



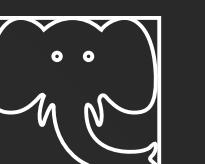
EVERY FIFTEEN MINUTES

SYSTEMIC FACTORS CONTRIBUTING TO THE
CRISIS FOR THE AFRICAN ELEPHANT

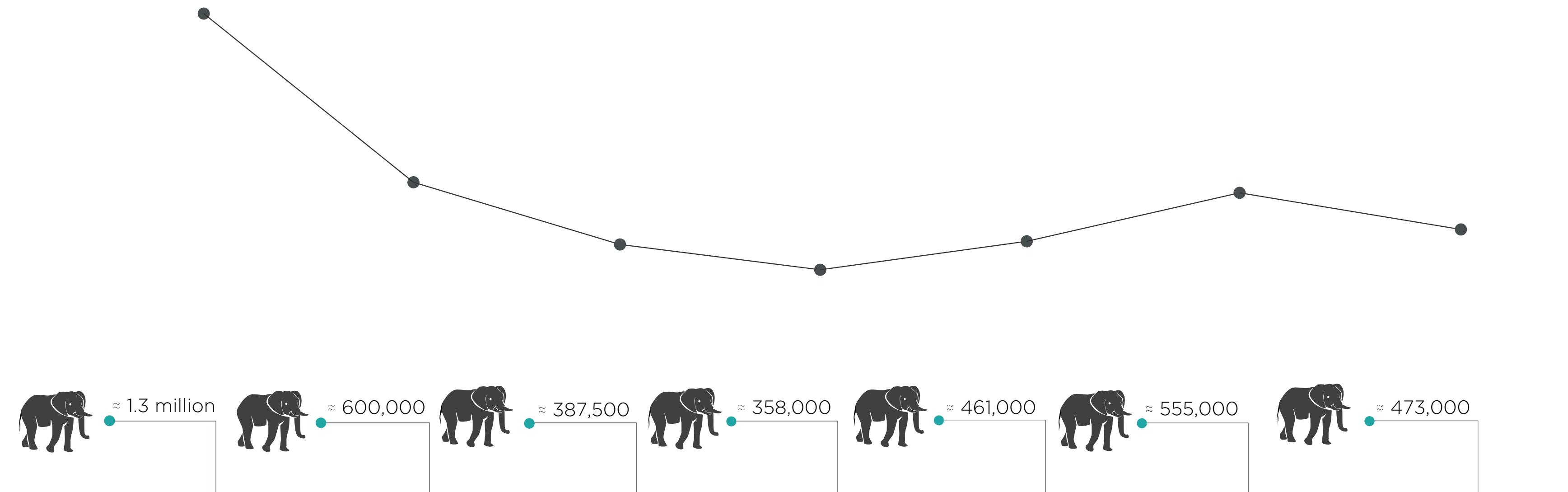
SPRINGBOARD CAPSTONE PRESENTATION
LESLEY D LATHROP
FEBRUARY 2017

“ We patronize them for their incompleteness, for their tragic fate of having taken form so far below ourselves. And therein we err, and greatly err. For the animal shall not be measured by man.

~ Henry Beston, *The Outermost House*



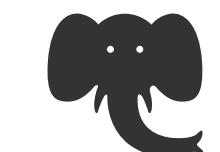
TOTAL ELEPHANT POPULATION vis-a-vis CITES ACTIVITY



1989 CITES Ban

1999 sale

2008 sale

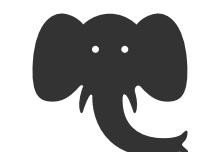
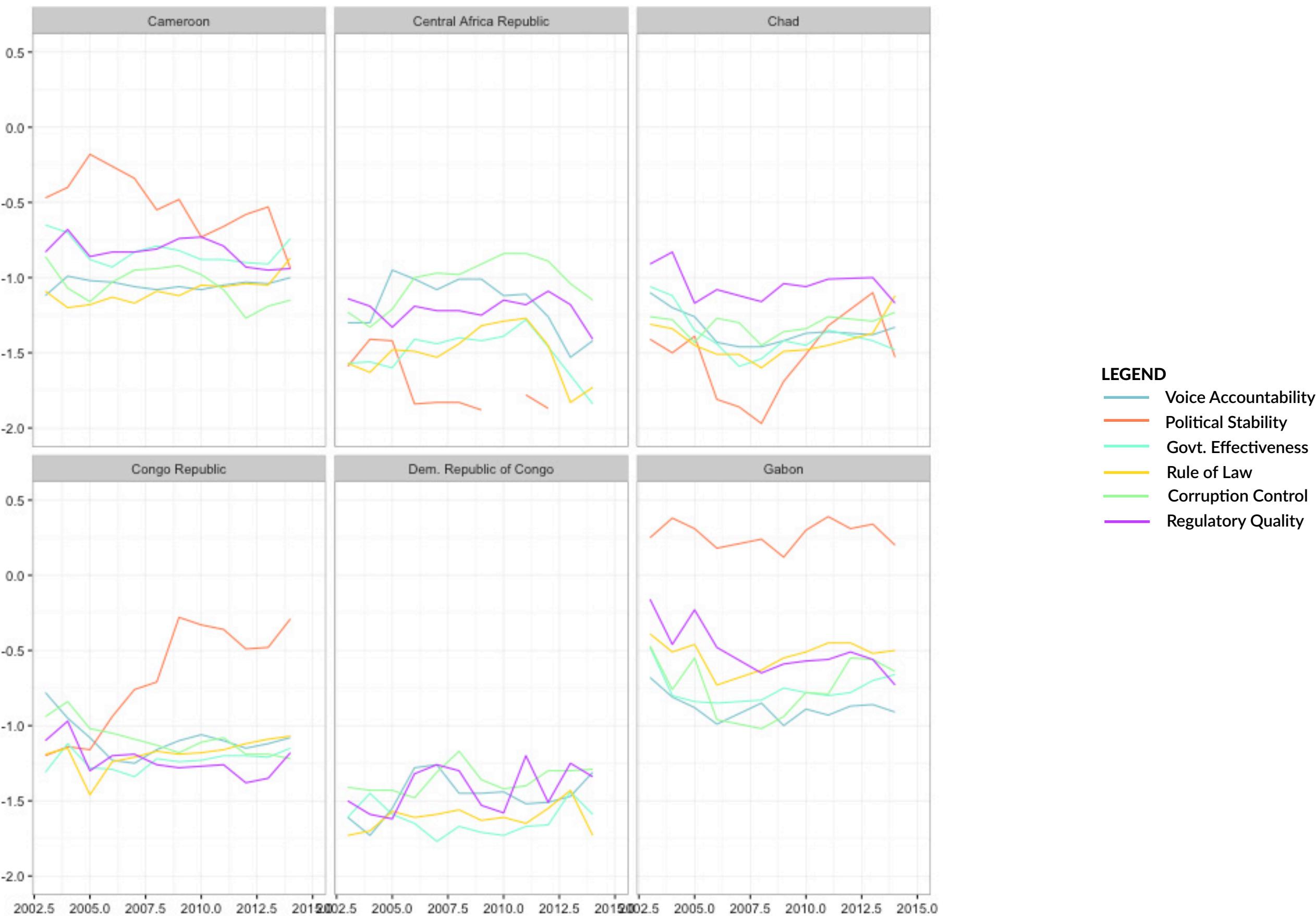




