UMR 8184

Thema

THéorie Économique, Modélisation et Applications

Ethnic Favoritism:
Winner Takes All or Power Sharing?
Evidence from school constructions in Benin

Pierre André, Paul Maarek, Fatoumata Tapo

UNIVERSITÉ
de Cergy-Pontoise

CENTRE NATIONAL
DE LA RECHERCHE
SCIENTIFIQUE

March 2018

Ethnic Favoritism: Winner Takes All or Power Sharing?[*]
Evidence from school constructions in Benin

Pierre André[†] Paul Maarek[‡] and Fatoumata Tapo[§]

March 27, 2018

Abstract Ethnic favoritism often distorts public policies in fractionalized countries, especially in Subsaharan Africa. We estimate the impact of a change in the ethnic group of the education minister and of the president on school construction in Benin. We estimate difference in differences and regression discontinuities based on the dates of the changes, and we find that school constructions are more frequent when the district is coethnic with a new education minister, but less frequent when the district is coethnic with a new president. The effects are very large in magnitude: a coethnic education minister approximately doubles the number of school constructions, a coethnic president approximately divides this number by two. These results suggest that the president does not systematically favor his own ethnic group but has to share power in order to survive. By appointing politicians from other ethnic groups in the government, she redistributes power to these groups, as ministers have the discretionary power to favor their own group. This specific pattern of ethnic favoritism vanishes after the democratization of Benin, in 1991. The checks and balances created by democracy seemingly prevented ethnically targeted public policies.

JEL Classification: H41, H52, O10, O12
Key words: School constructions, clientelism, ethnic favoritism, power sharing, Benin, Africa

1   Introduction

In ethnically fractionalized countries, and in particular in Subsaharan Africa, ethnic identities tend to jeopardize economic policies. The literature on ethnic politics is vast but usually recognizes the dramatic consequences of this phenomenon: it deters economic growth (Easterly and Levine, 1997; Bates, 1981) and causes conflicts (Horowitz 1985, Fearon and Laitin 2003).

The literature emphasizes two different patterns of ethnic politics. These two machanisms can obviously coexist, and the dominant one probably differ across countries depending in the cultural, historical or institutional context.

The first mechanism is the most commonly accepted. François et al. (2015) refer to it as the "big man (woman)" theory of power. In this view, the winner takes all: an unconstrained leader shares little power with other ethnic groups (for instance, Padró i Miquel 2007 gives a theoretical treatment where the ruler sharply excludes the other ethnic groups from decision making). In such an environment, the policies favor systematically the co-ethnics of the ruler. Numerous recent studies provide evidence in line with this view. For a large sample of countries, Hodler and Raschky (2014), De Luca et al. (2017) or Mueller and Tapsoba (2016) show an increase in nightlight intensity in the regions where the ethnic group of the leader lives. Franck and Rainer (2012) find an increase in educational attainment in Subsaharan African countries and Kramon and Posner (2016) in Kenya. Burgess et al. (2015) find an increase in road building in Kenya.

The second mechanism is more balanced: it argues that even dictators face constraints, so they have to share power accordingly with various ethnic groups in order to avoid to be ousted by coups or popular protest movements. Creating a coalition among influential individuals is at the heart of the selectorate theory of de Mesquita et al. (2005). Arriola (2009) highlights this strategy among some African presidents: they consolidate their power with the co-optation in the executive power of other powerful individuals with strong ethnic or regional support. This view received some strong support recently. In an impressive and influencial study, François et al. (2015) show that the ethnic composition of African governments usually maps the ethnic composition of the population (with a small premium for the ethnic group of the ruler). According to this view, the ruler does not exclude the other ethnic groups from power: they are usually represented in the executive power. Hence public policies may take every ethnic group into account and this form of power sharing can potentially translate into ethnically targeted policies. Each minister represents her ethnic group. This minister can use her discretionary power to favor her own group on the types of public goods which are under her responsibility. Given the variety of ethnies appointed for minister positions, it is very likely that many ethnies can be favored along very different public goods depending on the positions of its representatives. Kramon and Posner (2013) remark that most researchers measure ethnic policies with a single policy dimension (generally a specific type public good); by contrast, they study four types of outcomes in six African countries, and they find no systematic targeting of the ethnic group of the president. In some cases, the ethnic group of the president is even penalized. Consistently with the insight of François et al. (2015), Kramon and Posner (2016) find that the ethnic group of the education minister matters a lot for educational attainment (in Kenya). This suggests that, for different policy dimensions, the minister in charge may favor her own ethnic group. The ethnic group of the president

can very well be even penalized in some cases (Kramon and Posner (2013)).

Kasara (2007) reviews the many arguments explaining why the ethnic group of the president may not be favored in democracies and in dictatorships. In democratic contexts, it is well known that politicians should favor pivotal voters who may vote for either side and may not favor his core supporters since they would vote for her in any case (see Dixit and Londregan 1996; Lindbeck and Weibull 1987 for a theoretical analysis or Dahlberg and Johansson 2002; Diaz-Cayeros et al. 2003; Khemani 2003; Miguel and Zaidi 2003 for empirical tests in specific countries). In autocracies, Chandra (2004) shows politicians wishing to consolidate power may devote less efforts to co-ethnics, who may have "psychic benefits" from seeing him/her in office. Consistently to this view, Kasara (2007) shows that the co-ethnics of the president pay more taxes than other ethnic groups in the agricultural sector.

We contribute to this debate by looking at school construction in Benin from 1960 to 2004. We study the ethnic group of the presidents and of the education ministers (both usually belong to different ethnic groups in most of cases, consistently with François et al. 2015). We use differences in differences and regression discontinuity designs, and we find strong evidence in favor of the power sharing view. We show that after a country experience a switch in the ethnicity of the education minister in year T, the regions of her ethnic group benefit from a sharp increase in school construction. Compared to the 5 years before the changeover ($[T-5; T-1]$), the number of school openings increase after the changeover ($[T; T+5]$) by 0.45 times (DiD) and 0.84 times (RDD) the average yearly number of school constructions in the district over the total interval ($[T-5; T+5]$). These results holds until the democratization of Benin (1991) and then disappear suggesting democratic institutions seems to prevent ethnically targeted policies. Conversely and surprisingly, the picture looks very different when looking at the president. A switch in the president leads to a sizable *decrease* of school construction in the districts of her ethnic group. This last result mostly holds during the period (1960 - 1972) during which Benin was an unstable dictatorship with a many political turnovers. For the other periods, the changes of president do not impact the geography of school construction. This suggests that the ethnic group of the president is penalized in targeted policies during periods in which the ruler is threaten. Indeed, the president has to devote resources in order to ensure the support of other groups who may oppose her.

We view this results as a strong support of the idea that there is a power sharing between ethnic groups (François et al., 2015; Kramon and Posner, 2013) and that this translates into a specific pattern of ethnic favoritism. Ethnic policies and ethnic favoritism seem to exist but among the many dimensions of public policies, many different ethnic groups can be simultaneously favored in a given dimension. We focus on one of these dimensions (education), and we show that ethnic favoritism is mostly (and stably) related to the identity of the minister in charge of this dimension. Given that many ethnic groups are typically represented in the government, one ethnic group can be favored for a given type of public goods (depending on the minister in charge) but should not be favored in every dimensions of public goods. Indeed, in the case of education, the ethnic group of the education minister matters, and not the ethnic group of the president; besides, the education minister and the president usually belong to two different ethnic groups. These results also suggest that the ruler uses the appointments of ministers in order to get the support of their ethnic groups (or regions): the minister seems to have a strong discretionary power as we show she favors her own ethnic group

systematically (under autocracy). At this stage, it is worth mentioning that we do not claim that public good provision is optimal in Benin. Assuming each minister favors her own ethnic group, this generates an over-provision of the corresponding public good in some regions and an under-provision in some others. The regions with an over-provision is simply not always the same along all the types of public goods. This remains inefficient since the various types of public goods are very imperfect substitutes (e.g. schools and health centers).

This result also suggests imperfect commitment from the agents. Indeed, under perfect commitment, the various ethnic groups could bargain over an efficient repartition of public goods, which depends on their weight in the sharing rule. Here, the nomination of ministers is a way to commit to a sharing rule. However, it causes inefficiencies as the sharing rule gives a different type of infrastructure for each ethnic group. For example, the ministers of different ethnic groups do not seem to exchange investments in their respective regions.

Then, we find that the ethnic group of the president has less school constructions in periods of high instability. Indeed, between the independence and 1972, Benin was an autocratic country and saw many political turnovers. The rulers probably had to share power as a result, and devoted resources to please their opponents at the expense of their own ethnic groups. This is consistent with the literature in political economy in the democratic context and with Kasara (2007): when the incumbent faces a high probability of loosing power, she seeks the support of a broader part of the population. Thus, she invests little for the support of her own ethnic group: this support is guaranteed and unsufficient to keep power. In the period of more stable autocracy (1972 -1991) the negative impact of having a co-ethnic president disappears. This may suggest that this president was stronger and less threatened. The positive result for having a co-ethnic minister of education remains (with a similar magnitude). In this environment, the president does not support his core supporters either. This suggests that strong leaders (stable autocracy) also need the support of other ethnic groups, and that they give positions and targeted policies to those groups.

During the democratic period (1991-2004) for which we have data, we show that the pattern we have observed under autocracy vanishes. Having a co-ethnic president or minister of education does not affect school constructions in the district. This suggests that democratic institutions have sufficiently constrained the executive and prevented these ethnically targeted policies. This is consistent with Burgess et al. (2015) or Mueller and Tapsoba (2016): the first shows that Kenyan presidents favor their co-ethnic regions in road building before and not after the democratization of the country and the latter show that the effect of the co-ethnicity with the president on light intensity disappears when the country introduces strong constraints on the executive.

