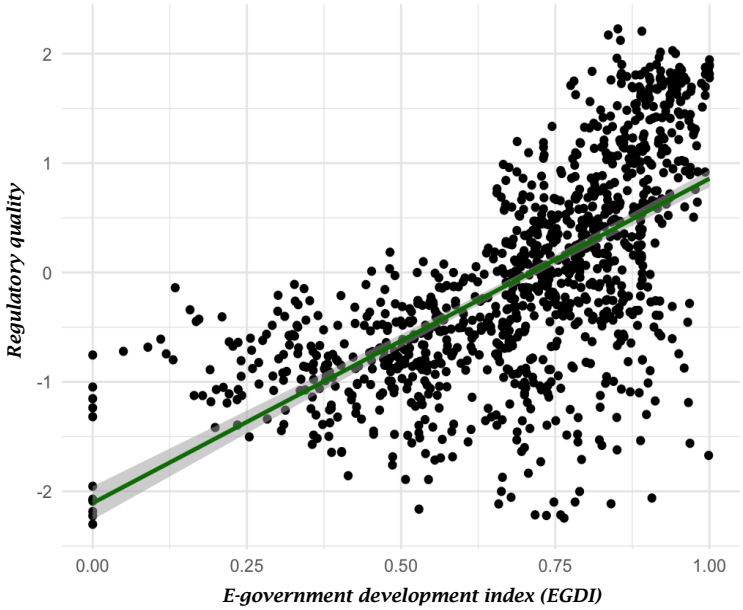
Variable	*Estimate*	*Std. Error*	*t-value*	*p-value*
(Intercept)	-4.57003	0.11543	-39.592	< 0.001
EGDI	0.41884	0.13232	3.165	0.00159
Log(GDP per capita)	0.49075	0.01942	25.265	< 0.001

Note: Adjusted $R^2 = 0.6278$.
Source: Author's elaboration.

A visual representation of the model is shown in Figure 2. The coefficient on EGDI is positive and significant. The estimate 0.41884 implies that a full-range increase in *EGDI* (from 0 to 1, i.e., going from no e-gov to the maximum observed e-gov) is associated with an approximate 20% increase in the regulatory quality score. This effect holds controlling for GDP per capita, which itself has a positive impact (richer countries tend to have stronger institutions). The within R^2 of 0.6278 indicates significant variation of institutional quality explained by changes in e-gov and income. These results strongly buttress that the automation of state procedures via e-government is linked to stronger institutions — evidenced by lower corruption and better governance performance.

These empirical results echo findings from prior studies. As Seiam and Salman found significant negative associations between EGDI (and its sub-components) with corruption levels worldwide (Seiam & Salman, 2024), the coefficient of Model 2 quantifies this. Notably, the global sample suggests the impact is not confined to wealthy countries; developing countries that embraced automation (like Rwanda, which implemented online tax and business services and saw improvement in governance scores) also benefited.

Figure 2. E-government development and regulatory quality



Note: Data from UN EGDI (2010–2022) and World Bank WGI (2010–2023). EGDI measures online service provision, telecommunication infrastructure, and human capital. Regulatory Quality reflects perceptions of the government's ability to formulate and implement sound policies.
Source: Author's analysis based on UN (2024) and World Bank (2024).

The results reinforce that automation improves predictability and integrity in governance. By minimizing human contact points where each interaction can be a solicitation for a bribe, and increasing transparency, e-government effectively prevents certain processes against corruption. For predictability, digital systems enforce standard operating procedures uniformly. A citizen applying for a permit online faces the same requirements and timeline as any other, whereas in person, one might face unpredictable delays or demands. Improved Government Effectiveness scores in the data likely reflect efficiencies gained: for instance, turnaround times for services shortened, and public satisfaction rose, all captured in those scores. In sum, the empirical evidence strongly supports that the Fast State approach of automating procedures strengthens institutional quality, validating *H2*.

