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Hans P. Binswanger-Mkhize
Hari K. Nagarajan
Kailash C. Pradhan

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The Impact of Restricted and Unrestricted Fiscal Grants on Tax Efforts of Rural Local Governments in India¹

Hans P. Binswanger-Mkhize, Hari K. Nagarajan, and Kailash C. Pradhan

Abstract

This paper examined the impact of restricted and unrestricted fiscal grants on tax efforts of Rural Local Governments in India using ARIS/REDS panel data. We estimated the system as a whole via three stage least squares, where the first stage equations are the ones predicting the grants in order to deal with the simultaneities of grants received and taxation. The results have shown that a wage impacts on taxation exists, but is very small and, the productivity impact of grants on taxes is either zero or negligible. This means that incentives effects associated with the specifics of the intergovernmental fiscal system in the states is the main determinant of village taxation. We find that a bolder approach to shift about a third of the tied grants to block grants could lead own taxation to rise almost four fold. In the papers which analyze the services of education, health care and water supply we find the positive impacts of the village expenditures on these three services on choices, reduced private expenditures and outcomes.

Keywords: Devolution, Incentive Effects, Restricted and unrestricted grants, Panchayats and Local Government

JEL Codes: H71, H77

¹ Corresponding author: Hans P. Binswanger-Mkhize, School of Economics and Management, China Agricultural University, Beijing and Department of Agricultural Economics, University of Pretoria, P) Box 295, Willow Areas, Pretoria-0095, South Africa. E-mail: binswangerh@gmail.com. Hari Nagarajan and Kailash Pradhan are at the National Council of Applied Economic Research, New Delhi. This paper is a part of the IDRC–NCAER research program on ‘Building Policy Research Capacity for Rural Governance and Growth in India’ (grant number 105223).

The good work being done by the Pani Panchayat in ridding the villages of its woes related to water was exemplified by another community member Mr. Suresh Jadhav, who mentioned that most of the households in the village were happy at paying the water taxes to the Pani Panchayat and not a single case of default has occurred since the initiation of activities by the Panchayat. “All of us pay our taxes regularly – even those who are accessing water from the community taps. I believe that there would be no resistance in case the Pani Panchayat deems it necessary to increase the taxes, as it would only add to the pool of resources that can be used later for addressing any pressing issues in the future”²- *Mr. Suresh Jadhav: a member of a village in Maharashtra attempting to link improved quality of governance with willingness to pay taxes.*

1. Introduction

Why should villages raise taxes? In fact why should any sub national agency raise taxes? In the extreme centrist models of public finance and practiced in some countries, e.g., Germany, the central government indeed raises most taxes. However, in other countries (e.g. in Canada) and even cities (e.g. New York City in the US) levy income taxes. In India there exists a legal and administrative framework for a local government, e.g., a *Panchayat*, to be formed on the basis of democratic elections and be entrusted to raise revenues. Moreover, since such a body is likely to meet local preferences for public goods better than that by a centrally appointed agent, the rationale for *Panchayats* taking expenditure decisions follows. This, in turn, provides further rationale for *Panchayats* to raise taxes. Given exogenous revenue requirement, a wider tax base will be associated with lower tax rates. Under such conditions either tax rates have to rise or external transfers should increase. Typically, local governments tax relatively immobile tax bases whereas higher level governments are ideally suited for taxing more mobile tax bases.

From an administrative point of view, a *Panchayat* will be a more responsible administrative body if at least part of its budget is financed by its own activities, i.e., taxation. If it merely spends money handed down by a higher level this incentive will be missing. Hence, there are important economic reasons for suggesting that Panchayats should tax³.

² NCAER-IDRC Report on “Varieties of Governance and Varieties of Outcomes”(2012)

³ In this context the quote at the beginning of this essay by a participant in one of the focused group discussion is worth amplifying. This quote, excerpted from a focused group discussion, underscores the role that quality of governance, service delivery and the ability to participate in the process of governance could play in influencing village level revenue collection and tax buoyancy and *vice versa*. *Pani Panchayats* are parallel bodies often created by state governments in India to improve the quality of management and delivery of water to rural households and involve significant participation by the households and reliance on local revenues. This quote also suggests that revenues raised by such institutions could become fungible and that the willingness to pay is significantly tied to the quality of service delivery.

Panchayats in India raise very little revenue of their own and depend mainly on transfers from above which come in the form of block grants and a multitude of earmarked grants for specific purposes. The overall question addressed in this paper is: How can the very low levels of own revenue raising of Panchayats be increased via changes in devolution of functions and resources, from higher levels, and in the autonomy given to use the Panchayats over the use of the funds?

Devolution of functions, the level of transfers, and autonomy over the use of transfers will provide positive or negative incentives to raise taxes, *the incentives effect of transfers*. They can either crowd out own revenue raising, or make it more attractive in order to complement the transfers. For example a transfer for education may crowd out revenue raising for local schools, or unrestricted block grants may provide incentives to do even more, as the public expenditure pattern can now conform more closely to the preferences of the village community.

However, the transfers can also affect the tax base, and therefore revenues. In this paper we use profits per capita from farm and non-farm enterprises as the tax base. If grants are for public works or employment generation programs, they will generate employment and therefore tend to increase village wages and depress profits and impact the tax revenue directly. We call this the *wage effect of transfers*. In addition, the expenditures from grants can directly affect profits by the impact the public goods and services have on productivity, which we call the *productivity effects of transfers*. For example, grants for better roads can improve market access, and therefore improve profits.

Own tax collection of Panchayats therefore is likely to be influenced via three separate routes by decisions taken at the state and central government level about the grants and unrestricted resources they provide, as well as by the Panchayat government itself. We are unable to model this complex process. Instead in the model section we present a simplified model that focuses on the wage effects of transfers, and the subsequent reactions of revenues via direct profit effects and indirect incentives effects.

In order to focus on the wage effect, we assume that poor workers pay no or very little tax, therefore the tax base of the village is the sum of farm and nonfarm profits. Depending on what the transfers finance, the public expenditures can lead to increases or reduction in the tax base of

the village. We therefore classify the earmarked grants received by the villages into those that generate employment such as construction of roads, housing, irrigation, or soil conservation measures.⁴ Other transfers, such as expenditures on health and education and welfare expenditures, have no such direct labor demand effect,⁵ and therefore would not affect the tax base via wages directly. We will therefore group earmarked or restricted transfers into those that finance construction activities (employment generating programs), and those that do not (social programs), and analyze their impacts separately.⁶

The productivity impact of the transfers comes from the productivity impact of the expenditures financed by the transfers, for agriculture and for non-agriculture. Since we categorize the transfers into broad groups that finance a variety of expenditures, we cannot predict what the productivity effects of employment generating grants, social program grants and block grants will be on productivity, but instead we will measure the impact of predicted transfers in the three categories on total village per capita income.

