N°7

Nov. 2013

Les Notes du G–MonD

Do infrastructure reforms reduce the effect of corruption ?

Evidence from Latin America and the Caribbean

Liam Wren-Lewis

PARIS SCHOOL OF ECONOMICS
ÉCOLE D'ÉCONOMIE DE PARIS

Corruption is a major problem that can reduce growth and worsen productivity. Infrastructure services such as water, electricity and telecoms are particularly vulnerable due to a high level of government intervention and frequent lack of competition. In the last couple of decades, major reforms have been carried out globally to improve the governance of these sectors. I analyze how the impact of these reforms interacts with corruption, using data on 153 electricity firms in Latin America and the Caribbean over the period 1995 to 2007. Results suggest that regulatory independence and, to a lesser extent, privatisation can significantly reduce the negative effect of corruption on efficiency, while it is not certain that this benefits directly the consumers through lower prices or better services.

IMPROVING INFRASTRUCTURE SECTOR GOVERNANCE

In many countries in Latin America and the Caribbean, evidence suggests that high levels of corruption may be detrimental to the performance of the electricity sector. Managers may spend more time demanding and paying bribes than they do managing their firm's operations, politicians may reward managers illicitly for making inefficient decisions such as over-employing workers, and employees may waste time deliberately in order to encourage payments for speeding up service. Within this context, the effect of policy reform on corrupt behaviour is unclear. For example, increasing regulators' independence from politicians may insulate them from corrupt demands. On the other hand, this greater autonomy may facilitate firms using corruption to capture the regulators.

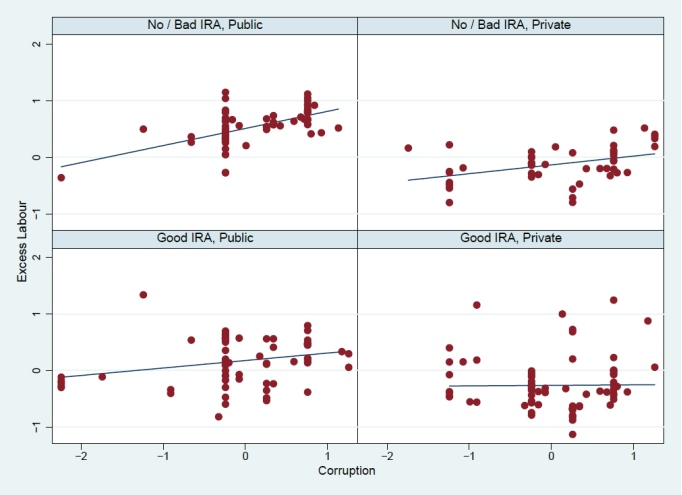
To analyse the impact of reforms on corruption, **I use annual firm-level performance data on 153 electricity distribution firms across 18 countries**. The focus is put on the relationship between changes in performance over time and variation in both country-level corruption and sectoral governance. Over the period analysed, about a third of firms became privatised, whilst about half move from a system of direct regulation by government ministries to 'Independent Regulatory Agencies' (IRAs). Whilst the exact status of these agencies varies, they follow a model whereby regulatory decisions are shielded from the influence of government ministers.

IMPACT OF REFORMS ON CORRUPTION

The analysis confirms **a large negative association between corruption and efficiency**. Estimates suggest that, in order to distribute the same amount of electricity, a firm employs 50% more workers when operating in an environment with the average corruption level of Haiti (the most corrupt country in our sample, with an average corruption rating similar to Russia's) when compared to an environment with the average corruption level of Costa Rica (the least corrupt country, with an average corruption rating similar to France). From the data, it is not possible to establish the channel through which corruption increases employment, but various potential explanations have been suggested in the literature. Management that is concerned about maximising gains from corruption may spend less time ensuring efficiency, or interest groups may pay bribes to politicians to increase the number of people employed.

However, **the relationship between corruption and efficiency falls significantly when either the firm has been privatised or the firm is regulated by an IRA**. This is demonstrated in Figure 1, which shows plots of 'excess labour' the difference between the number of people employed by a given firm and the average - against corruption separately for firms in four different environments. These variations in employment are likely to represent variations in productivity, since we are controlling for firms' principal outputs, and labour forms the bulk of these firms' costs

Figure 1 : Corruption and inefficiency by sectoral governance



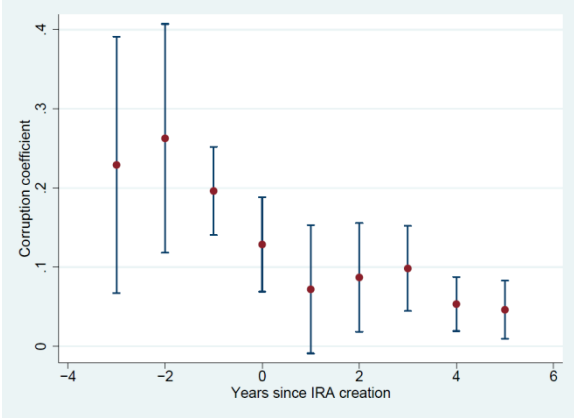
The upper two panels consider observations of firms operating under either no IRA or a `bad' (i.e. below-median governance) IRA, whilst the lower two panels consider observations of firms operating under `good' IRAs (i.e. above-median governance). These pairs are then each divided into publicly operated firms on the left panel and privately operated firms on the right. The upper left panel, where firms are publicly owned and not regulated by an above average IRA, shows the clearest positive relationship between corruption and inefficiency. The upper right panel and the lower left panel then show that, for firms that are either privately operated or regulated by an IRA with above median governance, the relationship between corruption and inefficiency is weaker. Moreover, there appears to be no clear relationship between corruption and inefficiency when both of these reforms has been undertaken, as shown in the lower right panel

ROBUSTNESS OF RESULTS AND CONCLUSIONS

In order to test whether the correlations shown above are spurious, a number of robustness checks are undertaken. One particular concern may be that the above results are being driven by some other trend **in the way that corruption impacts upon infrastructure productivity**. Figure 2 shows that this is unlikely for IRA creation – the change in the impact on corruption occurs only in the year or two of IRA creation, rather than as a gradual. The results also survive when controlling for a range of other factors, including elections and economic growth. However, the impact of private ownership appears to be less robust than that of independent regulation. For instance, it is impossible to distinguish whether it is the case that privatisation is particularly effective in more corrupt environments, or whether it is instead that privatisation is most effective when governments have high deficits, since the two often run together.

The evidence suggests that independent regulatory agencies, and possibly privatisation, substantially reduce the negative association between corruption and productivity. There is however reason to be cautious when interpreting the implications of these results. No strong evidence is found that electricity consumers are paying directly for the lower productivity associated with corruption, nor that that they benefit from the reduced effect of corruption that reforms bring. Whilst this may simply reflect a lack of sufficient data on consumer prices and government subsidies, **it remains possible that a sizable portion of the gains are captured by firm owners or other actors**. More data is therefore needed to be able to draw strong normative conclusions about the impacts of the reforms. Overall, it is clear however that the results further emphasize the need to consider institutional weaknesses when developing appropriate sectoral policies. The findings suggest that implementing policies considered as international `best practice' have different impacts dependent on the level of corruption in the country

Figure 2 : Effect of corruption on employment over years since IRA creation



References

Wren-Lewis, Liam. *"Do infrastructure reforms reduce the effect of corruption? Theory and evidence from Latin America and the Caribbean"* World Bank Economic Review, Forthcoming