

Who's Turn to Eat?
The Political Economy of Roads in Kenya

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"Ministers' Home Areas Get Lion's Share of Roads Cash."

Daily Nation, 20 July 2006.

"Once Nairobi and the tourist hub represented by the Maasai Mara were excluded, [road] allocations to the home constituencies of vocal government critics were nearly 320 times less generous than those to constituencies of trusted presidential aides."

"It's Our Turn to Eat.", Michela Wrong, 2009.

Research Question

- ▶ Do African leaders disproportionately favor specific ethnic groups in the provision of public investments?
- ▶ Why?

Motivation 1

African politics is widely claimed to be unrepresentative and unaccountable, whereby leaders disproportionately favor their own ethnicity when allocating public investments (Posner 2005, Bates 2008).

A large cross-country literature has emphasized the role of ethnic diversity in "Africa's growth tragedy" (Easterly and Levine 1997, Montalvo and Reynal-Querol 2005).

Yet, even in not fully democratic regimes, leaders must build multi-ethnic coalitions to retain power. They reward co-ethnics and non co-ethnics by investing in public infrastructure.

Motivation 2

Why Roads?

- ▶ Roads are the single largest development expenditure in the Kenyan budget (approx. 15% between 1965 – 1999). Further, the WB spends nearly a quarter of its resources on infrastructure projects, more than on any other single category.
- ▶ Africa has been recognized as a continent with weak states and thus challenging for nation-building. Roads act as a mechanism to exert political power (Herbst 2000).
- ▶ Africa fares worse in terms of transportation infrastructure (WDR 2009). Mentioned as a main cause of African underdevelopment (WDR 1994, Buys, Deichmann and Wheeler 2006).
- ▶ Roads are "modern", visible, targetable and recent works show large welfare gains (Michaels 2008, Banerjee, Duflo and Qian 2009).

This Paper's Approach

- ▶ We take an empirical micro approach which goes beyond the current limitations of the existing cross-country literature (Kasara 2007, Frank and Rainer 2009).
- ▶ We assemble an original and very detailed district dataset on roads in 1961-1992 Kenya, using GIS on historical maps.
- ▶ We combine this information with a rich political dataset on the ethnic composition of governing coalitions.
- ▶ This allows to test whether political changes impact the placement of roads.

Contribution

Strengths:

- ▶ Empirical micro approach which goes beyond existing cross-country literature.
- ▶ Current literature has focused on education or health. Few studies on roads.
- ▶ Current literature has focused on the ethnicity of the leader.

Limitations:

- ▶ We exploit two variations (independence, Kenyatta's death).
- ▶ Identification concerns.
- ▶ Case-study: one country.

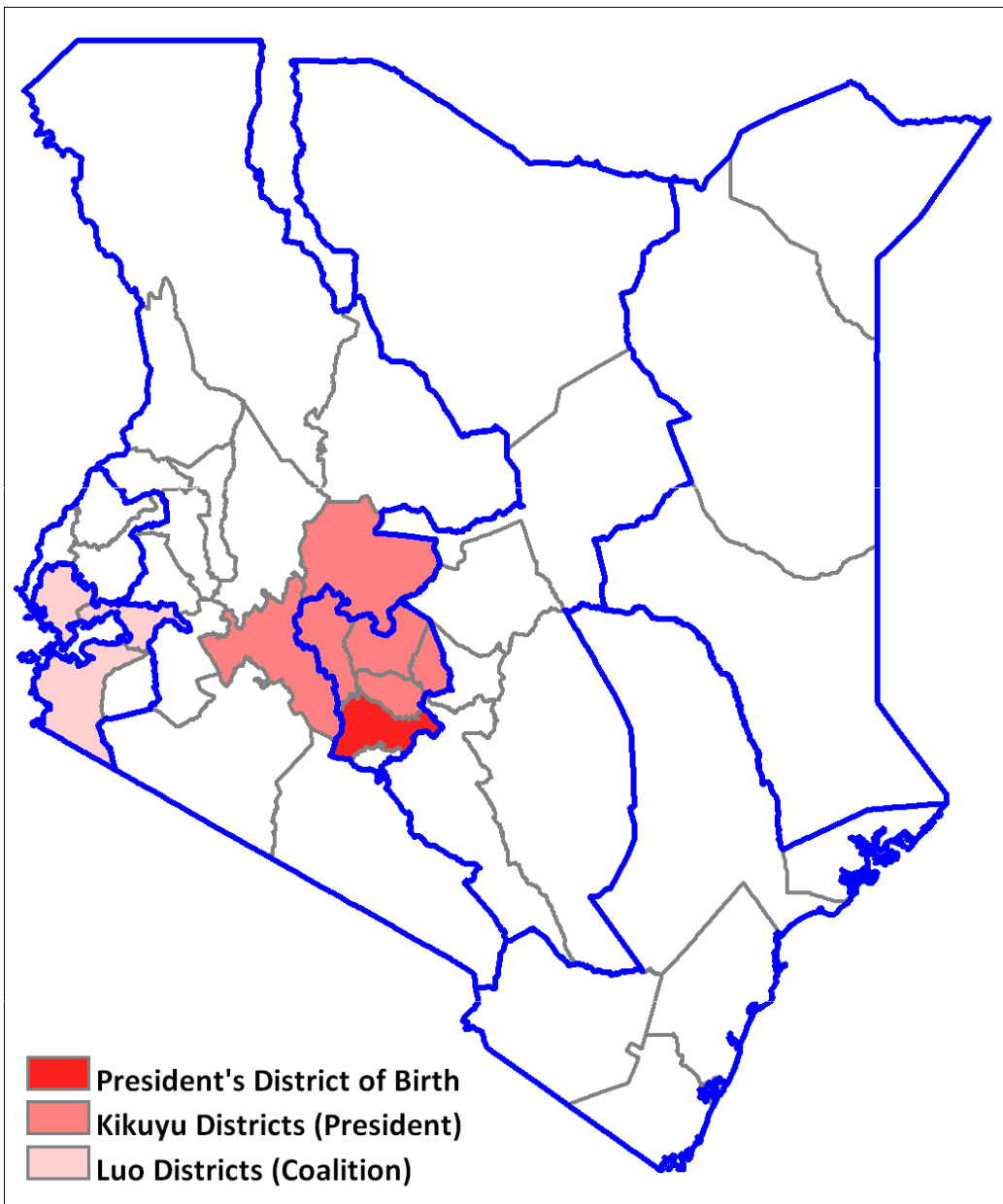
Context

Kenya became independent in 1963. Single-party democracy from 1966 to 1992.

The President is chosen by the Central Committee of the ruling party (KANU). The executive seat is never contested during this period.

