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## Political favoritism and internal migration in Benin

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## Political Favoritism and Internal Migration in Benin

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Migration in Benin**



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Alexander Stöcker, Thushyanthan Baskaran, and Patrick Hufschmidt<sup>1</sup>

# Political Favoritism and Internal Migration in Benin

## Abstract

*In this paper we explore the role of regional connections with a national leader as a pull factor of internal migration in Benin by exploiting granular census data over the period 1991-2013. The empirical analysis is based on a gravity model of migration and utilizes a PPML estimator. Controlling for a diverse set of fixed effects, we show that being connected to a national leader goes along with statistically significant levels of migration into the respective districts. We also provide more detailed evidence that links these migration movements to the presence of political favoritism through its ability to improve economic opportunities and the access to public goods at the local level. The evidence in this paper blends in well with the related literature on political favoritism extending it by a previously unexplored dimension.*

*JEL-Codes: D73, R11, R23, O55*

*Keywords: Favoritism; internal migration; spatiality; luminosity; Africa*

*June 2023*

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<sup>1</sup> Alexander Stöcker, IDOS Bonn; Thushyanthan Baskaran, RUB and ZEW Mannheim; Patrick Hufschmidt, RUB. – We gratefully acknowledge financial support from the German Research Foundation (DFG) within the Project “Regional Favoritism and Development” (Grant no. 423358188 / BA 496716-1). The usual disclaimer applies. – All correspondence to: Thushyanthan Baskaran, Department of Economics, Ruhr University Bochum, Universitätsstrasse 150, 44801 Bochum, Germany, email: thushyanthan.baskaran@ruhr-uni-bochum.de

# 1 Introduction

Historically, the movement of goods and people has always been a particular feature of the West African sub-region. A general finding in the migration literature is that migration flows tend to be motivated by differences in economic opportunities and the availability of public goods (Harris and Todaro, 1970; Greenwood, 2016). Naturally, both of these aspects differ considerably across geographical areas in most developing countries, especially regarding the tremendous rural-urban divide (Lagakos, 2020). The literature on distributive politics has long been linking these differences to political aspects, most recently advancing the presence of political favoritism as a potentially important determinant (Hodler and Raschky, 2014).

In this paper we explore the relationship between political favoritism and internal migration in the context of a stable African democracy. Our results suggest that regional favoritism is positively associated with internal migration toward favored regions. We argue that regional favoritism improves economic opportunities and the access to some public goods, thereby providing the incentives to emigrate. While the recent migration literature on sub-Saharan Africa is more concerned with inter-continental migration (e.g. Ortega and Peri (2013); Kirwin and Anderson (2018)), about 75 % of migrants in sub-Saharan Africa remain within the continent (EU, 2020). Even more so, population movements within country borders play a far greater role than cross border movements, especially in Africa (FAO, 2017; Potts, 2013). However, this kind of migration flows remain severely underexplored. Additionally, these internal movements are among the most important aspects driving rapid demographic changes in sub-Saharan Africa (Lagakos, 2020). Naturally, this fuels the need to better understand the determinants of internal migration. While the existing literature mostly looks at the impact of climatic changes and differences in migration policies (Cattaneo and Peri, 2016; Mueller et al., 2020; Bertoli and Fernández-Huertas Moraga, 2015), we emphasize the impact of political factors.

We focus on the situation in Benin since it has become a relatively stable democracy with regular power shifts. Benin presents a good case to study the topic of this paper, as internal and regional migration is much more important than inter-continental migration (IOM, 2011;

Charrière and Frésia, 2008). Furthermore, this kind of analysis is dependent on the availability of suitable data, which is the case in Benin for an extended period of time.

The empirical analysis in this paper is based on a gravity model of migration (Ortega and Peri, 2013), that explains internal flows of migrants by regional connections of national leaders. Exploiting the detailed migration data available from consecutive population censuses across two decades (published by IPUMS) enables us to construct a bilateral migration matrix at the tier 2 administrative level over the period 1991-2013. In line with the existing literature employing gravity models in the field of migration (Lanati et al., 2021; Beine and Parsons, 2017; Bertoli and Fernández-Huertas Moraga, 2015) we estimate our model with the Poisson Pseudo-Maximum Likelihood (PPML) method. Following this literature, we adopt a simple identification strategy that focuses on a large set of fixed effects that include: (a) origin-time fixed effects controlling for origin- and time-specific push factors of migration, and (b) district-pair fixed effects controlling for time-invariant binary determinants of migration. Such a parsimonious model allows us to identify the total net effect of a leader connection on migration, which follows the strategy of Cattaneo and Peri (2016) and Beine and Parsons (2017).

We find that being regionally connected to a national leader works as a pull factor, as it goes along with increased levels of internal migration. However, this effect only extends to the birthplace of the national leader and not to the larger homelands of the leaders' ethnic group. Moreover, these migrant flows only seem to be longer lasting in the case of President Boni, as the positive inflows in the birthplace of President Kérékou die down quickly. A simple heterogeneity analysis suggests that the migrants in President Boni's birthplace are mostly younger, less educated and equally likely to be male or female. Additionally, there is some evidence that the positive effect on in-migration is stronger among the Yoruba, President Boni's own ethnic background. Furthermore, there also appears to be a push effect, meaning that there are significantly more migrants leaving his birthplace during his time in power. Migration towards President Kérékou's birth district is rather driven by young and better educated male migrants.

Lastly, we connect our findings to the presence of political favoritism, as we show that President Boni's time in power coincides with a significant increase in economic activity proxied



by nighttime lights and the access to electricity in his birthplace region. We interpret this as the main motivation for people to migrate into his birthplace. At the same time, there is no evidence for any political favoritism benefitting the birthplace of Mathieu Kérékou, which could explain the rather brief migrant inflows. Additionally, we do not find any evidence of favoritism directed at the homelands of the leaders' ethnic groups.

Our paper makes several contributions to the literature and is, to the best of our knowledge, the first work that connects internal migration to political favoritism, unifying two strands of the literature that have been growing rapidly in recent times.

First, it adds to the literature on regional favoritism that surfaced with the seminal paper by Hodler and Raschky (2014), which finds that regions connected to a national leader feature higher levels of economic activity, based on nighttime light luminosity. However, this effect seems to fade quite rapidly after the leader steps down. Our findings introduce the possibility that the positive local effects of favoritism could be smaller than indicated by night lights, as the local population would have to share the additional resources accruing from favoritism with the newly arriving internal migrants. Furthermore, the positive local effects of favoritism could be subject to spillover effects to other regions that spread through the presence of migration networks. Dreher et al. (2019) connect favoritism to the allocation of Chinese Aid showing that favored regions benefit from more aid and with it again from more economic activity.

Building on this, the literature further explores the different mechanisms and outcomes through which this favoritism manifests itself. The findings of Asatryan et al. (2021b) suggest that in autocratic regimes leaders' birth regions disproportionately benefit from mining activity, while Asatryan et al. (2021a) find that firms in favored regions are larger in size and are more productive with the effect only being temporary and in the non-tradeable sector. Again, Asatryan et al. (2021c) demonstrate that the benefits of regional favoritism can also extend to the general population in a favored region, as they find that male citizens that were connected to a leader in their youth exhibit higher educational attainment later in life.