In terms of the incentives effects, consider an earmarked transfer for a specific public good or service that are desired by the decision makers in the Panchayat (the leaders and/or the population) such as a paving village roads. A transfer from above reduces the “price” they have to pay for any stretch of road in terms of the own taxation they will have to raise. In addition, if the villagers perceive the transfer as extra income, there could also be an income effect on the demand of the public goods. If the price elasticity of demand for paving roads is more than one, the demand for paving roads will go up. High income elasticity for paving roads would further add to the demand for them. If the additional demand can be financed from previously raised revenue for paving roads plus the larger transfers, there would be no incentive to raise taxes to finance extra roads. Thus if these two sources of revenue can finance the incremental demand, own taxation would be crowded out, and if they are insufficient, own taxation would be crowded

⁴ The reduction in profits may also induce behavioral responses on tax behavior of the Panchayat, but we will ignore these for simplicity.

⁵ They could have a negative labor supply effect, which in other papers we have estimated to be positive, rather than negative (Binswanger et al. 2011).

⁶ For unrestricted or block grants such a division cannot be made, because we have no data on how the unrestricted grants were spent on the two types of projects. Therefore we cannot make a prediction of the wage effects of block grants.

in. For unrestricted grants that can finance a bundle of public goods and services the analysis is similar, but would apply to the bundle of public goods and services instead of a single one.

Whether a grant is restricted or unrestricted will have additional impacts on the willingness to raise revenues through taxes. The freedom to allocate unrestricted block grants to any public good or service will allow the Panchayat to direct it to those expenditures which have the highest utility for the villagers, or the highest income and price elasticities. Restricted grants, on the other hand, are targeted to expenditures preferred by higher level decision makers. They are therefore more likely to finance goods and services that would have lower price and income elasticities than expenditures financed out of unrestricted grants. Crowding out is therefore more likely for restricted than Block grants.

A second problem arises for restricted grants. In the Indian context, in sectors to which the grants are restricted, the contracting and expenditures are normally managed by higher level authorities at the block or district level. Corruption at these levels will tend to reduce the amount of money actually doing work at the village. Moreover, the sectors or the block level may contract enterprises to execute the works. The contractor may also use bribes to obtain the contracts, and then will pad the contracts to recover the bribes and increase their net income. The contractors may also use labor that is not from within the village and therefore reduce village income. All these factors will reduce the “price” reduction and/or the income gains for the villagers from the restricted grants, and therefore would increase the probability of crowding out.

Finally, experience with countless community-driven development projects around the world have shown that communities are able to execute works of similar quality to work implemented via contractors hired by sector agencies, but at a significantly lower cost (Binswanger et al. 2009)⁷. In these projects the execution is delegated to the communities, which control the money and all the expenditures from it. Community execution also applies to block grants, which therefore can be expected to produce a given output at lower cost than resources from a tied grant, adding an additional factor to why block grants would be less likely to crowd out revenue raising than restricted grants.

⁷ On average across many Community-Driven Development Programs across the World, in which the implementation of projects, the money, and its use is controlled by the communities, rather than sector staff, leads to a cost reduction of approximately 40 percent.

All these factors would suggest that block grants will be much more preferred by villagers and lead to less crowding out than restricted grants or more crowding in. The disincentives effect for own revenue raising associated with restricted grants will therefore likely to be significantly higher than those for block grants.

As a consequence, for our subsequent analysis we will differentiate the higher level grants into block grants and restricted grants, and further differentiate the restricted grants into those that finance public works and therefore are likely to have a wage impact, versus those that are not expected to have a wage effect.

The plan of the paper is as follows: Section 2 places the paper into the literature on intergovernmental transfers. Section 3 provides a simplified model that concentrates just on the wage impact of earmarked transfers on the tax base and therefore on taxes. In section 4 we present a reduced form econometric specification that is capable is able to reflect all three of the impacts of three types of transfers on own taxation via the different routes. Section 5 describes the data and provides descriptive statistics. The results are provided in section 6, and conclusions follow in section 7.

2. Literature Review

Literature on the impacts of various types of equalizing transfers, both vertical as well as horizontal, is abundant. Buettner (2006), Snoddon (2003), Courchene (1994) and Dahlby and Warren (2003) provide evidence from Germany, Canada and a cross section of countries and states to suggest that non equalizing transfers in the case of vertical transfers lead to crowding out of local tax efforts. Snoddon (2003) concludes that there are marginal benefits that accrue to local governments in the form of improved fiscal efficiency if transfers are equalizing.

Zhuravaskya (2000) ascertains a crowding-out effect of transfers in Russia, where each monetary unit raised in own revenues by a local government is offset by 0.9 units in revenue sources from the higher-tier government leaving no incentive for the local governments to exert any tax-generating efforts when transfers increase. Buettner and Wildasin (2006) find that in the US the adjustment of local governments to an increase in external grants leads to reductions in

subsequent own-revenue generation. Dahlberg et al. (2007) address the potential endogeneity of grants but do not find any conclusive evidence for either crowding-in or crowding-out effect of intergovernmental transfers on the local tax rate as well as on tax revenues. Skidmore (1999) however, identifies a positive (crowding-in) effect on US State and local governments in which grants are a control variable and the main issue is the effectiveness of statutory revenue and expenditure limitations in reining in local government size. Mogues et al. (2009) use a ten year panel data on 110 district governments' public finances and other district level data in Ghana to examine the impact of the flow and size of externally generated revenues (from central government and other sources) on local governments' own-generated revenue. They find that larger past external transfers are significantly and negatively associated with local governments' level of own generated revenue and local governments experience slower subsequent growth in internally generated revenues. They infer that the nature of the flow of local governments' external sources of revenue discourage rather than encourage their internal revenue generation.

Similarly the benefits of increased own tax generation on quality of governance and provision of public goods have been articulated by, among others, Gamkhar and Shah (2007) who have reviewed the literature on the "flypaper effect" to show that increased local taxes could lead to efficient local spending, and Oates (2006), Blochlinger and Petzold (2009), Jin and Zhou (2001), Rodden and Webbels (2009), Eyraud and Lusinyan (2011), and Rodden (2002). These collectively point out that a reduced magnitude of local revenue generation could variously impact local economic growth.

3. The model

In our model each *Panchayat* has the capacity to raise taxes and spend these revenues as well as those that come in as grants from higher level governments. Let k be the tax base of the *Panchayat*, t the tax rate. Hence, the tax collected $x = kt$. Let ρ , the cost of raising taxes be $\rho(x)$ whence the net tax collected is:

$$\kappa = x - \rho(x).x \quad (1)$$

Where, $0 \leq \rho \leq 1$. The marginal cost of collecting tax is positive i.e. $\rho'(x) > 0$.

