

Political Instability and Firm Performance in the Democratic Republic of Congo

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and
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Research Paper 504

AFRICAN ECONOMIC RESEARCH CONSORTIUM
CONSORTIUM POUR LA RECHERCHE ÉCONOMIQUE EN AF-

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THIS RESEARCH STUDY was supported by a grant from the African Economic Research Consortium. The findings, opinions and recommendations are those of the authors, however, and do not necessarily reflect the views of the Consortium, its individual members or the AERC Secretariat.

Published by: The African Economic Research Consortium
P.O. Box 62882 - City Square
Nairobi 00200, Kenya

ISBN 978-9966-61-203-8

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List of abbreviations and acronyms

ANAPI	National Agency for the Promotion of Investments [Agence Nationale pour la Promotion des Investissements]
ATC	Average Treatment on the Controls
ATT	Average Treatment on the Treated
DRC	Democratic Republic of Congo
EPS	Earnings Per Share
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
IV	Instrumental Variables
ROE	Returns on Equity
OLS	Ordinary Least Squares
ROI	Returns on Investment
SMEs	Small and Medium-sized Enterprises
SSA	Sub-Saharan Africa
WBES	World Bank Enterprise Survey

Abstract

This study analyses the effect of political instability on firm performance in the DRC, one of the most unstable countries in sub-Saharan Africa. We use pooled panel data for three waves of the World Bank Enterprise Survey of the DRC (2006, 2010, and 2013) to analyse the effect of political instability on five measures of performance: employee growth, sales growth, productivity, investment, and export status. Results from the endogenous switching model reveal that political instability adversely affects firm performance in the DRC. In the presence of political instability, employee growth, sales growth, productivity, and investment growth significantly decline. Conversely, firms that do not experience political instability grow in terms of employee growth, sales growth, productivity, investment, and exporting activities. Our results are robust when we proxy political instability with losses due to theft, robbery, and vandalism. For purposes of policy, we recommend that political stability should be enhanced through political goodwill and legislation that advocates for peace. Firms can also push for this agenda through their business associations and platforms such as public-private partnerships that link them to the government.

Key words: Political instability; Firm performance; Endogenous switching model; DRC.

JEL classification codes: D22; L25; O55.

1. Introduction

Effective institutions are strongly correlated with economic development (Acemoglu and Robinson, 2012). Policies that aim to enhance economic growth rest on the quality of political institutions, which ultimately play a leading role in determining the trajectory of economic development. For example, political stability and regime type in Africa significantly affect the gross domestic product (GDP) per capita, total factor productivity of the agriculture sector, and economic growth (Bates et al, 2013; Dalyop, 2019). As such, there is a need for good institutions that implement policies and ultimately promote economic development.

A channel through which political institutions promote growth—that has recently attracted the attention of policy makers—is the business environment, given its ability to enhance firm performance (Commander and Svejnar, 2011) and its propensity to drive firm productivity (Anos-Casero and Udomsaph, 2009). Policies that have been of interest to promote firm growth have focused on reducing constraints such as financial, legal, and corruption problems (Beck et al, 2005). Smaller firms are the most constrained across all metrics. Empirical evidence has shown that financial constraints significantly increase the likelihood that firms exit the market while access to external financial resources has a positive effect on the growth of firms in terms of sales, capital stock, and employment (Musso and Schiavo, 2008). However, the effect and magnitude of these constraints vary across countries, the level of economic development, and across firm characteristics (Beck et al, 2005; Commander and Svejnar, 2011).

Asongu and Odhiambo (2019) reviewed the challenges of doing business in Africa. Issues related to the cost of starting and doing business, shortage of electricity, lack of access to finance, high taxation, and low cross-border trade were identified as prevalent across the continent. Improving the business environment by reducing the level of these constraints is costly and may take considerable time. However, as noted by Bah and Fang (2015), some constraints can be rapidly addressed in the presence of a strong political will. Equally, political instability has implications for the improvement of the business sector and firm growth. For example, it has a direct negative effect on innovation (Allard et al, 2012), has a substantial influence on both formal and informal entrepreneurship (Autio and Fu, 2015), affects a firm's ability to export (Kapri, 2019; Elango and Pangarkar, 2020), and has a negative causal effect on firm performance (Hosny, 2017, 2020).

Empirical literature seems to agree that political instability is detrimental to the growth of firms (Hosny, 2017, 2020; Matta et al, 2018). However, existing empirical evidence suffers from two gaps that we have identified. First, it does not cover sub-Saharan Africa (SSA) and second, and most important, countries that have experienced long periods of political instability are under-researched. Most of the existing studies are entrenched in particular contexts that fuelled political instability. For example, Matta et al. (2018) and Hosny (2020) studied the effect of political instability on firms, but that instability was caused by the Jasmine revolution in Tunisia. Hosny (2017) positioned the study in the context of the Egyptian revolution surrounding the fall of President Hosni Mubarak. The striking point here is that, not only is SSA scarcely covered by the existing literature, but the region has some of the most perennially unstable countries in the world (Chacha and Edwards, 2019). This study seeks to fill this gap by examining how firms perform in a context of sustained political instability, using the case of the Democratic Republic of Congo (DRC). To the best of our knowledge, this is the first paper to study political instability and firm performance linkages in the DRC.

The DRC ranks highly in terms of political instability worldwide, yet empirical evidence on its effect on firm performance is lacking for the country. Micro-level papers in the DRC have studied how firm performance is affected by gender (Mwisha, 2012), business environment (Sebigunda, 2013), and human capital (Urban and Kongo, 2015). Furthermore, policy makers in the DRC are increasingly targeting policies that improve the performance of the private sector as a strategy for economic diversification (World Bank, 2015). Some policies include simplifying the domestic fiscal system, establishing Courts of Commerce and Labour Courts, establishing investment security mechanisms, and prohibiting nationalization and expropriation. Others are freedom to transfer generated revenue and reduced time to formally create a firm (to three days) through a single counter (ANAPI [Agence Nationale pour la Promotion des Investissements], 2021). Nonetheless, the success of these interventions is likely to be affected by political instability, hence the reason to inform policy in the DRC on the effect of political instability on firm performance.

Using pooled panel data from the World Bank Enterprise Survey (WBES) for the years 2006, 2010, and 2013, this study explores the effect of political instability on five indicators of firm performance, which are employee growth, sales growth, productivity, investment, and export status. We employ an endogenous switching model, which has been narrowly applied in the context of political instability, for this exercise.¹ Our results reveal that political instability reduces employee growth, sales growth, productivity, and investment by 419%, 54%, 36%, and 68%, respectively. These results are robust when political instability is proxied by the losses arising from theft, robbery, and vandalism (here, the probability of exporting reduces by 2.6%).

¹ This model is superior to the Ordinary Least Squares (OLS) for handling the problem of endogeneity, and the Instrumental Variables (IV) model for handling reverse causality (Lokshin and Sajaia, 2004; Seck, 2020).

