Bandits on patrol:
An analysis of petty corruption on West African roads

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Summary

1) How might the spatial distribution of petty corruption be predicted?
   - Corruption has an almost inverted-U relationship with average road traffic levels

2) How might the spatial distribution of petty corruption change over time?
   - Corruption in the president's region may be affected by regional favouritism
   - Favouritism may be heterogeneous: there can exist both winners and losers *within* the president's region

3) Do models based on rationality fully explain petty corruption?
   - Corruption has an unusual and large relationship with rainfall
   - Perhaps behavioural explanations of corruption can provide further insight

Data

- Provided by Borderless Alliance and USAID West Africa Trade Hub

- 11,000 cross-country truck journeys across 6 West African countries between 2006 and 2012

- Journeys across common trade routes

- Information on bribe payments at each checkpoint along a journey – **257,000 bribe opportunities**

- Various types of official; predominantly police, customs and military

- Officials will stop a truck and ask the driver for his license and registration papers; the official may then refuse to return these until a bribe is received
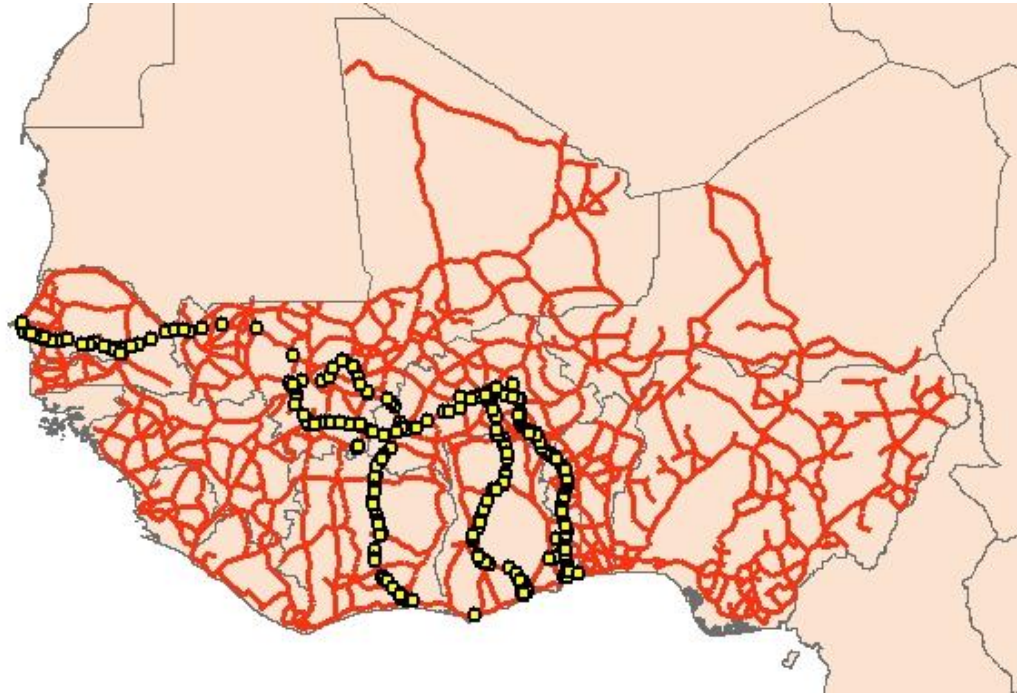
How credible is the data?

- Only drivers with papers and cargo in order are surveyed
  - These drivers have less of a reason to pay bribes
- Drivers have little incentive to conceal their bribe payments, and may even exaggerate
  - Extortion on roads is so common that it is not a taboo topic of discussion
  - Truck drivers have low status and are often harassed by officials, and so are likely to welcome opportunities to voice their complaints
  - Bribe payments come out of drivers' allowances, so they have an incentive to over-report
- This paper only focuses on relative, rather than absolute, levels of bribery
  - Similar arguments are provided by other studies using this dataset (see next slide)

Other studies using this dataset

- Cooper (2015)
  - *Competitive* election cycles increase corruption

- Foltz and Opoku-Agyemang (2015)
  - Police salary raises in Ghana increase corruption

- Bromley and Foltz (2011)
  - Transport and corruption costs distort agricultural investment decisions

- Foltz and Bromley (2010)
  - Truck characteristics play an important role in bribe prices paid

How might the spatial distribution of petty corruption be predicted?

