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Beyond the Long-term Infrastructure Project: Survival Analysis on Monetary Institution and Capital City Relocation

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Abstract

Past studies on regime change, political business cycles, and long-term infrastructure projects have shown that regime change can significantly shift policy priorities and approaches to long-term projects. Leaders aiming for survival will leverage available resources and policies to retain power, ensure regime sustainability, maintain policy coherence, and secure project continuity, especially for long-term infrastructure projects extending beyond their tenure. Most existing literature has discussed how leaders use resources to maximise power retention. However, the impact of these resources and policies on the success of long-term infrastructure projects has not been adequately tested, particularly regarding the economic impact of capital city relocation and the role of macroeconomic policies in accelerating this impact. We argue that expanding monetary policy instruments for project continuity and policy realignment can accelerate the achievement of capital relocation goals. Using Cox regression survival analysis on 16 countries that relocated their capital between 1956 and 2023, we assessed the time required to achieve targeted goals and examined macroeconomic factors influencing these timelines. Our results indicate a 75% chance of achieving success within 50 years, 50% within 30 years, and 25% within 20 years. The expansion of monetary policy instruments accelerates project goal achievement. However, since our study focuses on political-economic aspects, future research needs to include other variables, such as political stability, party polarisation, and opposition autonomy regarding policy realignment and long-term project continuity.

Keywords:
capital city relocation; monetary institutions; macroeconomic policy; monetary policy expansion

Introduction

Capital city is more than a location—it is a symbol of national identity, governance, and cultural heritage, serving as the political and administrative centre of a country (Rego, 2021). Its evolution reflects shifts in governance, economics, and societal needs. The concentration of political power in the capital shapes national policy and direction. Capital city relocation, therefore, is a multi-decade project often extending beyond the term of its initiating leader, requiring long-term political and economic stability. Since monetary institutions and economic policy influence political survival (Clark et al., 2013), the key question is how these can ensure project continuity and success beyond regime change, when the initiator is no longer in office.

Regime change, political business cycles, and sustainable financing are critical success factors of long-term infrastructure projects. Regime change introduces uncertainty, as infrastructure investments often outlast political terms, creating risks for investors (Rasoulkhani &

Mostafavi, 2018; West, Kenway, Hassall, & Yuan, 2017). Political business cycles may lead to short-term policies that undermine long-term planning (Gersbach, 2004). Public-private partnerships (PPPs) can help address these challenges by sharing financial burdens, improving efficiency, and supporting infrastructure maintenance through private sector expertise (Samoilov, 2024). These include sustainable financing from various sources such as insurance companies and pension funds, which is essential for project viability (Taghizadeh–Hesary & Yoshino, 2020). However, politically driven urgency may jeopardise strategic outcomes (Mottee & Howitt, 2018). Success hinges on effective governance, planning, and contract management are vital, especially as PPPs evolve over time (Sergeeva, Clegg, Burdon, & Clay, 2023; South, Eriksson, & Levitt, 2018; Zhang, Hou, & Yan, 2020). Additionally, infrastructure projects contribute to social and economic sustainability, which should remain central to their design and evaluation (Krishna & Mukherjee, 2021; Sierra, Pellicer, & Piqueras, 2017).

While existing literature often focuses on how leaders use resources to retain power, the effects of those resources—particularly monetary policy and macroeconomic stability—on long-term infrastructure success like capital city relocations remain underexplored. This study addresses such a gap by applying survival analysis to examine how monetary institutions influence the time required to achieve relocation goals. Unlike prior research that treats megaprojects or macroeconomic factors in isolation, this study uniquely combines time-to-event analysis with macroeconomic indicators for a more comprehensive view. Specifically, it aims to (1) determine the average time needed for countries to achieve their relocation targets, and (2) identify the political-economic factors that accelerate or delay project success.

Literature Review

The literature on regime change, political business cycles, and long-term infrastructure projects underscores how regime change can lead to significant shifts in policy priorities and approaches to these projects (Aspinall & Berenschot, 2019; Honna, 2012; Lauth, 2000; Loh, 2008; Marshall & Gurr, 2020; Piccone, 2011). When a new regime assumes power, it often seeks to realign infrastructure projects to fit its own policy priorities. This can involve redirecting resources to different projects or altering the scope and focus of ongoing projects. Moreover, politicians may prioritise projects that provide immediate, visible benefits to their constituencies to secure political support and legitimacy. This can lead to a focus on projects that can be completed quickly, rather than those that are essential but have long-term horizons.

Capital city relocation projects are complex megaprojects marked by high investment and risk, often plagued by optimism bias and strategic misrepresentation that lead to cost overruns and underperformance (Flyvbjerg, 2017). These challenges are pronounced in countries like Indonesia and Nigeria due to unstable macroeconomic conditions and inconsistent policies. Countries with strong governance and institutional stability like Brazil and Malaysia can facilitate more effective transitions, which require careful planning, transparency, and institutional strength.

From an urban political economy lens, Pollio and Rossi (2024) argue that relocations are not just administrative but are shaped by capital accumulation and spatial restructuring, often benefiting elites while deepening social inequalities. These projects may displace vulnerable communities and commodify urban space, echoing patterns of neoliberal urbanism. Thus, capital relocations demand critical analysis of power dynamics and call for inclusive, equitable planning.

Survival-maximising leaders will harness whatever resources and policy they have at their disposal in order to retain power and/or ensure the regime sustainability, policy

coherence and realignment, and project continuity, especially if the face of long-term infrastructure projects that extend beyond one's tenure (William R. Clark et al., 2013; William Roberts Clark & Hallerberg, 2000). Most existing literature discusses how leaders use resources to gain and retain power, but less attention is given to the long-term economic impact of infrastructure projects like capital city relocations. Key questions remain: how long it takes for such relocations to affect the economy and how macroeconomic institutions and monetary versus fiscal policy influence this impact.

The economic impact of capital city relocation is shaped by political, economic, and institutional factors (see Table 1). While leaders use resources to maintain regime stability and project continuity, success largely depends on strong macroeconomic institutions and aligned monetary and fiscal policies. More empirical, especially longitudinal and comparative, research is needed to better understand these dynamics and inform policy-making.