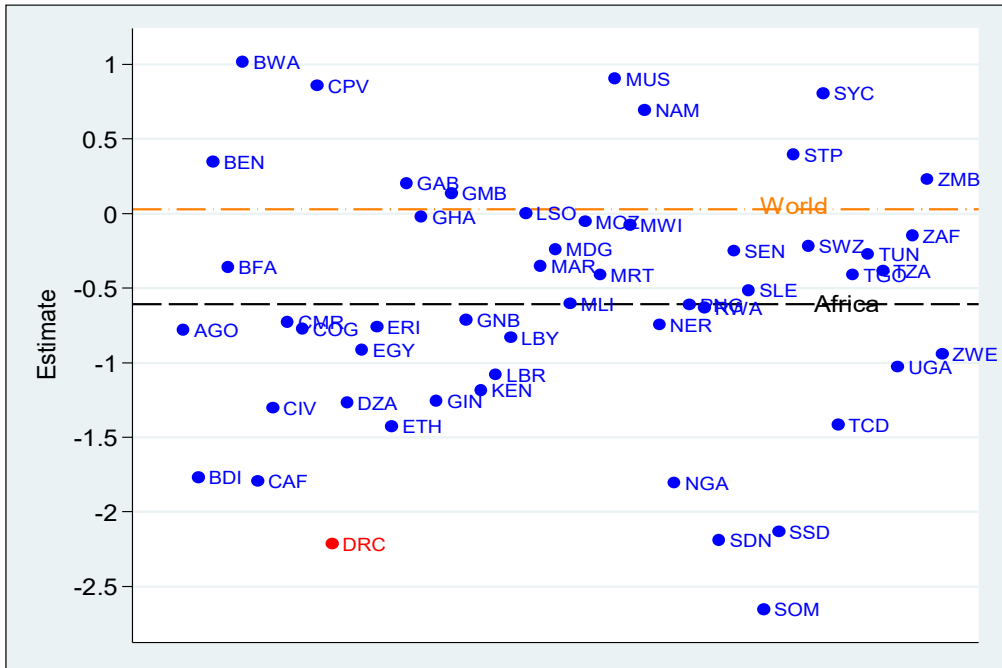
The rest of this paper is organized as follows. Section 2 presents stylized facts of the business environment in the DRC. Section 3 reviews the literature, which lays out the conceptual channels through which political instability affects firm performance alongside an empirical survey of related studies. Section 4 describes the empirical model, while Section 5 describes the data and our variables. Empirical results are presented in Section 6, while Section 7 concludes the study.

2. Stylized facts on political instability and firm constraints in the DRC

Since attaining independence in 1960, the DRC has ranked as one of the most unstable countries in the world. As shown in Figure 1, the estimate of political stability in the DRC is lower than that of the world and Africa by far. The DRC is about four times politically unstable compared to the African average, and over 20 times unstable compared to the mean global political instability rate. The DRC is also the second most politically unstable country in Africa after Somalia (SOM), which means that the DRC is the most unstable country in Central Africa, a region with some of the most fragile states in the world such as Burundi (BDI), Central African Republic (CAF), and South Sudan (SSD).

Table 1 compares the performance of the DRC to that of Africa and the world across several indicators of the business environment. The DRC performs poorly on most indicators: more businesses experience losses from theft, crime, and vandalism than in African countries and the world. Most firms in the DRC source for funds internally other than from banks, indicating a weak financial system and problems associated with access to credit by businesses. The share of firms with audited financial statements in the DRC is almost half that of the African average and the world. The informal sector seems to have a bigger role in the DRC compared to the rest of Africa and the world, while more firms experience power outages in the country as opposed to Africa and the world. More firms identify business licensing and permits as a major constraint in the DRC (38%) compared to Africa (30%) and the world (22%).

Figure 1: Rank of African countries by political instability estimates (average, 1996-2019)



Note: Political instability estimate ranges from about -2.5 (high political instability) to 2.5 (low political instability).

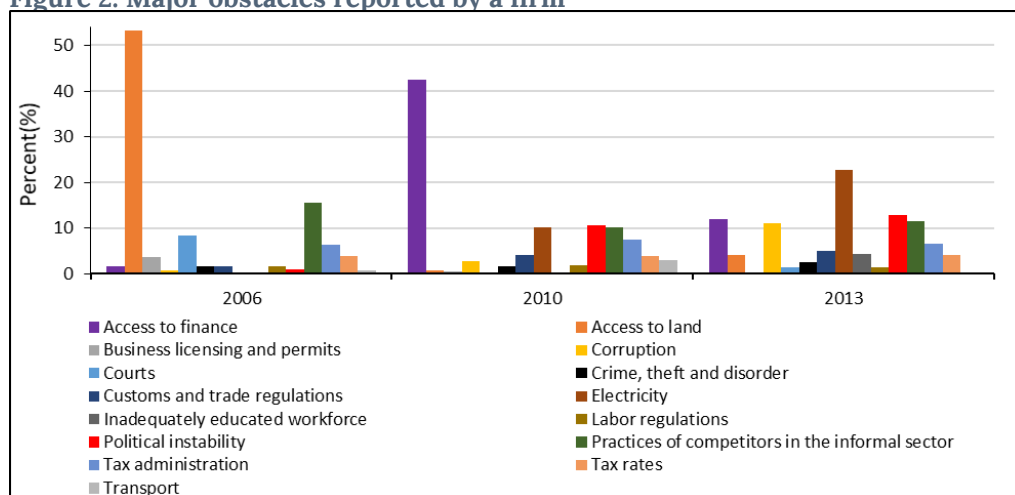
Source: Authors' construction using World Governance Indicators data.

Figure 2 displays major obstacles that have been reported by firms using the three waves of WBES in the DRC. Access to land, practices of competitors in the informal sector, and courts were the top three obstacles to operations of formal firms in 2006. Figure 2 shows that, in 2006 and 2010, access to land and access to finance were reported as major and stand-alone constraints far beyond other reported constraints. While in 2013 access to electricity is reported as the highest constraint, it is not as important as other major constraints in previous waves. Additionally, there is no single constraint that is dominant in all the three waves, and the most important constraint reported is different in each wave of the survey. The impact of some obstacles has faded over time but the severity of political instability, of all the major obstacles to firm operations, has consistently risen over time, especially in the last two waves, thereby affirming our focus on it.

Table 1: Comparison of key indicators for DRC, Africa and World

Indicators	DRC	Africa	World
% of annual sales losses due to theft, crime, and vandalism	8.3%	7.9%	5.5%
Proportion of investments financed internally	92.2%	74.4%	72.1%
Proportion of working capital financed by banks	1.9%	8.3%	10.8%
Annual financial statement reviewed by external auditors	25.4%	48.6%	46.5%
Female participation in firm ownership	15.1%	29.2%	33.6%
Proportion of firms competing against unregistered and firms in the informal sector	78.4%	69.5%	53.6%
Proportion of firms experiencing power outages	89.3%	77.5%	57.3%
% of firms identifying business licensing and permits as a major constraint	38.4%	29.6%	22.1%

Source: WBES (2014).

Figure 2: Major obstacles reported by a firm

Source: WBES (2006, 2010, and 2013).

According to the WBES, as shown in Figure 2, several constraints play a role in hindering firm prospects in the DRC. However, according to the most recent survey, the DRC was doing better than the average of SSA on some of these reported obstacles. For example, while access to finance was reported as a major constraint in 2010, it is a lesser obstacle in the DRC compared to the average of SSA.² Though important, other reported constraints can in some ways be linked to the ineffectiveness of institutions, a salient characteristic of politically unstable countries. Thus, one can argue that some of these obstacles are a result of lack of stability which does not allow law enforcement and competitiveness. Firms operating in such contexts tend to underperform (Yasar et al, 2011). Tables A2, A3 and A4 (in the appendix) illustrate how these constraints

² Comparison of obstacles between the DRC and the rest of the World. <https://www.enterprisesurveys.org/en/data/exploreconomies/2013/congo-dem-rep#2>

vary across firm size, region, and sector in the DRC. It can be observed, as the sole major constraint that varies across survey waves, that political instability is reported at a high percentage, especially in 2010 and 2013. Its proportion is higher than, for example, retail and other services firms, for firms situated in the Eastern, Western and the Central regions, and for SMEs for different years. For example, 39% of firms located in Matadi reported that political instability was the most important obstacle in 2010. We can hypothesize that this is linked to the Mbutu dia Kongo mass protestations that were followed by a rebel movement in the region. However, these examples are so many in the DRC to a point that one cannot handpick only one aspect of instability over all the years that are reported by the data.