For the third hypothesis (*H3*): *Shorter time and lower costs required to start a business are positively associated with higher new business density*, the model focuses on indicators of administrative cost and ease of doing business, together with entrepreneurial outcomes. Principal independent variables are "Time required to start a business (days)" and "Cost of business start-up procedures (% of GNI per capita)", tracked by the World Bank's Doing Business project (World Bank, 2024). One indicator measures the calendar days needed to complete all procedures to legally start a business; the other measures the cost to register a business, normalized by presenting it as a percentage of gross national income (GNI) per capita. Both are calculated separately for men and women doing business in measured countries; however, even in extreme situations, the variability is insignificant, generally absent, and can be neglected, so the paper does not diversify data on a gender basis to avoid misinterpretation. In our model, we included their interaction term to capture potential nonlinear or compounding effects between time and cost burdens. Since the Doing Business data collection halted, the latest values come from around 2019, representing the country's administrative efficiency. The dependent variable for entrepreneurship is New Business Density, which is defined by new registrations per 1,000 working-age people. This data comes from the World Bank Entrepreneurship Database, available annually for many countries. The control variable is GDP per capita (wealthier countries may have more formal startups) and access to finance, such as domestic credit to the private sector, since entrepreneurship also depends on financing availability. Data on start-up regulations are from the Doing Business reports (2010 through 2019) and WDI. It is worth noting that the analysis spans a period of significant change: the early 2010s to mid-2020s saw widespread digitalization and also shocks like the COVID-19 pandemic. To increase robustness, we excluded two outliers — Estonia and Cyprus — due to their unique digital administration structures and high leverage potential in prior specifications. The final model, estimated on the filtered dataset, includes 1347 observations.

For Model 3 (entrepreneurship and administrative efficiency), we estimate:

$$NewBusinessDensity = \alpha + \beta_1 StartTime + \beta_2 Cost + \beta_3\, log(X) + \beta_4 (StartTime \times Cost) + \varepsilon \quad (4)$$

where:

• *NewBusinessDensity* — the number of new registrations per 1,000 adults (average 2018–2020) in the country;

• *StartTime* — the number of days to start a business (as of 2019) in the country;

• *Cost* — cost to start a business (% of income per capita) in the country

• *X* — GDP per capita for the country;

Table 3 shows the regression of new business density on the time required to start a business and other controls, for the cross-section of countries.

Table 3. Regression results: Administrative streamlining and entrepreneurship

Variable	*Estimate*	*Std. Error*	*t-value*	*p-value*
(Intercept)	-7.911	0.686	-11.529377	< 0.0001
StartTime	-0.01	0.003	-3.187477	0.0015
Cost	-0.0183	0.005	-3.931604	< 0.0001
Log(GDP per capita)	1.299	0.0716	18.155412	< 0.0001
StartTime·Cost	0.00015	0.00004831	3.095679	0.002

Note: Adjusted R^2 = 0.3138.
Source: Author's elaboration.

The results strongly support the hypothesis that administrative burdens suppress entrepreneurial activity. Both time and cost of starting a business are independently significant deterrents to new business formation. Economic development (proxied by GDP per capita) is a powerful positive driver of entrepreneurial activity.

The interaction effect is statistically significant and slightly positive, indicating nonlinear dynamics: in contexts where both burdens are high, the marginal harm of one burden may be partially buffered by institutional expectations or adaptations.

The start-up cost variable has almost equal significance to the starting time. Many countries have reduced or zeroed out official fees, so cost might be less of a differentiator than time or procedural complexity. Moreover, entrepreneurs often value time over a small fee, where a delay can cost far more in opportunity cost. This is consistent with enterprise surveys where businesses often rank regulatory delays as more problematic than fees or taxes.

Entrepreneurship provides significant returns in terms of human capital efficiency, but we can infer broader implications. When talented individuals are freed from spending weeks on paperwork, they can devote that time to developing products, searching for markets, or acquiring skills. The positive impact on new firm creation suggests that many potential entrepreneurs were on the margin. They had ideas or opportunities pursued once the heavy bureaucratic burden was lifted. This latent entrepreneurial potential is part of the human capital stock of a nation (people's skills, creativity, networks). By automating routines like registration, the Fast State effectively "unlocks" this capital. The findings align with the notion that lowering transaction costs encourages creative and productive use of human resources. Countries implementing online registrations often see a surge in small startups, including more participation from youth and women who might have been deterred by bureaucratic hurdles before. These inclusive gains amplify the human capital utilization. While our focus was on start-up formalities, other routine administrative burdens (like getting licenses, paying taxes, and trading across borders) similarly affect entrepreneurship and productivity. Although not tabled here, the Fast State model's implications are not limited to firm entry; it is broadly about removing friction in all areas to allow human talent to flow to its best use.