Closely related is the literature on ethnic rather than regional favoritism. Here, Burgess et al. (2015) show that road spending in Kenya is channeled toward regions that are ethnically

connected to the president during his/her time in power compared to other regions. De Luca et al. (2018) and Dickens (2018) replicate the results of Hodler and Raschky (2014) for the ethnic connection between leaders and the homelands of their ethnic group, while Kramon and Posner (2016); Theisen et al. (2020) and Franck and Rainer (2012) look at more specific health and education outcomes again showing a positive relationship with being ethnically connected to a leader.

Second, our study contributes to the emerging literature acknowledging the importance of internal migration, especially in sub-Saharan Africa. This literature focuses on the still existing wide gaps between urban and rural areas regarding living standards and the related process of urbanization that drives population movements at the national level (Gollin et al., 2017; Henderson and Turner, 2020; Lagakos, 2020). In general, the migration literature has largely disregarded the influence of political factors, except when looking at the special case of forced displacement [literature]. Our findings demonstrate that political factors can play a significant role as pull factor of internal migration by affecting the incentives of migration and not only through the use of force. In relation to our findings, Lanati et al. (2021) show that internal migrations flows in Malawi are strongly determined by the allocation of aid. This effect seems to work through improved economic opportunities and better provision of public resources and thus links extraordinarily well with our findings and those of Dreher et al. (2019) described above.

The rest of the paper is structured as follows. Section 2 provides some background information on the political and demographic situation in Benin. Section 3 describes the employed data and some descriptive statistics, while Section 4 outlines the empirical strategy that is followed. Section 5 first presents the main results before extending the evidence by checking for heterogeneity effects and investigating potential transmission channels. Lastly, Section 6 concludes and provides directions for future research.

## 2 Political context

After gaining independence from France in 1960, Benin entered an extended period of political instability with 12 different political leaders in as many years. This changed in 1972 when Lt. Col. Mathieu Kérékou instigated another coup d'état, claiming the presidency and subsequently turning Benin into a relatively stable military dictatorship. In the following years, Kérékou moved the country closer toward socialism by nationalizing key industries and later putting almost all economic activity under state control. He further renamed the country to the People's Republic of Benin and formed closer relationships with other socialist countries. As the economic and financial situation in Benin continued to worsen throughout the 1980s, the country could no longer afford to pay its civil servants and the army. This led to large scale riots in 1989, forcing Kerekou to renounce Marxism and to accept a new constitution enabling a transition toward a democratic system. Based on this constitution from 1990, Benin is a presidential republic, which gives the president considerable powers to govern and direct the policies of the country. The subsequently held elections saw Nicephore Soglo winning against Kérékou and becoming Benin's first freely elected president. However, Kérékou regained the presidency after narrowly beating Soglo in the 1996 elections and was confirmed for another 5-year term after Soglo refused to participate in the second round of the 2001 election, claiming electoral fraud. In 2006, Kerekou and Soglo were barred from contesting again due to term and age limits in the new constitution, which both adhered to. The independent candidate Thomas Boni Yayi won the next two elections in 2006 and 2011, still being in power in 2013, the end of our period of analysis.

Since returning to multiparty democracy, Benin ranks fairly good on different measures of democracy, especially in comparison to other countries in its region. Between 1991 and 2013, Benin received a revised polity score of 6.35 in the polity IV database that ranks the quality of democracy on a scale between -10 to 10. The average African country scored only 0.41 during the same period.

Both in terms of area and population, Benin can be regarded as a rather small country on the African continent. Like other countries in West Africa, the humid southern coast is more densely populated than the semi-arid and agrarian-oriented north. The country is organized into 12 departments that are further subdivided into 77 districts or communes, which form the basis of our analysis.

Nicephore Soglo was born in Badou, which is located in the present-day nation of Togo, but later entered politics in Benin due to his Beninese wife. Furthermore, he belongs to the Fon ethnic group, the dominant group in Benin. Meanwhile Mathieu Kérékou was born in Kouarfa in the north-western part of Benin and is an ethnic Otamari, which is the dominant group in his birthplace, but nationally belongs to the smaller ethnic groups in Benin. Boni Yayi descends from Tchaourou in eastern Benin and belongs to the Yoruba tribe.

Figure 1 indicates the location of the respective birthplace districts. While the Fon constitute the dominant ethnic group with 40.7 % of the roughly 12 million inhabitants, the remaining population is split quite evenly among the Adja (15.7 %), the Yoruba (12.9 %), the Bariba (9.5 %), the Peulh (7.8 %), the Otamari (6.4 %), the Yoa (4.3 %) and the Dendi (2.8 %).<sup>1</sup> Although Benin's ethnic constitution is overall rather heterogeneous it is also highly fragmented, as the different ethnic groups are mostly concentrated in their respective homelands. Only in 8 of the 77 districts each ethnic group represents less than 50 % of its population, while there are 38 districts where one group accounts for 80 % of its population or more. While the Fon are a majority in 31 districts, that are mostly located in southern Benin, the Yoruba have 6 homelands in the eastern part and the Otamari constitute the majority in 6 north-western districts (See Figure 1).

There are several reasons why Benin is a good case to study the topic of favoritism and internal migration. For a start, internal migration is much more prevalent in Benin than international migration indicating its importance for the demographic development in the country (IOM, 2011; Charrière and Frésia, 2008). Given its recent history, Benin is regarded as an exemplary but still young democracy with considerable constraints on the executive and com-

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<sup>1</sup>The ethnic breakdown is based on our main sample combining the censuses of 1992, 2002 and 2013.

petitive elections and politics is characterized by power shifting between the different ethnic groups. Furthermore, research by André et al. (2018) suggests the presence of ethnic favoritism, based on the analysis of school constructions. Their paper finds that more schools are built in districts that are coethnic with the education minister, but this form of favoritism fades after the democratization of Benin. Still, there is anecdotal evidence that suggests that President Boni, like other African Presidents, has used his position to channel public resources toward his hometown in the form of extensive development projects [[[Africa Intelligence, 2015)]]. Taken together, this makes Benin a good case to study both regional and ethnic favoritism in the context of a young democracy and its impact on internal migration.

## **3 Data**

### **3.1 Favoritism data**

As in most African countries, due to centralized political structures the national leader of Benin has substantial influence over public policies. To study the potential effects of regional connections to an incumbent of presidency, we rely on the birth places of the national leaders during our period of investigation (1991-2013) documented in the Archigos leader database.<sup>2</sup>

### **3.2 Census data**

#### **3.2.1 Population and Migration**

A major issue in the analysis of internal migration flows is the scarcity of official statistics disaggregated at low tier administrative levels. To investigate the effects of internal migration, we utilize data from the Integrated Public Use Microdata Series (IPUMS) International (Minnesota Population Center 2021). This census database contains harmonized and representative samples for 37 African countries, typically covering 5 to 10 % of the population. The subsample for

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<sup>2</sup>We focus on the presidencies of Mathieu Kérékou (1996-2006) and Thomas Boni (2006-2016), as Nicéphore Soglo (1991-1996) was born in what is Togo today.