Macroeconomic factors significantly shape the long-term success of infrastructure projects, with critical insights drawn from institutional theory, path dependence, and developmental state theory. Institutional theory highlights the importance of governance structures and regulatory frameworks in ensuring project viability, particularly through mechanisms like public-private partnerships (PPPs) and fiscal accountability. For instance, Indonesia's use of the PPP model underscores how robust institutional arrangements can guide

Table 1.
List of Capital City Relocations

Country	Former Capital	Relocated Capital	Started	Finished	Reason(s)
Brazil	Rio de Janeiro	Brasília	1956	1960	Reduce economic burden on Rio, develop interior
Mauritania	Saint-Louis	Nouakchott	1958	1960	Move to geographically central location
Pakistan	Karachi	Islamabad	1960	1967	Reduce congestion in Karachi, develop new planned city
Botswana	Mafeking (South Africa)	Gaborone	1961	1966	Gain independence, establish national identity
Libya	Tripoli	Benghazi (temporary)	2011	N/A	Civil war and political instability
Malawi	Zomba	Lilongwe	1965	1975	Move to geographically central location
Belize	Belize City	Belmopan	1967	1970	Reduce vulnerability to hurricanes, develop interior
Tanzania	Dar es Salaam	Dodoma	1973	1996	Move to geographically central location
Nigeria	Lagos	Abuja	1984	1991	Reduce congestion in Lagos, promote national unity
Ivory Coast	Abidjan	Yamoussoukro	1983	1989	Prestige project of president, decentralise administration
Germany	Bonn	Berlin	1990	1999	Reunification of East and West Germany
Kazakhstan	Almaty	Astana (Nur-Sultan)	1997	1998	Move to geographically central location
Malaysia	Kuala Lumpur	Putrajaya	1995	2003	Reduce congestion in Kuala Lumpur, develop new city
South Korea	Seoul	Sejong City	2007	Ongoing	Reduce overcrowding in Seoul, promote balanced development
Egypt	**Cairo**	**New Cairo/ Wedian**	**1995**	**Ongoing**	**Reduce congestion in Cairo, develop new planned city**
Indonesia	**Jakarta**	**Nusantara**	**2019**	**Ongoing**	**Reduce burden on Jakarta, promote equitable development**

Sources: Developed and enhanced from Hackbarth & de Vries (2021) with several other sources.

infrastructure development and economic growth (Abidin, 2010; Anguelov, 2022, 2024). Similarly, path dependence explains how historical policy decisions and legacy systems shape present-day infrastructure investments, often locking systems into specific developmental trajectories that resist change (Kukreja, 2023; Zagożdżon, 2020). This historical inertia can both constrain and inform strategic infrastructure planning.

Developmental state theory further reinforces the macroeconomic significance of infrastructure by emphasising the state's proactive role in driving development through targeted investments. The experience of the "Asian Tigers" demonstrates that deliberate state intervention can stimulate economic growth and regional integration through improved infrastructure (Abidin, 2010; Lee, 2009). Additionally, macroeconomic conditions such as fiscal stability, policy direction, and the availability of external funding play a pivotal role in determining infrastructure outcomes. Evidence suggests that during economic downturns, infrastructure-focused stimulus spending can support employment, sustain consumption, and foster long-term recovery (Abidin, 2010; Denizer, Kaufmann, & Kraay, 2013). Therefore, integrating macroeconomic strategies into infrastructure policy is crucial for ensuring both immediate and sustained developmental impacts.

Our theoretical framework and research design integrate literature findings, gaps, and potential novelties, postulating that the success and timeline of capital city relocation are strongly influenced by monetary institutions, economic policy, financial development, and macroeconomic stability.

Since capital city relocations carry major economic implications, understanding the speed of their economic impact—and the role of macroeconomic institutions and policies in accelerating this effect—is essential for effective analysis and planning. Research by Shimamura and Mizunoya (2020) evaluates the sustainability of Indonesia's decision to relocate its capital city from Jakarta to East Kalimantan. Their study assesses the economic, human, and environmental impacts of the relocation, providing insights into the multifaceted effects of such a large-scale infrastructure project.

Clark et al. (2013) highlight how survival-driven leaders manipulate fiscal and monetary policies to retain power, a strategy particularly relevant in managing long-term projects like capital city relocations (see Table 2). The success and duration of such relocations depend heavily on effective monetary policy, financial development (Fiador, Sarpong-Kumankoma, & Karikari, 2022), and overall macroeconomic stability—including per capita GDP, forecasts, and development plans (Nader, Mousavi, Hekmatina, Ebrahimzadeh, & Kashkoli, 2022).

According to conventional macroeconomic theory (Mundell, 1963), in closed economies, both fiscal and monetary policies influence national income. However, in open economies with capital mobility, leaders must choose monetary policy that works with flexible exchange rates, and fiscal policy with fixed ones. Clark et al. (2013) found that leaders survive longer under fixed exchange rates when central banks are independent, emphasising

Table 2.
Macroeconomic Tools Available to Country Leaders under Alternative Monetary Institutions

		Dependent Central Bank	Independent Central Bank
No Capital Mobility		*(a) Monetary and fiscal policy*	*(b) Fiscal policy*
Capital Mobility	**Fixed exchange rate**	*(c) Fiscal policy*	*(d) Fiscal policy*
	Flexible exchange rate	*(e) Monetary policy*	*(f) No instruments*

Source: (William R Clark, Golder, & Poast, 2013)

the political value of macroeconomic tools in sustaining leadership and managing complex initiatives like capital relocations.