Local governments receive grants in two forms viz., program and block grants. Program grants are earmarked for specific programs of the higher level government and funds are not fungible across expenditure items. Program grants are determined by allocation by the state government and the number of flagship programs of the central governments mandated to be implemented by *Panchayats*. Program grants are typically fixed for a given *Panchayat* period (the period for which a term of the elected Panchayat lasts). Discretionary (Block) grants are received from higher level governments and other outside agencies but are fungible and can be applied to a variety of development efforts at the village level and are often the result of lobbying by village officials.

In this paper we suggest that the impacts of government transfers depend on the objectives behind such transfers, i.e. on whether these transfers are employment generating. We accordingly define the employment generating transfers as g_a and the other types of transfers as g_b .

We will follow the fiscal equalization principle and write the behavior of g_1 as

$$g_a = g_a^0 - \lambda(x_{t-1}, x_t)x_t \quad (2)$$

$$\lambda \geq 0, \lambda_{x_t}, \lambda_{x_{t-1}} \geq 0 \quad (2a)$$

Where, λ is the rate at which the quantum of g_a is adjusted to reflect changes in tax collected g_a^0 is the magnitude of g_a received if the *Panchayat* collected zero taxes. We can similarly write an equation for the behavior of g_b as

$$g_b = g_b^0 - \theta(x_t, x_{t-1})x_t \quad (3)$$

$$\theta \geq 0; \theta_{x_t}, \theta_{x_{t-1}} \geq 0 \quad (3a)$$

Total transfers to the *Panchayat* from outside is written as g where, g is

$$g = g_a + g_b \quad (4)$$

Let the per capita budget constraint of the village government as well as that faced by the households be defined by z , i.e.,

$$z = (1 - \rho(x))x + g_b \quad (5)$$

Where, z is the revenue for public spending, $(1 - \rho(x))x$ is the net tax (net of cost of raising an additional unit of tax) and, g_b is the non employment generating transfers from outside the *Panchayat*.

Change in budget constrained due to the local tax effort is:

$$z_x = \frac{d(x - \rho(x)x + g_b)}{dx} \quad (6)$$

$$= 1 - \rho_x x - \rho(x) + g_{bx} \quad (6a)$$

The change in government transfers due to local tax effort is given by g_x where $g_x = g_{ax} + g_{bx}$.

$$g_{bx} = \frac{\partial(g_b^0 - \theta x)}{\partial x} \quad (7)$$

$$= g_{bx}^0 - \theta_x x - \theta \quad (7a)$$

We can write the expression for g_{bx} in a similar manner.

Let the consumption c of a representative household be determined by income from labor supply to private capital and wages received from labor supply to government programs. Hence,

$$c = f(k, g_a) - kf_k - g_a f_{g_a} \quad (8)$$

We assume that the production function f is of the Cobb-Douglass form and, is written as

$$f = Ak^{\delta_1} g_a^{\delta_2} \quad \text{where } \delta_1 + \delta_2 < 1 \text{ and, } \delta_1, \delta_2 > 0. \text{ It is then easy to see that } kf_k = \delta_1 f \text{ and, } g_a f_{g_a} = \delta_2 f. \text{ Hence, } c = (1 - \delta_1 - \delta_2)f$$

A representative household's utility u can then be written as

$$u = c + \alpha v(Z) \quad (9)$$

Where, $\alpha v(Z)$ is the utility from public goods. Maximization of utility with respect to the tax x gives the first order condition

$$u_x = c_x + \alpha v'(Z)Z_x = 0 \quad (10)$$

$$\text{Equivalently, } \alpha v'(Z) = \frac{-c_x}{Z_x}$$

We can write change in household consumption with respect to tax as

$$c_x = (1 - \delta_1 - \delta_2) \frac{df}{dx} \quad (11)$$

That is,

$$c_x = (1 - \delta_1 - \delta_2)(f_k k_x + f_{g_a} g_{ax}) \quad (11a)$$

We can similarly write the impact of tax on the budget constraint as

$$z_x = \frac{\partial}{\partial x} ((1 - \rho(x))x + g_b) \quad (12)$$

$$= 1 - \rho_x x - \rho(x) + g_{bx} \quad (12a)$$

Hence, the first order condition for utility maximization is as follows

$$\alpha v'(z) = \frac{(\delta_1 + \delta_2 - 1)(f_k k_x + f_{g_a} g_{ax})}{1 - x\rho_x - \rho + g_{bx}} \quad (13)$$

The village *Panchayat* is assumed to use its tax policy to satisfy this optimality condition.

Remark: In the right hand side (rhs) of the first order condition for a maximum the denominator, being (from 12a) the response of public goods supply to tax collected, is positive. In the numerator, by assumption of diminishing returns, $1 > \delta_1 + \delta_2$. Further, whereas f_k and f_{g_a} are positive, k_x and g_{ax} are negative. Hence, the numerator is also positive. The left hand side is scaled up marginal utility of the public good, which is positive. (13) states that the marginal

utility of the public good should be equal to the impact of the higher tax needed to finance the public good (the numerator of the rhs of (13)) normalized by the impact of the additional tax on public goods supply (the denominator of the rhs of (13)), in effect this means that the marginal utility of the public good should equal, at the margin, the private output foregone to produce the public good. The following proposition follows.

Proposition

From (13) we must extract an estimable equation which can be tested against the available data. To do this we exploit the monotonic relation between tax collected and public goods supply. When public goods supply rises, (z goes up) tax collected must rise to finance the increased public goods supply. The first term in the numerator on the rhs of (13) is negative, assuming diminishing returns. f_{g_a} is positive whence, assuming g_{ax} is negative, $\alpha v'(z)$ will rise when g_a goes up. This is possible only when z goes down, i.e., tax revenue falls. Further, from (13) and under our assumptions when ρ rises $\alpha v'(z)$ will rise, i.e., z and tax revenue will fall. The marginal utility of the public good is not observable and hence not testable. However the relation between tax collected g_a and ρ , as underpinned by (13), can be tested.

4. Econometric specification

Estimating the wage and the profit effects

Let g be the vector of the fiscal transfers from higher levels, which includes g_1 , and g_2 , which stand for the earmarked grants that finance public works and earmarked grants for social programs, respectively, and let g_3 stand for the fiscal transfers in the form of block grants.

Let π stand for the sum of farm and off-farm profits of the household in the village, which represents the tax base including the returns to family labor. And let t stand for all the tax revenues raised by the Panchayat itself, exclusive of user charges, which are earmarked for a specific purpose. Finally let

Each of these variables is normalized by population.