Finally, we examine several additional specifications to describe carefully the mechanism we have in mind. First, we perform some placebo regressions using transitions for other minister positions such as health, economy, interior, planning, public work and justice. Those minister positions exist stably throughout our sample and these ministers are almost never co-ethnic with minister of education or with the president. We show that none of those ministers have a positive and significant impact on school constructions in co-ethnic districts. This results suggests that each minister is in charge of a specific type public goods and does not have any discretionary power on the other types of public goods. As a result, by appointing a specific ethnic group to a minister position, the president can

target this specific ethnic group for the provision of the corresponding public good. This placebo regression supports our view: the power sharing mechanism highlighted by François et al. (2015) may translate into a specific pattern of ethnic favoritism. Second, we have collected the birthplaces (district) of the presidents in order to investigate whether the ethnic favoritism pattern we found may be confounded with the targeting of her birthplace, instead of systematic ethnic favoritism. We show that in the case of Benin, the district of birth of the president does not enjoy any specific pattern of public good provision. In other words, the district of birth of the president (if co-ethnic) is as negatively discriminated as any other co-ethnic district during the unstable autocratic period (and remains unaffected during the two other sub-periods of our sample).

Our approach presents several advantages compared to the existing literature. Firstly, we exploit unique retrospective data on local school provision. We have the exact date of school constructions, and this allows us to map the number of schools constructed in each of the 77 districts of Benin every year. This level of detail is extremely rare in low-income (and autocratic) countries, particularly in Sub-Saharan Africa.[1] Indeed, we build a panel data of public service provision based on geographically located infrastructure with information on the date of the investment. To our knowledge, the only other example of similar data is Burgess et al. (2015), who focus on road constructions. The lack of these data make the measure of ethnic favoritism very difficult. This lead many researchers to use direct outcomes such as infant mortality, educational attainment or nightlights instead of a direct measure of public goods provision (see for instance Kramon and Posner 2013, 2016, Franck and Rainer 2012 or De Luca et al. 2017). Even if this approach makes the analysis of a large number of countries possible, those outcomes may be affected by many other factors than politics (economic situation of a specific ethnic group, transmission of social capital or specific shocks affecting a region). In contrary, political decisions affect public goods provision directly.

Studying Benin is appealing for several reasons. First, there is an important ethnic concentration across districts: when the ethnic group of politicians is overrepresented, it represents in most cases more than 80% of the population of the district. This makes ethnic targeting of school constructions feasible. In Benin, geographical targeting is sufficient to achieve ethnic targeting. Thus, ethnic favoritism is identifiable from the geographical patterns of school constructions given by our data. Second the political history of Benin has some interesting features, with three very different sub-periods. Between the independence in 1960 and 1971, Benin was a very unstable dictatorship with very frequent changes of presidents from various ethnic groups. Political instability threatens the power of the president, and it should force the incumbent to invest in the districts of the other ethnic groups, in order to mitigate the disapproval in these groups (and subsequently limit the risks of unrest). Between 1972 and 1990, Benin was a stable dictatorship, Mathieu Kerekou being president for eighteen years. Finally, between 1991 and 2004, Benin can be considered as an emerging democracy. (This situation is stable until now, but our data are available until 2004). This allows to study the patterns of ethnic favoritism across very different institutional environments. Benin has another interesting feature: during these three periods, the education minister changes frequently, and her ethnic group also changes (even within the same presidential term). Furthermore, the ethnic group of the education minister differs from the ethnic group of the president in all cases (but one). This allows a proper

---

[1]Rulers do not necessarily want to draw attention on the patterns of ethnic favoritism.

identification of the effect of minister appointment on ethnic favoritism. More specifically, we can disentangle ethnic favoritism towards the ethnic group of the president and of the education minister, in the spirit of the power sharing view.

The rest of the paper is organized as follows. Section 2 briefly presents the historical and political context of Benin. Section 3 presents the data and the construction of the main variables. Section 4 presents the empirical strategy and section 5 the results. Section 6 concludes.

2 The political context in Benin

Benin is a former french colony and became independent in 1960. The dominant ethnic group is the Fon with 39,2% of the ten million inhabitants of Benin. The other ethnic groups are Yoruba (17,6%), Adja (15,2%), Bariba (9,2%), Fula (6,9%), Ottamari (6,1%), Yoa-Lokpa (4%), Dendi (2,5%).[2]. The ethnicity of Beninese districts is highly fragmented: in 73 of the 77 districts, one ethnic group represents more than 50% of the population. The 4 other districts are in the North (Donga and Borgou regions). On average, the ethnic majority of a district represents 80% of its population. The main ethnic group, the Fon are a majority in 32 districts; 3 Presidents out of 14 were Fon (Christophe Soglo, Emile Derlin Zinsou and Nicephore Soglo).

Following the independence, Benin experienced a period of political instability with an important political turnover. From 1960 to 1972, several coups and regime changes have occured with 10 distinct leaders, 4 of them remaining during several consecutive calendar years (See Table 1): Hubert Maga, Sourou Apithy, Christophe Soglo, and Emile Derlin Zinsou.[3] On October 26, 1972, Mathieu Kerekou led a coup and became president; Benin became a relatively stable dictatorship. Kerekou stated in the beginning of his term that the country would not "burden itself by copying foreign ideology, and wants neither Capitalism, Communism, nor Socialism". On 30 November 1974 however, the country became officially Marxist. In 1979, Kerekou arranged show elections for which he was the only allowed candidate. In 1989, riots started when regime could not pay its soldiers and the banking system went bankrupt. Kerekou renounced Marxism and accepted to arrange elections in an agreement. In 1990, a transitory government took power and the country abandoned Marxism. Benin became democratic, and in 1991, Kerekou lost elections to Nicephore Soglo, his prime minister. Kerekou returned to power after winning the election in 1996. In 2001, Kerekou won another election with a very low margin, after which his opponents claimed election irregularities. The two following presidents have both been elected as independent candidates, Boni Yayi in 2006 and 2011 and Patrice Tallon in 2016.

Benin is now an example of democracy in Africa: since 1991, it experiences strong constraints on the executive, extremely competitive elections and freedom of the press.[4] The polity II index ranks the level of democracy from -10 to 10. This score is 6 for Benin between 1991 and 2004 (the democratic period covered in our data). This is a very high score compared to the other African countries as they obtain an average of -0.5 for that index. The sub index for constraints on the executive from the polity IV database gives a score of 5 to Benin while the African average is only -6.22. Those strong

---

[2]Source: 2003 population census, Direction des Etudes Démographiques (2003)

[3]We exclude presidents who leave office before the end of the calendar year of their entry according to François et al. (2015)

[4]According to the Polity IV database

constraints likely restrain the ability of politicians to run ethnically targeted policies. The power shifts regularly to opponents. This demonstrates the competitiveness of the presidential elections and the strength of democracy in this country. This strong institutional change, from an autocracy to a democracy, makes Benin a good candidate to analyze the effect of political institutions on the presence of ethnically targeted policies.

Finally, Benin is a typical case of power sharing across ethnic groups described in François et al. (2015). Table 1 shows that education ministers rarely share the ethnic group of their president. Among the 16 ministers in our dataset, the only exception is Eugene Bocco, appointed by Christophe Soglo in 1966. This makes Benin a good candidate to study the pattern of ethnic favoritism in a context of power sharing. Also, Table 1 shows that a change of politician (minister of education or president) usually changes the ethnic identity of the person holding this position. Thus, our data allows for a clear identification of a switch in the ethnic identity of politicians.

3 Data and variables

We use three data sources in this paper. 1) the list of ministers and presidents gives us the political transitions and their dates and the ethnic group of politicians (presidents an ministers) 2) the primary schools listing informs us on the opening date and location (district) of each primary school in Benin. 3) The DHS survey data gives us the ethnic composition of each district. We aggregate the information at the district (*commune*) level. There are 77 districts in Benin.

3.1 List of ministers and presidents

We use the list of the presidents and ministers of every government of Benin between 1960 and 2004 given by François et al. (2015). They give the ethnicity and the position of every politician over the period 1960-2004 for which information was available.

We perform the following steps to exploit these data. Firstly, we code the position of ministers from the name of their position. In some governments, there are several ministers in charge of education, and we take the highest ranked minister in charge of primary education as we observe primary school constructions only. We also code the position of other ministers such as health, justice, economy, interior, planning and public work in order to run our placebo regressions. Secondly, we recode the ethnicity of politicians so as make it comparable with the district (DHS) data [5]. Lastly, we use these lists to identify the transitions between ministers. We identify a change of minister as a transition when the ethnicity of the education minister changes. For each of these positions, we measure every appointment year, and call it a transition year (T_p) for politician p. We perform the same steps to identify the transitions for president.[6]

During the period of instability characterized by multiples coups, we have 3 transitions for the president: Maga to Apithy (1964); Apithy to Soglo (1966) and Zinsou to Maga (1970).[7] Apithy;

---

[5]There are 8 ethnic groups in the DHS data and they are also the most represented ones: Adja, Bariba, Dendi, Fon, Yao-Lokpa, Betamaribe (Ottamari), Peulh (Fula), Yoruba. All the smaller ethnic groups have been agregated into a new group

[6]The position of president is already coded by François et al. (2015)

[7]The observations are missing for years 1969 and 1975.