3. Literature review

At the macro-level, political instability reduces economic growth but the relationship is bi-directional (Cukierman et al, 1992; Devereux and Wen, 1998) and often flows through variables such as investment, inflation, human capital, and fiscal deficit (Fosu, 1992; Gyimah-Brempong and Traynor, 1999; Dalyop, 2019)³. Nonetheless, we confine our discussion of empirical results to the micro-level since our unit of analysis is firms.

Most micro-level studies find that political instability reduces the performance of firms. For example, Hosny (2017) examined the effect of political stability on the performance of firms in the Middle East. Firm performance was defined as sales growth and employee growth. Both the Ordinary Least Squares (OLS) and endogenous switching models established that political instability negatively and significantly reduced the performance of firms operating in the Middle East.

Matta et al. (2018) also examined the effect of political instability on the performance of Tunisian firms after the Jasmine revolution of 2011. This was an intense 28-day period of civil unrest that led to the ouster of the then Tunisian president. The authors measured firm performance by the growth of full-time employees and sales and found that political instability significantly reduced both variables. An Instrumental Variables (IV) approach was applied in their analysis. These results were affirmed by Hosny (2020) who studied the effect of political instability on private firms in Tunisia. Fowowe (2017) also finds that political instability deteriorates the performance of firms (employee growth) in Africa.

Firm performance measured as export performance and Foreign Direct Investment (FDI) also declined in the presence of political instability (Ahsan and Iqbal, 2020; Lacroix et al, 2020). Nonetheless, political instability can stimulate firms to become exporters as Kapri (2019) shows in South Asian countries. This implies that the hypothesis of political instability reducing firm performance is not unanimous and there might be exceptions. This also alludes to the need for a conceptual channel to elucidate findings. We do so in the next sub-sections by developing hypotheses of the expected relationships between political instability and our five measures of firm performance (employee growth, sales growth, productivity, investment, and export activity). The aforementioned studies have already used employee growth and sales growth, but productivity and investment have only been applied by Seck (2020) and

³ Refer to Tohmé et al (2021) for a theoretical framework of the effect of different forms of political instability on economic growth.

Martins et al (2020), who use WBES data to link corruption to firm performance. Seck (2020) has also covered exports.

H1: Political instability reduces employee growth

Political instability affects firm performance by increasing workforce defection through death, displacement and departure of foreign persons thereby reducing productivity and overall performance of firms. The 1999 coup d'état in Côte d'Ivoire is an ideal illustration, where the total factor productivity of firms reduced by 16%-23% (Klapper et al, 2013) due to massive migration of workers, particularly foreign employees, leading to a 5%-10% loss among firms (Leon and Dosso, 2020).

H2: Political instability reduces sales growth

Conflicts alter the proper functioning of markets, restrict access to markets for inputs, and distort the allocation of these inputs across firms. Physical infrastructure is damaged in most situations of war, leading to a persistent large output loss (Cerra and Saxena, 2008). Access to finance, which is important for growth of sales by firms (Fowowe, 2017) is also affected during episodes of political instability as financial institutions remain non-operational. Ideally, firms that had difficulty in accessing credit recovered slowly after the 2011 post-electoral crisis in Côte d'Ivoire (Leon and Dosso, 2020). Moreover, firms are provoked towards input substitution policy as a fall-back strategy during conflicts and crises in a bid to perpetuate growth and production (Dupas and Robinson, 2010; Amodio and Di Maio, 2018). This could be attributed to the fact that firms lose their bargaining power with foreign suppliers as uncertainty heightens during conflict. Throughout the Second Intifada (2000–2006) in Palestine, within high conflict areas, this policy accounted for more than 70% of the loss in firms' output value. As a result of the conflict-induced disruptions, firms that were in more hostile conditions were forced to import their inputs rather than to locally source them, incurring higher expenses (Amodio and Di Maio, 2018).

H3: Political instability reduces productivity

Labour productivity declines during periods of political instability through absenteeism by workers. The predominant non-attendance of workers constrains access to labour by firms, thereby discouraging productivity (Ksoll et al, 2021). Productivity can also be affected by increased discrimination of workers at the workplace. For example, part of the reason why firms performed poorly during the 2007–2008 post-election violence in Kenya was the inter-ethnic segregation among workers in firms which affected their productivity (Hjort, 2014).

In addition, a flux in instability affects firm productivity through regressed technology, decreased demand corresponding to declining income, and a persistent fall in productive skills. For example, the 1991–2002 war in Sierra Leone had lasting effects on the size of firms in 2006, in that firms that were more exposed to war became small (Collier and Duponchel, 2013). After a war, firms work with under-skilled workers

though it takes time to re-skill, lessening their output and the level of adopting new technology of production limiting the firm's competitive advantage and thereby trimming the level of exports (Collier and Duponchel, 2013; Leon and Dosso, 2020).

H4: Political instability reduces investment

Insurgencies and terrors are detrimental to the level of investment in the long run since they restrict credit accessibility and thus deny potential firms the chance to invest in technology and physical capital that can boost their production (Singh, 2013). Firms face possible losses in investments and reductions in their returns on investments in the presence of instability within countries. Similarly, political instability slackens and diverts the flow of Foreign Direct Investment (FDI), as political turbulence enforces extra costs. However, the impact varies depending on the sectors' proximity to areas prone to conflict or terror. Urban service-oriented sectors such as communications, trade, finance, and business are hard hit while the rural industrial sectors, for example, oil, gas and power, attract investments and are not significantly affected by terrorism-related activities (Haider and Anwar, 2014).

The prevailing status of armed conflict escalates the probability of a firm exiting a market. Camacho and Rodriguez (2012) find that a rise in the number of paramilitary and guerrilla raids intensifies the likelihood of a firm exiting, especially among the younger manufacturing firms with few workers and dwindling capital levels. In addition, political instability decreases the level of private investment, and firms in war-ravaged countries face restrained access to capital, uncertain production, and operation costs that increase the likelihood of a firm's exit.

However, there are cases where investments by firms increase in the presence of political instability. Foremost, when private companies gain from civil war, and thereby reducing their incentives to push towards a cease-fire in prevailing conflicts and persistent instability (Guidolin and Ferrara, 2007). This is common among multinationals operating in resource-abundant sectors such as mining and extraction. Firms with deep political connections also experience higher performance and investment rates than weakly connected ones (Fisman, 2001).

H5: Political instability reduces exports

Whereas exporters are assumed to be larger and more skill-intensive than non-exporters (Wagner, 2016), and thus could be assumed to be immune to political instability, studies have shown that export sales of these firms reduce during episodes of political turmoil. For example, flower exports from firms located in areas highly affected by Kenya's 2007 post-election violence declined by 38% (Hjort, 2014). The loss in terms of flower exports to the European Union is approximated at €33 million for the entire period of the violence, and the overall revenue loss among affected firms was 30% (Muhammad et al, 2013). The loss in exports is driven by disruptions in supply chains of inputs and outputs, a surge in firm exits and low entries, and low productivity from worker absenteeism. In the case of Kenya, workers' absence

from work, averaging 50% of the labour force, was the main channel through which exporters were impacted during the 2007 post-election violence (Ksoll et al, 2021).