Transfers are assumed to have two impacts on the tax base π . Let $\frac{\delta\pi}{\pi g_i} = \pi_i$ be the net cost or benefit of transfer i in terms of the tax base (by its net impact on the agricultural wage as well as

the compensating impact of the public goods financed on agricultural profits). We can estimate the impact of these transfers across villages via equation 14:⁸

$$\pi = \pi_0 + \pi_1 g_1 + \pi_2 g_2 + \pi_3 g_3 + \varepsilon_1 \quad (14)$$

The variables are constructed so that grants that lead to construction activities, and therefore to wage, are included in g_1 , while other grants are included in g_2 . If the only wage impact of public expenditures is via their impact on construction employment and lead to higher wages. This implies that π_i should be negative, and should be larger in absolute value than π_2 , i. e. $\pi_1 < \pi_2 < 0$. Own expenditures of the Panchayat out of block grants, produce a wide variety of public goods and services, some of which may also be associated with construction activities, but others which would not be. This means that, if there are only wage effects, the coefficients of these grants should lie between the ones for grants one and two, i.e. $\pi_1 < \pi_2 < \pi_3 < 0$.

We next look in greater detail at the pathway of the impact of public expenditures via wages, by estimating the following wage equation:

$$w = \beta_0 + \beta_1 g_1 + \beta_2 g_2 + \beta_3 g_3 + \varepsilon_2 \quad (15)$$

Any labor demand effects of g_1 and g_3 would lead to higher wages and if these are the only effects, we would expect the corresponding coefficients to be negative. However, productivity effects of public expenditures can have either positive or negative impacts on wages: If the productivity impact is neutral or labor using, and final demand for agricultural commodities is elastic, productivity gains will lead to higher labor demand, and therefore to higher wages. In this case the labor demand effect coming from public works and the labor demand effect coming from productivity enhancing expenditures work in the same direction. It is only in the case when productivity impacts of public expenditures are labor saving that the two might be offsetting. Much public expenditure in these villages goes for roads, irrigation and land improvements, none of which would probably not lead to labor saving productivity impacts. Therefore we would mostly expect the three coefficients in equation (16) to be positive, although negative signs are a remote possibility.

The first order impact of a wage increase on profits, holding productivity constant, is the share of hired labor in total profits, i.e. $\frac{\delta\pi}{\delta w} = -\sigma$. Therefore we can estimate the pure wage effect of the transfer on profits directly from equation (15) as

$$v_i = \frac{\delta\pi}{\delta g_i} | \text{profits} = -\sigma\beta_i \quad (16)$$

⁸ We can estimate this equation using total village profits or its component agricultural and non-agricultural profits. While the impact on the total profits or tax base is the most policy relevant measure, the separate equations will tell us a bit more on the sensitivity of the two components to grants from upper levels.

Similarly, the first order impact of the change in the tax base on tax revenue is the share of Panchayat taxes in farm profits τ multiplied by the impact of grant i on profits which we can estimate from equation (14), i.e.

$$r_i = \frac{\delta t}{\delta g_i} = \tau \pi_i \quad (17)$$

However, suppose that the three expenditure types also finance public goods and services that increase agricultural productivity, and therefore profits, which means that π_i is composed of a wage impact $v_i < 0$ and a productivity impact $p_i > 0$. And substitution from equation 15 we find:

$$\pi_i = v_i + p_i = -\sigma \beta_i + p_i \quad (18)$$

Which we can solve for the productivity effect of the grants $p_i = \pi_i + \sigma \beta_i$

We now turn to the incentives of the transfers on the collection of taxes at the Panchayat level. Let $\alpha = (\alpha_0, \alpha_1, \alpha_2, \alpha_3)$ be the vector of attributes of the intergovernmental fiscal system in a particular state, which are exogenous parameters to the village. α_0 includes general variables such as the proportion of devolved functions (out of 29) in a particular state; the proportion of the function that require own revenues; and how well the transferred functions have been funded. The α_i are autonomy indices specific to each type of grant, and include the autonomy that the Gram Sabha has over the expenditures in each of the g_i in terms (i) of planning the expenditures, (ii) the autonomy over the allocation of funds and (iii) the execution of projects financed by the funds. For g_1 and g_2 the indices include separate data for each of the specific earmarked funding stream that is contained in them, while for g_3 the data was available for all unrestricted grants together.

We can estimate the reduced form impact of the transfers and of fiscal systems attributes on own revenue as follows:

$$t = c_0 + c_1 g_1 + c_2 g_2 + c_3 g_3 + a_0 \alpha_0 + a_1 \alpha_1 + a_2 \alpha_2 + a_3 \alpha_3 + \varepsilon_3 \quad (19)$$

The c_i measure the impacts on taxes of the grants resources received, while the a_i coefficients measure the impact of the state fiscal systems parameters on taxes raised.

Shifting grants from one form to another

Additional relationships can be estimated from the coefficients of equation (15).

Where c_{ji} stands for the total cost of changing the transfers from j to i , then

$$c_{ji} = c_i - c_j \quad (20)$$

If $i = 1$ and $j = 2$, the difference in the reduced form coefficients of equation 15 measures the gross impact on own tax collection of changing one Rupee of earmarked grants from category 2 to category 1, without affecting the total, or the impact of moving from more labor intensive public expenditures to less labor intensive ones.

And if $i = 1$ or 2 and $j = 3$, these differences measure the impact of changing one Rupee of grants from either one of the two earmarked transfers to block grants. These are highly policy-relevant measures.

We can also calculate c_{RB} - the impact of shifting one Rupee of higher level grants from restricted earmarked grants to Block grants as follows

$$c_{RB} = c_3 - c_2 - c_1 \quad (21)$$

The statistical significance of the measures estimated in equation six and seven can be tested, if the two equations are estimated as a single system and therefore we have the variances and co-variances of the coefficient estimates.

Estimating grants received

The data which we have for profits, taxes, and transfers refer to the village in which the investigation took place. In many cases these villages belong to a larger Panchayat. How much of restricted and block grants come to the village depends on the fiscal systems attributes of the state and central government. But astute Panchayat politicians will also be able to influence them, so they are therefore endogenous to the Panchayat. But our data refers to a specific village in the Panchayat. How much of the resources come to the specific village therefore is also influenced by the villages own behavior. In addition the transfers are also affected by the reactions of higher level decision makers to the attributes of the fiscal system. For example a state which transfers more functions may decide to transfer more block grants or more grants specific functions transferred to the Panchayats. We therefore have to predict the grants going to the villages using variables that are related to the political behavior of the village, as well as to the attributes of the fiscal system, i.e. we estimate

$$g_i = d_0 + dV + s_0 \alpha_0 + s_i \alpha_i + \varepsilon_4 \quad (22)$$

Where V is a vector of village specific variables and d is its vector of coefficients, α_0 as before is the vector of general attributes of the fiscal system while α_{ik} is the attribute that applies to the specific type of grants and the s are the associated coefficients.

