

1 Conclusion

In this paper, we argue that effective anti-corruption interventions require an improved understanding of the market structure that shapes corruption behavior. We demonstrate the importance of how market structure shapes corrupt behavior in the setting of highway corruption in West Africa, where long-haul drivers encounter frequent stops by checkpoint officials and are asked to pay petty bribes. Both our theoretical model and empirical test provide support for the importance of understanding market structure.

We build a novel theoretical model to depict competition between checkpoints along a dual road system. The model endogenizes the length of the bargaining process between checkpoint officials and truck drivers. In doing so, we present a version of bargaining where short-term delay is the primary of strategy for both parties to the negotiation, a common bargaining strategy in developing countries. Our model predicts a Bertrand-style equilibrium where checkpoint officials on both roads in the two competing corridors set prices and waiting times to be zero. Moreover, when the cost of passing one road increases due to road construction, the model predicts the cost passing the other will increase as well due to increases in the officials' bargaining power.

In our empirical setting, we exploit an exogenous shock to costs of driving on a road generated by road construction on the non-shared *Héré* corridor. This enables us to explore how the corruption equilibrium changes under a different market structure. The model predicts that the extra inconvenience costs incurred by the construction project push drivers to choose the non-shared *Koury* corridor. These costs increase the bargaining power of checkpoints officials along that route, leading to more extortion of drivers. Moreover, checkpoints officials along the shared segment will reduce required bribe amounts and enforced delays as they face more competition from the non-shared *Koury* segment.

Empirically, we confirm the model's predictions using a novel data and a difference-in-differences framework. We find that bribes and minutes delayed on the non-shared *Koury* segment increase during construction. Furthermore, we find evidence that the total cost of passing through the shared segment decreases during construction, relative to that on the non-shared segment of the *Héré* corridor. We further explore heterogeneous effects of construction by interacting it with rainfall level. Since the *Héré* corridor is of relatively poorer condition under heavy rain, checkpoints

along the *Koury* corridor gain more bargaining power on rainy days relative to dry days. We do find limited evidence that the effects of construction are heightened on rainy days.

This work demonstrates that competition among corrupted agents facilitates public services. The spatial competition generated from two parallel corridors forces officials to keep the “going rate” for bribes low to attract driver-customers. As a result, the total cost for long-haul transportation declines. This suggests that increasing competition may be a way to fight against corruption, especially when other methods are not feasible. Here, providing more paved inter-state corridors for merchandise transportation would increase competition and reduce bribes. That said, an important caveat is that increasing competition, even if it reduces corruption, is not always desirable to society. ? find that competition among forestry officials in Indonesia increases deforestation by facilitating illegal logging. Whether competition is conducive to citizens and the public good depends on the nature of the service under study. In our setting, where officials are asking for bribes to allow the public to do something legal (use a public road), competition among officials that lowers prices is welfare-enhancing. In a setting like that considered by ?, bribes allow the public to do something illegal (logging), and competition that lowers bribe costs is bad for the public good.

Our paper also shows that a reduction in competition caused by a local construction project leads to a redistribution of corruption benefits towards checkpoints unaffected by the road construction. Such a spillover effect should be taken into account by policy-makers considering anti-corruption interventions, since their effectiveness may be offset by corrupted officials beyond the scope of the intervention. Such spillover effects of local interventions have been found in myriad settings. ? find that hiring security guards causes more robberies against unguarded banks. ? shows that the Mexican drug war led to an increase in drug-related violence along alternative drug routes. In general, a national anti-corruption policy with strong enforcement can avoid such spillover effects. When such a policy is not available, it is important to carefully evaluate possible spillovers caused by localized anti-corruption interventions.