Benin consists of 2.5 million observations.<sup>3</sup> Given that we study the case of Benin beginning at the democratic transition from the early 90s on, we utilize three census years (1992, 2002, 2013) including around 2.2 million people.

Exploiting the migration and location variables, we calculate the in- and out-flows of migrants in the 77 communes at the tier 2 administrative level for each year over our sample period.

In particular, we base our migration analyses on variables reporting the age and place of residence during the census survey and how long a person has resided in her current living locality. Combining these variables allows us to define migrants as individuals that have ever moved in their lifetime and determine the exact year of their last movement. Since the data only records the last movement of a person we may underestimate internal migration due to missing moves prior to the last one reported. This is particularly relevant for years that are farer away from the original census years. However, the underestimation should be arguably low since moves are in general costly, making it unlikely that people migrate across district boundaries exceedingly often. This aspect is also further diminished by the fact that we use multiple census surveys across our period of investigation. In addition, we have information on the previous residence of the individual, i.e. the living locality immediately prior to the persons last movement, which allows us to determine the migration origin of each migrant. With this information, we create a 77 x 77 migration matrix capturing 5,929 potential origin-destination combinations across our period of investigation.

In order to determine migration shares for each district we need to calculate population counts at this level, which can also be accomplished with the employed census data. However, for this purpose we need to focus on the 2013 census only in order to determine population counts for each year of our sample retroactively, otherwise the population would be counted multiple times and population counts would be inflated. Using the provided birth years of respondents, we determine those that were already alive going backwards from 2013 until the

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<sup>3</sup>The 2.5 million people in our sample were surveyed across four censuses and distribute as follows (in million individuals): 0.33 (1979), 0.5 (1992), 0.69 (2002), and 1.0 (2013).

first year of our sample. Then, we consider the movements of people based on the migration flows determined before, on the one hand adding respondents to the population count of their residence district after their initial migration year and on the other hand counting them towards their origin district in the years before their migration year. Once again this will result in an underestimation of the population counts, as the 2013 census naturally only includes information of respondents that were still alive in 2013. Thus we are missing those respondents that were alive during our sample period but died before the 2013 census, which makes the underestimation particularly relevant for the earlier years in our sample.

The data support this observation as the World Bank estimated Benin's population at roughly 10 million inhabitants in 2013, which compares quite favorably to the estimate of 10.3 million inhabitants based on the census data. For 1991, the first year in our sample, the World Bank estimate is 5.1 million, while our census data is only able to account for 3.8 million inhabitants. Nevertheless, as there are no other sources available that provide population data in the needed detail across our whole sample, we utilize our population data for the calculation of the respective migration shares.

Beyond the information on migration, the censuses also include information on many other characteristics, such as gender, age, education and ethnicity, allowing for more sophisticated multivariate and heterogeneity analyses.

Overall, Benin exhibits an ordinary rate of internal migration. Based on our definition above, about 22 % of respondents of the three censuses in 1992, 2002 and 2013 report that they have ever migrated in their life. Our final sample is based on roughly 201.000 migrants over the period 1991-2013.

Figure 3 reports migration shares in the form of a heat map with light yellow indicating smaller values and dark red indicating larger values. The left panel of Figure 3 indicates a particular large share of migrant inflows with respect to the districts' population in the coastal districts of the south, which is hardly surprising as these include Benin's capital Porto-Novo and its largest city Cotonou. Furthermore, there appear to be large inflows into some of the central-eastern districts, while there are generally less inflows in the northern districts. The

middle panel of Figure 3 depicts the share of out-migrants, which is relatively large in some north-western and central districts. There appear to be relatively few outflows in the districts of the far north again, which indicates that there appears to be much less migration going on in the north. This is hardly surprising given that the population in the north lives much more rural and is much poorer, therefore lacking the necessary funds to migrate across districts. The right panel of Figure 3 combines the information on in- and outflows to show net-migration rates relative to population size suggesting particular large net-inflows in the coastal districts and the central eastern districts and rather low values in the north-western districts indicating large net-outflows. Figure 3 below shows the median of the yearly growth rate of in-migration across the three regime periods, again in the form of a heat map. While Figure 2 suggested lower levels of migration in the north, migrant activity seems to grow increasingly in the northern districts, especially in the later periods. Furthermore, Figure 3 suggests that in-migrant growth seems to pick up in President Kérékou's birthplace during his time in power (black cross in middle panel), while it slows again in the subsequent period. The same seems to be the case for President Boni's birthplace and his regime (black star in right panel). This provides first evidence of increased migration flows towards districts that are connected to a national leader during her time in power.

Looking at some of the other demographic aspects in our sample reveals that migrants are rather equally divided by gender with 53.6 % being female. As expected, migrants are considerably better educated than non-migrants with an average of 4.86 years of schooling compared to 2.36 years of schooling. The average migrant is considerably older at 24.5 years than the average non-migrant at 18.9 years, which can be explained by the relative underrepresentation of young children in the group of migrants. However, at the time of migration migrants are relatively young with 19.8 years on average. Lastly, within our group of migrants the Fon and Bariba ethnic groups are overrepresented with 52 % and 16.5 % compared to their representation in the whole population. On the other hand, the Peulh and Yoa ethnic groups are rather underrepresented at 2.7 % and 1.5 %. However, the Yoruba and Otamari, the ethnic groups



of the two Presidents we focus on, are equally represented among migrants and the overall population.

### **3.2.2 Ethnicity**

We again use the census data to compile the ethnic composition for each of the 77 communes. Although, as mentioned, the overall population in Benin is highly fractionalized across many ethnic groups, its ethnic groups are also highly segregated into their respective homelands. This allows to identify ethnic groups geographically, based on the tier 2 administrative level. We classify communes as an ethnic homeland if the respective ethnic group represents 50 % or more of its population. Based on the employed census data this is the case in 69 of the 77 districts with each of the 8 main ethnic groups having at least one commune as their homeland. Figure 1 illustrates the distribution of the different homelands across the whole country. We employ this data for our analysis on ethnic favoritism.

### **3.2.3 Public utilities**

The census surveys also ask respondents about their access to certain public utilities such as electricity and water. We use this data in one of our extensions to proxy the allocation of public goods in the respective districts across the different census periods.

## **3.3 Nighttime light data**

We utilize nighttime luminosity as a proxy for changes of economic activity at the local level. This data is based on images of the earth at night obtained by satellites of the US AirForce (USAF) Defense Meteorological Satellite Program Operational Linesman System (DMSP-OLS). The original imagery is processed by the National Oceanic and Atmospheric Agency (NOAA) and released to the public as raster datasets.