Econometric issues

In order to deal with the simultaneities of grants received and taxation, we therefore estimate the system as a whole via three stage least squares, where the first stage equations are the ones predicting the grants. In the first stage regression explaining the grants received by each village we include the following variables: the number of Gram Sabha meetings in the village, the proportion of villagers that participate actively in Gram Sabha meetings and per capita bribes paid, plus the fiscal systems attributes as discussed. One of the fiscal systems attributes is specific to the type of grants, and ensures that there is one instrument that is included in each first stage equation that is not included in the second stage equations.

For all the revenue and income variables we have data for 1999 and 2007, or for the closest years in the Panchayat periods for which we collected the data. In order to account for village-specific fixed effects, we can therefore estimate the first difference of the equations between 2007 and 1999. However, the fiscal systems parameters are only available for the time around 2007. We know that these are changing very slowly in the states. We are therefore using their level to explain the growth of the endogenous variables.

5. Data and descriptive statistics

We use data from the Rural Economic and Demographic Survey (REDS) conducted by the National Council for Applied Economic Research (NCAER). These surveys were started in 1969 and represent a panel of 241 villages representing 17 major states of India. In addition to information included in standard multi-purpose household surveys, the latest REDS rounds contains data on the revenues received and raised by the village, broken down into detailed components. The survey is in three parts. The listing questionnaire is a census of all the villages covered with significant details, but these data are not used in this paper. The village questionnaire provides us with details of all aspects of governance including elections, Gram Sabha meetings, government programs, taxation, expenditures, number of village level shocks, amongst other variables. The household questionnaire is the raw data from with village profits participation in Gram Sabha Meeting, and the proportion of households affected by village shocks is estimated. The size of the sample in 1999 and 2006 surveys is 7474 and 8659 households respectively, of which 5885 households were interviewed in both rounds. These two survey rounds cover two to three Panchayat periods⁹. Finally a state level survey was used to collect the state level attributes of the fiscal system.

The per capita Panchayat expenditures on various schemes and public goods have changed. Consistent with the policies of the government at the center, the growth in per capita welfare expenditures (earmarked resources) have grown the most (by 77.5% and the average number of centrally sponsored schemes per village now stand at 14-a growth of nearly 15% over the two panchayat periods). The un-earmarked funds transferred to the Panchayats and spent also have grown; but only by 30.36%. Of significant concern is the magnitude of change in expenditures

⁹ One Panchayat period is approximately 5 years and starts with the election of the Pradhan. Since the household survey was completed in 2008 we are able to cover two Panchayat periods in 230 out the 241 villages. A Panchayat is an administrative unit and encompasses two or more villages. These villages act as wards-a lesser administrative unit.

on public goods and on directly productive activities like agriculture. While public goods expenditures have grown by a mere 0.48% the magnitude of expenditures on agricultural programs has declined by 48.6%.

Table 1 provides the descriptive statistics of the data from the REDS that are used in this paper. The data were collected in two different ways: All incomes, wages, village shocks and village population come from the rounds of 1999 and 2007, respectively, while the governance related variables were collected from during the 2007 survey, with respect to the current Panchayat period, and with recall to the previous or previous to previous Panchayat period. Therefore the descriptive statistics in table 1 are given so that the data pertaining to the survey years is in italics, while the data pertaining to the Panchayat years is in normal script.¹⁰

Table 1: Descriptive Statistics (in Rupees of 1999)

Variables	Current	Previous	Percentage growth
	panchayat Mean	panchayat Mean	
Population	3876.46	3335.11	16.23
Per capita income	14516.03	10426.17	39.23
Per capita Agriculture Profit	9791.05	7278.14	34.53
Per capita Non-Agriculture Profit	12325.42	6453.95	90.98
Agriculture Wage*	52.64	49.44	6.46
Non agriculture Wage*	72.03	60.30	19.45
Village wage rate	124.66	109.74	13.60
No. of village shocks in a village	2.80	2.45	14.41
<i>Per capita Transfers for employment generating programs g1</i>	<i>149.36</i>	<i>47.33</i>	<i>215.61</i>
<i>Per capita transfers for social programs g2</i>	<i>57.45</i>	<i>47.39</i>	<i>21.23</i>
<i>Per capita Block grants g3</i>	<i>131.10</i>	<i>92.33</i>	<i>41.99</i>
<i>Per capita Local Tax</i>	<i>16.27</i>	<i>14.69</i>	<i>10.71</i>
<i>Tax rate</i>	<i>0.074</i>	<i>0.095</i>	<i>-21.28</i>
<i>Total revenue from all sources</i>	<i>164.03</i>	<i>107.02</i>	<i>53.26</i>
Amount of per capita bribe	31.16	27.37	13.86
<i>Prop. Of tax revenue to profit</i>	<i>0.074</i>	<i>0.095</i>	<i>-21.28</i>
<i>No. of Gram Sabha meetings held in a village</i>	<i>5.77</i>	<i>4.94</i>	<i>16.80</i>
<i>Prop. Of household who were affected by village shocks</i>	<i>0.19</i>	<i>0.20</i>	<i>-8.41</i>
<i>Democratic decision on allocation of local revenue (yes=1,no=0)</i>	<i>0.67</i>	<i>0.61</i>	<i>11.11</i>
<i>Presence of Govt. officer who work outside village(Number)</i>	<i>9.88</i>	<i>7.34</i>	<i>34.50</i>

N is 238 for all variables. *These are wages received by villagers, not wages paid by farmers and nonfarm entrepreneurs. The latter grew faster than wages received.

Average village populations grew by over 2 percent per year. Real GDP per capita grew by 39.2 percent or at an annual average rate of nearly 5 percent¹¹. Agricultural profits grew at by 34.5 percent, while non-agricultural growth grew exceptionally rapidly by about 91 percent and now exceeds agricultural profits by about 60 percent. Agricultural wages grew modestly while

¹⁰ These data were collected for each year of the respective Panchayat periods, which is not the same across villages and Panchayat periods, so they were converted to annual averages. There is no precise matching between the years 1999 and 2007 and the middle year of the respective Panchayat period, so there is some error in the matching of years.

¹¹ The reference year is 2007 rather than 2006, as most of the household data were collected in that year, while most of the village data were collected in 2006.

nonagricultural wages grew by almost 20 percent. The number of village shocks experienced grew slightly over time, but the proportion of villagers affected by them fell slightly.