Analysing the economic impact of capital city relocation requires understanding the interaction between institutions, macroeconomic policies, and the broader economy. Insights from studies on macroeconomic policy, capital structure, and long-term project sustainability help policymakers anticipate timelines, manage risks, and better navigate the economic effects of such relocations. Therefore, we set the following hypotheses:

Hypothesis 1: *Countries with flexible exchange rates and dependent central banks would reach capital city relocation goals sooner than those with fixed exchange rates and independent central banks.*

Hypothesis 2: *Robust GDP growth would increase the capital city relocation project success rate*

Hypothesis 3: *Robust Exports would increase the capital city relocation project success rate*

Hypothesis 4: *Robust Imports would increase the capital city relocation project success rate*

Hypothesis 5: *Robust Foreign Direct Investments would increase the capital city relocation project success rate*

Methods

We measure the time required for countries to achieve capital city relocation goals, using this duration as the dependent variable. This timeline is assessed in relation to the effectiveness of monetary institutions and macroeconomic posture. Economic outcomes serve as key success markers, captured through indicators such as GDP growth and income transformation (e.g., GNI per capita shifts). In our dataset, a country-year is coded 1 if it records the highest GDP growth or transitions to a higher income classification, reflecting the attainment of relocation goals.

The data consisted of 14 finished cases of capital city relocation from 16 total of country capital city relocation projects for the past six decades, as demonstrated in Table 1. Since Egypt and Indonesia's new capital city projects are ongoing, we dropped Egypt and Indonesia from the dataset.

Regarding the key explanatory variables to investigate hypotheses, we measure the monetary institutions and type of economic policy under which each country operated. *Fixed Exchange Rate* is a dichotomous variable based on IMF's Exchange Rate Arrangements and Exchange Restrictions. *Dependent Central Bank* is coded 1 if the country's legal independence measure is below the sample median (William R Clark et al., 2013). We also expect that the country's macroeconomic posture to be worth included in our measurement models. Some macroeconomic indicators, especially related to interstate relations aspects were included in the model including but not limited to: (1) GDP (Growth and Size), (2) Exports, (3) Imports, and (4) Foreign Direct Investments.

Survival Analysis – Cox Regression

Since the dependent variable is the observed length of time countries needed to achieve relocation capital city goal(s), an event history analysis or duration model (Cox Regression Model) is the most appropriate technique. The primary concept in survival analysis revolves around the hazard function or hazard rate denoted as $h(t)$. This represents the likelihood that an event will happen at a specific time, considering the event has not occurred yet (William R. Clark et al., 2013; Kleinbaum & Klein, 2012). This analysis focuses on the successful relocation of a capital city, modelled using a Cox proportional hazards approach. The hazard rate includes covariates influencing event timing and a baseline hazard showing how the event rate changes over time. By using time-varying covariates, the Cox model allows us to evaluate their effects without assuming a

specific form for the baseline hazard.

Equation 1.

$$\text{Capital City Relocation Success Rate } (\textbf{Model 2}) = \beta_1 GDP + \beta_2 GDP\ Growth + \beta_3 Exports + \beta_4 Imports + \beta_5 FDI\ Inflow + \beta_6 FDI\ Outflow + \beta_i Controls$$

Source: (Kleinbaum & Klein, 2012)

The formula gives the hazard function, denoted by h(t): $h(t)$ equals the limit, as Δt approaches zero, of a probability statement about survival, divided by Δt, where Δt denotes a small interval of time (Kleinbaum & Klein, 2012).

The hazard rate typically has the following form: $h(t \mid x) = h_0(t)e^{x\beta}$ where $h_0(t)$ is the baseline hazard rate and $x\beta$ in our case is specified as

*Capital City Relocation Success Rate (**Model 1**)*

$= \beta_1$ *Fixed Exchange Rate* $+ \beta_2$ *Dependent Central Bank* $+ \beta_3$ *Fixed Exchange Rate x Dependent Central Bank* $+ \beta_i$ *Controls*

*Capital City Relocation Success Rate (**Model 2**)*

$= \beta_1$ *GDP* $+ \beta_2$ *GDP Growth* $+ \beta_3$ *Exports* $+ \beta_4$ *Imports* $+ \beta_5$ *FDI Inflow* $+ \beta_6$ *FDI Outflow* $+ \beta_i$*Controls*

The utilisation of hazard models relies on a crucial assumption known as the proportional hazard assumption, positing that the impact of covariates in the specified model remains constant over time (Box-Steffensmeier & Jones, 2004). In our context, a Schoenfeld residuals test does not indicate a violation of the proportional hazard assumption. Specifically, the chi-squared statistics 0.46, with a *p*-value of .496 for Model 1 and chi-squared statistics 0.00, with a *p*-value of 1.000 for Model 2. Consequently, we accept the null hypothesis of no relationship between the residuals and time.

This study acknowledges key methodological limitations. First, reverse causality remains a possibility as successful capital relocations may enhance macroeconomic performance rather than result from it. Second, selection bias may arise, as countries initiating relocation may already possess favourable economic or institutional conditions. Given the observational nature of the data, findings should be interpreted as associations rather than causal relationships. Additionally, the small sample size, due to the rarity of relocation events, limits generalisability. To strengthen robustness, we estimated an alternative Weibull survival model alongside the Cox model. The consistent direction and significance of key variables across both approaches suggest the findings are not highly sensitive to model specification, though future research should explore quasi-experimental designs or instrumental variables to better infer causality.

Results

We successfully compiled a dataset with 46 variables and 1,203 observations spanning 16 countries from 1946 to 2023 covering all time span of every country's relocation projects, as demonstrated in Table 1. Upon converting the dataset to survival-time data, our study focused on 282 records from the total 1,203 observations, as detailed in Table 3. By using STATA 17 software, the survival analysis, which utilised macroeconomic factors to categorise events, identified 14 successful instances of capital city relocation. Each of the 282 records included in the analysis contributed an average of around 17.6 records per subject.