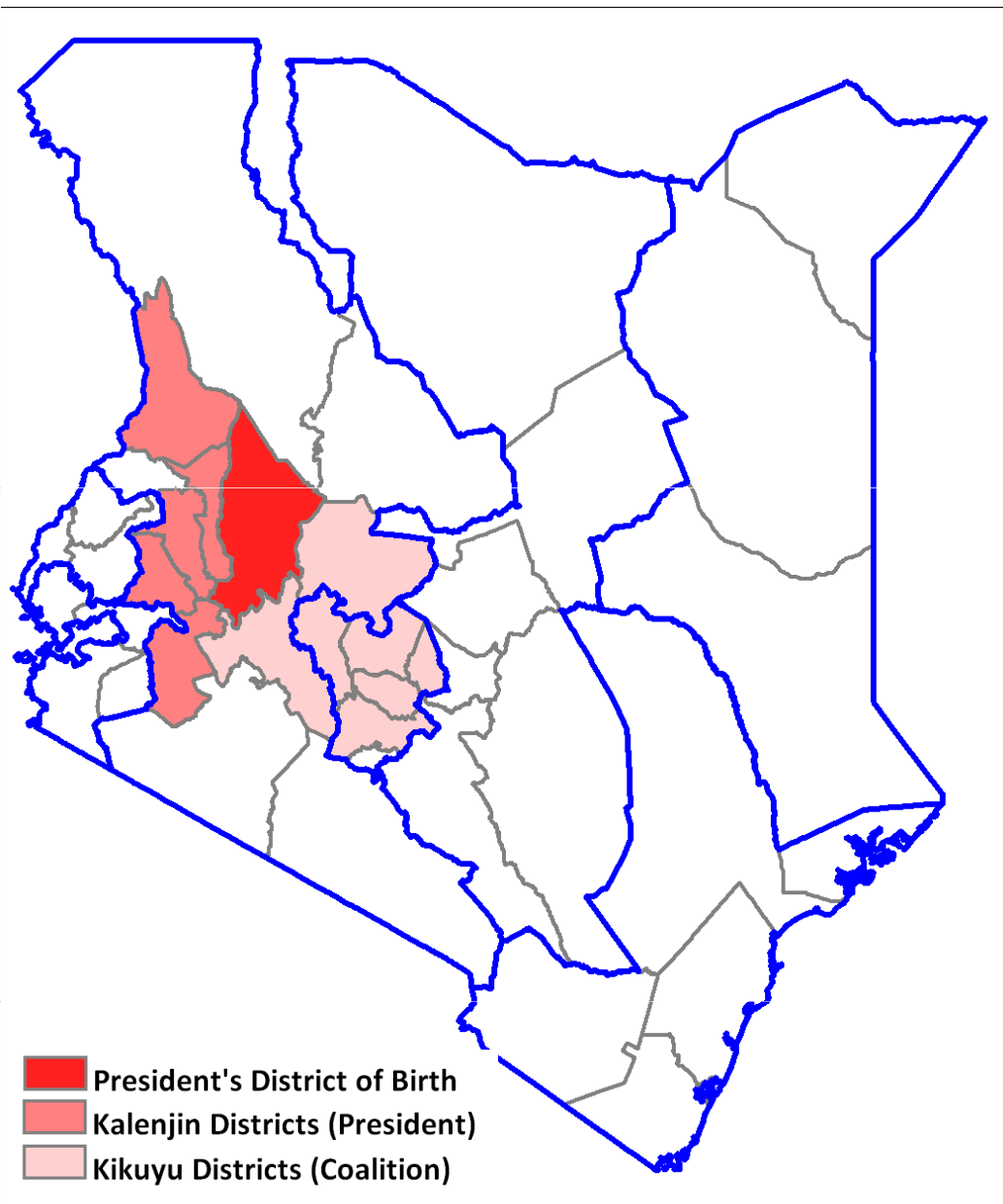
Political competition takes place within the party and along ethnic lines. Three groups monopolize the political game: the Kikuyus, the Kalenjins and the Luos.

The Ministry of Public Works is both the decision-maker and operator of road construction.



1964-1978:

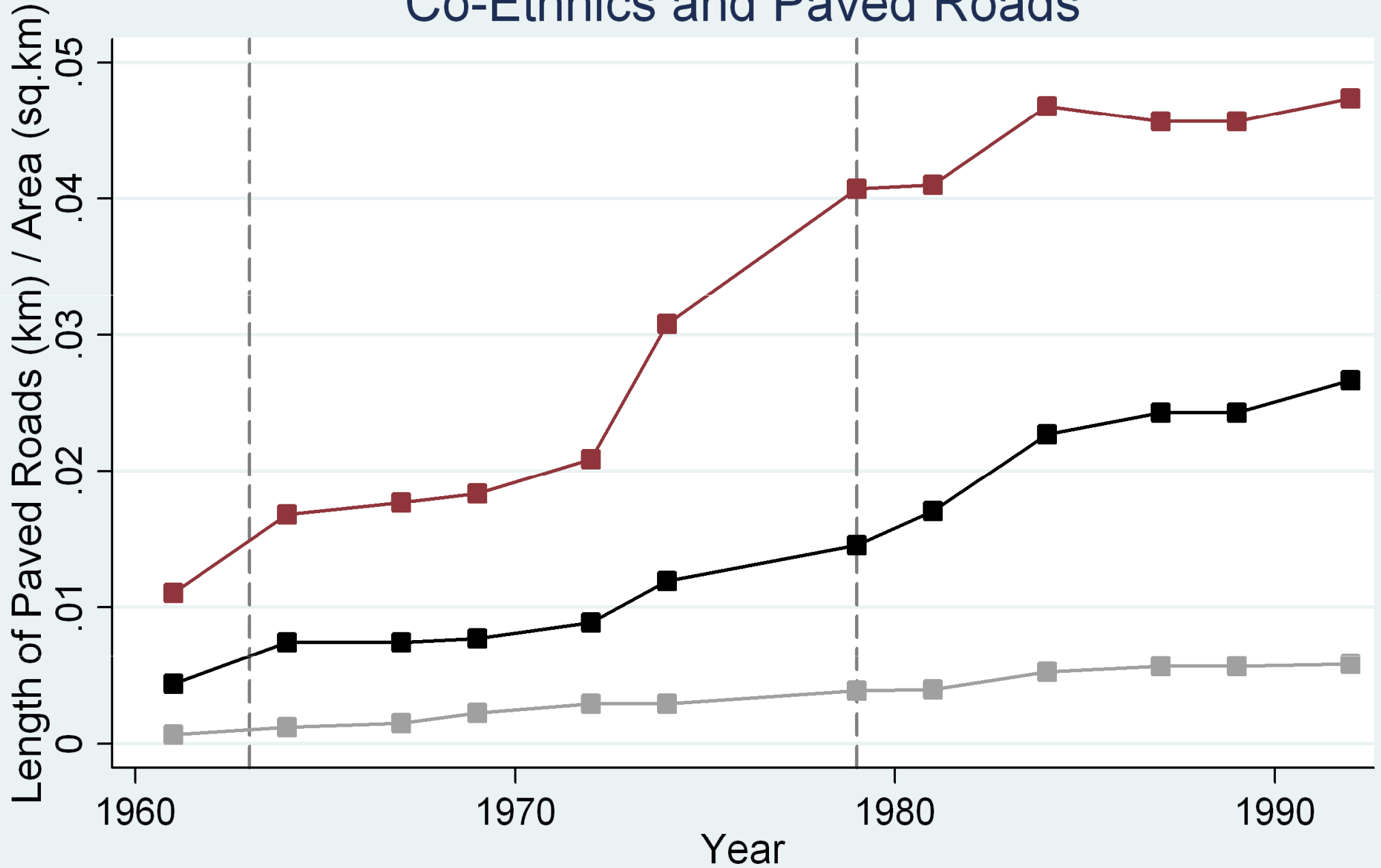
Kenyatta (Kikuyu) is president.
Coalition with the Luos.