The raster datasets consist of annual average stable night lights between 8.30pm to 10pm and are available at a resolution of 30 arc-seconds (about 0.86 square kilometer at the equator) for all years after 1992. Each pixel of the dataset stores a digital value ranging from 0 to 63

indicating the amount of average light of an area covering 30 arc-seconds. Higher values imply that a pixel emanates more light. To obtain cell-level measures of economic development, we overlay the tier 2 map of Benin over the raster datasets and calculate the area mean of the digital values of each cell with size 30 arc-seconds that falls within the boundaries of each of the 77 communes.

Figure 4 illustrates the distribution of average nighttime light luminosity across the 77 districts, showing the concentration of economic activity in the coastal areas of the south, while the rest of the country exhibits relatively low luminosity levels, indicating lower levels of economic activity.

## **4 Empirical Strategy**

The goal of our analysis is to explore in how far internal migration flows are linked to the regional connection with a national leader, i.e. a leader connection serving as a pull factor of migration.

In line with previous studies on migration, our econometric analysis is based on a gravity model of migration that allows for the analysis of bilateral migration flows between different district pairs across time. Our methodology loosely follows the approach by Cattaneo and Peri (2016), who develop a more elaborate framework that models individual migration decisions. So far, gravity models have been extensively applied to the analysis of bilateral trade flows for a long time (Anderson, 1979; Eaton and Kortum, 2002; Anderson and van Wincoop, 2003), as these models are firmly grounded in an underlying theoretical framework, whose predictions also enjoy strong empirical support. On the other hand, the literature on migration flows has mostly confined itself to unilateral models, that only look at flows from many origins to a single destination, or employed other reduced-form models (Karemera et al., 2000; Clark et al., 2007). Most of these approaches lack an appropriate theoretical foundation, thereby diminishing the persuasiveness of their empirical results.

More recent contributions have tried to remedy these shortcomings by applying gravity models to migration flows (Ortega and Peri, 2013; Cattaneo and Peri, 2016; Lanati et al., 2021). These bilateral models come with certain advantages. First, the variation across three dimensions (origin, destination and time) creates a matrix structure in the data that allows for the use of a more extensive set of fixed effects, which helps in controlling for unobservable factors. Second, the inherent fragmentation of the data also allows for a more nuanced analysis of different patterns of migration. Lastly, the dyadic nature of the data also adds to the overall number of observations (Beine and Parsons, 2017).

We hypothesize that the flow of migrants is partly determined by a district containing the birthplace of a national leader in the form of a pull factor. Besides our main variable of interest, in our initial specification we only control for the impact of existing migrant networks, which is proxied by the lagged stock of migrants from origin district  $i$  in destination district  $j$ . Further, we include a set of two different fixed effects that should help to control for different push and pull factors. First, an origin-destination dummy  $\alpha_{ij}$  controls for all time-invariant dyadic determinants of internal migration, such as the geographic and cultural relationship of a district pair. Second, an origin-time dummy  $\alpha_{it}$  absorbs all push factors of internal migration that are specific to the origin districts and years, such as local natural disasters and conflicts. Furthermore, this extensive set of fixed effects also accounts for the impact of alternative destinations on the bilateral migration flows between two locations. This concept has been termed multilateral resistance to migration by Bertoli and Fernández-Huertas Moraga (2013) and is similarly found in gravity models of international trade (Anderson and van Wincoop, 2003). While this simple model might be prone to omitted variables, including additional direct controls could possibly absorb parts of the effect of the regional connection we want to analyze. This approach of a more parsimonious model has been followed similarly by Cattaneo and Peri (2016) and Beine and Parsons (2017) in their studies on international migration.

Following this discussion our baseline specification is as follows:

$$N_{ijt} = \alpha_{ij} + \alpha_{it} + \beta \text{ConnectedLeader}_{it} + \gamma \ln(\text{Network}_{ijt-1}) + \varepsilon_{ijt}, \quad (1)$$

where  $N_{ijt}$  is the number of migrants that moved from origin district  $i$  to destination district  $j$  in year  $t$ . Our main variable of interest,  $ConnectedLeader_{ijt}$ , is a simple dummy that is 1 if a district was connected to a national leader in the specific year.  $\alpha_{ij}$  and  $\alpha_{it}$  are the aforementioned fixed effects and  $\varepsilon_{ijt}$  is the district-pair and year-specific error, which is clustered at the level of the destination district. Consistent with the established literature employing the gravity model of migration (Beine and Parsons, 2017; Bertoli and Fernández-Huertas Moraga, 2013; Lanati et al., 2021), we estimate the equation above by Poisson Pseudo-Maximum Likelihood (PPML). This estimation method offers two main advantages over more common estimation techniques. First, the dependent variable in our sample exhibits a rather larger share of zeros with approximately 79 %, which is a common feature of gravity models. Thus, this aspect needs to be taken into account, first, from a theoretical standpoint suggesting that zeros are an important feature of the data and, second, the estimation method needs to remain consistent in the presence of frequent zeros (Head and Mayer, 2014). Second, the estimation method needs to account for the presence of heteroscedasticity. For this purpose, Silva and Tenreyro (2006) propose the PPML estimator, showing that it leads to significantly different estimates than more traditional log-linearized methods, as they are subject to biased estimates in the presence of heteroscedasticity and are incompatible with the existence of zeros. [[[Silva and Tenreyro (2011)]]] extend their simulation evidence on the PPML estimator, indicating that it remains well behaved even with a large number of zeros.<sup>4</sup>

## 5 Results

We begin our analysis by exploring the pull effect of migration on being connected to President Boni, based on his birthplace and the homelands of his ethnic group. The results can be found in Table 1 below. To start with, the first column indicates that there appears to be an increasing migrant inflow into Boni's birthplace during his time in power. The estimated effect is highly

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<sup>4</sup>[[[Silva and Santos (2011)]]] conduct their simulations with zero frequencies between 62 % and 83 %, which fits the data in our case.

significant and sizeable. Migrant flows are predicted to increase by 0.392, which compared to its mean value of 1.5 across the whole sample, represents an increase of roughly 26%. This suggests that being connected to President Boni makes his birthplace district more attractive to migrants. In contrast to other studies, migrant networks fail to have any statistically significant effect on the subsequent migrant flows, which could be a result of the employed inverse sine hyperbolic transformation and the fairly large number of null observations.

To get a better idea of the structure of the identified migration patterns, we adjust the analysis by dividing the treatment period into smaller treatment periods creating dummies for the years 1-3, 4-6 and beyond year 7 after treatment. The results in column 2 indicate that the inflows appear to be relatively stable over time, as there are still significantly positive inflows in the later treatment periods. This suggests that the migration toward President Boni's birthplace seems to be based on a more sustainable motivation, indicating that migrants seem to realize relevant benefits.

Column 3 reveals that the positive link between leader connection and in-migration fades once the former is based on ethnic homelands. This means there seems to be no significant migration towards the ethnic homelands of President Boni during his time in power.