Soglo and Maga have all been president for only 2 years, this illustrates quite fairly how frequent were the military coups and how unstable was the autocracy. In this unstable period, the ruler probably faced many threats from other groups which should constrained her policies if she seeks to remain in charge. This period was followed by the authoritarian presidency of Mathieu Kerekou that lasted almost 20 years. This period corresponds to the beginning of a change in the Beninese politics as Kerekou was the first president to remain in power during a long period. We interpret this more stable autocratic period as an environment in which the ruler faces less direct threats from other ethnic groups. After 1991, Benin has turned into democracy. Elections are organized every 5 years and participants are constrained by a defined number of mandates (2). Nicephore Soglo has been president for 5 years followed by Mathieu Kerekou who lasted 10 years. We thus have 2 transitions for the democratic period because Soglo and Kerekou are from different ethnic groups. The education ministers' mandates are usually shorter. On average they stay in power for nearly 4 years. The ministers of education and the president do not share the same ethnic group. The only exception is the minister of education Eugene Bocco appointed by the president Christophe Soglo (both are Fon). This is a really interesting feature of Benin as it is consistent with the power sharing view. The coethnics of the president are rarely appointed into ministerial positions. All the ethnic groups are represented in the government according to their share in the population in François and al (2015). Table 1 shows that a change of minister corresponds to a switch in her ethnic group in most cases. Among the 15 switches of education minister in our sample, the ethnic group of the minister of education changes 10 times. We can thus exploit 10 transitions years (T_p) to identify the impact of a switch in the ethnic group of the education minister.

3.2   Primary schools listing

The listing of public schools in Bénin in 2005[8] informs us on their location (district) and on their opening dates. We have dropped private schools from the sample since their opening is not necessarily due to a political decision.The opening dates of the schools give us retrospective information on the number of schools per district for every year. We neglect school closures, as closed schools are absent from our listing. Also, we do not use school size for lack of retrospective information.

We construct N_{dt}, the number of public school openings for district d and year t. However, the order of magnitude of N_{dt} probably depends a lot on the population of districts. Using N_{dt} as a dependent variable leads to an over-weighting of the (few) big cities where a large number of schools can possibly be created. We thus normalize the number constructed such that our regressions capture a variation of the number of school constructed expressed in percentage points rather than in absolute term. This measure should not be affected by the average number of school constructed each year in a given district.

Also, school size may affect the number of school constructed. For example, population density is likely to affect the trade off between the size of the schools and the number of schools constructed. However, if school size is time invariant (because density varies slowly), our normalization measure the relative variation in the number of schools constructed and should reflect exactly the variation in the supply of education.

---

[8]We thank Pierre Varly for having made the data available.

So as to normalize N_{dt}, we take advantage of our goal: comparing school creations around a political transition year T_p. We usually keep observations of school openings between $T_p - 5$ and $T_p + 5$, and the main normalization is a simple division by the average number of schools constructed between $T_p - 5$ and $T_p + 5$:

$$n_{dtp} = \frac{N_{dt}}{\frac{1}{11} \sum_{t'=T_p-5}^{T_p+5} N_{dt'}} \tag{1}$$

Alternatively, in some regressions, we keep observations of school openings between $T_p - 10$ and $T_p + 10$, and we normalize school constructions accordingly:

$$n'_{dtp} = \frac{N_{dt}}{\frac{1}{21} \sum_{t'=T_p-10}^{T_p+10} N_{dt'}} \tag{2}$$

For robustness checks, we also normalize by the average number of schools constructed between $T_p - 5$ and $T_p - 1$, or by the stock of primary schools in $T_p - 1$:

$$n''_{dtp} = \frac{N_{dt}}{\frac{1}{5} \sum_{t=T_p-5}^{T_p-1} N_{dt'}} \tag{3}$$

$$n'''_{dtp} = \frac{N_{dt}}{\sum_{t=-\infty}^{T_p-1} N_{dt'}} \tag{4}$$

The normalization and the time window do not change our results (Tables 3 to 6). Note that in the paper we mostly refer to school constructions. However the list of school in Benin corresponds to school openings: opening may (occasionally) correspond to the purchase of existent buildings in order to open a new school. Also, in developing countries such as Benin, (primary) school buildings are generally standardized with very simple architecture. For those two reasons, the number of school openings can change rapidly when a new minister or president is appointed. This is indeed what we observe in the data (see below).

3.3 DHS surveys

We use the DHS surveys to measure the ethnic composition of every district in Bénin. We use the DHS survey rounds of 1996, 2001 and 2011, and we infer the district from the GIS data.[9] The GIS data include a noise in the position (up to 5 kilometers in more than 99% of the cases), this noise is probably negligible given the average size of districts (1490 square kilometers).

Ethnicity is probably clustered by neighborhood within a district, and the number of DHS clusters per district for a single round is low. So we aggregate the information between DHS rounds: the ethnic composition of districts is rather stable over time. Over the three rounds of DHS, the median number of clusters per district is 13 and 95% of the districts are surveyed at least 7 times.

Our ethnicity variable is E_{dp}, the district share of the ethnic group of politician p. We measure it with an average of this share over all the DHS clusters (independently from their round). We use $E'_{dp} = \mathbb{1}(E_{dp} \geq 50\%)$, a discrete version of E_{dp} which takes the value 1 when the share of the ethnic group of the politician p is higher than 50%. We call the districts with $E'_{dp} = 1$ the coethnic districts.

---

[9]We obtain the map of districts in the GADM database, www.gadm.org

The districts of Benin are much less fractionalized than the country: a single ethnic group corresponds to a strong majority of the population in most districts. In 73 districts out of 77, one ethnic group represents more than 50% of the people. There are on average 15 districts coethnic with the president. On average, the ethnic group of the president represents 80% of the population of these districts and only 3% of the population of other districts. On average, 8 districts are coethnic with the education minister and the ethnic group of the education minister represents 77% of the population of these districts on average (11% of the population of other districts). This makes it particularly easy for the presidents and education ministers to target their coethnics. Indeed, their ethnic groups live in well defined coethnic districts. Thus, for the politicians, targeting a particular area implies to favor the corresponding ethnic group. So ethnic favoritism should be visible in the geographical pattern of school building (if it exists).

4 Empirical strategy

We base our estimation on the comparison of school investments immediately before and immediately after the appointment of a politician, and between districts who share the same ethnicity than the politician and other districts. This leads to the following equation for the differences in differences:

$$n_{dtp} = \alpha E'_{dp}\mathcal{T} + \beta\mathcal{T} + \theta_{dp} + \varepsilon_{dtp} \tag{DiD}$$

where $\mathcal{T} = 1(t \geq T_p)$ is a dummy taking value 1 when the politician p has been appointed in year t. Coefficient α is a difference in differences: between before and after year T_p, and between districts with a co-ethnicity with the appointed politician p ($E_{dp} \geq 50\%$) and other districts. The district times politician fixed-effects θ_{dp} capture the effect of E'_{dp}. (In some specifications, we include E'_{dp} instead of the fixed-effects θ_{dp}.) We estimate (DiD) separately for each position (minister of education and president).

Importantly, we include all the observations (d, t, p) close to a transition using a 5 years window: $T_p - 5 \leq t \leq T_p + 5$. (Alternatively, we also consider the window $T_p - 10 \leq t \leq T_p + 10$ in some regressions.) Thus, when a year is close to several transitions, we include the corresponding observations of the same district d at date t several times for several transitions p. This duplication of observations could lead to an overestimation of the precision of our estimates. To avoid this, we cluster the standard errors of our estimates by district. In the appendix, we replicate our main specifications with bootstrapped standard errors (by district) and we show that the standard errors are quasi identical, see Tables A.1 and A.2.

Differences in differences have a well known limitation: their sensibility to the common trend assumption. Co-ethnic districts may have a pre-existing specific increasing trend in school building. For example, economically dominant and dynamic groups may have a higher probability to have a co-ethnic president or minister of education (for instance, more dynamic groups might invest more in the competition for power). These more dynamic groups can also have an increasing demand for education, given that investment in education increases with wealth. The DiD results may capture this district specific trends rather than the direct effect of having a co-ethnic president or minister of education.

It is also possible to control for a difference in trends between the coethnic districts ($E'_{dt} = 1$) and the other districts, even if these trends are non-linear. The specification becomes a refinement of Regression Discontinuity Designs, where we compute the difference in discontinuity between coethnic districts and other districts:

$$
\begin{aligned}
n_{dtp} = \alpha E'_{dp}\mathcal{T} + \beta\mathcal{T} &+ P_{11}(t - T)\mathcal{T}E'_{dp} + P_{10}(t - T)(1 - \mathcal{T})E'_{dp} \\
&+ P_{01}(t - T)\mathcal{T}(1 - E'_{dp}) + P_{00}(t - T)(1 - \mathcal{T})(1 - E'_{dp}) + \theta_{dp} + \varepsilon_{dtp} \quad \text{(RDD)}
\end{aligned}
$$

In addition to districts fixed-effects, we control for P_{00}, P_{01}, P_{10} and P_{11}, four different polynomials in date, for coethnic districts and for other districts, before and after the transition. Hence, β captures the discontinuity for non-coethnic districts, and α captures the additional discontinuity for coethnic districts. Hence, we have a difference between the coethnic districts and other districts in the discontinuity RDD at the date of the political transition.

This specification probably solves most estimation issues. Firstly, district-specific trends cannot bias our estimates, as this specification explicitly controls for a difference in trends in coethnic and non-coethnic districts.

Secondly, our measure of school investment leaves two main caveats: we measure the number of school constructions (neglecting the differences in school size between districts), and we neglect school closures. These causes of measurement error can hardly explain our results; if anything, they would probably attenuate these results. Indeed, we compare the number of school constructed before and after the transitions for the different districts which are co-ethnic or not. If the size of school constructed varies over time but that this variation is not discontinuous when a new minister is appointed, our estimates should not be biased. For example, our results are not biased if the population density in the district affects school size, because population density is not discontinuous when a new minister is nominated. In this case, measurement error should not invalidate our findings. We believe that these measurements errors may even attenuate our results. We find that newly appointed ministers of education build more primary schools in their coethnic districts. It is hard to imagine why it could be compensated by the fact that they build smaller schools, or by school closures. Instead, we can easily imagine why ethnic favoritism could also result in a bigger school size and fewer public school closures. Here, we might miss an additional channel of ethnic favoritism. In this case, our results can be seen as a lower bound to measure ethnic favoritism in policies related to education.