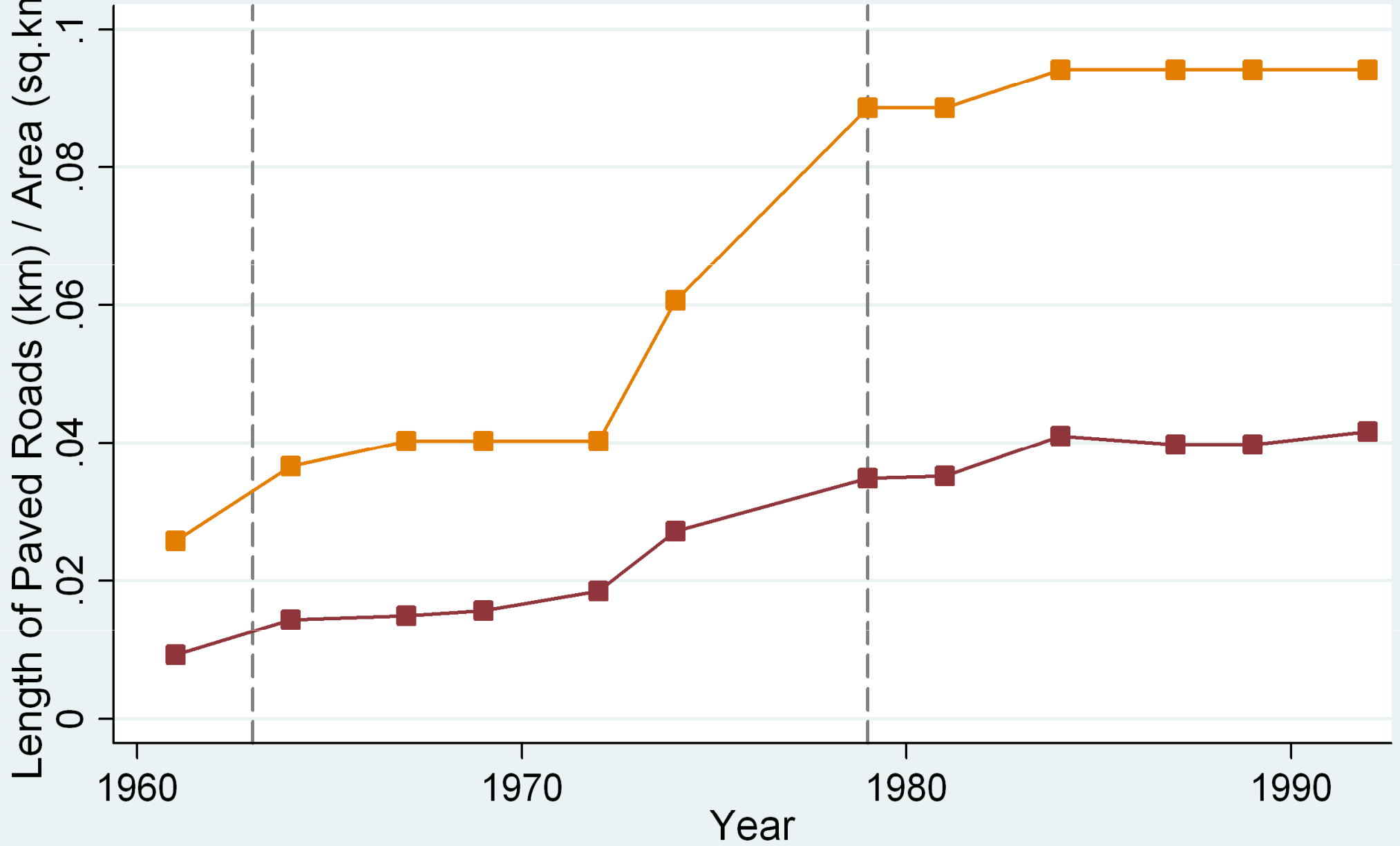
1979-1992:

Moi (Kalenjin) is president.
Coalition with the Kikuyus.

