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PARTICIPATION AND POVERTY REDUCTION: ISSUES, THEORY, AND NEW EVIDENCE FROM SOUTH AFRICA

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ABSTRACT

This paper examines the relationship between community participation and the efficacy of interventions designed to reduce poverty. We develop some simple analytics that are used to structure a review of the extant literature and motivate the analysis of the impact of participation on the efficacy of public works interventions in South Africa. These analytics suggest that because communities possess informational advantages unavailable to outsiders, community participation offers the prospect of lowering the cost of antipoverty interventions. In cases where the outcomes of interventions are difficult to measure, community participation is attractive because it is more likely to produce a set of outcomes actually desired by the community. However, this observation should not be taken to imply that these outcomes are desired by *all* members of the community, nor by those who finance these interventions. These arguments are supported both by a review of the extant literature and also by a multivariate analysis of the impact of community participation on public works projects in South Africa. We find that increasing community participation lowers the ratio of project to local wages, increases the labor intensity of projects that provide community buildings, roads or sewers, and lowers the cost of creating employment and of transferring funds to poor individuals. We find no evidence that community participation increases cost overruns in these projects.

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1. INTRODUCTION

There are three broad perspectives to deciding which policies, programs, and projects to use to reduce poverty in developing countries. One focuses on the specific technical features of these interventions, i.e., what activities will have the largest effects on reducing poverty. A second focuses on the political economy of poverty alleviation, examining the interplay of politics and economics in shaping approaches to poverty reduction. Technical and, to a lesser extent, political economy approaches were featured in the 1990 *World Development Report* on poverty. A third approach is through the analysis of institutional arrangements. At one level, "Institutions are a set of rules, compliance procedures, and moral and ethical behavioral norms designed to constrain the behavior of individuals" (North 1981, 201–02). In this context, institutions can be considered at a variety of levels of aggregation, including constitutional order and normative behavioral codes (Feeny 1988). They can also be seen as organizational structures, systems of nonmarket relations (Van Arkadie 1989).

This paper examines the relationship between a specific institutional arrangement, community or beneficiary participation, and the efficacy of interventions designed to reduce poverty. Chambers (1974) and Cohen and Uphoff (1980) provided early statements of its potential and it is mentioned in the 1994 and 1997 *World Development Reports* (World Bank 1994, 1997). Community participation is now is a rapidly growing area of discourse among donor agencies, nongovernmental organizations (NGOs), and development practitioners, a discourse complemented by increasing documentation of its impact (Narayan 1998 provides an especially useful overview).

Our contribution is threefold. First, we outline some simple analytics of participation and poverty reduction. We use these to guide a structured review of this burgeoning literature and argue that beneficiary participation is essentially a form of decentralization. As the public finance literature makes clear, this perspective offers two advantages. First, the active involvement of beneficiaries may lower the informational

costs associated with antipoverty interventions. Second, beneficiary participation offers the potential for the design and implementation of interventions that reflect the preferences of the population they are designed to assist. However, there are also potential drawbacks. Although beneficiary participation has the *potential* to lower the costs of implementing interventions, it does not necessarily follow that beneficiaries are *always* the lowest-cost providers. Second, since communities are rarely homogeneous, it is inevitable that interventions will disproportionately benefit one element of the community. It is thus important to examine *whose* preferences are being voiced.

Finally, we present a case study of public works in South Africa. Using a unique source of data, we examine the impact of increased community participation on the success of public works projects. The data come from a study of public works programs in South Africa's Western Cape Province, conducted between 1996 and 1998 by the International Food Policy Research Institute (IFPRI) and the Southern Africa Labour and Development Research Unit (SALDRU) at University of Cape Town. This study collected project-level quantitative and qualitative data on, among other things, diverse institutional arrangements between government, communities, and the private sector; types of community participation; and project outcomes.

Results of the qualitative studies and descriptive statistics on this data are reported in Adato et al. (1999a). This paper develops a multivariate analysis to examine the impact of different levels and types of community participation on a number of indicators reflecting program objectives. These are the ability of these projects to utilize publicly provided funds in a cost-efficient manner (the amount spent to create one day of employment; the cost to the government of transferring funds to the poor; and the level of cost overruns), the extent to which project benefits flow to individuals in the form of wages and training, and the extent to which these projects target particular groups within these localities. We have considered the impact of both de jure and de facto authority in terms of their direct effect, their impact conditional on the type of asset being created, and variations within these broad categories.

Two issues underlie our estimation strategy: the appropriate definition of participation; and the need to take into account a number of econometric concerns, notably nonrandom program placement and unobserved selectivity effects that might influence both project outcomes and the likelihood of community participation. It turns out that the former issue is extremely important and the latter relatively unimportant. Our detailed knowledge of the manner in which these projects operated, together with the statistical analysis undertaken by Adato and Haddad (1999), indicate no correlation between the localities in which projects were sited and observable characteristics of those communities. We used measures of community fractionalization—such as the extent of racial and political diversity—to predict the likelihood of community participation in these projects. These variables demonstrate strong associations with the likelihood of participation while generally having no direct impact on project outcomes.

By contrast, how participation is measured is particularly important. In general, measures of de jure participation are less strongly associated with project outcomes than are measures of de facto participation. We find that de facto participation lowers the ratio of project to local wages (provided selectivity biases are taken into account); increases the labor intensity of projects that provide community buildings, roads, or sewers; and lowers the cost of creating employment and of transferring funds to poor individuals. There is weak evidence to suggest that where communities advise but do not make decisions, the percentage of employment going to women rises. We find no evidence that community participation increases cost overruns or the ratio of training to employment created, an exception to the former being the case of environmental improvement activities (where the effect is not especially well measured). In these projects, de facto community participation is generally associated with improved project cost-effectiveness and better targeting.

2. PARTICIPATION AND POVERTY REDUCTION

In this section, we examine the issues underlying the role of community participation in antipoverty interventions. We lay out a simple framework to discuss the analytics of participation and poverty reduction. We identify the main trade-off as being between the way in which different modes of delivery vary in the costs of intervening and the design of objectives. Trade-offs arise when the most efficient provider happens not to care most about the poor.

FRAMEWORK

Our simplified framework is based on the three main types of actor involved in the delivery of antipoverty interventions: *financiers, providers, and beneficiaries*.

1. The primary role of financiers is to provide funds for the intervention. Good examples are multilateral and bilateral donors, ministries of finance and NGOs.
2. The main role of providers is to implement interventions. For example, Morrison (1998, 222) describes officers of the Canadian International Development Agency (CIDA) as "managers of contracts rather than development projects." Providers may be line ministries, autonomous government agencies, private firms, or NGOs. In many cases, the providers and financiers are one and the same. Depending on context, financiers or providers may initiate or design interventions.
3. Beneficiaries comprise communities, households, and individuals who receive the benefits of the intervention. This group could be quite narrowly targeted or quite diverse.

These actors may take on more than one role. An NGO may be both a financier and a provider. As described by Ostrom (1996), farmers in the community management of irrigation structures in Nepal are the financiers (they contributing to defray the cost of

maintaining and operating these structures), the providers (they operate the structures), and the beneficiaries. Seen in this context, participation in antipoverty interventions is a process whereby beneficiaries become involved in provision and possibly finance.

One key assumption of this model is that poverty alleviation projects are deemed to have *multiple objectives*. This contrasts with much of the literature on poverty alleviation policy, which focuses on one-dimensional objectives such as program generosity.

In practice, interventions designed to reduce poverty are highly multidimensional. For example, a public works scheme in a rural area may be designed to raise income of a target group, e.g., women or the "poorest of the poor," create a physical asset of lasting value; and create community "capacity" or "empowerment." A microcredit intervention might seek to provide credit to the landless for income generating activities, while reaching a large number of households in a short period of time, maintaining high rates of repayment, and minimizing administrative costs.

Each of the parties listed above has preferences over the outcomes resulting from an intervention. For heuristic purposes, suppose that there are just two outcomes, denoted by z_1 and z_2—this will suffice to make the main points of interest. Given a pair of realized objectives, we denote the outcome that accrues to the poor as $B(z_1, z_2)$. We assume that $B(z_1, z_2)$ is increasing in both arguments; they are measured so that more of both z_1 and z_2 are considered to be a good thing. We think of the benefit function as the kind of conventional objective function studied in the literature on antipoverty interventions. For example, a standard poverty measure in the FGT class could fit this, where z_1 is the poverty line and z_2 is the extent of targeting across different subgroups of the poor.

While we assume that beneficiaries' outcomes can be valued in the standard objective way, this is not the case for the financiers and providers. We assume that they can be driven by particular missions to design interventions in particular ways. This is captured by giving them some explicit benefit from having the intervention designed in a particular way. Good examples of these private benefits can be found in the literature on incentive structures within institutions that have mandates to deliver interventions that

assist the poor. These stress the importance of both monetary, or extrinsic, incentives as well as intrinsic factors such as "pride in one's work."[1] Within Bolivia's Emergency Social Fund—designed to create minimum wage jobs in the construction of community assets—both extrinsic (promotion based on performance in implementing projects that poor people requested at reasonable cost, and generating jobs) and intrinsic (the "glamour of serving the poor," see Klitgaard 1997), norms were used to ensure that individuals within this agency worked towards these goals. Tendler and Freedheim's (1994) account of a successful preventive health program in the state of Ceará, Brazil, provides a second example. In their narrative, a key feature that facilitated the success of this work was that project staff, who were all public servants, received a number of extrinsic rewards, relating to enhanced status both professionally and within the community. Lam (1996) notes that, in the context of local irrigation authorities in Taiwan, responsibility for good performance is "supported not simply by bureaucratic rules but also by norms and social sanctions" (Lam 1996, 1050). Conversely, there may also be powerful extrinsic motivations that discourage individuals within financier and provider entities from supporting activities that beneficiaries desire. Ostrom's (1996) review of incentives and development notes that professional pride represents an important motivator for engineers involved in designing irrigation works, a finding echoed by Adato (1999a) in their analysis of public works in South Africa. In both cases, this discourages these actors from designing works in keeping with the preferences of local communities.

$$F_k(z_1 , z_2) = \beta f_k(z_1 , z_2) + (1 - \beta)B(z_1 , z_2) ,$$

where $f_k(z_1 , z_2)$ is the "private" benefit accruing to the financier and β is the weight given to this private benefit. Indexing by k recognizes that there are different kinds of

[1] Ostrom, Lam, and Lee (1994) and Ostrom (1996) discuss this extensively in the context of state management of irrigation structures in Nepal. Uphoff, Esman, and Krishna (1998) provide further examples from a number of rural development projects.

financiers who may each have different objectives. In what follows, we work for simplicity with the case where there is a unitary financier. It will not affect the main points that we are making.

The objective function for provider *j* can be written as

$$P_j(z_1, z_2) = \alpha_j p_j(z_1, z_2) + (1 - \alpha_j)B(z_1, z_2),$$

where $p_j(z_1, z_2)$ is the "private" benefit accruing to the provider P_j and α_j is the weight given to this private benefit.[2] One possible provider is the community and it will prove helpful to denote the objective function of the community as provider as P_{CP} and the private weight for the community as provider as α_{CP}.

To fix ideas, we now consider two extreme cases: unified provider-financier provision and a split between the financier and the provider where the community now gets to design the project. Exactly how this will work will depend upon what we assume about the kinds of agreements that can be written between the community and the financier in the case of community provision being considered. At one extreme is the case where the financier can specify and enforce a very detailed agreement with community about how it will run the intervention. In that case, the community becomes effectively disempowered in specifying objectives, and acts as a "perfect" agent, providing cost advantages without distorting the financier's objectives.

[2] Note that this assumes that financiers and providers are homogeneous, which in reality may not be the case. The donor who is acting as a financier might consist of a project leader who is interested in maximizing prestige; middle managers anxious to protect their budgets; and lower level functionaries interested in promotion. Further, each actor may be accountable to a number of constituencies. For example, an engineer within a government public works department who is responsible for providing drinking water to a locality may be answerable to four different groups. These could include her superiors within the bureaucracy, a professional organization that accredits and monitors her professional conduct, local politicians seeking to maximize the benefits flowing to their constituents, and the intended beneficiaries of the intervention.

At the other extreme, we could suppose that casting the community in the role as a provider gives it complete autonomy in program design so that its preferences over the objectives are decisive. Of course, in actuality most cases are situated between the two extremes. Our next task is to consider what might happen in a number of specific cases using our model to generate a simple diagrammatic approach.

In every case, we are interested in the answers to two main questions:

1. How would a switch to community finance change the choice of program objectives?
2. Will benefits necessarily increase from community participation?

The answers to these questions will depend upon the trade-off between program design and cost advantages. Note that even though communities' information and enforcement advantages are likely to give them a lower cost of provision, certain incentive problems may arise when there is separation of finance and provision. This can arise in situations where the cost of providing support to the poor depends upon investments made by the provider. If contracts between the provider and financier are complete (binding and specifying all possible contingencies), then there are no particular difficulties—the types and nature of investments can be contracted upon up-front. However, in the more likely world of contractual incompleteness, there is a possible problem of hold-up when more than one party is involved. For example, a financier who does not like the way a project is being executed can threaten to withdraw finance. In such circumstances, this will tend to blunt the incentives of providers to invest in the project. This can create a further trade-off between unified financier-provider schemes with those where the provider and the financier are from different institutions. Thus, even though communities may be more efficient, this may not be realized in practice.

THE COMMUNITY AS PROVIDER WHEN OUTCOMES ARE PERFECTLY ENFORCEABLE

We begin by considering the "complete contracts" case, where the power to specify objectives remains with the financier after community participation. We assume that enforcement of program objectives is without cost to the financier, which, while not very realistic, is a useful first step in identifying the forces that shape how community participation works.[3]

Where differences in objectives are irrelevant, the only issue then in determining the effect of community participation relates to cost advantages or disadvantages. The assumption that different providers will be able to intervene at different costs is natural. There are two main sources of cost differences—information and enforcement. Some providers may be better able to identify particular groups of poor and target resources to them. Others may find it easier to threaten punishments if the poor do not follow a particular course of action. We denote the cost of providing z_1 and z_2 for provider j as $C_j(z_1 , z_2)$. In particular, let the cost of community participation be $C_{CP}(z_1, z_2)$. In the case where the financier is also the provider, the cost function would be $C_f(z_1, z_2)$. Many advocates of community participation do so because they argue that communities are more cost-effective, so we work with the case where[4]

$$C_{CP}(z_1, z_2) < C_f(z_1, z_2) \text{ for all } (z_1, z_2) .$$

There is plenty of evidence on the cost differences between difference types of project management. First, there may be interventions where knowledge of local conditions is especially important and where the cost of the acquisition of such knowledge by outsiders is high. For example, developing irrigation systems requires

[3] The following case would also be relevant if the financier and the provider had identical objectives.

[4] This assumes that the community is better at all activities, whereas it is quite possible that the community is only better at attaining some of the objectives. This would naturally be the case where some of the activities benefit from scale economies.

detailed knowledge of local factors such as soil conditions, water velocity, and shifting watercourses, all of which external planners and engineers often lack (Ascher and Healy 1990; Chambers 1988; Ostrom, Lam, and Lee 1994; Uphoff 1986). Manikutty (1998) notes that in the context of water and sanitation projects, community involvement is important in ensuring that projects are sited where they are most likely to be used. Adato (1999b) found that in public works projects in South Africa, communities had knowledge about local conditions such as safety hazards and vandalism, with relevance for road design.

Second, community participation may reduce the likelihood of moral hazard or adverse selection problems. For example, for a public works project in which a daily wage payment is made, involvement by the community in the hiring of labor may increase the likelihood that the "deserving poor" receive employment, while those with a propensity to shirk are excluded. In the Village Infrastructure Project in Indonesia and Social Funds implemented in Malawi and Eritrea, community groups were given the authority to manage financial resources, as they were seen to be particularly careful in monitoring expenses (Narayan 1998). However, Adato et al. (1999) found that South African communities had their own ideas about who was the most deserving poor, or otherwise deserving of jobs, which did not coincide with more generally accepted criteria of targeted poverty programs.