5 Empirical results

5.1 Main specifications

In this section we present the results of the estimation of DiD and RDD for the two positions of interest: president and minister of education. Table 3 displays the results for the education minister and Table 4 for the president. In both tables, columns 1 and 2 present the coefficient estimates for the DiD specifications respectly without and with district*transition fixed effects θ_{dp}. Columns 3 and 4 presents the coefficient estimates for RDD specifications respectively without and with district*transition fixed effects θ_{dp}. In column 5, we present estimates for the RDD specification with fixed effects when

enlarging the time window to $T_p - 10 \le t \le T_p + 10$ instead of $T_p - 5 \le t \le T_p + 5$ (results without fixed effects are similar). Column 6 presents the same specification than column 5 but we include trends following a polynomial of order 3 instead of linear trends. We omit to present the estimates with a polynomial of order 2 as results are similar.

In every specification of Table 3, districts coethnic with a newly appointed education minister have more school constructions. Coefficient α is positive and significant: being a co-ethnic district increases the number of school constructions. This result is very robust across all the specifications. The magnitude varies between 0.4 times the average yearly number of school constructions for the DiD specifications and 0.8 to 1.1 times this number for the RDD specifications. Hence the magnitude of the effect of ethnic favoritism by the education minister seems to be very large.

In Figure 1, we plot the RDD specification of column 3 with solid lines for trends in coethnic district (before and after the transition) and with dotted lines for trends in non coethnic districs (before and after the transition). We compare these lines to the raw descriptive statistics (represented by black dots for coethnic districts and by gray dots for non coethnic districts). These raw descriptive statistics are the average normalized number of school constructions per coethnicity with the new minister times year relative to the appointment of this minister. This plots our results and we clearly see that coethnic districts have substantially more school constructions in all the very few years following the appointment of a new education minister as compared to the years before the appointment.

In Table 3, the effect of $\mathcal{T}$ is positive for the non-coethnic districts in the DiD specifications of columns 1 and 2. There tend to be more school constructions after the nomination than before, probably because the number of school constructions tend to increase over time. However, in columns 3 to 6, the discontinuity $\mathcal{T}$ is negative for the "reference districts": the districts which are not coethnic with the new education minister loose some school constructions when the new minister is nominated. Figure 1 show this discontinuity: for non-coethnic districts represented by the two dotted lines, the two trends before and after the transition exhibit a clear negative discontinuity (smaller in magnitude than the positive discontinuity for coethnic districts). As we will discuss below when we comment Table 7, this is fully explained by the districts that are coethnic with the former education minister.

However, the columns 3 to 6 of Table 3 show a positive trend after the appointment of the education minister for non-coethnic districts $((t - T) * \mathcal{T})$. The (low) level of school constructions in non-coethnic districts after the appointment tend to increase after a few years. We can also see this in Figure 1. After the appointment of the new minister, the trend in non coethnic districts (represented by the dotted line) clearly has a positive slope. There are two potential reasons to that. First, the non-coethnic minister often leaves after a very few years, and she might be replaced by a coethnic minister. Second, school construction usually tends to increase over time.[10]

Table 4 shows that co-ethnicity with a newly appointed president decreases the number of school constructions relatively to non-coethnic districts. This results is consistent between specifications, and the magnitude is very substantial, between 0.4 to 0.9 times the average yearly number of school constructions. Figure 2 plots the RDD specification of column 3 with raw descriptive statistics as described previously. We can see that the number of school constructions in coethnic districts seem

---

[10]This last mechanism does not seem to happen in coethnic districts however: the coefficient of the trend for coethnic districts $(t - T) * T * E'_{dp}$ is slightly negative and very close to zero (unsignificant).

a bit smaller just after that the appointment of the new president. Conversely, Table 4 and Figure 2 show that in non-coethnic districts, the appointment of a new president seems to increase the number of school constructions. The magnitude is higher than the negative discontinuity in coethnic districts. Hence, in practice, school openings increase much more in non-coethnic districts than they decrease in coethnic districts. In other words, the additional negative discontinuity $\mathcal{T} * E'_{dp}$ is mainly explained by the positive discontinuity for the control districts $\mathcal{T}$. This results in a moderately negative discontinuity for the co-ethnic districts (0.526 - 0.704). The negative impact of being coethnic when a new president is appointed is more related to an increase in investment in non coethnic districts than to a decrease in investment in coethnic districts. This appears very clearly in Figure 2.

The columns 3 to 6 of Table 3 show positive trends before and after the appointment of a new president for the non coethnic districts and after the transition for coethnic districts. The additional trends for the period before the transition for coethnic districts is null.

These results are totally consistent with the power sharing view of ethnic favoritism emphasized by François et al. (2015): a dictator faces threat of coups and revolutions from different factions in society. In African countries, the ethnicity is often salient, so these factions tend to represent different ethnic groups. The dictator seeks to limit these threats and to minimize her chances of loosing power. So she shares power with other ethnic groups, and gives some positions in the government to many representatives of various ethnic groups. In a democracy, the ruler maximizes the chances of reelection and she spends resources on citizens (voters) whose vote is sensitive to this stimulus. In a dictatorship, this consists in buying off the citizens who may rebel if they do not receive enough public goods. To do so, the ruler appoint ministers from other ethnic groups and those ministers use their discretionary power to target their ethnic group. We show this process can create a particular form of ethnic favoritism. The president gives power to ethnic groups in a particular (set of) minister(s) for every ethnic group. For each type of public good, this creates favoritism for one ethnic group, depending on the ethnicity of the minister in charge. As a result, each ethnic group (of the winning coalition) should have an advantage for a few types of public goods; in contrary, no ethnic group can be favored for every type of public goods. Many ethnic groups probably benefit from clientelism is such a system; however, clientelism still leads to inefficiencies, as each ethnic group receives one type of public goods (e.g. schools) and may receive much less other types of public goods (e.g. hospitals and roads).

Under perfect commitment, power sharing à la François et al. (2015) could still lead to an efficient provision of public goods. Indeed, the ruler could commit to an efficient distribution of public goods, or the ministers representing different ethnic groups could exchange public goods for their respective regions (e.g. hospitals versus schools). So each district could have a fair share of investment for every type of public goods. This is not the case: we observe important variation in public goods investment after a switch of the minister. Power sharing leads to inefficiencies here, probably because the politicians have limited commitment.

Here, we observe that the president does not seem to favor her own ethnic group in school constructions. Indeed, she may consider coethnic districts are naturally favorable to here and she may not need to prevent a revolution starting in those districts. She thus devote some resources in school construction in non-coethnic districts. She may also find other ways to reward her coethnic districts with other types of infrastructure that we do not observe here (for example, roads or hospitals). In

contrary, the education ministers seem to strongly favor their own ethnic group while in charge. Table 1 shows that only one education minister shared the same ethnicity than her president. In other cases, building schools for their coethnics may simply be their piece of the pie.

Broadly speaking, we show that the power sharing process translates into a mechanism sharing public good provision across ethnic groups. Also, Kramon and Posner (2013) highlight that drawing general conclusions by looking at the provision of a single public good and of the president only is extremely difficult. An ethnic group can be favored for a type of public good but not for some others. In this paper, we show this is clearly the case for the districts sharing the ethnic group of the president: they are not favored at all in school constructions as compared to other non-coethnic districts.

In Tables 5 and 6, we assess the robustness of our main specification, respectively for the education minister and for the president. In column 1 of Tables 5 and 6, we replicate our preferred specifications of column 4, respectively in Table 3 and in Table 4. In column 2 of these Tables, we drop the observations with $T = t$. These years may be partially treated: firstly, the ministers and the president enter in charge during the calendar year, so they are not in charge during the beginning of this year, and secondly, there may be a few months between the decision of a school construction and the school opening. However, the coefficients in column 2 of Tables 5 and 6 are similar to the coefficients of column 1, so our results are robust to relaxing this assumption. Columns 3 and 4 respectively display results for two alternative normalizations for school constructions in our dependent variables, namely variables n''_{dtp} and n'''_{dtp}. The sign and significance of the results are unchanged. In column 3, the magnitude is bigger as the normalization is a division by the average number of school constructions between $T - 5$ and $T - 1$, which is a bit smaller than the usual normalization (average number of school constructions between $T - 5$ and $T + 5$). In column 4, the coefficient is smaller because the normalization (stock of school in $T - 1$) is bigger. Column 5 displays a different approach to the same problem. We directly use the number of school constructed N_{dt} without normalization as a dependant variable, but we estimate a fixed effect Poisson regression. The sign and significance are unchanged. In Table 5, when a new coethnic education minister is appointed, the model predicts a multiplication of the number of school constructions in coethnic districts as compared to non-cothnic districs by $\exp(0.69) \approx 2$, which is consistent with the other specifications (which say that the number of school constructions increase by 0.8/1 times the average yearly number of school constructions.) In Table 6, for the appointment of a coethnic president, the Poisson model predicts a multiplication by $\exp(-0.63) \approx 0.53$, which is somewhat smaller than the effect estimated by the other specifications. (The same effect is -0.7 times the yearly number of school constructions in our preferred specification.)

Tables 7 and 8 estimate the effect of loosing respectively a coethnic education minister of education and a coethnic president. For every transitions in our database, we add an additional explanatory variable: a dummy indicating whether the district is coethnic with the former minister of education in Table 7, and with the former president in Table 8. In both Tables, column 1 gives the specification of reference, column 2 gives the result when we replace coethnicity with the new holder of the position by coethnicity with the former holder, and column 3 adds the two variables. Table 7, shows that loosing a coethnic education minister decreases the number of school constructions when another education minister is appointed. This result mirrors the main effect (Column 1, Table 7): school constructions increase when a coethnic minister enters in charge, and they decrease when this minister leaves office.

