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Corruption and leadership in Africa: Evidence from Burkina Faso

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Abstract

This study assesses the role of a leader in anti-corruption fighting in Africa. It focuses on the rule of Thomas Sankara, one of the legendary figures of contemporary Africa. Using the synthetic control approach, we design a counterfactual for the actual Burkina Faso called synthetic Burkina Faso based on corruption before Sankara's tenure. The difference between Burkina Faso and Synthetic Burkina Faso highlights that the leadership of Thomas Sankara had a substantial effect in reducing corruption in Burkina Faso, during his tenure, over the period 1983-1987. This reduction effect in 1987 was as much as 70 percent of the 1982 level of corruption in the country. This result is robust to placebo tests. This finding highlights the leader's importance in shaping African countries' institutional trajectory. To fight corruption, having an exemplary leader is a cure.

Keywords: Corruption; Leader; Captain Thomas Sankara; Synthetic control approach; Burkina Faso

JEL codes: D73, B15, E02, O55

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1 Introduction

The role of leaders on economic growth has been studied in the literature (Berry and Fowler, 2021; Jones and Olken, 2005; Yao and Zhang, 2015). Jones and Olken (2005) use exogenous leadership variation in relation to the deaths of leaders in power and find that leadership change affects the growth trajectory of countries. Easterly and Pennings (2020) extend this idea by estimating the contribution to the economic growth of each leader since 1950 and show that 7% of leaders with at least three years in power contribute to their country's economic growth.

Moreover, scholars stress the importance of institutions for economic prosperity (Acemoglu, Johnson, and Robinson, 2005; Rodrik, Subramanian, and Trebbi, 2004). Surprisingly, the role of leaders on institutions is neglected in the literature. We support that the leader has potentially more power to influence institutions and policies than economic growth (Jones and Olken, 2005) and that institutional change may be one of the channels through which the leader affects economic performance.

In this paper, we set out to assess the impact of the leadership on corruption in Africa, particularly in Burkina-Faso during the Sankara's rule. Indeed, institutions are man-made constraints (North, 1989, 1991). As charismatic leaders fascinate people, have extraordinary qualities, are even treated as supernatural, and have the ability to influence the behavior of others (DeCelles and Pfarrer, 2004; Silitonga et al., 2019), leaders, especially national leaders, can be determinant for the choice of institutions, especially corruption and the "rule of the game" in a society. These institutions in turn affect economic performance as they are seen as the fundamental cause of economic prosperity (Acemoglu, Johnson, and Robinson, 2005).

To test this hypothesis about the role of the leader in shaping institutions, we examine the impact of Thomas Sankara's leadership on corruption in Burkina Faso. Captain Thomas Sankara is certainly one of the leaders who have influenced and continue to influence Africa (Benamrane, 2016; Jaffré, 2017). He came to power in Upper Volta in August 1983 and was ousted in 1987 by a *putsch* that led to his death. He established the August Revolution with the National Council of the Revolution which intended to revolutionize the institutions in place in Upper Volta for economic prosperity. One of his emblematic actions that guided his integrity policy was the change of the name of the country to Burkina Faso, Country of Men and Women of Dignity, Honesty, Integrity and Courage (Kyelem de Tembela, 2012; Zagré, 1994). In addition, during his four years in power, Thomas Sankara set himself up as an example of integrity and established institutions for monitoring, controlling and repressing corruption. To this end, we can mention, among other things, the creation in 1983 of a ministry in charge of monitoring and auditing the accounts of all state-owned companies and enterprises and of cleaning up their management (Zagré, 1994), the establishment of the People's Commission for the Prevention of Corruption (CPPC) in charge of the fight against corruption and the development of exemplary morality in Burkina Faso, and the creation of the People's Courts of the Revolution to judge cases of corruption, embezzlement of public funds and illicit enrichment (Englebort, 1986; Kyelem de Tembela, 2012).

Using the synthetic control method proposed by Abadie and Gardeazabal (2003) and Abadie, Diamond, and Hainmueller (2010, 2015), we find that the leadership of Captain Thomas Sankara had a substantial effect in reducing corruption in Burkina Faso over the period 1983 to 1987. This reduction effect in 1987 is as much as 70% of the 1982 level of corruption in the country. This result is robust to placebo tests.

The findings show that national leader is crucial in shaping the institutional trajectory of a country.

This study contributes to two aspects of the economics literature. First, by assessing the impact of the leader on corruption, we contribute to the literature on the determinants of corruption (A. V. Banerjee, 1997; Hübler et al., 2021; Mironov and Zhuravskaya, 2016; Olken, 2007), with a focus on the national leader, specifically Captain Thomas Sankara. A point that has yet to be answered in the literature.

Second, this study contributes more generally to the literature on the link between leaders and economic prosperity (Besley, Montalvo, and Reynal-Querol, 2011; Blinder and Watson, 2016; Born et al., 2021; Grier and Maynard, 2016; Jones and Olken, 2005). Grier and Maynard (2016) and Born et al. (2021) evaluate the impact of President Hugo Chavez of Venezuela and President Donald Trump of United States, respectively, and find no significant effect of these leaders on economic performance indicators. Our study suggests that the channel of leader shaping institutions, specially corruption, is important in this relationship.

The rest of the paper is organized as follows: Section 2 presents the historical background and the anti-corruption policies of President Captain Thomas Sankara. Section 3 is about literature on leaders, economic prosperity and corruption. Section 4 discusses the empirical strategy, section 5 presents the results and section 6 concludes.

2 Historical background and anti-corruption policies of Thomas Sankara

2.1 Historical background

Burkina Faso is a landlocked country located in the heart of West Africa and has been independent since August 5, 1960. It has known since this date until 2021, nine presidents¹ including Captain Thomas Sankara, President of the National Council of the Revolution, from August 4, 1983 to October 15, 1987.

Thomas Sankara integrated a government for the first time on September 13, 1981. To give itself a new lease on life, the Military Committee for the Recovery of National Progress (CMRPN) of President Saye Zerbo, in difficulty, appointed Captain Thomas Sankara as Secretary of State for Information (Zagré, 1994). But in 1982, following strikes, the troubled government took measures that would offend Captain Sankara. These included the suppression of the right to strike, the muzzling of the press, the arrest of syndicate leaders, and the suppression of freedom of association and meetings. Captain Thomas Sankara resigned on April 12, 1982, saying "Woe to those who muzzle their people" (Jaffré, 1989; Zagré, 1994). After the November 7, 1982 putsch, Thomas Sankara was appointed as Prime Minister on January 11, 1983 (Jaffré, 1989). Five months later, Sankara was arrested with some of his companions during the coup of May 17, 1983. But he had already entered enough hearts and the Burkinabe people rose up for his release. He returned to

¹Presidents of Burkina Faso: Maurice Yaméogo (August 5, 1960 to January 3, 1966), General Aboubakar Sangoulé Lamizana (January 3, 1966 to November 25, 1980), Colonel Saye Zerbo (November 25, 1980 to November 7, 1982), Commander Jean Baptiste Ouédraogo (November 13, 1982 to August 4, 1983), Captain Thomas Sankara (August 4, 1983 to October 15, 1987), Captain Blaise Compaoré (October 15, 1987 to October 31, 2014), Lieutenant-Colonel Yacouba Isaac Zida (November 1 to November 21, 2014), Michel Kafando (November 21, 2014 to December 29, 2015) and Rock March Christian Kaboré (December 29, 2015 to date).

power on August 4, 1983 as President of the National Council of the Revolution after a putsch.