- How might average traffic levels at each checkpoint predict bribe values?
  - Three effects:
    1) As traffic increases, the volume of vehicles from which officials can discriminate increases
       → **Bribe values increase**
    2) As traffic increases, the opportunity cost of marginal extortion from a given vehicle increases as there is a greater volume of other vehicles that can be extorted
       → **Bribe values decrease**
    3) As traffic increases, more people observe corruption and so monitoring increases
       → **Bribe values decrease**
  - Traffic and corruption have an inverted-U relationship due to these counteracting effects
    - Under the conditions of my model

Estimating average traffic levels at each checkpoint

- Traffic data from the Africa Infrastructure Country Diagnostic (AICD) road dataset is sparse
- Estimate traffic using a simple gravity model:

$$Gravity_i = \sum_n^N \frac{Population_n}{e^{\beta distance(i,n)}}$$

- Gravity is high close to large cities, and low far away from large cities, as is traffic
- Strong correlation with AICD traffic levels (where available)

Controls and fixed effects

- Frequency of stops at each checkpoint
- Distance to capital
  - Bates, 1983; Michalopoulos and Papaioannou, 2013
- Trip fixed effects
- Foreign truck
- Country-official-month-year fixed effects
- Border and terminal fixed effects (in each country)

Results
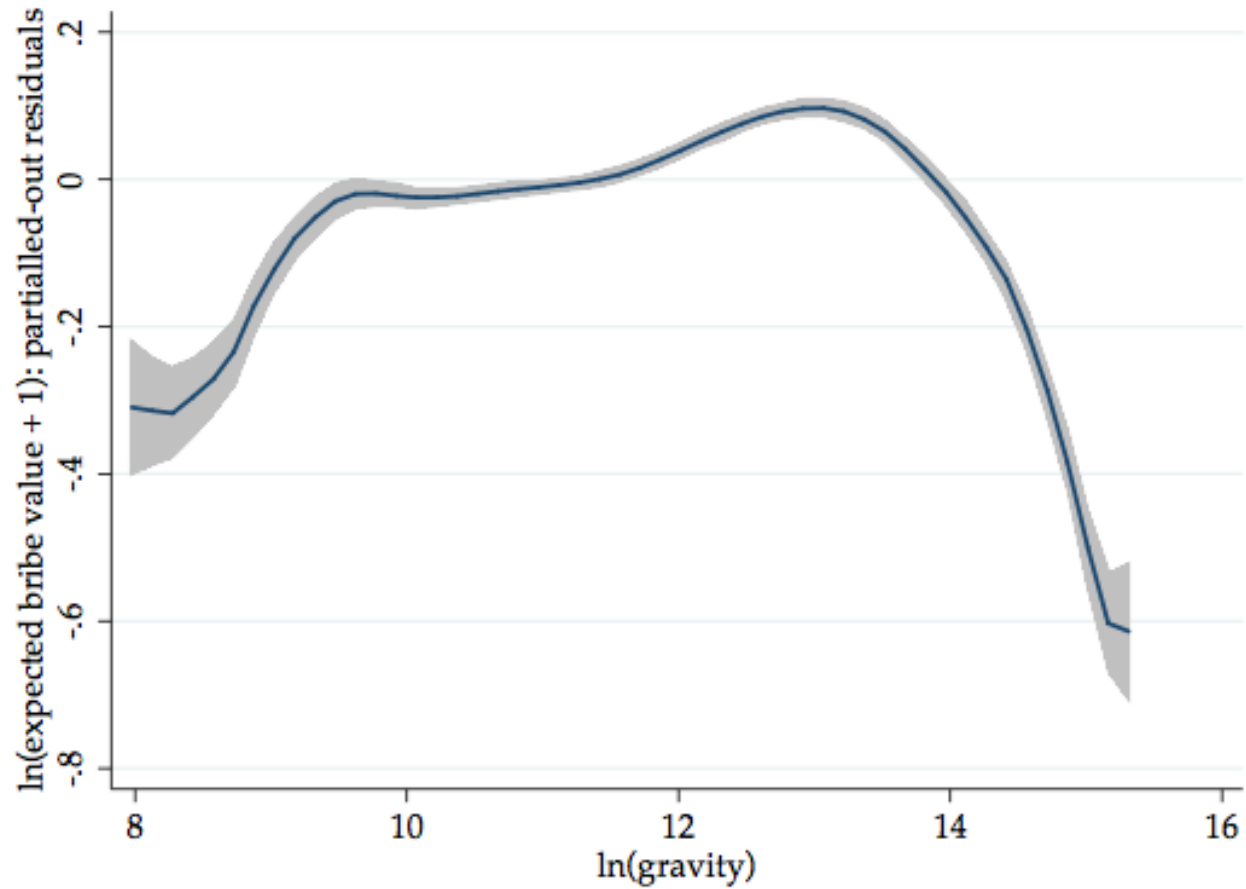
How might the spatial distribution of corruption change over time?