However, the reversion seems incomplete, since the magnitude of the positive discontinuity when a coethnic minister is newly appointed is larger than the negative discontinuity when loosing a coethnic education minister. This can be explained by ongoing projects that continues after a minister leaves office. However, more broadly, this suggests that school construction tend to return to normal after a coethnic minister of education leaves office.

Interestingly, in Table 7, column 3, the effect of the change of education minister is given for 3 types of districts: coethnic with the new minister in the first line, coethnic with the previous minister in the second line, and other districts in the last line. The coefficient for non coethnic districts is nearly zero in this specification, while it is negative in the main results (column 1). We find districts with a non-coethnic minister of education before the transition saw more school constructions before the transition. Column 3 shows that, once we control for this, school constructions are stable non-coethnic districts. The negative coefficient in column 1 is fully explained by districts coethnic with the former education minister.

In Table 8, the effect of loosing a coethnic minister is very close to zero (and not statistically significant). For the president, results seems to be a bit different. The effect of loosing a coethnic president is not significantly different from zero. Remember that the (net) discontinuity for having a coethnic president was slightly negative (see Figure 2). In fact the negative additional discontinuity was mostly related to more school constructions in non coethnic districts. This could explain why loosing a coethnic president does not change school constructions.

5.2 Ethnic favoritism in democracy and in dictatorship

In Table 9 and 10, we split our sample in three different subperiods and we estimate our preferred RDD specification of Table 3 and 4, column 4 for these subsamples. The three subperiods correspond to the three main eras of Benin's political history: (1) between 1960 and 1972 when Benin is an unstable dictatorship, (2) between 1972 and 1990 when Kérékou is a dictator and Benin is a much more stable autocracy, (3) between 1991 and 2004 when Benin is democratic. These three different subperiods allow us to study the pattern of ethnic favoristism we previously ducumented under various institutional settings.

Table 9 shows that the impact of having a coethnic education minister is positive and significant for the first two subperiods, under the dictatorship, and is not significant and very close to zero for the last democratic subperiod. This results seems to indicate that in that case, democracy introduces checks and balances and more constraints on the executive, all this limits the ability of minister to pursue ethnically oriented policies. Mueller and Tapsoba (2016) or Burgess et al. (2015) also find that ethnic favoritism seems to vanish when a country switch to a democracy. In our case, this is also the case in a power sharing arrangement in which ministers seem to monitor ethnic favoritism on a particular type of public goods. In this context, ethnic favoritism is not due to the president, and it can even penalize her own ethnic group. Democracy also seems to prevent such inefficiencies in our case. Note however that the ability of democracy to prevent ethnically targeted policies is still debated in the literature. For instance, De Luca et al. (2017) find some evidence of ethnically targeted policies looking at nightlight intensity in the world even in well established democracies and in developed economies.

Interestingly, Table 9 also shows that the positive impact of having a coethnic minister seems to be very strong in both the unstable and the stable period of autocracy. This suggests that even when Kerekou was relatively strong and faced less threats from other factions of the society, he still shared power and allowed ministers from other ethnic groups to target ethnically public goods provision. Even in a more stable environment, he had to make concessions to competing factions of the society. These two sub-periods are characterized by a very different environment, thus the stability of the pattern across sub-periods suggests that this pattern of ethnic favoritism can be quite common across autocracies.

In Table 10, we can see that having a coethnic president decreases school constructions only for the first subperiod of unstable dictatorship, and is insignificant and close to zero for the two other subperiods. For the second subperiod (Kerekou dictator), there is only one transition for the president (to Kerekou in 1972) and consequently, results should be interpreted with cautions. However, this is consistent with the power sharing view of François et al. (2015): when the threat of loosing power is high, during the first period we consider, the president can spend a lots of resources to deal with the various threats and constraints she faces. This can even lead the president to penalize her own ethnic group (here, at least for some public goods), so as to target the other ethnic group and buy social peace. This effect is mitigated during the second sub-period, when Kérékou established a stable regime. When Kérékou entered in charge, he did not favor (or penalize) his ethnic group with more (or less) school constructions. However, Table 9 also emphasizes some evidence of power sharing under Kérékou: the education ministers of Kérékou did favor their ethnic groups. Both regimes (the first and the second sub-period) are consistent with the power sharing view. During the first period we consider, the president penalize her own ethnic group may be an extreme form of power sharing; in contrast during the more stable autocracy the second period, the president does not penalize her own ethnic group. Actually, there is no sub-period where school constructions are higher in the coethnic districts of the president.

5.3 Placebo regressions

In Table 11, we run some placebo estimates. We use some other important government positions in our main specification of Tables 3 and 4, column 4. We have selected positions that (i) exist consistently throught our sample (ii) are usually of a different ethnic group than the education minister (at least 80% of ministers) (iii) are not related to school construction (for example, this excludes the minister for the youth). Columns 1, 2, 3, 4, 5 and 6 of Table 11 respectly use the health, economy, interior, planning, public work and justice as alternative dependent variables. Observations correspond to the years between $T-5$ and $T+5$ where T is a change in the ethnic group of the corresponding minister. Thus, in Table 11, for each position we consider, the number of observations depends on the number of transitions for this position. In the upper panel of Table 11, the specifications do not control for the coethnicity with the education minister or with the president at date T. In the lower part, the specifications control for the coethnicity with the education minister and for the coethnicity with the president.

Our estimates show that the coethnicity with other ministers than the education minister does not change school constructions in the district. The exception is for the minister of justice, whose coefficient

is negative and significant. This result clearly indicates that favoritism on school constructions is really related to the ethnic group of the education minister and unrelated to a more global influence of this ethnic group in decision making. This result probably rules out omitted variable bias and reverse causality: if an increase in the rate of school constructions is correlated with (but not caused by) the appointment of a coethnic education minister, it should probably be also correlated with the appointment of other ministers.

As the minister of education makes her coethnics benefit from schools, it may be the case for all the other ministers in charge of other public goods. For instance one could infer from our results that more hospitals will be constructed in the districts that are coethnic with the minister of health after her appointment. Consistently with the power sharing view of François and al. (2015), most ethnic groups are usually represented in the government so they can all favour their coethnics according to the public goods or services they can provide. If all the ethnic groups get appointed at least once in the position of minister of education, we can assume that the provision of public goods will be less unequal.

5.4 Birth place or ethnic favoritism?

In this section, we examine whether the birth place of the presidents affect the patterns of ethnic favoritism we found. Indeed, the district of birth is often coethnic with the president. As a result, the pattern of ethnic favoritism could be exclusively related to the birthplace of the president, instead of reflecting a more general pattern of ethnic favoritism (i.e other district than the birthplace of the president are affected when co-ethnic). We have found the birthplaces of every president in Benin, and we have coded their district of birth accordingly. Among the 5 presidents associated to a transition in our data, 2 are born in coethnic districts. For the 3 others, one is born in Togo, a second one is born in Parakou which has no main ethnic group, and the last one is from the ethnic group called Goun, who are a minority in every district. Unfortunately, we were rarely able to find the birthplace of education ministers. The information is much harder to find: online information on the birthplace of education ministers is very scarce when the minister left office before the late 1990s.

Table 12 shows our DiD and preferred RDD estimate of Table 4 in columns 1 and 3. In columns 2 and 4, we augment our specification with a control for an additional discontinuity for the district of birth of the president when a newly president is appointed. In Table 12, BD'_{dp} is a dummy taking value 1 when the president p is born in district d. Columns 2 and 4 control for $BD'_{dp} * \mathcal{T}$, an additional effect of the district of birth of the president after the president enters in charge. Column 4 also control for the trends $(t - T)$ and $(t - T) * \mathcal{T}$ interacted with BD'_{dp}.

We can see that transitions affect the birthplaces of presidents in the very same way than other coethnic districts (or non-coethnic districts) since the effect of the additional discontinuity for the birthplace $BD'_{dp} * \mathcal{T}$ is not significantly different from (and very close to) zero. In other words, when the birthplace of a newly appointed president is coethnic with this president (2 times out of 5), this district sees as fewer school constructions as other coethnic districts. This is still consistent with the power sharing view of François et al. (2015). In her birthplace district, the president generally finds her strongest supporters, so building schools in this district does probability not increase her chances of remaining president.

6   Conclusion

In this paper, we use difference in differences and regression discontinuity designs in order to estimate the effect of the ethnicity of politicians on school constructions in Benin. More precisely, we study whether a change in the ethnic group of the education minister and of the president modifies the number of school constructions in the district sharing their ethnicity. When a new minister of education is appointed, we find an increase in the number of school constructions in the districts coethnic with the new minister. However, the appointment of a new coethnic president seems to decrease the number of school constructed in the district. The effects are very large in magnitude. We argue that this pattern of ethnic favoritism is highly consistent with the power sharing view of François et al. (2015): the ethnic composition of the government reflects the sharing of power, and ministers distort the resources they allocate towards their own ethnic group as if it were their "piece of the pie". Furthermore we show that ethnic favoritism on school construction vanished when Benin became a democracy. This suggests that check and balances and constraints on the executive power that characterized democracy prevents inefficient ethnically targeted policies. This is consistent with the findings of Burgess et al. (2015) or Mueller and Tapsoba (2016), who find that democracy deters ethnic favoritism initiated by the president.

