Reinikka and Svensson (2004)

The Reinikka and Svensson (2004) investigates whether the information campaign the Ugandan Central government initiated between 1995 and 2001 had an impact in increasing the share of allocated grants the schools were able to obtain for themselves. Reinikka and Svensson (2004) paper uses both the *difference in difference* approach and the *instrumental variable approach.* This is because even though the difference in difference approach gives us evidence of a positive impact of the information campaign, it leaves a lingering doubt that the result may be due to endogeneity. To remove this doubt, they use an instrument to make sure that it was the effect of the information campaign that led to increase in the share of grants obtained by the schools.

The Difference in Difference Approach

In the difference in difference approach, Reinikka and Svensson (2004) checks whether head teacher's access to newspaper had any effect at all in increasing the share of the grants the school obtained. Below we explain how they investigate further by looking at the channel through which the information impact the share of grant obtained by the schools.

Given the situation where there seemed to be an obvious upward time trend for the share of grants received in all the schools[1] across the board, we want to find out whether the access to newspaper had any additional effect.

The paper run the following regression (Table 4):

$$s_i = \alpha + \beta T_i + \gamma t_i + \eta \big[T_i \times t_i \big] + \tau \, controls_i + \varepsilon_i$$

where T_i is the treatment effect and t_i is the time trend. The treatment effect means that if the observation is in the treatment group, i.e., the head teacher has access to the newspaper, then the $T_i = 1$, otherwise $T_i = 0$. For time, it just means that $t_i = 0$ for 1995 and $t_i = 1$ for 2001. The estimated coefficients can be arranged in the following way (See Table 3, Panel A).

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[1]see Table 3, Panel A & B where we find that the schools that were getting around 3% in 1991 started getting around 22% in the 1995 before the Ugandan Central Government started the information campaign started

		1995	2001	2001-1995
		$t_i = 0$	$t_i = 1$	*Difference*
Access to Newspaper	$T_i = 1$	$\alpha + \beta$	$\alpha + \beta + \gamma + \eta$	$\gamma + \eta$
Access to Newspaper	$T_i = 0$	α	$\alpha + \gamma$	γ
Access-No Access	*Difference*	β	$\beta + \eta$	η

Thus, it should be clear that access to newspaper would have an impact only if $\hat{\eta}$ is significant. The above table corresponds to Table 3 in the paper.

The above difference in difference approach is able to check whether the schools where the head teacher's reported having access to newspaper were also the schools that had greater increasing in proportion of allocated funds actually reaching them. It is possible that head teachers that read the newspaper, however difficult it is to get hold of, are also better are arguing for their school or better at tracking the funds allocated to them ensuring that it reaches the school. These high ability head teachers would also may be the ones that arrange access to the newspaper however far it is.

To determine where the relationship between newspaper access and share of funding received is endogenous or not, the paper uses *distance* as an instrument. Also, the paper chooses change the variables it is look at in the instrumental variable approach. They now look at the relationship between the information that the head teacher possess about the grant programme and the increase in share of grant received by the school. If you ponder over it, the relationship between Δs_i, the increase in the share of grants received and the *info*, the head teacher's knowledge of the grant programme, is a more precise relationship than the one used in above in the difference in difference approach.

To do this, the paper establishes the relationship between *info* and school's *distance* to the nearest newspaper outlet (Table 5 & 6). Once it has done so, it is ready to use *distance* as an instrument for *info*.

The Instrumental Variable Approach

As we were discussing above, the basic problem is that the variable *info*[2] may have a endogeneity with the variable Δs_i[3]. We can use *distance* to the nearest outlet as an instrument that can be used to solve the problem of endogeneity.

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[2]this variable very specifically refers to the knowledge the head teacher has about the grant programme. Make sure you do not interpret is as a general information variable.

[3]s_i is grants actually received as a proportion of grant allocated and Δs_i is the change in the that.

$$\Delta s_i \quad \leftrightarrows\leftrightarrows \quad info_i$$
$$\uparrow$$
$$distance_i$$

There are two ways in which this can be done.