Table 3 summarises the survival-time dataset, where each record represents a country-year observation. "Entry time" marks the start of a relocation project, and "Unit" indicates the years needed to achieve relocation goals. Entry and exit times ranged from 11 to 74 and 19 to 78 years, respectively, with mean values of 35.19 and 52.81. Of the observed cases, 14 relocations were completed, while Indonesia and Egypt were censored due to their ongoing nature. Table 4 presents summary statistics, showing a total time at risk of 282 years and an event incidence rate of 0.0496 per year. The

Table 3.
Survival-Time Dataset Characteristic Description

Category	Total	Per Subject			
		Mean	Min	Median	Max
Number of subjects	16				
Number of records	282	17.625	1	14	49
Entry time units		35.1875	11	29	74
Exit time units		52.8125	19	56.5	78
Subjects with gap	0				
Time on gap	0				
Time at risk	282	17.625	1	14	49
Events	14	.875	0	1	1

Source: authors' calculations

Table 4.
Survival-Time Summary Statistics

	Time at risk	Incidence rate	Number of subjects	Survival Time		
				25%	50%	75%
Total	282	.0496	16	25	28	51

Source: authors' calculations

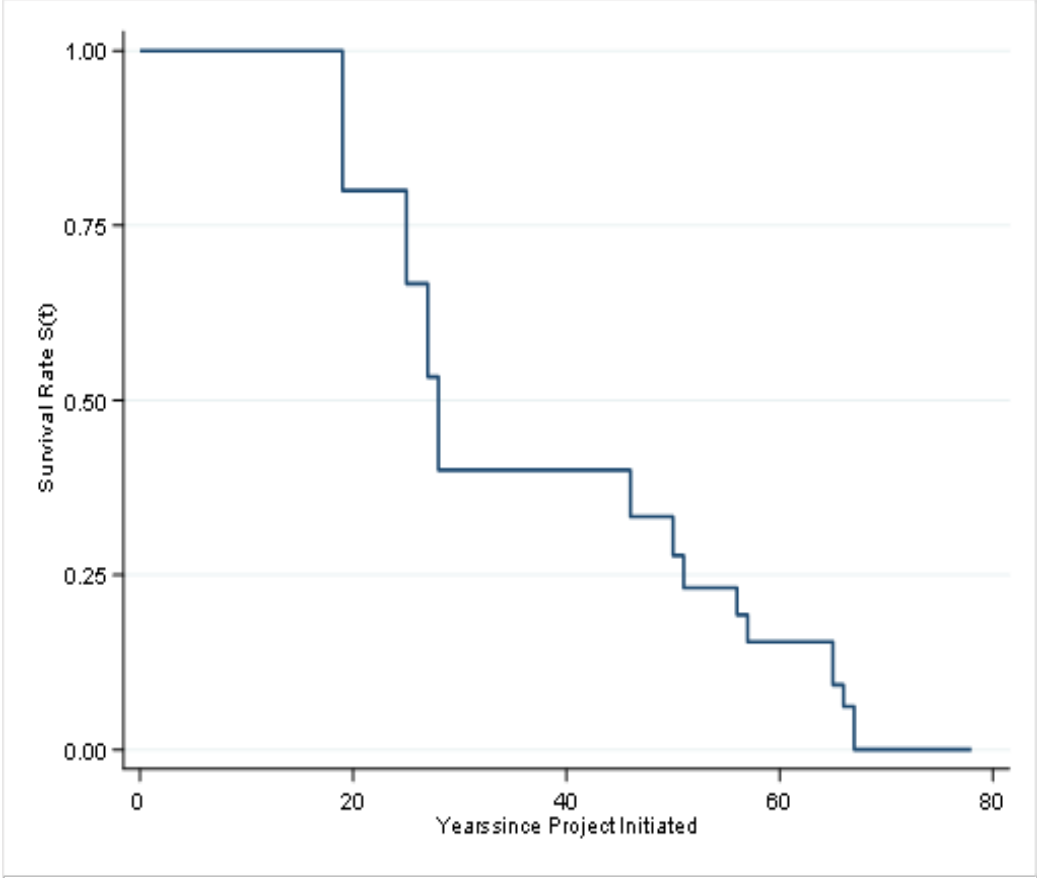

Figure 1. Kaplan-Meier Survival Estimates

Source: authors' analysis

Notes. *The Kaplan-Meier survival estimates graph shows the probability of survival over time, with each step down indicating an event, and vertical ticks representing censored data.*

median time to successful relocation was 28 years.

Figure 1 displays the Kaplan-Meier survivor function for capital city relocations between 1956 and 2023, showing a 75% chance of success within 50 years, 50% within 30 years, and 25% within 20 years. This stepwise curve, based on observed and censored event times, illustrates the probability of a project remaining incomplete beyond each time point. As a non-parametric tool widely used in survival analysis, the Kaplan-Meier estimator effectively handles censored data and provides a clear depiction of the likelihood that a relocation will succeed by a given time, offering valuable insights into the temporal dynamics of these projects.

Survival Analysis Estimation Results

We employed the Cox Proportional Hazards (CPH) model to estimate the impact of prognostic factors on time-to-event outcomes. The CPH model is a widely recognised statistical approach, extensively used in disciplines such as medicine, economics, and sociology (Kani Chen, Guo, Sun, & Wang, 2010; Li, Lesperance, & Wu, 2020; Rooney et al., 2013). This model enables researchers to assess the influence of multiple covariates on the timing of specific events, thus providing a valuable framework for understanding the determinants of outcomes across various contexts (Adeleke, Abiodun, & Ipinyomi, 2015; Schimmele & Wu, 2016).

Monetary Institutions and Macroeconomic Policy

Table 5 reports the Cox regression results with robust standard errors, examining how monetary institutions influence the time to successful capital relocation. The key variable—flexible exchange rates combined with central bank dependency—shows a positive and significant effect, indicating that such configurations accelerate relocation outcomes. This supports Hypothesis 1, where greater monetary policy flexibility increases the hazard rate, reducing the time needed to achieve relocation goals. Here, "Success Time" refers to the number of years required for policy and investment efforts to translate into measurable economic outcomes in the new capital. This is grounded in survival analysis, where the probability of project success over time is modelled using Cox regression (Kleinbaum & Klein, 2012).

Table 5.
The Effect of Monetary Institution on Success Time of Capital City Relocation Project – Main Model

Independent Variables	*Coefficient Estimates*
Flexible-Dependent	1.661**
	(0.798)
Log Likelihood	-15.87
Observations	223

Source: authors' analysis using Cox Regression Model.