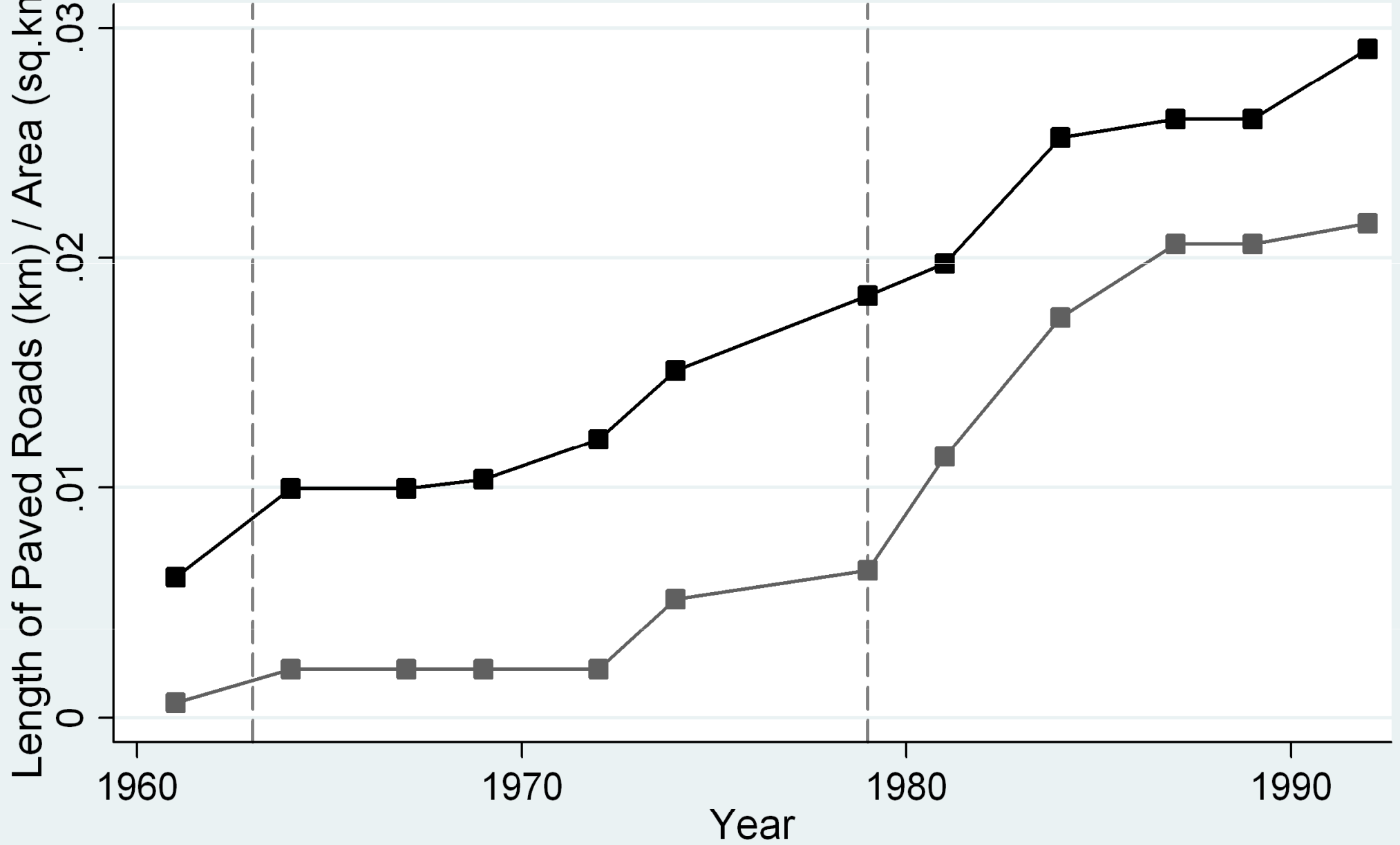
Co-Ethnics and Paved Roads



President's District of Birth and Paved Roads

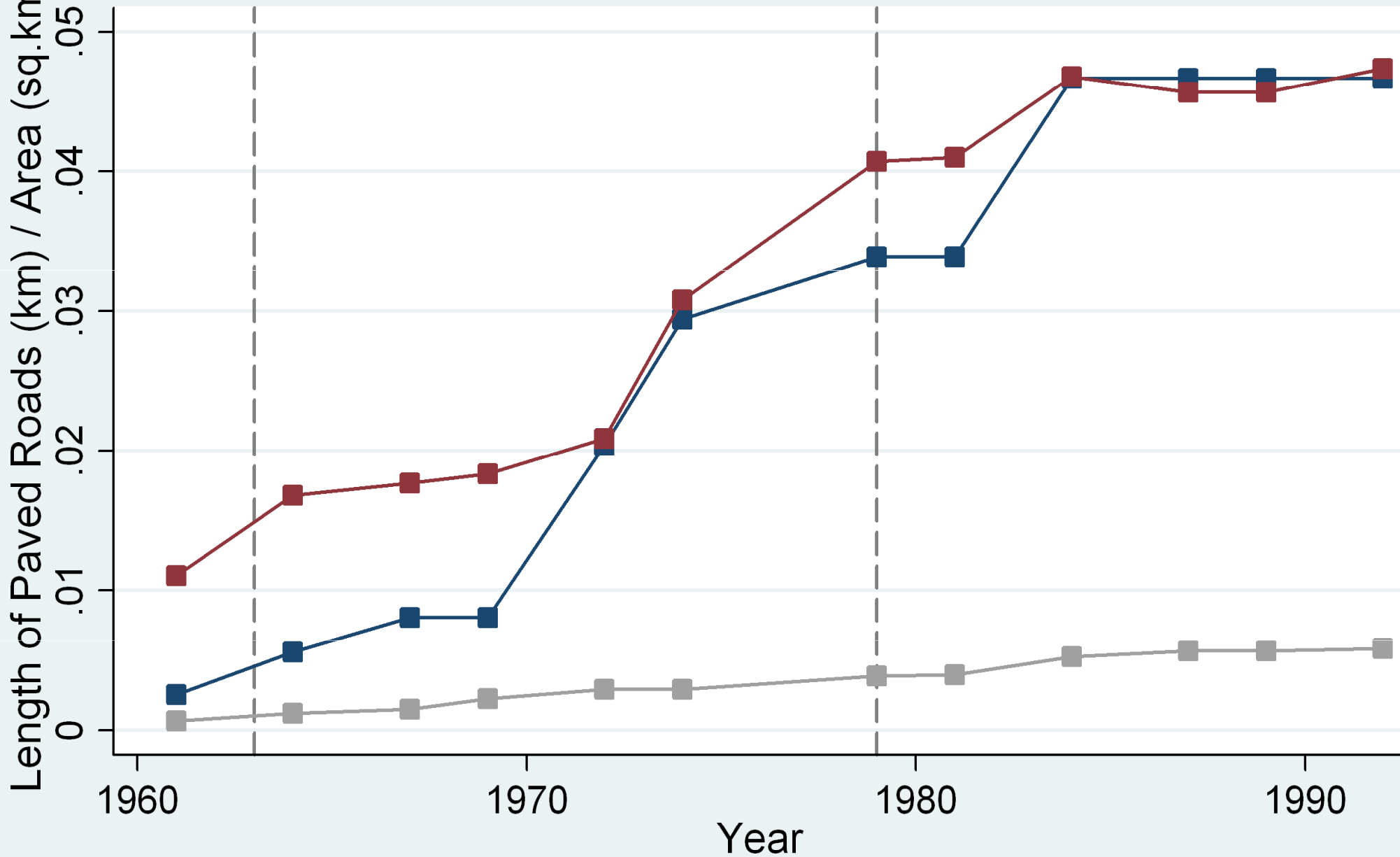


President's District of Birth and Paved Roads



■ Baringo ■ Other Kalenjin Districts

Non Co-Ethnic Coalition Members and Paved Roads



Preview of Findings

Key Message: Targeting of roads is both *narrower* and *broader* than suggested by the often popularised ethnic patronage story.

1. Co-ethnic districts receive **twice** more paved roads than non co-ethnic districts (10.6%).
2. The President's home area gets **five** times more paved roads than the other co-ethnic districts (10.4%).
3. The district of the non co-ethnic coalition members obtain **as much** paved roads as the co-ethnic districts (10.5%).

Around one-third of the construction of paved roads can be explained by political economy factors.

Conceptual Framework

Autocrats face the threat of being evicted by coalitions within the ruling party. By distributing cabinet positions to the top men of the other ethnic groups and bringing public goods to their areas, they are able to build stable multi-ethnic coalitions and remain in power.

- ▶ "**Loyal Backer**" models: target co-ethnics, same sub-tribe.
- ▶ "**Core-supporter**" models (Cox and McCubbins 1986, Dixit and Londregan 1996): target co-ethnics, other subtribe.
- ▶ "**Swing-voter**" models (Lindbeck and Weibull 1987, Dixit and Londregan 1996, Groseclose and Snyder 1996): target pivotal voters, i.e. non co-ethnics.