After 22 years of independence, the country stagnated in poverty, with a GDP per capita in 1982 of \$382 in constant terms (World Bank, 2021). Its gross enrollment rate was 20% in 1982 and its under-five mortality rate was 228 ‰ in the same year according to World Bank data (2021). It was in this context that Thomas Sankara came to power. He undertook to mobilize the Voltaic people to transform their living conditions. On October 2, 1983, in the Political Orientation Speech, Thomas Sankara indicated that the August Revolution had as its objective "the building of a new Voltaic society in which the Voltaic citizen, animated by a revolutionary conscience, will be the artisan of his own happiness, a happiness commensurate with the efforts he will have made" (Jaffré, 2017). He undertook several measures to put the country on the path of development in several areas. These include:

(i) Education: the mobilization against illiteracy allowed the National Council of the Revolution (NCR) to build 932 schools in 4 years, almost as many as the existing number of schools (the country had 1,176 schools in 1983) (Kyelem de Tembela, 2012; Zagr , 1994). To fill the teacher gap, the NCR instituted the National Popular Service (S.N.P.) and allowed students to perform their compulsory military service (between the ages of 21 and 35) as teachers or doctors for nine months (Zagr , 1994).

(ii) Health: the NCR provides each village with a Primary Health Post (PHP), of which there were 7,462 in January 1986 (Kyelem de Tembela, 2012). The "comando" vaccination against measles, cerebrospinal meningitis, and yellow fever. In 15 days, from October 25 to November 10, 1985, this operation allowed the vaccination of 1,180,000 children aged 1 to 6 years against measles, 2,600,000 children aged 1 to 14 years against cerebrospinal meningitis, and 2,100,000 children against yellow fever (Kyelem de Tembela, 2012; Zagr , 1994). The CNR also created the National Pharmaceutical Supply Company (SO.NA.PHARM) to facilitate the supply of medicines and liberalized the opening of pharmacies (Kyelem de Tembela, 2012).

(iii) Environmental: Sankara's vision was futuristic. At the conference on wood and forestry in Paris, he declared that "the fight against desertification is an anti-imperialist fight". The CNR undertook to push back desertification by reforestation under the supervision of the CDR (Committee for the Defense of the Revolution), popularized improved fireplaces (75,000 pieces of equipment between 1986 and 1990), and instituted on May 22, 1985 "the three struggles": (i) the fight against the abusive cutting of wood, (ii) the fight against the divagation of animals and (iii) the fight against bush fires (Kyelem de Tembela, 2012).

(iii) Infrastructure: the emblematic project was the extension to the Sahel of the railroad line by 33 km in seven (7) months, where, due to a lack of financial resources, the NCR mobilized the population to lay the rails by hand (approximately 400 people per day) (Kyelem de Tembela, 2012). This operation is referred to as the "Battle of the Rail". 18 additional cities were electrified, bringing the total number of electrified cities to 22 between 1983 and 1987, an increase of 450% (Kyelem de Tembela, 2012).

(iv) Industrialization: we note the creation of the Burkinabe Leather Manufacturing Company (SBMC) in 1985, a milk production plant, a concentrated tomato production plant, a soap production plant (based on shea butter), and a fruit juice and jam production plant (Kyelem de Tembela, 2012).

"Preferring water for all to Champagne for some", all these actions are framed by an management rigor of public affairs. Cheaper cars were used by the president and minis-

ters to reduce the state's cost of living and free up resources for investments; ministers were forbidden to travel in business class (Kyelem de Tembela, 2012; Zagré, 1994). The president keeps his captain's salary (Jaffré, 1989).

Beyond these actions, President Thomas Sankara wanted to restore dignity and power to the people and put the state institution at the service of the people. Thomas Sankara tried to found the nation of Burkina Faso. What did he do specifically to fight corruption?

2.2 Anti-corruption policies of Thomas Sankara

Captain Thomas Sankara came to power on August 4, 1983, in Upper Volta following a putsch that led to the ousting of Commander Jean Baptiste Ouédraogo. He instituted the August Revolution led by the National Council of the Revolution (CNR). From August 4, 1983, until his death² on October 15, 1987, Thomas Sankara engaged in a policy of integrity, the moralization of public life and fight against corruption.

The most crucial action that gave the benchmark of his integrity policy was the change of the country's name, formerly called "Upper Volta". Indeed, on the occasion of the Revolution's first anniversary, by Ordinance 84-43/CNR/PRES of August 2, 1984, the Republic of "Upper Volta" became "Burkina Faso". This name comes from the two main local languages. "Burkina" is polysemous and means honor, dignity, respect, and honesty in the Mooré language. The word "Faso"³ comes from the Dioula language and means Fatherland or Republic. Thus, "Burkina Faso" means "country of people of integrity, honesty, courage, and respect" (Kyelem de Tembela, 2012). This name change constitutes an entire program for creating a new society where the values of dignity and integrity are central.

Captain Thomas Sankara's methodology for implementing his integrity policy is teaching by example. For example, as President of the Republic, he had always kept his salary as a Captain and donated all the gifts he received on foreign missions to the national treasury (Jaffré, 2017). Among other things, he decided:

(i) The creation, since 1983, of a ministry in charge of controlling and checking the accounts of all state-owned companies and enterprises and clean up their management (Zagré, 1994). To this end, he instituted public budget meetings (with retransmission in the media) to present the balance sheets and accounts of state-owned companies, and financial recovery measures were taken.

(ii) The creation of the People's Commission for the Prevention of Corruption (CPPC). This commission is responsible for fighting corruption, conducting morality investigations for appointments to positions of responsibility, contributing to the development of exemplary morality and examining denunciations of corruption and influence peddling for vigorous repression. Thomas Sankara⁴ set an example by being the first to go before this commission on February 19, 1987, to declare his assets (Jaffré, 2017). He will be followed in this exercise by other personalities and presidents of institutions, including the General Secretary of the CDR, Pierre Ouédraogo (Jaffré, 2017).

²by putsch organized by Blaise Compaoré, one of the four captains at the head of the Revolution. The other two being Captain Aboubakar Jean Baptiste Lingani and Captain Henri Zongo

³with "Fa" meaning father and "so" meaning house

⁴Thomas Sankara indicated, among other things, that he received five donations totaling 845,400,000 FCFA that he paid into the state coffers. He also stated that he received four vehicles (a BMW, an Alpha Romeo, a Toyota Créssida, and a Mtsubishi) that were transferred to the State's vehicle fleet. His wife also received three donations of 20 million paid to the Revolutionary Solidarity Fund and the women's restaurant.

(iii) The creation of the Popular Courts of the Revolution (replacing the colonial judicial system copied from France) to judge political crimes and infractions, crimes and infractions against security (internal and external), embezzlement of public funds, and crimes committed by state agents and cases of illicit enrichment (Englebert, 1986; Kyelem de Tembela, 2012). Judgments are public and broadcast lives in the media . Each people’s court of the revolution (PCR) is presided over by a professional judge with six members (one military or gendarme, four CDR). Among others, two former presidents (General Aboubakar Sangoulé Lamizana and Colonel Saye Zerbo) and two former prime ministers (Kango Gérard Ouédraogo and Issoufou Joseph Conombo) were tried by the TPRs and some were acquitted (Englebert, 1986; Zagré, 1994). The PCRs have even tried former leaders⁵ of the Economic Community of West Africa (ECOWAS) for misappropriation of public funds (Englebert, 1986; Kyelem de Tembela, 2012).

This integrity policy seems to have affected corruption in Burkina Faso. According to data from the Varieties of Democracy’s public sector corruption index, it was during the Sankara period that Burkina Faso reached the lowest level of corruption in its history (Figure 1). This results in a wide gap between Burkina and the rest of Africa, where corruption is rising, as shown in Figure 1 (Dotted red line for the beginning of Thomas Sankara’s rule). This situation motivates this study. Knowledge of effective anti-corruption policies can help better fight corruption in Africa and around the world.