## **6 Heterogeneity**

While the results discussed so far suggest that a leader connection can serve as a pull factor for migration, this relationship might be heterogeneous with regard to migrants' characteristics. This aspect should be addressed in the following, by dividing our baseline sample according to some of these characteristics. Table 2 collects the results. To begin with, column 1 only includes migrants that are connected by ethnicity to President Boni, i.e., those migrants that belong to the Yoruba ethnic group. The results indicate that there appears to be a considerably stronger in-migration among Yorubas into the birthplace of President Boni, given that the estimated coefficient is larger than in the baseline sample above. When dissecting the sample by gender, the resulting coefficients in columns 2 and 3 provide no evidence for gender-based

heterogeneity, suggesting that both women and men seem to migrate into President Boni's birthplace during his presidency.

In the following, we disaggregate migrant flows according to the age of migrants in columns 4 and 5 of table 2. As can be expected, we find that in-migration seems to be stronger among younger parts of the population. The descriptive statistics already showed that the majority of migrants belong to the younger age group. Lastly, we conduct our analysis on a sample dissected by education. As mentioned above, here we only include adults, assuming that they have likely finished their education before migrating. The results suggest that the migration effect is slightly larger among less educated people, but the estimation for migrants with higher education are also subject to a much lower sample size.

## **7 Extensions**

### **7.1 Push Effects**

The undertaken analyses have shown that being connected to a leader can play a role as a pull factor. However, there are also theoretical arguments suggesting that a leader connection can also affect migration out of the respective districts. Having a leader connection might encourage people to migrate towards the political and economic centers of the country in the hopes of preferential treatment in the search for better jobs.

To investigate the effect of a leader connection as a push factor we adjust the baseline model, now rather including destination-year fixed effects and clustering the standard errors at the origin district level, while again differentiating between the regional and ethnic connection. The results in the columns 1 and 2 of table 3 indicate that while there seems to be no significant emigration from the homelands of the Yoruba, there is a positive and significant effect regarding President Boni's birthplace.

Again, to provide further insights into the structure of these migration patterns, we interact the leader connection dummy with certain destination districts of interest. To begin with, we check whether significant amounts of those emigrating from President Boni's birthplace district

move to the directly neighboring city of Parakou, which is the largest city in northern Benin and the country's third largest city overall. The results in column 3 suggest otherwise, as the interaction has a negative coefficient, meaning there are rather less out-migrants leaving for Parakou. Columns 4 and 5 investigate movements towards the political and economic centre Cotonou and its main suburb of Abomey-Calavi in the south with the results indicating there are significantly positive movements towards these two destinations, in particular for Abomey-Calavi, which is a popular destination for poorer migrants from the north. In contrast, the last column shows that there appears to be relatively less migration towards Benin's official capital of Porto-Novo, which is also located in the south. Overall, the results suggest that a leader connection also serves as a push factor for migration, further elevating the migration towards the economic centres of the country.

## **7.2 Transmission Channels**

This section tries to ascertain potential channels that could serve as explanation for the identified positive link between a leader connection and internal migration patterns. Two of the main motives that the wider migration literature has found to drive migration are the increased presence of economic opportunities and better access to public services (Harris and Todaro, 1970; Greenwood, 2016). Coincidentally, both of these aspects are also closely related to political favoritism (Hodler and Rascky, 2014; Burgess et al., 2015; Kramon and Posner, 2016). In the following we will test these potential transmission channels empirically.

In order to substantiate our findings and effectively link them to political favoritism, we first investigate patterns of economic growth in the connected districts. In accordance with the literature, we employ the growth of average nighttime lights as a proxy for changes in economic activity at the local level. Then, we run a simple fixed effects regression with our leader connection dummy as the main explanatory variable along with the standard district and year fixed effects and clustered standard errors. Table 4 collects these results in columns 1 and 2. In line with Hodler and Rascky (2014) and our anecdotal evidence, the results indicate significantly increased economic growth in Thomas Boni's birth district during his time in power, suggesting

that the identified migration inflows could be motivated by increased economic opportunities due to the presence of political favoritism. When basing the analysis again on the ethnic homelands of the Yoruba, there is no evidence of ethnic favoritism by President Boni, which once again goes along with the no-existing in-migration there.

Lastly, we explore the access to public utilities as another potential channel that links migration patterns and political favoritism. To investigate this channel empirically, we once again make use of the census data from IPUMS, employing information on the access to electricity covering the census years 1992, 2002 and 2013. We again employ the usual fixed effects model with the dependent variable being a simple dummy that is 1, when a respondent has access to electricity and 0 otherwise. The regressions further include some important individual-level characteristics, those being gender, age and rural/urban residence, on top of the standard district and year fixed effects. The results can be found in columns 3 and 4 of table 4.

Mirroring our previous findings, we once again identify an increase in the access to electricity in President Boni's birth district once he takes power at the national level. This finding further supports our hypothesis that the surge in migration towards his birthplace is connected to political favoritism. Similarly, there is no evidence of improved access to electricity in the ethnic homelands of the Yoruba.

### **7.3 Other Leaders**

While our baseline analysis only focused on the case of President Boni, as already mentioned there were two more Presidents in power over our sample period. Unfortunately, President Soglo was not born in Benin, making an analysis of migration in and out of his birthplace impossible. This leaves President Mathieu Kérékou for further analyses. Here again the setting is potentially problematic, as while Kérékou was democratically elected as President from 1996 to 2005, he also served as autocratic leader from 1972 to 1991. This will likely affect potential patterns of political favoritism, making results more difficult to interpret. Nevertheless, we conduct the same set of estimations as with President Boni to compare the results.



To begin with, table 5 collects the pull effect analysis, which again shows a positive link between the leader's birthplace and migrant inflows. However, for Mathieu Kérékou this positive effect is rather small and only weakly significant, while the lagged analysis suggests that the predicted migrant inflows into President Kérékou's birth district seem to be fading rather rapidly after shortly peaking in years 1-3 after his return to power, turning negative in the following years. In line with the results of President Boni, migration patterns appear not to be connected to the ethnic homeland of President Kérékou.

Table 6 depicts the same heterogeneity analysis as before. Here the results indicate that there are relatively less Otamari, the ethnic group of President Kérékou, among the in-migrants into his birth district. This result might be affected by the fact that the Otamari are already the dominant ethnic group in this area, i.e., President Kérékou's birthplace falls into the Otamari's ethnic homeland. In contrast to the results above there appear to be gender differences in migration patterns, as the migration flows are mainly driven by male migrants. Additionally, migrants are pre-dominantly young and better educated, the latter again being in contrast to the results for President Boni.

Then, table 7 looks at potential push effects. The results in the columns 1 and 2 indicate that in the case of President Kérékou there seems to be no evidence for increased out-migration from his birthplace during his time in power, while there is a positive effect for his ethnic homelands. The interaction analysis in columns 3 to 6 however does not show any significant movements towards the political and economic centers, like it was the case for President Boni.

Finally, table 8 provides insights on the transmission channels. There appears to be no increase in economic activity in Mathieu Kérékou's birthplace, which fits our findings of weak and only brief migration towards this district, as the lack of political favoritism is unable to sustain a stronger migrant movement. In line with this, there is also no evidence for improved access to electricity in the birthplace district of Mathieu Kérékou. As mentioned before, we are analyzing President Kérékou's second time in power, as his presidency was only interrupted between 1991 and 1995. There already could have been substantial political favoritism during his previous time in, especially considering him being an autocratic leader between 1972 and 1991,

which would have made the diversion of public resources potentially much easier during this time. Therefore, the interpretation of the results in this sub-chapter are not as straightforward. However, together these results suggest that the intermittent inflows into President Kérékou's birthplace seem to be based on the expectation of benefits which are quickly reversed once these benefits did not materialize due to the absence of significant political favoritism.