Total revenues per capita from grants and own taxes grew from 107.02 percent to 164.03 percent, or by 53.26 percent. Transfers for programs that generate employment (g_1) grew at the fastest rate and have become the most important source of village revenue, with 149 Rupees per capita. They are followed by block grants (g_3) at 131 Rupees per capita. The growth in g_2 , the earmarked transfers for social programs was very slow, however, with a total growth of only 21 percent. The collection of own local taxes t was only 16 Rupees per capita, and grew the least at 11 percent. As a percent of total profits, the tax rate τ actually fell by 21 percent and now stands at on 7.4 percent. Per capita bribes paid to any official from inside or outside the Panchayat grew from 27.4 Rupees to 31.2 Rupees, or by almost 14 percent. It is remarkable that bribes paid at 31 Rupees per capita exceed the taxes raised by the village by a factor of almost two!

Among the background variables that we use in their own rights and as instruments the number of Gram Sabha meetings held grew rapidly over the period.¹² Finally we use the number of government officers who work outside the village who could influence revenue streams in the favor of the village.

Table 2 shows the data for fiscal systems characteristics of the states. Tamil Nadu did not supply the data, so it is only for 15 states. These data come from a state level survey of implementation of the directives of the 73d constitutional amendment that was carried out by NCAER. On average about two thirds of the 29 functions have been devolved in the states. Of the devolved functions on average only about one third require Panchayats to raise own revenues, with the median less than the mean so that the distribution skewed to the left. This means that most states require few of the functions to be financed from own revenues, while a few states require most devolved functions to be own financed. The average correspondence index between transferred functions and funding is 0.73. The median is higher than the mean so that the distribution is skewed to the right. Of the six tax bases considered in the survey, on average half have been transferred, with the distribution skewed to the right, i.e. towards more transfer of tax bases.

Autonomy over use of tied resources is measured as an index that looks at 8 separate grants that involve employment generation, and seven grants for social programs. For each we know whether the PRI is in charge of allocating the funds, whether it selects the beneficiaries, and whether it is in charge of execution of the programs. We add the scores across these three functions and across all the programs and divide by 24 and 21 respectively for the two categories.

Untied funds cannot necessarily be used for all the devolved function, as sometimes when there is a block grant for one of them, the untied funds may not be used for that function. We have data on the autonomy over use of untied funds for all 29 functions that are subject to transfer. In order

¹² It is calculated from the numbers reported by households, and is larger than the number reported in the village schedule.

to make the index more sensitive we focused on 16 of the major functions. The index adds up all the cases in which autonomy is available, and divides it by sixteen. The index has minimum of 0 and a maximum of 1 across the states, a mean of exactly 0.5 and a median of 0.44

Table 2: Fiscal systems characteristics

Variables	Mean	Min	Max	Median	SD	Skewness
Proportion of devolved functions (out of 29)	0.68	0.28	1	0.66	0.25	-0.18
Proportion of functions requiring own revenues	0.34	0	1	0.13	0.38	0.80
Proportion of tax bases devolved	0.50	0	0.83	0.67	0.27	-0.69
Correspondence index between transferred functions and funding	0.73	0	1	1.00	0.46	-1.06
Autonomy over g1 (Expenditure)	0.592	0	1	0.75	0.38	-0.47
Autonomy over g1 (selection beneficiary)	0.558	0	1	0.63	0.34	-0.29
Autonomy over g1 (Execution)	0.767	0.13	1	0.88	0.28	-1.21
Autonomy in planning and use of g2	0.48	0.05	1	0.43	0.32	0.28
Plans for expenditure of untied resources	0.93	0	1	1	0.26	-3.47
Autonomy over use of untied funds g3	0.50	0	1	0.44	0.36	0.09

N = 15 for all rows.

6. Results

The systems estimates are presented in Table 3. We first note that the profit equation has a Chi2 value that is not statistically significant and none of its coefficients is statistically significant, and we therefore do not report the corresponding results. We wanted to use the coefficients to decompose the indirect effect of the grants on the tax into wage and an incentives effect, but given these test results we will only compute the corresponding wage effect from the wage equation and not the indirect incentives effect other than via the measurable attributes. This means that we have to look at the direct impacts of the fiscal systems attributes on the grant volumes to glean information about incentives effects and at how the grants affect the taxes directly in the tax equation.

We also note that the Hansen-Sargen test that the system is not over-identified is clearly rejected. Each of the first stage equations explaining the grants from higher levels contains at least one fiscal characteristics variable that is specific to the transfer that is statistically significant. In the case of g1, the individual indices worked better than the overall index, while in the case of g2 the overall index had better explanatory power, and they were therefore retained for the systems estimates.

6.1 The impact of greater devolution

The proportion of devolved functions increases earmarked grants for social programs and own taxes significantly, but not the other two transfers. The impact on own taxes is large, suggesting that devolving more functions leads to significant tax increases. An increase in the proportion of devolved function by 10 percent (approximately by 3 additional functions) increases revenue raised per capita by Rs.5.7, over a third of total taxes raised. The same three additional functions would increase g_2 by Rs. 7.4, compared to its mean of Rs 57. Whether this is on account of governments transferring more resources when they devolve functions, or pressure from below cannot be ascertained. If the proportion of devolved functions increased by 10 percent, the block grants declined by Rs.16.5. The proportion of tax bases devolved increases block grants very significantly. This may be because those state governments that devolve more tax bases are also devolving more block grants. But it appears to provide no additional incentives to raise taxes, suggesting that it is not the lack of tax bases that holds revenue raising back, but lack of willingness to tax. The proportion of actually devolved functions that require own revenue collection for their finance reduces g_2 significantly, and again has no impact on own revenues. It does not appear that simply asking local governments to pay more for the functions devolved to them is effective in getting them to do so. The Correspondence index measures for how many of the devolved functions corresponding funds have been transferred as well. The statistically significant coefficients for g_1 and g_2 are of the wrong sign, for which we have no explanation.

The autonomy variables used in g_1 show that the impact of autonomy over g_1 on such grant receipts is large, positive and significant. There are 8 sub-grants in this index, so an extra grant amounts to an increase of 12.5 percent, and leads to an increase in g_1 of Rs 35, presumably because the village will exert greater effort to obtain such grants. An overall increase in autonomy over one of the seven grants contained in G2 would amount to an increase in the index of about 14 percent and would lead to an increase in these grants of Rs. 11.50 These grants include health and education expenditures as well as many social programs. It appears that autonomy of using tied funds is especially valued by the rural population. In terms of untied fund, the autonomy to plan for the expenditures of these leads to a reduction in the funds. Such a negative impact would be consistent with states not being willing to provide more such funds when they transfer the planning authority. Additional autonomy over their use has no impact on their volume.