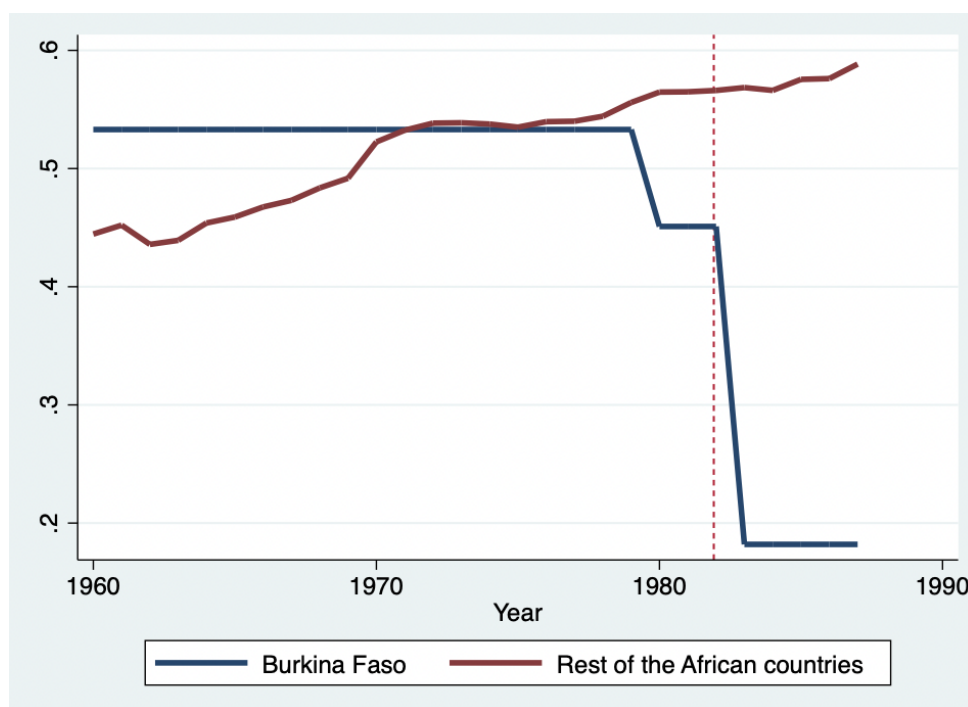
3 Literature on leaders, economic prosperity and Corruption

A body of economic literature focuses on the leader’s contribution to economic performance and suggests that the leader matters for prosperity (Berry and Fowler, 2021; Jones and Olken, 2005). Jones and Olken (2005)’s seminal paper uses the random deaths (accidental and natural) of leaders in power as an exogenous source of leadership variation between 1945 and 2000 (57 leadership transitions) to assess the causal effect of leaders on economic growth. They find that the leader affects the country’s economic growth. A one standard deviation rise in leader quality increases annual economic growth by 1.5 percentage points. Berry and Fowler (2021) find also similar results. Further investigation allows Jones and Olken (2005) to indicate that the leader effect on economic growth is substantial and significant in autocratic states where leaders face few constraints and no impact in established democracies. They also find that leaders influence policy outcomes, especially monetary policy. The authors conclude that leaders can be crucial in shaping countries’ growth trajectories.

Easterly and Pennings (2020) extend the work of Jones and Olken (2005) by estimating the contribution to the growth of each leader since 1950 with the optimal signal extraction method. Their results show that 7% of leaders (45 out of 650) with at least three years in power (and for whom growth data exist) contribute significantly to their country’s economic growth. Seretse Khama, president of Botswana from 1966 until he died in 1980,

⁵These were Mohamed Tiécoura Diawara (former Minister of Côte d’Ivoire and President of the Dakar Club), Moussa N’Gom (former Director of Customs of Senegal and Secretary General of CEAO) and Moussa Diakité of Mali (Director of the Fonds de Solidarité et d’Intervention pour le Développement Communautaire-FISIDEC), accused of embezzling 6.5 billion CFA francs and placing it in financial institutions in Switzerland. The trial was held from March 25 to April 3, 1986. Their lawyers were specially authorized to plead; prison sentences of 10 (Moussa N’Go) to 15 years (Mohamed Tiécoura Diawara and Moussa Diakité) were handed down, and the sum embezzled to be reimbursed.

Figure 1: Trend in Corruption: Burkina Faso versus Rest of Africa



Source: The author, with V-Dem data, 2021

is the top substantial contributor to economic growth(3.25%). An investigation of local leaders effect in 312 cities in China between 1994 and 2010 confirms the importance of the leader on regional economic performance (Yao and Zhang, 2015). The authors find that different levels of leaders' ability increase economic growth at the local level. In addition, they also show that leaders' ability becomes substantial for their promotions as they grow older. The leader's ability to influence economic growth may go through his ability to control government policies (Jones and Olken, 2005) and shape institutions to improve economic efficiency.

Indeed, institutions are a fundamental source of economic growth (Acemoglu, Gallego, and Robinson, 2014; Acemoglu, Johnson, and Robinson, 2005; Rodrik, Subramanian, and Trebbi, 2004). For Acemoglu, Johnson, and Robinson (2005), economic institutions shape agents' incentives and constraints and thus determine economic development. As institutions are "humanly devised constraints that shape human interaction" (North, 1990, P.3) and are endogenous to society, community leaders could have a prominent role in choosing these institutions. For example, in studying the evolution of social norms in a dynamic environment, Acemoglu and Jackson (2015) show that the effect of history can be changed by leaders whose visibility of their actions through time (specially to future generations) helps influence expectations and thereby norms of cooperation. Also, Jones and Olken (2009) exploit the randomness of successful assassination attempts on national-political leaders (75% failure rate) and find that assassinations of autocratic leaders lead to democratization and affect the extent of conflict over 1875 to 2004. For them, these results indicate the central role of the leader in the mechanism of institutional change (Jones and Olken, 2009).

Regarding the relationship between leader and corruption, the literature on the subject

shows different types of effects and interactions. First of all, the leader may take advantage of its position to capture public resources (Alatas et al., 2019; Mironov and Zhuravskaya, 2016). Alatas et al. (2019) evaluate local leader capture in four targeted government transfer programs in Indonesia. They find evidence of local leader capture in three of the four programs. For the authors, the lack of significant effect of local leader capture in the fourth program is related to the very low targeting threshold ⁶. Alatas et al. (2019) find that formal leaders (from government service) and their relatives are more likely to be beneficiaries conditional on consumption level by 3 to 8 percentage points for all three programs. However, informal leaders (who became leaders informally through community service) are less likely to be beneficiaries of these three programs by 6 to 7 percentage points conditional on consumption level. These three programs are cash transfer, health insurance for the poor, and rice transfer programs. The fourth is a conditional household transfer program with an amount between US\$ 67 and US\$ 250 per year for six years. In addition, Lino et al. (2021) indicate that the private political-economic interests of political leaders infiltrate the regional courts of audit in Brazil through the appointment of magistrates.

Second, leader corruption depends on opportunities and leader characteristics (Bendahan et al., 2015; DeCelles and Pfarrer, 2004). Through a multidimensional model, DeCelles and Pfarrer (2004) indicate that stakeholder pressure increases the likelihood that the leader will engage in corruption, which is fueled by the opportunities provided by the environment and the leader's charisma. For the authors, crime occurs with motivation and opportunity. Thus, stakeholder pressure is equated with a reason for corruption and environmental factors, the leader's charisma, and followers as an opportunity for corruption. Bendahan et al. (2015) find similar results. Using an experimental incentive game, Bendahan et al. (2015) show that the number of followers and discretionary power increases the leader's corruption. The leader's corruption is high when his power and testosterone are high. His followers, in turn, engage in corruption or seek to protect the leader (by hiding his crimes for example) (DeCelles and Pfarrer, 2004).