- How might regional favouritism affect bribe values in the president's region of birth?
  - Other evidence of regional/ethnic favouritism:
    - Greater night-light intensity (Hodler and Rashcky, 2014)
    - Greater road provision (Burgess et al., 2015)
    - Improved health and education outcomes (Franck and Rainer, 2012; Kramon and Posner, 2014)
  - 'Favouritism' is not always positive (Kramon and Posner, 2013):
   - Higher taxes for cash crop farmers (Kasara, 2007)

How might the spatial distribution of corruption change over time?

- How might regional favouritism affect bribe values in the president's region of birth?
  - Two effects:
    1) Higher outside options as economic activity rises (Hodler and Raschky, 2014)
       → Bribe values increase
    2) Amount of monitoring changes; heads of state are better able to select, control and monitor intermediaries in their own regions (Kasara, 2007)

       → Bribe values increase if monitoring decreases
       - President sides with the extorting officials

       → Bribe values decrease if monitoring increases
       - President sides against the extorting officials

Context: Mali

- March 2012: A coup d'état, led by Malian soldiers, removes the existing president from office
- April 2012: Following international condemnation, an agreement removes the coup's leaders and puts in place a new interim president to lead a transitional government
- August 2013: Elections are held

- Paper explores potential favouritism in the interim president's region of birth between April and September 2012