Notes: *robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. The Efron method is employed for handling ties. A positive coefficient indicates that the covariate increases the hazard rate or, more intuitively, reduces the length of the capital relocation project success duration. Conversely, a negative coefficient implies that the covariate reduces the hazard rate or increases the relocation times to success.*

To test our first and second hypotheses on macroeconomic policy and monetary institutions, we used Kaplan-Meier survival estimates grouped by different fiscal and monetary configurations. These estimates reveal how survival functions vary across institutional settings. As outlined in Table 2, three key policy scenarios emerge: (1) monetary expansion is possible when capital is mobile, the exchange rate is flexible, and the central bank is dependent; (2) fiscal expansion is feasible either with a fixed exchange rate (regardless of central bank independence)

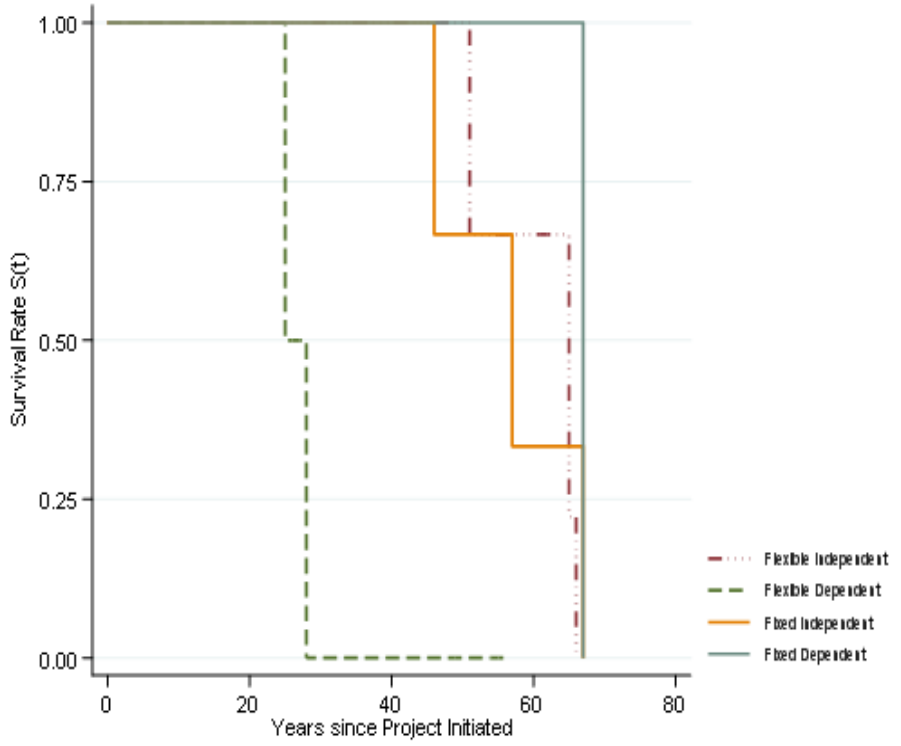

Figure 2. Kaplan-Meier Survival Estimates based on Macroeconomic Tools and Monetary Institutions

Source: Authors' analysis

or when capital is immobile and the central bank is independent; and (3) both expansions are theoretically possible only when capital is immobile and the central bank is dependent—though this last scenario is rare in practice.

Figure 2 shows that countries using monetary policy expansion—defined by mobile capital, flexible exchange rates, and dependent central banks—achieve capital relocation goals faster than those relying on fiscal expansion. This leads us to reject the first hypothesis and support the second, concluding that specific monetary policies are more effective for timely success.

As Table 5 confirms, fiscal policy expansion does not significantly accelerate relocation outcomes, while monetary expansion under optimal conditions proves more effective. These settings foster an agile economic environment that attracts investment and speeds up implementation. For policymakers, these findings underscore the importance of prioritising monetary flexibility—ensuring capital mobility, flexible exchange rates, and alignment with central banks. While fiscal policy has a role, it should complement monetary strategies. Coordinated, adaptive policy frameworks are key to timely and successful capital city relocations.

Macroeconomic Posture

Given the substantial influence of macroeconomic policy on the duration of successful capital city relocation projects, we proceeded with an additional Cox Regression analysis incorporating macroeconomic indicators such as GDP size, GDP growth, and trade metrics to investigate their impact on the success rate of these relocations. Table 6 reveals that variables including GDP growth, exports,

imports, and foreign direct investments exert a statistically significant influence on achieving capital relocation objectives.

Table 6.
The Effect of Economic Growth on Success Time

Independent Variables	*Macroeconomic Posture Model*
GDP Size	1.58e-05*
	(8.30e-06)
GDP Growth	0.0284***
	(0.00817)
Exports	-0.000113***
	(2.85e-05)
Imports	0.000126***
	(3.24e-05)
Foreign Direct Investment (Inflow)	0.770***
	(0.197)
Foreign Direct Investment (Outflow)	0.260**
	(0.106)
Log Likelihood	-3.13
Observations	128

Source: authors' analysis using Cox Regression Model.

Notes. *Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. The Efron method is employed for handling ties. A positive coefficient indicates that the covariate in question increases the hazard rate or, more intuitively, reduces the length of capital relocation project success duration. Conversely, a negative coefficient implies that the covariate reduces the hazard rate or increases the relocation times to success.*

The results show that larger GDP size is positively associated with shorter relocation timelines (significant at the 10% level), suggesting that wealthier economies, with better infrastructure and resource availability, complete projects more efficiently. Similarly, GDP growth is significant at the 1% level, indicating that rapid economic expansion accelerates success by fostering a favourable investment climate. In terms of trade, exports have a negative effect (1% significance), implying that high export activity may divert resources away from relocation efforts, delaying completion. In contrast, imports show a positive and significant effect, as access to external resources and inputs helps expedite project timelines.

The negative and statistically significant coefficient for exports ($p < 0.01$) suggests that higher levels of export activity are associated with longer durations to achieve capital city relocation success. One plausible explanation, grounded in the Prebisch-Singer hypothesis, is that economies overly reliant on commodity exports may face structural constraints that hinder long-term development planning (Harvey, Kellard, Madsen, & Wohar, 2010). This export dependence often translates into limited domestic reinvestment and exposure to volatile global markets. Furthermore, the Dutch disease framework posits that booming export sectors, particularly resource-based ones, can lead to the crowding out of domestic industries, redirecting labour and capital away from infrastructure development (Ismail, 2010). This pattern can be observed in Nigeria, where oil export dependence led to macroeconomic imbalances and project delays during the Abuja relocation.