Extended Probabilistic Model of Vote-Buying

Democracy:

Elections / Voters

Autocracy:

No eviction / Top men
of the ruling party

Public Expenditure



**Support-
Buying**



Loyal Backers

Co-ethnics, Same Subtribe



Core Supporters

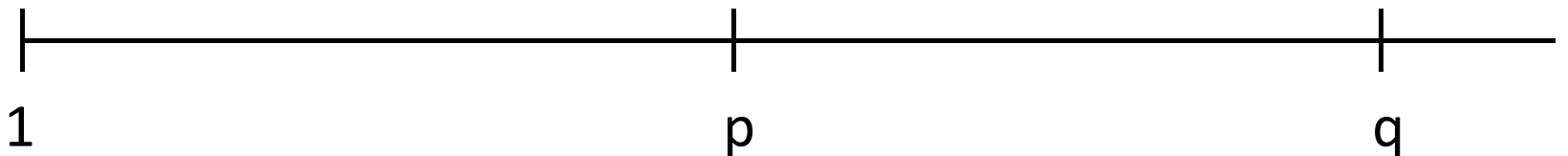
Co-ethnics, Other Subtribe



Swing Voters

Non-Co-ethnics

Prob.(vote):



with $1 > p > q$

Empirical Evidence

Empirical evidence on both African democracies and autocracies tends to support the patronage hypothesis: leaders favor loyal backers (Miguel and Zaidi 2003, Posner 2005, Frank and Rainer 2009).

This fact is contradicted by Kasara 2007 (co-ethnics are more heavily taxed) and Moser 2008 (swing voters also receive public goods).

Besides, no distinction between loyal backers and core supporters.

Political Data

Variables: District of birth and ethnicity of all the appointed cabinet members between 1961 and 1992: the President, Vice-President and Ministers.

Primary Sources: Government Publication: *Organization of The Government of the Republic of Kenya*, released after every cabinet shuffle and lists all the civil servants. We obtain the ethnicity and district of birth of the leaders:

1. Direct assistance from journalists from the top Kenyan dailies.
2. Work of political scientists (e.g. Hornsby 1995 and Ahluwalia 1996).
3. Weekly Review Magazine - highly active political magazine.

Political Data

Table: Cabinet Share (%) of the Six Main Ethnic Groups, 1963-1992.

Year	Kikuyu	Luhya	Luo	Kamba	Kalenjin	Kisii	Other	Cabinet Size
1963	35	6	24	6	0	6	24	17
1964	32	5	21	11	5	5	21	19
1966	30	9	13	9	4	9	26	23
1969	30	9	13	9	9	9	22	23
1974	30	9	13	9	9	9	22	23

Political Data

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1963	35	6	24	6	0	6	24	17
1964	32	5	21	11	5	5	21	19
1966	30	9	13	9	4	9	26	23
1969	30	9	13	9	9	9	22	23
1974	30	9	13	9	9	9	22	23
1979	30	11	11	7	15	7	19	27
1983	21	13	13	8	17	4	25	24
1988	26	12	15	12	12	6	18	34

Road Data

Variables: R_{qdt} is the total length of roads of quality q in district d at year t . *Where:*

q = paved roads, improved roads, tracks

t = 1961, 1964, 1967, 1969, 1972, 1974, 1979, 1981, 1984, 1987, 1989, 1992

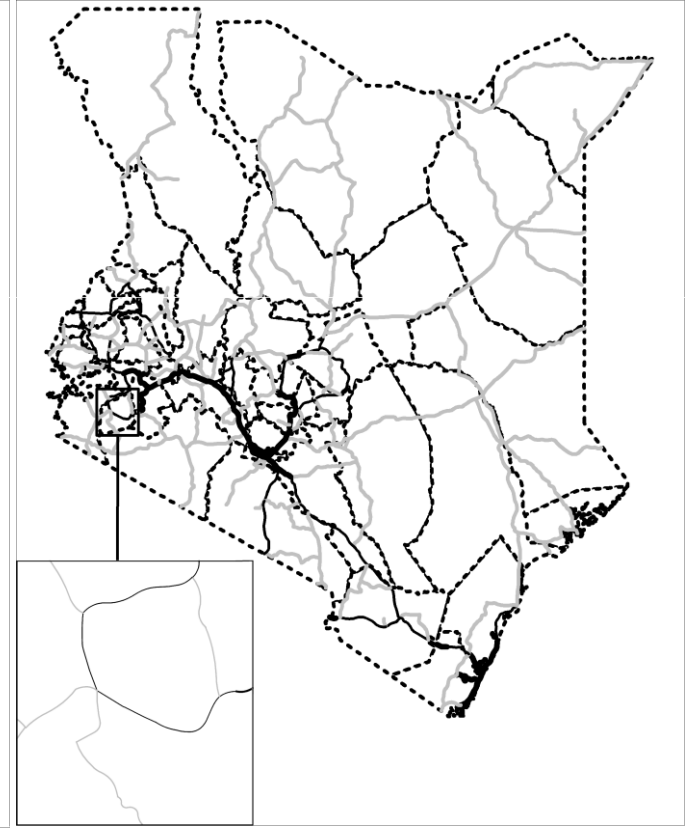
Primary Sources: Time series of *Michelin Road Map Series: Africa South and Central*. These maps have a consistent legend which allows to classify roads into three different qualities.