In the same way, other studies indicate that female leaders, while generally perceived as less corrupted, are not always favored by voters in corruption matters (Le Foulon and Reyes-Housholder, 2021). They may even lose the incumbency advantage (Dulani et al., 2021), and there tend to be more irregularities (corruption) under female leadership that are entirely resolved over time (Afridi, Iversen, and Sharan, 2017).

Third, leader have the ability to influence the behavior of others. That is why pharmaceutical and medical device companies buy Key Opinion Leaders (physicians and researchers) to control professional opinion and influence general opinion and thus medical prescriptions (Sismondo, 2013). For Sismondo (2013), reports from 7 pharmaceutical and medical device companies, following the Physician Payment Sunshine Act passed in 2010, which mandates transparency of payments to physicians and researchers, show that hundreds of physicians in the United States are paid over \$100,000 each year and thousands more over \$10,000 each year for this purpose. In the same way, Silitonga et al. (2019) use goal framing theory to explain that individuals generally pursue three goals: (i) a hedonic goal; (ii) a gain goal; and (iii) a normative goal. A good example of leaders and peers acts as a signal of what is and is not acceptable to society and reinforces and maintains the normative goal.

An empirical investigation with data collected from 580 senior officials in Indonesia

⁶Only 12% of households in the study sample are beneficiaries compared to 36%, 42%, and 75% beneficiaries for the other three programs

allows Silitonga et al. (2019) to show that good example from leaders and peers deters officials from engaging in corruption. The results indicate that increased monitoring and sanctioning and refusal of bribes by leaders and peers in the past reduces the likelihood of a given official accepting bribe (Silitonga et al., 2019). In addition, anti-corruption policy through the persecution of corrupt leaders has a long-lasting disciplinary effect (Zhao et al., 2020). A study exploiting the persecution data of local corruption leaders between 2006 and 2016 in China as an exogenous shock and using the double-difference method as an investigative strategy, finds that the volume and value of land sold drops significantly after the ouster of corrupt local leaders (Zhao et al., 2020).

Finally, other studies indicate that historical events are important in understanding the relationship between leadership and corruption, particularly in Africa. Acemoglu, Reed, and Robinson (2014) show that the British, beginning in 1896 in Sierra Leone, destroyed traditional checks and balances and accountability systems. Ali, Fjeldstad, and Shifa (2020) assess the impact of the British colonial system on the corruption of local leaders with the discontinuity regression method in 21 African countries and microeconomic data from the Afrobarometer surveys. For these authors, the British colonial system instituted a system of indirect control that strengthened the power of local leaders and undermined their accountability to the local population. The results show that local leaders are perceived as significantly more corrupt by citizens in English-speaking countries than in French-speaking countries and that citizens' trust in English-speaking countries leaders is significantly lower. In the same vein, Khalil Timamy (2005) argues that the perception of African peoples that the State and its resources belong to a foreign force is one of the deadly legacies of colonization, and African leaders have continued to instill a colonial functioning of the State for their benefit, notably through the misappropriation of public funds. As a result, the colonial state institution is perceived as a force of usurpation and is slow to integrate into the people's societal order. For Khalil Timamy (2005), this vision of the State corresponds to the tragedy of the commons, where what belongs to the State belongs to no one, and everyone can go as his will and according to opportunity.

To radically reverse this conception of things so that what belongs to the State is perceived as belonging to everyone and that no personal freedom is taken concerning the property of all, Thomas Sankara claimed this through the August 1983 Revolution in Burkina Faso. However, none of the previous works have interested in the effect of national leaders on corruption. The purpose of this study is to fill this gap. We assess the impact of Sankara institutional influence policies, particularly its integrity policy, on corruption and answer the leader's ability to influence the institutional trajectory.

4 Empirical analysis

The challenge in policy evaluation is to estimate the outcome of the treated unit in the absence of treatment over the post-treatment period. That is, what would have been the outcome of the treated unit in the lack of treatment. Here, the aim is to estimate what the trajectory of corruption in Burkina Faso would have been without the presidency of Captain Thomas Sankara over the period 1983 to 1987. A particular technique suitable in this case is synthetic control.

To formalize Synthetic control approach, we follow Abadie (2021), Cunningham (2021), and Wiltshire et al. (2021)⁷: For any unit j (here $j=1, 2, \dots, 35$ -our sample includes 35

⁷For many treated units, see Ben-Michael, Feller, and Rothstein (2021), Cavallo et al. (2013), Dube

countries- with $j=1$ is Burkina Faso, the treatment unit and $j=2, \dots, j+1$ are untreated units of "donor pool") at time t (1960 to 1987)

- Let $C_{j,t}^I$ be the potential corruption under Intervention.
- Let $C_{j,t}^N$ be the potential corruption without intervention.
- The intervention/treatment effect in $\{j, t\}$ is : $S_{j,t} = C_{j,t}^I - C_{j,t}^N$
- $S_{j,t}$ is the intervention effect (Sankara leadership effect on corruption).
- The observed outcome $C_{j,t} = C_{j,t}^I = C_{j,t}^N + S_{j,t}D_{j,t}$ with $D_{j,t}$ a dummy variable indicating if unit j is treated at time t .
- Let unit $j=1$ (Burkina Faso) become treated at time $t > T_0$ and we want to estimate the path of treatment effects: $(S_{1,T_0+1}, \dots, S_{1,T})$
- We don't observe both $C_{1,t}^I$ and $C_{1,t}^N$ for $t > T_0$
- For $t > T_0$, we only need to estimate $C_{1,t}^N$ as $C_{1,t} = C_{1,t}^I$ is observable.
- We suppose having data on j units over T periods of time and T_0 pre-intervention periods, $T - T_0 > 0$ treated periods.
- We have K predictors including M linear combinations of $C_{j,t}$ on the pretreatment period (for $t \leq T_0$) plus r covariates. Then X_1 is a $K \times 1$ vector of predictors of $C_{1,t}$ in treated unit $j=1$ and X_0 is a $K \times J$ matrix of predictors of $C_{j,t}$ in untreated units (donor pool) $j > 1$
- As synthetic control estimator (the estimated corruption for Burkina Faso at time t without intervention) is a weighted average of donor pool units (Abadie, Diamond, and Hainmueller, 2015):

$$\hat{C}_{1,t}^N = \sum_{j=2}^{j+1} \hat{W}_j C_{j,t} \quad \forall t$$

- Once we have $\hat{C}_{1,t}^N$, we can compute the estimated intervention effect i.e. the Thomas Sankara's leadership effect on corruption in Burkina Faso: $\hat{S}_{1,t} = C_{1,t} - \hat{C}_{1,t}^N$
- $W(V) = (w_2(V), \dots, w_{j+1}(V))'$ is a vector of weights on untreated units $j > 1$ with $V = (v_1, \dots, v_k)$ is a matrix of weights on predictors.
- The synthetic control method choose \hat{V} and $\hat{W} = W(\hat{V})$ to minimize $\|X_1 - X_0 W\|$:

$$\left(\sum_{k=1}^K \hat{v}_k (X_{k,1} - w_2 X_{k,2} - \dots - w_{j+1} X_{k,j+1})^2 \right)^{1/2}$$

with $\sum_{j=2}^{j+1} W_j = 1$, $W_j \geq 0 \quad \forall j \in \{2, \dots, J+1\}$

We now present our data and identification strategy to have the actual Sankara's effect on corruption in Burkina Faso.

and Zipperer (2015), and Wiltshire (2021)

4.1 Data

Our study sample covers 35 African countries (see table 1 and table 3 in Appendix), with 34 for the "donor pool." This limitation is related to data for the pre-processing period, i.e., before 1983. The data for public sector corruption come from the V-Dem (Varieties of democracy) database (Coppedge et al., 2021). World Development Indicators (WDI) data are used for the constant GDP per capita.