Third, communities may be better at verifying that activities related to interventions take place. A good example relates to the provision of education. An important input is the quality of instruction provided by the teacher. An outsider could have difficulty monitoring such performance. By contrast, parents often have better information on teachers' activities. In this context, work by King and Ozler (1998) on the impact of Nicaragua's school autonomy reforms, is instructive. Like many other Latin American countries, for many years the provision of education in Nicaragua was highly centralized, from funding to teacher selection and pay to curriculum design (Morley and Silva 1994). Beginning in 1993, Nicaraguan public schools could become autonomous and legally vested with many of the features of private schools. King and Ozler found

that students attending schools with de facto autonomy (a measure based on the proportion of decisions made by the school on teacher staffing) achieved better test scores than students in schools where no local autonomy was granted *or* where autonomy was only de jure. These findings are based on a regression analysis that controls for student, household, school, and locality effects. The literature on the management of irrigation structures also stresses the importance of the ongoing monitoring of these systems, and the advantages that local communities have in this regard.

The conservation of natural resources such as wildlife, watersheds, local forests, and grazing lands is an example where local participants have an informational advantage. Agrawal and Gibson (1999), Ashby, Knapp, and Ravnborg (1998), and Caldecott and Lutz (1998) argue that the maintenance of these resources requires considerable local knowledge and inputs. Additionally, ongoing monitoring is needed to ensure that rules regarding the use or protection of these resources are enforced.

Fourth, communities may have the ability to lower costs using methods that are not available to outsiders. A much-cited example is the construction of a sanitation network by the residents of Orangi, a poor urban neighborhood in Karachi, Pakistan. In the absence of external funding, the design of the sewer network was strongly conditioned by the need to keep costs as low as possible. This served as the impetus to the design of a number of lower cost components (Ghafoor 1987). Communities operating the Social Funds in Malawi were able to convince participants to accept lower wages than those officially sanctioned, with the savings being devoted to the construction of additional physical assets (Narayan 1998).[5]

[5] Note, however, that *all* costs are not necessarily lowered when beneficiaries have increased involvement in the design and implementation of interventions. Other providers may offer cost advantages in other areas. For example, liaising with a number of communities will carry higher administrative costs to the financier than contracting with a single provider. A large NGO or private firm may be able to benefit from economies of scale or superior management skills. These concerns are common to the literature on both decentralization and participation (see De Groot 1988; World Bank 1994; and Manikutty 1998). But one must be careful about this caveat as it is based on an implicit assumption of decentralization of all activities, or put another way, pure decentralization. There is no a priori reason why this would need to be so.

Klitgaard's (1997) description of Bolivia's Emergency Social Fund provides a good example of how antipoverty interventions can be made especially effective via a mix of centralized and decentralized activities.

> The ESF set up a process that asked the communities, working with the private sector constructors of schools, roads, sewers, and so forth, to submit proposals that were vetted centrally. …The centralized information process included estimates of costs of projects such as rural roads and schools, so that officials could spot proposals with outrageous estimates. …As an effective program of decentralization it empowered communities, not only through communities saying what they wanted, but through their helping to build what they wanted. Decentralization worked because centralization worked. The ESF centralized the appropriate things: information, negotiations with international donors, and incentive systems for ESF employees. This in turn enabled it to decentralize the design and construction of rural projects (pp. 1965, 1967).

In the context of natural resource interventions, Agrawal and Gibson (1999), Ashby, Knapp, and Ravnborg (1998), and Caldecott and Lutz (1998) note that the impact of participatory arrangements can be enhanced when outside agencies provide specialist advice. Development of the Indo-German watershed in Maharashtra, India, is offered as an example of this (Ashby, Knapp, and Ravnborg 1998). In this context, an external agency also plays an important role where there are interjurisdictional considerations. Lam's (1996) detailed description of the management of irrigation facilities in Taiwan, regarded by some as the most efficient system in the world, provides an example of a successful mix of centralization and beneficiary participation in the delivery of water.

We now use our simple analytical framework to consider what happens when the financier can choose community participation while retaining the ability to determine program objectives. In the following diagrams, the axes are the levels of the two

objectives chosen in the programs. Our assumption that the community is a lower cost provider is reflected in the location of the two cost curves. In terms of the figures, this translates into the poverty objectives possibility frontiers that are drawn as convex to the origin. There are three benefit functions to consider—that of the beneficiaries and whoever controls the intervention. These can all be drawn as having indifference curves that we draw as convex.

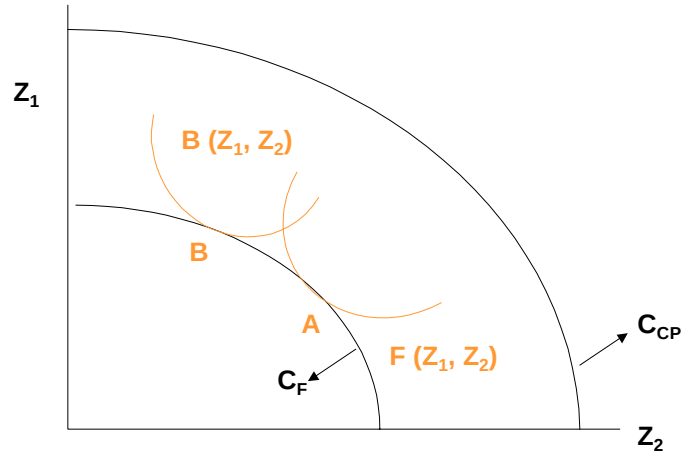
In Figure 1, we illustrate a possible status at point A that reflects the optimal choice of the financier. Note that the beneficiaries do not receive their maximum benefit, which is B. This reflects the fact that the financier may not share the beneficiaries' objectives perfectly. If it did, then these two points would coincide. This figure illustrates very clearly the idea that there is a potential for all to gain by switching to a provider that can achieve both objectives at lower cost. There are points on the objectives possibility frontier (representing the cost function of the community) that are better for everyone.

Figure 2 considers what would happen if the financier handed over the running of the project to the community and the objectives of the financier and the community coincide. In this case, we move from A to C. Clearly, the financier is better off as he secures greater levels of the objectives at lower cost. In most cases, we would also expect the beneficiaries to gain; and the way we have illustrated the outcome here, this is indeed the case. Note once again that the beneficiaries do not get their ideal outcome, even though they get more of every objective.

THE COMMUNITY AS PROVIDER WHEN THE PROVIDER HAS COMPLETE CONTROL OVER PROGRAM OBJECTIVES

We now consider what would happen when community participation results in a provider who has discretion over the choice of objectives in a poverty alleviation program. This is a natural case to consider given the heterogeneous nature of program objectives and the extent to which they can be measured and monitored.

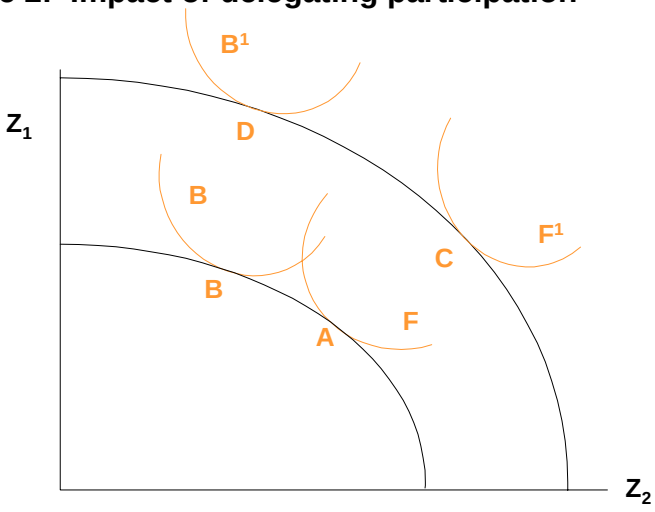
Figure 1: Basic framework



Outcome possibility frontier for fixed budget

Indifference curves

Figure 2: Impact of delegating participation



C Implementation delegated to community; financier controls objectives of intervention

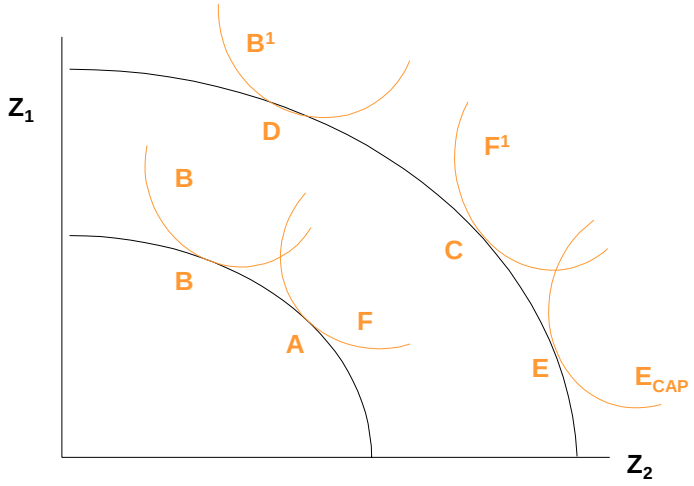
D Implementation delegated to community; "community" + "poor's" preferences *coincide*; community has complete autonomy

Consider, for example, the monitoring of a credit program. Lending records provide an easy means of monitoring disbursement levels and repayment rates. By contrast, ensuring that credit is reaching the intended beneficiaries can be accomplished only with significantly higher monitoring costs. Other objectives of antipoverty interventions, such as "community empowerment" are even more difficult to measure. An additional issue is how weights should be attached to these different objectives. The key issue is not the number of objectives, their diversity, or the difficulty in assigning weights. Rather, it is the combination of all these factors. In the case of rural road construction, for example, one could imagine two types of projects, one that is highly labor intensive but produces a road that needs frequent rebuilding, or one that is more capital intensive but produces a road that is longer lasting. In principle, one could calculate the transfer of funds flowing directly to the poor under both schemes as well as heroically imputing a value associated with different rates of depreciation. This would require making assumptions about how long the road lasts under both approaches, the return to the presence of the well-constructed road both generally and to the poor, the discount rate, and weights that one would attach to income transfers to the poor and not-poor. But even if one could make all such calculations, other criteria (such as "increased community capacity") would remain unmeasured.

To illustrate these ideas in our framework, we begin by taking an extreme incomplete contracts case where the provider has complete control over the program's objectives. Formally, it will choose the levels of the objectives to maximize its benefits subject to the costs of provision. We maintain throughout the assumption from the last section that community participation lowers the cost of intervention. We also focus on the central case of interest where the community's preferences diverge from the financier's preferences over the design of the intervention.

Our first case, also illustrated in Figure 2, shows that where implementation is delegated to the community, where the community's preferences coincide with those of the beneficiaries, and where the community has complete autonomy, we obtain outcome D. But Figure 3 paints a less rosy picture. This is where the community's preferences for

Figure 3: Impact of delegating participation with elite captive



E Implementation delegated to community: "community" + "poor's" preferences *diverge*; community has complete autonomy

program objectives diverge even further from the beneficiaries' than do those of the provider. In this case, we get an outcome at point E. This would arise if the community valued objective 2 a great deal more than do the beneficiaries. This could occur where local elites "capture" the intervention and where these elites greatly value z_2, whereas the poor value z_1. In this case, the beneficiaries would actually prefer to have the higher cost financier design the intervention. Note, however, that the financier still prefers to have the intervention managed by the community since the cost advantage is not outweighed by the preference divergence in this case.

There is much discussion of how shifts to more decentralized forms of project management change program objectives, whether for better or for worse. Ostrom (1995) provides one example of this in the context of self-managed irrigation works in Nepal. She notes that all farmers, even the very poor, are expected to contribute labor to the upkeep of irrigation works. Although this might appear inequitable, this "sweat equity" is a means by which these individuals maintain their claims on the water flowing through

these irrigation canals. Such claims are important, as these farmers are typically located at the tail-end of these canals and are therefore most affected when other farmers take more than their share of water. In other words, community participation may be an important means of ensuring an equitable distribution of benefits, as contributions of inputs give individuals a voice in how resources are used. A desirable distribution of benefits is often used to explain the early success of Zimbabwe's CAMPFIRE project. In this project, local communities were given considerable scope to manage local wildlife resources, including the right to collect revenues from hunting licenses.

By contrast, Agrawal and Gibson (1999) note that the natural resource literature occasionally mythologizes the notion of communities as homogeneous bodies with shared interests, when in fact they may be considerably more heterogeneous. Although the work by Ostrom, Lam, and Lee (1994) and Ostrom (1996) on self-managed irrigation schemes emphasizes the equitable distribution of water among participating farmers, such an analysis tells us nothing about the impact on nonparticipants in these localities. Meinzen-Dick and Zwarteveen (1997) note that criteria for membership in these irrigation associations exclude women, to their disadvantage. In a different context, Whitehead (1990) makes a similar point, arguing that women often refuse to provide labor to—or participate in—agricultural development projects because they perceive that the benefits of this project will only accrue to male household members.[6] In Western Cape province, South Africa, the high level of conflict that characterized many community-run projects (Adato 1999b) testifies to the heterogeneous nature of "communities."

The recognition of this problem suggests that a benevolent financier cannot simplistically assume that contracting provision of an antipoverty intervention to the community will necessarily result in the desired outcomes. One way of addressing this

[6] We have observed a similar phenomenon in northern Mali. A reputable multilateral donor was willing to lend the capital and provide the technical assistance for the construction of irrigation works in an area characterized by low and intermittent rainfall. Local villagers were expected to provide unpaid labor. They refused, in part because the distribution of benefits was unclear. Narayan (1998) provides a similar example in the context of the Orissa Social Forestry project.

problem, suggested by Narayan (1998), is that community groups should be required to take the initiative in becoming part of a project rather than financiers initiating the selection of these localities. She writes:

> The single most important self-selection is to institute a significant financial or organizational contribution up-front before any project outputs are delivered. Many projects now require community groups to enter contracts and sign documents that detail mutual responsibility. These are useful only to the extent that people understand what they are signing and when enforcement mechanisms exist on both sides (community and agency) to keep the other party accountable (p. 113).

Community self-selection and up-front contributions are a hallmark of many successful rural development projects (Uphoff, Esman, and Krishna 1998). But this raises another danger, that better organized and wealthier communities may benefit disproportionately from increased emphasis on participation. This echoes another debate prominent in the decentralization literature, namely over its consequences for distribution across communities (Prud'homme 1995). However, adverse consequences across localities are by no means inevitable. Klitgaard (1997) notes that additional technical assistance can be provided to communities lacking capacity. Narayan (1998) suggests that in such circumstances, projects be divided into small, "doable" segments, encouraging communities to build on success.[7]

THE COMMUNITY AS PROVIDER WHEN THE FINANCIER HAS PARTIAL CONTROL OVER PROGRAM OBJECTIVES

In practice, the assumption that we made in the last section, that the financier has no influence at all on the community's choice of objectives is too extreme. In practice,

[7] Interestingly, Nalbantian and Schotter (1997) find in experimental studies that when past common experience is positive, current output tends to be high.

there are a number of measures taken to affect the nature of more decentralized forms of poverty alleviation programs. For example, it is often suggested that financiers such as governments or donors should link the remuneration of providers to measured output (Cook et al. 1995; Gore 1995; Inter-American Development Bank 1996; Israel 1987). The incentive payments described at the second part of Section 2 are an example of this. The measurement problems described above make this a difficult undertaking. Even if they could be partially resolved—along with the difficulties associated with isolating individual actions from truly exogenous events and the contributions of other actors[8]—three concerns remain.