A further examination of the literature shows that political instability measurement itself remains broad as it could be context-based, or pertain to different dimensions of instability that are being measured. Building upon these identified channels, our study expands the scope of knowledge by exploring the particular context of the DRC by assessing the performance of firms that may be affected by political instability. Across different channels, this study unveils how political instability that has prevailed for decades, affected firms in several ways.

4. Empirical model

Following Lokshin and Sajaia (2004), Hosny (2017), and Seck (2020), we employ an endogenous switching model over OLS in estimating the effect of political instability on firm performance to correct for endogeneity and allow for a causal interpretation of coefficients. Unobserved factors like political connections may influence the firm's perceptions of the extent to which political instability stifles its operations, hence causing an omission bias that may lead to endogeneity bias. Political instability, which is our variable of interest, is prone to the problem of endogeneity from measurement errors or the reverse causality. The ordinary OLS ignores endogeneity problems, yielding biased and inconsistent estimates. In particular, it only reveals the association between political instability and firm performance without giving the coefficients causal interpretations. Other approaches such as the instrumental variables model that has been employed by Matta et al. (2018) and Fowowe (2017) only control for endogeneity, disregarding reverse causality resulting in problems in identifying the best instruments for the endogenous regressors.

The endogenous switching regression model is thus preferred for its ability to better deal with reverse causality and endogeneity bias. These models are fitted on one equation at a time by either maximum likelihood estimation or two-step least squares. Selection equations are estimated in two parts: a switching or binary equation that selects firms over two regimes (with and without political instability), and the continuous equation part that models the determinants of firm performance within each regime. Specifically, let I_i be the indicator function governing the two regimes:

$$I_i = \begin{cases} 1 & \text{if } I_i^* = \alpha_1 Y_i' + \gamma Z_i + \mu_i > 0 \\ 0 & \text{if } I_i^* = \alpha_0 Y_i' + \gamma Z_i + \mu_i \leq 0 \end{cases} \quad (1)$$

$I_i = 1$ represents the experience of political instability by firm ii when the underlying generating mechanism of political instability I_i^* is above the threshold of 0. Otherwise, the firm does not experience political instability ($I_i = 0$). Y_i' is a vector of weakly exogenous variables that explain firm performance. γ , α_1 , and α_0 are vectors of parameters to be estimated for the selection outcome with and without political instability, respectively. μ_i is the error term.

The second-stage continuous equation on the choice of political instability is specified as:

$$\begin{cases} \gamma_{1i} = \beta_1 X_{1i} + \varepsilon_{1i} \text{ if } I_i = 1 \\ \gamma_{0i} = \beta_0 X_{0i} + \varepsilon_{0i} \text{ if } I_i = 0 \end{cases} \quad (2)$$

Where,

γ_{ji} is a measure of the performance of firm ii in a state/regime j (either 1 or 0). We adopt five performance measures: employee growth, sales growth, productivity, investment, and export status. The vector of explanatory/weakly exogenous variables (X_{ji}) are firm characteristics and indicators of the business environment like the level of political instability. The omission of vector Z_i (Equation 2) allows for model identification by using instruments instead of non-linearities, giving more stability to the coefficients (Wooldridge, 2002; Seck, 2020). The rationale in estimating the equations separately is that the implications of political instability affect firm choices differently, hence vectors β_1 and β_0 .

Assuming that μ_i , ε_{1i} , and ε_{0i} have a trivariate normal distribution with mean vector zero and covariance matrix, and estimating the model parameters, the following conditional and unconditional expectations can be calculated (Lokshin and Sajaia, 2004):

Unconditional expectations:

$$E(x_{1i} = 1) = x_{1i}\beta_1 \quad (3)$$

$$E(x_{0i} = 1) = x_{0i}\beta_0 \quad (4)$$

Conditional expectations:

$$E(1i = 1, x_{1i}) = x_{1i}\beta_1 + \sigma_1\rho_1 f(\gamma Z_i)/F(\gamma Z_i) \quad (5)$$

$$E(1i = 0, x_{1i}) = x_{1i}\beta_1 - \sigma_1\rho_1 f(\gamma Z_i)/\{1 - F(\gamma Z_i)\} \quad (6)$$

$$E(1i = 1, x_{0i}) = x_{0i}\beta_0 + \sigma_0\rho_0 f(\gamma Z_i)/F(\gamma Z_i) \quad (7)$$

$$E(1i = 0, x_{0i}) = x_{0i}\beta_0 - \sigma_0\rho_0 f(\gamma Z_i)/\{1 - F(\gamma Z_i)\} \quad (8)$$

The impact of political stability on firm performance is the difference between Equation 5 and Equation 6, i.e., average treatment on the treated (ATT), while the difference between Equation 7 and Equation 8 represents the impact on firms that did not report political instability were they to begin experiencing it, i.e., the average treatment on the untreated or controls (ATC).

5. Data and definition of variables

The 2006, 2010, and 2013 WBES data sets on the DRC were used in this study. These data sets were collected among establishments (firms and enterprises). A total of 1,228 business owners and managers were interviewed. The surveys were stratified using three criteria: firm sector, firm size, and geographical region. Industry stratification was designed into four manufacturing sectors (food, textiles and garments, chemicals and plastics, other manufacturing) and two service sectors (retail and other services). Stratification by firm size divided the population of firms into three strata: small firms (5-19 employees), medium firms (20-99 employees), and large firms (100 or more employees). For regional stratification, the country was divided into four regions: Centre (Kananga and Mbuji Mayi), East (Bukavu, Butembo, Goma, Kisangani), South (Likasi, Lubumbashi), and North (Boma, Kikwit, Kinshasa, Matadi).

As shown in Section 4, firm performance is the dependent variable. Measures of firm performance have been perceived as being sensitive and crucial in explaining the growth of firms since they may have different effects on the outcome (Miller et al, 2013). Financial measures of firm performance are preferred to non-financial measures because they are objective and easily measured (Fowowe, 2017). These include profit, returns on investment (ROI), returns on equity (ROE), earnings per share (EPS), and revenue (Santos and Brito, 2012). However, financial measures are difficult to obtain and have been criticized for being backward-looking.

The most commonly used measures are the growth of sales and the growth of employees (Hosny, 2017; Matta et al, 2018). Besides sales and employment growth, Martins et al. (2020) and Seck (2020) use productivity, investment, and export status to proxy firm performance. In this study, firm performance is measured in fivefold: employee growth, sales growth, productivity, investment, and export status. Employee growth is measured as follows:

$$FG_{it} = \left[\frac{\ln S_{it} - \ln S_{i,t-3}}{3} \right] \quad (9)$$

Where, $\ln S_{it}$ is the log of the number of current permanent employees, $\ln S_{i,t-3}$ is the log of the number of permanent employees three years ago. Thus, firm performance is measured as the log difference between the number of current permanent employees minus the number of permanent employees three years before, then divided by three. The subscripts i stand for individual firm and t for time. The

same formula is used to measure sales growth. As for productivity, we use the natural logarithm of the value addition (sales less total labour cost in the last financial year). Investment is the natural logarithm of the total annual expenditure for equipment purchases in the last fiscal year. Given the importance of exports to economic growth (Ossa, 2015) and the role of political stability on export performance (Fosu, 2003), we also establish the effect of political instability on export performance in the DRC. It is a binary variable, indicating whether a firm exports directly or indirectly or not.