4.2 Measuring corruption

The best measure of corruption would have been actual data on bribes exchanged between public officials and users of the public service. Such data is challenging to obtain. Indeed, bribery by nature is illicit and secretive and poses difficulties in measuring and assessing its effects and causes (A. Banerjee, Hanna, and Mullainathan, 2012). Thus, the Varieties of Democracy (V-Dem) corruption perception data is used to proxy corruption. This indicator seems to better reflect institutional characteristics in the sense of Glaeser et al. (2004) as it has relatively low volatility over time. For Glaeser et al. (2004), institutions should reflect the constraints on government and permanent features of the political landscape.

V-Dem measures corruption through this question "To what extent do public sector employees grant favors in exchange for bribes, kickbacks, or other material inducements, and how often do they steal, embezzle, or misappropriate public funds or other state resources for personal or family use?" (Coppedge et al., 2021). The estimated value of this index is between 0 and 1, with 1 indicating a high level of corruption.

The existence of the data dictates the use of this indicator alone. Indeed, our treatment period is from 1983 to 1987. To the best of our knowledge, no other indicator covers a reasonable pre-processing period to ensure that synthetic Burkina Faso reflects the corruption trajectory of the real Burkina Faso. Thus, we rely on V-Dem's public sector corruption indicator, for which historical data exist.

4.3 Explanatory variables

The credibility of the synthetic control estimator lies in its ability to reproduce the pre-treatment trajectory of corruption in Burkina Faso over a long period (pre-treatment). The dependent variable is corruption. The pre-intervention values of the outcome variable of interest play a crucial role in reproducing the unobserved factor loadings (Abadie, 2021). We incorporate the pre-intervention values of the corruption variable as an explanatory variable. The way to include the pre-intervention values of the corruption variable is flexible. Incorporation can be by annual values and/or averages. We retain the yearly values of corruption from 1961 to 1970, the 1971 corruption value, the 1975 to 1979 corruption values, and the 1980 value.

Ferman, Pinto, and Possebom (2020), using Monte Carlo simulations, suggest that models that use more lags of the pre-processed outcome control for unobservable confounders. We also control for constant GDP per capita from V-Dem, which is a determinant of corruption (Serra, 2006; Treisman, 2000). Controlling for this explanatory variable reduces the unobserved factor load. Not taking into account the post-treatment outcome in computing the weights of the synthetic control guarantees a specification not guided by the result.

Table 1: Synthetic Weights for Burkina Faso

Country	Synthetic Control Weight	Country	Synthetic Control Weight
Algeria	0	Lesotho	.002
Benin	.662	Madagascar	0
Botswana	0	Malawi	0
Burundi	.09	Mali	0
Cameroon	0	Mauritania	0
Central African Republic	.193	Mauritius	0
Chad	0	Morocco	0
Congo, Dem. Rep.	0	Niger	0
Congo, Rep.	0	Nigeria	0
Cote d'Ivoire	0	Rwanda	0
Egypt, Arab Rep.	0	Senegal	0
Eswatini	0	Sierra Leone	0
Gabon	0	South Africa	0
Gambia, The	0	Sudan	0
Ghana	0	Togo	0
Guinea-Bissau	.053	Tunisia	0
Kenya	0	Zambia	0

Note: The synthetic weight is the weight assigned by the synthetic control method.

4.4 Identification strategy

This study uses the synthetic control approach proposed by Abadie and Gardeazabal (2003) and Abadie, Diamond, and Hainmueller (2010, 2015) to evaluate the effect of Captain Thomas Sankara's leadership. The synthetic control approach is "the most important innovation in the policy evaluation literature in the last 15 years" (Athey and Imbens, 2017 P.9). It is a generalization of the "difference-in-differences" approach (Cunningham, 2021).

The synthetic control method is based on the principle that a combination of units allows for reproducing the characteristics of the treated unit(s) (of interest) rather than a single control unit. Thus, the comparison unit is a weighted average of all potential comparison units that best reflects the characteristics of the unit of interest (Abadie, Diamond, and Hainmueller, 2015).

This method allows to construct a synthetic Burkina Faso from the combination of other African countries that trace the trajectory of Burkina Faso's corruption level without Thomas Sankara and his anti-corruption policies. Indeed, if synthetic Burkina Faso and Burkina Faso are similar, any changes in Burkina Faso after Thomas Sankara took office can be attributed to him. The underlying assumption is that synthetic Burkina Faso replicates the trajectory of corruption that Burkina Faso would have taken in the absence of President Thomas Sankara's leadership. The synthetic control method's estimator of the treatment effect is the difference in post-treatment outcomes between the unit of interest, which is Burkina Faso, and the synthetic control (Synthetic Burkina Faso).

The synthetic control method has several advantages: It allows (i) avoiding extrapolation out of the data support, (ii) obtaining a transparent fit, (iii) not needing post-processing results in the design period, and the synthetic control weights can be computed before the post-intervention realizations of the outcome variable of interest or even the start of the intervention, (iv) generating a transparent counterfactual, (v) the method bridges qualitative and quantitative work, and (vi) the fact that few units contribute to the counterfactual facilitates interpretation and evaluation of the counterfactual (Abadie, 2021; Cunningham, 2021). As is the case in this study, the synthetic control method is particularly suitable for aggregated data (Abadie, Diamond, and Hainmueller, 2015).

For Abadie (2021), a potential bias of the synthetic control is related to the ratio of individual transitory shocks (error term) to the number of pretreatment periods. The bias is unlikely when the transitory shocks are small or the number of preprocessing periods is large. For Abadie, Diamond, and Hainmueller (2010), if the number of pretreatment periods is large, matching pretreatment outcomes control for unobservables and heterogeneity in the effect of observables and unobservables on the outcome of interest. The intuition is that only similar units regarding observables and unobservables would follow a similar trajectory in the pre-intervention period (Cunningham, 2021). The potential bias also increases with the number of unobserved factors (Abadie, 2021). In addition, the risk of overfitting increases with the number of donors, especially when the pretreatment period is short. Thus, we consider the entire period of existence of the data. It allows us to have at least twenty (20) years pre-intervention. The quality of the adjustment over this long period reassures the weakness of the bias.

This approach of impact evaluation requires, among other things, that (i) the effect size allows it to be identified from other shocks that affect the outcome variable of interest, (ii) an appropriate comparison group, (iii) the absence of treatment anticipation, (iv) no treatment interference, (v) the combination of unaffected units should approximate the characteristics of the treated unit, and finally (vi) a post-intervention period long enough

to observe the treatment effect (Abadie, 2021; Cunningham, 2021). Our data met these conditions. For checking the robustness of our results, we use placebo tests. Abadie, Diamond, and Hainmueller (2010) and Abadie, Diamond, and Hainmueller (2015) used this method to estimate the effect of the California tobacco control program in the United States and the impact of German reunification on West Germany’s GDP per capita, respectively. This strategy leads to the results detailed and interpreted in the section below.