First, the fact that some components are especially difficult to measure gives rise to dangers regarding perverse incentives. Morris et al. (1999) consider the PLANDERO project, a technically well-designed intervention that sought to increase the incomes of the rural poor in the western region of Honduras. The project documentation specified criteria for targeting areas of operation and households within selected areas. However, an analysis of the project indicated that beneficiary areas tended to be relatively better off, and the most deprived areas least likely to receive assistance. Morris et al. (1999) adduce several reasons why this occurred. First, PLANDERO was required to meet an implementation schedule, defined in terms of enrollment of households into groups. Second, the project was required to satisfy rate-of-return criteria. Third, project monitoring and evaluation included components that will assess not only the speed of implementation but also impact among beneficiaries. Specified monitoring targets included: number of new groups, number of new members, farm production, and "economic results" for the farmer. Meeting these objectives was most easily achieved by working in localities close to the project headquarters or on major roads. These areas tended to be better off. Meeting objectives at the household level was most easily achieved by targeting those households that had already been past recipients of credit and

[8] Prendergast (1999) provides numerous examples demonstrating that these problems also exist within the private sector.

were therefore more likely to be creditworthy, and better educated households who could most easily grasp the concepts associated with the technologies provided by the project. Thus, meeting established performance requirements effectively encouraged the project to avoid the poorest households in this region of Honduras.[9]

Second, in the presence of imperfect information, providers might "game" the system. In her review of incentive schemes for state owned enterprises, Shirley (1998) notes that governments often had poor information on performance. Managers used their informational advantage to negotiate targets that were hard to monitor or easy to achieve.

In cases where the financier uses incentive mechanisms to try to affect the choices made by the provider, the analysis of the issues illustrated in Figures 2 and 3 need to be modified, but only slightly. First, we would expect the objectives of the provider and financier to be closer together. Whether this is actually better for the beneficiaries will depend upon whether the provider or the financier's preferences are closer to the beneficiaries' payoff. Resolving agency problems between the financier and the provider need not benefit the poor—this would only happen if the more efficient provider has preferences that are more divergent from the beneficiaries' payoff than from the financier's.

The analysis so far has been based on the relationship between a single financier and providers. Where there is more than one financier, incentive mechanisms such as "pay for performance" will have low power. Suppose several financiers seek to achieve some poverty-reducing intervention with multiple objectives. Each is interested in maximizing the achievement of one particular objective (or less restrictively, applies different weights to objectives). Further, suppose that they cannot act collusively.[10] As Dixit (1997) explains, each financier could strike a mutually beneficial deal with the

[9] Courty and Marschke (1997) document a similar example in their assessment of the implementation of the U.S. Job Training Partnership Act.

[10] Strictly speaking, this is not a necessary condition for the argument to go through. See Dixit (1997, p. 380).

provider by offering a payment in return for the provider exerting greater effort in those dimensions of interest to that financier, and commensurately lower effort in those dimensions that are of interest to other financiers. But since all financiers find it in their interest to act in this way, incentives are weak all round.

Much of the literature on community participation does not clarify precisely what is meant by *participation*, nor does the public finance literature clarify what is meant by *decentralization*. In the latter, particular attention is paid to whether formal (de jure) or real (de facto) authority is decentralized. Formal authority is the right to decide; real authority is the effective control over decisions (Aghion and Tirole 1997). Why should this matter? In the absence of delegation of de facto decision-making power, potential beneficiaries are reluctant to act because of concerns that they will be subsequently overruled. Alternatively, central authorities may subsequently renege on commitments and the threat of this generates a hold-up problem.[11] Gershberg (1998) provides examples from the decentralization literature in Latin America consistent with these observations. Conversely, Oates (1995) notes that where local authorities provide services funded by a central body, local incentives for efficient local fiscal allocations are destroyed because local authorities do not bear the costs of their own actions.

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[11] Hart, Shliefer, and Vishny (1997) have identified the importance of hold-up problems to contracting for prisons. They consider two kinds of investments—cost reducing and quality increasing. Under public ownership, a bureaucrat undertakes investments and under private ownership a firm does—the government, which buys the final product, provides finance. Under public ownership, the government must sanction both cost and quality improvements. Since it owns the asset, hold-up problems are mitigated. Privatization worsens the hold-up problem since it is assumed that the supplier can walk away after having invested, leaving the government with valueless investments. However, it also creates good incentives for investment in cost reduction that can be undertaken without government approval. However, since quality improvements require the government (the buyer of the service) to approve, quality may suffer. Thus, in this case, the quality of the output may suffer even if the cost is reduced. Thus their analysis gives a somewhat different kind of underpinning to the idea that some dimensions of program design may suffer when a potentially more efficient arrangement is being considered.

A different version of the hold-up problem is studied in Besley and Ghatak (1999). Their paper is closer in spirit to the analysis here since they begin from a situation where the financier and provider have different objectives. They argue that it is best to have a project managed by the party who values the outcome most. However, a trade-off may arise when this is not the party who is most efficient at providing all inputs. In this case, similar to the points being made above there is trade-off between fulfillment of objectives and cost reductions.

There are several examples within the beneficiary participation literature that are consistent with these concerns. Manikutty (1998) used a structured case study approach to examine the experiences of water and sanitation projects in five different Indian states. He found that the most successful projects, in terms of utilization and maintenance of facilities, were those in which de facto decision-making authority was delegated over decisions such as the physical location of water standpoints and latrines and the development of organizations that would monitor and maintain these facilities. By contrast, a national sample survey of more than 400 hand pumps in Zimbabwe found that applying microscopic rules (such as how deep the community was required to dig) deterred community participation, local initiative, and problem solving (Cleaver 1990 reported in Narayan 1998). Already noted is the finding by King and Ozler (1997) that test scores only improved where local communities were granted de facto autonomy. There was no difference between student in schools where no local autonomy was granted and where autonomy was only de jure. In the context of the CAMPFIRE project, Caldecott and Lutz (1998) noted that, "As wildlife resources in Zimbabwe came to generate local revenues for the CAMPFIRE districts, pressures grew to use them in ways that relieved central government of its spending responsibilities." This represented a change in a commitment made to these communities that these revenues would not crowd out central government expenditures. In case studies in South Africa, members of community-based committees that were formerly designated participants in project management (for the sake of capacity building) expressed their frustration at consultants and government officials who resisted their participation in financial matters, skilled tasks and decisions apart from those related to problems with workers and the community (Adato 1999b).

Moore and Joshi (1999) argue that community participation is more likely to be forthcoming when the financier has established a credible reputation for trust and reliability; in other words, when the financier can take steps to reduce the uncertainty regarding these activities. Such considerations suggest that the focus that many financier organizations place on community participation may miss the mark. What may really

matter are the incentive structures within these entities. As Narayan (1998, p. 110) observes, "Indicators of success send important signals to staff about program priorities. If community involvement, the number of women or the poor reached, and the number of systems functioning are not reflected in indicators of success, there is little incentive for staff to change their way of doing things to reach these goals."[12]

CAVEATS AND CONCLUSIONS

We begin with a caveat. Virtually all the evidence cited here that views beneficiary participation in a positive light is drawn from case studies. They spawn a wide range of interventions: public works, irrigation, education, the provision of water and sanitation, and the conservation of natural resources. These are clearly of enormous value in highlighting the various elements subsumed within the notion of participation and have done much to place this near the forefront of dialogue on development. But case studies also have limitations. It is uncertain whether the correlation between participation and outcomes reflects a causal link or the impact of other factors. Only three studies appear to control for some of these considerations, King and Ozler (1998); Isham, Narayan, and Pritchett (1995); and Isham and Kahkonen (1999). We have already discussed the King and Ozler paper; here we briefly note the results of these other contributions.

Isham, Narayan, and Pritchett (1995) undertake a multivariate analysis of the impact of participation on the performance of rural water supply performance. An indicator of project success was constructed using subjective ex post facto assessments by two independent readers. "Participation was scored on a continuum, progressing from information sharing, to more in-depth consultation, to shared decision making, to control over decision making" (Isham, Narayan, and Pritchett 1995). They find that controlling for the potential endogeneity of participation and a number of other country, locality, and project characteristics, that participation increased this subjective measure of

[12] See Moore and Joshi (1999) for further discussion.

performance. An especially attractive feature of their work is the attempt to control for the endogeneity of participation. However, they consider only a single composite outcome and do not distinguish between de jure and de facto authority. Isham and Kahkonen (1999) examine the effectiveness of community-based water projects in Central Java. An attractive feature of this work is that they control for other relevant locality community characteristics, the potential endogeneity of community participation, examine a number of outcomes, and distinguish between de jure and de facto authority. They find that, “in villages with high levels of social capital—in particular with active village groups and associations—household participation is likely to be high and monitoring mechanisms are more likely to be in place” (p. 53). They also find that “Village leaders and outsiders do not necessarily represent the preferences of households: household participation in service design and decision-making led to different—typically more expensive and convenient—water technology choices in Central Java” (p. 52).

Mindful of this, we note that one instrumental benefit of beneficiary participation lies in the prospect of reducing the cost of providing antipoverty interventions. This is likely to occur where knowledge of local conditions is especially important, moral hazard or adverse selection concerns play a role, or verification of actions is needed. Further, communities may have ways of lowering costs that are unavailable to outsiders. We also note that, akin to the problems associated with pure decentralization, devolving all aspects of the implementation may not be desirable. There is evidence that suggests that interventions work best when their implementation is characterized by a mix of centralization and decentralization.

The instrumental case for beneficiary participation is further strengthened when it is acknowledged that the objectives of most antipoverty interventions are multidimensional. This characteristic—together with difficulties in measuring outcomes, the dangers of perverse incentives, informational advantages held by providers, and the presence of multiple financiers—makes designing contracts between financiers and providers a difficult exercise. In this context, beneficiary participation becomes desirable when it is advantageous to vest rights to control of residual benefits as close to the

beneficiaries as possible. It also implies that the exact make up and weighting of the components of these interventions will most closely match those of the beneficiaries.

Having noted these attractions, we end this section with two further caveats. First, as communities are rarely homogeneous, one must be careful when using phrases such as "community preferences." Exactly who has a voice in the construction of these preference orderings may have a strong effect on the distribution of benefits generated by projects where the community plays a major role. Similar care should be attached to phrases such as "participation" and "authority." In particular, vesting de jure but not de facto authority in communities may lead to disappointing results.

3. PARTICIPATION AND POVERTY REDUCTION: EVIDENCE FROM SOUTH AFRICA

INTRODUCTION

We have noted that the literature on participation and poverty reduction is rich in case study material and thin in quantitative analysis. In this section, we analyze the impact of participation on a wide range of outcomes, drawing on a unique database of public works projects from South Africa. Before moving to the empirical analysis, however, it is important to have some understanding of the background of these projects. We begin by describing the general development of these programs in South Africa, including characteristics of the programs nationally and in Western Cape province and the research methods used to generate this dataset. These sections are drawn from Adato et al. (1999). Finally, we present descriptive data on the individual projects that will be analyzed. With this background in place, we turn to a multivariate analysis of the impact of participation on these projects.

THE DEVELOPMENT OF PUBLIC WORKS IN SOUTH AFRICA

Public works as a mechanism for job creation in South Africa dates back to the nineteenth century. At that time, the replacement of white unskilled workers with cheaper black labor, together with a recessionary economy led to efforts to increase employment in both the public and private sectors. Subsequent economic growth reduced the need for this form of poor white relief (Khosa 1997). In the early 1980s, the national government developed the Special Employment Creation Programme in response to increasing levels of unemployment among the black population. In addition to being developed by a highly unpopular government, this program was poorly conceived. Training was funded at too low a level to make the programs anything other than relief-oriented. Overall funding was low and budget allocations were not tied to spatial unemployment levels. Furthermore, institutional structures were not altered to make the program function smoothly (Viljoen et al. 1987).

In the early 1990s, with a new political and economic development framework taking shape, public works came back onto the policy agenda, and employment creation has been a major issue in both the 1994 and 1999 elections. A number of diverse civil society institutions have called on the state to play a direct role in tackling this problem. Labor-intensive public works have been proposed as a component of development strategies by, among others, the National Economic Forum, the African National Congress, the government's Reconstruction and Development Programme, the government's Growth, Employment and Redistribution strategy, and the government-commissioned Report on Poverty and Inequality (for references, see Adato et al. 1999a).

The preeminent institution in developing the public works program was the National Economic Forum (NEF). The NEF was created by trade unions and the business sector in 1992 to formulate joint strategies for economic development. In 1993, an NEF task force was established to develop a proposal for a National Public Works Programme (NPWP), to be implemented by the new government upon attaining majority rule in 1994. The mandate of the task force was to establish guidelines for public works projects

that went beyond “make-work,” short-term poverty alleviation. Instead, the idea was to develop a program that was both *participatory* and *sustainable*. The Government of National Unity that took office in April 1994 published in September 1994 the *White Paper on Reconstruction and Development* (RDP). A component of the RDP was the use of public works to combat unemployment. Within this framework, the NPWP was established within the National Department of Public Works. The NPWP had two major components. The first was a framework in which the number of jobs created by public sector-financed construction could be increased via the regulation of the terms under which construction contracts are awarded so as to promote greater labor-intensity. The second component, of greater importance for this study, was a dedicated short-term job creation program, the Community-Based Public Works Programme (CBPWP). Collectively, these components endowed the NPWP with the following objectives:

- Create, rehabilitate, and maintain physical assets that serve to meet the basic needs of poor communities and promote broader economic activity;
- Reduce unemployment through the creation of productive jobs;
- Educate and train those on the program as a means of economic empowerment; and
- Build the capacity of communities to manage their own affairs, strengthening local government and other institutions and the generation of sustainable economic development through community participation in infrastructure development.

The CBPWP (and its subprogram, the Community Employment Program or CEP) was not the only mechanism by which labor-intensive public works were to be provided. Four other programs implemented nationally in Western Cape province had broadly similar objectives: the Clean and Green Programme (CAG), the Pilot Project Programme, the Public Works Programme-Transport, and the Working for Water Programme (WWP).

The CBPWP sought to alleviate poverty through job creation, skills training, delivery of needed assets, and capacity building. It also sought to build the capacity of civil society to engage with development issues, giving opportunities for community-based organizations to manage development projects, and NGOs to manage delivery and provide training (DPW 1997, p. 8). The CEP was part of the CBPWP, administered by a large national NGO—the Independent Development Trust (IDT).

The CAG was funded by the national government, and aimed to facilitate the establishment, maintenance, and expansion of a clean, usable and sustainable community service and environment and alleviate poverty through job creation, human resource development, and income generation strategies. The Pilot Project Programme was initiated by the National Department of Public Works and consisted of 12 projects spread across the nine provinces and funded under the CBPWP. Its purpose was to "demonstrate to other government departments how reorientation of expenditure on infrastructure projects may be achieved" (Van Huyssteen et al. 1997). Key features of the projects were labor-intensive designs, tender documentation, skills training, community participation and liaison, labor management systems and task-based payment.

The Public Works Programme-Transport drew on funds allocated from the RDP fund to the National Department of Transport. This was divided up among the provinces and administered by the provincial departments. These were managed by private consultants, with participation of community committees. The WWP was a job-creation and environmental program of the National Department of Water Affairs and Forestry, and was launched in 1995. It received funding from the Department of Finance as well as private sector and foreign funding. The program involved cutting down "invading alien plants," i.e., non-indigenous species such as wattle, pine, and others that consume large quantities of water. It has two main benefits: job creation, and increasing water availability for domestic and commercial use. The WWP included skills training and education, support for small and medium enterprises, and local institutional capacity building as part of its mandate. In the Western Cape, the program came to be known as the Fynbos Working for Water Programme (FWWP).

RESEARCH METHODS

The data used in this analysis are drawn from a census of projects in seven public works programs situated in Western Cape Province. This province has a population of approximately 4 million, with almost 90 percent of all residents living in urban areas. It is divided into eight development regions. The province is dominated by the Cape Metropolitan Region, which contains nearly 70 percent of the population. The remaining seven development regions contain no urban centers larger than 100,000 people, and most have fewer than 20,000. The legacy of apartheid has constrained the geographical distribution of the Black population: the vast majority (76 percent) are found in the Metropolitan region, with smaller numbers located in the development regions of the Winelands, the Breede River, and the Southern Cape.