30,000 – 40,000 ELEPHANTS ARE SLAUGHTERED EVERY YEAR FOR THEIR IVORY – ABOUT ONE EVERY 15 MINUTES

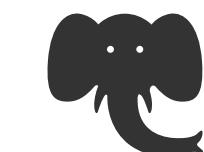
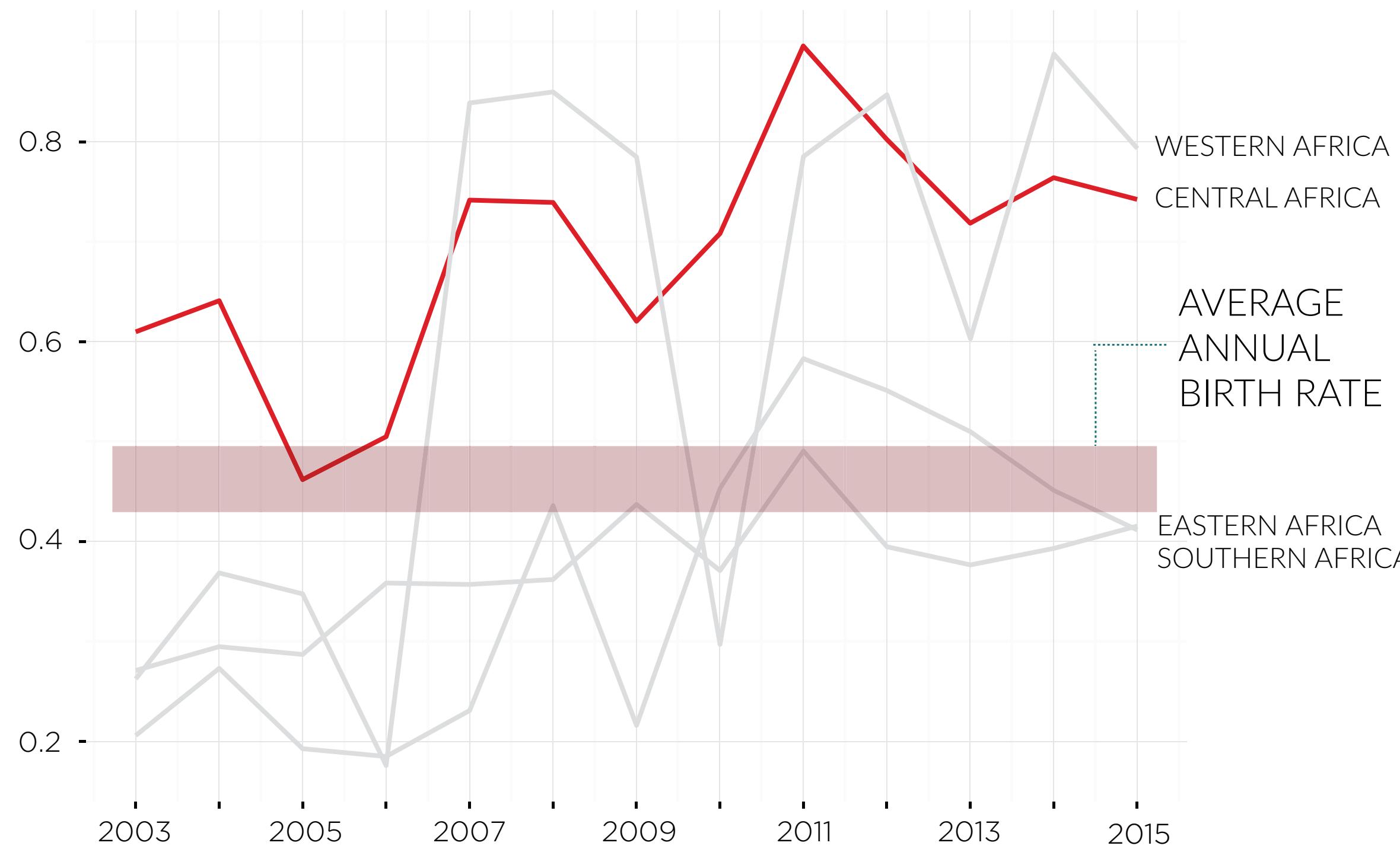
EXPLORATORY DATA ANALYSIS