A host of firm-level characteristics (firm age, manager's experience, firm size, sector, ownership status, location) and indicators of the business environment (political instability and corruption) are used as independent variables. Firm age is the number of years a firm has been in operation. It is calculated by subtracting the year a firm began operations from the year of the interview. Manager's experience is the number of years a manager has worked in a specific sector. The firm's size is proxied by the total number of full-time employees. It is a categorical variable with three possible sizes: small, medium, and large. Following the WBES on the classification of the sizes of firms in the DRC, a firm is said to be small when it has less than 19 employees. Medium firms have 20-99 employees, while large firms are for 100 employees and above. The region a firm is located is classified as Western, Eastern, Southern, and Central.

Foreign ownership is presented by a dummy variable, whether a firm is foreign-owned or not. This is generated from the firm's proportion of private foreign ownership. A score of at most 50% is considered locally owned while a score of more than 50% indicates foreign ownership (Matta et al, 2018). The sector of operation is a dummy variable for retail, manufacturing, and other services.

Political instability, which is our variable of interest, is a binary variable with 1 indicating that political instability was either a major or very severe obstacle to a firm. Zero means political instability was either not an obstacle, minor obstacle, or moderate obstacle to a firm's performance. Corruption is presented as the percentage of total annual sales paid in informal payments. It is expected to “grease or sand the wheels” of firm performance (Seck, 2020). Table A1 (in the appendix) gives further information on the definitions of our variables.

6. Results

Summary statistics

Table 2 presents descriptive statistics for our variables. The first part shows the results of our performance indicators (dependent variables). We find that the average level of employee growth has declined over the years. This could indicate that most firms either preferred hiring workers on a short-term contract or prioritized improvement of other performance indicators of the firm. The average sales growth, productivity, and log of investment were highest in 2010 than in other years, implying improved performance by most firms in that year. It could also mean that the performance of firms is heterogeneous across years and could be a source of endogeneity if it is not addressed. Roughly 3.4% of firms in the DRC export directly or indirectly. The highest incidence of exporters was in 2010 (3.5%) followed by 2013 (3.3%), and 2006 (3.2%), respectively. Overall, most firms were interviewed in 2013–2014 compared to other years.

The second part of Table 2 displays summary statistics of firm characteristics and the business environment. The average age of firms operating in DRC is approximately 12 years, with the oldest firm being a century old by 2014. The average age of firms in 2006 was about 11 years, 16 years in 2010 and 11 years old in 2013. Approximately 86% of firms are foreign-owned in the DRC, with 2010 having the highest incidence of foreign-owned firms (89%). On average, firm managers in the DRC have an experience of more than a decade, with the most and least experienced managers having 66 years and less than a year of experience, respectively.

About three-quarters of firms in the DRC are small, which means that they employ between one and 19 full-time employees. One out of five firms is medium-sized, and about 6% are large. The ratio of small firms has declined over the years, while that of large firms has increased over time. Medium firms declined between 2006 and 2010 then rose in 2013, suggesting that their trend has been irregular. Manufacturing firms are the majority followed by those classified as other services and retailers. Apart from manufacturing firms, both retail and other services experienced high growth rates in 2010 compared to other years. Almost half of firms in the DRC were in the manufacturing sector in 2013. Most of the firms in the survey are located in the Western region followed by Southern, Central, and Eastern regions.

The overall mean for political instability is 0.604, indicating that close to two-thirds of firms in the DRC consider political instability as a threat to their operations. The effect was considered highest in 2010 possibly because general elections were held in 2011. Corruption, the percentage of total annual sales paid in informal payments, has consistently declined over the years. This indicates a possible improvement in the adoption of mobile money as a form of payment that has been shown to reduce corruption in Kenya (Barasa, 2021). Nonetheless, at least 3% of revenues by the DRC firms are lost to corruption, with some firms losing 100% to the vice.

Table 2: Summary statistics

Variable	N	Mean	Min	Max	N	Mean	N	Mean	N	Mean
	Overall				2006		2010		2013	
Performance										
Employee growth (%)	941	15.045	-100	527.856	217	15.456	305	14.552	419	15.191
Sales growth (%)	936	1.525	-48.233	152.872	339	0.586	169	2.896	428	1.727
Productivity	1062	17.679	11.151	34.105	338	16.896	242	19.636	482	17.244
Log investment	360	15.287	9.488	25.558	149	15.493	82	16.231	129	14.45
Export status	1190	0.034	0	1	339	0.032	341	0.035	510	0.033
Firm characteristics										
Firm age (years)	1193	12.404	0	100	340	10.891	342	16.041	511	10.977
Foreign ownership	1190	0.86	0	1	340	0.85	341	0.886	509	0.849
Manager's experience (years)	1193	12.815	0	66	340	10.503	342	14.289	511	13.366
Small	1173	0.744	0	1	338	0.766	335	0.722	500	0.744
Medium	1173	0.199	0	1	338	0.201	335	0.179	500	0.21
Large	1173	0.057	0	1	338	0.033	335	0.099	500	0.046
Manufacturing	1193	0.412	0	1	340	0.438	342	0.316	511	0.46
Retail	1193	0.279	0	1	340	0.274	342	0.322	511	0.254
Other services	1193	0.308	0	1	340	0.288	342	0.363	511	0.286
West	1193	0.601	0	1	340	0.876	342	0.509	511	0.479
East	1193	0.098	0	1	340	0.038	342	0.114	511	0.127
Central	1193	0.117	0	1	340	0.032	342	0.167	511	0.139
South	1193	0.184	0	1	340	0.053	342	0.211	511	0.254
Political instability	1193	0.604	0	1	340	0.553	342	0.711	511	0.568
Corruption	1154	3.09	0	100	340	4.231	326	3.123	488	2.273

Empirical results

Table 3 displays the results of the continuous part of the endogenous switching regression model, with political instability corresponding to a value of 1 for firms that reported it as a major or very severe obstacle to performance, and 0 for firms that reported it as none, minor or moderate obstacle. The significance of the likelihood ratio test of independence (LR χ^2) along most columns affirms the suitability of the chosen

model strategy, unlike an OLS which would consider separately the mechanisms through which the likelihood of experiencing political instability is created and firm performance, hence ignoring the endogeneity problem and self-selectivity.

The estimated correlation coefficients (*rho*) show the direction and significance of the impact of political instability on firm performance. They confirm that political instability has a negatively significant impact on employee growth ($\rho = -0.3964^{***}$), sales growth ($\rho = -0.1805^*$), productivity ($\rho = -0.4608^{***}$), and export status ($\rho = -0.4209^*$). However, this impact is statistically insignificant for investment. The actual impact in terms of quantity is shown by the average treatment effect on the treated (ATT) and the average treatment effect on the untreated or controls (ATC), with the treated firms being those that experienced political instability and the untreated firms being those that did not experience political instability. The estimated conditional expectations indicate an ATT decline of 419%, 53%, 36%, and 68% in employee growth, sales growth, productivity, and investment growth, respectively, for firms experiencing political instability. The coefficient for ATT is not statistically significant for export status.

These findings correspond to those of Hosny (2017, 2020), Matta et al. (2018), Fowowe (2017), Leon and Dosso (2020), among others. The dramatic decline of 419% in the size of the workforce can be explained by death, displacement, and the departure of foreign workers, which in turn lowers productivity during political turmoil. Political instability affects firm sales by inducing both demand and supply shocks. The demand shocks arise from the increased unemployment and inactivity of the labour force due to violence, which reduces their disposable income thus negatively affecting aggregate demand levels (Collier and Duponchel, 2013). Supply shocks arise from the hampered access to markets alongside a decline in both input and output availability. Amodio and Di Maio (2018) note that conflict alters the proper functioning of markets, restricts access to the markets for inputs and distorts the allocation of these inputs across firms.