The data on which this study is based is derived from a joint study between the International Food Policy Research Institute (IFPRI) and the Southern Africa Labour and Development Research Unit (SALDRU), University of Cape Town.[13] The study purposively selected public works programs and then took a census of all projects within the programs. In choosing which programs to include in this research, they were guided by three criteria. First, they selected those that had a primary focus on the problem of *unemployment* and the alleviation of unemployment through job creation, rather than a primary focus on infrastructure development. Second, the programs included in the study constructed infrastructure or improved the environment in ways that were not simply make-work projects, but rather undertook the construction of assets or activities identified

[13] As the Western Cape is socioeconomically better off than the rest of the country, one might wonder why this region was selected for the study. First, there are still significant poverty problems. In addition, we chose to evaluate projects in the Western Cape because unlike a survey of households or businesses, collecting data on project performance requires especially good access to those responsible for developing and implementing these activities. In the case of Western Cape Province, SALDRU had participated on the commission that developed the structure and allocated funding in the first new public works program in the province. Consequently, they had developed a relationship with other members of this body who subsequently moved into key provincial institutions responsible for development, infrastructure delivery, and job creation. The fieldwork could thus be designed with the participation of these institutions; access could be gained to key informants, project sites, and project records; and feedback could be obtained on initial results.

as high priority for the communities involved. Third, all the programs selected sought to create skills and community empowerment in addition to the jobs and quality assets.

The seven programs that met these criteria are profiled in Table 1.[14]

Table 1—Public works programs included in the study

Name of Program	Administering Institution	Number of Projects	Outside Cape Metro/Winelands (rural)	Types of Infrastructure
Clean and Green (CAG)	Provincial Department of Transport and Public Works (DTPW)	10	1	Cleaning (2), greening, alien vegetation clearing (7), parking area
Community Based Public Works (CBPWP)	DTPW	18	10	Community center, roads, storm water drainage, sanitation, water supply
Community Employment Programme (CBPWP/CEP)	Independent Development Trust (IDT)	22	21	Community center, roads, storm water drainage, sanitation, school, crèche, clinic, greening, roads and storm water
Fynbos Water Conservation Project (FWCP), also known as the Fynbos Working for Water Project (FWWP)	Department of Water Affairs and Forestry (DWAF)/Cape Nature Conservation	14	11	Alien vegetation clearing
Pilot Projects (Pilot)	DPW/DTPW	2	0	Roads and storm water
Transport Projects (Trans)	DTPW	6	4	Roads, roads, and storm water
National Economic Forum/Western Cape Economic Development Forum (WCEDF/NEF)	WCEDF/DBSA	29	19	Community center, roads, storm water drainage, sanitation, water supply, cleanup, recreation grounds, roads and storm water, multiple services, bridge

Source: Adato et al. 1999.

Using project documents, and mail-in questionnaires with follow-up telephone calls and visits, quantitative and qualitative data were collected for each project. The data were collected in the following manner. Initially, all program-level documents were identified for each of the seven programs (monthly reports, final project close out reports,

[14] Other public works programs, such as the Municipal Infrastructure Programme and the Integrated Service Land Projects were excluded from this census. These were principally low-cost infrastructure projects with employment creation considered a by-product.

project review summaries, etc.). However, these were new programs that had focused more on getting off the ground than on monitoring. It was soon determined that these documents either contained data taken from project *applications* and did not reflect actual data collected during project implementation, or were incomplete, existing for some projects and not others and/or containing certain pieces of data for some projects and not others, or containing data that were of questionable origin or contradictory. Thus, in order to get *accurate* data, a project-level questionnaire was designed and administered to implementing agents for each project. In many cases, the implementing agent did not have the data, and visits had to be made to a range of program and project administrators or managers, consultants, contractors, and accountants who helped the researchers to track down data. In the case of the IDT projects, however, the program managers would not allow the researchers access to project facilitators, and so certain categories of information are missing for many of these projects.

Table 2 lists the broad categories of data collected for each project.

COMMUNITY PARTICIPATION AND PROJECT OUTCOMES: A DESCRIPTION

Quantitatively assessing the impact of community participation and project outcomes requires first that we define precisely what these concepts mean. Recall from the discussion in Section 2 that it is important to distinguish between de jure and de facto authority. Our measure of de jure authority is based on information contained in contractual agreements between providers and programs. Specifically, we can divide these projects into three groups: (1) those where de jure authority to implement the project is vested solely with a community based organization (CBO); (2) those where de jure authority to implement the project is shared between a CBO and an either a government body or an NGO; and (3) those where the community has no de jure authority for project implementation.

Table 2: Project-level data collected for 101 Western Cape public works projects

Category of information	Type of data collected
Project location	Town, residence of workers, magisterial district, development region; rural/urban
Duration	Actual and projected; dates
Institutional arrangements	Administering institution; applicant; type of implementing agent (community organization, government, private sector, NGO, or partnership); nature of community role; identity of consultants and contractors
Assets and activities	Primary activities and project components.
Costs	Projected and actual; sources of funding (tiers of government and private)
Employment generated	Projected and actual work days, for men and women
Wages	Wage rates, initial and final, skilled and unskilled; comparative rural sector wage rates
Payment systems	Daily wage or task-based
Labour disputes	Existence or absence
Training	Costs; number of days; content; training institution
Small/medium enterprises	Existence or absence
Second-round effects	Existence or absence, and types
Maintenance arrangements	Responsible institution

Source: Adato et al. 1999.

Based on qualitative information collected on each project, it is also possible to determine the source of real or de facto authority. Along these lines, these projects can be divided into four categories: (1) the CBO is solely responsible for all aspects of the project, including design, overseeing the contractors, setting wages, selecting workers, controlling the bank accounts, etc.; (2) the CBO, together with another implementing actor, jointly participates in decision-making over some or all aspects of the project, including design, overseeing the contractors, setting wages, selecting workers, controlling bank accounts, etc.; (3) the CBO assists in selecting workers, mediates disputes, liaises with the community, but is not a decision-maker; and (4) the community has little or no involvement in the project.

Table 3 cross-tabulates these classifications. Table 3a uses the descriptions from the previous paragraph. There are no examples of projects where the community has de facto, but not de jure, decision-making authority. Conversely, there is only one instance where sole de jure authority does not translate into sole de facto authority. More interesting are the projects where de jure authority is shared between the community and some other agency. De jure sharing of decision-making power clearly translates into a variety of practices, ranging from the community having sole to no decision-making power. Table 3b collapses these broader categories into a two-by-two table, distinguishing projects by whether or not the community has some form of decision-making authority.

Table 3a—Cross-tabulation of projects by de jure and de facto authority, narrow distinctions

	De jure authority			
De facto authority	**Vested solely in the community**	**Shared between community and government or NGO**	**No de jure authority vested in community**	**Row sums**
Community is sole decision-maker	29	2	0	31
Community is joint decision-maker	1	23	0	24
Community advises but does not decide	0	32	0	32
Little or no community involvement	0	3	9	12
Column sums	30	60	9	99

Table 3b—Cross-tabulation of projects by de jure and de facto authority, broad distinctions

	Community has some de jure authority	**Community has no de jure authority**
Community makes decisions	55	0
Community does not make decisions	35	9

We now consider seven project outcomes. These are divided into three broad categories. The first is the ability of these projects to utilize publicly provided funds in a cost-efficient manner. Three outcomes are used to describe

1. the amount spent to create one day of employment (calculated by dividing the number of days of employment generated by the project by its total cost);
2. the cost to the government of transferring funds to the poor. This variable is the benefit stream generated by the project divided by the government expenditure on it. The denominator is straightforward to estimate, but the numerator is not. The benefit stream consists of transfer benefits to workers net of what they would have earned in the project's absence plus nontransfer benefits captured by the poor. Calculating the numerator relies on a number of assumptions, some rather heroic, that are documented in Haddad and Adato (1999). A low value indicates that the project is cost-efficient in delivering resources to the poor; and
3. the level of cost overruns, computed as the difference between the final cost of the completed project with the projected costs as submitted in the project proposal. This variable is negative in those instances where the project comes in under budget. The second set of outcomes captures the extent to which project benefits flow to individuals in the form of wages and training. These are measured by wages as a proportion of total project costs and the ratio of training days to days of employment. The third set of outcomes measures the extent to which these projects target particular groups within these localities.

   This is measured in two ways:

1. via the ratio of the daily project wage to the local unskilled wage. Consistent with the literature on self-targeting of public works, a lower ratio is indicative of improved targeting towards the poor; and
2. the percentage of employment that goes to women.

Tables 4a and 4b compare the mean values of these seven outcomes, disaggregated by measures of de jure and de facto participation.

Table 4a—Mean values of selected project outcomes, disaggregated by de jure community participation

	Community has some de jure authority (standard deviation in parentheses)	Community has no de jure authority (standard deviation in parentheses)	Difference in means (z statistic on differences in means in italics)
Rands to create one day of employment	118.08 (103.00)	199.96 (155.39)	-81.88 *1.55*
Cost to government of transferring one rand to a poor person	7.59 (6.23)	8.42 (9.21)	-0.83 *0.26*
Level of cost overruns (in '000 rands)	53.23 (385.34)	96.84 (297.73)	-43.61 *0.41*
Wage bill as a percentage of total costs	43.42 (26.32)	43.42 (22.58)	0 *0*
Ratio of training days to days of employment	10.98 (15.52)	14.98 (17.55)	-4.00 *0.60*
Ratio of project wage to local unskilled wage	0.78 (0.23)	0.83 (0.26)	-0.05 *-0.51*
Percent of employment that goes to women	25.35 (24.58)	8.23 (17.03)	17.13 *2.74***
Sample size	90	9	

Table 4b—Mean values of selected project outcomes, disaggregated by de facto community participation

	Community has some de facto authority (standard deviation in parentheses)	Community has no de facto authority (standard deviation in parentheses)	Difference in means (Z statistic on differences in means in italics)
Rands to create one day of employment	108.57 (84.06)	142.88 (129.82)	-34.31 *1.50*
Cost to government of transferring one rand to a poor person	7.45 (5.97)	7.77 (7.07)	-0.32 *0.24*
Level of cost over-runs (in '000 rands)	59.73 (266.56)	63.88 (535.95)	-4.15 *0.005*
Wage bill as a percentage of total costs	39.24 (19.27)	48.23 (30.90)	-9.00 *1.67**
Ratio of training days to days of employment	12.96 (15.52)	9.30 (15.92)	3.66 *1.14*
Ratio of project wage to local unskilled wage	0.76 (0.23)	0.83 (0.24)	-0.07 *-1.40*
Percent of employment that goes to women	21.66 (19.63)	26.69 (29.55)	-5.03 *0.96*
Sample size	54	43	

Comparing the impact of de jure and de facto decision-making authority across these different outcomes, one finds that although there are some apparent differences in outcomes, the standard deviations are so large that in only one case of de jure participation—the difference in the percentage of employment going to women is higher and the difference is statistically significant—do we observe any impact of community participation. But there are three reasons why we might not want to put too much weight on these findings. First, they do not take into account the processes by which projects were situated in particular localities—what Pitt, Rosenzweig, and Gibbons (1993) call endogenous program placement. Second, they do not take into account the possible endogeneity of community participation. And third, they do not account for other factors, e.g., project characteristics such as size and type of asset created—that might also affect these outcomes.

MODEL SPECIFICATION I: GENERAL CONSIDERATIONS

It is helpful to begin by specifying the relationship between community participation and outcomes associated with poverty reduction. This can be written as

$$I_{ij} = c + \beta \cdot CP_{ij} + \gamma_{ij}' \cdot \boldsymbol{P_{ij}} + \eta_i' \cdot L_i + e_{ij}\,, \qquad (3.1)$$

where

I_{ij}	=	the outcome indicator of project j located in locality i;
c	=	the constant term;
CP_{ij}	=	captures the extent of community participation in the project;
$\boldsymbol{P_{ij}}$	=	a vector of other project characteristics;
$\boldsymbol{L_i}$	=	a vector of locality characteristics;
$\beta, \gamma_{ij}, \eta_i$	=	parameters to be estimated;
e_{ij}	=	an error term.

We now describe other project characteristics that we include in our multivariate analysis. The size of the project is proxied by its projected duration. Different types of public works activities—the construction of buildings and roads and bridges and removing alien vegetation and garbage—will have different requirements for materials and for specialist inputs such as engineering design. This will have implications for our performance indicators. We have grouped the assets being constructed into three broad categories: community buildings such as centers, schools, and clinics; basic infrastructure activities such as road, storm sewers, sanitation sewers, and water reticulation; and other activities such as the removal of alien vegetation and general "cleaning and greening." We also include controls for project location: whether the project is sited in the Cape Metropolitan and Winelands area, and whether it is situated in a rural area outside of Cape/Winelands (leaving, as the base category, being an urban locality outside the Cape/Winelands).

Our data on other locality characteristics were generated by merging information on project location with data that describes the 34 districts in which the projects are located. These are drawn from the 1995 October Household Survey (OHS), conducted by the Government of South Africa's Central Statistics Service. In the multivariate analysis reported below, we include as a control the average wage for comparable semi-skilled work by district. It is also worth noting that, in preliminary estimates, we used a wide range of additional district level characteristics from these data. These included: average household size; proportion of female headed households; the percent of individuals that have completed standard 5 and standard 8 of schooling (standard 10 is the equivalent of completing high school); mean per-capita incomes; the standard deviation of per capita incomes; the standard deviation of male and female wages; the proportion of households below the poverty line; the proportion of households reporting that they are unable to feed their children; the district rate of unemployment; the district rate of long-term (greater than one year) unemployment; proportion of adults by occupational class; housing quality (size, building materials, sanitation); levels of home ownership; access to water, electricity, telephones, transport and health facilities; reported crime levels; and

how the district ranks relative to other districts on measures of infrastructure (based on a set of housing characteristics and access to services). Further, we experimented with a variety of combinations of these variables, e.g., an infrastructure index. Adding in any of these variables has no substantive impact on our results. We experimented with different controls for project location, but again with no meaningful impact on the results reported below. Finally, in preliminary runs we included a set of dummy variables that reflected our subjective assessment of the quality of the project level data we had obtained. These had no statistical significance and their inclusion does not substantively alter the results below.

Next, note that endogenous program placement would imply some correlation between CP_{ij} and e_{ij} and/or between $\boldsymbol{P_{ij}}$ and e_{ij}. For example, we might believe that a project to upgrade roads might be situated in an area where roads were in particularly bad shape. However, based on our knowledge of these projects, it is unlikely that endogenous program placement is a significant factor.

To select projects for the CBPWP, a provincial government task team gathered a wide range of stakeholders (an intersectoral group made up of representatives from government, community organizations, trade unions, and the construction industry), and ranked project applications based on program criteria related to labor intensity, training, community participation, budget factors including percentage costs going to communities and the private sector, management and maintenance provisions, and ability of the applicant to implement the project. Applications were solicited using de jure and informal networks of contacts between government officials at provincial and local level, between government officials and consultants, and between NGOs, community based organizations (CBOs), and other sectoral interest groups. No attempt was made to select localities based on socioeconomic criteria. The CEP projects were also ranked according to their fit with program criteria, although selection was made by the administering institution, the IDT. There is evidence that the IDT had a socioeconomic profile that it planned to use (CBPWP meeting minutes, 12/6/94), but no supporting evidence could be found to show whether these were actually used. The WCEDF projects were selected

using a similar process as described for the CBPWP. The intersectoral WCEDF established the Short-Term Job Creation Commission that received proposals and forwarded them for review to its steering committee. The committee appraised and approved projects, ranking them according to their fit with program objectives. As with the CBPWP, projects were directed at communities known to be poor, but communities were not selected for their relative poverty according to statistical information.

The CAG projects were selected by a government task team that reviewed applications from CBOs and NGOs. They were selected based on their fit with program criteria. These projects had more restrictive criteria in that they all had urban locations (around Cape Town), required matching funds from local government, and were limited to environmental projects.