GOVERNANCE INDICATORS FOR CENTRAL AFRICA

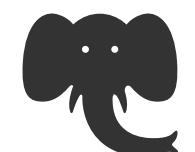
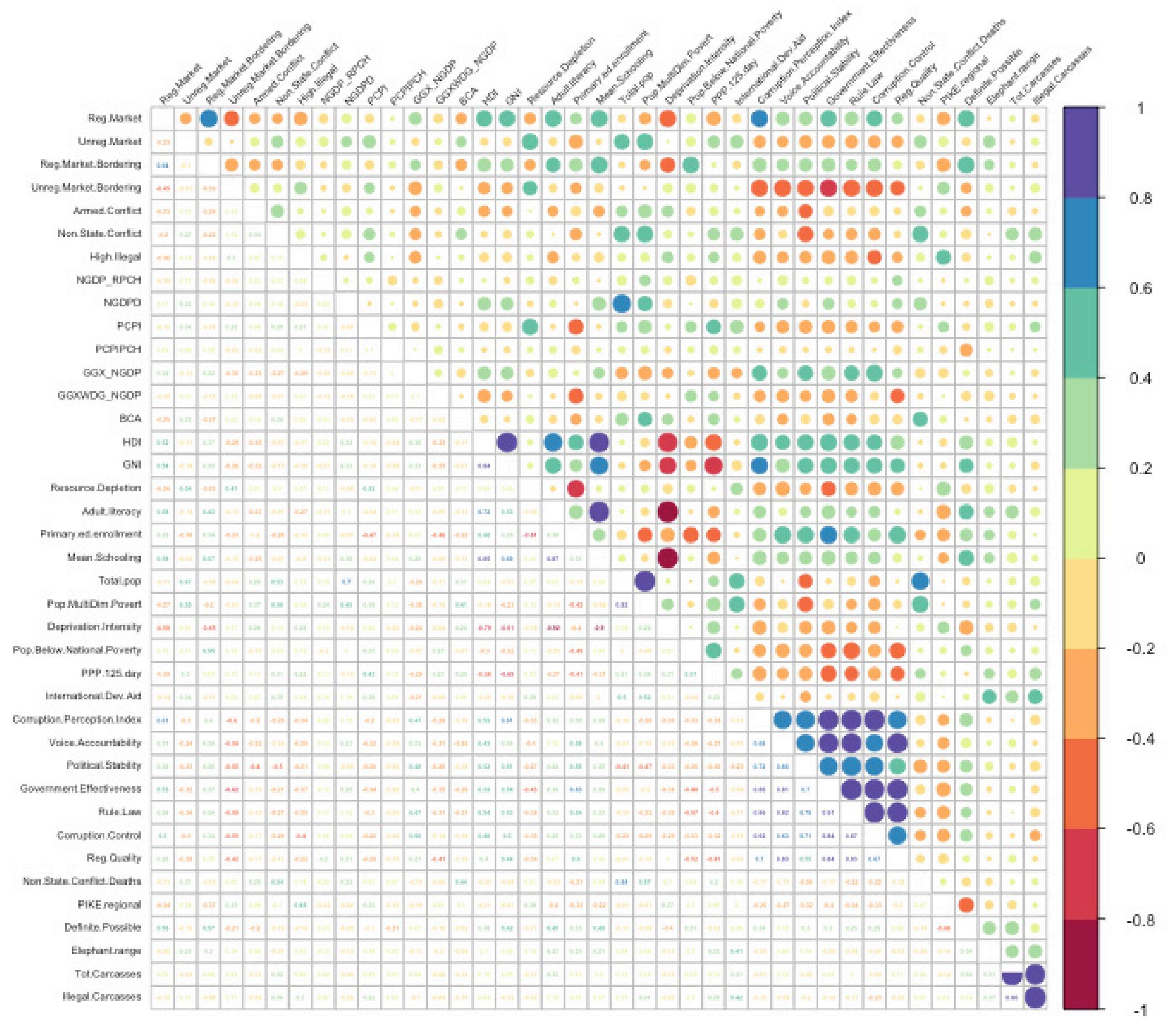


EXPLORATORY DATA ANALYSIS

PROPORTION OF ILLEGALLY KILLED ELEPHANTS (PIKE)



CORRELATION PLOT



VARIABLES IN FINAL MODEL

ECONOMIC

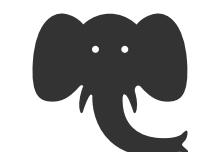
- GDP (Constant)
- GDP (Current)
- Inflation (Index)
- Inflation (% change)
- Total governmental expenditures
- Governmental gross debt
- Current account balance
- Gross national income (GNI)
- Natural resource depletion
- International development aid

SOCIETAL

- Adult literacy
- Primary ed enrollment
- Mean years of schooling
- Population in multi-dimensional poverty
- Deprivation intensity
- Population below national poverty level
- Percentage of population living below USD 1.25 per day
- Regulated ivory market in bordering countries
- Unregulated ivory market in bordering countries
- Non-state conflict/violence