During the period of Abuja's relocation, Nigeria's reliance on oil revenues hampered diversification efforts essential for bolstering the economy against global market dynamics. Projects intended to bolster infrastructure and development could not be adequately funded due to the prevailing economic distortions stemming from fluctuating oil prices, which directly affect critical government revenue (Anthony-Orji, Orji, Ogbuabor, & Nwosu, 2017). Economic managers have been unable to effectively mitigate these impacts due to the cyclical nature of oil price dependency, hindering fiscal policy effectiveness and leading to stalled infrastructure projects that require stable funding (Ologbenla, 2019). As the government continued to funnel resources

primarily into the oil sector, investment in agriculture, manufacturing, and other real sectors significantly declined, thereby exacerbating the vulnerabilities in the economy (Ikuemonisan, Kolawole, & Akinbola, 2024).

Conversely, imports are positively associated with faster relocation success, likely due to the role they play in facilitating access to critical infrastructure inputs and construction materials not readily available domestically. In the case of Kazakhstan, for example, Astana's rapid development benefited significantly from import liberalisation, which enabled timely procurement of foreign architectural services, prefabricated components, and advanced construction technologies (Gawęcki, 2013; Shelekpayev, 2018).

In terms of Foreign Direct Investment (FDI), the coefficient for inflows is highly significant at the 1% level, indicating that higher inflows of FDI are strongly associated with shorter success times for capital city relocation projects. Inflows of FDI typically bring in capital, technological expertise, and market access, all of which contribute to accelerating project success. Similarly, the coefficient for outflows of FDI is positive and significant at the 5% level, suggesting that higher outflows of FDI are also associated with shorter success times in capital city relocation projects. This may reflect the international expansion strategies of domestic firms, which can bolster project efficiency and effectiveness.

Similarly, the highly significant impact of FDI inflows reflects how foreign investment can contribute not just capital, but also technological expertise, project management skills, and adherence to international standards. These factors collectively improve project delivery timelines. FDI outflows, though less emphasised in literature, may reflect the strategic global positioning of domestic firms, which can facilitate the acquisition of know-how and supply chain efficiencies useful for megaproject execution.

Overall, economic growth plays a pivotal role in accelerating success of capital city relocation projects by creating a favourable business environment conducive to efficient project execution. The divergent effects observed in exports and imports underscore the importance of effectively managing trade dynamics to optimise resource allocation and project timelines. The substantial impact of both inflows and outflows of FDI highlights their critical role in driving project efficiency and underscores the significance of fostering an attractive investment climate through supportive policies and regulatory frameworks.

These findings call attention to the complexity of macroeconomic linkages in capital relocation projects. While high exports and FDI are typically associated with economic strength, their effects are not unidirectional. In contrast to expectations, higher exports may prolong relocation due to resource diversion, whereas FDI inflows and strategic imports appear to accelerate it by enhancing domestic capacity. This contrast underscores the importance of disaggregating trade and investment metrics and situating them within specific political-economic contexts when assessing their impact on megaproject timelines.

Discussion

Harnessing Fiscal and Monetary Policy towards Large-scale Long-term Infrastructure Project

To further illustrate the impact of macroeconomic conditions, we have integrated comparative examples. For instance, Brazil's relocation of its capital to Brasília was accelerated due to stable fiscal policy and targeted monetary expansion (Mubaroq & Solikin, 2019; The Ministry of National Development Planning of Republic of Indonsia, 2019), whereas Nigeria's transition to Abuja faced delays due to fluctuating oil revenues and macroeconomic instability (Aregbeyen & Kolawole, 2015; Ilori & Efuntade, 2020). Similarly, Malaysia's success

in developing Putrajaya was facilitated by controlled inflation and structured investment incentives, contrasting with Indonesia's ongoing challenges in Nusantara due to currency volatility and budgetary constraints (The Ministry of National Development Planning of Republic of Indonsia, 2019). These comparative cases highlight the necessity of maintaining economic stability to ensure efficient capital relocation.

We introduce a small-N comparative framework that categorises Brazil, Nigeria, Malaysia, and Indonesia based on their macroeconomic regime types and policy consistency. Brazil and Malaysia, for example, exemplify relatively high macroeconomic stability and consistent policy regimes, which align with their shorter relocation timelines as predicted by the survival analysis. Brazil's relocation to Brasília benefited from a strong fiscal base and centrally coordinated implementation, while Malaysia's development of Putrajaya was supported by sustained monetary management and targeted incentives. In contrast, Nigeria and Indonesia reflect cases of lower macroeconomic stability and inconsistent policy regimes, where project implementation has been protracted. Nigeria's heavy reliance on oil exports introduced volatility and political disruptions, while Indonesia's ongoing relocation project has been affected by currency shocks and shifts in political priorities. This structured comparison illustrates how different combinations of economic and institutional conditions shape the tempo of capital relocation projects, reinforcing the statistical findings through qualitative typological validation.

The success of capital city relocations in Brazil, Nigeria, Malaysia, and Indonesia is strongly shaped by their respective macroeconomic regimes. Brazil and Malaysia operate within relatively stable environments, supported by consistent policy frameworks that enable long-term infrastructure planning and execution. Brazil's historical move from Rio de Janeiro to Brasília demonstrates how political will, backed by regulatory stability, can ensure smooth transitions (Perdana, 2024). Similarly, Malaysia's relocation strategy emphasises strong governance and institutional structures necessary for maintaining policy consistency (Herdiawanto, 2023). In contrast, Nigeria's low macroeconomic stability and fragmented policies hinder effective relocation (Octaleny, 2022; Perdana, 2024), while Indonesia faces similar challenges due to fluctuating macroeconomic indicators and inconsistent policy support for its new capital, Nusantara (Adinugroho, Prasetyo, Kusmana, & Krisnawati, 2022; Wulandari & Koestoer, 2023).