The results for *H3* provide clear empirical evidence that automation and simplification of administrative routines (particularly for business start-up) enhance entrepreneurship. The findings support the Fast State model's claim that when the state moves fast in processing permits, it enables society to be more entrepreneurial and creative. These quantitative results back up the numerous case studies in the literature and give confidence that the relationship holds true across diverse countries and years.

The empirical analysis supports the three core hypotheses of the Fast State governance model. Higher velocity of money is significantly associated with lower GDP growth volatility and fewer deflationary episodes, underscoring its role in enhancing macroeconomic stability. The e-government development index positively impacts institutional quality, correlating with reductions in corruption perceptions and improvements in governance effectiveness. Likewise, streamlining administrative procedures shows a strong positive relationship with new business density, suggesting that reduced start-up times and costs foster entrepreneurship.

The results of regressions in the paper are consistent with causal mechanisms theorized by the model. The three hypotheses, though examined separately, are interrelated in practice. Digitizing government can also directly help macro stability by improving the efficiency of fiscal operations. When governments implement fast digital payment systems, they can deliver stimulus or subsidies rapidly during a downturn, effectively increasing velocity and stabilizing demand. India's advancement in digital public infrastructure enabled it to provide millions of cash transfers quickly in 2020, arguably preventing a deeper contraction. That is a synergy of Fast State principles across domains. Likewise, reducing corruption and improving institutional foundations improves economic efficiency, which can enhance stability by attracting investment and ensuring public funds are not wasted. Entrepreneurship also feeds back: a more entrepreneurial economy tends to grow faster and more robustly, contributing to macro stability through diversified growth engines. It can also challenge inefficiencies by reducing monopolistic structures when market entry has a lower threshold and new entrants positively dissolve the concentration of power.

The evidence in favor of the Fast State model suggests several policy recommendations. First, policymakers should treat time as a crucial metric in governance: whether it is the time money sits idle, the time citizens spend in queues, or the time it takes to enforce a contract. Reducing these times can be as valuable as reducing monetary costs. In public finance, this could mean streamlining budget release processes and encouraging swift circulation. For governance, it means investing in e-government

infrastructure and simplifying laws and regulations. The significant anti-corruption effects found imply that international anti-corruption efforts might do well to incorporate e-gov promotion as a tool. So digital transparency must be an integral part of governance reforms.

Additionally, fostering entrepreneurship feeds back into institutional strength: an expanding middle class of business owners often demands better governance and transparency, creating a positive feedback loop reinforcing the model of Fast State.

5. DISCUSSION

Findings highlight the multifaceted benefits of accelerating government processes and economic circulation. The positive association between money velocity and stability indicates that faster financial flows sustain demand and smooth economic fluctuations, crucial during shocks like the 2008 crisis or the COVID-19 pandemic. The role of e-government in reducing corruption and improving predictability demonstrates the importance of automation for institutional trust and governance quality. Moreover, entrepreneurship gains from administrative streamlining affirm that cutting red tape unleashes human capital by lowering transaction costs and encouraging innovation. However, these benefits depend on complementary factors such as legal frameworks and digital literacy to maximize the impact of reforms. Overall, the results validate the Fast State model's premise that speed and predictability in state functions contribute to more stable, transparent, and dynamic economies.

The relationship between money velocity and GDP volatility underscores that dynamic financial flows can buffer economies against both inflationary shocks and recessions, indicating a robust transmission mechanism for monetary stimuli. The COVID-19 pandemic provided a recent illustration: countries that maintained digital payment infrastructures were better able to sustain demand, limiting the velocity collapse observed elsewhere.

Similarly, the positive effect of e-government development on regulatory quality supports established theories that digitalization enhances institutional trust and reduces corruption through increased transparency and standardization. The findings suggest that digital reforms deter petty corruption and raise predictability in public administration, making governance outcomes more reliable for citizens and investors.