GOVERNANCE

- Voice accountability by government to its citizens
- Political stability/absence of violence
- Confidence in and adherence to the rule of law
- Corruption control
- Regulatory quality in permitting and promoting private sector
- Regulated ivory market in-country
- Unregulated ivory market in-country
- Armed state conflict

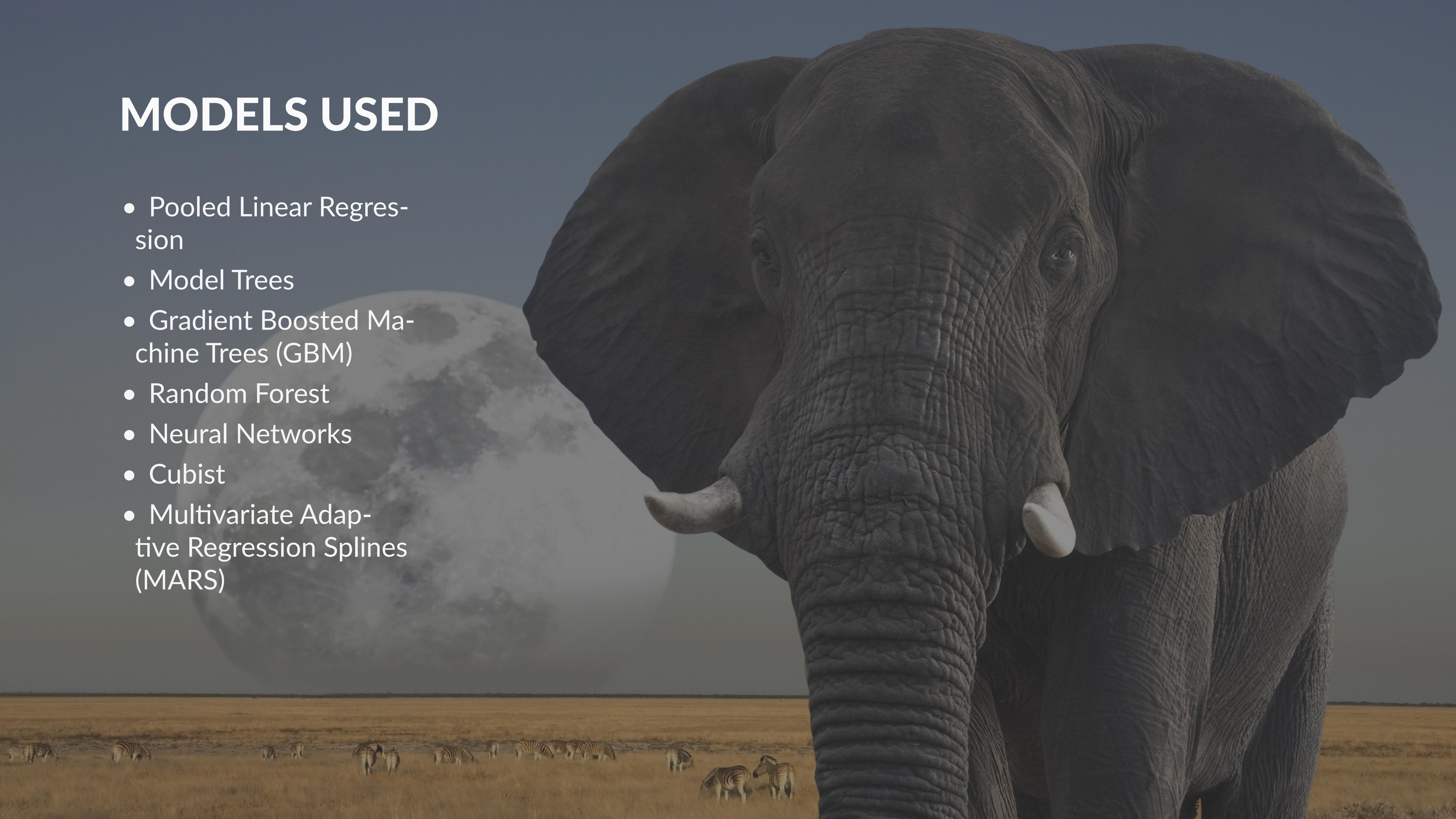


LIMITATIONS

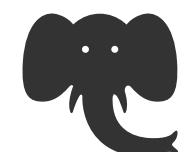
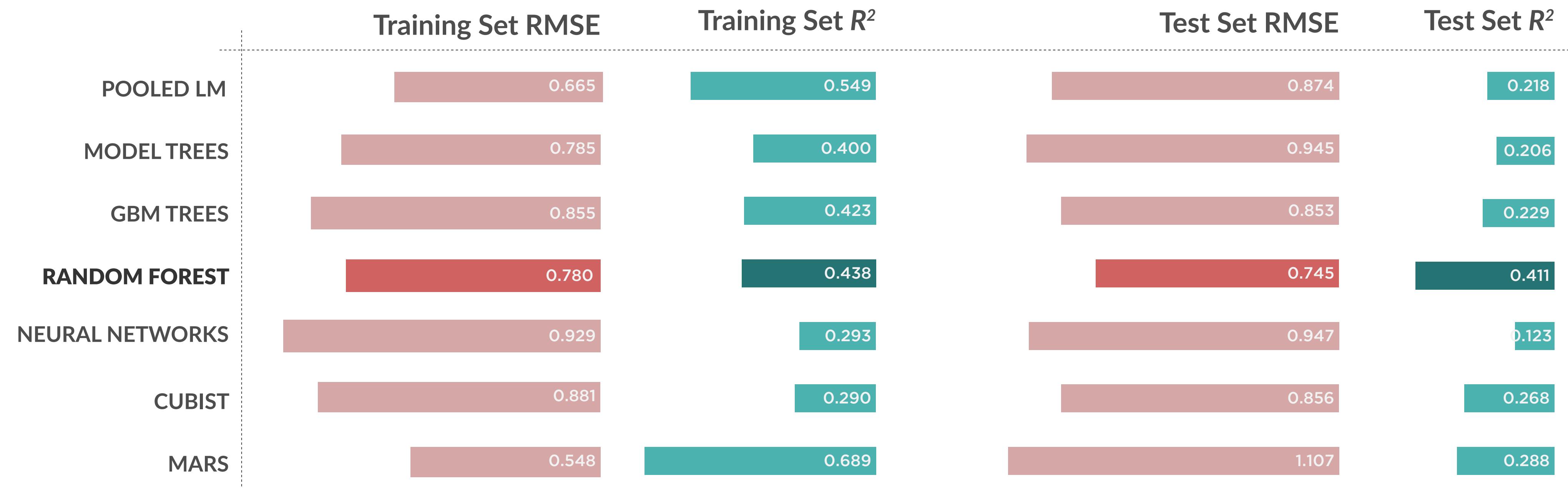