## 8 Conclusion

This paper explores the relationship between being connected to a national leader and the incidence of population movements within Benin. Our analysis provides multiple insights. First, the results in this study indicate that a regional connection with a political leader is linked to a significant level of migration toward the connected region. Second, we show that this effect only extends to the leaders' birthplace and not also to the homeland of the leaders' ethnic group. Lastly, further analyses demonstrate that these migrant movements are at least in parts driven by the presence of political favoritism which manifests itself in improved economic opportunities and a better access to public goods in the respective regions. In line with the migration effect, this effect only applies to the regionally connected districts, while there is no evidence that the favoritism extends to the homelands of the leaders' ethnic groups. Thus, we conclude that in our context of Benin, there is only evidence for regional favoritism rather than ethnic favoritism and that this favoritism drives migration patterns within the country.

Our findings extend the emerging literature on political favoritism by highlighting a previously unexplored aspect in its potential to drive patterns of internal migration and thus alter the demographic constitution of a country. Overall, these findings perfectly blend in with the existing evidence from the related literature on political favoritism, that also add the dimension of foreign aid to the presence of favoritism and patterns of internal migration. In addition, this paper could motivate subsequent studies that further explore the temporal stability of the effect and confirm its presence in other contexts. Furthermore, one could investigate if and how those migrants benefit from their migration decision

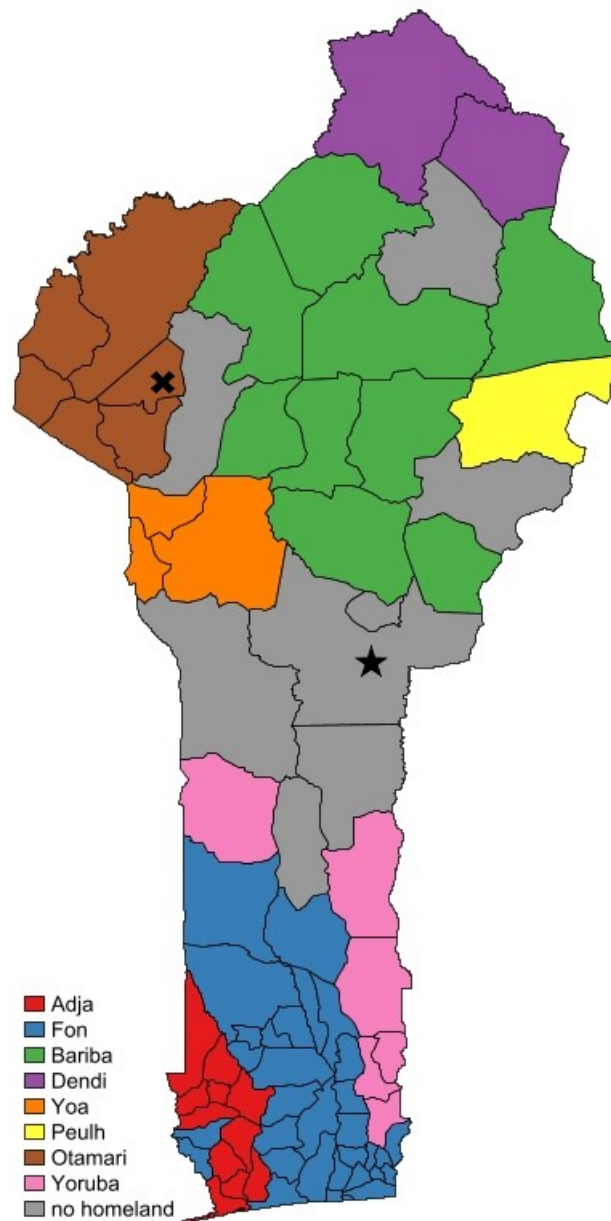
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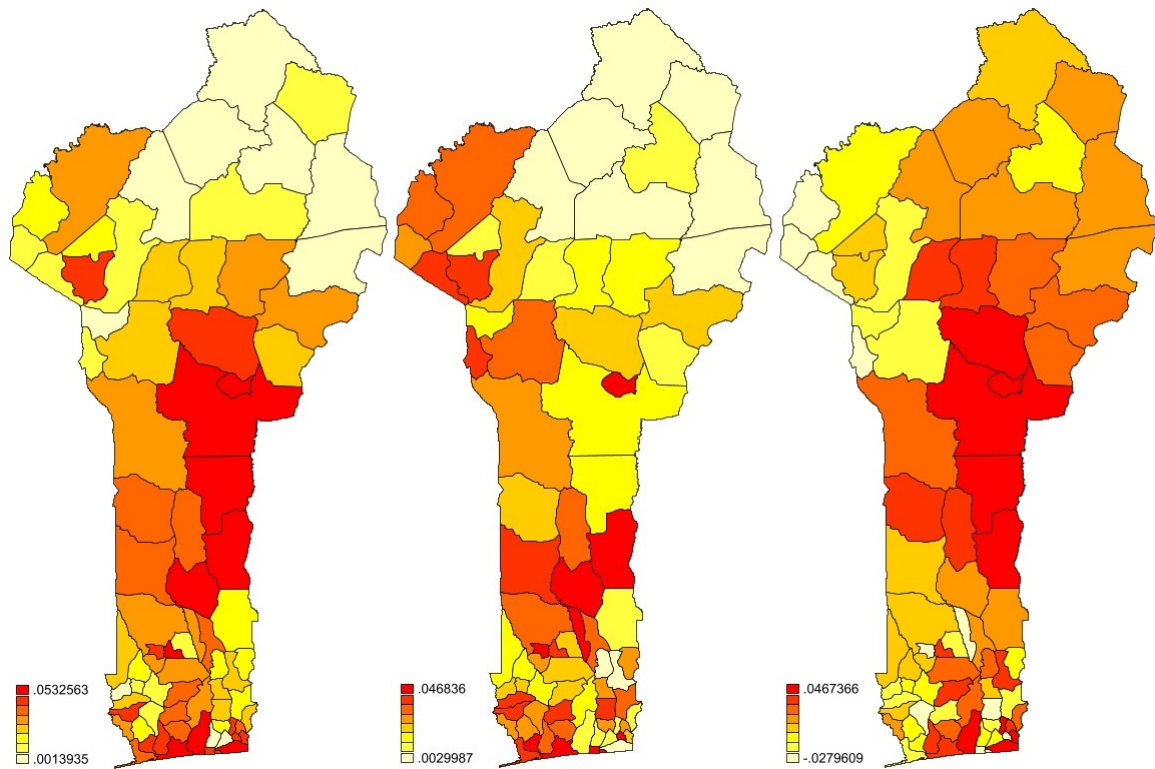
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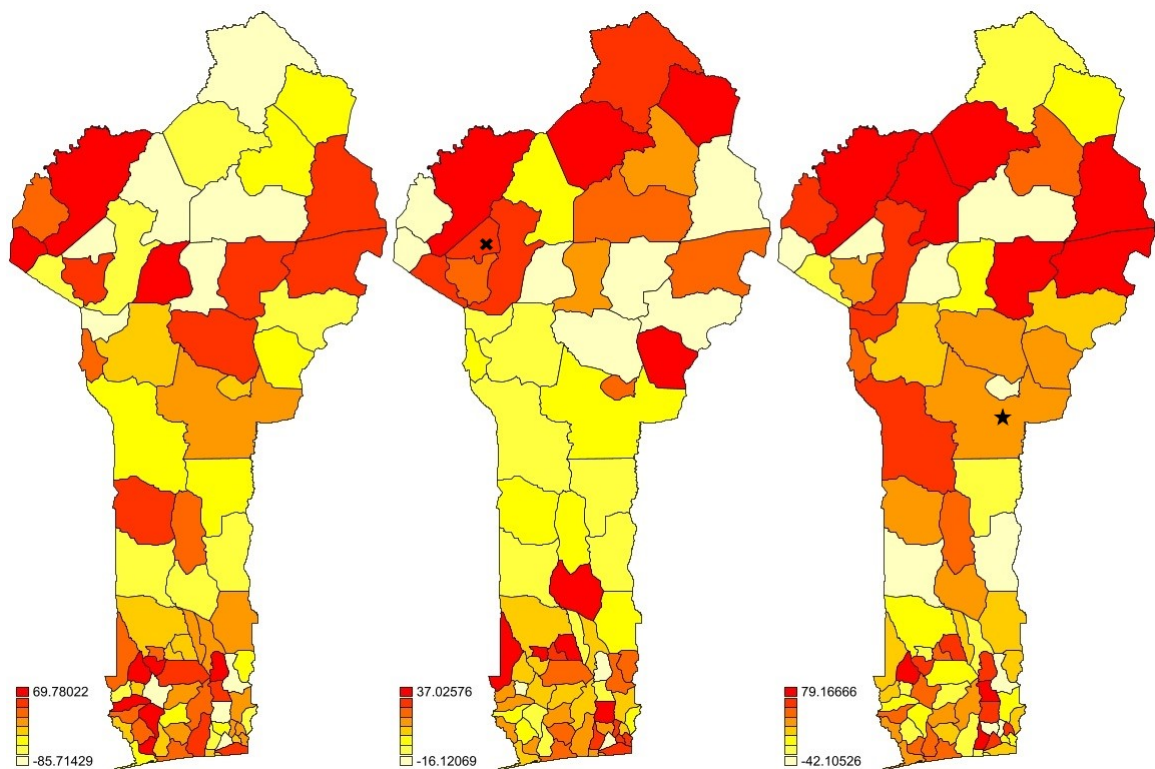
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**Figure 1: Ethnic Homelands.** The figure depicts the homelands of the different ethnic groups present in Benin. Furthermore, it shows the birthplaces of the national leaders with the black cross standing for the birthplace of Mathieu Kérékou and the black star indicating the birthplace of Thomas Boni.