5 Results

To assess Sankara’s leadership effect on corruption in Burkina Faso, we use the latest synthetic control package proposed by Wiltshire et al. (2021). Allsynth package relies on the classic synth and Sunth_runner code offered by Galiani and Quistorff (2017). This package adds features to the synth package, including (i) the correction of synthetic control bias in case of imperfect matching on predictors between the treated unit and its synthetic control donors, (ii) the computation of the Root Mean Squared Prediction Error (RMSPE) P-values of in-space placebo tests, (iii) increases the graphing features and (iv) allows testing the uniqueness of the weight matrix (indicates if the weight matrix is not unique).

The start of the treatment is set for 1983. Indeed, although Thomas was appointed on September 13, 1981, in the CMRPN government of President Saye Zerbo, as Secretary of State for Information, he had little influence on executive action to influence an aggregate indicator. It was this inability that led to his resignation from the government on April 12, 1982 (Zagré, 1994). We also consider this date in the placebo tests.

Tables 1 and 2 show countries’ contribution to Synthetic Burkina Faso and predictor means before Sankara’s tenure, respectively. Figure 2 displays the corruption trajectory of Burkina Faso and its twin (synthetic Burkina Faso) for the period 1961 to 1987. Synthetic Burkina Faso almost perfectly replicates the corruption of Burkina Faso over the entire period before Captain Thomas Sankara took office. This close fit of corruption before Thomas Sankara’s leadership and the close fit obtained for the corruption predictors in Table 2 demonstrate that there is a combination of African countries that replicate the institutional characteristics of Burkina Faso before Sankara. This indicates that it is possible to faithfully reproduce the institutional attributes of Burkina Faso before Captain Thomas Sankara’s 1983 Revolution without extrapolating out of the data support for the donor pool. The estimated effect of Thomas Sankara’s leadership on corruption in Burkina Faso is given by the difference between real Burkina Faso and synthetic Burkina Faso, presented in Figure 3. As can be seen, from 1983 onwards, Burkina Faso and synthetic Burkina Faso diverge substantially. While the perception of corruption has dropped substantially for Burkina Faso, the level of corruption in synthetic Burkina Faso remains constant at its pre-Sankara level (1980 level) and even started to rise in 1987. The difference between the two becomes more substantial at the end of the period, particularly in 1987. This period corresponds to when Captain Thomas Sankara was Prime Minister (January 11, 1983, to May 17, 1983) and President of the Republic (August 4, 1983, to October 15, 1987). Our results suggest a substantial adverse effect of Thomas Sankara’s leadership on corruption in Burkina Faso. Sankara’s leadership effect reached its highest level in 1987 and this declining effect is about 70% of the corruption of 1982.

A potential problem for this evaluation would be spillover effects, especially if President Sankara’s leadership influenced the level of corruption in countries that contribute to the

synthetic control. Five countries contribute to the synthetic Burkina Faso: Benin (66%), Burundi (9%), Central African Republic (19%), Guinea-Bissau (5%), and Lesotho (0,2%).

If President Sankara’s leadership negatively affects corruption in the countries contributing to the synthetic control through spillover effects, the synthetic control would provide an underestimated counterfactual of corruption in Burkina Faso without Thomas Sankara. This situation leads to an underestimation of the negative impact of Thomas Sankara on corruption in Burkina Faso. In the opposite case, it leads to an overestimation of the corruption-reducing capacity of Thomas Sankara’s leadership. This spillover effect is unlikely as Sankara’s tenure was short (four years) to influence the aggregate corruption in other countries. Even if he impacted other countries, this impact might be later in the data. To increase confidence in our results, we conduct placebo tests.

Table 2: Corruption Predictor Means before Captain Thomas Sankara tenure

	Burkina Faso	Synthetic Burkina Faso
Corruption from 1961 to 1970	.5928	.5930654
Corruption of 1971	.594	.594195
Corruption of 1975 to 1979	.5932	.59295
Corruption of 1980	.498	.498475
GDP per capita (in constant terme from 1976 to 1980	5.856605	6.493773

Figure 2: Trend in Corruption: Burkina Faso versus synthetic Burkina Faso

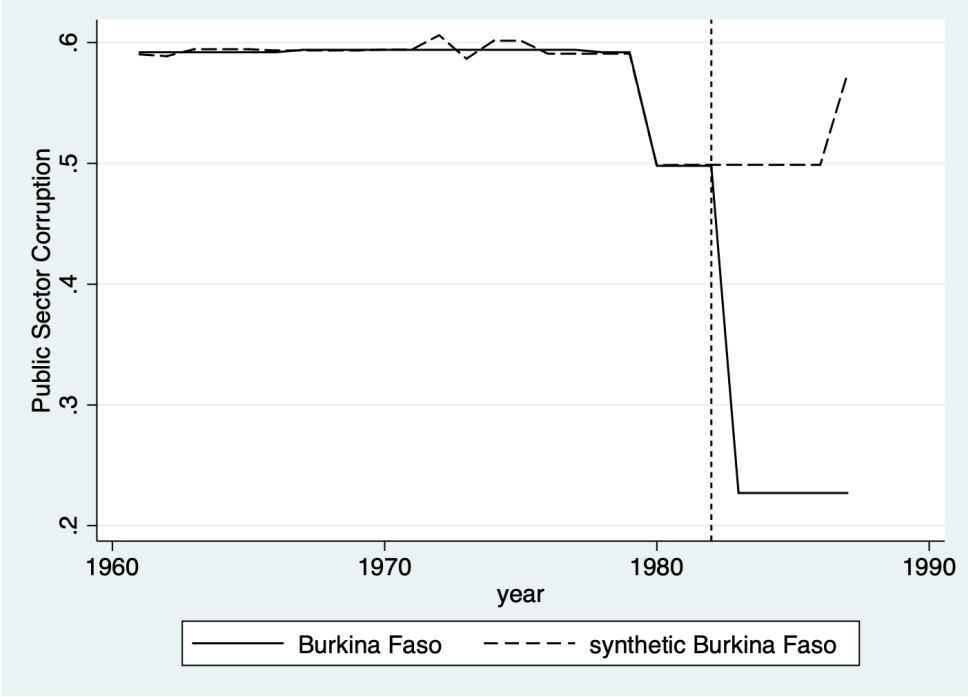
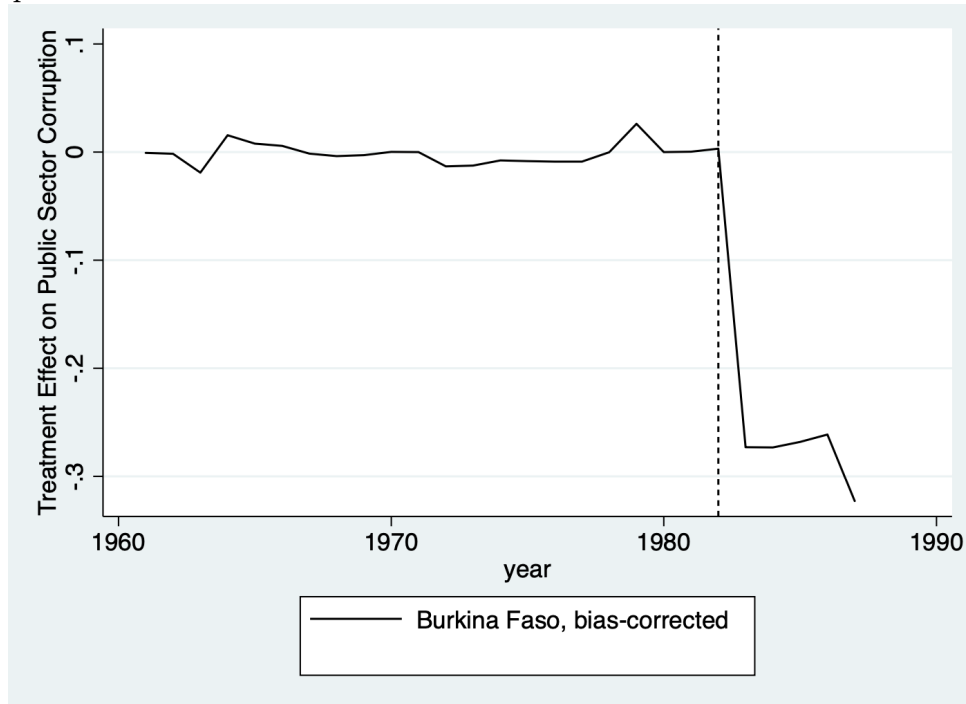


Figure 3: Corruption gap between Burkina Faso and Synthetic Burkina Faso: Sankara’s leadership Effect



5.1 Placebo tests

To strengthen the credibility of our results, we conduct a placebo test: In-space placebo and a placebo considering 1981 as the beginning the treatment.