Results may be limited due to the absence of ivory trafficking and demand data. Poaching is a lucrative activity due to the high returns generated from the trafficking and sale of ivory and ivory objects. Obtaining the relevant data on such activities would be beyond the scope of this project.

MODELS USED

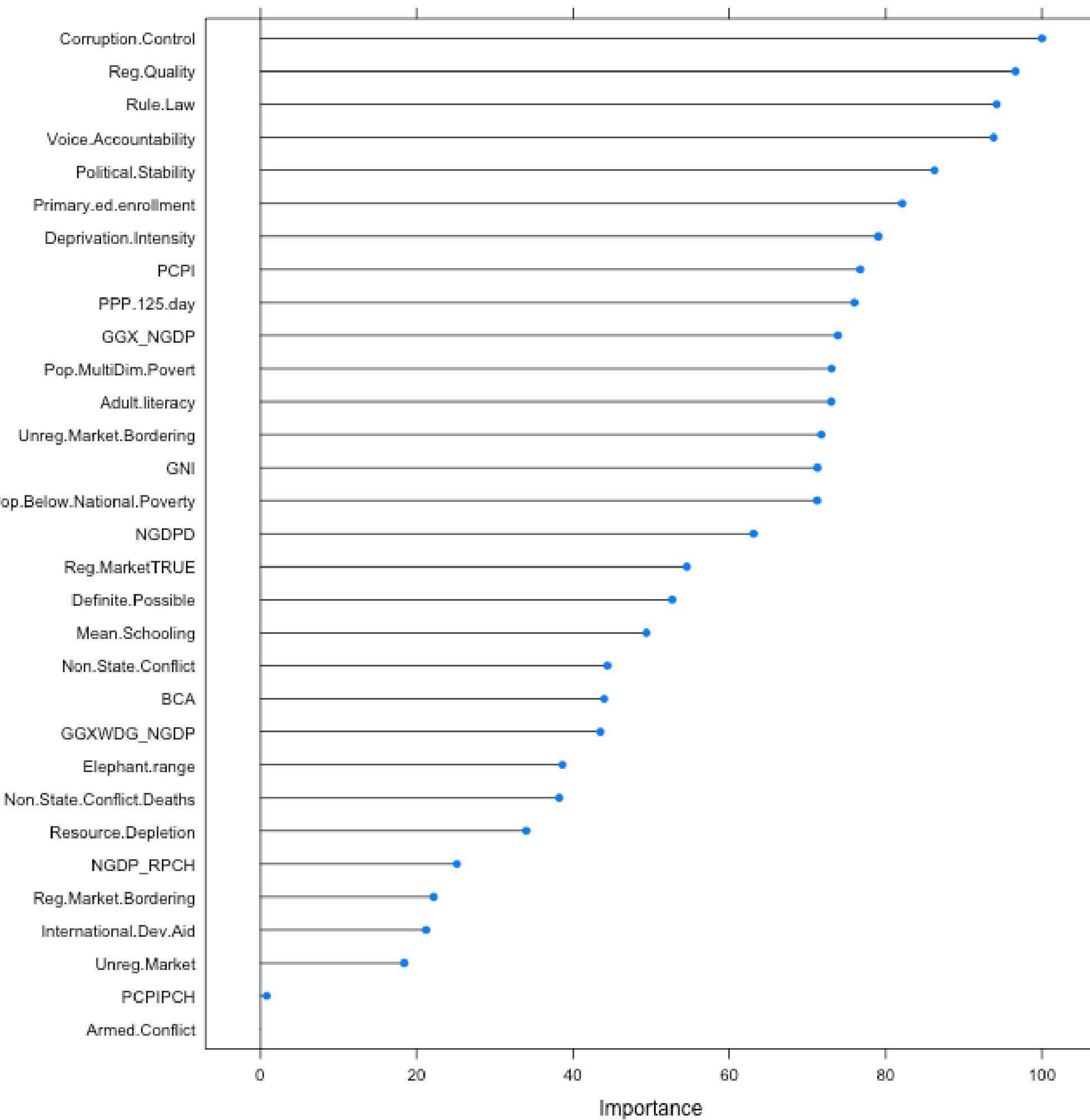
- Pooled Linear Regression
- Model Trees
- Gradient Boosted Machine Trees (GBM)
- Random Forest
- Neural Networks
- Cubist
- Multivariate Adaptive Regression Splines (MARS)