Michelin map in 1961



Digitization and Standardization in GIS



With district boundaries

PAVED



IMPROVED

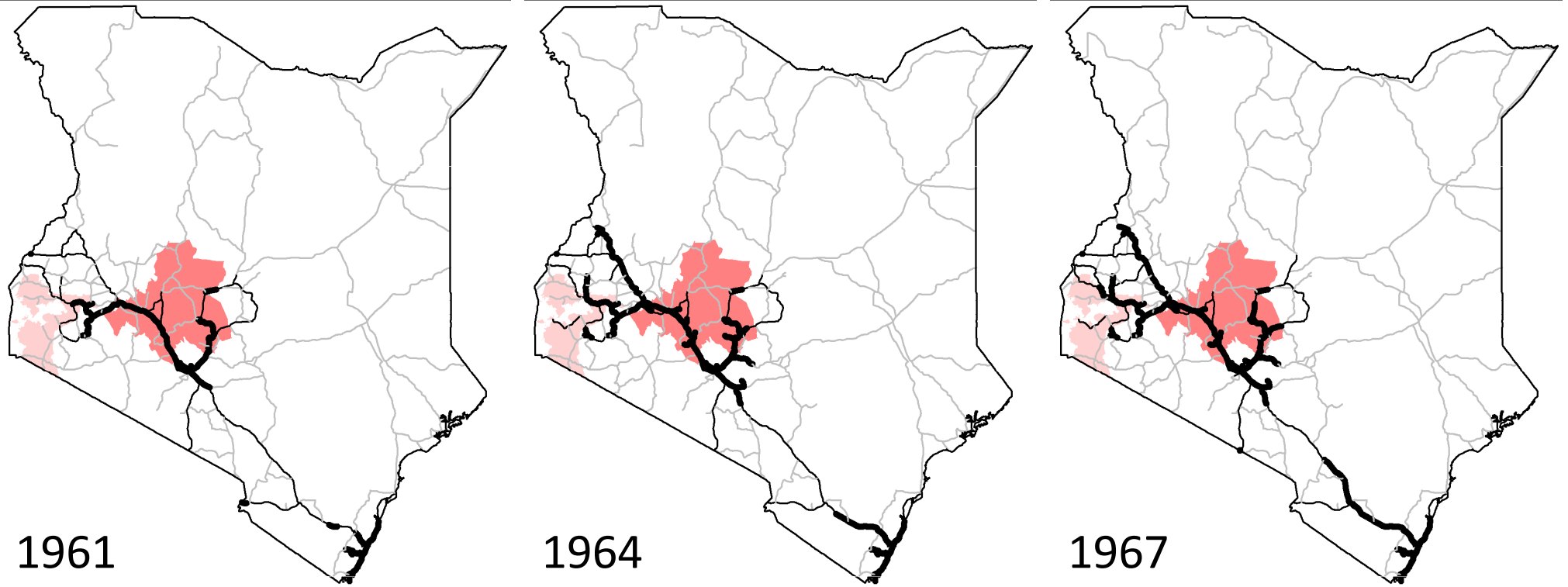




TRACKS



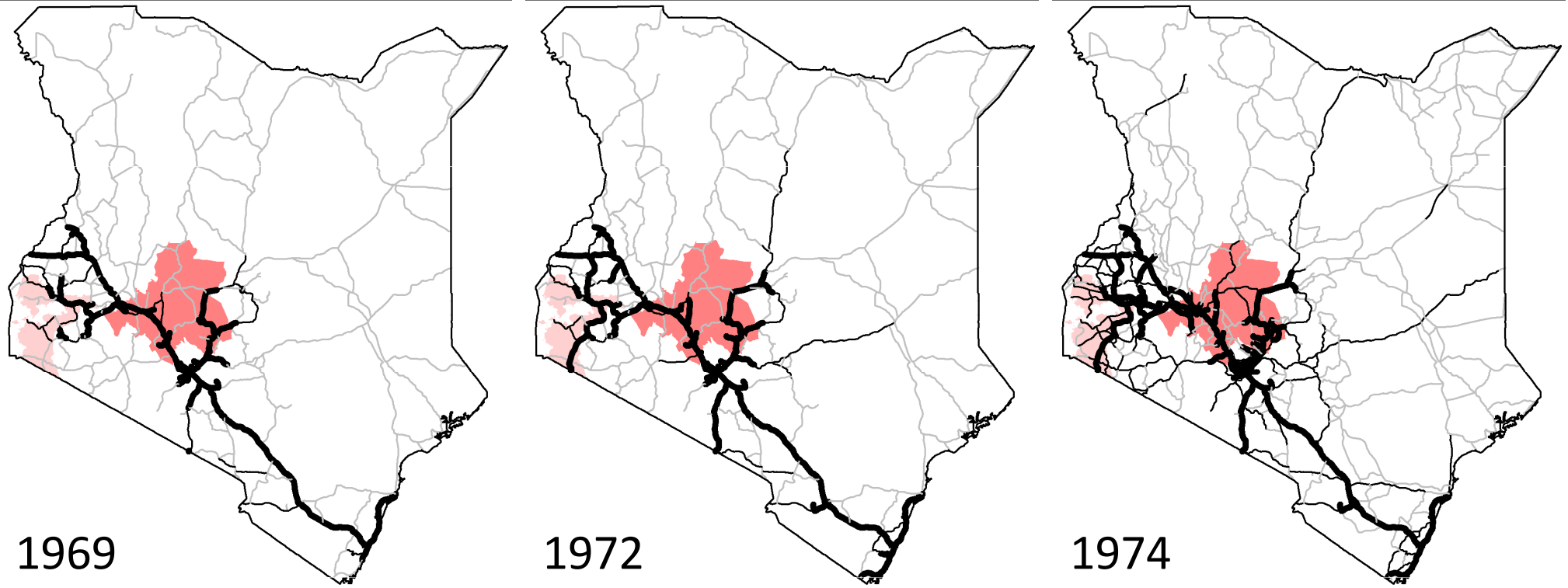
Paved (asphalt or cement concrete)
Improved (laterite or gravel)
Tracks (earthen and dirt roads)



The evolution of the road network, 1961-1992



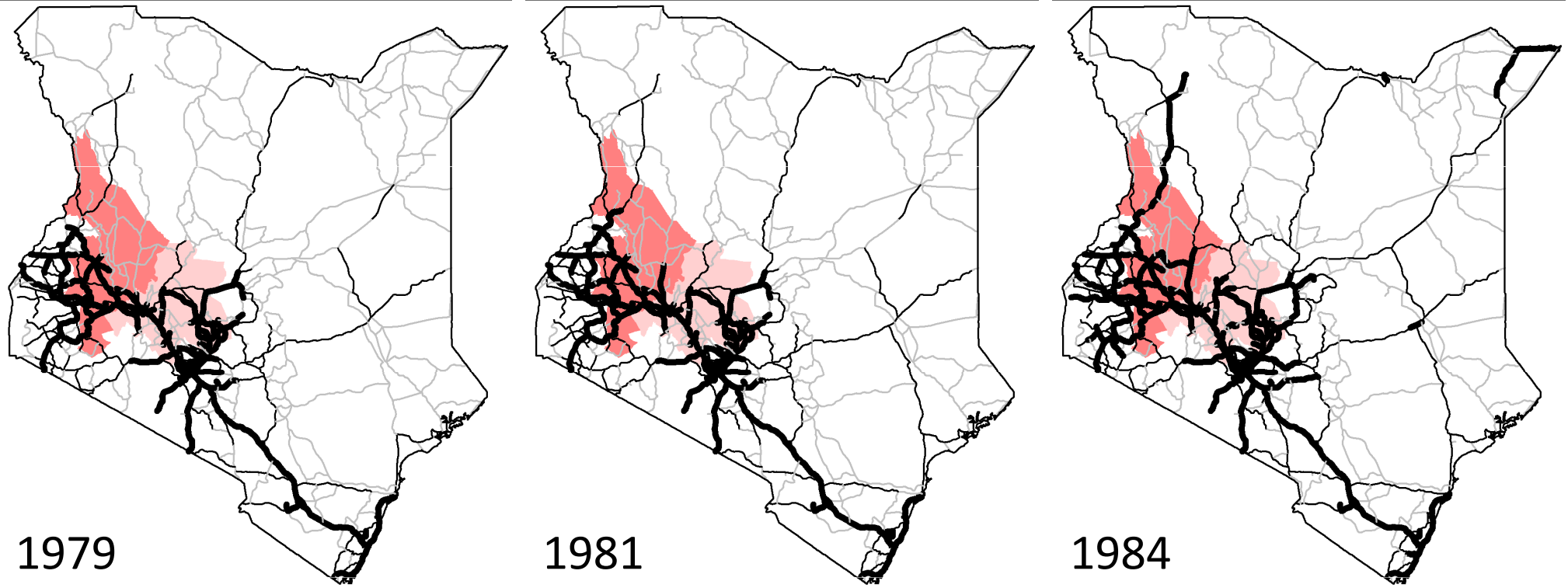
-  Kikuyu Districts (President)
-  Luo Districts (Coalition)