As workers lose dexterity by remaining inactive during periods of political violence that force businesses to remain closed, their productivity reduces over time (Ksoll et al, 2021). Loss in labour productivity can also be caused by internal discrimination and segregation among workers, which is likely in the DRC context. This suffices when the nature of political violence results in ethnic animosity, such as was the case in Kenya during the 2007–2008 post-election violence (Hjort, 2014). Insurgencies adversely affect investment in the long run by restricting credit access and by diverting the flow of Foreign Direct Investment (FDI), though the severity may depend on a firm's proximity to conflict areas (Singh, 2013; Haider and Anwar, 2014). Table 3 further shows that political instability has no significant effect on export status. This finding resonates with studies that have concluded that firms are more likely to export when there is uncertainty within the domestic market due to political instability and high levels of corruption (Krammer et al, 2018). However, Kapri (2019) argues that small firms exit while larger firms that can surmount the additional costs make debuts into export markets.

Moving on to ATC, the results estimate the impact of political instability on the performance of firms that did not report experiencing it, if they in fact began to experience political instability. They reveal a statistically significant likelihood of an improvement across all measures of firm performance: employee growth (1388%), sales growth (240%), productivity (1773%), investment (9%) and exporting (64%). This could be due to a temporary increase in consumption and in the accumulation of physical and human capital in response to destruction at the onset of political instability (Miguel and Roland, 2011). Additionally, positive institutional changes in an attempt to curb the mounting conflict may boost production.

Table 3: Estimation results of endogenous switching model for political instability and firm performance

	Employee Growth		Sales Growth		Productivity		Investment		Export Status	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Firm age	-0.307 (0.249)	-0.634** (0.214)	-81.80 (59.33)	23199.5 (131589.0)	0.046*** (0.016)	0.014 (0.011)	0.118* (0.0468)	0.0258 (0.0357)	-0.00460* (0.00222)	-0.00316 (0.00170)
Manager's experience	0.507* (0.282)	0.693** (0.235)	136.0* (67.44)	-110911.0 (144821.8)	-0.026 (0.017)	0.009 (0.012)	-0.0814 (0.0528)	0.00420 (0.0393)	0.0102*** (0.00251)	0.00480** (0.00186)
Medium	28.83** (6.317)	37.48** (5.329)	2733.6 (1466.6)	282821.8 (3259867.1)	1.539* (0.363)	2.102*** (0.282)	-1.160 (1.234)	0.147 (0.914)	-0.0652 (0.0572)	-0.0184 (0.0439)
Large	84.78*** (11.16)	106.6*** (9.525)	893.5 (2592.0)	21622118.9** (5811532.2)	3.190*** (0.638)	4.061*** (0.503)	5.024* (2.192)	-1.227 (1.642)	-0.139 (0.102)	-0.158* (0.0797)
Retail	2.221 (5.528)	-6.115 (5.016)	-805.4 (1323.1)	-1223359.8 (3103477.7)	0.388 (0.333)	0.866*** (0.259)	-0.0717 (1.038)	-0.230 (0.842)	0.268*** (0.0489)	0.298** (0.0398)
Manufacturing	15.60 (11.35)	-6.367 (10.94)	-571.0 (2707.7)	-2972988.8 (6762318.4)	0.006 (0.655)	0.914 (0.617)	-6.462** (2.117)	-5.878** (1.835)	0.217* (0.100)	0.356** (0.0867)
East	10.33 (8.047)	3.344 (6.840)	-194.7 (1908.8)	-1282405.4 (4205017.9)	-0.805* (0.458)	-0.399 (0.343)	-1.298 (1.525)	-1.323 (1.156)	0.149* (0.0714)	0.228** (0.0554)
South	4.031 (5.980)	14.64** (5.408)	3036.1* (1429.0)	-3479215.4 (3347711.1)	-0.660* (0.368)	-0.620** (0.274)	-0.570 (1.120)	-0.969 (0.908)	0.257*** (0.0528)	0.249*** (0.0429)
Central	1.909 (7.965)	7.478 (6.214)	329.3 (1912.7)	-1866511.2 (3810272.8)	-1.032** (0.490)	0.001 (0.355)	-1.622 (1.496)	-1.644 (1.051)	0.0593 (0.0702)	0.299** (0.0507)
Corruption	-5.714 (4.642)	0.0790 (4.206)	1393.9 (1111.3)	3149003.5 (2601052.3)	-0.040 (0.273)	0.123 (0.213)	-1.500 (0.868)	-0.265 (0.706)	0.102* (0.0409)	0.211** (0.0334)
Foreign ownership	8.527 (7.035)	-8.330 (6.054)	1217.2 (1682.2)	6183432.3 (3734753.9)	-1.591*** (0.397)	-1.616*** (0.301)	-0.239 (1.315)	-3.496*** (1.013)	0.0550 (0.0620)	0.0863 (0.0480)
Constant	3.517 (9.708)	15.74* (7.418)	-908.6 (2073.4)	-2095705.4 (4354989.8)	19.674*** (0.519)	18.108*** (0.449)	-1.292 (2.199)	4.324*** (1.393)	0.576*** (0.0982)	0.401*** (0.0717)
rho	-0.3964*** (0.011)	0.4171*** (0.011)	-0.1805* (0.085)	0.1072* (0.052)	-0.4608*** (0.016)	0.1525 (0.016)	0.2721 (0.016)	0.1034 (0.016)	-0.4209* (0.128)	0.4060* (0.128)
Observations	1228	1228	1228	1228	1062	1062	1062	1228	1228	1228
Wald chi ² (11)	76.81***	76.81***	14.65	14.65	142.02***	142.02***	34.50***	34.50***	109.00***	109.00***
LR chi ²	20.14***	20.14***	5.28*	5.28*	17.09***	17.09***	2.80*	2.80*	11.77***	11.77***
ATT	-4.199**	-4.199**	-0.538**	-0.538**	0.355***	0.355***	-0.681***	-0.681***	0.0510	0.0510
ATC	13.88***	13.88***	2.403**	2.403**	17.731***	17.731***	0.0875***	0.0875***	0.641***	0.641***

Notes: Model 1s show the estimation results for firms that experienced political instability and Model 2s are for firms that did not experience political instability. Employee growth is expressed in terms of number of full-time workers; sales growth is expressed in terms of percentage; productivity and investment are expressed in logarithmic terms; and export status takes the value of 1 for exporting firms (directly or indirectly), and 0 otherwise. Values in parentheses are the standard errors; and significance at 1%, 5%, and, 10% is indicated by ***, **, and *, respectively.

The effect of other explanatory variables on firms that were exposed to political instability and those that were not equally vary as per Table 3. For example, large and medium-sized firms are more likely to increase their number of employees if they are not exposed to political instability. Political instability by far reduces the investment capacity of manufacturing firms that are exposed to it than those that are not.