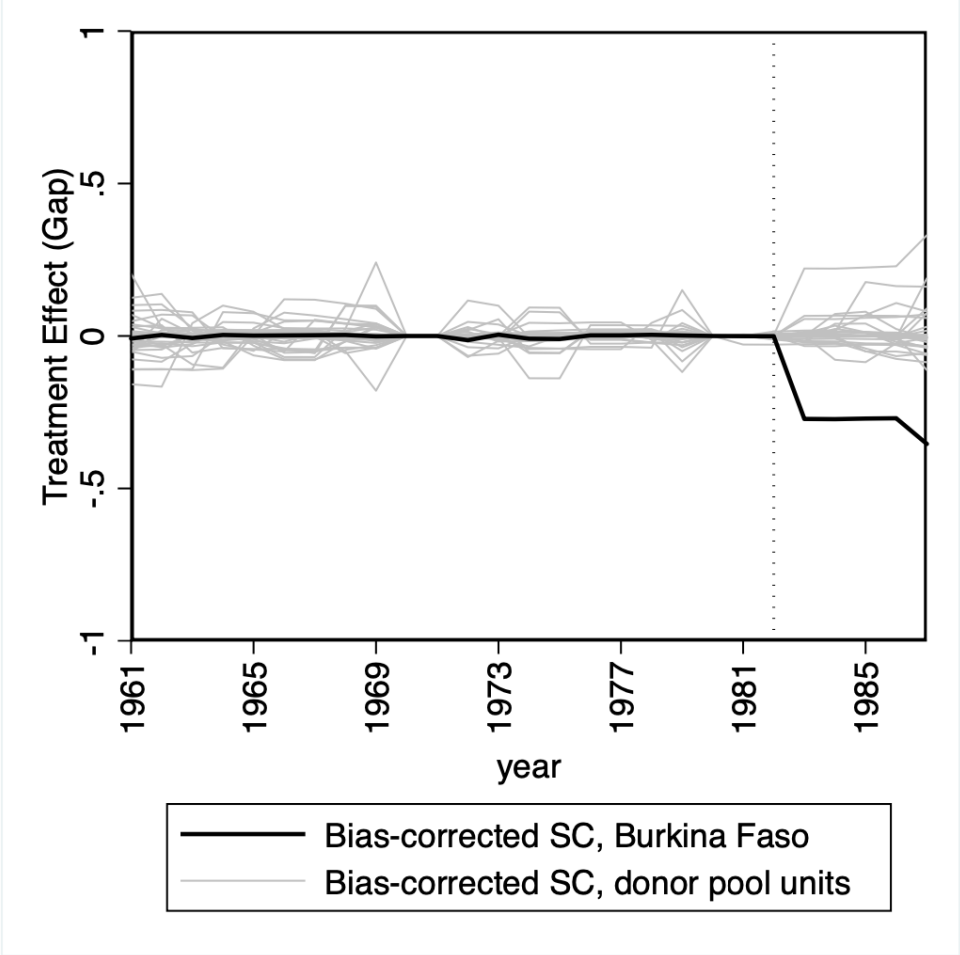
In-space placebo consists of assigning the treatment to countries other than Burkina Faso. A substantial placebo effect will undermine confidence that the result in Figure 2 is related to the leadership of Captain Thomas Sankara.

We compare the above results for Captain Thomas Sankara’s leadership on corruption in Burkina Faso with placebo. The treatment is assigned to the donor pool units. Thus, we will obtain synthetic control estimates for countries in the donor pool that have not experienced Thomas Sankara’s leadership. It allows us to compare the effect of Captain Thomas Sankara’s leadership on Burkina Faso to the distribution of placebo effects for the other countries. The impact of Captain Thomas Sankara’s leadership on corruption will be considered significant if the Sankara effect is distinctly large compared to the distribution of placebo effects.

Figure 4 displays the estimated effect of Captain Thomas Sankara on corruption and the placebo effects. As can be seen, Burkina Faso is distinct, with an outcome that shows a substantial reduction in corruption relative to the rest of the distribution. The p-values of the ratio between the post-1983 Root Mean Squared Prediction Error (RMSPE) and the pre-1983 RMSPE is .0285714 for Burkina Faso, that is significant. RMSPE measures the magnitude of the gap between the country and its synthetic control for the outcome variable of interest. A large post-treatment RMSPE indicates a large intervention effect if and only if the synthetic control similarly reproduces the outcome variable of interest over the pre-intervention period, i.e., the pre-intervention RMSPE must be relatively small. For Burkina Faso, the post-1983 RMSPE is about 70 times the pre-1983 RMSPE. The information displayed by the software indicates that Burkina Faso has the most significant

post-1983 RMSPE/pre-1983 RMSPE ratio with a p-value of 1/35 (.0285714). This means that by choosing a country at random from the sample, the chance of having an effect as large as this is 0.03.

Figure 4: In-space placebo: Sankara’s leadership Effect on corruption in Burkina Faso versus donor pool countries



We suppose that Thomas Sankara’s leadership effect begin earlier. We set the treatment period for 1981. This date correspond the appointment of Capitain Thomas Sankara as State secretary of information. We use the same techniques to calculate the synthetic control. Tables 3 and 4 display countries’ contribution to Synthetic Burkina Faso and predictor means before Sankara’s tenure, respectively. Figures 5, 6 and 7 show the results of this tests. Synthetic Burkina Faso almost perfectly reproduces the level of corruption in Burkina Faso over the period 1960 to 1981.

As can be seen, the entry into the government of Thomas Sankara had no effect on corruption for the first two years. These two years correspond to the period when Captain Sankara was Secretary of Information. The effect of his leadership only appeared from 1983 until 1987, when he became prime minister and president. The in-space placebo in figure 7, in appendix, also shows that the effect is not distinct from the distribution before 1983. It suggests that being a simple Secretary of State is not enough to act on corruption. Leadership becomes impactful when the function becomes strategic as President of the Republic. These results reinforce our confidence that the effect in figure 3 is Captain Thomas Sankara’s leadership impact on corruption.

6 Conclusion

In this paper, we set out to assess the effect of the leadership of Captain Thomas Sankara, President of Burkina Faso from 1983 until his assassination in 1987, and his integrity policy on corruption in Burkina Faso. The results indicate the importance of the leader in shaping institutions.

Using the synthetic control method and data from other African countries, we constructed a counterfactual, synthetic Burkina Faso, for Burkina Faso without the leadership of President Thomas Sankara. The difference between the level of corruption in Burkina Faso and synthetic Burkina Faso establishes that the leadership of Captain Thomas Sankara had a substantial effect on corruption in Burkina Faso. The Sankara's leadership effect represents a reduction in the perception of corruption by about 70 percent of 1982 corruption level in 1987. Our findings also suggest that Sankara's leadership becomes impactful only when his function becomes strategic as President of the Republic.