Institutional theory provides further insight into these outcomes. Brazil and Malaysia possess institutional robustness that ensures policy continuity, as seen in Malaysia's adoption of lessons from Brazil's experience (Hackbarth & de Vries, 2021; Herdiawanto, 2023). These strong institutions are critical for managing the complexities of capital relocation. Conversely, Nigeria and Indonesia suffer from weak institutional capacity, leading to fragmented and often ineffective policy implementation. Nigeria's historical governance problems limit infrastructure development (Asfianur, Suswanta, Al-Hamdi, & Qodir, 2023; Octaleny, 2022), while Indonesia grapples with bureaucratic inertia and public scepticism that stall relocation efforts (Rachmawati et al., 2021; Suhandano, Isti'anah, & Febrina, 2023).

Economic growth theories and the concept of path dependence reveal deeper challenges and opportunities. Malaysia and Brazil, through developmental state models, leverage government investment to drive strategic infrastructure growth (Hackbarth & de Vries, 2021; Herdiawanto, 2023), unlike Nigeria, which depends heavily on volatile oil revenues and foreign aid (Adinugroho et al., 2022; Wulandari & Koestoer, 2023). Indonesia's relocation initiative aims to address Jakarta's

over-urbanisation, yet is constrained by an unstable macroeconomic environment and weak legal support for investment (Hein, 2019). Historical patterns also influence outcomes—Brazil's Brasília offers both inspiration and caution (Azmy, 2021). Indonesia's success with Nusantara depends on learning from past models while adapting to its unique socio-political and institutional realities (Azmy, 2021; Mubaroq & Solikin, 2019; Shimamura & Mizunoya, 2020; Suhandano et al., 2023).

Large-scale infrastructure projects like capital city relocations require significant financial and strategic planning, influenced by both monetary and fiscal expansion policies. Monetary expansion—through lower interest rates or increased money supply—can reduce borrowing costs, making large-scale financing more affordable. Fiscal expansion, on the other hand, boosts direct government spending on infrastructure and may include public-private partnerships, such as Government-Business Cooperation, to further support development in the new capital (Hadinata & M, 2021).

Additionally, the sustainability and success of capital city relocations hinge on various factors, including relocation objectives, conditions in the former capital city post-relocation, geographical location of the new capital city, and relocation expenditure scale (Shimamura & Mizunoya, 2020). These elements play pivotal roles in determining the long-term impact and effectiveness of relocation projects. In sum, both monetary and fiscal policies significantly shape financial environments and funding opportunities for extensive infrastructure ventures like capital city relocations. While monetary expansion influences borrowing costs and financing options, fiscal expansion policies directly impact resource allocation and funding for such initiatives. A strategic blend of both policies may be indispensable to ensuring the successful implementation and sustainability of capital city relocation projects.

FDI plays a vital role in capital city relocations, with monetary and fiscal policies shaping its attraction and support. Monetary tools, such as interest rate adjustments and quantitative easing, influence borrowing costs for foreign investors involved in infrastructure projects. Lower interest rates can heighten the attractiveness of large-scale projects such as capital city relocations by diminishing the cost of financing (Javorcik, 2004). Furthermore, monetary stimulus can bolster the overall investment climate by amplifying the debt capacity of infrastructure firms, thereby facilitating inflows of FDI (Kaiji Chen, Gao, Higgins, Waggoner, & Zha, 2023).

Conversely, fiscal policy involving government expenditure and taxation can directly influence a nation's appeal to foreign investors. Countries that allocate resources toward infrastructure development, encompassing transportation networks and utilities, can cultivate an environment conducive to FDI (Khadaroo & Seetanah, 2008). Furthermore, governmental policies supporting infrastructure investment and offering incentives to foreign investors can attract more FDI (Azolibe, Okonkwo, & Adigwe, 2020). In the context of capital city relocations, where extensive infrastructure development is requisite, a combination of both monetary and fiscal policies may prove advantageous (Assadi, 2014). Monetary expansion can create a favourable financial landscape for foreign investors, while fiscal expansion can directly bolster funding and infrastructure project development. By implementing a blend of policies that encompass both monetary and fiscal dimensions, nations can attract and sustain FDI, pivotal for the success of large-scale infrastructure undertakings like capital city relocations.

Political Dynamics and Long-Term Infrastructure Projects: Challenges and Strategies for Capital City Relocations

Leadership in capital city relocations must balance short-term political pressures with the long-term commitment such projects demand. Survival-driven strategies often conflict with timelines that span decades, requiring leaders to adopt adaptive approaches that maintain momentum and continuity across political cycles. Political business cycles further complicate the landscape of capital city relocations, highlighting the influence of electoral cycles on economic policies (William R Clark et al., 2013; Thompson, 2004). Governments may adjust monetary and fiscal policies to influence electoral outcomes, impacting pace and success of infrastructure projects. The discussion explores the implications of policy consistency across administrations, probing how variations in economic policies during election cycles affect project timelines and outcomes. This analysis underscores nuanced interplay between political imperatives and infrastructure development, shaping strategic environment for long-term planning and implementation.

To empirically substantiate the role of political economy in capital city relocations, we expanded our survival analysis to include variables representing elite consensus, institutional strength, and international alignments specifically political polarisation, opposition party autonomy, and membership in intergovernmental organisations (IGOs) and defence cooperation agreements. To ensure the robustness of our findings, we estimated an alternative survival model using the Weibull distribution. The results were largely consistent with those from the Cox model, suggesting that the assumptions underlying the baseline hazard do not significantly affect the key relationships. As shown in Table 7, the baseline effect of a flexible exchange rate paired with a dependent central bank remains statistically significant across all models (Weibull: $\beta = 1.379$, SE = 0.670, $p < .05$), confirming the earlier finding that macroeconomic institutional flexibility accelerates relocation success. However, when political variables are introduced, this effect becomes stronger in Cox models (e.g., Model 2: $\beta = 3.538$, SE = 0.818, $p < .01$), suggesting that monetary manoeuvrability may yield greater