In three of the community-based programs, the CBPWP, CEP, and WCEDF, a number of communities learned of the availability of project funds through engineering consultants. These consultants, some of whom had offices in rural areas, had experience with drawing up applications, tendering for contracts, and accessing government funds. As Adato and Haddad (1999) note, this had the effect that communities that had no such contacts—and thus were likely to be more isolated and have greater need for capacity building and infrastructure—were less likely to apply.

The Pilot Projects program allocated funding for only one project in the Western Cape, although this was later split into two jointly administered projects. These were placed in Khayelitsha, a township outside of Cape Town, after the town engineer's office identified an area of Khayelitsha that, unlike the rest of the township, did not have roads and stormwater drainage. This office, together with a consultant who had obtained public contracts in the past, phoned various government departments to inquire about the availability of funds for the project. The RDP-Transport projects were selected by the provincial Department of Transport and Public Works. Community participation was a requirement of RDP funds, but was solicited after project selection. Communities did not apply for projects. Instead, locations for road building were selected by the Department, based on a backlog of needed infrastructure in areas that served poor communities.

The FWWP project locations were selected by DWAF, which took into account two main criteria: (1) ecological factors (whether there was a need for alien vegetation removal in the area), and (2) social factors (whether: there were nearby Black communities where people needed jobs). In this case, ecological but not socioeconomic data was used in making a determination.

Several additional remarks are worth noting. First, none of the programs appear to have used socioeconomic data to determine which areas should receive priority. Second, no locality received funding for more than one project within one program, but programs paid no attention to what other development project funding the locality received. Third, it became clear that engineering consultants played a large role in gaining access to public works funds for a particular locality. They informed communities about the availability of funds, assisted in the preparation of project applications, and were almost inevitably contracted to design the infrastructure. This process was summarized by one consulting engineer:

> What we do in the past, engineers, professional firms like us, used to sit back and wait for the government to appoint us…. But now the new system is that we can go out in the field, we can advertise, we can go speak and sell ourselves you see. …When we first started here it was 1993, we visited all the small towns and we said, well you know the new funding is going to work like this, you've got to apply…and the more you apply for and the quicker you apply, the more you'll get (Adato and Haddad 1999).

This impression of projects allocated according to a wide, and in some ways unsystematic, set of criteria is further supported by Adato and Haddad (1999). They systematically examine the relationship between locality and project selection, and characteristics of the districts in which these projects are sited. They find no evidence of any systematic relationship. Accordingly, we continue with the assumption that concerns

regarding nonrandom placement of interventions in selected communities are not warranted here.

MODEL SPECIFICATION II: SELECTIVITY AND OMITTED VARIABLE BIAS

We now turn to our second concern, that the ability of communities to participate in these projects is correlated with characteristics of the localities themselves. A priori, this would seem to be a significantly greater source of concern. Both the case study evidence reviewed in the previous section, as well as the narrative above, point to the notion that the ability of communities to formulate and implement projects might be related to other community characteristics. Our approach, in the face of such concerns, is to look for variables that are associated with the ability to "participate," but are independent of project outcomes. Specifically, following an idea found in Mauro (1995), we assume that the extent to which localities are "fractionalized" affects the ability of these communities to participate in the development and implementation of projects, but is unrelated to project outcomes apart from their impact on community participation. We use three measures of fractionalization: the percentage of adults who are divorced; an index of racial fractionalization; and an index of political fractionalization. These indices take the following general form:

$$\textit{index of fractionalization} = 1 - \Sigma_{i=1}^{I} (n_i / N)^2 \, , \; i = 1, \ldots, \mathrm{I},$$

where n_i is the number of people in the ith group, N is the total population, and I is the number of groups. Our index of racial fractionalization draws on data at the magisterial district level on the percentage of individuals from different racial groups (White, Colored, African, Asian). Our index of political fractionalization is constructed using the shares of votes obtained by different political parties in the November 1995 and March 1996 local elections.[15] The extent of community participation is hypothesized to be

[15] Our thanks to Ridwaan Haywood for supplying us with these data.

affected by the magisterial district level percentage of adults who have completed standard 8 schooling. This captures the level of human capital in these communities that one might believe is associated with the ability to participate in project decision-making.

Again, it is worth noting that we experimented with the inclusion of other variables that we believed might affect community participation. These included measures of crime in these communities; measures of economic stratification (such as the standard deviation of earnings, levels of unemployment; percentage of individuals in different occupations; levels and severity of poverty); and measures of community access to infrastructure (such as distance to various facilities; access to telephones); and other measures of political activity, such as voter turn out and the identity of the party that controlled the local council. None of these variables had explanatory power in the regressions used to predict the probability of participation and hence are not included in the analysis below.

Table 5 presents the results of estimating probits on the determinants of de jure and de facto participation (as described in Table 3b above) in these projects. The variables that are to be used as instruments are written out in italics. The standard errors have been calculated using the Huber/White method.

Note that the chi-squared statistic on the instruments is significant at the 5 percent level for measures of both de jure and de facto participation. Also note that as the percentage of adults divorced has virtually no impact on de jure participation, this variable is dropped when we estimate the selectivity corrected models below. The striking marginal impacts of these instruments are given in Table 6. Every 0.01 change in the index of racial fractionalization causes the probability of de jure participation to fall by about 0.1. However, the impact on the probability of de facto participation is almost 30 times larger; a similar change causes the probability of de facto participation to fall by roughly 2.8 percent. These marginal effects also show that increases in the level of education in the district in which the project is sited has a small positive impact on the likelihood that the community has some de facto decision-making power. It also reassures on the one puzzling finding of Table 5, namely the negative coefficient on

Table 5—Determinants of de jure and de facto authority

	Dependent variable equals one where:		
	Community has some de jure authority	**Community has some de jure authority**	**Community has some de facto authority**
Projected duration of project	-0.003 (1.171)	-0.002 (1.167)	-0.006 (4.415)**
Constructing community buildings	0.024 (0.044)	0.022 (0.038)	1.473 (3.490)**
Constructing basic infrastructure	0.929 (1.423)	0.929 (1.425)	0.859 (2.019)**
Located in Cape Metropolitan or Winelands	-0.939 (0.954)	-0.946 (1.408)	-2.401 (3.494)**
Located in rural area	-2.614 (2.489)**	-2.620 (2.684)**	-2.379 (3.394)**
Average wage in district	0.002 (0.072)	0.002 (0.114)	0.032 (1.324)
Percentage of adults divorced	0.002 (0.072)	-	-0.244 (1.579)
Index of racial fractionalization	-11.788 (2.197)**	-11.757 (2.476)**	-7.210 (2.999)**
Index of political fractionalization	-8.853 (1.723)*	-8.872 (1.922)*	-5.894 (2.002)**
Percentage of adults with standard 8 schooling	-0.096 (2.381)**	-0.095 (2.540)**	0.032 (1.712)*
Constant	19.872 (3.266)**	19.859 (3.311)**	7.456 (3.237)**
Chi squared on joint significance of all regressors	17.88**	17.03**	46.46**
Chi squared on joint significance of instruments	9.55**	9.53**	14.46**

Notes: Variables used as instruments are written in italics. Absolute values of t-statistics in parentheses.
** = significant at the 5 percent level; * = significant at the 10 percent level.

education in the de jure authority probit. The marginal effect of this variable is very small; increasing the percentage of adults with standard 8 schooling by 15 percentage points (roughly the difference between the 75th and 25th percentiles of mean schooling) would reduce de jure participation by less than one percent.[16]

[16] We suspect that this negative coefficient is a statistical fluke. Four of the nine projects in which there is no formal community participation are part of the Clean and Green Programme, and all are located in urban Cape Town districts with relatively high levels of schooling.

Table 6—Marginal impact of instruments on de jure and de facto authority

	Increasing the right-hand side variable by 0.01 causes the probability of participation to change by:	
	Community has some de jure authority	**Community has some de facto authority**
Percentage of adults divorced	-	-0.094
Index of racial fractionalization	-0.090	-2.786
Index of political fractionalization	-0.068	-2.278
Percentage of adults with standard 8 schooling	-0.0007	0.013

MULTIVARIATE RESULTS

We now turn to the results of estimating equation (3.1). These are found in Tables 7 and 8. Three specifications are reported. The first augments equation (3.1) to take into account possible selectivity biases associated with community participation. Specifically, we estimate a treatment effects model using Heckman's (1979) two-step consistent estimator (estimating the model using a full information maximum likelihood estimator does not produce results different from those reported here). Specifically, we denote our model of the determinants of community participation as

$$CP_{ij}^* = \gamma' \cdot \boldsymbol{W}_{ij} + u_{ij} \qquad (3.2)$$
$$CP_{ij} = 1 \text{ if } CP_{ij}^* > 0, \text{ 0 otherwise.}$$

If e_{ij} (from equation 3.1) and u_{ij} are correlated—that is, if there are characteristics that affect both the likelihood of community participation and project outcomes, then estimating equation (3.1) without accounting for this bias will overstate the impact of community participation. The unbiased expectation of project outcomes where the community participates is

$$\begin{aligned} E[I_{ij} \mid CP_{ij} = 1] &= c + \beta \cdot CP_{ij} + \boldsymbol{\gamma_{ij}}' \cdot \boldsymbol{P_{ij}} + \boldsymbol{\eta_i}' \cdot \boldsymbol{L_i} + E[e_{ij} \mid CP_{ij} = 1] \\ &= c + \beta \cdot CP_{ij} + \boldsymbol{\gamma_{ij}}' \cdot \boldsymbol{P_{ij}} + \boldsymbol{\eta_i}' \cdot \boldsymbol{L_i} + \rho\sigma_e\lambda(-\gamma' \cdot \boldsymbol{W}_{ij}). \end{aligned}$$

In addition, we also report the results of estimating equation (3.1) without correcting for selectivity. A third specification augments equation (3.1) by including those variables used as instruments to predict the likelihood that the community has either de jure or de facto participation in these projects. As there are a large number of results to report (the determinants of seven project outcomes are estimated using three specifications and two measures of participation), only the participation measures, the first-stage instruments, and the inverse Mill's ratio are reported in Tables 7 and 8. The full results, including the control variables (projected project duration, asset type being created, project location, and local wage rates), are found in Appendix 2.

Table 7a—The impact of de jure participation on the log of the cost of creating one day of employment

	With selectivity controls	With no selectivity control	With no selectivity control, instruments for participation included
Community has some de jure authority	0.299 (0.602)	-0.411 (1.576)	-0.524 (1.938)*
Index of racial fractionalization	-	-	-0.313 (0.377)
Index of political fractionalization	-	-	-1.132 (1.000)
Percentage of adults with standard 8 schooling	-	-	-0.011 (1.571)
Lambda	-0.521 (1.733)*	-	-
F statistic on instruments	-	-	1.19

Table 7b—The impact of de jure participation on the cost of transferring one rand to a poor person

	With selectivity controls	With no selectivity control	With no selectivity control, instruments for participation included
Community has some de jure authority	-4.193 (0.897)	-1.991 (0.640)	-1.933 (0.660)
Index of racial fractionalization	-	-	5.177 (0.680)
Index of political fractionalization	-	-	-9.098 (0.957)
Percentage of adults with standard 8 schooling	-	-	-0.018 (0.213)
Lambda	1.615 (0.544)	-	-
F statistic on instruments	-	-	0.37

Table 7c–The impact of de jure participation on the log of level of cost overruns

	With selectivity controls	With no selectivity control	With no selectivity control, instruments for participation included
Community has some de jure authority	177.936	-46.842	-102.136
	(0.707)	(0.311)	(0.656)
Index of racial fractionalization	-	-	-627.574
			(0.821)
Index of political fractionalization	-	-	536.485
			(1.262)
Percentage of adults with standard 8 schooling	-	-	-2.328
			(0.405)
Lambda	-185.642	-	-
	(1.118)		
F statistic on instruments	-	-	1.21

Table 7d—The impact of de jure participation on the percentage of project costs that are paid out as wages

	With selectivity controls	With no selectivity control	With no selectivity control, instruments for participation included
Community has some de jure authority	-0.084	0.038	0.071
	(0.599)	(0.700)	(1.186)
Index of racial fractionalization	-	-	0.058
			(0.208)
Index of political fractionalization	-	-	0.095
			(0.273)
Percentage of adults with standard 8 schooling	-	-	0.0040
			(1.500)
Lambda	0.089	-	-
	(1.025)		
F statistic on instruments	-	-	0.91

Table 7e—The impact of de jure participation on the ratio of training days to days of employment

	With selectivity controls	With no selectivity control	With no selectivity control, instruments for participation included
Community has some de jure authority	-7.173	-3.815	-5.529
	(0.643)	(0.621)	(0.881)
Index of racial fractionalization	-	-	-3.074
			(0.128)
Index of political fractionalization	-	-	-17.689
			(0.658)
Percentage of adults with standard 8 schooling	-	-	-0.182
			(1.128)
Lambda	2.463	-	-
	(0.346)		
F statistic on instruments	-	-	0.59

Table 7f—The impact of de jure participation on the ratio of project wages to local, unskilled wages

	With selectivity controls	With no selectivity control	With no selectivity control, instruments for participation included
Community has some de jure authority	0.146 (0.986)	-0.109 (1.336)	-0.084 (0.974)
Index of racial fractionalization	-	-	0.178 (0.692)
Index of political fractionalization	-	-	0.259 (1.051)
Percentage of adults with standard 8 schooling	-	-	0.002 (0.876)
Lambda	-0.188 (2.157)**	-	-
F statistic on instruments	-	-	1.13

Table 7g—The impact of de jure participation on the ratio of percentage of employment days to women

	With selectivity controls	With no selectivity control	With no selectivity control, instruments for participation included
Community has some de jure authority	3.207 (0.209)	13.963 (1.571)	18.715 (2.072)**
Index of racial fractionalization	-	-	46.145 (1.766)*
Index of political fractionalization	-	-	19.861 (0.660)
Percentage of adults with standard 8 schooling	-	-	0.309 (1.315)
Lambda	7.888 (0.815)	-	-
F statistic on instruments	-	-	2.54*

Notes: * = significant at the 10 percent level; ** = significant at the 5 percent level. Specification (1) shows the results of estimating a treatments effects model using the Heckman two-step estimator. Specifications (2) and (3) are OLS estimates with robust (Huber/White) standard errors.