This Sankara effect is resistant to placebo tests in time and space. Our in-time placebo and in-space placebo tests do not suggest an alternative explanation for these results. This means that even if institutions become dominant over time (Acemoglu, Johnson, and Robinson, 2005), the leader is essential to their choices and shaping.

Our results recommend replicating Captain Thomas Sankara's integrity policy, particularly in Africa, as it promises to reduce corruption. First of all, the exemplarity of the leader in terms of integrity, as Thomas Sankara was, is required. This is supported by Silitonga et al. (2019) findings that good example of leaders and peers reduces corruption among senior officials in Indonesia. In addition, other actions related to the establishment of institutions of control and sanctions (CPPC, TPRs..), deconstruction of historical ideas that are still harmful by reference values (changing the name of the country to Burkina Faso offers an ideal of behavior for Burkinabè) consubstantial to the peoples are also to be replicated taking into account the contexts. The production of endogenous concepts is already underway in Rwanda with the concept of *imihigo*, "commitment to the community" in Kinyarwanda, which designates the performance contract between mayors and their people (Sarr, 2016). At the same time, we can see that while Rwanda was among the most corrupt countries in 1996, today, it is among the five least corrupt countries in Africa, according to World Bank indicators.

As fighting corruption is a key of economic prosperity (Mauro, 1995), studies highlighting the others main determinants of corruption can help better armed the battle against corruption in Burkina Faso and Africa.

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7 Appendix

Figure 5: Trend in Corruption: Burkina Faso versus synthetic Burkina Faso

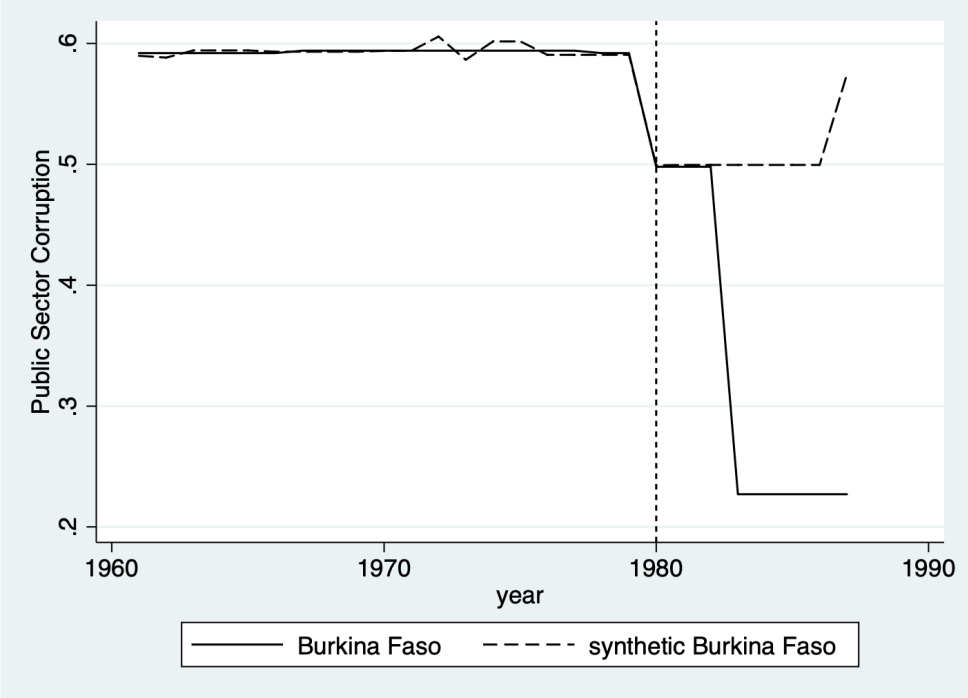


Table 3: Synthetic Weights for Burkina Faso

Country	Synthetic Control Weight	Country	Synthetic Control Weight
Algeria	0	Lesotho	.002
Benin	.656	Madagascar	0
Botswana	0	Malawi	0
Burundi	.093	Mali	0
Cameroon	0	Mauritania	0
Central African Republic	.195	Mauritius	0
Chad	0	Morocco	0
Congo, Dem. Rep.	0	Niger	0
Congo, Rep.	0	Nigeria	0
Cote d'Ivoire	0	Rwanda	0
Egypt, Arab Rep.	0	Senegal	0
Eswatini	0	Sierra Leone	0
Gabon	0	South Africa	0
Gambia, The	0	Sudan	0
Ghana	0	Togo	0
Guinea-Bissau	.054	Tunisia	0
Kenya	0	Zambia	0

Note: The synthetic weight is the weight assigned by the synthetic control method.

Table 4: Corruption Predictor Means before Captain Thomas Sankara tenure

	Burkina Faso	Synthetic Burkina Faso
Corruption from 1961 to 1970	.5928	.5927143
Corruption of 1971	.594	.593858
Corruption of 1975 to 1979	.5932	.5927984
Corruption of 1980	.498	.499191
GDP per capita (in constant terme from 1976 to 1980	5.856605	6.489948

Figure 6: Corruption gap between Burkina Faso and synthetic Burkina Faso: Sankara's leadership effect

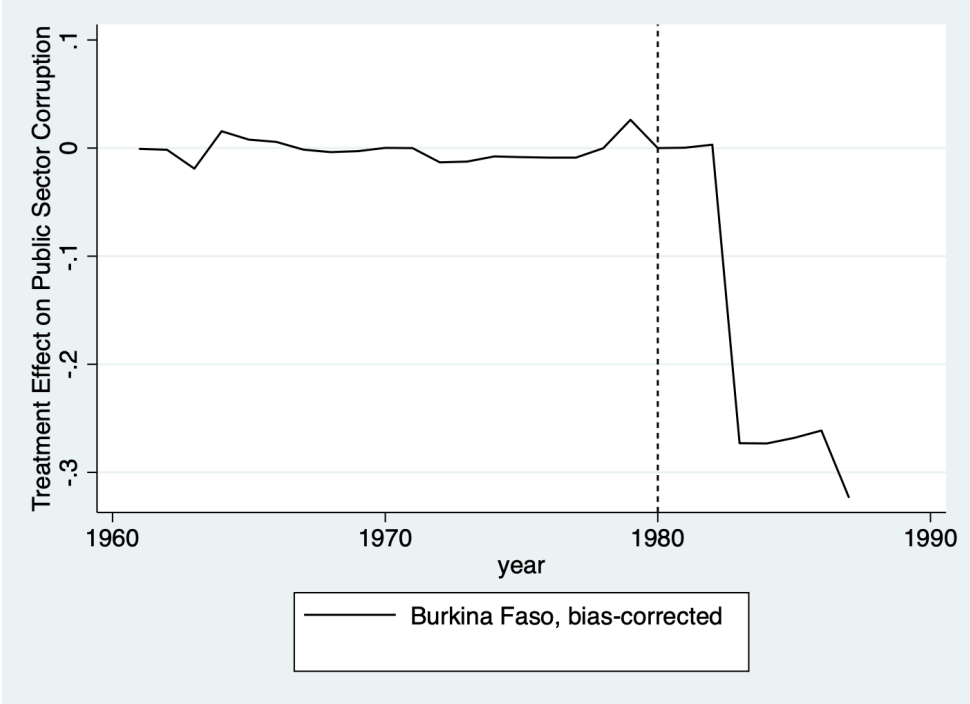


Figure 7: In-space placebo: Sankara’s leadership Effect on corruption in Burkina Faso versus donor pool countries