The evolution of the road network, 1961-1992



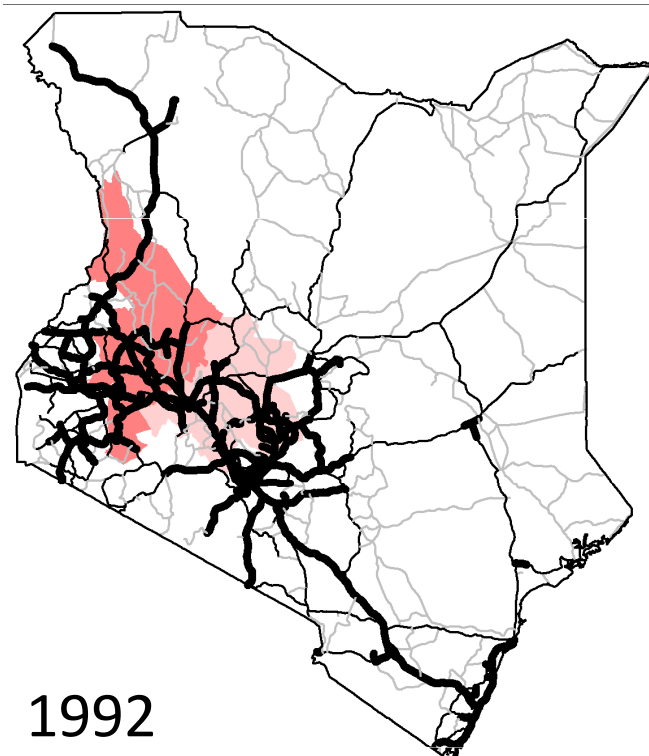
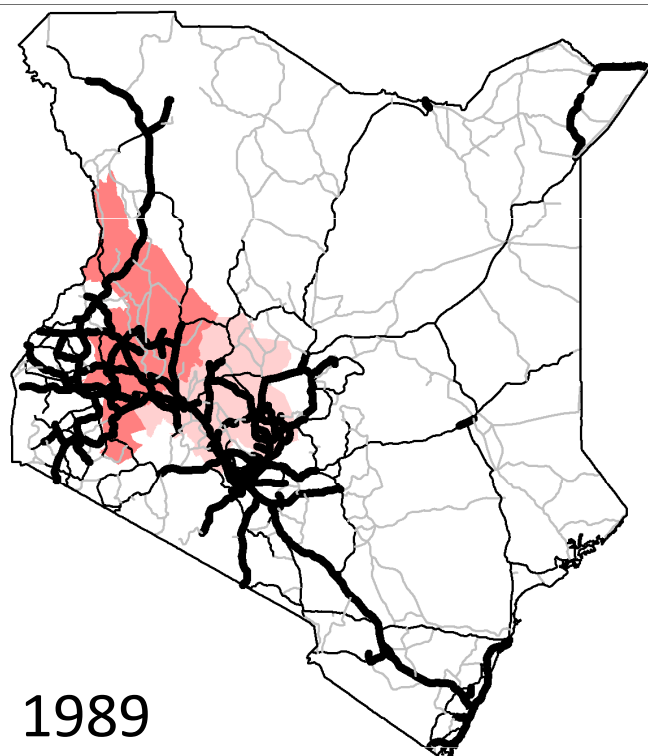
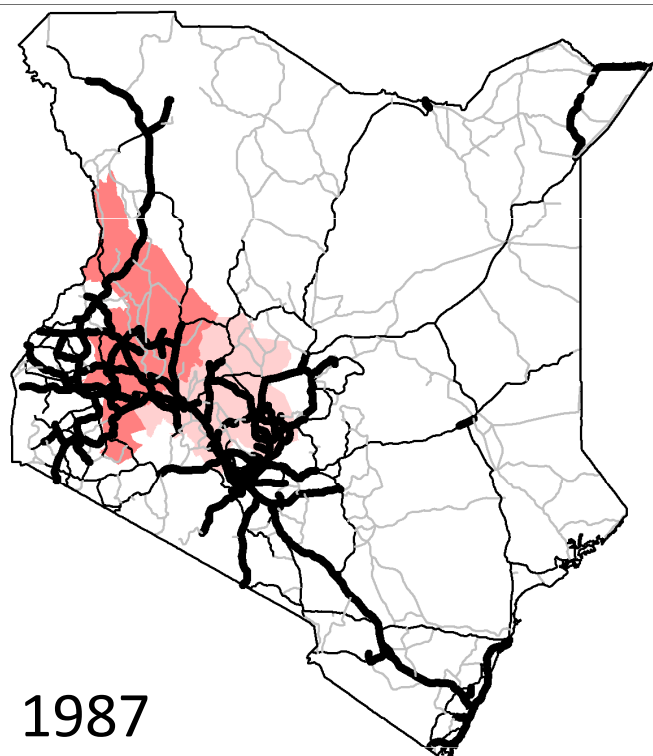
-  Kikuyu Districts (President)
-  Luo Districts (Coalition)

The evolution of the road network, 1961-1992



-  Kalenjin Districts (President)
-  Kikuyu Districts (Coalition)

The evolution of the road network, 1961-1992



-  Kalenjin Districts (President)
-  Kikuyu Districts (Coalition)

Econometric Specification

For district d and year t , we run:

$$R_{qdt} = \alpha_d + \beta_t + \zeta R_{qdt-1} + \delta P_{dt-1} + \phi_t X_d + \epsilon_{dt} \quad (1)$$

R_{qdt} is the length in km of road type q in district d at time t . P_{dt-1} are our political economy variables of interest at time $t-1$:

1. Share of the President's co-ethnic group in district d .
2. Share of the coalition member's ethnic group in district d .
3. A dummy variable valuing 1 if district d is the district of birth of the President.
4. A dummy variable valuing 1 if district d is the district of birth of the Public Works Minister.

α_d and β_t are district and year fixed effects, and X_d is a vector of baseline demographic, economic and geographic variables whose effect ϕ_t we allow to vary with time.

Econometric Concerns 1

Key Assumption: Changes in political leadership are exogenous.

The timing of independence (1963) is exogenous, as the British Empire was granting independence to its African colonies around that time.