2 Stage Least Square

The first method is the 2 Stage Least Square (2SLS) method (Table 8). In this method, in the first stage we regress the variable *info* on the variable *distance*[4]. (This is done in Column 2.) This regression is off the form:

$$info = \hat{\vartheta} + \hat{\lambda} \, distance + \epsilon_i$$

Once we have found the estimates coefficients $\hat{\vartheta}$ and $\hat{\lambda}$ we can compute $\widehat{info}$ in the following way:

$$\widehat{info} = \hat{\vartheta} + \hat{\lambda} \, distance \tag{1}$$

Now we are ready to run the second stage which entails regressing Δs_i on $\widehat{info}$ (Column 1). This regression would be off the form:

$$\Delta s_i = \hat{\phi} + \hat{\varphi} \, \widehat{info} + \varepsilon_i \tag{2}$$

If the $\hat{\varphi}$ is significant, it implies that the schools where the head teachers know more about the grant programme also had a higher increase in proportion of grants received.

Reduced Form Regression

In the reduced form, the variable Δs_i is regressed directly on *distance* in the following way (Table 7).

$$\Delta s_i = \hat{\psi} + \hat{\xi} \, distance + \epsilon_i'$$

If on the other hand we were to substitute (1) into (2), we would get the following expression:

$$\Delta s_i = \hat{\phi} + \hat{\varphi} \underbrace{\left[\hat{\vartheta} + \hat{\lambda} \, distance\right]}_{info} + \varepsilon_i$$

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[4]There are two kinds of distance, the actually distance of each school i to the nearest newspaper outlet and the average of "distance between schools and nearest newspaper outlets" in that particular local area.

It means that from the estimated reduced form equation, the following should hold:

$$\hat{\psi} = \hat{\phi} + \hat{\varphi}\hat{\vartheta}$$
$$\hat{\xi} = \hat{\varphi}\hat{\lambda}$$

The *reduced form* and *2 Stage Least Square* are essentially the same idea and the parameters for the second stage regression ($\hat{\phi}$ and $\hat{\psi}$) can be obtained from the estimated reduced form regression.

Context

The paper tells a story about how corruption could be reduced by making information available locally. Government and parts of its machinery often monopolise the information to be able to keep funds from its actual allocated use. A bureaucrat or a local politician may use it for their individual private benefit or divert them to other uses where they may be able to obtain a payoff in return for the diversion of funds. The paper shows that just giving the end beneficiary the information about the inner workings of the school grants programme and timings of the funds being released was able to alleviate the problem of corruption in school grant system in Uganda.

The paper also suggests that often there are parts of the government which are not working in tandem. The Central Government is more benevolent the local government in this case. The Central Government does allocate the funds[5] to schools, but they are not able to ensure the delivery of the funds to the school. Thus, the Central Government is able to ensure better delivery of the funds by giving the end beneficiary of the funds knowledge of the timing of the grants. Instead of monitoring the flow of funds themselves, the Central Government is able to ensure that that the end beneficiary is incentivised to monitor and chase up the funds and obtain it. In this case, the schools are were able to extract the funds from the local government, once they had the information available to them.

Lack of transparency plagues all government across the world, including the ones in the developed world. Information is often monopolised by the bureaucrats and the policy-makers in order to create and often extract rents from the end beneficiaries. There has been a move across the world to introduce the "Rights to Information" act. The right to information act gives the people of a country the right to access the information about the working of the government and makes the process of governance more transparent.

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[5]which they would not have if they were corrupts as well

Even though it may not solve lots of problem of corruption and diversion of funds, it is certainly an inexpensive way to solve many types of corruption problem.

Try to relate these ideas to the ideas in Besley and Burgess (2002). In Besley and Burgess (2002), the channel through which the government was made accountable was the media and specifically, the local language press. In Besley and Burgess (2002), the local language press not only highlighted the localised shocks but also ensured that the government responded to these shocks. In this case, the media was putting the information in the hands of the government and then ensured the the government used the information to respond to the shocks. At the conceptual level, it meant the that sharing the local information at the state level empowered the local population and generated enough momentum through the political process that it induced action by government or the incumbent. The common idea is that removing the information partition between people can often result in the greater collective action, which is able to make the government more accountable for its actions and improve the welfare outcomes of its people.

Further Thoughts

It may be also useful to think in terms of how the discretion allocated with government bureaucracy creates opportunities for corruption. Thus, it allows us to frame the question of how the government bureaucracies should be designed in terms and relate it to the rules and discretion debate in the context of designing efficient government institutions.

References

Besley, T. and Burgess, R. (2002). The Political Economy of Government Responsiveness: Theory and Evidence from India*. *Quarterly Journal of Economics*, 117(4):1415–1451.

Reinikka, R. and Svensson, J. (2004). The power of information: evidence from a newspaper campaign to reduce capture.