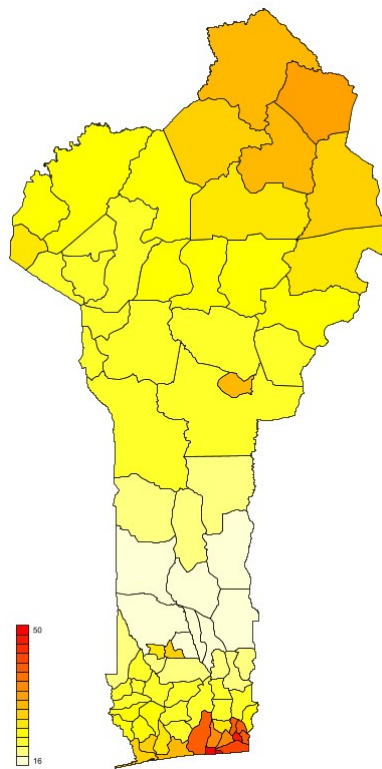


**Figure 2: Migration Shares.** The figure depicts from left to right the in-migration, out-migration and net-migration in relation to the total population and averaged across the full sample period.



**Figure 3: Migration Growth.** The figure depicts from left to right the median of the yearly growth rate of in-migration across the periods 1991-1995, 1995-2005 and 2006-2013.





**Figure 4: Nighttime Lights.** This figure depicts average nighttime light luminosity for each district over the period 1992-2013.

**Table 1: MAIN RESULTS - PULL EFFECTS BONI**

	Birthplace		Ethnic homeland
	(1)	(2)	(3)
<i>Dep. Var: Migrant flows</i>			
Leader Connection	0.392*** (0.094)		-0.189 (0.127)
Leader Connection, year 1-3		0.682*** (0.082)	
Leader Connection, year 4-6		0.374*** (0.104)	
Leader Connection, year 7-end		0.162* (0.097)	
Inv. Network, t-1	-0.004 (0.069)	-0.004 (0.069)	-0.002 (0.067)
Pair FE	✓	✓	✓
Origin*year FE	✓	✓	✓
N	86876	86876	86876

Notes: (a) The dependent variable is the number of individuals migrating between a district-pair in each year. (b) Leader Connection is a dummy that is 1 if a destination district includes a leader's birth place or ethnic homeland. (c) The estimations include an unreported constant and standard errors in parentheses are clustered at the destination district level. (d) Stars indicate significance levels at 10%(\*), 5%(\*\*) and 1%(\*\*\*).

**Table 2: HETEROGENEITY - PULL EFFECTS BONI**

	Yoruba	Women	Men	Youth	Working Age	Low Education	High Education
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Dep. Var: Migrant flows</i>							
Leader Connection	0.510*** (0.132)	0.402*** (0.091)	0.381*** (0.099)	0.500*** (0.079)	0.285*** (0.110)	0.409*** (0.083)	0.314* (0.166)
Inv. Network, t-1	-0.006 (0.081)	-0.003 (0.066)	-0.007 (0.073)	-0.023 (0.063)	0.016 (0.075)	-0.005 (0.062)	0.086 (0.096)
Pair FE	✓	✓	✓	✓	✓	✓	✓
Origin*year FE	✓	✓	✓	✓	✓	✓	✓
N	30824	77553	76678	75064	78299	74790	36700

Notes: (a) The dependent variable is the number of individuals migrating between a district-pair in each year. (b) Leader Connection is a dummy that is 1 if a destination district includes a leader's birth place. (c) The estimations include an unreported constant and standard errors in parentheses are clustered at the destination district level. (d) Stars indicate significance levels at 10%(\*), 5%(\*\*) and 1%(\*\*\*).