The death of Kenyatta in 1978 was due to natural causes (similar exercise to Jones and Olken 2005).

1. We exploit the one change in president leadership.
2. Further, the vice-president Moi (Kalenjin) was **not** expected to succeed Kenyatta (Kikuyu) due to strong opposition from the Kikuyu elite.

Econometric Concerns 2

Concerns: Omitted variables: (a) political and economic powers go hand-in-hand, both driving road building, or (b) road building unrelated to political economy factors (e.g., Mombasa-Kampala road).

Kalenjins are a pastoralist community and were not economically successful during the pre-1978 period.

Control for economic geography, demography and economic activity characteristics by including interactions of baseline district variables with a time trend or time dummies.

Three Sets of Controls

1. **Economic Geography:** dummies for Mombasa-Kampala international road, border of Uganda and border of Tanzania, all interacted with a time trend.
2. **Demography:** 1962 population, having a city in 1962 and 1962 urbanization rate, all interacted with time dummies.
3. **Economic activity:** 1961 per capita earnings, 1961 employment rate in the formal sector and 1961 primary education completion rate, all interacted with time dummies.

Table 1: Ethnicity and District of Birth of Leaders and Road Investments

Dependent Variable:	Value (2007K\$)	Length (in km) of		
	<i>Value</i>	<i>Paved Roads</i>	<i>Lanes of Paved Roads</i>	<i>All Roads</i>
	(1)	(2)	(3)	(4)
Share of the President's Ethnic Group in the District	3,925** [1,922]	10.44** [4.86]	18.82* [11.07]	-3.44 [8.45]
Share of the Nearest Coalition Member in the District	4,410** [1,949]	11.85** [4.88]	35.05*** [10.63]	-8.71 [9.62]
District of Birth of the President	17,556*** [2,933]	46.33*** [9.50]	96.93*** [14.49]	-9.08 [19.49]
District of Birth of the Public Works Minister	2743 [1,645]	8.53* [4.41]	14.02 [12.57]	-7.5 [8.79]
Dependent Variable _{t-1}	0.81*** [0.07]	0.78*** [0.08]	0.80*** [0.08]	0.71*** [0.06]
Controls	Y	Y	Y	Y
District FE	Y	Y	Y	Y
Time FE	Y	Y	Y	Y
Observations	451	451	451	451
R-squared	0.89	0.85	0.87	0.9

Notes: Robust standard errors clustered at the district level in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 2: Ethnicity and District of Birth of Leaders and Paved Roads, Robustness and Specification Checks

Dependent Variable:	Length (in kms) of Paved Roads				Change in	Log of Length
					the Length of	of Paved
					Paved Roads	Roads
	<i>Baseline</i>	<i>No controls</i>	<i>w/o Nairobi & Mombasa</i>	<i>Time Dummies x Dist. Area</i>	<i>Change</i>	<i>Log</i>
	(1)	(2)	(3)	(4)	(5)	(6)
Share of the President's Ethnic Group in the Dist.	10.44** [4.86]	7.81 [4.96]	10.05* [5.14]	13.12** [5.35]	11.69** [4.41]	0.76** [0.29]
Share of the Nearest Coalition Member in the Dist.	11.85** [4.88]	1.88 [4.37]	12.13** [5.25]	13.98** [5.82]	8.24** [3.95]	0.56*** [0.21]
District of Birth of the President	46.33*** [9.50]	15.10* [8.73]	45.86*** [9.61]	50.48*** [12.48]	15.43** [7.62]	0.23 [0.32]
District of Birth of the Public Works Minister	8.53* [4.41]	9.27 [6.04]	8.11** [3.92]	8.33* [4.17]	18.57** [7.28]	0.12 [0.17]
Dependent Variable _{t-1}	0.78*** [0.08]	0.80*** [0.07]	0.79*** [0.08]	0.78*** [0.06]		0.54*** [0.06]
Controls	Y	N	Y	Y	Y	Y
District FE	Y	Y	Y	Y	Y	Y
Time FE	Y	Y	Y	Y	Y	Y
Observations	451	451	429	451	492	451
R-squared	0.85	0.81	0.85	0.86	0.31	0.77

Notes: Robust standard errors clustered at the district level in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 3: Ethnicity and District of Birth of Leaders and Road Network Value, Robustness and Specification Checks

Dependent Variable:	Road Network Value (2007K\$)				Change in	Log of Road
					Road Network	Network
					Value	Value
	<i>Baseline</i>	<i>No controls</i>	<i>w/o Nairobi & Mombasa</i>	<i>Time Dummies x Dist. Area</i>	<i>Change</i>	<i>Log</i>
	(1)	(2)	(3)	(4)	(5)	(6)
Share of the President's Ethnic Group in the Dist.	3,925** [1,922]	2926 [1,784]	3,771* [2,004]	4,860** [2,036]	4,996*** [1,825]	0.29*** [0.10]
Share of the Nearest Coalition Member in the Dist.	4,410** [1,949]	962 [1,476]	4,538** [2,062]	5,265** [2,182]	3,922** [1,636]	0.20** [0.08]
District of Birth of the President	17,556*** [2,933]	6,982** [3,078]	17,459*** [2,917]	19,710*** [4,177]	9,242*** [2,690]	0.21 [0.12]
District of Birth of the Public Works Minister	2743 [1,647]	2,858.00 [2,314]	2531 [1,525]	2423 [1,620]	4660 [2,772]	-0.01 [0.06]
Dependent Variable _{t-1}	0.81*** [0.07]	0.81*** [0.07]	0.81*** [0.07]	0.81*** [0.08]		0.55*** [0.05]
Controls	Y	N	Y	Y	Y	Y
District FE	Y	Y	Y	Y	Y	Y
Time FE	Y	Y	Y	Y	Y	Y
Observations	451	451	429	451	451	451
R-squared	0.89	0.87	0.89	0.9	0.36	0.7

Notes: Robust standard errors clustered at the district level in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

Conclusion

1. In line with the political patronage literature, we find that presidents favor co-ethnics (10.6%).
2. We also find evidence for:
 - The president further favors his home area (10.5%).
 - The president rewards non co-ethnic allies (10.4%).
 - The Ministry of Public Works is a key position (1.9%).

One third of the construction of paved roads can be explained by political economy factors.

African politics is more complex than the sole political patronage story.

Future Work

1. **Falsification exercise:** using pre-independence road data (*Blue Books*), test that ethnicity is not driving road building.
2. **District expenditure data:** we will complement our road maps with district level road expenditure 1973-2000.
3. **Subtribe analysis:** do subtribes/clans of the same tribe experience more road building if they "cooperate" with the president?
4. **Other public goods:** do we find similar effects for other public goods? See possible district expenditure data 1973-2000 for schools, health centers, electrical infrastructure, water supply.
5. **Long-term welfare implications of favoritism:** district data for 1964-2007 on population, employment in the formal sector or per capita earnings.