Table 7.
Cox Regression and Weibull Estimates of Political Economy Variables on Capital City Relocation Success

Covariates	Base Model	+Political Polarization	+Opposition Parties Autonomy	+IGO	+DCAD	Weibull Model
			Cox Regression			*Weibull*
Flexible Dependent	1.661**	3.538***	3.434***	4.106***	4.136***	1.379**
	(0.798)	(0.818)	(0.707)	(0.847)	(0.972)	(0.670)
Political Polarisation		-0.508**	-0.401*	-0.379	-0.380	0.402***
		(0.246)	(0.243)	(0.251)	(0.253)	(0.155)
Opposition Parties Autonomy			0.298	0.520**	0.521**	0.700***
			(0.278)	(0.250)	(0.253)	(0.244)
IGO Full Membership				-0.0379**	-0.0381**	-0.0446***
				(0.0186)	(0.0186)	(0.0149)
Membership in Defence Cooperation Agreement					-0.0327	0.479
					(0.359)	(0.435)
Observations	223	213	213	209	209	209

Source: authors' analysis using Cox Regression Model.

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

benefits in political contexts marked by elite cohesion and institutional responsiveness.

Importantly, political polarisation shows a consistently negative effect in Cox regressions (Model 2: $\beta = -0.508$, SE = 0.246, $p < .05$), indicating that fragmented elites and adversarial politics undermine the coherence needed for long-term project continuity. This aligns with Flyvbjerg's (2014) argument that megaprojects falter under misaligned interests and unstable coalitions. The positive effect of opposition party autonomy (Weibull: $\beta = 0.700$, SE = 0.244, $p < .01$) suggests that inclusive political institutions—where opposition voices are institutionalised rather than suppressed—may enhance project legitimacy and reduce implementation risks, reflecting stronger bureaucratic capacity and public accountability. In other words, elite bargains that include structured opposition seem to yield more effective and durable outcomes.

Meanwhile, full IGO membership is negatively associated with relocation success (Weibull: $\beta = -0.045$, SE = 0.015, $p < .01$), possibly reflecting external institutional constraints or regulatory burdens that can slow down domestic infrastructure agendas. This finding nuances the role of interest groups, while global institutional ties may provide normative legitimacy, they also introduce compliance costs and procedural inertia. Membership in defence cooperation agreements, however, does not show a significant effect, indicating that not all international commitments bear on infrastructure implementation timelines.

Together, these results support a political economy reading of capital relocations: where elite consensus is fractured, institutional capacity is weak, or interest groups are misaligned, even favourable macroeconomic conditions may be insufficient to ensure timely success. Thus, understanding how political institutions mediate infrastructure outcomes is essential to the analysis of large-scale development strategies.

Regime changes, whether through elections or political transitions, introduce additional complexities to the continuity of infrastructure projects (Flyvbjerg, 2014). While comprehensive long-term planning is emphasised, regime changes can disrupt policy continuity and introduce administrative challenges. Case studies elucidate scenarios where regime changes have either facilitated or hindered capital city relocations, emphasising the pivotal role of institutional stability in ensuring project success. This discourse highlights the strategic imperatives for leaders in managing political transitions and maintaining momentum in infrastructure development.

To complement the macroeconomic analysis, we integrate a political economy perspective that considers how elite bargains, bureaucratic capacity, and interest group dynamics shape the outcomes of capital city relocation projects using political polarisation, opposition parties' autonomy, and countries' membership in IGOs and defence cooperation agreement. Drawing on Flyvbjerg's (2014) work on megaproject risk and Williams' (2017) insights into unfinished infrastructure, we interpret cases like Brazil and Malaysia as instances where stable elite coalitions and bureaucratic coordination facilitated timely completion. In contrast, Nigeria and Indonesia illustrate how fragmented interests, institutional weakness, and fluctuating political coalitions can delay or complicate project trajectories. These factors mediate the impact of macroeconomic conditions, reinforcing the need to analyse capital relocations not only through fiscal and monetary lenses but also through the lens of political power and institutional arrangement.

Political stability, regime changes, and economic policies are key to enabling large-scale infrastructure projects (Williams, 2017). Successful leadership involves securing bipartisan support and building institutions

resilient to political shifts. International best practices highlight how managing political dynamics and sustaining momentum are vital for capital city relocations. These findings stress the need for adaptive planning, risk management, and resilient frameworks to ensure long-term success.

Conclusion

This study finds that monetary policy expansion, especially in countries with dependent central banks and flexible exchange rates, significantly accelerates capital city relocation success. Key macroeconomic factors such as GDP growth, FDI, and trade balance also shape project timelines. Kaplan-Meier analysis shows a 25% chance of success within 20 years, 50% within 30, and 75% within 50 years. Cox regression confirms that instruments like lower interest rates and increased money supply support faster outcomes, though excessive expansion may trigger inflation or fiscal risks.

Larger GDPs and higher growth rates are associated with shorter completion times, suggesting that developed economies with stronger infrastructure and resources are better positioned to implement such projects efficiently. While high export levels tend to delay timelines due to resource diversion, higher import levels and FDI flows—both inbound and outbound—are linked to faster success by ensuring access to capital, expertise, and essential inputs.

Political dynamics also play a critical role. Factors like regime change, policy consistency, and institutional stability influence project continuity. Leaders must navigate short-term electoral pressures while maintaining long-term commitments. Strategies such as bipartisan consensus, institutionalised planning, and stable governance are crucial to managing disruptions across political cycles.

Our study advances the analysis of capital relocations by combining survival analysis techniques (Kaplan-Meier and Cox regression) with macroeconomic and political variables. It contributes a broader theoretical perspective that integrates institutional and economic conditions influencing long-term infrastructure outcomes. The findings underscore the importance of aligning macroeconomic stability with infrastructure strategies. Promoting FDI, ensuring monetary flexibility, and maintaining political coherence are key to success.

This research significantly contributes to theoretical and practical knowledge of capital city relocations. It advances methodological approaches in survival analysis, integrates political-economic dimensions, and provides actionable insights for policymakers. Future research should explore how variables like political polarisation and opposition autonomy further shape these outcomes.

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