Table 3: Systems estimates of impacts of transfers from higher levels on own taxation and wages

VARIABLES	g_1	g_2	g_3	Tax	Wage rate
Proportion of devolved functions	-212.4 (134.6)	74.19* (44.57)	-165.0** (68.91)	56.65* (30.26)	
Proportion of tax bases devolved		-58.05 (93.94)	-0.767 (36.12)	209.6*** (53.61)	-14.26 (24.38)
Proportion of devolved functions requiring own revenue		41.66	-75.00**	-16.31	-10.18

	(60.03)	(34.05)	(42.75)	(14.33)	
Correspondence index	-148.9**	30.95	-60.23*	11.03	
	(62.70)	(25.43)	(35.49)	(15.44)	
Autonomy over G1 (Expenditure)	279.3**				
	(128.9)				
Autonomy over G1 (Selection beneficiary)	-209.2				
	(144.5)				
Autonomy over G1 (Execution)	9.862				
	(72.28)				
Autonomy over G2		80.64*			
		(46.97)			
Autonomy over use of untied funds			-5.230		
			(50.48)		
Plans for expenditure of untied resources			-120.7**		
			(47.31)		
Political conflicts	-85.34**	27.65	23.86	0.231	
	(38.46)	(17.43)	(21.66)	(13.58)	
Per capita bribe	0.0843	0.412**	0.253	0.0857	
	(0.409)	(0.186)	(0.224)	(0.128)	
Number of gram Sabha meetings in the village				3.700	
				(2.387)	
Proportion of households affected due to village shocks				-42.9***	-0.989
				(14.75)	(1.028)
Per capita grants from employment guarantee programs (g1)				0.0172	0.0981***
				(0.0526)	(0.0353)
Per capita grants from non-employment guarantee programs (g2)				-0.352*	-0.102
				(0.210)	(0.0941)
Per capita block grants (g3)				0.311**	0.256***
				(0.140)	(0.0815)
Number of presence of government officer					0.435**
					(0.209)
Constant	325.0***	-76.80*	198.3**	-41.66	-7.069
	(110.6)	(43.61)	(86.42)	(30.40)	(5.445)
Chi2	21.16***	24.02***	22.85***	26.56***	29.25***
Hansen-Sargan overidentification statistic			78.03***		
Observations	210	210	210	210	210

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

*Profit equation not shown because Chi2 test not significant and none of the coefficients significant.

Political conflicts reduce the proportion of grants that generate employment significantly but have no impact on other fiscal transfers or taxes. It may be that it is difficult to administer construction or employment generation programs in villages affected by conflict, or that such grants are withheld in situations of conflicts. Per capita bribes increase g_2 grants significantly with each Rupee paid in bribes increasing these grants by one third of a Rupee. Finally, the number of Gram Sabha meetings affects taxes positively, but the impact is not statistically significant.

6.2 The impacts of grants on wages and own taxes

The predicted grants have the following impacts: Employment generating grants, as expected, tend to increase wages rates. A ten percent increase per capita in these grants is an increase of 14.9 Rupees, and would increase the village wage by 10 percent. For social grants the impact on wages is negative and insignificant. Block grants have a tendency to increase wages even more, with a ten percent increase (Rs 13 per capita) leading to an increase in the wage rate of around 26 percent. It appears that the untied grants have impacts on the wage either via direct employment effects of the corresponding expenditures, or via productivity effects, or both. The proportion of villages experiencing a village shock reduces wages, but the effect is not statistically significant. The presence of many government officers in the villages that work outside has a positive impact on wages. This would suggest that such officers may provide external effect on village labor markets, perhaps via productivity, or by linking villagers to outside labor markets.

The predicted employment generating grants have no impact on taxes, perhaps because they not only increase wages, but also productivity. The social grants g_2 tend to significantly reduce own taxes. Per capita block grants increase taxes, even though they also increase wages, perhaps because they have both productivity and an incentives effect that offsets the wage effect. Finally the village shocks lead to a reduction in village taxes, perhaps both directly by reducing profits and indirectly by making it more difficult to collect taxes from affected villagers.

In table 4 we decompose the coefficients into the pure impacts of wages and incentives on profits and taxes, and also examine the impacts on taxes of shifting grants from one source to another.

Table 4: Impacts of wages and incentives on profits and taxes, and impacts of shifting grants from one type to another

Effects	Coefficient	Estimate	Chi2
Wage effects of different types of grants on profits	v_1	-0.005	7.75***
	v_2	0.005	1.18
	v_3	-0.013	9.86***
Impact on tax revenue of shifting one Rupee from one type of grant to another	c_{21}	0.37	2.74*
	c_{13}	0.29	4.19**
	c_{23}	0.66	5.98***
	c_{RB}	0.65	6.15***

As expected, the pure wage effect of employment generating grants on profits is negative and highly significant, but very small. A one Rupee increase in the per capita employment generation grant decreases profits by 0.5 paise: to decrease profits by just one Rupee would require an increase in the per capita employment generating grants by 200 Rupees, i.e. more than double them. The reason is that the wage impact is small, and the share in profits is only 5 percent. The wage effect of social grants on profits is not significant. However the wage effect of untied

grants on profits is highly statistically significant and positive. None of the productivity impacts of the grants are statistically significant, and they are therefore not shown.

6.3 The impact of shifting grants to block grants on own taxation

We get strong impacts on taxes from shifting grant resources among the different grant types. Taking one Rupee from social grants to employment generating grants increases tax revenues per capita by 0.37 Rupees. Shifting a Rupee from either employment generating grants or social grants, increases taxes by 0.29 and 0.66 Rupees. And finally, shifting the Rupee from both restricted grants to Block grants also increase taxes by 0.65 Rupees.

6.4 The Impact of grants and own taxation on services

In tables 5.1 to 5.3 we examine the consequences of the restricted grants, block grants, and own taxation on impacts of the services, such as time fetching water, days of absence from work due to illnesses, village literacy, and availability of toilets in streets. We stay close to the specifications that were used in the papers which explored the corresponding services, but we eliminated variables that are influenced by expenditures, such as the school infrastructure, in order to capture the full impact of the expenditures, rather than a partial one. We then compare the results to the results observed in the papers dealing with health, education and water supply on the direct impact of the specific public expenditures on the service choices and outcomes.¹³

We know that water is one of the highest priorities of villagers and Panchayats, as well as of the higher levels of government. The impact of expenditures and own taxes on time fetching water are all negative and highly statistically significant. A ten Rupees increase in the four different sources of funds reduces time fetching water by 0.3 minute for g1, by 0.6 minutes for g2, by a little over a third of a minute for block grants, and by 0.13 minutes for own taxes. This means that grants have a higher impact on time saved fetching water, perhaps because own revenues are not often allocated to water.

The findings on impacts are consistent with the findings in the water paper (Binswanger, et.al, 2012a) that suggest that village water expenditures lead to reduced time collecting water, an increase in female wages (via the greater involvement of women in productive activities), and an increase in income. What we infer from the results in table 5.1 is that own taxation as well as the grants were used for financing these expenditures.