Giving government positions to other ethnic groups is a way to share power and this ensures many ethnic groups benefit from public spending. This probably limits popular unrest from other ethnic groups and this prevents the risk of revolutions or of coups. However, it is an imperfect way of sharing power. Indeed, the provision of public goods remains inefficient. Indeed, some districts receive a lot of public resources from a minister for a specific public good, but they may also receive very little from another minister for another public good. This is clearly inefficient: for example, having too many primary schools and too few health centers is not optimal. As argued by Burgess et al. (2015), researchers can rarely observe public goods provisions at the local level in developing countries. It is thus very difficult to observe all the dimensions of public goods provisions in every districts and to study the optimality of such a repartition. But our results suggest it is very likely to be the case since the president may not choose the appointments according to the existing stock of a specific public good. To our knowledge, we are the only study to observe such a public good outcome at the district level and to study the impact of the ethnic group of the minister in charge of this public good.

A next step could be to study at multiple countries, and several types of public goods provision: François et al. (2015) provide the ethnic group of many other positions (which we have used for our placebo estimates), and these ministers are sometimes in charge of the furniture of an observable public good. For instance, in the view of power sharing, the ethnic identity of the health minister probably affects the construction of health centers. The observation of multiple types of public spending at the local level is extremely difficult, and we leave the investigation of this issue for future research.

References

Arriola, L. R., 2009. Patronage and political stability in africa. Comparative Political Studies 42, 1339–1362.

Bates, R., 1981. Markets and states in tropical Africa. The political basis of agricultural policies. Berkeley, CA (USA) Univ. of California Press.

Burgess, R., Jedwab, R., Miguel, E., Morjaria, A., Padró i Miquel, G., 2015. The value of democracy: evidence from road building in kenya. American Economic Review 105, 1817–51.

Chandra, K., 2004. Why ethnic parties succeed: Patronage and ethnic head counts in India. Cambridge University Press.

Dahlberg, M., Johansson, E., 2002. On the vote-purchasing behavior of incumbents. American Political Science Review 96, 27–40.

De Luca, G., Hodler, R., Raschky, P. A., Valsecchi, M., 2017. Ethnic favoritism: An axiom of politics? Journal of Development Economics .

de Mesquita, B. B., Smith, A., Siverson, R. M., Morrow, J. D., 2005. The Logic of Political Survival. MIT Press.

Diaz-Cayeros, A., Magaloni, B., Estévez, F., 2003. Electoral risk and redistributive politics in mexico and the united states. In: Paper Delivered at 2003 Midwest Political Science Association Meeting, Chicago.

Direction des Etudes Démographiques, 2003. Troisième recensement général de la population et de l'habitation, synthèse des analyses. Tech. rep., Institut National de la Statistique et de l'Analyse Economique.

Dixit, A., Londregan, J., 1996. The determinants of success of special interests in redistributive politics. Journal of Politics , 1132–1155.

Easterly, W., Levine, R., 1997. Africa's growth tragedy: Policies and ethnic divisions. The Quarterly Journal of Economics 112, 1203–1250.

Fearon, J. D., Laitin, D. D., 2003. Ethnicity, insurgency, and civil war. American political science review 97, 75–90.

Franck, R., Rainer, I., 2012. Does the leader's ethnicity matter? ethnic favoritism, education, and health in sub-saharan africa. American Political Science Review 106, 294–325.

François, P., Rainer, I., Trebbi, F., 2015. How is power shared in africa? Econometrica 83, 465–503.

Hodler, R., Raschky, P. A., 2014. Regional favoritism. The Quarterly Journal of Economics 129, 995–1033.

Horowitz, D. L., 1985. Ethnic groups in conflict. Univ of California Press.

Kasara, K., 2007. Tax me if you can: Ethnic geography, democracy, and the taxation of agriculture in Africa. American Political Science Review 101, 159–172.

Khemani, S., 2003. Partisan politics and intergovernmental transfers in India, vol. 3016. World Bank Publications.

Kramon, E., Posner, D. N., 2013. Who benefits from distributive politics? how the outcome one studies affects the answer one gets. Perspectives on Politics 11, 461–474.

Kramon, E., Posner, D. N., 2016. Ethnic favoritism in education in kenya. Quarterly Journal of Political Science 11, 1–58.

Lindbeck, A., Weibull, J. W., 1987. Balanced-budget redistribution as the outcome of political competition. Public choice 52, 273–297.

Miguel, E., Zaidi, F., 2003. Do politicians reward their supporters? regression discontinuity evidence from ghana .

Mueller, H., Tapsoba, A., 2016. Access to power, political institutions and ethnic favoritism. Tech. rep.

Padró i Miquel, G., 2007. The control of politicians in divided societies: the politics of fear. The Review of Economic Studies 74, 1259–1274.

Figure 1 – School constructions in dates close to a change of education minister
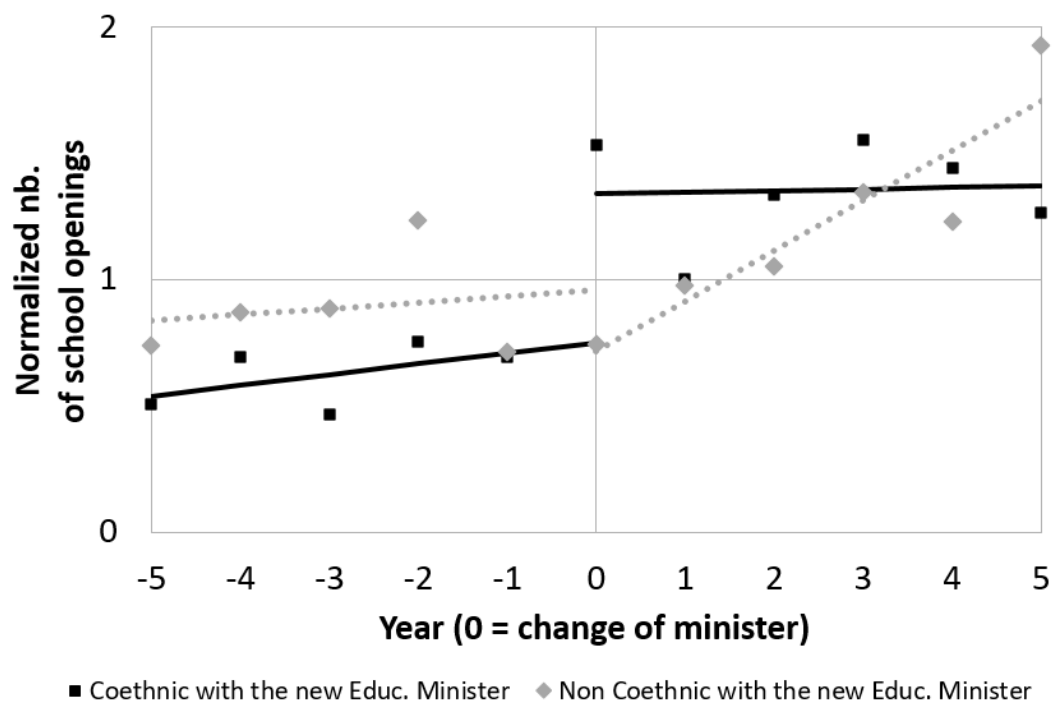
The dotted and solid lines are estimated in column (3), Table 3. The points are sample averages.

Figure 2 – School constructions in dates close to a change of president
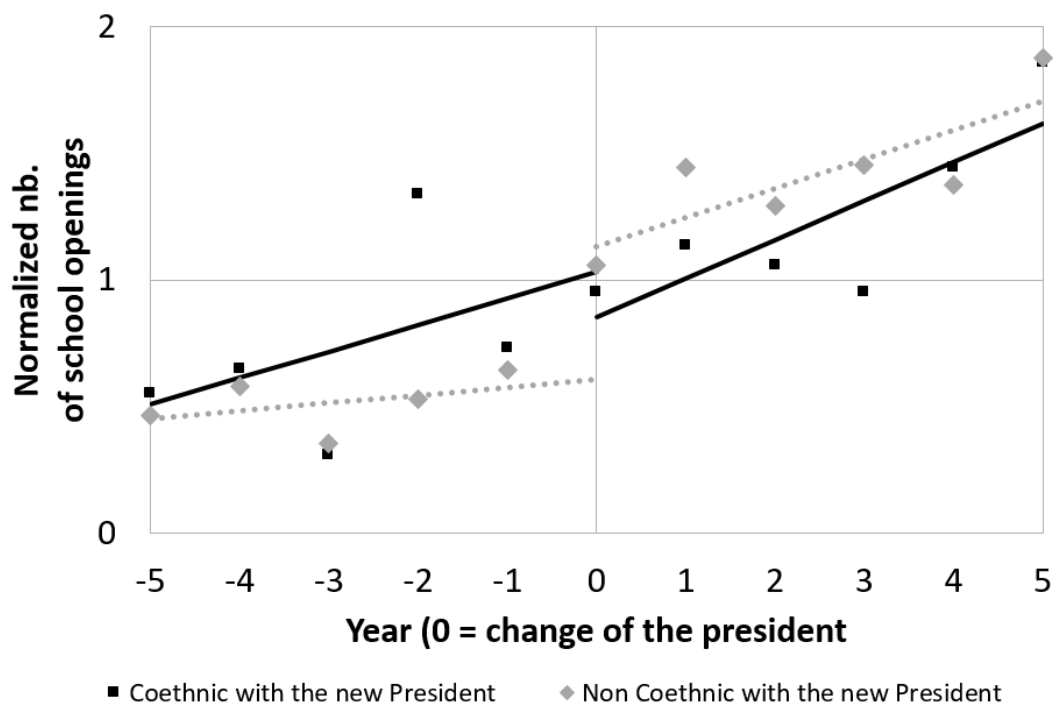
The dotted and solid lines are estimated in column (3), Table 4. The points are sample averages.