Robustness check

To determine the validity of our baseline results, we replace political instability with a proxy, namely losses due to theft, robbery, and vandalism. It is a dummy variable represented by 1 if a firm reported experiencing losses due to theft, robbery, and vandalism, and 0 otherwise. The mostly significant LR χ^2 results confirm Table 4 findings that firm performance is both a driver and effect of political instability. The estimated correlation coefficients (ρ) affirm the negatively significant relationship between political instability and firm performance, specifically employee growth, sales growth, and productivity within treated firms. This may be attributed to delayed investment and hiring decisions after the destruction of physical firm assets during conflict (Collier and Duponchel, 2012; Leon and Dosso, 2020). In terms of magnitude, the expected values as expressed by the ATT reveal a significant decline of 27% in sales growth and 2.6% in export likelihood. We observe a statistically insignificant effect of losses due to theft, robbery, and vandalism on employee and investment growth, while the effect on productivity is positive and significant.

While these findings show some divergence from our baseline results, it is not too consequential. Therefore, we can confidently proceed with our original model specifications. We also note that theft, robbery, and vandalism do not capture the full extent of what political instability entails, and are therefore not an exact proxy. Various studies highlight other more nefarious components of political instability such as war, acts of terrorism, ethnic discrimination, judicial inefficiency, cronyism, and corruption (Johnson and Mitton, 2003; Eckstein and Tsiddon, 2004; Collier and Duponchel, 2012; Singh, 2013; Haider and Anwar, 2014; Hjort, 2014; Ismail and Rashid, 2014; Abu et al, 2015; Shumetie and Watabaji, 2019). However, the ATC results follow a similar trend as those of Table 3, with an observed likelihood of improvement in all measures of firm performance for firms that are yet to experience political instability.

Table 4: Estimation results of endogenous switching model for losses due to theft, robbery, vandalism, and firm performance

	Employee Growth		Sales Growth		Productivity		Investment		Export Status	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Firm age	-1.236*** (0.328)	-0.351 (0.189)	-15.54 (11.07)	485.43.9 (110726.1)	0.019 (0.016)	0.029*** (0.011)	0.0765 (0.0488)	0.0282 (0.0368)	-0.00333 (0.00234)	-0.00244 (0.00162)
Manager's experience	0.484 (0.377)	0.613** (0.206)	-17.28 (12.90)	-90293.8 (120427.9)	-0.001 (0.019)	-0.005 (0.011)	-0.0842 (0.0558)	-0.0288 (0.0402)	0.00859** (0.00272)	0.00538** (0.00177)
Medium	40.98*** (9.615)	35.84*** (4.533)	639.8* (324.9)	420483.3 (2548281.7)	1.602*** (0.445)	2.020*** (0.244)	-1.315 (1.439)	0.653 (0.851)	0.0137 (0.0716)	-0.00172 (0.0396)
Large	134.8*** (18.20)	94.61*** (7.769)	-685.8 (623.1)	16602157.0*** (4442771.6)	3.009*** (0.830)	3.970*** (0.426)	0.718 (2.745)	2.406 (1.501)	-0.276* (0.135)	-0.0508 (0.0677)
Retail	7.320 (9.113)	-3.947 (4.026)	235.3 (315.6)	-1575312.0 (2368136.5)	-0.240 (0.432)	0.845*** (0.234)	0.167 (1.377)	-0.208 (0.791)	0.319*** (0.0669)	0.287*** (0.0345)
Manufacturing	24.22 (18.76)	-0.187 (8.543)	119.7 (649.1)	-3513739.5 (5028606.7)	-0.858 (1.170)	0.726 (0.484)	0.133 (2.837)	-7.670*** (1.671)	0.467*** (0.137)	0.258*** (0.0731)
East	1.047 (12.36)	12.78* (5.619)	376.8 (426.9)	-352392.6 (3261715.3)	0.895 (0.559)	-0.790*** (0.307)	-3.185 (1.861)	0.0807 (1.092)	0.317*** (0.0903)	0.198*** (0.0483)
South	15.31 (9.887)	10.11* (4.447)	-25.67 (341.9)	-2218114.0 (2550410.3)	0.612 (0.461)	-0.980** (0.251)	-1.334 (1.489)	0.159 (0.858)	0.349*** (0.0723)	0.229*** (0.0384)
Central	9.414 (11.07)	3.241 (5.379)	-294.5 (380.5)	-780159.8 (3140197.9)	1.122* (0.615)	-0.754** (0.325)	-1.329 (1.681)	-0.884 (1.049)	0.342*** (0.0810)	0.189*** (0.0463)
Corruption	-0.129 (7.643)	-1.206 (3.427)	-161.7 (263.2)	1954646.9 (1979841.4)	0.208 (0.359)	-0.006 (0.191)	-0.739 (1.150)	-0.0414 (0.666)	0.190*** (0.0562)	0.147*** (0.0295)
Foreign ownership	-8.100 (12.05)	1.100 (4.957)	-1198.2** (415.4)	4564065.2 (2876711.9)	-2.218*** (0.539)	-1.359*** (0.272)	-4.264* (1.803)	-2.797*** (0.969)	-0.167 (0.0875)	0.113** (0.0428)
Intercept	45.78** (16.92)	-6.026 (5.985)	2368.7*** (519.9)	-2443688.0 (3278392.0)	19.787*** (0.699)	18.266*** (0.316)	6.472* (2.695)	0.448 (1.118)	0.458*** (0.128)	0.350*** (0.0525)
rho	-0.5632***	0.1207	-0.364***	0.0792	-0.4553***	-0.2874***	-0.1489	-0.7043***	-0.0326	0.0726
Observations	1228	1228	1228	1062	1062	1228	1228	1228	1228	1228
Wald chi ² (11)	83.38***	10.29***	22.04*	60.87***	60.87***	19.90*	143.9***	19.90*	143.9***	143.9***
LR chi ²	10.29***	4.834	10.88***	4.35*	4.35*	17.79***	0.18	17.79***	0.18	0.18
ATT	4.834	11.34***	-0.272**	0.161***	0.161***	0.101	-0.026***	0.101	-0.026***	-0.026***
ATC	11.34***	11.34***	2.276*	17.933***	17.933***	0.122	0.863***	0.122	0.863***	0.863***

Notes: Model 1s show the estimation results for firms that reported experiencing losses due to theft, robbery, and vandalism; and Model 2s are for firms that did not report experiencing losses due to theft, robbery, and vandalism. Employee growth is expressed in terms of number of full-time workers; sales growth is expressed in terms of percentage; productivity and investment are expressed in logarithmic terms; and export status takes the value of 1 for exporting firms (directly or indirectly), and 0 otherwise. Values in parentheses are the standard errors; and significance at 1%, 5%, and, 10% is indicated by ***, **, and *, respectively.

7. Conclusion

This study sought to investigate the effect of political instability on firm performance in the DRC. This is because the DRC ranks highly in terms of political instability. At the same time, the country seeks to improve the performance of the private sector which is likely to be affected by political instability. Using pooled panel data from the World Bank Enterprise Survey for the DRC for 2006, 2010, and 2013, we analyse the effect of political instability on five measures of performance: employee growth, sales growth, productivity, investment, and export status.

Results from the endogenous switching model reveal that political instability adversely affects firm performance in the DRC. In the presence of political instability, employee growth, sales growth, productivity, and investment growth decline by 419%, 53%, 36%, and 68%, respectively. Conversely, firms that do not experience political instability grow by 1388% in terms of employee growth, 240% for sales growth, 1773% for productivity, 9% for investment, and 64% for exporting activities. Our results are robust when we proxy political instability with losses due to theft, robbery, and vandalism. Sales contract by 27% while the likelihood of exporting declines by 2.6% when a firm is exposed to theft, robbery, and vandalism. Firms that are not exposed to theft, robbery, and vandalism experience growth in our outcome indicators.