Table 8a—The impact of de facto participation on the log of the cost of creating one day of employment

	With selectivity controls	With no selectivity control	With no selectivity control, instruments for participation included
Community has some de facto authority	-0.438 (1.253)	-0.205 (1.171)	-0.263 (1.411)
Divorced	-	-	0.029 (0.488)
Index of racial fractionalization	-	-	-0.264 (0.320)
Index of political fractionalization	-	-	-1.725 (1.352)
Percentage of adults with standard 8 schooling	-	-	-0.009 (1.290)
Lambda	0.175 (0.763)	-	-
F statistic on instruments	-	-	0.86

Table 8b—The impact of de facto participation on the cost of transferring one rand to a poor person

	With selectivity controls	With no selectivity control	With no selectivity control, instruments for participation included
Community has some de facto authority	-5.374 (1.613)	-2.734 (1.561)	-2.730 (1.626)
Divorced	-	-	0.748 (1.474)
Index of racial fractionalization	-	-	3.398 (0.464)
Index of political fractionalization	-	-	-16.676 (1.608)
Percentage of adults with standard 8 schooling	-	-	-0.037 (0.387)
Lambda	1.980 (0.909)	-	-
F statistic on instruments	-	-	0.91

Table 8c—The impact of de facto participation on the log of level of cost overruns

	With selectivity controls	With no selectivity control	With no selectivity control, instruments for participation included
Community has some de facto authority	-55.277 (0.256)	62.823 (0.587)	66.866 (0.603)
Divorced	-	-	0.278 (0.015)
Index of racial fractionalization	-	-	-550.673 (0.651)
Index of political fractionalization	-	-	712.812 (1.409)
Percentage of adults with standard 8 schooling	-	-	-1.273 (0.241)
Lambda	87.309 (0.615)	-	-
F statistic on instruments	-	-	1.19

Table 8d—The impact of de facto participation on the percentage of project costs that are paid out as wages

	With selectivity controls	With no selectivity control	With no selectivity control, instruments for participation included
Community has some de facto authority	0.084 (0.840)	0.051 (0.993)	0.067 (1.193)
Divorced	-	-	0.007 (0.458)
Index of racial fractionalization	-	-	0.049 (0.176)
Index of political fractionalization	-	-	0.254 (0.678)
Percentage of adults with standard 8 schooling	-	-	0.003 (1.251)
Lambda	-0.025 (0.377)	-	-
F statistic on instruments	-	-	0.84

Table 8e—The impact of de facto participation on the ratio of training days to days of employment

	With selectivity controls	With no selectivity control	With no selectivity control, instruments for participation included
Community has some de facto authority	5.614 (0.693)	3.413 (1.162)	2.808 (0.770)
Divorced	-	-	-0.114 (0.113)
Index of racial fractionalization	-	-	3.973 (0.156)
Index of political fractionalization	-	-	-19.645 (0.653)
Percentage of adults with standard 8 schooling	-	-	-0.172 (0.970)
Lambda	-1.650 (0.310)	-	-
F statistic on instruments	-	-	0.30

Table 8f: The impact of de facto participation on the ratio of project wages to local, unskilled wages

	With selectivity controls	With no selectivity control	With no selectivity control, instruments for participation included
Community has some de facto authority	-0.192 (1.797)*	-0.059 (1.105)	-0.031 (0.505)
Divorced	-	-	0.024 (1.771)*
Index of racial fractionalization	-	-	0.157 (0.584)
Index of political fractionalization	-	-	0.119 (0.437)
Percentage of adults with standard 8 schooling	-	-	0.002 (0.666)
Lambda	0.099 (1.447)	-	-
F statistic on instruments	-	-	1.60

Collectively, Tables 7 and 8 report results from 42 different regressions. For this reason, it is helpful to note the following key results. First, there is good reason to believe that we have an appropriate set of instruments to measure community participation. Recall from Table 5 that our instrument set—the percentage of adults divorced, the indices of racial and political fractionalization, and the proportion of adults with standard 8 schooling—were clearly correlated with both de jure and de facto participation. In

Table 8g—The impact of de facto participation on the ratio of percentage of employment days to women

	With selectivity controls	With no selectivity control	With no selectivity control, instruments for participation included
Community has some de facto authority	10.794	2.641	5.108
	(0.954)	(0.342)	(0.676)
Divorced	-	-	-0.922
			(0.411)
Index of racial fractionalization	-	-	44.063
			(1.781)*
Index of political fractionalization	-	-	28.619
			(0.907)
Percentage of adults with standard 8 schooling	-	-	0.209
			(0.898)
Lambda	-6.112	-	-
	(0.825)		
F statistic on instruments	-	-	1.94

Notes: * = significant at the 10 percent level; ** = significant at the 5 percent level. Specification (1) shows the results of estimating a treatments effects model using the Heckman two-step estimator. Specifications (2) and (3) are OLS estimates with robust (Huber/White) standard errors.

Tables 7 and 8, we report the results of including these variables as regressors. With one exception (the index of racial fractionalization is significant at the 10 percent level in the regressions on the percentage of employment going to women), these instruments have no impact on project outcomes.

Second, there is little evidence to suggest that even with these good instruments, there is much in the way of selectivity bias. In only one of the 14 models estimated (Table 7f) is the selectivity correction term significant at the 5 percent level.

Third, Tables 7c and 8c indicate that neither de jure nor de facto community participation increases the level of cost overruns. This is an important finding, as there is often concern—and certainly one voiced to us privately in South Africa—that communities lack the ability to manage budgets. These results indicate that they certainly do no worse than other providers.

Apart from these findings, however, it would seem that neither de jure nor de facto participation have a strong impact on project outcomes. But such an interpretation is premature. In these specifications, participation is entered in a rather restrictive fashion, as a variable that shifts the intercept up and down. Furthermore, these specifications do

not distinguish between the effect of different levels of participation. We address these weaknesses below.

In Tables 9 and 10, we interact measures of community participation with the type of asset being created. This permits us to determine whether, conditional on the asset being created, participation affects a particular outcome. Since there was evidence of selectivity bias in the results reported on the ratio of project to local wages, that outcome is not used below. The logic underlying these interaction terms is as follows.

Table 9—The impact of de jure participation on six project outcomes, interacting participation with the asset being created

	Coefficient on community buildings	Coefficient on community buildings interacted with de jure participation	Coefficient on basic infrastructure	Coefficient on basic infrastructure interacted with de jure participation	Coefficient on de jure participation
Log of cost of creating one day of work	-0.290 (0.66)	1.159 (2.45)**	0.750 (1.93)*	0.262 (0.60)	-0.994 (2.50)**
Cost of transferring one rand to the poor	-3.885 (0.57)	7.974 (1.38)	3.716 (0.57)	-0.486 (0.07)	-5.720 (0.88)
Cost over-runs (in '000 rands)	4.456 (0.05)	-40.953 (0.37)	963.416 (16.25)**	-951.772 (9.81)**	100.759 (0.75)
Wage bill as a percentage of total costs	-0.373 (3.75)**	-0.063 (0.56)	-0.549 (6.33)**	0.168 (1.64)	0.048 (0.48)
Ratio of training days to days of employment created	-5.254 (0.44)	15.914 (1.14)	-12.392 (1.11)	15.582 (1.20)	-13.298 (0.99)
Percentage of employment to women	15.734 (1.27)	-45.687 (3.43)**	1.174 (0.36)	-24.027 (3.66)**	38.634 (7.85)**

Notes: * = significant at the 10 percent level; ** = significant at the 5 percent level. Specifications are OLS estimates with robust (Huber/White) standard errors. Other regressors included but not reported are project location, project duration and log of community wage. Community buildings include community halls, clinics and schools.

Recall from the discussion above that the type of project available to the community was exogenously determined. Community participation affected how the project was implemented. These different project types—buildings, roads, and environmental cleanup—can be thought of as embodying different types of technologies

Table 10—The impact of de facto participation on six project outcomes, interacting participation with the asset being created

	Coefficient on:				
	Community buildings	Community buildings interacted with de facto participation	Basic infrastructure	Basic infrastructure interacted with de facto participation	De facto participation
Log of cost of creating one day of work	0.664 (2.54)**	-0.364 (0.82)	1.475 (6.88)**	-1.257 (2.88)**	0.512 (1.300)
Cost of transferring one rand to the poor	0.564 (0.22)	3.692 (1.07)	5.220 (2.13)**	-3.684 (1.22)	-2.178 (1.02)
Cost over-runs (in '000 rands)	8.326 (0.16)	-61.537 (0.84)	139.869 (0.61)	-134.613 (0.64)	150.573 (1.73)*
Wage bill as a percentage of total costs	-0.477 (8.12)**	0.286 (2.13)**	-0.598 (11.53)**	0.539 (3.89)**	-0.299 (2.37)**
Ratio of training days to days of employment created	2.716 (0.45)	10.418 (1.34)	-3.415 (0.59)	9.825 (1.32)	-4.657 (0.77)
Percentage of employment to women	-21.581 (2.46)**	-9.157 (0.72)	-14.329 (1.35)	-12.004 (0.89)	11.340 (1.08)

Notes: * = significant at the 10 percent level; ** = significant at the 5 percent level. Specifications are OLS estimates with robust (Huber/White) standard errors. Other regressors included but not reported are project location, project duration and log of community wage. Infrastructure includes roads, bridges, storm sewers, and sanitation sewers.

with differing scopes for cost reduction, the substitution of labor for capital, and opportunities for training. For example, a road can be constructed out of asphalt using a paver. Alternatively, it can be built by laying bricks, a more labor-intensive activity that also provides an opportunity to develop brick-making skills.

With this in mind, consider the outcome "wage bill as a percentage of total costs" reported in Table 10. The coefficient on community buildings is –0.477 indicating that relative to the omitted category, other activities such as the removal of alien vegetation and general "cleaning and greening," the construction of these buildings lowers the share of the budget going to wages by almost 50 percent. However, note that the interaction term—community buildings interacted with de facto participation—is positive (0.286) and significant. This tells us that relative to all projects where community buildings are constructed, de facto community participation raises labor intensity by almost 25 percent. Even more striking is the case where de facto community participation is interacted with the category basic infrastructure (roads, storm water drainage, sanitation, and water

reticulation). Here, the share of the budget going to wages is almost 60 percent lower than is the case where the project undertakes activities such as the removal of alien vegetation and “cleaning and greening.” But where the community has de facto participation in the project, this negative effect on labor intensity disappears with the interaction term being negative and almost equal in magnitude.

Also note that the interpretation on the variables de facto and de jure where they are not interacted with asset type. They refer to the effect of participation on the omitted category (the removal of alien vegetation and “cleaning and greening”). In Table 10, the negative coefficient where the outcome is “wage bill as a percentage of total costs” indicates that as de facto community participation increases, a smaller proportion of project funds are spent on wages.

Tables 9 and 10 reveal two interesting findings. First, the interactions between asset type and community participation are taken into account, there is much stronger evidence of effect of participation on project outcomes. Second, de jure and de facto participation do not seem to have similar impacts on these outcomes. For example, de jure community participation appears to raise the cost of creating one day of work when the project entails the construction of a community building, but lowers the cost where the activity involves some form of environmental cleanup or improvement. By contrast, de facto participation only affects this outcome when basic infrastructure is being created. De jure participation does not alter the labor intensity of projects and lowers the percentage of employment going to women when the asset being created is a building or item of basic infrastructure. However, de jure participation raises the percentage of employment to women when the activity is basic environmental cleanup. By contrast, de facto participation increases project labor intensity unless the activity is environmental cleanup and has no impact on the percentage of employment going to women. Neither de jure nor de facto participation affects the cost of transferring one rand to a poor person or the ratio of training days to days of employment created.

The comparisons reported in Tables 7 through 10 have focused on some measure of participation that is contrasted with its absence. But recall from Table 3 that there is

also very good information on what form community participation actually takes in these projects. Bearing in mind that selectivity considerations do not appear to be substantial here, we re-estimate our basic specification, but include variables that describe more precisely the nature of community participation. Results from these regressions are reported in Tables 11 and 12.

Table 11—The impact of de jure participation on six project outcomes, by type of de jure participation

	Coefficient on community has sole de jure authority	Coefficient on community shares de jure authority
Log of cost of creating one day of work	-0.140 (0.61)	0.030 (0.14)
Cost of transferring one rand to the poor	-1.418 (0.74)	1.925 (0.77)
Cost over-runs (in '000 rands)	-17.986 (0.15)	-86.626 (0.54)
Wage bill as a percentage of total costs	0.050 (0.74)	0.047 (0.92)
Ratio of training days to days of employment created	-0.614 (0.12)	-10.013 (1.82)*
Percentage of employment to women	11.342 (1.48)	8.149 (1.18)

Notes: * = significant at the 10 percent level; ** = significant at the 5 percent level. Specifications are OLS estimates with robust (Huber/White) standard errors. Other regressors included but not reported are project location, project duration, asset created and log of community wage.

Table 12—The impact of de facto participation on six project outcomes, by type of de facto participation

	Coefficient on community is sole decision-maker	Coefficient on community is joint decision-maker	Coefficient on community advises but does not decide
Log of cost of creating one day of work	-0.607 (2.42)**	-0.447 (1.67)*	-0.478 (2.00)**
Cost of transferring one rand to the poor	-6.647 (1.92)*	-4.305 (1.05)	-4.104 (1.19)
Cost over-runs (in '000 rands)	4.635 (0.04)	-32.637 (0.19)	-120.108 (0.64)
Wage bill as a percentage of total costs	0.088 (1.27)	0.097 (1.47)	0.060 (1.12)
Ratio of training days to days of employment created	1.355 (0.27)	0.149 (0.03)	-3.872 (0.71)
Percentage of employment to women	14.858 (1.63)	10.555 (1.14)	14.926 (1.85)*

Notes: * = significant at the 10 percent level; ** = significant at the 5 percent level. Specifications are OLS estimates with robust (Huber/White) standard errors. Other regressors included but not reported are project location, project duration, asset created and log of community wage.

The results reported in Tables 11 and 12 are striking. There would appear to be virtually no impact of de jure community participation on any of these outcomes. However, de facto participation makes these interventions more cost effective in terms of reducing the costs associated with creating employment and transferring resources to the poor.

CONCLUSIONS

This section has examined the effect of community participation on a variety of outcomes associated with public works projects implemented in Western Cape Province, South Africa, between 1995 and 1997. In this analysis, we have considered seven outcomes that capture the ability of these projects to utilize publicly provided funds in a cost-efficient manner (the number of rand spent to create one day of employment, the cost to the government of transferring one rand to the poor, and the level of cost overruns), the extent to which project benefits flow to individuals in the form of wages and training, and the extent to which these projects target particular groups within these localities. We have considered the impact of both de jure and de facto authority in terms of their direct effect, their effect conditional on the type of asset being created, and variations within these broad categories. These considerations have produced a large number of parameter estimates, and so it is helpful to summarize our core findings.

Two issues underlie our estimation strategy: the appropriate definition of participation; and the need to take into account a number of econometric concerns, notably nonrandom program placement and unobserved selectivity effects that might influence both project outcomes and the likelihood of community participation. For the projects considered here, it turns out that the former issue is extremely important while the latter is relatively unimportant. Our detailed knowledge of the manner in which these programs operated, together with the statistical analysis undertaken by Adato and Haddad (1999) indicate no correlation between the localities in which projects were sited and observable characteristics of those communities. In section 3.5, we used measures of community fractionalization—such as the extent of racial and political diversity—to

predict the likelihood of community participation in these projects. These variables demonstrate strong associations with the likelihood of participation (as shown in Table 5) while having no direct effect on project outcomes (as shown in Tables 7 and 8). We find only one instance where there is evidence of selectivity bias.

By contrast, the manner in which participation is measured is particularly important. In general, measures of de jure participation are less strongly associated with project outcomes than are measures of de facto participation. We find that de facto participation lowers the ratio of project to local wages, provided selectivity biases are taken into account (Table 8g), increases the labor intensity of projects that provide community buildings, roads, or sewers, and lowers the cost of creating employment (Table 10 and 3.12) and of transferring funds to poor individuals (Table 12). There is weak evidence to suggest that where communities advise, but do not make decisions, that the percentage of employment going to women rises. We find no evidence that community participation increases cost overruns or the ratio of training to employment created, an exception to the former being the case of environmental improvement activities (where the effect is not especially well measured). In these projects, de facto community participation is generally associated with improved project cost-effectiveness and better targeting.

4. CONCLUSIONS

This paper has examined the relationship between community participation and the efficacy of interventions designed to reduce poverty. We develop some simple analytics that are used to structure a review of the extant literature and motivate the analysis of the effect of participation on the efficacy of public works interventions in South Africa. These analytics suggest that because communities possess informational advantages not available to outsiders, community participation offers the prospect of lowering the cost of antipoverty interventions. In cases where the outcomes of interventions are difficult to measure, community participation is attractive because it is

more likely to produce a set of outcomes actually desired by the community. However, this observation must be used with some care, because these outcomes may not be those desired by *all* members of the community, nor by those who finance the interventions. These arguments are supported both by a review of the extant literature and also by a multivariate analysis of the effect of community participation on public works projects in South Africa. We find that increasing community participation reduces the cost of these interventions and improves their targeting towards the poor.

APPENDIX 1:
SOME SIMPLE ANALYTICS OF COMMUNITY PARTICIPATION

Consider a world composed of three groups. The first is a government bureaucrat attempting to deal with problems of poverty—with a limited budget. The second is a community organization—a group of influential individuals within the community who may be called upon run the program on behalf of government. The organization may called upon in a managerial capacity, but has no budget of its own to run the program. The third group is the set of beneficiaries from the program: the poor.