Table 1 – List of Presidents and Ministers of Education

	President			Minister Of Education	
Year	Name	Ethnicity	Birth Place	Name	Ethnicity
1961	Hubert Maga	Bariba	Parakou	Michel Ahouanmenou	Goun (others)
1964	Sourou Migan Apithy	Goun (others)	Porto Novo	Roger Adjovi	Fon
1966	Christophe Soglo	Fon	Abomey	Eugene Bocco	Fon
1968	Emile Derlin Zinsou	Fon	Abomey	Chabi Mama	Bariba
1969					
1970	Hubert Maga	Bariba	Parakou	Edmond Dossou-Yovo	Fon
1972	Mathieu Kerekou	Betamaribe	Natitingou	Hilaire Madjegoume	Fon
1975	Mathieu Kerekou	Betamaribe	Natitingou		
1979	Mathieu Kerekou	Betamaribe	Natitingou	Vincent Guezodje	Fon
1980	Mathieu Kerekou	Betamaribe	Natitingou	Ali Moussa Traore	Dendi
1985	Mathieu Kerekou	Betamaribe	Natitingou	Philippe Akpo	Yoruba
1990	Mathieu Kerekou	Betamaribe	Natitingou	Paulin Hountondji	Goun (others)
1991	Nicephore Soglo	Fon	Togo	Paulin Hountondji	Goun (others)
1991	Nicephore Soglo	Fon	Togo	Karim Dramane	Yoruba
1996	Mathieu Kerekou	Betamaribe	Natitingou	Djidjofon Leonard Kpadonou	Goun (others)
1999	Mathieu Kerekou	Betamaribe	Natitingou	Damien Zinsou Alahassa	Fon
2001	Mathieu Kerekou	Betamaribe	Natitingou	Jean Bio Tchabi Orou	Yoruba
2003	Mathieu Kerekou	Betamaribe	Natitingou	Rafiatou Karim	Yoruba

Source: François et al. (2015). We exclude president and ministers who leave office before the end of the calendar year of their entry. We have no information for years 1969 and 1975.

Table 2 – Descriptive Statisics

Positions	Number of Transitions			Mandate Duration			
	All Sample	1960 - 1971	1991 - 2004	Mean	Min	Max	Standard dev.
President	6	3	2	11.18763	2	19	7.193285
Minister of Education	9	3	3	3.74524	1	7	1.893973
Minister of Health	11	4	1	3.933256	1	6	1.653127
Minister of Economy	7	5	1	2.165312	1	3	0.7454053
Minister of Interior	2	0	2	3.96729	2	7	1.742793
Minister of Planning	6	1	2	3.481182	1	6	1.619044
Minister of Public Work	12	5	4	2.824159	1	5	1.485315
Minister of Justice	13	6	1	2.956107	1	5	1.210551

Table 3 – Effect of coethnicity with education minister on school construction in the district

| | n_{dtp} | | | | n'_{dtp} | |
| | (DiD) | | (RDD) | | (RDD) | |
	(1)	(2)	(3)	(4)	(5)	(6)
$E'_{dp} * \mathcal{T}$ (Additional discontinuity in $T = t$ in treated districts)	0.414***	0.445***	0.830***	0.842***	0.570***	1.126***
	(0.079)	(0.079)	(0.174)	(0.175)	(0.114)	(0.260)
$\mathcal{T}$ (Discontinuity in $T = t$ in control districts)	0.312***	0.284***	-0.243***	-0.255***	-0.289***	-0.217**
	(0.034)	(0.035)	(0.074)	(0.074)	(0.046)	(0.106)
E'_{dp} (treated district)	-0.258***		-0.209*			
	(0.046)		(0.115)			
$(t - T) * E'_{dp}$			0.017	0.025	0.024*	0.016
			(0.036)	(0.036)	(0.013)	(0.153)
$(t - T) * E'_{dp} * \mathcal{T}$			-0.209***	-0.220***	-0.040	-0.843***
			(0.052)	(0.053)	(0.025)	(0.248)
$(t - T) * \mathcal{T}$			0.198***	0.205***	0.154***	0.275***
			(0.015)	(0.015)	(0.007)	(0.045)
$(t - T) * (1 - \mathcal{T})$			0.025	0.016	0.040***	0.018
			(0.016)	(0.016)	(0.006)	(0.058)
$(t - T)^2 * E'_{dp}$						-0.003
						(0.031)
$(t - T)^2 * E'_{dp} * \mathcal{T}$						0.209***
						(0.054)
$(t - T)^2$						-0.008
						(0.012)
$(t - T)^2 * \mathcal{T}$						-0.053***
						(0.019)
$(t - T)^3 * E'_{dp}$						-0.000
						(0.002)
$(t - T)^3 * E'_{dp} * \mathcal{T}$						-0.013***
						(0.004)
$(t - T)^3$						-0.001
						(0.001)
$(t - T)^3 * \mathcal{T}$						0.006***
						(0.001)
District times Transition F.E.		✓		✓	✓	✓
N	8,467	8,467	8,467	8,467	15,325	15,325
Order of the Polynomials	-	-	1	1	1	3
Sample (Window of the discontinuity)	$[T - 5, T + 5]$		$[T - 5, T + 5]$		$[T - 10, T + 10]$	

Standard errors clustered at the district level are in parentheses. *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.

Table 4 – Effect of coethnicity with the president on school construction in the district

	n_{dtp}				n'_{dtp}	
	(DiD)		(RDD)		(RDD)	
	(1)	(2)	(3)	(4)	(5)	(6)
$E'_{dp} * \mathcal{T}$ (Additional discontinuity in $T = t$ in treated districts)	-0.383***	-0.382***	-0.701***	-0.704***	-0.376**	-0.934***
	(0.133)	(0.133)	(0.262)	(0.262)	(0.162)	(0.301)
$\mathcal{T}$ (Discontinuity in $T = t$ in control districts)	0.900***	0.899***	0.523***	0.526***	0.422***	0.405***
	(0.043)	(0.043)	(0.082)	(0.082)	(0.048)	(0.094)
E'_{dp} (treated district)	0.200***		0.424***			
	(0.073)		(0.161)			
$(t - T) * E'_{dp}$			0.074	0.075	-0.035	0.336*
			(0.050)	(0.050)	(0.023)	(0.176)
$(t - T) * E'_{dp} * \mathcal{T}$			-0.036	-0.038	0.055	-0.278
			(0.078)	(0.078)	(0.033)	(0.238)
$(t - T) * \mathcal{T}$			0.115***	0.115***	0.178***	-0.322***
			(0.025)	(0.025)	(0.014)	(0.062)
$(t - T) * (1 - \mathcal{T})$			0.031	0.029	0.007	0.243***
			(0.019)	(0.019)	(0.005)	(0.061)
$(t - T)^2 * E'_{dp}$						0.050
						(0.037)
$(t - T)^2 * E'_{dp} * \mathcal{T}$						-0.077
						(0.055)
$(t - T)^3 * E'_{dp}$						0.002
						(0.002)
$(t - T)^3 * E'_{dp} * \mathcal{T}$						0.001
						(0.004)
$(t - T)^2$						0.047***
						(0.012)
$(t - T)^2 * \mathcal{T}$						0.092***
						(0.018)
$(t - T)^3$						0.003***
						(0.001)
$(t - T)^3 * \mathcal{T}$						-0.012***
						(0.002)
District times Transition F.E.		✓		✓	✓	✓
N	4,771	4,771	4,771	4,771	8,746	8,746
Order of the Polynomial	-	-	1	1	1	3
Sample (Window of the discontinuity)	$[T - 5, T + 5]$		$[T - 5, T + 5]$		$[T - 10, T + 10]$	

Standard errors clustered at the district level are in parentheses. *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.

Table 5 – Effect of coethnicity with the education minister on school construction in the district: alternative dependant variables

	n_{dtp}		n''_{dtp}	n'''_{dtp}	N_{dt}
	OLS (RDD) (1)	OLS (RDD) (2)	OLS (RDD) (3)	OLS (RDD) (4)	Poisson F.E. (RDD) (5)
$E'_{dp} * \mathcal{T}$ (Additional discontinuity in $T = t$ in treated districts)	0.842*** (0.175)	0.644*** (0.235)	0.989*** (0.344)	0.036*** (0.010)	0.688*** (0.180)
$\mathcal{T}$ (Discontinuity in $T = t$ in control districts)	-0.255*** (0.074)	-0.293*** (0.083)	0.115 (0.099)	-0.001 (0.004)	-0.364*** (0.054)
District times Transition F.E.	✓	✓	✓	✓	✓
N	8,467	7,653	6,795	8,778	8,467
Order of the Polynomial	1	1	1	1	1
Excludes $T = t$		✓			
Sample (Window of the discontinuity)			$[T-5, T+5]$		

Standard errors clustered at the district level are in parentheses in columns 1 to 4, standard errors bootstrapped at the district level (200 replications) are in parentheses in column 5. *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.

Table 6 – Effect of coethnicity with the president on school construction in the district: alternative dependant variables

	n_{dtp}		n''_{dtp}	n'''_{dtp}	N_{dt}
	OLS (RDD) (1)	OLS (RDD) (2)	OLS (RDD) (3)	OLS (RDD) (4)	Poisson F.E. (RDD) (5)
$E'_{dp} * \mathcal{T}$ (Additional discontinuity in $T = t$ in treated districts)	-0.704*** (0.262)	-0.880** (0.342)	-1.242*** (0.355)	-0.043*** (0.015)	-0.627*** (0.231)
$\mathcal{T}$ (Discontinuity in $T = t$ in control districts)	0.526*** (0.082)	0.591*** (0.114)	1.109*** (0.186)	0.041*** (0.006)	0.661*** (0.093)
District times Transition F.E.	✓	✓	✓	✓	✓
N	4,771	4,331	3,573	5,005	4,771
Order of the Polynomial	1	1	1	1	1
Excludes $T = t$		✓			
Sample (Window of the discontinuity)			$[T-5, T+5]$		

Standard errors clustered at the district level are in parentheses in columns 1 to 4, standard errors bootstrapped at the district level (200 replications) are in parentheses in column 5. *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.