For purposes of policy, we recommend that political stability should be enhanced. This should be through political goodwill and legislation that advocates for peace. Firms can also push for this agenda through their business associations and platforms such as public-private partnerships that link them to the government.

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Appendix

Table A1: Variable definitions

Performance	
Employee growth	Average growth rate of full-time employees over the last three years, %
Sales growth	Average growth rate of sales over the last three years, %
Log productivity	Natural logarithm of sales less labour cost in the last fiscal year
Log investment	Natural logarithm of the total annual expenditure for purchases of equipment + machinery
Export status	Dummy: Whether the firm sells abroad, directly or indirectly
Covariates	
Age	Number of years in operation since firm creation (year of interview less year a firm started operations)
Foreign ownership	Dummy with 0 = Less than 50% of the company is owned by a foreign entity and 1 = At least 50% of the company is owned by a foreign entity
Manager's experience	Manager's years of experience
Small	Dummy with 1 = Firm with <19 full-time employees and 0 = otherwise
Medium	Dummy with 1 = Firm with 20-99 full-time employees and 0 = otherwise
Large	Dummy with 1 = Firm with >100 full-time employees and 0 = otherwise
Manufacturing	Dummy with 1 meaning the sector is correct and 0 otherwise
Retail	Dummy with 1 meaning the sector is correct and 0 otherwise
Other services	Dummy with 1 meaning the sector is correct and 0 otherwise
West	Dummy with 1 meaning it is the correct region and 0 otherwise
East	Dummy with 1 meaning it is the correct region and 0 otherwise
Central	Dummy with 1 meaning it is the correct region and 0 otherwise
South	Dummy with 1 meaning it is the correct region and 0 otherwise
Political instability	Dummy with 1 = political instability as a major or very severe obstacle and 0 = political instability as no obstacle, minor obstacle or moderate obstacle
Corruption	Informal payment to public officials (% of sales)

Table A2: Firm obstacles by size

Obstacle	2006			2010			2013		
	S	M	L	S	M	L	S	M	L
Access to Finance	1.90	-	-	43.46	46.97	24.24	13.73	8.55	-
Access to Land	49.43	36.36	54.55	1.15	-	-	4.40	2.56	7.69
Business Licensing and Permits	4.18	-	-	0.38	1.52	-	-	0.85	-
Corruption	0.38	1.52	-	2.69	4.55	-	11.66	9.40	7.69
Courts	7.22	7.58	9.09	-	-	-	1.30	-	7.69
Crime, Theft, and Disorder	0.76	4.55	-	2.31	-	-	2.59	2.56	-
Customs and Trade Regulations	0.76	4.55	-	4.23	4.55	3.03	2.85	8.55	19.23
Labour	0.38	6.06	-	2.69	-	-	1.30	1.71	3.85
Political Instability	0.38	3.03	-	11.15	4.55	18.18	11.92	17.09	7.69
Practices of Competitors in the Informal Sector	14.83	12.12	-	9.62	10.61	12.12	12.44	7.69	15.38
Tax Administration	3.42	12.12	18.18	4.23	13.64	21.21	5.96	9.40	3.85
Tax Rates	3.42	3.03	9.09	1.54	7.58	15.15	3.63	5.13	7.69
Transport	0.38	1.52	-	3.85	1.52	-	0.26	-	-
Electricity	-	-	-	12.31	4.55	3.03	23.83	21.37	11.54
Inadequately Educated Workforce	-	-	-	-	-	3.03	3.89	5.13	7.69

Key: S-Small, M-Medium, L-Large.

Table A3: Firm obstacles by sector

Obstacle	2006			2010			2013		
	M	R	O.S	M	R	O.S	M	R	O.S
Access to Finance	0.67	4.30	-	46.28	36.61	43.65	14.40	8.82	10.67
Access to Land	44.97	48.39	48.98	0.83	0.89	0.79	3.70	5.15	4.00
Business Licensing and Permits	1.34	5.38	4.08	0.83	-	0.79	-	0.74	-
Corruption	0.67	-	1.02	0.83	5.36	2.38	9.47	15.44	9.33
Courts	4.70	10.75	8.16	-	-	-	0.82	1.47	2.00
Crime, Theft, and Disorder	1.34	1.08	2.04	0.83	2.68	1.59	0.41	3.68	4.67
Customs and Trade Regulations	0.67	2.15	2.04	0.83	7.14	4.76	4.94	4.41	5.33
Labour Regulations	2.68	-	1.02		3.57	2.38	1.23	0.74	2.67
Political Instability	0.67	1.08	1.02	5.79	15.18	11.11	8.64	15.44	17.33
Practices of Competitors in the Informal Sector	16.11	11.83	12.24	9.09	10.71	10.32	12.35	13.24	8.67
Tax Administration	9.40	2.15	3.06	11.57	4.46	6.35	5.35	8.09	7.33
Tax Rates	2.01	3.23	6.12	4.96	1.79	4.76	1.65	4.41	8.00
Transport	0.67	-	1.02	1.65	7.14	0.79	0.41	-	-
Electricity	-	-	-	16.53	3.57	9.52	30.04	18.38	14.67
Inadequately Educated Workforce	-	-	-	-	0.89	-	6.17		5.33

Key: M-Manufacturing, R-Retail, O.S-Other Services.

Table A4: Firm obstacles by region

Obstacle	2006					2010					2013									
	Kin	L	Kis	M	Kin	L	Kis	M	W	E	C	S	Kin	L	Kis	M	W	E	C	S
Access to Finance	1.68	-	-	-	55.08	32.43	46.15	11.86	9.73	18.05	7.46	12.50								
Access to Land	45.64	61.11	69.23	36.36	0.53	2.70	-	-	3.89	3.76	2.99	6.94								
Business Licensing and Permits	3.02	-	7.69	9.09	0.53	-	-	1.69	-	-	1.49	-								
Corruption	0.67	-	-	-	1.07	6.76	2.56	3.39	8.95	12.78	11.94	13.89								
Courts	5.70	38.89	7.69	-	-	-	-	-	1.17	2.26	-	1.39								
Crime, Theft, and Disorder	1.34	-	7.69	-	0.53	4.05	-	3.39	1.17	4.51	2.99	2.78								
Customs																				
and Trade	1.68	-	-	-	2.14	5.41	-	11.86	7.78	3.01	-	2.78								
Regulations																				
Labour	1.68	-	-	-	-	8.11	-	1.69	1.95	0.75	1.49	1.39								
Regulations																				
Political	1.01	-	-	-	6.95	1.35	2.56	38.98	11.28	15.04	23.88	4.17								
Instability																				
Practices of																				
Competitors	13.76	-	7.69	45.45	5.35	24.32	2.56	11.86	15.18	7.52	5.97	11.11								
in the Informal Sector																				
Tax	6.38	-	-	-	11.23		7.69	5.08	5.84	7.52	4.48	9.72								
Administration																				
Tax Rates	4.03	-	-	-	6.95	1.35			3.11	1.50	7.46	9.72								
Transport	0.67	-	-	-	0.53	9.46	5.13	1.69	-	0.75	-	-								
Electricity	-	-	-	-	8.56	4.05	33.33	6.78	26.46	15.04	26.87	19.44								
Inadequately Educated	-	-	-	-	0.53	-	-	-	3.50	7.52	2.99	2.78								
Workforce																				

Key: Kin-Kinshasa, L-Lubumbashi, Kis-Kisangani, M-Matadi, W-West, E-East, C-Central, S-South.



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