Table 5.1: Impact of different forms of revenues on time to fetch water (minutes)

VARIABLES	Time to fetch water
Female	1.064***

¹³ We also explored other infrastructures, but the results were not strong, suggesting that the ones included here are the ones to which villages and the higher levels of government put the most importance.

	(0.307)
Married	4.140***
	(0.435)
Age	0.0787
	(0.0502)
Squared age	-0.00167***
	(0.000597)
Predicted change in per capita g1 (in Rs)	-0.0301***
	(0.00300)
Predicted per capita change in g2 (in Rs)	-0.0573***
	(0.00536)
Predicted per capita change in block grant (g3) (in Rs)	-0.0360***
	(0.00408)
Predicted per capita change in tax (in Rs)	-0.0136***
	(0.00403)
Constant	69.43***
	(0.818)
Observations	18,640
F-test	61.46***

Rupees per minute

Days lost to sickness are significantly reduced if social grants (g2) increase and if the per capita taxes increase, but block grants do not appear to have an impact. (We left out the employment generating grants because they cannot be allocated to health). A ten Rupee increase in social grants leads to a decrease in days lost to sickness by close to two thirds of a day, while a ten Rupees increase in taxes leads to a decrease in of 0.2 days. Again a Rupee of grant appears to have a more powerful impact than a Rupee of own taxes. Caution is indicated in interpreting this finding because we are not able to look specifically at the expenditures out of the grants and out of the taxes on water supply, as we do not have the corresponding source-specific expenditure data.

In the health paper (Binswanger, et.al, 2012b) we saw that increased Panchayat expenditures on health led to a reduction in illnesses, especially for women, a reduction in private health care expenditures and a much larger increase in the use of public health facilities than the private health facilities. The corresponding expenditures appear to be significantly enhanced by the block grants and own taxation.

Table 5.2: Impact of different forms of revenues on days of work lost to illness

VARIABLES	No. of days absent due to sickness
Female	8.608***
	(1.189)
Age	0.107***
	(0.0306)

Distance to hospital	0.187*** (0.0404)
Predicted per capita change in g2	-0.0604* (0.0308)
Predicted per capita change in block grant (g3)	-0.0209 (0.0197)
Predicted per capita change in tax	-0.0188* (0.0108)
Number of village shocks	1.959* (1.196)
Constant	13.87*** (1.894)
Observations	2,142
F-test	14.18***

The regressions in table 5.3 are run at the village level rather than at the individual levels, as for the two previous regressions. As far as the village literacy rate is concerned, the results are hard to explain, with social grants and own taxes reducing it, while block grants increase it. (Employment generating grants were left out of this equation). In the education paper (Binswanger, et.al, 2012c). We saw that the education expenditures led to greater attendance in Panchayat schools and a reduction in private health expenditures. In terms of toilets, neither the employment generating grants (which contain the central rural sanitation program CRSP) nor own taxes appear to have an impact, but block grants do.

Table 5.3: Impact of different forms of revenues on village literacy and street having a public toilet

VARIABLES	Change in village literacy rate	Change in prop. of streets having public toilet
Predicted change in per capita g1	-	-0.0001

Predicted per capita change in g2	-0.00361* (0.00204)	(0.0001) -
Predicted per capita change in block grant (g3)	0.00462*** (0.00155)	0.0004** (0.000179)
Predicted per capita change in tax	-0.00255* (0.00136)	-0.0001 (0.0002)
Constant	0.695*** (0.0815)	0.005 (0.02)
Observations	210	210
F-test	3.60***	2.93**

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

7. Conclusions

The results of our analysis show that there are a number of ways for government to provide more incentives for increasing the very low level of tax collection by Panchayats. Devolving additional functions has a large impact on own revenue raising. It also increases the social transfers received by villagers, either as a consequence of higher provisions from above, or more proactive seeking of such grants from below. The proportion of tax bases devolved does not induce more taxation, suggesting that it is not the lack of tax bases that holds revenue collection back but the lack of will to collect taxes that correspond to already provided tax bases. On the other hand, it appears that states that devolve more tax bases to local governments are also providing them with more Block grants. If governments devolve function and require them to be funded locally, Panchayats raise more taxes, and also receive more social grants.

Employment generating grants tend to increase wage rates, with an increase of such grants per capita by one Rupee (about 0.6 percent) leading to a wage increase of 10 paisa. Block grants tend to increase wages even more, while social grants, as expected, have no impact. Since the share of wages in profits is very small, the impact of these wage increases on taxes is also very small. *We conclude that a wage impacts on taxation exists, but is very small.* While we tried to estimate a productivity impact of the grants on profits and tax revenues, we were not able to do so. *We conclude that the productivity impact of grants on taxes is either zero or negligible.*

This means that incentives effects associated with the specifics of the intergovernmental fiscal system in the states is the main determinant of village taxation. Since the different types of grants respond differently to such systems changes, there is much potential to reallocate public expenditures among them in order to induce greater own taxation. First, reallocation among the restricted grants from social grants to employment generating grants increases own taxation. But the big game changer comes from moving grants from restricted grants to Block grants: one

Rupee reallocated from restricted to Block grants increasing own taxation by 0.65 Rupees. The estimates imply that *if just 10 percent of the 207 Rupees per capita of restricted grants were reallocated to Block grants, own taxation would increase by Rs. 13.45, or almost double.* By simultaneously devolving more functions the impact could be magnified. Such a change would be well within the powers of the Central government and would involve a small shift from Centrally Sponsored Schemes to Block Grants. *A bolder approach to shift about a third of the tied grants to block grants could lead own taxation to rise almost four fold.*

In the papers which analyze the services of education, health care and water supply we already documented positive impacts of the village expenditures on these three services on choices, reduced private expenditures and outcomes. In this paper we go back a step and try to document the impact of different types of grants and own taxation on service outcomes, a more tenuous link than the direct impact of the public expenditures. Block grants have positive impacts on reducing time fetching water, literacy, and availability of public toilets, while own taxes reduce time fetching water, days absent from work but do not increase village literacy or availability of public toilets. Restricted grants that generate employment reduce time fetching water, as do the restricted social grants. Overall the findings give significant comfort to the view that villages tend to spend the resources received and their own taxes on items that figure high in their priority list. When we compare the magnitude of the impacts of one Rupee of grants received with one Rupee of taxes raised in terms of time fetching water and days lost to illness, we find that each Rupee of tax raised has less of an impact than the grants received, which is not consistent with the idea that the efficiency of use of own taxes is higher than that of grants. But caution is indicated about this finding until it becomes possible to estimate the impact of the specific expenditures for water, health and education out of grants on the associated outcomes, which is not possible with the data we have.

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