Table 7 – Effect of coethnicity with the departing education minister on school construction in the district

	(1)	(2)	(3)
$E'_{dp} * \mathcal{T}$ (Additional discontinuity in $T = t$ in treated districts)	0.870***		0.985***
	(0.153)		(0.174)
$E'_{dp-1} * \mathcal{T}$ (Additional discontinuity in $T = t$ in districts that lost a coethnic educ. minister)		-0.338***	-0.452***
		(0.125)	(0.142)
$\mathcal{T}$ (Discontinuity in $T = t$ in control districts)	-0.221***	0.085	-0.038
	(0.071)	(0.086)	(0.083)
District times Transition F.E.	✓	✓	✓
N	9,314	9,314	9,314
Order of the Polynomial	1	1	1
Sample (Window of the discontinuity)		$[T - 5, T + 5]$	

Standard errors clustered at the district level are in parentheses. *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.

Table 8 – Effect of coethnicity with the departing president on school construction in the district

	(1)	(2)	(3)
$E'_{dp} * \mathcal{T}$ (Additional discontinuity in $T = t$ in treated districts)	-0.802***		-0.827***
	(0.280)		(0.294)
$E'_{dp-1} * \mathcal{T}$ (Additional discontinuity in $T = t$ in districts that lost a coethnic president)		0.042	-0.140
		(0.188)	(0.207)
$\mathcal{T}$ (Discontinuity in $T = t$ in control districts)	0.515***	0.357***	0.540***
	(0.100)	(0.103)	(0.117)
District times Transition F.E.	✓	✓	✓
N	3,935	3,935	3,935
Order of the Polynomial	1	1	1
Sample (Window of the discontinuity)		$[T - 5, T + 5]$	

Standard errors clustered at the district level are in parentheses. *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.

Table 9 – Effect of coethnicity with the education minister on school construction in the district: split by periods

	Full Sample	1960 − 1971 (Instability)	1972 − 1990 (Kerekou dictator)	1991 − 2004 (Democracy)
	(1)	(2)	(3)	(4)
$E'_{dp} * \mathcal{T}$ (Additional discontinuity in $T = t$ in treated districts)	0.842***	0.909***	1.265**	-0.070
	(0.175)	(0.294)	(0.602)	(0.242)
$\mathcal{T}$ (Discontinuity in $T = t$ in control districts)	-0.255***	0.109	-0.984***	0.033
	(0.074)	(0.152)	(0.150)	(0.071)
District times Transition F.E.	✓	✓	✓	✓
N	8,467	2,813	2,442	3,212
Order of the Polynomial	1	1	1	1
Sample (Window of the discontinuity)		$[T - 5, T + 5]$		

Standard errors clustered at the district level are in parentheses. *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.

Table 10 – Effect of coethnicity with the president on school construction in the district: split by periods

	Full Sample	1960 − 1971 (Instability)	1972 − 1990 (Kerekou dictator)	1991 − 2004 (Democracy)
	(1)	(2)	(3)	(4)
$E'_{dp} * \mathcal{T}$ (Additional discontinuity in $T = t$ in treated districts)	-0.704***	-1.433***	0.008	0.028
	(0.262)	(0.448)	(0.731)	(0.312)
$\mathcal{T}$ (Discontinuity in $T = t$ in control districts)	0.526***	0.699***	0.309*	0.375***
	(0.082)	(0.126)	(0.177)	(0.113)
District times Transition F.E.	✓	✓	✓	✓
N	4,771	2,318	836	1,617
Order of the Polynomial	1	1	1	1
Sample (Window of the discontinuity)			$[T − 5, T + 5]$	

Standard errors clustered at the district level are in parentheses. *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.

Table 11 – Effect of coethnicity with different ministerial positions on school construction in the district

	exp. var: coethnicity with minister of					
	Health	Economy	Interior	Planning	Public Work	Justice
	(1)	(2)	(3)	(4)	(5)	(6)
$E'_{dp} * \mathcal{T}$ (Additional discontinuity in $T = t$ in treated districts)	-0.313	-0.133	0.776	-0.150	-0.198	-0.978***
	(0.199)	(0.160)	(0.659)	(0.269)	(0.143)	(0.240)
$\mathcal{T}$ (Discontinuity in $T = t$ in control districts)	-0.185***	0.115	0.224**	-0.667***	-0.013	0.024
	(0.055)	(0.070)	(0.098)	(0.085)	(0.052)	(0.057)
Coethnicity with minister of education after the change						
Coethnicity with president after the change						
District times Transition F.E.	✓	✓	✓	✓	✓	✓
N	8,709	5,376	1,683	4,917	9,193	9,897
Order of the Polynomial	1	1	1	1	1	1
Sample (Window of the discontinuity)			$[T − 5, T + 5]$			
$E'_{dp} * \mathcal{T}$ (Additional discontinuity in $T = t$ in treated districts)	-0.175	-0.134	0.919	-0.302	-0.130	-0.998***
	(0.198)	(0.151)	(0.685)	(0.267)	(0.135)	(0.239)
$\mathcal{T}$ (Discontinuity in $T = t$ in control districts)	-0.322***	0.067	0.265**	-0.755***	0.033	-0.118**
	(0.058)	(0.080)	(0.107)	(0.087)	(0.058)	(0.054)
Coethnicity with minister of education after the change	✓	✓	✓	✓	✓	✓
Coethnicity with president after the change	✓	✓	✓	✓	✓	✓
District times Transition F.E.	✓	✓	✓	✓	✓	✓
N	8,709	5,376	1,683	4,917	9,193	9,897
Order of the Polynomial	1	1	1	1	1	1
Sample (Window of the discontinuity)			$[T − 5, T + 5]$			

Standard errors clustered at the district level are in parentheses. *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.

Table 12 – Effect of coethnicity with the president on school construction in the district, with a control for the district of birth of the president

	DID	DID	RDD	RDD
	(1)	(2)	(3)	(4)
$E'_{dp} * \mathcal{T}$ (Additional discontinuity in $T = t$ in treated districts)	-0.382***	-0.376***	-0.704***	-0.692**
	(0.133)	(0.135)	(0.262)	(0.266)
$\mathcal{T}$ (Discontinuity in $T = t$ in control districts)	0.899***	0.900***	0.526***	0.528***
	(0.043)	(0.043)	(0.082)	(0.083)
$BD'_{dp} * \mathcal{T}$ (Additional discontinuity in $T = t$ in the districts of birth)		-0.168		-0.392
		(0.244)		(0.562)
District times Transition F.E.	✓	✓	✓	✓
N	4,771	4,771	4,771	4,771
Order of the Polynomial	-	-	1	1
Control: Polynomial interacted with District of Birth				✓
Sample (Window of the discontinuity)		$[T - 5, T + 5]$		

Standard errors clustered at the district level are in parentheses. *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.

Appendices

A   Additional Tables

Table A.1 – Effect of coethnicity with education ministers on school construction in the district: comparison of clustered standard errors with bootstrapped standard errors

	n_{dtp}				n'_{dtp}	
	(DiD)		(RDD)		(RDD)	
	(1)	(2)	(3)	(4)	(5)	(6)
$E'_{dp} * \mathcal{T}$ (Additional discontinuity in $T = t$	0.414***	0.445***	0.830***	0.842***	0.570***	1.126***
in treated districts)	(0.079)	(0.079)	(0.174)	(0.175)	(0.114)	(0.260)
	[0.080]	[0.080]	[0.182]	[0.184]	[0.113]	[0.248]
$\mathcal{T}$ (Discontinuity in $T = t$ in control	0.312***	0.284***	-0.243***	-0.255***	-0.289***	-0.217**
districts)	(0.034)	(0.035)	(0.074)	(0.074)	(0.046)	(0.106)
	[0.034]	[0.035]	[0.073]	[0.074]	[0.048]	[0.105]
District times Transition F.E.		✓		✓	✓	✓
N	8,467	8,467	8,467	8,467	15,325	15,325
Order of the Polynomials	-	-	1	1	1	3
Sample (Window of the discontinuity)	$[T-5, T+5]$		$[T-5, T+5]$		$[T-10, T+10]$	

Standard errors clustered at the district level are in parentheses, s.e. bootstrapped at the district level are in brackets (200 replications). *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.

Table A.2 – Effect of coethnicity with the president on school construction in the district: comparison of clustered standard errors with bootstrapped standard errors

| | n_{dtp} | | | | n'_{dtp} | |
| | (DiD) | | (RDD) | | (RDD) | |
	(1)	(2)	(3)	(4)	(5)	(6)
$E'_{dp} * \mathcal{T}$ (Additional discontinuity in $T = t$	-0.383***	-0.382***	-0.701***	-0.704***	-0.376**	-0.934***
in treated districts)	(0.133)	(0.133)	(0.262)	(0.262)	(0.162)	(0.301)
	[0.131]	[0.131]	[0.282]	[0.282]	[0.155]	[0.330]
$\mathcal{T}$ (Discontinuity in $T = t$ in control	0.900***	0.899***	0.523***	0.526***	0.422***	0.405***
districts)	(0.043)	(0.043)	(0.082)	(0.082)	(0.048)	(0.094)
	[0.045]	[0.045]	[0.081]	[0.081]	[0.046]	[0.093]
District times Transition F.E.		✓		✓	✓	✓
N	4,771	4,771	4,771	4,771	8,746	8,746
Order of the Polynomials	-	-	1	1	1	3
Sample (Window of the discontinuity)	$[T-5, T+5]$		$[T-5, T+5]$		$[T-10, T+10]$	

Standard errors clustered at the district level are in parentheses, s.e. bootstrapped at the district level are in brackets (200 replications). *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.