The program is characterized by a pair of objectives, (z_1, z_2). These objectives might be the extent to which the program gives short- and long-term support to the poor. Thus, z_1 may be the level of current consumption that is aimed at in the program (usually defined as the poverty objective), while the second is a measure of the extent to which the program tries to create human capital and eliminate long-term poverty.

The poverty alleviation program has two possible managers: the government or the community. We assume that the community enjoys an absolute advantage in production of both goals. Thus, let $C(z_1, z_2)$ be the governments cost function and $c(z_1, z_2)$ be that of the community with $C(z_1, z_2) > c(z_1, z_2)$. We also assume that

$$\frac{\partial c(z_1, z_2)}{\partial z_i} < \frac{\partial C(z_1, z_2)}{\partial z_i} \text{ for all } (z_1, z_2),\ i = (1, 2).$$

It would be easy to formalize the advantage to the community in terms of some informational advantage. However, there is no need to be specific right now.

The poor gain long- and short-term benefits from poverty reduction denoted by $B(z_1, z_2)$. We assume that $B(\cdot, \cdot)$ is increasing on both of its arguments. We also assume that the poor do not pay any of the costs of poverty reduction, so their welfare is higher whenever there is an increase in the realization of any of the program objectives, holding the other fixed. Since this is some kind of poverty indicator, this benefit function is embodies possible trade-offs between different groups of poor (women versus men, old

versus young and different ethnic groups). Since this involves aggregation, this is not value free.

We assume that the community and the government have their own objectives in addition to caring about the poor. For the government this is

$$G(z_1, z_2) = \beta g(z_1, z) + (1-\beta) B(z_1, z_2),$$

where $g(\cdot, \cdot)$ represents any "private" benefit that the government receives from having the program designed in a particular way. It could, for example, represent the fact that the government prefers to not to deliver significant benefits to women or particular ethnic groups. It could also represent differences in discount rates that imply different weighting of long- and short-term poverty alleviation benefits. The parameter β denotes the weight given to the government's versus the poor's payoff.

The community's preference is denoted by

$$R(z_1, z_2) = \alpha r(z_1, z) + (1-\alpha) B(z_1, z_2),$$

where $r(\cdot, \cdot)$ denotes the "private" payoff of the community organization and α is the weight that it attaches to its own preference relative to that of the poor beneficiaries.

We begin by considering what would happen if the government managed the poverty reduction program. It decides on how much of each objective to realize given the cost that it bears. We assume that any government expenditures not allocated to the project can be spent on some other valuable activity whose price is normalized at one. Thus, the government's objective is to choose (z_1, z_2) to maximize G (z_1, z_2) - C (z_1, z_2). Let the optimal values of this be, (z_1^G, z_2^G). Thus, the benefit to the poor is $B^G(z_1^G, z_2^G)$. The community's payoff is $R(z_1^G, z_2^G)$.

We now consider the effect of community involvement in implementing the project. This depends upon the kind of contractual possibilities between the government and the community organization. First, observe that if the community does have access to

a better technology for poverty reduction, then a Pareto improvement is, in principle, possible from decentralizing the program to have some kind of community involvement. This is because $c\left(z_1^G, z_2^G\right) < C\left(z_1^G, z_2^G\right)$. Thus, the government could pay the community organization a transfer of $t = c\left(z_1^G, z_2^G\right)$ to undertake the project on its behalf, thereby saving money.

Note, however, that solution is not incentive compatible unless the government has some direct way of controlling the community organization's inclination to change the program's objectives ex post facto. This is because preferences over project objectives may differ if $G(z_1, z_2) \neq R(z_1, z_2)$. Define

$$\left\{z_1^C(y), z_2^C(y)\right\} = \underset{z_1 \geq 0, z_2 \geq 0}{\arg\max} \left\{R(z_1, z_2) : C(z_1, z_2) = y\right\}.$$

Thus, if it were given a transfer of $c\left(z_1^G, z_2^G\right)$ to undertake the project, the community organization would be $\left\{z_1\left(c\left(z_1^G, z_2^G\right)\right), z_2\left(c\left(z_1^G, z_2^G\right)\right)\right\}$.

This would be the solution under community management if it were not possible for the government to write some kind of contract that restrained the community's behavior. Thus, we are assuming an extreme form of contractual incompleteness in the model. This seems pragmatically reasonable in a world where the objectives of poverty alleviation programs are very hard to describe ex ante.

When, in this world, would the government wish to decentralize management of poor support to the community organization? Let

$$y^G = \arg\max\left\{G\left(z_1^C(y), z_2^C(y)\right) - y\right\},$$

as the optimal poverty alleviation budget to grant to a community, given that the resource allocation decision will be made at the community level. Then the government will prefer to have a community organization manage a poverty alleviation project if

$$G\left(z_1^C\left(y^G\right), z_2^C\left(y^G\right)\right) - y^G > G\left(z_1^G, z_2^G\right) - C\left(z_1^G, z_2^G\right).$$

The left-hand side is the payoff of the government if it gives a budget of y^G to the community and the right-hand side is the payoff to the government under pure government provision. In general, it is easy to see that the likelihood of community involvement is highest where (1) government and community preferences are more congruent and (2) the absolute cost advantage of the community is largest. It is not clear a priori whether the budget is larger or smaller under community management—this depends on the nature of the agency problem involved and how budget sensitive are the different objectives. If the government receives a negative private benefit from pursuing one of the objectives of the program, then it may respond to the agency problem by cutting the budget below the cost of doing the project itself. It could still be optimal for the government to have the community organization undertake the project if there were a distinct cost advantage involved on the other poverty objective.

The community organization has also to be willing to undertake management of the project—it is only natural to assume that it will not be foisted on an unwilling organization. This requires that

$$R\left(z_1^C\left(y^G\right), z_2^C\left(y^G\right)\right) \geq R\left(z_1^G, z_2^G\right).$$

Now consider the well being of the poor. Most of the discussion of poverty reduction tends to assume that the community organizations are more in tune with the preferences of the beneficiaries. If the community cares solely about the beneficiaries, then whenever community management is good for the poor, it will be chosen by the community. However, if there is an agency problem, in the sense that the well being of the poor and the community organization are not fully in tune, there is no guarantee that this will be the case.

Example: Suppose that the only difference in preferences is which group to target resources on. Thus, let $b\ (z_i)$ be utility of members of group i when the aim of the antipoverty program is get them to an income of z_i. We assume that $b\ (z_i) = \log\ (z_i)$. There

are two groups; let λ be the share of type 1s in the population. The overall benefit indicator of the poor is $\lambda b(z_1)+(1-\lambda)\log(z_2)$. The government and the community organization differ in the weight that they attach to the well-being of each group. Thus,

$$G(z_1, z_2) = \beta \log(z_1) + (1-\beta)\log(z_2)$$

and

$$R(z_1, z_2) = \alpha \log(z_1) + (1-\alpha)\log(z_2)$$

where $\alpha \geq \lambda > \beta$. In other words, the government favors group 2 when it designs the program. We assume that there is a transaction cost c_i (C_i) for the community organization (government) to reach group i and the initial (pre-transfer) income for group i is the same and fixed at y. Then the cost of achieving the objective is

$$\lambda z_1 + (1-\lambda) z_2 - y + C_1\lambda \ + C_2(1-\lambda) \equiv \lambda_1 z_1 + (1-\lambda) z_2 + \Gamma$$

if the government manages the project, and

$$\lambda z_1 + (1-\lambda) z_2 - y - c_1\lambda_1 + c_2(1-\lambda) \equiv \lambda_1 z_1 + (1-\lambda) z_2 + \gamma$$

if the community organization does. It is now easy to check that

$$(z_1^G, z_2^G) = \left\{\frac{\beta}{\lambda}, \frac{(1-\beta)}{(1-\lambda)}\right\}.$$

It is also easy to check that

$$z_1^C(y), z_2^C(y) = \left\{\frac{\alpha}{\lambda}(y-\gamma), \frac{(1-\alpha)}{(1-\lambda)}(y-\gamma)\right\}$$

and that $y^G = 1+\gamma$. So in this case, the unconstrained community optimum and the constrained optimum yield the same allocation. The community organization spends more on the group that it favors relative to the government. The two conditions for community participation to be optimal are

$$\beta \log\left(\frac{\alpha}{\lambda}\right)+(1-\beta)\log\left(\frac{1-\alpha}{(1-\lambda)}\right)-1-\gamma$$
$$>\beta \log\left(\frac{\beta}{\lambda}\right)+(1-\beta)\log\left(\frac{1-\beta}{(1-\lambda)}\right)-1-\Gamma$$

for the government and

$$\alpha \log\left(\frac{\alpha}{\lambda}\right)+(1-\alpha)\log\left(\frac{1-\alpha}{(1-\lambda)}\right)>\alpha \log\left(\frac{\beta}{\lambda}\right)+(1-\alpha)\log\left(\frac{1-\beta}{(1-\lambda)}\right)$$

The latter is clearly satisfied. The former will be satisfied when Γis much larger than γ and α is closer to β. Whether the poor's benefit goes up or down depends upon whether

$$\lambda \log\left(\frac{\alpha}{\lambda}\right)+(1-\lambda)\log\left(\frac{1-\alpha}{(1-\lambda)}\right)>\lambda \log\left(\frac{\beta}{\lambda}\right)+(1-\lambda)\log\left(\frac{1-\beta}{(1-\lambda)}\right)$$

This will tend to be the case of α is closer to λ than is β, i.e., there is less of an agency problem with community organizations.

The empirical implications of the model are fairly straightforward: (1) we should expect to see an empirical difference between programs that are community managed and those that purely government run, and (2) there is no direct link between the cost of delivering benefits in a program and whether a program is community run. We could easily find community-managed programs that have more or less cost per unit in equilibrium because of changes in objectives.

APPENDIX 2: FULL RESULTS OF TABLES 7 AND 8

Table 7a—The impact of de jure participation on the log of the cost of creating one day of employment

	(1)	(2)	(3)
	With selectivity controls	**With no selectivity control**	**With no selectivity control, instruments for participation included**
Log projected duration of project	0.232 (2.188)**	0.207 (1.992)**	0.195 (1.826)*
Project constructs community buildings	0.701 (3.918)**	0.711 (4.214)**	0.758 (4.739)**
Project constructs basic infrastructure	0.862 (4.704)**	0.933 (5.203)**	0.948 (5.348)**
Project located in Cape Metropolitan or Winelands	0.291 (1.395)	0.181 (0.838)	0.248 (1.103)
Project located in rural area	0.146 (0.723)	0.093 (0.462)	0.004 (0.019)
Log average wage in district	0.984 (3.165)**	0.918 (2.943)**	1.142 (3.747)**
Community has some de jure authority	0.299 (0.602)	-0.411 (1.576)	-0.524 (1.938)*
Index of racial fractionalization	-	-	-0.313 (0.377)
Index of political fractionalization	-	-	-1.132 (1.000)
Percentage of adults with standard 8 schooling	-	-	-0.011 (1.571)
Lambda	-0.521 (1.733)*	-	-
F statistic on instruments	-	-	1.19
F statistic on all regressors	-	10.96**	13.31**
Sample size	99	99	99

Notes: * = significant at the 10 percent level; ** = significant at the 5 percent level. Specification (1) shows the results of estimating a treatments effects model using the Heckman two-step estimator. Specifications (2) and (3) are OLS estimates with robust (Huber/White) standard errors.

Table 7b—The impact of de jure participation on the cost of transferring one rand to a poor person

	(1)	(2)	(3)
	with selectivity controls	**with no selectivity control**	**with no selectivity control, instruments for participation included**
Log projected duration of project	-0.106 (0.108)	-0.028 (0.041)	0.034 (0.045)
Project constructs community buildings	3.042 (1.835)*	3.012 (2.065)**	3.235 (1.929)*
Project constructs basic infrastructure	3.009 (1.769)*	2.791 (2.252)**	2.823 (2.202)**
Project located in Cape Metropolitan or Winelands	-1.108 (0.572)	-0.768 (0.576)	-0.521 (0.394)
Project located in rural area	3.108 (1.653)*	3.275 (1.091)	3.014 (0.987)
Log average wage in district	-0.741 (0.257)	-0.539 (0.210)	0.224 (0.062)
Community has some de jure authority	-4.193 (0.897)	-1.991 (0.640)	-1.933 (0.660)
Index of racial fractionalization	-	-	5.177 (0.680)
Index of political fractionalization	-	-	-9.098 (0.957)
Percentage of adults with standard 8 schooling	-	-	-0.018 (0.213)
Lambda	1.615 (0.544)	-	-
F statistic on instruments	-	-	0.37
F statistic on all regressors		3.15**	2.62**
Sample size	99	99	99

Notes: * = significant at the 10 percent level; ** = significant at the 5 percent level. Specification (1) shows the results of estimating a treatments effects model using the Heckman two-step estimator. Specifications (2) and (3) are OLS estimates with robust (Huber/White) standard errors.

Table 7c—The impact of de jure participation on the log of the level of cost overruns

	(1)	(2)	(3)
	with selectivity controls	**with no selectivity control**	**with no selectivity control, instruments for participation included**
Log projected duration of project	156.799 (2.251)**	135.473 (1.681)*	119.887 (1.450)
Project constructs community buildings	-38.562 (0.301)	-3.702 (0.068)	1.956 (0.026)
Project constructs basic infrastructure	26.985 (0.205)	78.521 (0.755)	92.483 (0.716)
Project located in Cape Metropolitan or Winelands	22.111 (0.181)	-19.279 (0.127)	-23.746 (0.135)
Project located in rural area	-34.963 (0.309)	-54.239 (1.408)	-60.491 (1.050)
Log average wage in district	-121.484 (0.670)	-116.817 (0.965)	-114.804 (0.772)
Community has some de jure authority	177.936 (0.707)	-46.842 (0.311)	-102.136 (0.656)
Index of racial fractionalization	-	-	-627.574 (0.821)
Index of political fractionalization	-	-	536.485 (1.262)
Percentage of adults with standard 8 schooling	-	-	-2.328 (0.405)
Lambda	-185.642 (1.118)	-	-
F statistic on instruments	-	-	1.21
F statistic on all regressors		0.91	1.18
Sample size	85	85	85

Notes: * = significant at the 10 percent level; ** = significant at the 5 percent level. Specification (1) shows the results of estimating a treatments effects model using the Heckman two-step estimator. Specifications (2) and (3) are OLS estimates with robust (Huber/White) standard errors.

Table 7d—The impact of de jure participation on the percentage of project costs that are paid out as wages

	(1)	(2)	(3)
	with selectivity controls	**with no selectivity control**	**with no selectivity control, instruments for participation included**
Log projected duration of project	-0.053 (1.773)*	-0.048 (1.436)	-0.040 (1.129)
Project constructs community buildings	-0.427 (8.548)**	-0.428 (8.117)**	-0.442 (8.490)**
Project constructs basic infrastructure	-0.372 (7.268)**	-0.384 (6.482)**	-0.392 (6.830)**
Project located in Cape Metropolitan or Winelands	0.021 (0.368)	0.040 (0.777)	0.020 (0.395)
Project located in rural area	-0.035 (0.618)	-0.026 (0.569)	-0.015 (0.301)
Log average wage in district	-0.140 (1.611)	-0.128 (1.957)*	-0.189 (2.576)**
Community has some de jure authority	-0.084 (0.599)	0.038 (0.700)	0.071 (1.186)
Index of racial fractionalization	-	-	0.058 (0.208)
Index of political fractionalization	-	-	0.095 (0.273)
Percentage of adults with standard 8 schooling	-	-	0.0040 (1.500)
Lambda	0.089 (1.025)	-	-
F statistic on instruments	-	-	0.91
F statistic on all regressors	-	10.84**	9.02**
Sample size	99	99	99

Notes: * = significant at the 10 percent level; ** = significant at the 5 percent level. Specification (1) shows the results of estimating a treatments effects model using the Heckman two-step estimator. Specifications (2) and (3) are OLS estimates with robust (Huber/White) standard errors.