Results
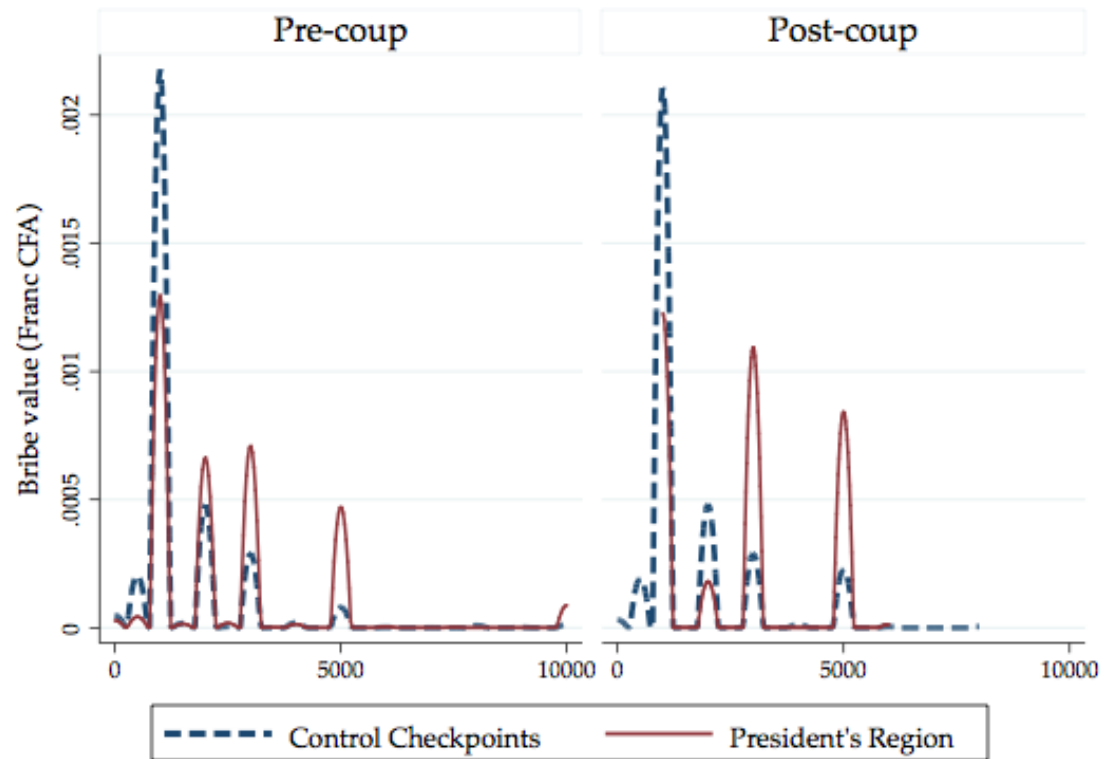
Why might favouritism be heterogeneous?

- Pre-coup president: former military general before entering civilian politics
- Post-coup, interim president: non-military, civilian background
- Across Mali, military officials may:
  - Increase extortion, opportunistically as the new president has less control over them (Cooper, 2015)
  - Decrease extortion, as they lose privileges and protection
- This may interact with regional favouritism
- In his region, the interim president may have greater control over the military than elsewhere:
  - He could use this control to respond to the direct involvement in the coup of soldiers from his region

Results (difference-in-differences)

In the president's region…
- For non-military: bribe values **rise** by 32%
- For military: bribe values **fall** by 29%

Favouritism is not homogenous: there exist both winners and losers *within* the president's region

Why?
- Monitoring increases for military in the president's region, perhaps as punishment for their direct involvement in the coup?

Caveats

- No evidence of the specific mechanism
  - Therefore, no direct evidence of the involvement of the interim president or any other individuals; analysis cannot directly implicate any individual
  - A greater understanding of context is required
- Uncommon trends between the president's region and the control checkpoints
  - However, stark divergence in outcomes between military and non-military supports conclusion of 'favouritism' (see paper)
- Only 6 months of data post-coup
- Limited external validity due to coup

Corruption and rainfall: evaluating the theory

- Paper develops a theoretical model for road extortion, building on Becker and Stigler (1974)

- Representative official is a rational expected utility maximiser

- Do models based on rationality fully explain petty corruption?

- Might there be behavioural and idiosyncratic factors at play?

Corruption and rainfall: evaluating the theory

Why rainfall?

- Weather can have a psychological effect on decision-making in certain economic contexts:
  - Car purchases (Busse et al., 2015)
  - Stock returns (Hirshleifer and Shumway, 2003)
  - DellaVigna (2009) reviews other examples

- High resolution rainfall data available from *Climate Hazards Group InfraRed Precipitation with Station data* (CHIRPS)

Corruption and rainfall: evaluating the theory

- Unusually large relationship between bribe values and rainfall:
    - Bribes are **427% higher** on 72-96mm rainfall days
    - Bribes are **50% lower** on 96+mm rainfall days

    (rain showers 10-50mm/hr are 'heavy' – UK Met Office)

- Intersection between behavioural economics and corruption must be further explored

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THANK YOU