Entrepreneurship flourishes where administrative burdens related to starting and operating a business are lowest, confirming that time and transaction costs play a decisive role in mobilizing human capital. Streamlined start-up procedures and reduced costs were associated with significant increases in new business density, echoing global reform experiences in both developed and emerging economies.

Sectoral analysis indicates that benefits are not distributed evenly; digitally advanced and innovation-intensive sectors see particularly strong gains in productivity and enterprise creation. However, the effectiveness of these reforms often hinges on complementary factors such as robust legal frameworks, widespread digital literacy, and ongoing institutional reforms.

The causality inferred in this study aligns with the theoretical underpinnings of Keynesian macroeconomics and institutional economics, but it also points to new research directions. Exploring potential nonlinearities and thresholds at which velocity and automation yield optimal benefits, and lies within the proposed vision. The policy recommendations advocate a time-centric approach to governance: minimizing delays in fiscal transfers, administrative procedures, and regulatory enforcement is just as critical as reducing financial costs.

One practical implication is that digitalization of government functions should be paired with targeted anti-corruption training, legal protections, and public awareness initiatives for maximum impact. Furthermore, expanding online portals and automating compliance can enhance inclusivity, encouraging participation from youth, women, and previously marginalized groups.

The broader feedback loop deserves attention: increased entrepreneurship and innovation create new demands for better governance, while transparent and predictable institutions reinforce the Fast State paradigm. Overall, these findings serve as a blueprint for policymakers seeking to balance stability, institutional strength, and social dynamism in their development strategies.

6. CONCLUSION

This paper makes a significant contribution to the understanding of how speed in government and market processes — conceptualized as the Fast State governance — affects macroeconomic stability, institutional quality, and entrepreneurial activity. Its empirical findings offer a nuanced perspective that emphasizes the importance of digitalization, administrative reform, and fiscal–monetary velocity in fostering resilient and dynamic economies.

To recapitulate the key findings:

1) Countries with higher velocity of money generally experienced more stable macroeconomic performance, as measured by lower GDP volatility and avoidance of extreme inflation/deflation. This highlights the importance of policies that keep money circulating — for instance, confidence-building measures and efficient financial systems.

2) Greater automation of state procedures, captured through e-government indices, is associated with significantly lower corruption levels and improved governance indicators. This underscores a clear policy lesson that digital reforms are a formidable tool in the fight against corruption and in building institutional trust.

3) More efficient administrative routines, exemplified by shorter business start-up times, correlate with higher new business formation rates, indicating that reducing red tape directly taps into a nation's entrepreneurial potential and, by extension, better uses its human capital for innovation and growth.

These insights provide a valuable foundation for future research by highlighting the complex interactions among governance, economic stability, and innovation ecosystems, especially in the context of rapid technological change and digital transformation.

From a theoretical perspective, findings contribute to bridging macroeconomics, public administration, and development economics. They show that such factors as money supply dynamics, governance quality, and business environment are interlinked through the dimension of speed/efficiency. The Fast State model provides a unifying lens: whether it's money or services or regulations, when things move faster and with less friction, outcomes improve. This complements existing theories, it adds nuance to the monetarist idea of stability by emphasizing velocity management, and to institutional economics by highlighting technology's role in institution-building.

Furthermore, the integrated framework outlined in this study opens avenues for exploring specific policy interventions and their long-term impacts across different institutional settings, encouraging scholars to refine models with micro-level data or experimental designs. It also underscores the necessity of context-sensitive approaches that account for country-specific legal, cultural, and technological factors.

Despite its contributions, the research has certain limitations. The reliance on aggregate, cross-country data may obscure underlying country-specific or sector-specific dynamics, suggesting the need for more granular case studies. The empirical model assumes linear relationships and may not fully capture potential nonlinearities or threshold effects in governance reforms. Additionally, the measurement of variables like digitalization and speed may be based on recognized indices, though they may not reflect the actual efficiency and effectiveness of reforms in practice. Future research should address these limitations by incorporating longitudinal case studies, adopting non-linear modeling approaches with proper interpretations, and developing more sophisticated measures tailored to specific institutional contexts.

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