**Table 3: EXTENSION – PUSH EFFECTS BONI**

	Birthplace	Ethnic homeland	Birthplace destination interaction			
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Dep.Var:</i> Migrant flows			Parakou	Cotonou	Abomey-Calavi	Porto Novo
Leader Connection	0.222*** (0.035)	-0.083 (0.099)	0.255*** (0.036)	0.212*** (0.035)	0.174*** (0.036)	0.225*** (0.035)
Destination Interaction			-0.103** (0.045)	0.299*** (0.099)	1.985*** (0.094)	-0.685*** (0.055)
Pair FE	✓	✓	✓	✓	✓	✓
Destination*year FE	✓	✓	✓	✓	✓	✓
N	86815	86815	86815	86815	86815	86815

Notes: (a) The dependent variable is the number of individuals migrating between a district-pair in each year. (b) Leader Connection is a dummy that is 1 if a destination district includes a leader's birth place or ethnic homeland. (c) The estimations include an unreported constant and standard errors in parentheses are clustered at the origin district level. (d) Stars indicate significance levels at 10%(\*), 5%(\*\*) and 1%(\*\*\*).

**Table 4: EXTENSION - TRANSMISSION CHANNEL BONI**

	Avg. Growth	Nightlight	Access Electricity	
	Birthplace	Ethnic homeland	Birthplace	Ethnic homeland
	(1)	(2)	(3)	(4)
<i>Dep.Var:</i> Migrant flows				
Leader Connection	2.582*** (0.334)	0.527 (0.482)	0.258*** (0.013)	-0.026 (0.046)
Pop. Density	0.007*** (0.001)	0.007*** (0.001)		
Gender			0.002 (0.001)	0.002 (0.001)
Age			0.000 (0.000)	0.000 (0.000)
Urban/rural location			0.191*** (0.019)	0.190*** (0.019)
Pair FE	✓	✓	✓	✓
Origin*year FE	✓	✓	✓	✓
N	1,617	1,617	2,184,424	2,184,424

Notes: (a) The dependent variable is the average annual growth of nightlight luminosity across each district in columns 1 and 2, and a dummy that is 1 if a respondents has access to electricity in columns 3 and 4. (b) Leader Connection is a dummy that is 1 if a destination district includes a leader's birth place or ethnic homeland. (c) The estimations include an unreported constant and standard errors in parentheses are clustered at the destination district level. (d) Stars indicate significance levels at 10%(\*), 5%(\*\*) and 1%(\*\*\*).

**Table 5: MAIN RESULTS - PULL EFFECTS KÉRÉKOU**

	Birthplace		Ethnic homeland
	(1)	(2)	(3)
<i>Dep.Var: Migrant flows</i>			
Leader Connection	0.083*		0.211
	(0.044)		(0.214)
Leader Connection, year 1-3		0.625***	
		(0.058)	
Leader Connection, year 4-6		-0.153**	
		(0.062)	
Leader Connection, year 7-end		-0.478***	
		(0.050)	
Inv. Network, t-1	-0.001	-0.001	-0.001
	(0.068)	(0.068)	(0.068)
Pair FE	✓	✓	✓
Origin*year FE	✓	✓	✓
N	86876	86876	86876

Notes: (a) The dependent variable is the number of individuals migrating between a district-pair in each year. (b) Leader Connection is a dummy that is 1 if a destination district includes a leader's birth place or ethnic homeland. (c) The estimations include an unreported constant and standard errors in parentheses are clustered at the destination district level. (d) Stars indicate significance levels at 10%(\*), 5%(\*\*) and 1%(\*\*\*).

**Table 6: HETEROGENEITY - PULL EFFECTS KÉRÉKOU**

	Yoruba	Women	Men	Youth	Working Age	Low Education	High Education
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Dep.Var: Migrant flows</i>							
Leader Connection	-0.210**	-0.029	0.197***	0.187***	-0.014	-0.117***	0.618***
	(0.084)	(0.531)	(0.045)	(0.052)	(0.043)	(0.044)	(0.095)
Inv. Network, t-1	-0.156*	-0.001	-0.003	-0.018	0.018	-0.002	0.086
	(0.083)	(0.065)	(0.072)	(0.062)	(0.074)	(0.061)	(0.095)
Pair FE	✓	✓	✓	✓	✓	✓	✓
Origin*year FE	✓	✓	✓	✓	✓	✓	✓
N	30824	77553	76678	75064	78299	74790	36700

Notes: (a) The dependent variable is the number of individuals migrating between a district-pair in each year. (b) Leader Connection is a dummy that is 1 if a destination district includes a leader's birth place. (c) The estimations include an unreported constant and standard errors in parentheses are clustered at the destination district level. (d) Stars indicate significance levels at 10%(\*), 5%(\*\*) and 1%(\*\*\*).

**Table 7: EXTENSION – PUSH EFFECTS KÉRÉKOU**

	Birthplace	Ethnic homeland	Birthplace destination interaction			
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Dep.Var:</i> Migrant flows			Parakou	Cotonou	Abomey-Calavi	Porto Novo
Leader Connection	-0.016 (0.039)	0.159** (0.067)	0.167** (0.070)	0.171** (0.069)	0.179*** (0.068)	0.165** (0.067)
Destination Interaction			-0.077 (0.097)	-0.247* (0.131)	-0.525** (0.218)	-0.502*** (0.125)
Pair FE	✓	✓	✓	✓	✓	✓
Destination*year FE	✓	✓	✓	✓	✓	✓
N	86815	86815	86815	86815	86815	86815

Notes: (a) The dependent variable is the number of individuals migrating between a district-pair in each year. (b) Leader Connection is a dummy that is 1 if a destination district includes a leader's birth place or ethnic homeland. (c) The estimations include an unreported constant and standard errors in parentheses are clustered at the origin district level. (d) Stars indicate significance levels at 10%(\*), 5%(\*\*) and 1%(\*\*\*).

**Table 8: EXTENSION - TRANSMISSION CHANNEL KÉRÉKOU**

	Avg. Nightlight Growth		Access Electricity	
	Birthplace	Ethnic homeland	Birthplace	Ethnic homeland
	(1)	(2)	(3)	(4)
<i>Dep.Var:</i> Migrant flows				
Leader Connection	-5.297*** (0.383)	-5.147*** (0.983)	0.011 (0.012)	-0.154*** (0.046)
Pop. Density	0.007*** (0.001)	0.007*** (0.001)		
Gender			0.002 (0.001)	0.002 (0.001)
Age			0.000 (0.000)	0.000 (0.000)
Urban/rural location			0.190*** (0.019)	0.191*** (0.019)
Pair FE	✓	✓	✓	✓
Origin*year FE	✓	✓	✓	✓
N	1,617	1,617	2,184,424	2,184,424

Notes: (a) The dependent variable is the average annual growth of nightlight luminosity across each district in columns 1 and 2, and a dummy that is 1 if a respondents has access to electricity in columns 3 and 4. (b) Leader Connection is a dummy that is 1 if a destination district includes a leader's birth place or ethnic homeland. (c) The estimations include an unreported constant and standard errors in parentheses are clustered at the destination district level. (d) Stars indicate significance levels at 10%(\*), 5%(\*\*) and 1%(\*\*\*).