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:

\[ \text{Gravity}_i = \sum_{n}^{N} \frac{\text{Population}_n}{e^{\beta \text{distance}(i,n)}} \]

- 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