RESULTS



RANDOM FOREST RESULTS

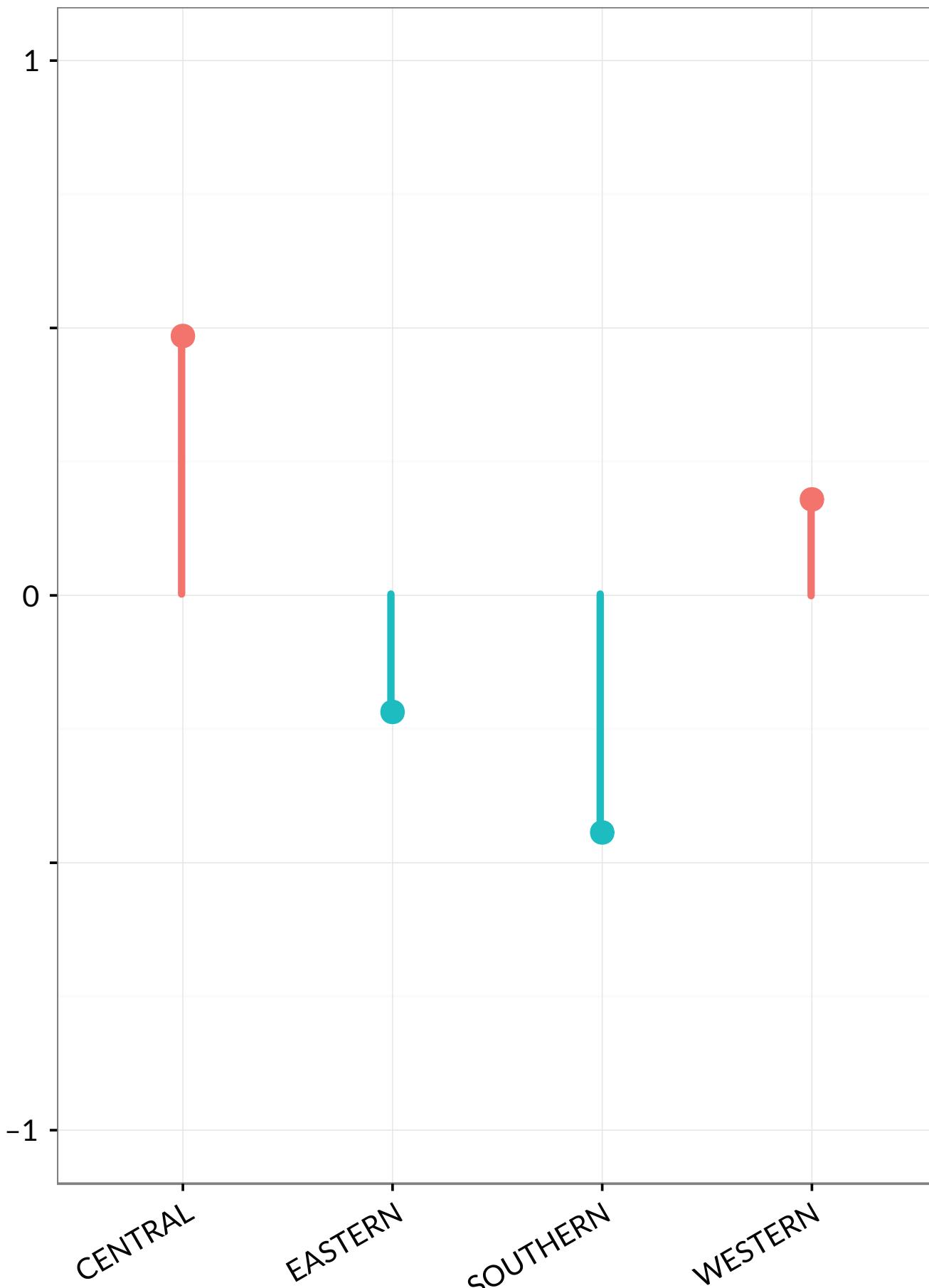


KEY FACTORS INFLUENCING POACHING

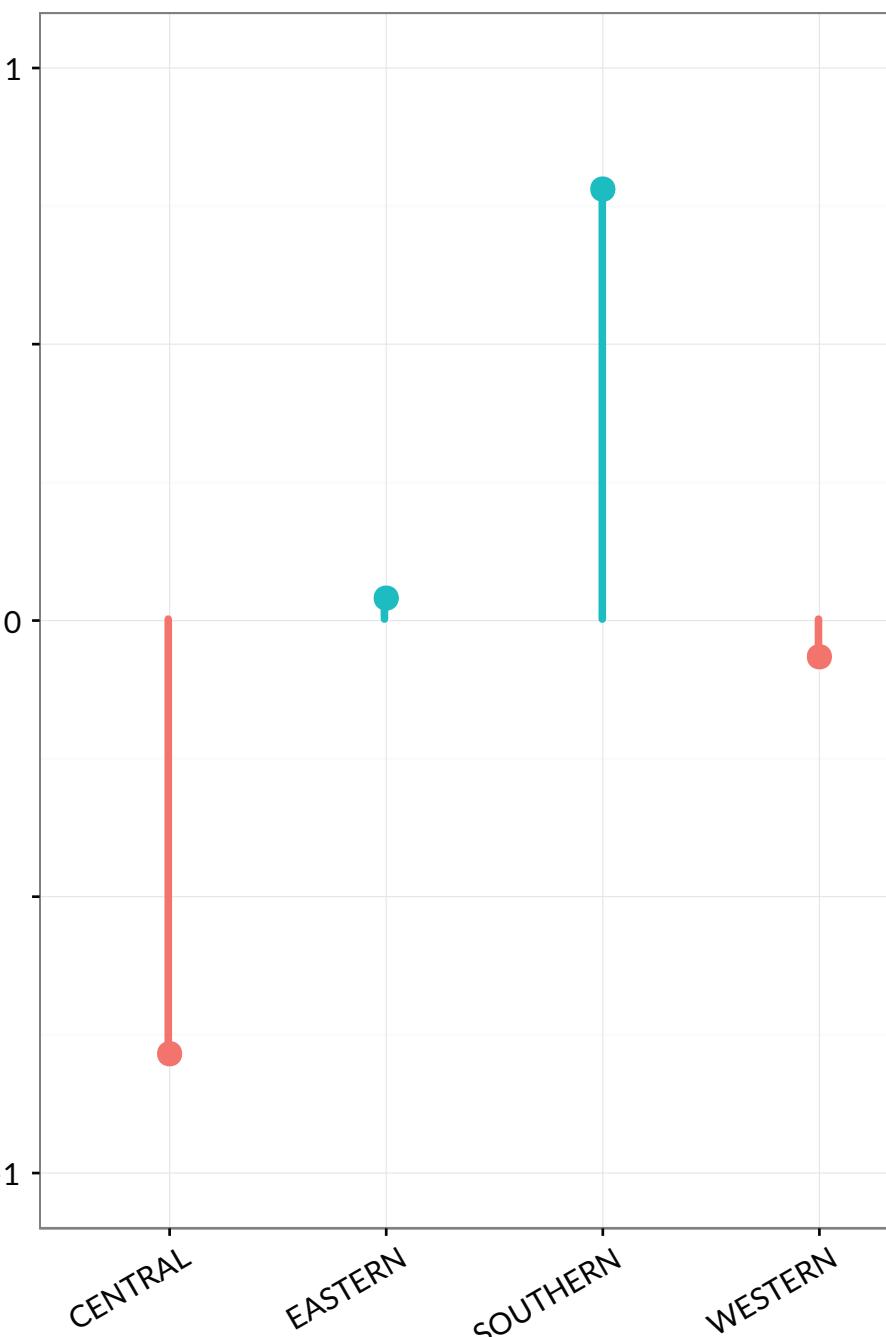
-
1. PUBLIC CORRUPTION
2. LACK OF GOVT. SUPPORT FOR PRIVATE SECTOR
3. HIGH INFLATION
4. ABSENCE OF THE RULE OF LAW
5. ILLITERACY AND LACK OF EDUCATIONAL OPPORTUNITIES
6. POVERTY
7. LACK OF FREEDOMS AND GOVT. ACCOUNTABILITY
8. POLITICAL INSTABILITY AND VIOLENCE
9. ABSENCE OF INTL. DEVELOPMENT AID
10. UNREGULATED IVORY MKTS. IN BORDERING COUNTRIES