Table 7e—The impact of de jure participation on the ratio of training days to days of employment

	(1)	(2)	(3)
	with selectivity controls	**with no selectivity control**	**with no selectivity control, instruments for participation included**
Log projected duration of project	0.718 (0.305)	0.837 (0.495)	0.632 (0.380)
Project constructs community buildings	8.461 (2.138)**	8.414 (1.920)*	9.192 (2.218)**
Project constructs basic infrastructure	1.896 (0.467)	1.562 (0.369)	1.832 (0.433)
Project located in Cape Metropolitan or Winelands	-9.989 (2.162)**	-9.471 (2.985)**	-8.371 (2.156)**
Project located in rural area	-8.220 (1.831)*	-7.965 (2.106)**	-9.251 (2.071)**
Log average wage in district	13.857 (2.015)**	14.165 (2.575)**	17.746 (2.453)**
Community has some de jure authority	-7.173 (0.643)	-3.815 (0.621)	-5.529 (0.881)
Index of racial fractionalization	-	-	-3.074 (0.128)
Index of political fractionalization	-	-	-17.689 (0.658)
Percentage of adults with standard 8 schooling	-	-	-0.182 (1.128)
Lambda	2.463 (0.346)	-	-
F statistic on instruments	-	-	0.59
F statistic on all regressors	-	5.08**	3.45**
Sample size	99	99	99

Notes: * significant at the 10 percent level; ** significant at the 5 percent level. Specification (1) shows the results of estimating a treatments effects model using the Heckman two-step estimator. Specifications (2) and (3) are OLS estimates with robust (Huber/White) standard errors.

Table 7f—The impact of de jure participation on the ratio of project wages to local, unskilled wages

	(1)	(2)	(3)
	with selectivity controls	**with no selectivity control**	**with no selectivity control, instruments for participation included**
Log projected duration of project	-0.001 (0.042)	-0.010 (0.372)	-0.009 (0.339)
Project constructs community buildings	-0.129 (2.404)**	-0.125 (2.364)**	-0.132 (2.416)**
Project constructs basic infrastructure	-0.025 (0.453)	0.0005 (0.010)	-0.0003 (0.006)
Project located in Cape Metropolitan or Winelands	0.248 (3.969)**	0.208 (3.797)**	0.198 (3.493)**
Project located in rural area	-0.017 (0.285)	-0.037 (0.638)	-0.011 (0.197)
Log average wage in district	-0.572 (6.139)**	-0.595 (7.649)**	-0.633 (7.329)**
Community has some de jure authority	0.146 (0.986)	-0.109 (1.336)	-0.084 (0.974)
Index of racial fractionalization	-	-	0.178 (0.692)
Index of political fractionalization	-	-	0.259 (1.051)
Percentage of adults with standard 8 schooling	-	-	0.002 (0.876)
Lambda	-0.188 (2.157)**	-	-
F statistic on instruments	-	-	1.13
F statistic on all regressors	-	11.66**	8.52**
Sample size	99	99	99

Notes: * = significant at the 10 percent level; ** = significant at the 5 percent level. Specification (1) shows the results of estimating a treatments effects model using the Heckman two-step estimator. Specifications (2) and (3) are OLS estimates with robust (Huber/White) standard errors.

Table 7g—The impact of de jure participation on the ratio of percentage of employment days to women

	(1)	(2)	(3)
	with selectivity controls	**with no selectivity control**	**with no selectivity control, instruments for participation included**
Log projected duration of project	0.945 (0.291)	1.326 (0.446)	1.609 (0.483)
Project constructs community buildings	-23.473 (4.302)**	-23.624 (4.763)**	-24.177 (5.052)**
Project constructs basic infrastructure	-18.051 (3.225)**	-19.118 (3.365)**	-19.193 (3.467)**
Project located in Cape Metropolitan or Winelands	-12.104 (1.901)*	-10.443 (1.776)*	-11.554 (1.935)*
Project located in rural area	-14.198 (2.295)**	-13.383 (2.224)**	-9.574 (1.652)
Log average wage in district	-8.953 (0.944)	-7.968 (0.956)	-12.715 (1.536)
Community has some de jure authority	3.207 (0.209)	13.963 (1.571)	18.715 (2.072)**
Index of racial fractionalization	-	-	46.145 (1.766)*
Index of political fractionalization	-	-	19.861 (0.660)
Percentage of adults with standard 8 schooling	-	-	0.309 (1.315)
Lambda	7.888 (0.815)	-	-
F statistic on instruments	-	-	2.54*
F statistic on all regressors	-	9.28**	8.14**
Sample size	99	99	99

Notes: * = significant at the 10 percent level; ** = significant at the 5 percent level. Specification (1) shows the results of estimating a treatments effects model using the Heckman two-step estimator. Specifications (2) and (3) are OLS estimates with robust (Huber/White) standard errors.

Table 8a—The impact of de facto participation on the log of the cost of creating one day of employment

	(1)	(2)	(3)
	with selectivity controls	**with no selectivity control**	**with no selectivity control, instruments for participation included**
Log projected duration of project	0.073 (0.459)	0.153 (1.159)	0.132 (0.895)
Project constructs community buildings	0.863 (3.692)**	0.742 (3.618)**	0.813 (4.267)**
Project constructs basic infrastructure	0.993 (5.170)**	0.939 (4.633)**	0.946 (4.630)**
Project located in Cape Metropolitan or Winelands	0.185 (0.859)	0.252 (1.184)	0.345 (1.385)
Project located in rural area	0.083 (0.407)	0.124 (0.644)	0.036 (0.159)
Log average wage in district	0.929 (3.053)**	0.894 (2.796)**	1.018 (2.560)**
Community has some de facto authority	-0.438 (1.253)	-0.205 (1.171)	-0.263 (1.411)
Divorced	-	-	0.029 (0.488)
Index of racial fractionalization	-	-	-0.264 (0.320)
Index of political fractionalization	-	-	-1.725 (1.352)
Percentage of adults with standard 8 schooling	-	-	-0.009 (1.290)
Lambda	0.175 (0.763)	-	-
F statistic on instruments	-	-	0.86
F statistic on all regressors	-	9.42**	12.26**
Sample size	97	97	97

Notes: * = significant at the 10 percent level; ** = significant at the 5 percent level. Specification (1) shows the results of estimating a treatments effects model using the Heckman two-step estimator. Specifications (2) and (3) are OLS estimates with robust (Huber/White) standard errors.

Table 8b—The impact of de facto participation on the cost of transferring one rand to a poor person

	(1)	(2)	(3)
	with selectivity controls	**with no selectivity control**	**with no selectivity control, instruments for participation included**
Log projected duration of project	-1.864 (1.229)	-0.958 (0.946)	-0.683 (0.635)
Project constructs community buildings	4.665 (2.163)**	3.595 (2.353)**	4.358 (2.540)**
Project constructs basic infrastructure	3.728 (2.038)**	3.116 (2.042)**	3.389 (2.306)**
Project located in Cape Metropolitan or Winelands	-1.468 (0.717)	-0.709 (0.458)	0.681 (0.470)
Project located in rural area	2.754 (1.424)	3.223 (1.140)	3.422 (1.114)
Log average wage in district	-0.365 (0.126)	-0.762 (0.304)	-2.189 (0.693)
Community has some de facto authority	-5.374 (1.613)	-2.734 (1.561)	-2.730 (1.626)
Divorced	-	-	0.748 (1.474)
Index of racial fractionalization	-	-	3.398 (0.464)
Index of political fractionalization	-	-	-16.676 (1.608)
Percentage of adults with standard 8 schooling	-	-	-0.037 (0.387)
Lambda	1.980 (0.909)	-	-
F statistic on instruments	-	-	0.91
F statistic on all regressors		1.73	2.32**
Sample size	97	97	97

Notes: * = significant at the 10 percent level; ** = significant at the 5 percent level. Specification (1) shows the results of estimating a treatments effects model using the Heckman two-step estimator. Specifications (2) and (3) are OLS estimates with robust (Huber/White) standard errors.

Table 8c—The impact of de facto participation on the log of the level of cost overruns

	(1)	(2)	(3)
	with selectivity controls	**with no selectivity control**	**with no selectivity control, instruments for participation included**
Log projected duration of project	126.009 (1.369)	160.691 (1.820)*	156.914 (1.695)*
Project constructs community buildings	19.600 (0.141)	-12.181 (0.190)	-19.291 (0.207)
Project constructs basic infrastructure	81.751 (0.657)	69.811 (0.567)	72.345 (0.513)
Project located in Cape Metropolitan or Winelands	-38.268 (0.285)	-0.331 (0.002)	-0.907 (0.005)
Project located in rural area	-65.369 (0.547)	-42.652 (1.269)	-28.116 (0.482)
Log average wage in district	-95.546 (0.518)	-102.590 (0.844)	-127.100 (1.039)
Community has some de facto authority	-55.277 (0.256)	62.823 (0.587)	66.866 (0.603)
Divorced	-	-	0.278 (0.015)
Index of racial fractionalization	-	-	-550.673 (0.651)
Index of political fractionalization	-	-	712.812 (1.409)
Percentage of adults with standard 8 schooling	-	-	-1.273 (0.241)
Lambda	87.309 (0.615)	-	-
F statistic on instruments	-	-	1.19
F statistic on all regressors		1.31	1.16
Sample size	83	83	83

Notes: * = significant at the 10 percent level; ** = significant at the 5 percent level. Specification (1) shows the results of estimating a treatments effects model using the Heckman two-step estimator. Specifications (2) and (3) are OLS estimates with robust (Huber/White) standard errors.

Table 8d—The impact of de facto participation on the percentage of project costs that are paid out as wages

	(1)	(2)	(3)
	with selectivity controls	**with no selectivity control**	**with no selectivity control, instruments for participation included**
Log projected duration of project	-0.014 (0.313)	-0.026 (0.648)	-0.011 (0.268)
Project constructs community buildings	-0.448 (6.934)**	-0.434 (6.640)**	-0.444 (7.071)**
Project constructs basic infrastructure	-0.391 (7.138)**	-0.383 (5.780)**	-0.381 (5.744)**
Project located in Cape Metropolitan or Winelands	0.053 (0.869)	0.044 (0.817)	0.036 (0.613)
Project located in rural area	-0.015 (0.266)	-0.021 (0.458)	0.009 (0.177)
Log average wage in district	-0.132 (1.518)	-0.127 (1.915)*	-0.217 (2.411)**
Community has some de facto authority	0.084 (0.840)	0.051 (0.993)	0.067 (1.193)
Divorced	-	-	0.007 (0.458)
Index of racial fractionalization	-	-	0.049 (0.176)
Index of political fractionalization	-	-	0.254 (0.678)
Percentage of adults with standard 8 schooling	-	-	0.003 (1.251)
Lambda	-0.025 (0.377)	-	-
F statistic on instruments	-	-	0.84
F statistic on all regressors	-	9.34**	7.16**
Sample size	97	97	97

Notes: * = significant at the 10 percent level; ** = significant at the 5 percent level. Specification (1) shows the results of estimating a treatments effects model using the Heckman two-step estimator. Specifications (2) and (3) are OLS estimates with robust (Huber/White) standard errors.

Table 8e—The impact of de facto participation on the ratio of training days to days of employment

	(1)	(2)	(3)
	with selectivity controls	**with no selectivity control**	**with no selectivity control, instruments for participation included**
Log projected duration of project	2.556 (0.694)	1.801 (0.823)	1.198 (0.552)
Project constructs community buildings	5.668 (1.082)	6.561 (1.503)	7.290 (1.585)
Project constructs basic infrastructure	-0.578 (0.130)	-0.068 (0.017)	-0.105 (0.025)
Project located in Cape Metropolitan or Winelands	-7.430 (1.494)	-8.063 (2.609)**	-7.079 (1.667)*
Project located in rural area	-6.829 (1.455)	-7.220 (1.915)*	-8.476 (1.688)*
Log average wage in district	13.612 (1.935)*	13.943 (2.493)**	18.155 (2.101)**
Community has some de facto authority	5.614 (0.693)	3.413 (1.162)	2.808 (0.770)
Divorced	-	-	-0.114 (0.113)
Index of racial fractionalization	-	-	3.973 (0.156)
Index of political fractionalization	-	-	-19.645 (0.653)
Percentage of adults with standard 8 schooling	-	-	-0.172 (0.970)
Lambda	-1.650 (0.310)	-	-
F statistic on instruments	-	-	0.30
F statistic on all regressors	-	4.68**	3.06**
Sample size	97	97	97

Notes: * = significant at the 10 percent level; ** = significant at the 5 percent level. Specification (1) shows the results of estimating a treatments effects model using the Heckman two-step estimator. Specifications (2) and (3) are OLS estimates with robust (Huber/White) standard errors.

Table 8f—The impact of de facto participation on the ratio of project wages to local, unskilled wages

	(1)	(2)	(3)
	with selectivity controls	**with no selectivity control**	**with no selectivity control, instruments for participation included**
Log projected duration of project	-0.077 (1.592)	-0.032 (0.866)	-0.011 (0.289)
Project constructs community buildings	-0.059 (0.864)	-0.114 (1.889)*	-0.107 (1.736)*
Project constructs basic infrastructure	0.027 (0.457)	-0.004 (0.072)	0.008 (0.142)
Project located in Cape Metropolitan or Winelands	0.174 (2.640)**	0.212 (3.789)**	0.244 (3.864)**
Project located in rural area	-0.061 (0.989)	-0.038 (0.682)	0.016 (0.287)
Log average wage in district	-0.565 (6.077)**	-0.586 (7.100)**	-0.708 (7.003)**
Community has some de facto authority	-0.192 (1.797)*	-0.059 (1.105)	-0.031 (0.505)
Divorced	-	-	0.024 (1.771)*
Index of racial fractionalization	-	-	0.157 (0.584)
Index of political fractionalization	-	-	0.119 (0.437)
Percentage of adults with standard 8 schooling	-	-	0.002 (0.666)
Lambda	0.099 (1.447)	-	-
F statistic on instruments	-	-	1.60
F statistic on all regressors	-	12.25**	8.55**
Sample size	97	97	97

Notes: * = significant at the 10 percent level; ** = significant at the 5 percent level. Specification (1) shows the results of estimating a treatments effects model using the Heckman two-step estimator. Specifications (2) and (3) are OLS estimates with robust (Huber/White) standard errors.

Table 8g—The impact of de facto participation on the ratio of percentage of employment days to women

	(1)	(2)	(3)
	With selectivity controls	**With no selectivity control**	**With no selectivity control, instruments for participation included**
Log projected duration of project	4.145 (0.805)	1.384 (0.282)	1.946 (0.412)
Project constructs community buildings	-27.481 (3.751)**	-24.176 (3.929)**	-25.809 (4.121)**
Project constructs basic infrastructure	-20.708 (3.334)**	-18.818 (2.803)**	-18.944 (2.725)**
Project located in Cape Metropolitan or Winelands	-10.752 (1.545)	-13.095 (1.787)*	-14.632 (1.966)*
Project located in rural area	-13.282 (2.023)**	-14.729 (2.254)**	-11.515 (1.869)*
Log average wage in district	-9.414 (0.956)	-8.188 (0.948)	-9.172 (0.833)
Community has some de facto authority	10.794 (0.954)	2.641 (0.342)	5.108 (0.676)
Divorced	-	-	-0.922 (0.411)
Index of racial fractionalization	-	-	44.063 (1.781)*
Index of political fractionalization	-	-	28.619 (0.907)
Percentage of adults with standard 8 schooling	-	-	0.209 (0.898)
Lambda	-6.112 (0.825)	-	-
F statistic on instruments	-	-	1.94
F statistic on all regressors	-	9.43**	7.75**
Sample size	97	97	97

Notes: * = significant at the 10 percent level; ** = significant at the 5 percent level. Specification (1) shows the results of estimating a treatments effects model using the Heckman two-step estimator. Specifications (2) and (3) are OLS estimates with robust (Huber/White) standard errors.

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