ILLEGAL KILLING AND KEY CONTRIBUTORS

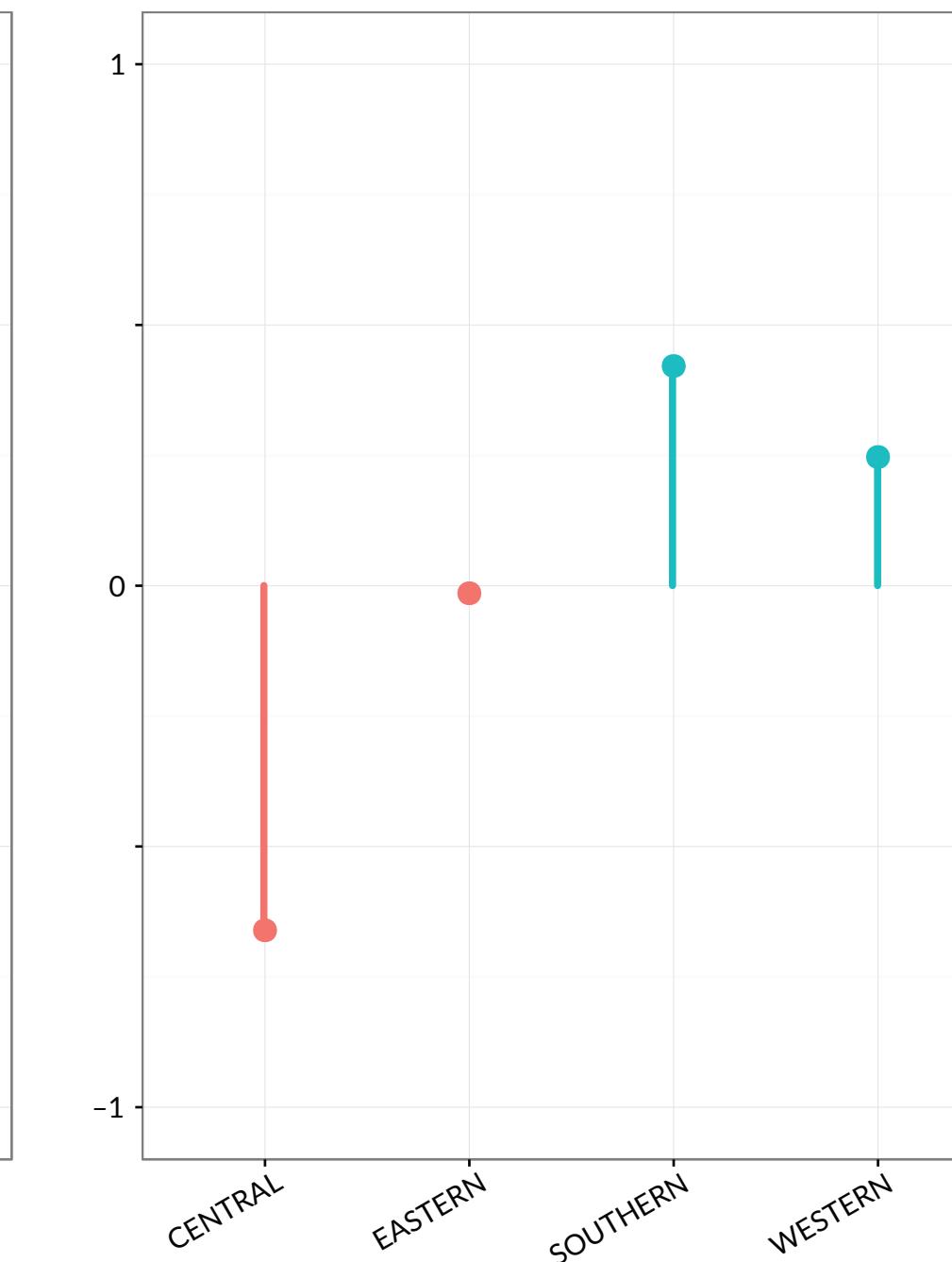
LEVELS OF OBSERVED ILLEGAL KILLING



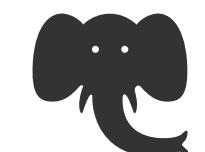
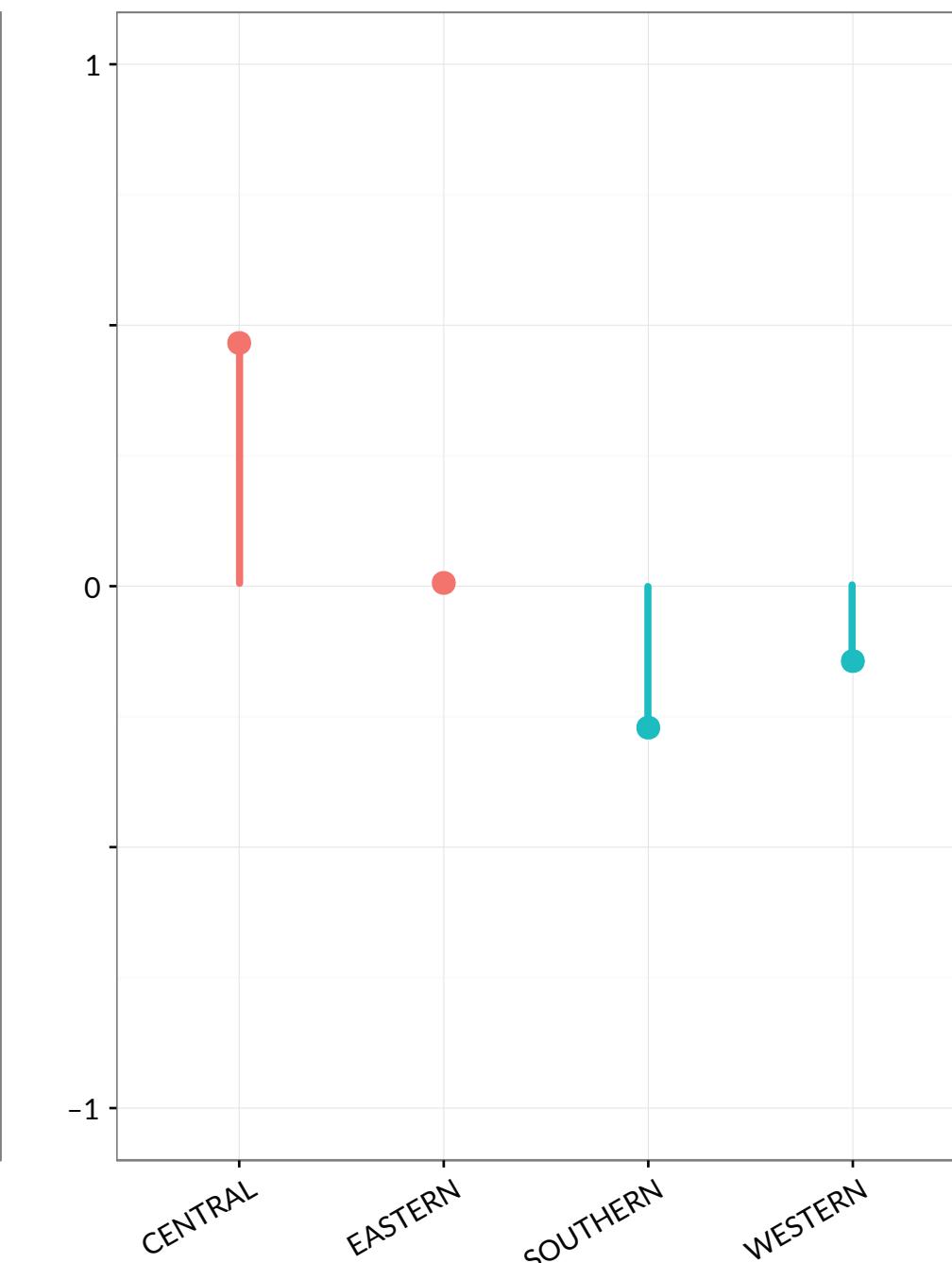
CONTROL OF CORRUPTION



PRIVATE SECTOR SUPPORT



OVERALL INFLATION





THANK YOU